



When Your System Demands Quick Attention...®

MOMI is a System Management tool for the Tandem (HPE NonStop) computer systems using the Guardian Operating System (NSK).

MOMI software, written by BlackWood Systems, Inc., provides an easy way to obtain useful system information yet minimizing the impact to system resources.

MOMI is a Client / Server design (Requester / Server for us old-time Tandem folks). The Server portion runs on the HPE NonStop System as a fault tolerant multi-tasking process with a passive backup. The Client runs on Windows 7 or later and is written in Borland's Delphi. TCP/IP sockets are used to communicate between the client and server.

The document reflects MOMI PC Client version 6.03 and MOMI Server version 6.03.

Quick start Links -

[Installation](#)

[Network Information / Troubleshooting](#)

[Security considerations](#)

[Start / Stop MOMI Server](#)

[Server configuration](#)

[Adjust System time via SNTP](#)

[Client Access](#)

[Alarms](#)

[Support](#)

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System requirements

MINIMUM SYSTEM REQUIREMENTS

PC Client

- Core 2 quad - 2.0 GHz
- 4 GB RAM
- 10 GB free disk space
- Windows 7 or later client O/S
- Windows Server 2008 [R2] or later server O/S
- 1024 x 768 display with 24 bit color (minimum)
- 1280 x 1024 display with 32 bit color (recommended)
- Sound card and speakers (if Alarm sound desired)

NonStop Server

- NonStop X or Virtual NonStop
- Integrity NonStop Blade with J06.04 or later
- Integrity NonStop with H06.09 or later
- ServerNet 'S' System with G06.20 or later
- TCP/IP connection from PC to NonStop Server
- MEASURE installed and STARTED
- 300 MB disk space without History active or
- 3 GB initial default size (user selectable) with History active

Optional Features

Certain functions within MOMI are optional and require authorization in the MOMI password in order to function. This help document does not generally differentiate optional features.

If you have any questions about your level of optional features, please contact us.

Version 6 considerations

Overview

Version 6 of the MOMI software introduces a new logon dialog and default security setting more restrictive than in previous releases.

Generally speaking, the enhanced security mode does not affect existing installations of MOMI. New installations of MOMI, by default, operate in the enhanced security mode and includes users of mini-MOMI. An existing installation of MOMI, or an update of an existing installation, is when the [CONFMOMI](#) file on the NonStop System originates from a version 5 or earlier release.

The enhancements were made as the result of the ever changing world of security and user feedback which said 1) add support for multi-factor authentication, and 2) no data should be displayed prior to a user log on.

Support of multi-factor authentication, from MOMI's perspective, was to change our logon window to support a dialog or a series steps to logon. This means that each step of the logon process is provided to the NonStop Operating System and if accepted causes MOMI prompts for the next *piece* of logon information. A *piece* may be a password, pin or some other item of information as directed by the O/S security subsystem. The logon process initially prompts for the User ID. This change has no setting within MOMI and is entirely driven by the O/S security subsystem.

Support for not displaying data prior to logon means the MOMI PC Client displays a virtually blank screen prior to logon, the default for new installations. Existing installations, may see data prior to logon as was true in previous releases. Here is what this means:

- An existing installation of MOMI, after *upgrade* of the client and server **but** leaving the CONFMOMI file alone, may continue to see data such as the MOMI **Overview** screen prior to user logon.
- A new installation of MOMI or mini-MOMI, where a CONFMOMI file is installed, will not see data displayed in the client until user logon.

In both of these situations, the display of data prior to logon is initially controlled by the CONFMOMI keyword [CLIENT-LOCKDOWN-MODE](#). Additionally, [Client Access](#) continues to allow control over what screens are visible to individual users or groups.

Client compatibility

A version 5 client can be used with the version 6 server. The client must be 5.21 or later (older clients will crash shortly after start-up).

A version 6 client can be used with the version 5 server, however new screens and some features dependent on the server will not function or automatically downgrade.

In both of these *mixed version* situations, support of multi-factored authentication is not available and the older logon process is used.

Server compatibility - upgrade version 5 to 6

An existing installation, where MOMI 5 is installed and running, may upgrade the server to version 6 using their existing configuration and files. Database files created by version 5 are compatible with version 6. Clients must be 5.21 or later.

Server compatibility - fallback version 6 to 5

An existing installation, where MOMI 6 was installed over an existing version 5, may fallback to version 5 server software.

A new installation, where MOMI 6 is installed in a subvolume for the first time, **may NOT** fallback and use the version 5 server software. Database files created by Version 6 are not compatible with version 5 and the MOMI server will fail during start up should this situation occur.

Overall best performance

For overall best performance, a new installation of the MOMI server software is required.

Installation

Installation Sources

MOMI is distributed in the following formats: EXE, User created ZIP and MOMI DVD.

The various formats all provide the same type of MOMI software. The different package formats are provided to suit various customer requirements.

EXE

The EXE is a self-extracting executable that is down-loadable from our web site.

Executing the EXE file and using all the defaults will install the MOMI PC Client only. This is the easiest way to obtain MOMI PC Client software. By choosing the "Complete" installation option, the PC Client is installed, and the NonStop Server components are placed on your PC so they are available for transfer to the host.

ZIP

The ZIP is down-loadable from our web site and contains the same files found in the EXE.

User created ZIP

The EXE that is downloaded from our web site may be renamed to a .ZIP and extracted via standard PC utilities or the built-in capability of Windows.

Extracting and viewing the ZIP format file displays the various subdirectories of the MOMI software and documents available without the need to "install" MOMI software.

MOMI DVD / FLASH DRIVE

MOMI software found on our DVD or Flash Drive is uncompressed and comprised of the individual files. This is similar to the user created ZIP described above.

MOMI software is available on DVD or Flash Drive by request.

Multiple platform server support

MOMI configuration files automatically support S-Series, Nonstop Integrity i, NonStop Blade and Integrity NonStop X.

On the Nonstop system, in the subvolume where MOMI is installed, the following object files are present by default:

```
BWMOMI   - 32-bit TNS/R native (S-Series)
BWMOMIi  - 32-bit TNS/E native (Integrity NonStop i &
NonStop Blade)
BWMOMIx  - 32-bit TNS/X native (Integrity NonStop X & Vir-
tual NonStop)
```

The TACL obey file OBYCSQL (used to SQL/MP compile the MOMI object) and OBYMOMI (used to start the MOMI subsystem) automatically select the proper object file to invoke. However, if the error *Illegal program file format* is encountered, which indicates the automatic platform selection logic failed, this can be worked around by a simple change of the obey files to reference the correct BWMOMI? object (and be sure to report the issue to us).

First installation / Update of an existing installation

If you are installing MOMI for the first time, or updating an existing installation of MOMI, this section will walk you through the installation details using a utility called MOMIFTP.EXE. This utility handles the details of transferring MOMI files from the PC to the NonStop System via FTP.

If the utility cannot be used, please refer to the ReadMe.txt file for manual installation instructions.

1) If you need MOMI software, download the latest version of MOMI from our web site.

2a) If you downloaded an EXE from our web site:

double click on the downloaded file

2b) If you downloaded a ZIP from our web site:

expand the ZIP file to an empty subdirectory on your PC and double-click on Launcher.exe

2c) If you have a MOMI DVD / Flash drive:

double click on the file Launcher.exe

3) Once the installation process starts you are given the options to a) **Install the MOMI Client**, b) **Install the MOMI Server files on NonStop Server**, c) **Copy Client to shared server**, or d) **View ReadMe file for MOMI**. Select **Install MOMI Client**. Click through the initial and Welcome screen. Please read and accept the license agreement.

4) The next screen is Choose the Destination Folder, or location, where the MOMI files on the PC are to be installed (default recommended). By default, each version of MOMI installs into its own version specific subdirectory.

5) The next screen selects the Setup Type. Choose **Complete Installation**.

6) Choose the name of the program group for shortcut on the Start menu (default recommended). By default, each version of MOMI creates its own version specific shortcuts.

7) Click Next to begin the installation (which may take some time).

8) Click Finish.

9) Select **Install the MOMI Server files on NonStop Server**. The program [Mom-iFTP](#) is started to perform the FTP or SFTP transfer of files from the PC to the NonStop System.

- a. On the screen **1st Connect to HPE NonStop**, select the transport type, fill in the **Host Address** (your NonStop System IP address), **User ID**, **Password** and **Initial Volume/Subvolume** where the MOMI files are placed. The User ID specified owns the files once the transfer takes place. Press **Connect to HPE NonStop**. If the connection was successful, you will see a big green "Connected..." .
- b. Press **Next >>** to advance the screen.
- c. On the screen **2nd Select Vol.SubVol on HPE NonStop** a list of the files present (if any) in the selected location is displayed. For a new installation, you should choose an empty subvolume. Change the location if desired and press **Change** to update the display.
- d. Press **Next >>** to advance the screen.
- e. On the screen **3rd Select New Install or Update** press **Put Files on HPE NonStop** to start the transfer. The status boxes indicate the outcome of the transfer.
- f. Press the **Exit** button to disconnect and stop the program.

10) From a TACL terminal emulator, logon with the User ID and password to operate \$MOMI. Volume to the location where the MOMI files were placed.

11) Edit the file OBYMOMI. This is a TACL obey file used to start MOMI and provide initial configuration information. Page down to the section "set values

below here". This marked portion of the obey file is the place to change the initial start up values for MOMI.

Check the process name, CPU \$MOMI operates in, priority and home terminal. The default values are usually valid for most systems.

12) Edit the file [CONFMOMI](#). This edit file is used to set various MOMI attributes using [keywords](#). Set the [System-Description](#) and check the [TCPIP-LISTEN](#) which defines the TCP/IP process name, optionally the address and port that MOMI will 'listen' on for PC Client connections.

- mini-MOMI users, the above should be about the only item of concern.
- MOMI users, add your MOMI [password](#). Also, define any [history](#) files desired. MOMI automatically creates the history files in the location specified.

13) [SQL/MP compile MOMI](#) (if you don't use SQL/MP, ignore this step):
From a TACL prompt: OBEY OBYCSQL

14) Create / update BWSSG or the Super Group helper process (see [Security / General considerations](#) to determine if you need this step):

(BWSSG is a PROGID'ed copy of the MOMI server. The following steps show you how to rename out any existing BWSSG, keeping a backup copy, create a new file - but changing your logon to different users that may be required in your environment is omitted.)

```
Purge BWSSG2
Rename BWSSG1, BWSSG2
Rename BWSSG, BWSSG1
FUP DUP BWMOMI, BWSSG, sourcedate          (BWMOMI on TNS/E
- BWMOMI on TNS/X)
FUP Give BWSSG, <Super.Group>
FUP secure BWSSG, NGNG, PROGID
```

An existing BWSSG **must** be updated any time BWMOMI is updated.
The FUP DUP option of SOURCEDATE or SAVEALL must be used.

15) [Start MOMI](#):

From a TACL prompt: OBEY OBYMOMI

(wait at least 1 minute before proceeding to the next step)

16) On your PC, start the PC MOMI Client (Start / Programs / BlackWood Systems / MOMI_n.nn / MOMI). The MOMI Client will detect an initial start on the PC and will prompt for the TCP/IP address of the NonStop System and port. The port is defined in the CONFMOMI file and has a default of 2010.

MOMI configures and starts on the NonStop System a measurement (DCPUS file) configured for a variety of entities (CPU, Process, TMF, etc...). This measurement does not specify an interval but is effectively used for LISTACTIVE purposes. However, MEASURE will write data to this file such as processes stopping.

On older systems, sometime after starting MOMI on the NonStop System, the following message, one per processor, may be logged to EMS:

*07-08-19 09:47:46.200 \SYSTEM.\$XMnn TANDEM.MEASURE.G09 4016
Measurement 0 \$vol.subvol.DCPUS: write to datafile failed. File error 45.*

These messages are not a problem and may be ignored. No action is required.

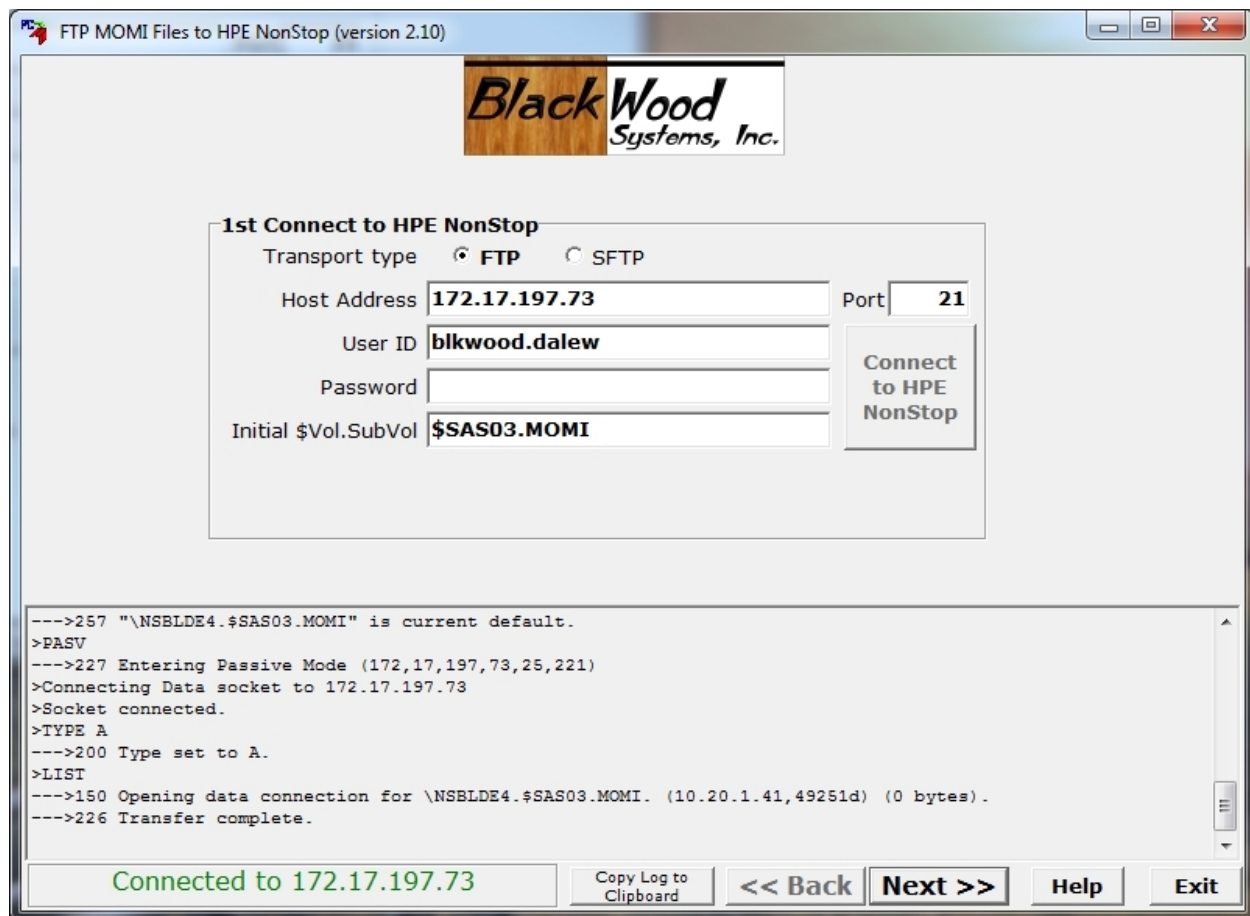
MomiFTP

The MomiFTP utility is provided to aid in the transfer of MOMI files from the PC to the NonStop System using the FTP protocol. Transfer type (ASCII or Binary) and File codes settings are automatically perform by the utility.

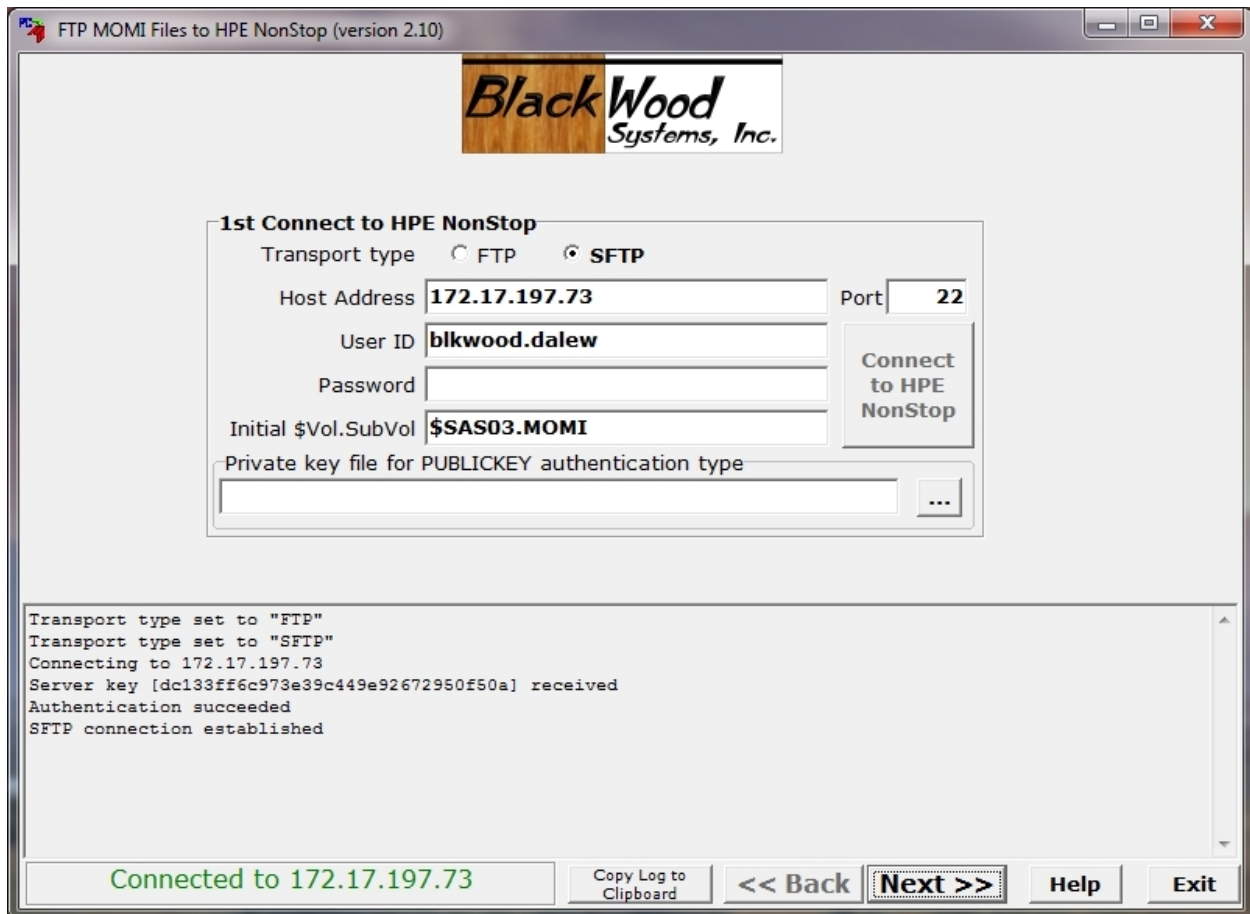
The utility is located on the PC in the "\Tandem Install" subdirectory where the PC Client was installed if the option of **Complete** or **Custom** was selected. This subdirectory contains configuration files necessary to drive MomiFTP and a subdirectory of the NonStop System based files.

MomiFTP is comprised of three screens. The first screen determines the system to receive file and User ID to transfer the files, the second screen determines the destination subvolume on the receiving system, and the third screen performs the transfer.

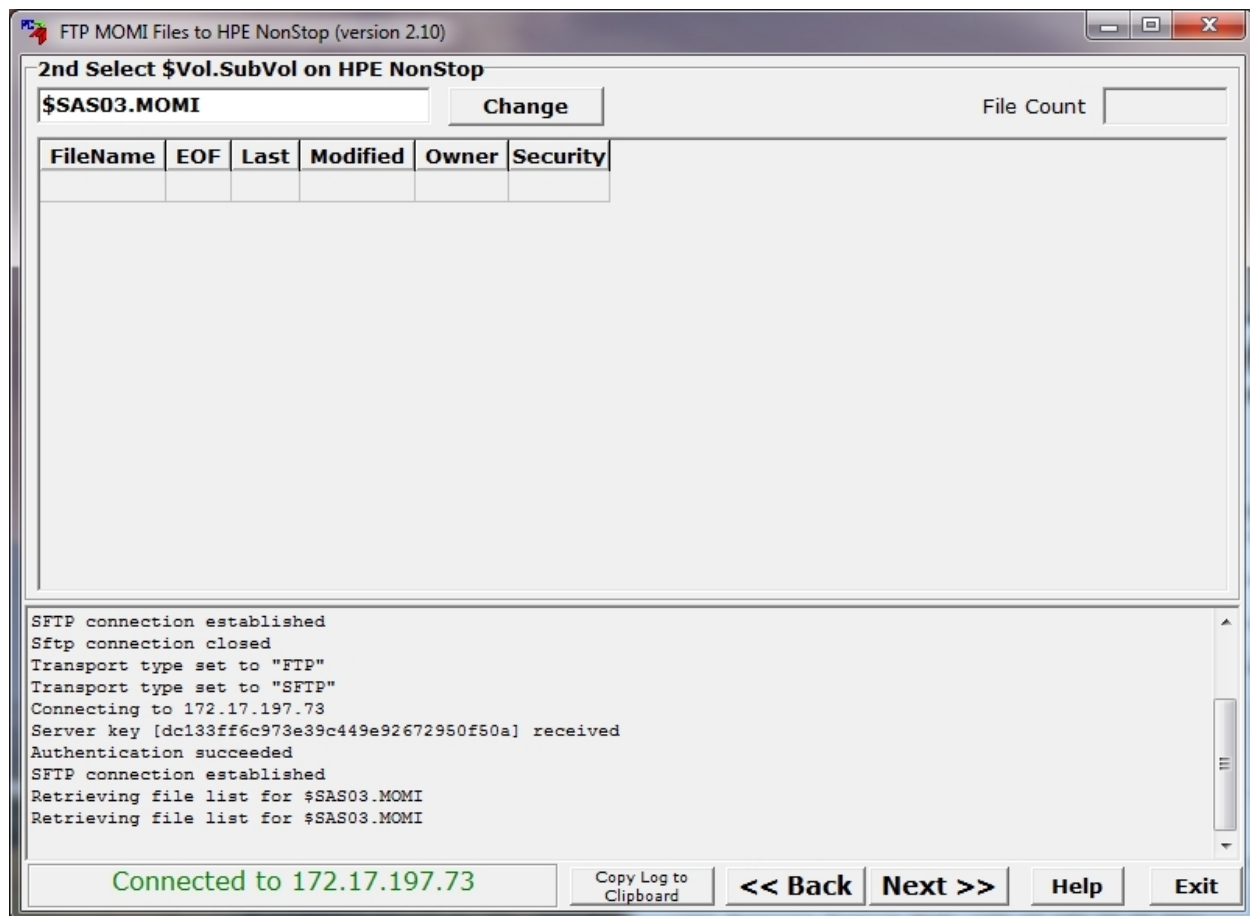
On the first screen enter the **Host Address** or DNS name of the NonStop System to receive the MOMI files. Enter a **User ID** and **Password** along with (optionally) the location (**Initial \$Vol.SubVol**). Press **Connect to HPE NonStop** to establish the FTP connection. Press **Next >>** to advance to the next screen once a connection is established.



If a secure connection is available, SFTP may be selected and then enter either a **Password** or select an optional **Private key file**.



The second screen displays the current contents of the location previously selected (or the default location) and also provides the opportunity to **Change** the location. Press **Next >>** to advance to the next screen.



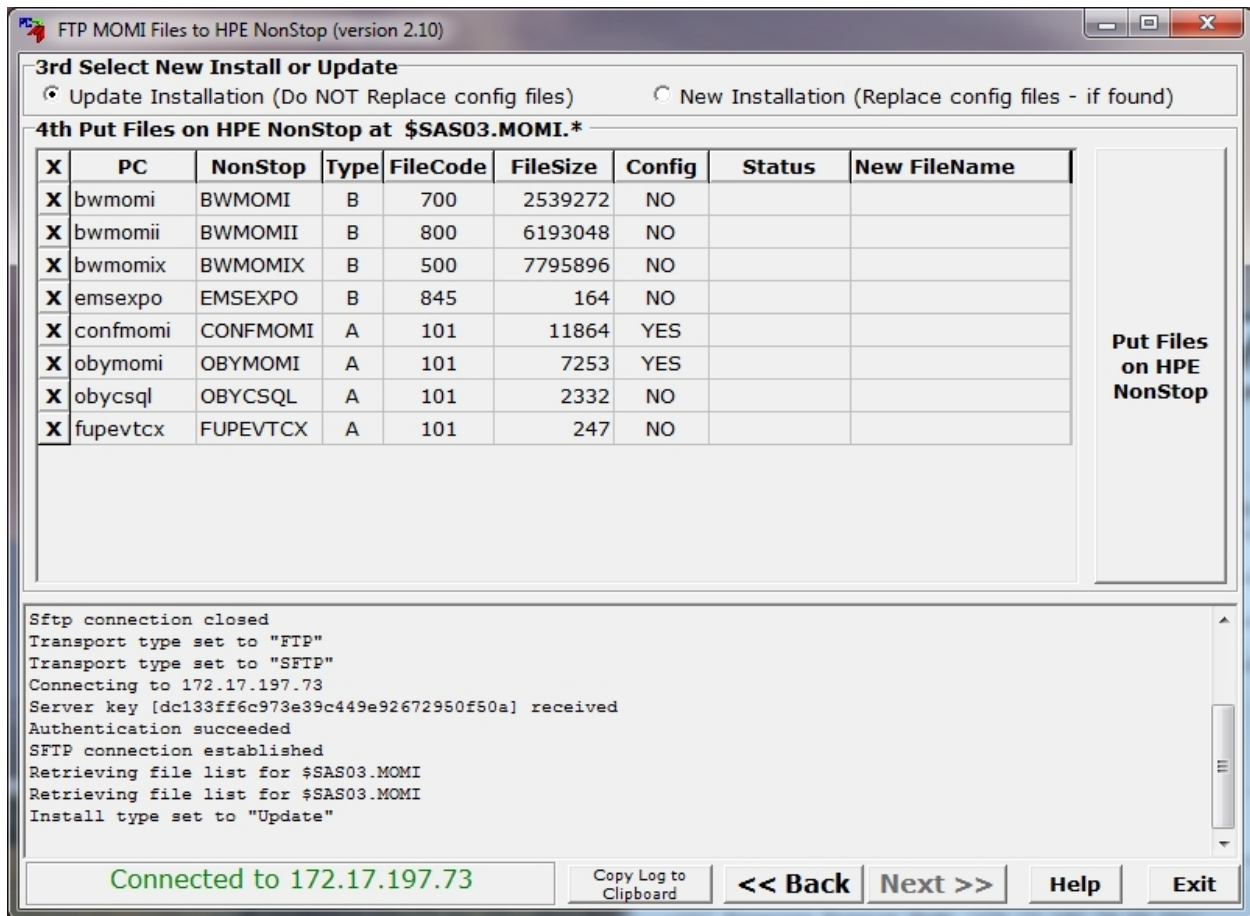
The third screen displays the files to be transferred and the logic to use with existing configuration files.

The **Update Installation...** option (the default) leaves existing configuration files alone. Existing object files are renamed, with a 1 or 2 placed on the end of the name and is suitable for transferring files while the MOMI server is running. For all files with a YES in the **Config** column, when an existing file exists, the new file has a 0 (zero) placed at the end of the name (indicating it is a new file). Restarting MOMI with the OBYMOMI file will then cause the new object files to be used. *This selection also works correctly if the destination subvolume is empty.*

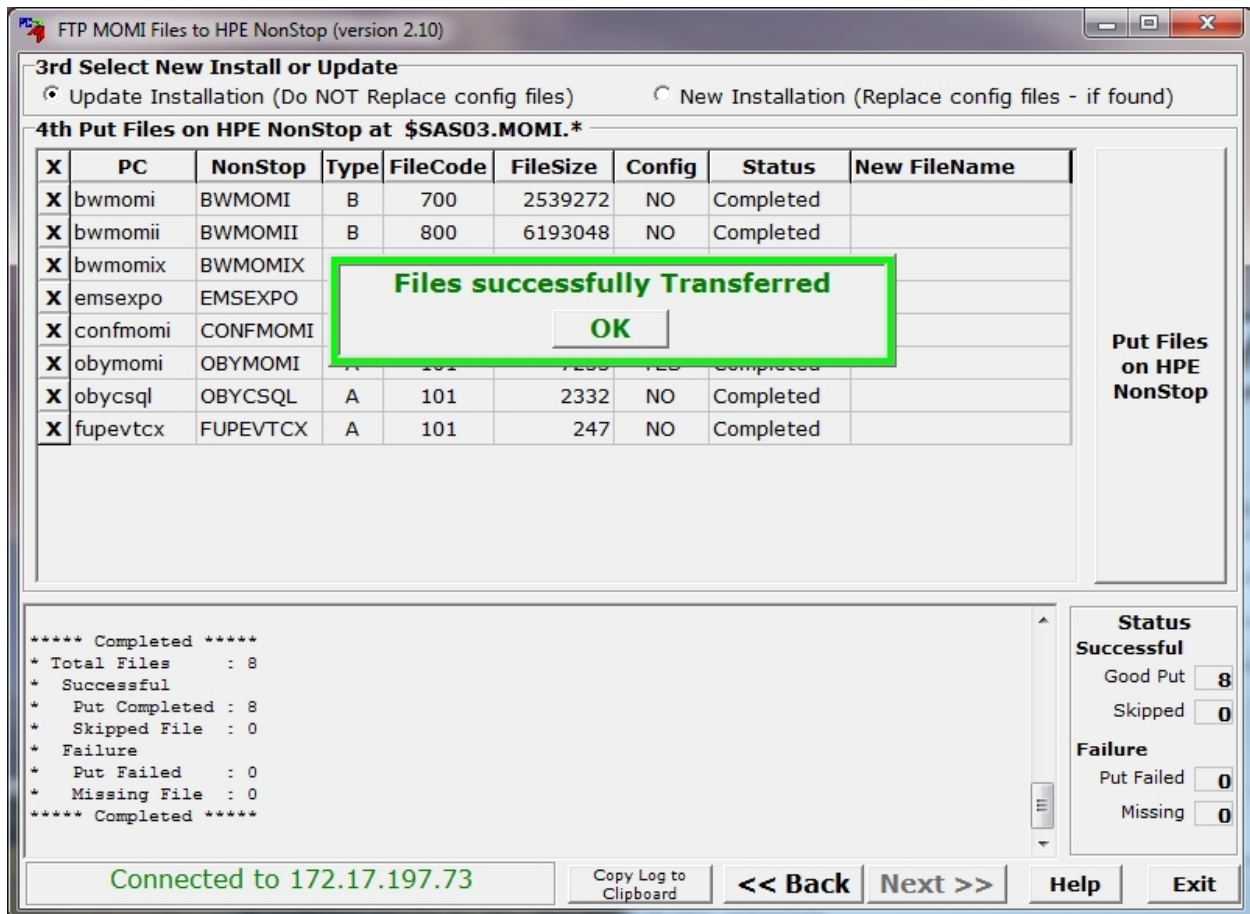
The **New Installation...** option will rename any existing files (add a 1 to the end) so that any existing file is updated. This selection is only performed with a new installation or if directed by the ReadMe (which is seldom). **The OBYMOMI file and CONFMOMI file need to be edited and settings confirmed for your environment.**

The X in the first column indicates which files are transferred (left & right mouse click toggles the setting).

Press **Put Files on HPE NonStop** to start the transfer process. During the transfer, a flashing indicator (...) is present in the **Status** column to signal the transfer progress .



After the transfer, the **Status** column indicates the completion. Status counts are located in the lower left hand corner of the screen. The **New FileName** column indicates the name of any configuration file added.



Press **Exit** to leave the program.

If any problems occur, scroll through the log window to help determine the reason (usually security related). The **Copy Log to Clipboard** should be used to provide the log to support.

Manual Installation of NonStop Based Programs

If the MOMIFTP utility cannot be used to transfer files from the PC to the NonStop server, these instructions describe how an alternate file transfer program would be used. The MOMIFTP utility does not perform any 'special' actions, but simply renames files (if existing are present) and transfers MOMI files from the PC to the NonStop System using FTP or SFTP.

The first step is to locate the source files -

If MOMI is installed on the PC the files are located by default at :

C:\Program Files (x86)\BlackWood Systems\MOMI_n.nn\Tandem
Install\NonStop\

(where n.nn is the release package number)

If you have the MOMI download ZIP from our website expand the files to an empty subdirectory and look for the subdirectory **\NonStop Install**. The MOMI DVD files are located in the same subdirectory name.

Note that under the subdirectory **\NonStop** there are two additional directories **\Ascii** and **\Binary**. This grouping indicates the file transfer mode (i.e. ASCII or Binary).

The second step, using a file transfer utility, copy files from the PC to the NonStop (all to the same destination subvolume) -

Binary

BWMOMI
BWMOMIi
BWMOMIx
EMSEXPO

ASCII

FUPEVTCX

OBYMOMI
CONFMOMI
OBYCSQL
OBYALTER

The third step is to logon to the NonStop System, volume to the location where the files were placed and OBEY the TACL obey file OBYALTER to alter the file codes (or manually perform the steps below):

- a) FUP alter BWMOMI ,code 700
- b) FUP alter BWMOMIi ,code 800
- c) FUP alter BWMOMIx ,code 500
- d) FUP alter EMSEXPO ,code 845

At this point the files are transferred. Continue the instructions in the section [First Installation Update an existing installation](#) after the step using MOMIFTP.

Start / Stop MOMI Server

TO START MOMI ON THE NONSTOP SYSTEM

The TACL obey file OBYMOMI provides the means to start MOMI.

- 1) Insure the MEASURE subsystem is running on your NonStop System.

*Failure to start MEASURE will cause a **MEASURE NOT RUNNING** error in the MOMI PC Client.*

- 2) Start MOMI from a TACL prompt:
volume MOMI (subvolume where files were placed)
obey OBYMOMI

- 3) Once MOMI is started, you are ready to run the PC based MOMI Client.

TO STOP MOMI ON THE NONSTOP SYSTEM

MOMI only requires a Guardian stop from a TACL prompt for an orderly shutdown.

- 1) From a TACL prompt, logon with the User ID MOMI was started under.
- 2) STOP \$MOMI (or use the process name specified in the OBYMOMI file)
- 3) Other MOMI processes will perform cleanup and stop themselves automatically after 10 to 15 seconds.

System start up and shutdown files

The System administrator should add the necessary references to MOMI in the system start up and shutdown procedures.

Generally, the System administrator will use a TACL running under the Super.Super ID to reference a stream of other TACL files that perform the start up of various software components. The original TACL obey file will use a TACL / in ... / of an intermediary obey file. The intermediary obey file created by the System administrator performs a log-down (from Super.Super) to the selected MOMI User ID and then obeys the OBYMOMI file. Below is an obey file fragment (details are omitted):

...

... main start up obey file executing as super.super

TACL /in STRTMOMI, out strtlog, name/

... in the STRTMOMI file ...

```
logon user.momi  
volume $vol.momi  
obey OBYMOMI
```

... continue system start up

...

In the system start up files, MOMI should be started after TCP/IP, MEASURE, and the home terminal specified in OBYMOMI are all started, perhaps near the end of the system start up sequence.

In the system shutdown files, MOMI should be stopped early in the shutdown sequence and before the MEASURE subsystem is stopped.

Duplicate an existing server environment

The following describes how to duplicate an existing MOMI environment. If the duplicate is on a different NonStop System, a password is required and file placement should be checked but otherwise the files may be used as is. If the duplicate is on the same NonStop System, some changes are necessary as data files cannot be shared.

Take note of the explanations following as avoiding some files may speed up the creation of the duplicate environment.

1. stop the existing MOMI process.
2. using FUP duplicate all of the files in the existing MOMI subvolume to another subvolume.
3. restart the existing MOMI process.
4. In the duplicate OBYMOMI file:
 - on the same system:

assign a new process name to MOMI (each MOMI process must have unique process name).
 - on a different system:

change the PASSWORD to one assigned for that system.
5. In the duplicate CONFMOMI file:
 - on the same system:

for the keyword [TCPIP-LISTEN](#), assign a new port number (each MOMI server must listen on a unique port).

for the keyword [HSTnnDB](#), assign new vol/subvol locations (each MOMI server must have unique history files).

check other data file names to insure make sure they are not duplicated (the keywords above are the most common but a few others exist).
 - on a different system:

check volume names to insure they are valid on the new system.

The following are brief explanations of certain files within the MOMI subvolume. MOMI automatically creates new one(s) at start up if they are not present:

- The CNF01DB file is the MOMI configuration database. It stores configuration information entered online such as Alarm definitions. It does not generally store information found in the OBYMOMI or CONFMOMI files. To start a duplicate environment 'clean', simply delete this file.
- The LOG01DB file is the MOMI log file. It stores messages logged by MOMI. If you want to start the duplicate environment with an empty log file, simply delete this file.
- The HSTnnDB files are the MOMI history files. If you want to start the duplicate environment with empty history files, simply delete them. These files are usually large and may take some time to duplicate. It is usually faster to duplicate them from one disk volume to another disk volume (to avoid drive thrashing).

PC Client on a central server

Larger shops may wish to install a single copy of the PC MOMI Client on a central server to simplify upgrades of the MOMI Client.

The PC MOMI Client executable (MOMI.EXE) has no special installation requirements. There are no registry, DLLs or OCXs directly associated with the MOMI Client itself (other than built-in Windows components).

To share the PC MOMI Client in a server environment, there are two methods:

- a. Install the MOMI Client on a PC workstation and then copy all the files and sub-directories over to the desired server share.

or

- b. Copy all of the files from the "PC Manual setup" subdirectory from an .EXE renamed to a .ZIP (or MOMI DVD) over to the desired server share.

Create a share (or use an existing) on the central server. The share must allow READ access to all desired PC workstations which are executing the PC Client software. Create a shortcut on each PC workstation to the MOMI.EXE on the shared server.

The first time a PC workstation executes the shared MOMI.EXE, a MOMI.INI file, along with a few others are created in the location:

Windows 7 / Windows 10 and later -

C:\Users\<User ID>\AppData\Roaming\BlackWood Systems\MOMI\

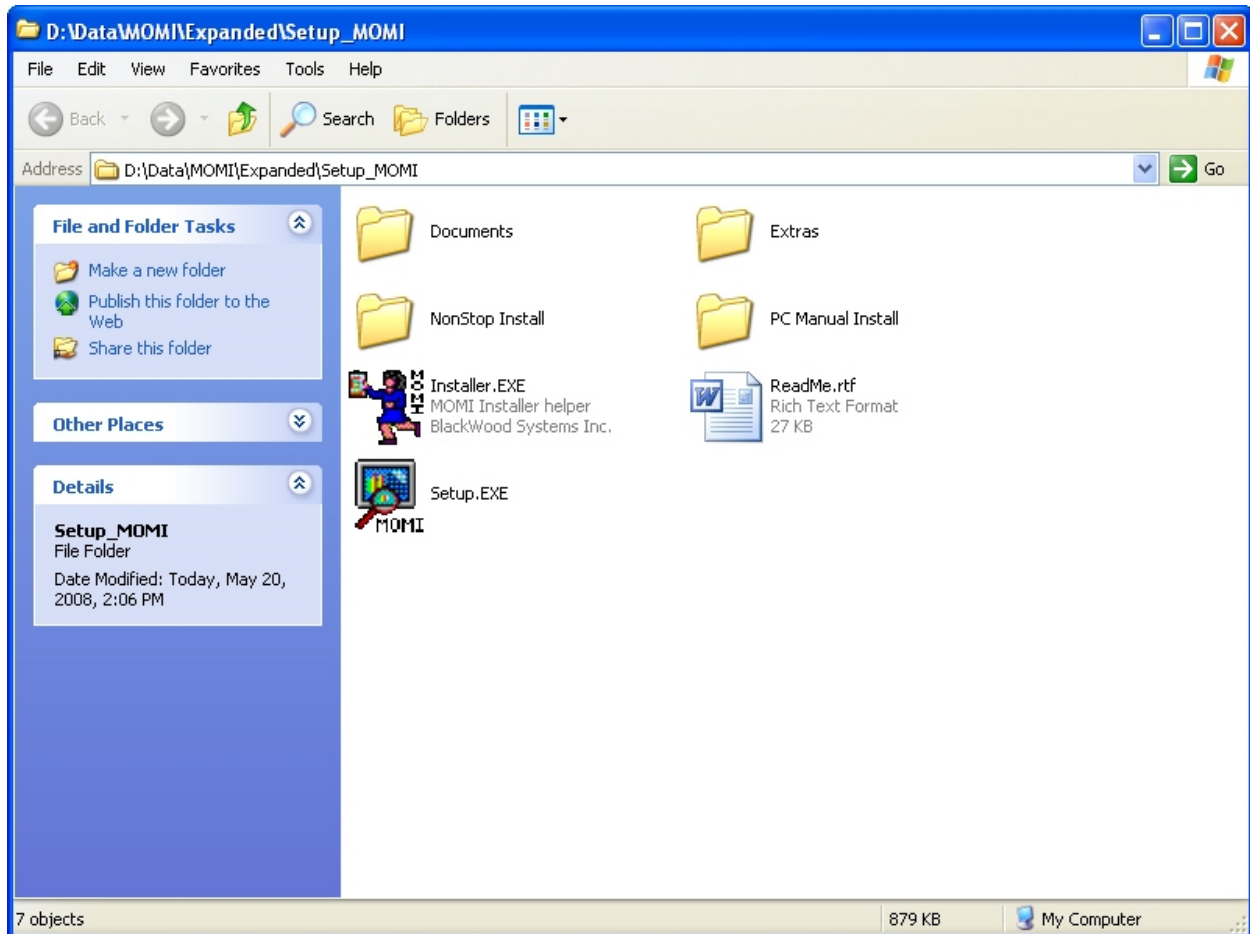
Where <User ID> is the name used at logon to Windows. You must enable *Show hidden files, folders and drives* under Windows Folder Options to enable their display.

See [Specifying run-time parameters](#) if an alternate location is desired.

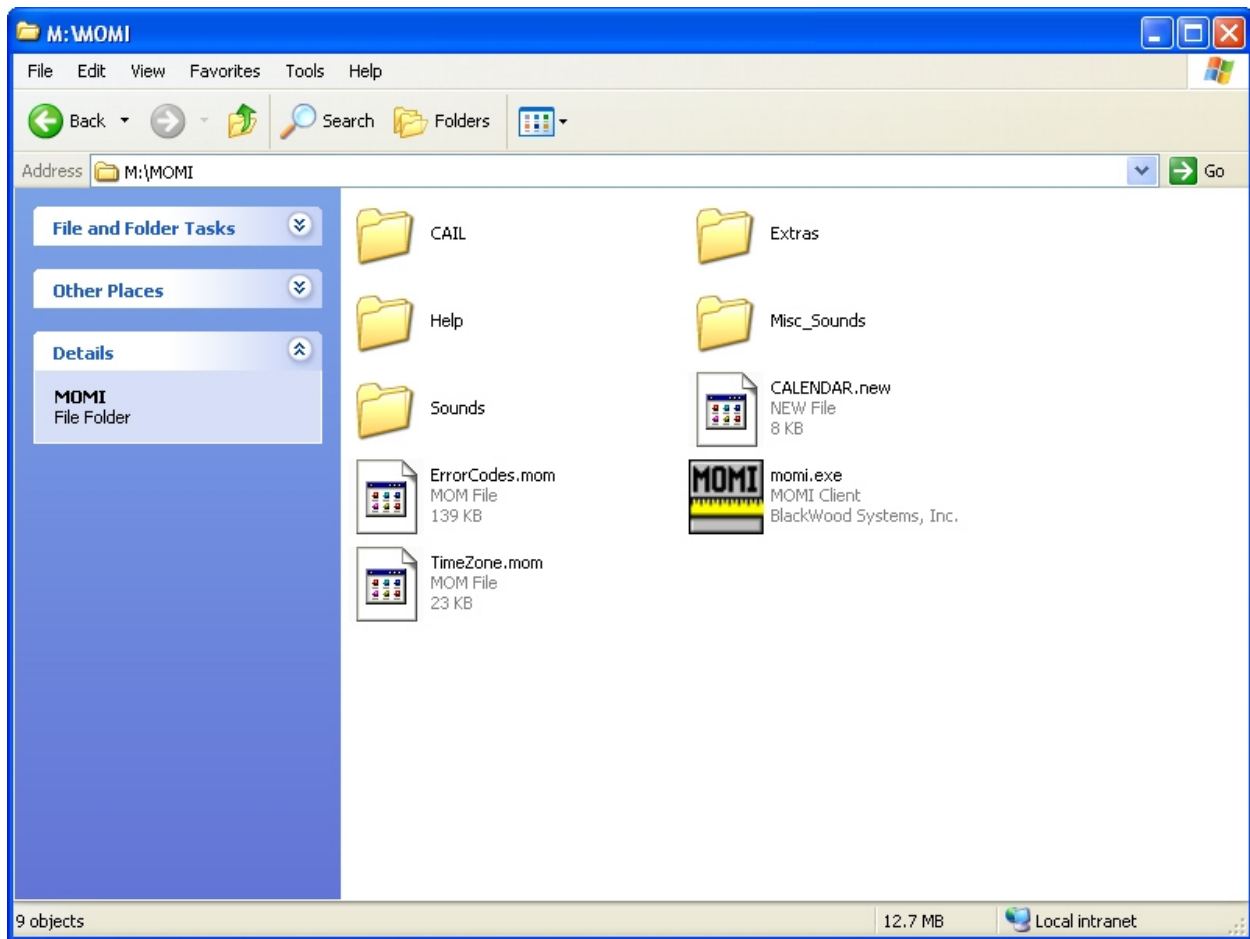
Example

This example shows how to setup the MOMI PC on a shared subdirectory. The MOMI source files are obtained by renaming the EXE to a ZIP and expanding it to a work area.

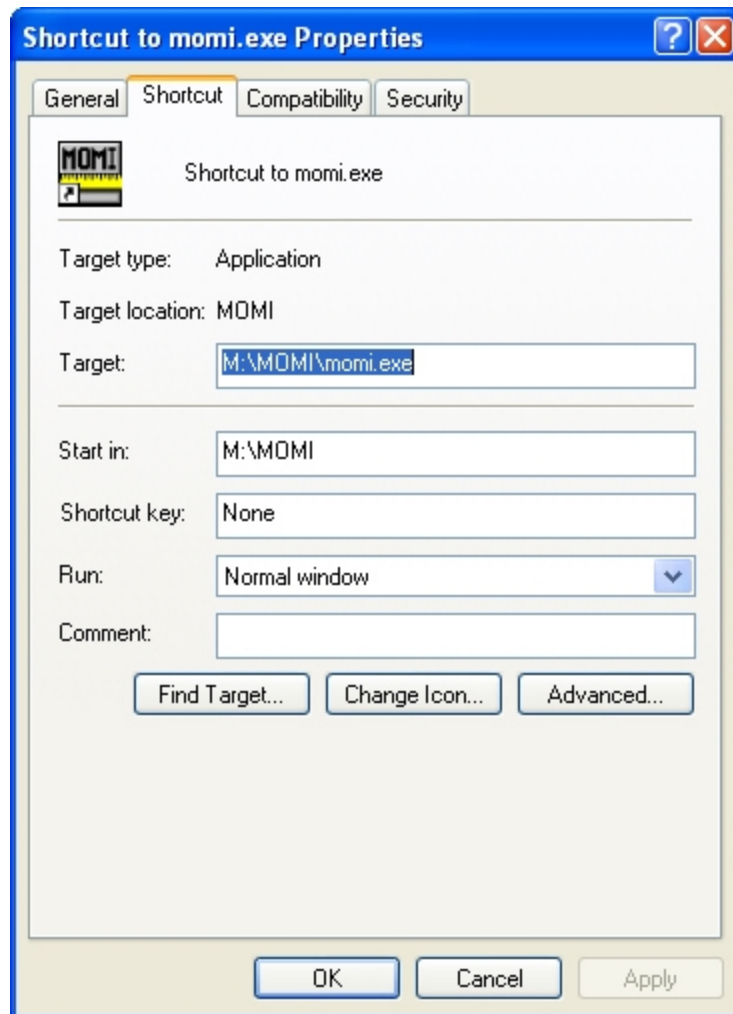
The subdirectory "PC Manual Install" contains all the files a typical PC Client would need.



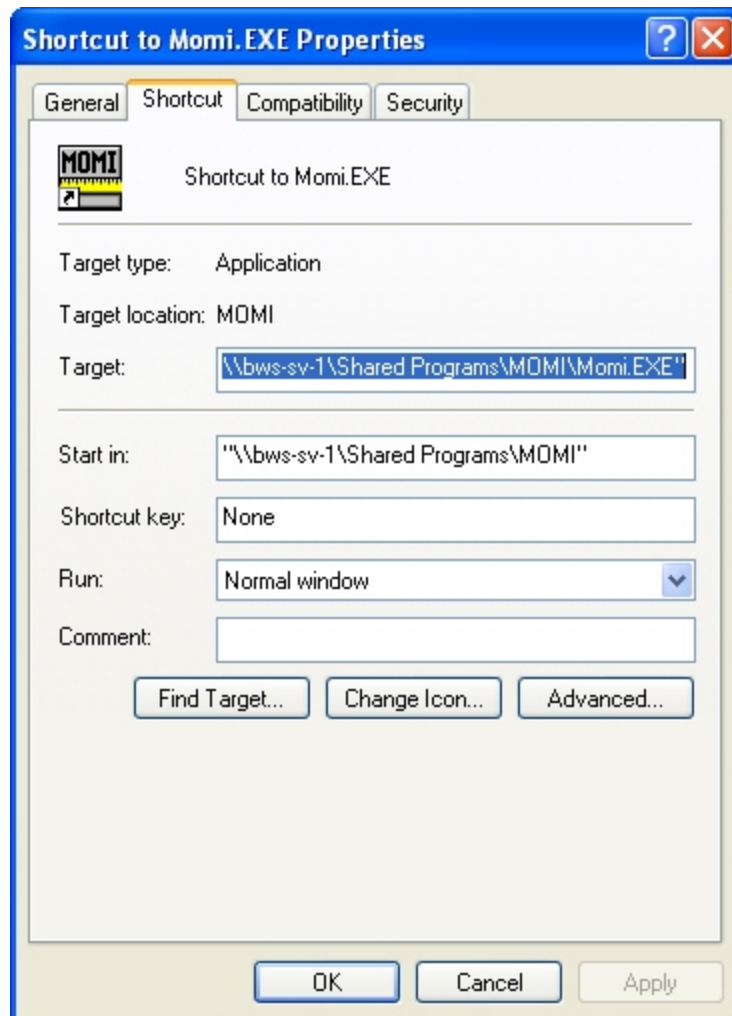
On a Shared drive, for example drive M:, the administrator creates a subdirectory called \MOMI and copies into it all the files from "\PC Manual Install". The files and sub-directories shows in this example may change from release to release.



On each PC workstation, create a shortcut to the MOMI.EXE located in shared drive M:\MOMI.



Alternately, a shortcut may be directly created to the shared location (i.e. not using a drive letter). In the following example, the server \\BWS-SV-1 has MOMI located under Shared Programs:



PC Client initial configuration deployment

(client version 5.23 or later)

The MOMI PC Client has the ability to be deployed with an initial default configuration. This default configuration allows new users to begin using the MOMI client without first defining the connection to each NonStop Systems. The default configuration capability is best suited where the client is accessed from a central server.

The feature is activated by placing a copy of the **MOMI.INI** named as **MOMI_INIT.INI** in the same subdirectory where the MOMI.EXE executable is located.

When the MOMI PC Client is launched and a MOMI.INI file is not found, it checks to see if a MOMI_INIT.INI file is present in the same subdirectory as the MOMI.EXE executable. If so, it copies the file and uses it as the initial configuration. If a MOMI_INIT.INI file is not present, a MOMI.INI file is created with minimal default values.

Note that once a MOMI PC Client is started that Windows User ID will have a MOMI.INI present in the following location:

Windows 7 / Windows 10 and later -

C:\Users\<User ID>\AppData\Roaming\BlackWood Systems\MOMI\

Where <User ID> is the name used at logon to Windows. You must enable *Show hidden files, folders and drives* under Windows Folder Options to enable their display.

To use this feature, a MOMI administrator would:

- 1) start the MOMI PC Client.
- 2) set all screens and options to the desired default settings.
- 3) stop the client (important-to insure all settings are saved).
- 4) restart the client and [export](#) the MOMI.INI file named as **MOMI_INIT.INI**.
- 5) Place the exported file in the same subdirectory as the MOMI.EXE executable in the shared location.

Configuration recommendations

Overview

Several configuration settings should be reviewed in your Windows environment to insure that MOMI and other programs can operate to the fullest.

24 bit color or better

The PC must be configured with at least 24 bit color for the client to operate fully. A warning message is displayed at client start up if a lower color depth is detected. While the client will generally function correctly, certain features are not available such as the a pop up window when the mouse is placed over the connector lines between systems on the SubSystems / Expand / Diagram page.

Sufficient Desktop Heap

The desktop heap provides for "interactive" windows and contains user objects like hooks, menus, strings, and windows. MOMI and other programs such as Lotus Notes consume a great deal from the desktop heap.

Later versions of Windows has substantially increased the default size of the Desktop Heap. The registry change described below, while still valid, probably is not needed (or an even larger value may be considered).

A Windows PC that runs at or near the Desktop Heap limit may experience random application crashes and messages such as "Not enough storage is available to process this command". This message is somewhat misleading as it does not always refer to PC memory, but may also relate to the memory available within the Desktop Heap.

Increasing the size of the Desktop Heap allows Windows to support running concurrently more than one copy of the MOMI PC Client along with increasing capacity for other Windows programs.

Below is a modified excerpt from a Microsoft Knowledge Base Article that provides details on how to increase the Desktop Heap. This information is documented in the Knowledge Base Article ID 126962 which also provides a "Fix It" tool.

Important: The information below requires modification of the Windows registry. Serious problems might occur if you modify the registry incorrectly. Make sure that you take care and change only the fields recommended. For added protection, back up the registry and/or key being modified before you implement this change.

1. Run Registry Editor (REGEDT32.EXE).
2. From the HKEY_LOCAL_MACHINE subtree, go to the following folder:

```
\System\CurrentControlSet\Control\Session Manager\SubSystems
```

3. On the right hand side of the screen double-click on the key:

Windows

4. On the pop-up window you will see a very long field selected. Move the cursor near the beginning of the string looking for this (*values may vary*):

```
SharedSection=1024,3072,512
```

5. SharedSection specifies the System and desktop heaps using the following format:

```
SharedSection=xxxx,yyyy,zzz
```

where xxxx defines the maximum size of the system-wide heap (in kilobytes), yyyy defines the size of the per desktop heap, and zzz defines the size of the desktop heap for a "noninteractive" window station.

6. Change **ONLY** the yyyy value to 8192 (or larger) and press OK.
7. Exit the Registry Editor and reboot the PC for the change to take effect.

This registry change allows for potentially more Windows programs to operate concurrently. It is also a good idea to check that Windows also has a sufficient amount of virtual memory (i.e. paging file) if not automatically managed by Windows.

GDI & USER Handles

MOMI makes extensive use of the Windows resource of GDI and USER handles. These values are limited by default to 10,000 each (up to and including Windows 7).

Increasing the limits of these values allows MOMI to 'load' more screens and pop-up windows.

Important: The information below requires modification of the Windows registry. Serious problems might occur if you modify the registry incorrectly. Make sure that you take care and change only the fields recommended. For added protection, back up the registry and/or key being modified before you implement this change.

1. Run Registry Editor (REGEDT32.EXE).
2. From the HKEY_LOCAL_MACHINE subtree, go to the following folder:

 \SOFTWARE\Microsoft\Windows NT\ CurrentVersion\Windows
3. On the right hand side of the screen double-click on the key:

 GDIProcessHandleQuota
4. On the pop-up window
 - a) select a Base of Decimal
 - b) in the "Value Data:" box enter 15000.
 - c) press OK
5. On the right hand side of the screen double-click on the key:

 USERProcessHandleQuota
6. On the pop-up window
 - a) select a Base of Decimal
 - b) in the "Value Data:" box enter 15000.
 - c) press OK

7. Exit the Registry Editor and reboot the PC for the changes to take effect.

Security

General considerations

(updated for server version 5.24 or later)

The MOMI subsystem on the NonStop system is initially launched via a TACL obey file which starts the initial and main process named by default \$MOMI. The initial process starts other processes that collectively support the MOMI environment.

When a user 'logs on' to a MOMI PC Client, a logon server process is launched that assumes given User ID. When a sensitive command is issued at the client, such as viewing the content of a Spooler Job, a process is launched from the logon server to perform the sensitive commands under the users authority and not under the authority of the main \$MOMI process.

MOMI does NOT contain privileged code and should NOT be licensed via FUP. However, execution of certain operations, such as the generation of an ICMP PING message, requires a Super.Group level of authority to open a raw socket. If MOMI is started under the Super.Super (255,255) or a Super.Group (255,*) user the necessary level of authority is available. In the case where the administrator of MOMI does not desire to operate the majority of MOMI under a Super.* user, the needed "Super Group" level of authority can be obtained as needed via a separate object file named BWSSG (this object is discussed below). BWSSG is manually created during [installation](#).

The simplest configuration for MOMI is to start it under Super.Super, followed by Super.Group and lastly under a "normal" User ID, perhaps one specifically created for MOMI, and then also creating BWSSG.

Below are the security guidelines for various files / subvolume:

BWMOMI | BWMOMli | BWMOMlx

The MOMI [executable](#).

Must be secured to allow Execute for all users. For example, a Guardian security string of "UUNU". Additionally, in order to allow the creation of SAVEABEND files (used in troubleshooting), READ access should also be considered for a resulting security string of "NUNU".

BWSSG

If \$MOMI is started under Super.Super or the Super.Group, **this file is not needed.**

BWSSG is created by the user and is a copy (i.e. FUP DUP) of BWMOMI (or BWMOMli, BWMOMIx) and functions as a helper program to perform operations such as TCP/IP [PING](#) (the ICMP Echo command) and adjustment (if enabled) of the [System time](#) .

File security must allow Execute for all users (i.e. "UUNU"). To allow the creation of SAVEABEND files (used in troubleshooting), READ access should also be considered for a resulting security string of "NUNU".

Subvolume of BWMOMI

MOMI creates configuration, log and work files in the subvolume where the object resides. Additionally, other files distributed with the executable may be accessed. The User ID MOMI runs under must have read / write / execute / purge / create access to this subvolume. Consider not using SAFEGUARD for this subvolume.

The files created by default in this location can be relocated with the following CONFMOMI keywords:

[CNF01DB](#)
[DEFAULT-WORK-LOCATION](#)
[LOG01DB](#)

To relocate existing files - [stop](#) MOMI, manually move the file(s), add the keyword(s) to CONFMOMI, and then restart MOMI.

Subvolume of MOMI history files (CONFMOMI keyword [HSTnnDB](#))

MOMI must be given read / write / create / purge access to the subvolume(s) specified for these files.

\$SYSTEM.SYSnn.MEAS*

MEASURE support files (such as MEASFH). MOMI makes extensive use of MEASURE. These files must allow read / execute access.

\$SYSTEM.SYSnn.EMSDIST

EMS distributor program (used to read EMS log files).
The file must allow execute access.

\$SYSTEM.SYSnn.INITDLL

ProcessH support file.
MOMI uses this file in ProcessH "System" code report on Integrity and later systems. The file must allow read access.

\$SYSTEM.SYSnn.MCPDLL

ProcessH support file.
MOMI uses this file in ProcessH "System" code report on Integrity and later systems. The file must allow read access.

\$SYSTEM.SYSnn.MEDIASVR

Tape programmatic server.
MOMI uses this to report on tape status. The file must allow execute access.

\$SYSTEM.SYSnn.NSKCOM

Virtual memory access utility.
MOMI uses this to report on virtual memory usage. The file must allow execute access.

\$SYSTEM.SYSnn.RLSEID

O/S release information (i.e. G06.29.02).
The file must allow read access.

\$SYSTEM.SYSnn.TMFSERV

TMF programmatic server.
MOMI uses this to report on TMF status. The file must allow execute access.

\$SYSTEM.SYSnn.TSC

ProcessH support file - 16-bit code.
MOMI uses this file in ProcessH "System" code report on S-Series systems. The file must allow read access.

\$SYSTEM.SYSnn.TSL

ProcessH support file.
MOMI uses this file in ProcessH "System" code report. The file must allow read access.

\$SYSTEM.SYSnn.TSYSCLR

ProcessH support file.
MOMI uses this file in ProcessH "System" code report on S-Series systems. The file must allow read access.

\$SYSTEM.SYSTEM.SQLCOMP

SQL/MP compilation utility.
The display of SQL/MP information is the result of dynamic SQL statements. This file must allow read / execute access.

SQL/MP catalog subvolumes

MOMI provides SQL/MP information by reading this subsystem's catalogs. MOMI needs read access to the **Catalog of the System** to provide information on the SQL/MP screens. Optionally, but recommended, MOMI should be granted read access to all other SQL/MP catalogs on the system. Where access is not granted, a security error is displayed.

\$SYSTEM.SYSTEM.EVENTCX *(this file is optional)*

EMS user defined cause / effect / recovery information.
MOMI makes use of this file to display EMS user defined cause / effect / recovery information. MOMI needs read / write access to this file. MOMI Client access controls the ability to display / alter information. The location of this file may be overridden with the CONFMOMI keyword [EVENTCX](#).

\$SYSTEM.SYSTEM.EVENTTX

EMS HTML cause / effect / recovery information.

MOMI makes use of this file to display EMS cause / effect / recovery information. MOMI needs read access to this file.

\$SYSTEM.ZLOGnn

EMS log file subvolume.

In order to display EMS messages from \$0, the log files must allow read access. Use EMSCINFO \$0 to display the current log file settings and EMSCCTRL \$0,<command> to alter the settings. Existing files will need to have their file security manually altered via FUP.

\$SYSTEM.ZSERVICE

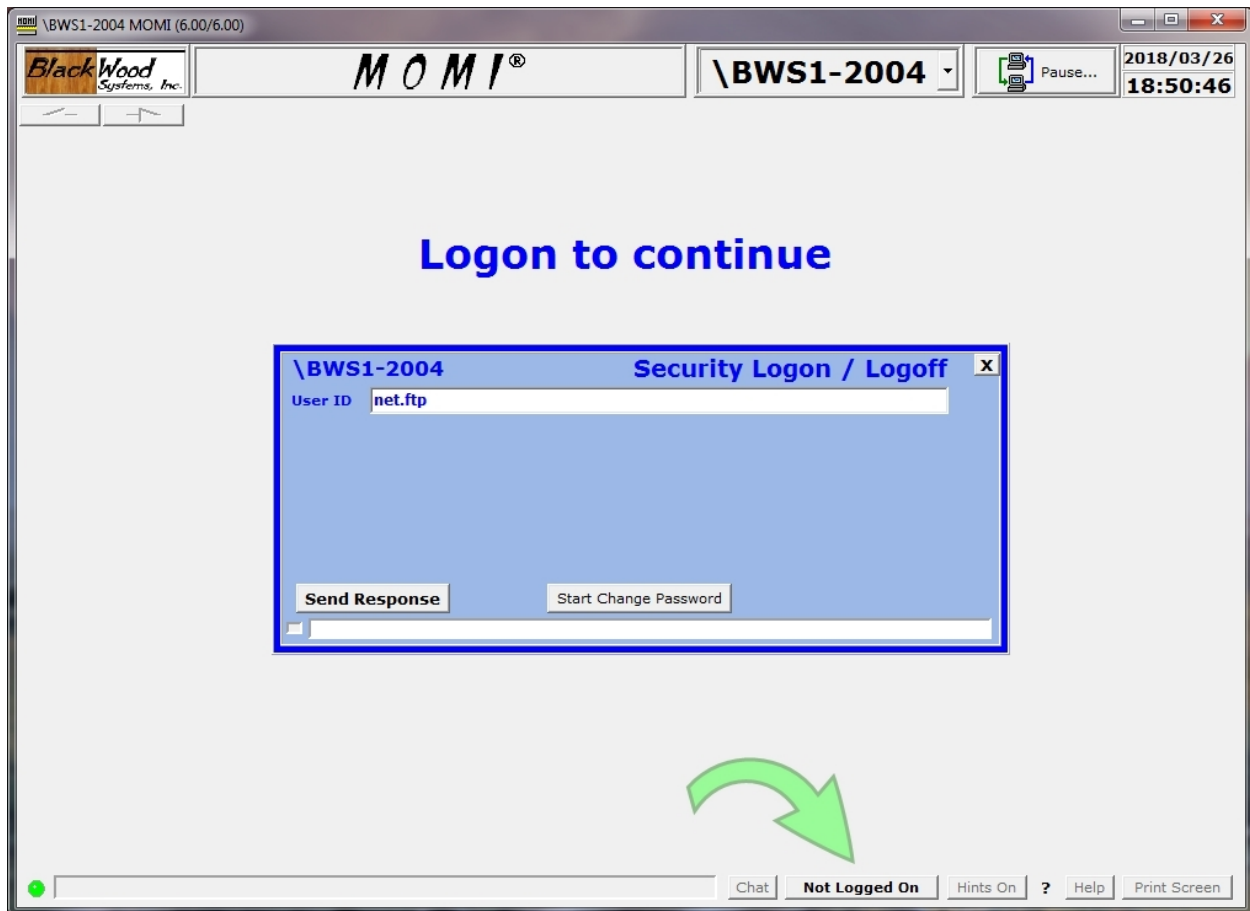
EMS log file subvolume for hardware events.

In order to display EMS messages from \$ZLOG, the log files must allow read access. Use EMSCINFO \$ZLOG to display the current log file settings and EMSCCTRL \$ZLOG,<command> to alter the settings. Existing files will need to have their file security manually altered via FUP.

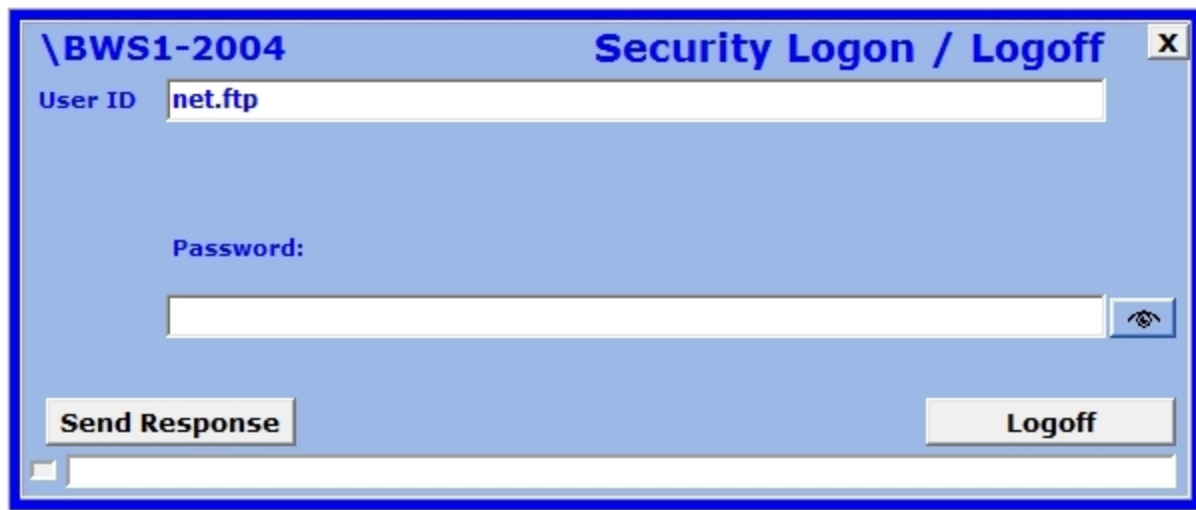
Logon / Logoff

Many operations within MOMI, such as viewing of performance information, listing volumes, files and Spooler collector status are considered non-sensitive commands and are executed in the context of the User ID that started \$MOMI. Commands that perform an action, such as purging a file, viewing the contents of a file or viewing the contents of a Spooler job, are considered sensitive and must be executed under the context of a User ID and Password entered at the Client.

The Security Logon / Logoff pop-up provides a means to logon to the NonStop System. Press the button at the bottom of the screen (as shown by an arrow below) initially labeled **Not Logged On** to display the Security Logon / Logoff pop-up. The button alternately shows the name of user currently logged on. The process of logon on is conducted in the form of a dialog or a sequence of prompts, where requested data is entered, press **Send Response**, enter data, press **Send Response** and so on. The first prompt is for a **User ID** which may be a Guardian *group.user* or Safeguard alias as determined by the NonStop System security administrator. After entering the appropriate User ID press **Send Response**.



The screen will then request a **Password** or other information as directed by the prompt. Enter the requested information and press **Send Response**. This process may repeat a number of times as controlled by the security subsystem.



Once a logon is successful and considered complete, the **OK Close** button is displayed along with any informational text provided by the security subsystem. Push **OK - Close** to hide the pop-up.



A logon may not be successful if a password change is required. Follow the prompts and enter the requested information and push **Send Response**. Below, the logon is not successful until an expired password is replaced with a new one.



Passwords and other information are normally hidden from view. Press the **eye** to the right of the field to temporarily make the text visible.



Logon Notes

The MOMI server imposes the following to a logon:

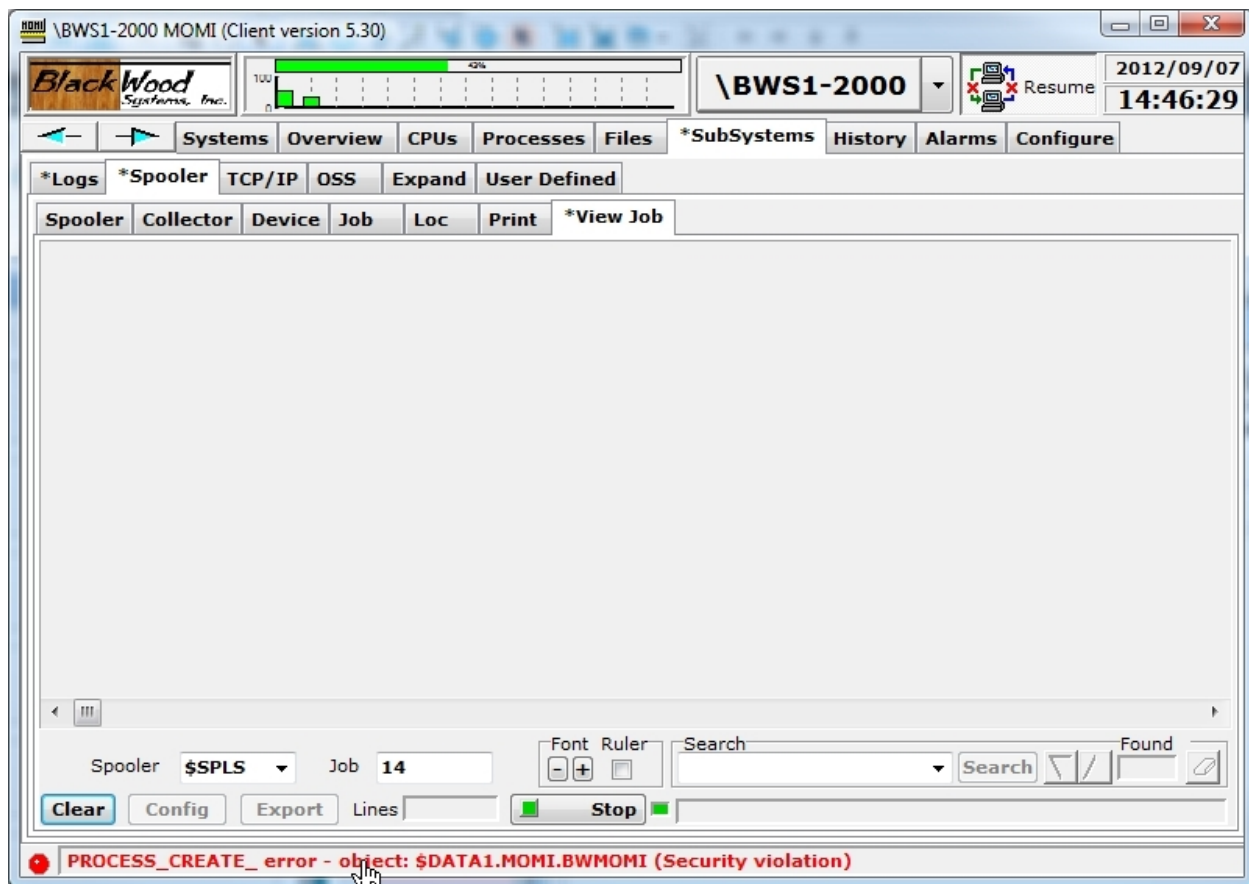
- CMON pre-logon message is requested
- CMON logon message is requested
- numeric form of User ID is not allowed (example 255,100)

If [Client Access](#) is enabled, a logon may be denied by MOMI after a successful logon to the NonStop System. The following messages may be returned by Client Access:

Client Access DB - User Record Not Found

Client Access DB - User Not Allowed to Logon To NonStop System

Special Note: The MOMI server creates a "logon server process" locked to the requesting MOMI PC Client. This server performs the logon operation to the system and operates under the User ID specified. It is used to start additional processes under the same User ID which perform any sensitive operation on behalf of the client. The MOMI object file must be secured to allow execute access to all users permitted to logon to MOMI, otherwise a PROCESS_CREATE_error results. The error does not occur during logon but later during the execution of the first sensitive command. Below is an example of this error condition while attempting to view the contents of a Spooler Job:



Client Access

Overview

MOMI has the ability to limit the screens and features available to users of the PC Client. Virtually every screen (with some exceptions) may be turned on or off. Client Access configuration is optional but is provided to allow system administrators a means to tailor MOMI more closely to the requirements of their environment.

Users are identified to MOMI using the standard Guardian User Id or Safeguard Alias. Client Access relies on host to perform authentication. MOMI does not maintain a database of passwords.

Client Access is configured and enabled after MOMI is installed and operational. Client Access configuration information is stored on the currently connected NonStop System in the file [CNF01DB](#).

This section describes Client Access and gives examples of turning Client Access on and configuring.

What Client Access does not do

Client Access does not grant users accessing the Nonstop System security for sensitive commands such as: stop a process, purge a file, view file contents, delete spooler jobs, etc.... Operations of this type are performed within the context of the user logon so the 'security success' of the operation is determined by the Operating System as discussed in [Security Logon / Logoff](#).

The User ID's defined within Client Access do not store passwords.

Default Security User | Security User

The overall security of MOMI is controlled by two users known as the Default Security User and the Security User.

The user that starts the MOMI server on the Nonstop System is considered the Default Security User. There may be only one Default Security User. This user can perform and has full control over internal MOMI functions. The Default Security User is the only user that can activate or deactivate Client Access. The default may be overridden with the CONFMOMI keyword [DEFAULT-SECURITY-USER](#).

Any user, except ones that are predefined, created within Client Access may also be enabled as a Security User. There may be zero or more Security Users. A Security User

has the same authority as the Default Security User except it does not have the ability to turn off Client Access nor perform emergency database actions (see bottom of page [here](#) for details).

The Initial state of Client Access

The initial state Client Access is OFF meaning that the MOMI PC Client displays all of its screens to any user of the client and that any User with a valid User ID on the NonStop System may logon. Sensitive functions external to MOMI, such stopping a process, deleting a file, viewing the contents of a file, etc... require the user to have sufficient authority granted by the Operating System. Internal functions to MOMI, such as Alarm configuration (i.e. add / delete / change) and enabling Client Access, may only be performed by the user that starts the MOMI server.

In this state, the user that starts the MOMI server is the only user with full control and full access over the MOMI environment.

Enable Client Access

To enable Client Access, the Default Security User [logs on](#) to the MOMI PC Client, navigates to the screen [Configure / Client Access / Global Settings](#) and checks the box **Enable Client Access Checking on this System**, and also usually checks **Enable User Access Checking on this System**. Press **Change Global Client Access Settings** at the bottom of the screen to save the settings. Client Access is enabled immediately (no restart is required).

Special predefined users

Two users are automatically created and may not be deleted within Client Access:

NOT LOGGED ON determines what screens / functions are available prior to a logon or after a logoff. This is also the initial client state.

USER NOT DEFINED determines what screens / function are available when the User ID entered for logon is not found in the Client Access database. This predefined user provides a default environment or may be set to prevent logon to MOMI.

Client Access order of precedence

When the MOMI PC Client connects to a system, the predefined user *NOT LOGGED ON* determines what screens / functions are initially available. When a user attempts to log on, the Client Access database is searched in the following order, stopping at the first "match":

- 1) an exact match to the User ID with a case insensitive comparison
- 2) match User ID by wild card
- 3) default to *USER NOT DEFINED*

How MOMI 6.00 and later affects Client Access

Prior to MOMI version 6.00, the MOMI PC Client could display screens of meaningful data prior to logon.

MOMI 6.00 and later, by default, severely limits data displayed prior to logon. The operation is controlled by the CONFMOMI keyword [CLIENT-LOCKDOWN-MODE](#) which directs the client to display a virtually blank screen prior to logon and after logoff. This functional change effectively overrides the Client Access predefined user *NOT LOGGED ON*.

The administrator of MOMI can restore the previous manner in which MOMI operated by setting [CLIENT-LOCKDOWN-MODE](#) to false (also see this setting for additional information).

Examples

The following examples (denoted by a ➡) describe the sequence of steps necessary to perform certain activities. With the exception of the first two examples, which assume an initial configuration, all other steps assume that Client Access is enabled.

- ➡ The MOMI server is initially started

Results

- All screens within MOMI are available to all users
- Only the Default Security User may add/delete/operate an Alarm
- Only the Default Security User may enable Client Access checking

- ➡ Enable Client Access checking

- Log on to Client as User that started the MOMI server on NonStop System
- Go to the screen [Configure/Client Access/Global Settings](#)
- Check **Enable Client Access Checking on this System**
- Check **Enable User Access Checking on this System**
- Click the button **Change Global Client Access Settings**

Results

- Only the Default Security User may add/delete/operate an Alarm
- Only the Default Security User may disable Client Access checking
- The predefined user *NOT LOGGED ON* determines logged off access
- The predefined user *USER NOT DEFINED* determines logged on access

➡ Change the predefined user *NOT LOGGED ON*

- Log on to Client as User that started the MOMI server on NonStop System
- Go to the screen [Configure/Client Access/Define](#)
- Select User ID (in the upper left hand corner of the screen)
- In the drop-down box pick *NOT LOGGED ON*
- Configure as desired
- Save settings by clicking button **Change User**

Results

- Users that have not logged on to the client have settings as configured

➡ Change the predefined user *USER NOT DEFINED*

- Log on to Client as User that started the MOMI server on NonStop System
- Go to the screen [Configure/Client Access/Define](#)
- Select User ID (in the upper left hand corner of the screen)
- In the drop-down box pick *USER NOT DEFINED*
- Configure as desired
- Save settings by clicking button **Change User**

Results

- Users that are logged on but not known to Client Access have settings as configured

➡ Add an individual User ID

- Log on to Client as User that started the MOMI server on NonStop System
- Go to the screen [Configure/Client Access/Define](#)
- Select User ID (in the upper left hand corner of the screen)
- Enter User ID and Description
- Do not enter or select a **Member of Group**

- Configure as desired
- Save settings by clicking button **Save New User**

Results

- User ID when logged on has settings as configured

➡ Add a Group ID

- Log on to Client as User that started the MOMI server on NonStop System
- Go to the screen [Configure/Client Access/Define](#)
- Select Group ID (in the upper left hand corner of the screen)
- Enter Group ID and Description
- Configure as desired
- Save settings by clicking button **Save New Group**

Results

- A new Group ID is now available

➡ Add an User ID to a group

- Log on to Client as User that started the MOMI server on NonStop System
- Go to the screen [Configure/Client Access/Define](#)
- Select User ID (in the upper left hand corner of the screen)
- Enter User ID and Description
- Select in the drop-down box **Member of Group**
- Save settings by clicking button **Save New User**

Results

- The User ID is now a member of a group

➡ Allow a user to add/delete/operate an Alarm *(assumes the user was already added)*

- Log on to Client as User that started the MOMI server on NonStop System
- Go to the screen [Configure/Client Access/Define](#)
- Select User ID (in the upper left hand corner of the screen)
- Enable settings under Alarms to Display Active Alarm & Display Define & Display List
- Save settings by clicking button **Change User**

Results

- User ID can now Display / Create / Update alarms

➡ Assign a Security User *(assumes the user was already added)*

- Log on to Client as either a) User that started the MOMI server on NonStop System, or b) an existing Security User
- Go to the screen [Configure/Client Access/Define](#)
- Select User ID (in the upper left hand corner of the screen)
- Enable Security User
- Save settings by clicking button **Change User**

Results

- **User ID can now perform Display / Create / Update alarms**

➡ Limit AutoUpdate time

- Log on to Client as User that started the MOMI server on NonStop System
- Go to the screen [Configure/Client Access/Global Settings](#)
- Check box and **Limit AutoUpdate minutes to** value
- Save settings by clicking button **Change Global Client Access Settings**

Results

- AutoUpdate is limited by default for all users. *(This may be overridden on an individual or group basis)*

➡ Restore the default state of Client Access and Disable (use only if you really mess up)

- Log on to Client as User that started the MOMI server on NonStop System
- Go to the screen [Configure / Client / Actions](#)
- Press **Perform Emergency Database Actions**
- Press **Delete ALL Client Access and User Access Records...**
- Press confirmation button

Results

- Client Access disabled. Default functionality restored.

➡ Disable Client Access Checking

- Log on to Client as User that started the MOMI server on NonStop System
- Go to the screen [Configure/Client Access/Global Settings](#)
- Uncheck **Enable Client Access Checking on this System**
- Click the button **Change Global Client Access Settings**

Results

- Client Access disabled. Default functionality restored.
- User profiles are still present.

MOMI Server

Overview

MOMI obtains its information on the NonStop server platform by running a number of processes. Some process run continually and others are started on demand.

MOMI is initially started via the TACL obey file OBYMOMI. This obey file starts the main \$MOMI process which serves as the overseer for the MOMI subsystem. This main MOMI will:

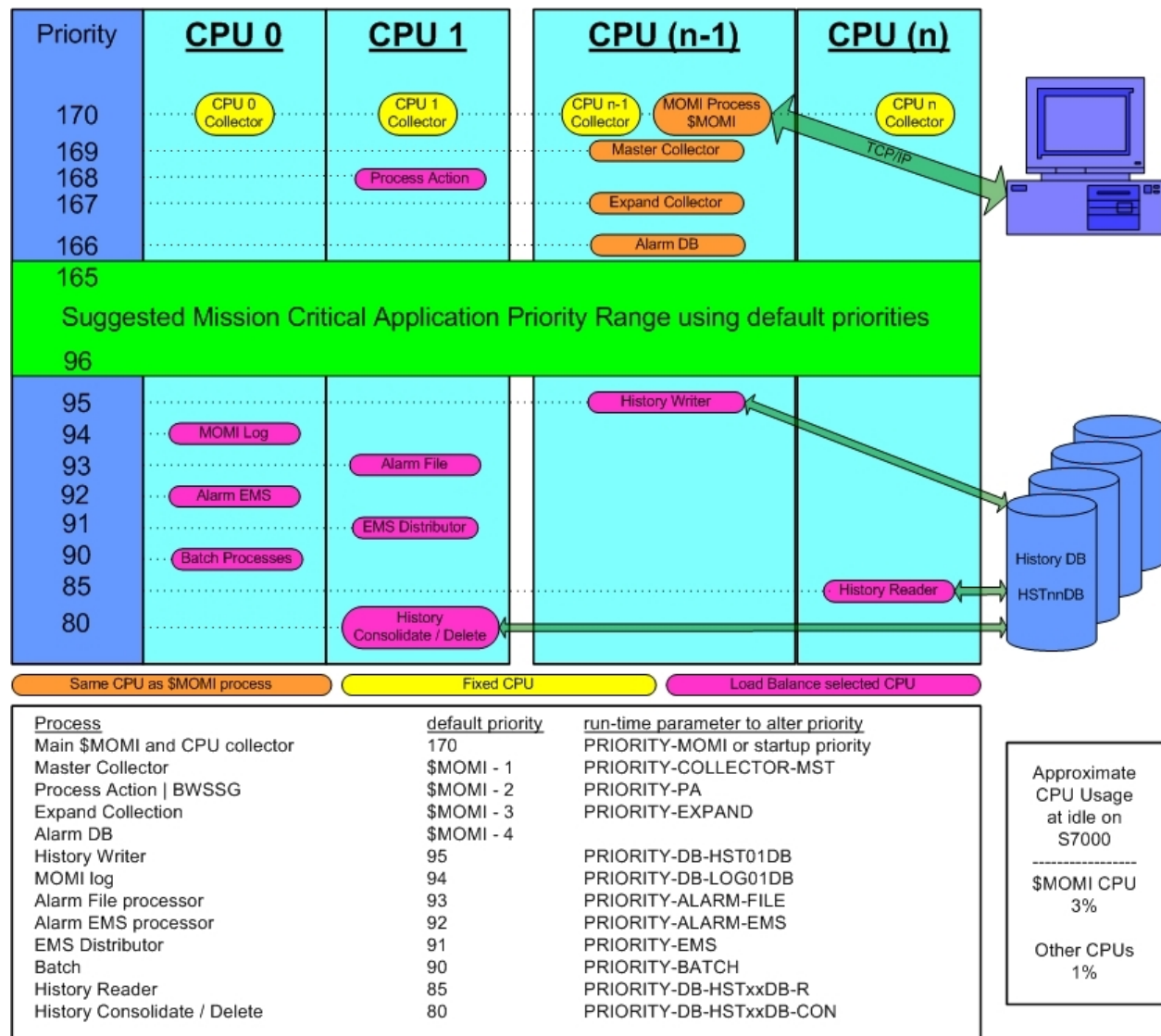
- start a master process that configures the main measurement in the MEASURE subsystem
- start an Expand collector process
- start a collector in each processor of the system
- start a process that writes [history](#) to the HST01db file
- start a process that performs the history consolidation and deletion
- start an NSKCOM process for obtaining virtual memory statistics
- post a 'listen' on the [assigned](#) TCP/IP process(es) and port(s)

The MOMI PC Client issues a TCP/IP connect to the address and port configured to establish communication with \$MOMI. \$MOMI either provides answers directly to Client queries or passes the request to a server started by \$MOMI. The response is returned to \$MOMI which is in turn is passed back to the PC Client.

Sensitive commands that require security are executed in the context of the User ID provided. When a user logs on, the server that executes the actual logon command assume the authority of that particular user. From that point on, any sensitive command is executed within a server started under the authority of that particular logon.

The BWMOMI server uses dynamic SQL/MP statements to obtain information from the system and user catalogs. The dynamic SQL/MP is used in support of the PC MOMI Client screens Files / SQL/MP / *. The TACL obey file OBYCSQL performs an SQL/MP compile of the BWMOMI object with the attribute of NOREGISTER ON (this means that the SQL/MP catalog does not reflect BWMOMI).

Process Priority



In order for MOMI to collect information on a timely basis, it must run at a priority high enough so that the other programs on the system do not 'walk over' or interrupt operation.

The diagram above shows the relative process priorities of \$MOMI and its server programs.

MOMI, to divide its workload, starts several copies of itself. The main program \$MOMI, is the master traffic cop, data collector and data reporter. MOMI also starts a copy of itself in

every CPU in order to collect information about that CPU. All information collected is reported back to \$MOMI. \$MOMI and the CPU collectors consume a fairly consistent portion of CPU resources, with \$MOMI varying the most, based on incoming requests from the PC Clients.

By default, \$MOMI and the collectors in each CPU run at a rather high priority of 170. This priority is set in the OBYMOMI file.

MOMI also starts other processes based on needs of the PC Client and generally run at default priorities in the 80 to 95 range. These priorities can be adjusted in the [CONFMOMI](#) file.

If you have concerns with the priority of the MOMI environment, you could run \$MOMI at a lower priority than your critical production programs. Please be aware that running \$MOMI at a lower priority could prevent the timely collection and reporting of data (usually showing up as random interruptions). In the [Main Overview](#) screen you may see MOMI CPU collectors reporting as HUNG or STOP. Once you have tested and are comfortable with the operation of MOMI on your system, MOMI should run at a rather high priority to help to insure consistent data collection and reporting.

One of the common questions asked is, what is the CPU impact of MOMI on my system? The discussion above describes at what priorities MOMI operates. Batch type of operations that can consume large amounts of CPU are pushed to lower priorities, while processes that must operate on a regular timely basis operate at higher priorities.

So, what is the impact? With MOMI running at an idle, on an S7000 \$MOMI consumes 3% of a CPU and each collector consumes 1%. On an S72000, \$MOMI consumes 0.75% and the each collector 0.5%. On an NS16000, \$MOMI is at 0.20% and the collector is 0.04%. On an NB50000c, \$MOMI is at 0.03% and the collector is 0.016%.

Now, you will see higher values. Certainly. When MOMI is reading and transferring, for example, an EMS records you will see the EMS distributor and the MOMI server communicating with it both at priority 91 burning cycles. \$MOMI, which handles TCP/IP communication, will be using cycles, particularly with the TCP/IP v6 stack, to transfer the resulting data. We limit the bytes per second, by processor type, \$MOMI can transfer over the TCP/IP connection so place a lid on communication cycle costs.

Adjust System time via SNTP

(server version 4.17 or later)

Overview

MOMI has the capability to adjust the Nonstop System time via a Network time source.

This feature is not enabled by default.

A Network Time Protocol (NTP) server is specified to MOMI and this server queried periodically using the Simple Network Time Protocol (SNTP). SNTP is defined in RFC 2030 and MOMI specifies version 3 in the time request. This protocol provides a simplified means for obtaining time from a reliable source located either on the local network or via the Internet. NTP servers usually obtain their time from master sources such as atomic clocks or from over-the-air sources such as GPS.

How it works

MOMI queries or takes many samples from the NTP server over several minutes. The samples are processed to determine a network time. The network time is compared to the time on the Nonstop System to determine if an adjustment forward or backward is required. The Operating System call SETSYSTEMCLOCK is used to perform the adjustment and is given 1) the amount to adjust and 2) a mode of 6 which directs a clock adjustment (not a clock set) regardless of the clock error.

The Nonstop Operating System provides two methods for manipulating the System time. The first method is to set the clock to a specific time, which could be an abrupt operation and is not generally performed with a 'live' System. The second method is to adjust the rate at which the clock operates without disturbing the live environment. MOMI uses the second method by default.

A way to think of the clock adjustment is "nudging" either forward or backward by slightly speeding up or slightly slowing down the System clock, but **not** jumping or forcing it to a specific time. Time nudging may be performed on an active system generally without concern. An actual set of the clock, especially going backwards in time, could have a really undesirable affect on certain subsystems such as TMF (i.e. you really don't want to do that).

A side effect of clock "nudging" is that if the System is off by more than a few minutes, particularly if the system is ahead of the network source, it may take some time (no pun intended) before an accurate system time is achieved. If the System time is really 'off', a manual operation should be considered during a maintenance window.

Should I use it?

The SNTP protocol and the MOMI implementation does not provide the highest level of accuracy theoretically possible, but can in most situations maintain the System time much better than manual input. The code implementation strives for an accuracy of .001 seconds, which is the smallest adjustment attempted, but a resulting accuracy of about 0.1 seconds is recommended for "should I use it" purposes. However, if any of the following are true:

- a. A very high level of accuracy is required, or
- b. System time management is exceptionally critical

then this feature of MOMI should not be enabled.

Systems that are just plain "slow" and are constantly behind, may be closer to the network source as a result of MOMI requesting time adjustments, but may still remain behind.

What is the best time source?

Ideally, a local NTP server / device on your Network would provide the highest levels of accuracy. Hopefully, the local network has far less traffic and response time fluctuations than a remote device accessed via the Internet. However, the MOMI SNTP implementation does take network fluctuations (i.e. delays, lags) into account.

The local NTP server / device may be a dedicated NTP server, a Windows Server or a UNIX Server. A Windows Server must be a domain controller or otherwise have the NTP server function enabled.

A public time server (NTP) may be used by searching via an Internet search engine or from the following URL -

www.pool.ntp.org

Network firewall information

SNTP uses a UDP socket over port 123. A MOMI server on the NonStop System opens the socket and sends a time request. The response is received over the same socket and port. It may be necessary to have your firewall (i.e. network environment) allow this outbound request.

Security requirement

In order to activate this feature, even for preview mode, MOMI must operate under a Super.Group or better level security.

Please see this [section](#) for more information about BWSSG if required.

How to activate

The System time management feature of MOMI may be placed in a 'preview' mode prior to full activation.

The preview mode allows confirmation of access to an NTP server and the time difference between Nonstop System and the NTP server are written to the [MOMI Log](#). The first three steps below place MOMI in the preview mode and the fourth step allows adjustment of the System clock:

1. determine the NTP server to use.
2. add the following keywords to the CONFMOMI file (restart MOMI to take effect):

```
== specify TCP/IP stack name
== (not always needed)
SNTP-TCPIP-NAME <tcpip-process-name>
```

```
== NTP server
SNTP-SERVER-ADDR <DNS-name>|<IP-address>
```

3. view the [MOMI Log](#) to see the difference between the System time and the Network Source (the messages are logged once an hour by default).
4. if desired, direct MOMI to perform required adjustments to the System clock by adding the following keyword to the CONFMOMI file (restart MOMI to take effect):

```
== allow MOMI to adjust
== the System time
SNTP-ALLOW-ADJUSTMENT
```


Common questions

Can our operators still set the System time if MOMI is configured to make adjustments?

Yes, with a consideration. The operating system forces a set of the system clock under two situations. 1) a SETTIME is performed twice within two minutes, or 2) the SETTIME value specifies a time two minutes or more off from the current System time. If the operator only issues a single SETTIME within two minutes of the current System time and expects only an adjustment, a clock set may result if MOMI is also performing an adjustment.

Can this feature be activated even if the System time is off by more than several minutes?

Yes. It may take weeks or months to finally arrive at the correct time, particularly if the System time is ahead of the Network Source.

How long do time adjustments take?

Adjusting the clock forward two minutes takes about 33 hours. Adjusting the clock back two minutes takes about 14 days.
(information from the HP Knowledgebase)

Can an operator perform a SETTIME while MOMI is adjusting the System time?

Yes. Take note of the first question above. MOMI's time computation may be affected if the System time is externally set but the condition would self correct after a few automatic time updates.

Can I have another process (or method) also perform adjustments to the System time in addition to MOMI?

Not recommended. Only one process (or method) should be selected to maintain the System time.

Once the System time is correct and MOMI is performing adjustments, will the System time need to be manually set again?

Probably not. The System time should be checked periodically by an operator to insure proper operation. Messages are written to the [MOMI Log](#) and/or [EMS Msgs](#) log for normal and error conditions detected by MOMI (messages are described below).

After a maintenance window, particularly if the outage was extended or if any hardware was replaced, the System time should be checked after processors are loaded but before System is 'started'.

Will messages appear in my EMS log every hour (assuming MOMI is checking once an hour)?

Only if a time adjustment is required.

Initially, you will see messages logged to EMS every hour while your System time is brought into sync. Two messages are logged when a time adjustment occurs. The first message notifies that MOMI is going to perform an adjustment. The second message is from the Operating System indicating the time was adjusted (System ID: TANDEM.CLOCK, event number 107). Additionally, a message is also logged should the Operating System reject the attempt by MOMI to perform the time adjustment.

The System time does not seem to be as accurate as it should be and EMS event 104 (Error reading Service Processor clock, error code :nnn) is logged.

This may indicate a problem with the service processor (SP). Consider resetting the service processors in CPU 0 and 1.

MOMI logs the following messages

Normal messages

SNTP:System time n.nnnnnn seconds ahead of Network Source (<ip-address>)

SNTP:System time n.nnnnnn seconds behind Network Source (<ip-address>)

SNTP:System time 0.000000 seconds equal to Network Source (<ip-address>)

This message is written to the [MOMI Log](#) and reflects the difference between the NTP server and the Nonstop System.

SNTP: System time does not require adjustment by MOMI

This message is written to the [MOMI Log](#) and indicates that the required adjustment is below an internal threshold so MOMI does not perform any action to the System time.

SNTP: System time will be adjusted by MOMI forward n.nnnnnn seconds

SNTP: System time will be adjusted by MOMI backward n.nnnnnn seconds

This message is written to the [MOMI Log](#) and [EMS Msgs](#) log prior to performing the adjustment to the System Clock. The operating system will also generate an EMS message when MOMI issues the call to adjust the System Clock.

Error messages

SNTP: Unable to open socket - TCP/IP stack \$tcpip-name

This message is written to the [MOMI Log](#) and [EMS Msgs](#) log and indicates that the TCP/IP process specified in the CONFMOMI keyword [SNTP-TCPIP-NAME](#) was either invalid or not available.

SNTP: Unable to obtain TCP/IP address from <DNS-name> | <IP-address>

This message is written to the [MOMI Log](#) and [EMS Msgs](#) log and indicates that the NTP server specified in the CONFMOMI keyword [SNTP-SERVER-ADDR](#) was invalid or the DNS entry could not be converted to a binary address (like the Nonstop System did not have access to an DNS server).

*SNTP: Unable to obtain enough valid time samples-Used <count>
Attempted <count>*

This message is written to the [MOMI Log](#) and indicates that an insufficient number of time samples were could be used so the program continues to obtain

them. No other error occurred. This message is reported in MOMI sever 5.37 or later.

This message is not normally expected and indicates the information received from the time server could not be used. Try another time server known to respond to other time requests.

SNTP:Unable to obtain reliable time from Network Source

This message is written to the [MOMI Log](#) and indicates that MOMI could not process the responses from the NTP server. This either indicates a temporary condition, such as an extremely poor communications link or problems at the NTP server. Occasional messages (particularly if the Internet connection is down) are expected.

Check with your network folks to insure that any and all firewalls in-between the NonStop System and the NTP server allow UDP port 123. You will probably need to provide them the TCP/IP address of the TCP/IP stack specified in [SNTP-TCPIP-NAME](#). Companies usually place multiple firewalls within their networks and each firewall must allow the NTP data flow.

SNTP:MOMI failed to adjust System time

This message is written to the [MOMI Log](#) and [EMS Msgs](#) log and indicates that the call to adjust the System Clock failed. MOMI requires the proper security for the MOMI helper program [BWSSG](#) to perform this activity.

CONF MOMI

Overview

The CONFMOMI file is used to configure / define settings and features for the MOMI environment during program start-up. This file is read once after each start-up of MOMI. CONFMOMI is a simple edit format file (code 101) and follows this general [structure](#).

At a minimum, the [PASSWORD](#) and [TCPIP-LISTEN](#) are defined in this file.

After making any changes to the CONFMOMI file, in order for them to take effect, restart MOMI then check the EMS log. Any errors encountered in the CONFMOMI file will cause an EMS message and possibly an ABEND.

Two sections in this document describe settings within the CONFMOMI file referred to as **Keywords** and **Advanced Keywords**. **Keywords** are what most configurations reference. **Advanced Keywords** deal with special features or situations and are not generally required.

Below are selected categories and the keywords that apply. Not all keywords are needed to enable a particular function.

Alarms

[Overview](#)

[ALARM-DOMAIN-NAME](#)
[ALARM-EMAIL-ADDRESS-FROM](#)
[ALARM-EMAIL-SUBJECT](#)
[ALARM-SMTP-SERVER-ADDR](#)

History

[Overview](#)

[HSTnnDB](#)
[HSTnnDB-DELETE-TIME](#)
[HSTnnDB-HISTORY-DUMP](#)

MOMI Process Priorities

[Overview](#)

[PRIORITY-BATCH](#)
[PRIORITY-DB-HST01DB](#)
[PRIORITY-DB-HSTxxDB-CON](#)
[PRIORITY-DB-HSTxxDB-R](#)
[PRIORITY-EMS](#)
[PRIORITY-EXPAND](#)
[PRIORITY-MOMI](#)

[PRIORITY-PA](#)

SNTP

[Overview](#)

[SNTP-ALLOW-ADJUSTMENT](#)

[SNTP-SERVER-ADDR](#)

[SNTP-TCPIP-NAME](#)

[SNTP-UPDATE-INTERVAL](#)

General structure

The file has the following basic format of - a keyword usually followed by a value separated by one or more spaces.

```
keyword <value>
```

The < > symbols **are not** included, but are for documentation purposes.

If a <value> is optional, it is enclosed by the [] symbols.

```
keyword [<value>]
```

Strings, if indicated by the keyword, must be enclosed in quotes or tics if it contains an embedded space. For example:

```
System-description "Production System" == Description of system
```

Comments may be included in the file. Lines that begin with the following identifiers are considered comment lines:

```
!  
==  
comment
```

Generally, data is extracted from lines of the CONFMOMI file when a keyword is recognized. Characters past expected data are usually ignored. Comments are not supported within valid input lines (i.e. you can't embedded a comment between a keyword and an expected value).

The following are some examples how comments are used:

```
comment *** this section documents something ***  
  
=====
```

```
== this is the MOMI configuration file ==  
=====
```

```
Hst01db $data1.momi.hst01db == MOMI history database
```


Keywords are not case sensitive, only one keyword per line, and spaces before the keyword and after the keyword are ignored. Use the sample CONFMOMI file as a formatting template (it is automatically placed in the same subvolume as MOMI object file during install).

It is not necessary to use all the available keywords as most have default values. Many keywords are provided for limited or special purposes.

Some keywords, in order to make it unique, use a numeric value documented as "nn" that represents a number such as 01, 02, 03, etc... . In other words, where you see "nn", such as [HSTnnDB](#), replace it with 01, 02, 03, etc... as indicated in its documentation.

Where you see xx in a keyword, such as [PRIORITY-DB-HSTxxDB-CON](#) , it is used 'as is' since it applies in all instances.

Keywords

ALARM-DOMAIN-NAME

(Default = none)

ALARM-DOMAIN-NAME <domain.name>

Defines the users domain name which MOMI uses in alarm email. Specifying this keyword activates in the SMTP (i.e. outbound email) the HELO protocol. Some SMTP servers require this protocol (perhaps in conjunction with SPAM detection).

The Domain Name specified here is usually the last portion of your email address (i.e. what is after the @ in your email address).

By default, MOMI does not use the HELO protocol.

Example:

```
== SMTP domain name
== My email address is
== fred@fredsco.com so
== my domain name is
== fredsco.com
```

```
ALARM-DOMAIN-NAME fredsco.com
```

ALARM-EMAIL-ADDRESS-FROM

(Default = none)

ALARM-EMAIL-ADDRESS-FROM <email-address>

Defines the return email address in an alarm email. This email address should be valid monitored address so that problems in sending email or replies from users receiving email are seen.

This keyword is required in order to support Alarm email.

Example:

```
== return address in email sent
== by MOMI
ALARM-EMAIL-ADDRESS-FROM momi-alarm@fredsco.com
```

ALARM-EMAIL-SUBJECT

(Default = none)

ALARM-EMAIL-SUBJECT <"subject-line"> | <"">

Defines the email subject line which MOMI uses in alarm email.

There are three possibilities in using this keyword:

1. If this keyword is not present, the default subject reads: MOMI Alarm
2. Use this keyword and specify a particular subject line.
3. Use this keyword but specify an empty double quote (i.e. ""). This causes the first line of the alarm message to appear as the subject (in other words the "fixed subject" is eliminated). Some email systems, particularly call phones, limit the length of the subject line more so than the body of the email.

Examples:

```
== my alarm subject
ALARM-EMAIL-SUBJECT "Alarm from MOMI"
```

```
== no 'fixed' email subject, use
== first line of alarm text
ALARM-EMAIL-SUBJECT ""
```

ALARM-SMTP-BIND-ADDR

(server version 5.18 or later)

(Default = determined by system)

ALARM-SMTP-BIND-ADDR <DNS-name> | <IP-address>

Defines the DNS name or IP address of the specific NonStop TCP/IP stack that MOMI should bind to when sending alarm EMAIL. The address specified here forces the 'source' address for the message.

Note that the address specified must be valid for the TCP/IP stack MOMI uses as specified by the keyword [ALARM-SMTP-TCPIP-NAME](#). If the IP address is not valid for the TCP/IP stack MOMI uses to send the email, a failure to send occurs.

Some NonStop Systems use communication hardware which have multiple physical Ethernet ports controlled by a single NonStop process. For example, the TCP/IP CLIM has several physical Ethernet ports and all communication occurs through only one NonStop process, for example \$ZTC0. By default, a TCP/IP listen on a TCP/IP stack process (again for example \$ZTC0) would allow incoming connection on every physical Ethernet port in the CLIM and an outbound connection would use a path chosen by the system, which may not be desirable. The specification of a particular IP address (or DNS name) would limit and direct all communication to a single physical Ethernet card.

Technically, this keyword causes a socket level call to bind() after a socket is opened to force an association with IP address specified.

Example:

```
ALARM-SMTP-BIND-ADDR 67.12.65.12
```

== alarm outbound email
== source IP address

ALARM-SMTP-SERVER-ADDR

(server version 4.03 or later)

(Default = none)

ALARM-SMTP-SERVER-ADDR <DNS-name> | <IP-address>

Defines the name or IP address of the SMTP server which MOMI uses to send EMAIL. This is the server MOMI uses to send outbound email. Note that the NonStop System must have the resolver active if a DNS-Name is used.

MOMI does not specify any authentication. The SMTP server must allow unauthenticated access from the source NonStop IP address. TCP port 25 is used to communicate from the NonStop to the SMTP server.

A DNS entry that resolves to more than one IP address is interpreted as a primary and backup(s) SMTP servers. MOMI connects to the first IP address returned but if the connect fails, a connect is attempted on the second address and so on. Note that the criteria for using the additional IP addresses in a DNS name is a failure to connect, not a failure of the email. The conversion of a DNS name to an IP address(es) occurs when a EMAIL is sent (this allows changes to the address while MOMI is running).

This keyword is required in order to support Alarm email.

Example:

```
== alarm outbound SMTP
== server which resolves
== into 64.158.128.147
ALARM-SMTP-SERVER-ADDR smtp.fredsco.com
```

ALARM-SMTP-SERVER-TIMEOUT

(server version 4.05 or later)

(default = 30)

ALARM-SMTP-SERVER-TIMEOUT <seconds>

Specifies the maximum amount of time (in seconds) that MOMI waits for a single I/O to complete on the SMTP server. The SMTP server is used for sending Email.

A server that does not respond within the specified time generates an error 40 (Timeout).

Multiple I/Os are required in order to converse with the SMTP server. A server responding slowly may take much longer than the value specified in order to complete an Email transmission. No error is generated as long as each I/O does not take longer than this value.

Example:

```
ALARM-SMTP-SERVER-TIMEOUT 60 == increase I/O timeout to SMTP
```


ALARM-SMTP-TCPIP-NAME

(Default = first [TCPIP-LISTEN](#))

ALARM-SMTP-TCPIP-NAME <tcpip-process-name>

Defines the TCP/IP process name that MOMI uses to access the SMTP server which MOMI uses to send EMAIL. SMTP is outbound email.

By default, the first TCP/IP process defined to MOMI for establishing client connections is used.

This keyword would generally be used in the situation where the SMTP server is isolated or not accessible from the same subnet MOMI PC Clients connect.

Example:

```
ALARM-SMTP-TCPIP-NAME $ZSAM1
```

== TCP/IP process used
== for alarm output
== SMTP email

ALARM-SUSPEND-DELAY

(default = none)

ALARM-SUSPEND-DELAY <minutes>

Specifies the amount of time (in minutes) that MOMI should delay alarm processing when the subsystem is started. During this time, alarms are not checked.

The time specified is a minimum and may vary somewhat as at MOMI start up additional delays are imposed to help minimize start-up system overhead.

The MOMI PC Client may alter or even resume alarm processing delayed affected by this keyword on the screens [Alarms / Active](#) or [Configure / Client / Actions](#).

Example:

```
ALARM-SUSPEND-DELAY 30          == delay alarms 30 minutes
```

ALARMS-MAXIMUM-PER-DEFINITION

(server version 4.06 or later)

(Default = 100)

ALARMS-MAXIMUM-PER-DEFINITION <value16>

Specifies the maximum number of Alarms that a single definition is allowed to generate.

This value is primarily a protection mechanism to prevent a single definition from generating an excessive number of Alarms. Once the limit is reached, a special 'really red' alarm is displayed and further alarms from the definition are prevented. Update the Alarm definition to 'reset' or clear the 'really red' alarm.

Example:

```
== Alarms maximum / DEF 175
ALARMS-MAXIMUM-PER-DEFINITION 175
```

CLIENT-LOCKDOWN-MODE

(server version 5.57 or later - updated 6.00)

(Default = FALSE)

CLIENT-LOCKDOWN-MODE TRUE | FALSE

Specifies if the MOMI PC Client should operate in a mode where limited data is requested and displayed prior to a user logon. Note that this setting has no effect on earlier versions of the client (earlier client versions can be prevented from connecting with the keyword [CLIENT-MINIMUM-V6](#)).

The processing of CLIENT-LOCKDOWN-MODE occurs prior to the settings of [Client Access](#) (if enabled).

True directs the MOMI PC Client to generally limit the display to a blank screen prior to a user logon.

False allows the MOMI PC Client to display data prior to a logon. However, [Client Access](#) (if enabled) still determines what screens are available prior to a logon (known as the **NOT LOGGED ON** state).

Installations of MOMI prior to version 6 do not contain this keyword by default, which means it effectively has the value of FALSE. New installations contain this keyword and it is set to TRUE. The [MOMIFTP](#) utility, used to install MOMI software on the NonStop System, by default does not alter an existing CONFMOMI file.

This keyword also affects mini-MOMI which is the limited feature set of the software when operated without a password. Either remove or set this keyword to False to allow the display of data without requiring logon.

Example:

```
== client may NOT display
== data prior to user
== logon
CLIENT-LOCKDOWN-MODE true
```

CLIENT-MINIMUM-V6

(server version 6.00)

(Default = FALSE)

CLIENT-MINIMUM-V6 TRUE | FALSE

Determines if the server accepts connections from a MOMI PC Client (or the screen saver) with a version less than 6.00. Enabling this setting effectively means that MOMI client software prior to version 6.00 is not permitted.

True causes the server to reject connections from MOMI clients (or the screen saver) prior to version 6.00.

False means the server does not check the client version when it connects.

Example:

```
CLIENT-MINIMUM-V6 TRUE == clients prior to version 6.00
                        == are not permitted to connect
```

CLIENT-SCREEN-SAVER

(server version 6.00)

(Default = TRUE)

CLIENT-SCREEN-SAVER TRUE | FALSE

Determines if the MOMI PC screen saver is allowed to operate even when CLIENT-LOCKDOWN-MODE has been enable. Note that this setting has no effect on screen saver versions prior to 6.00.

True permits the screen saver to operate, effectively allowing it to override CLIENT-LOCKDOWN-MODE and display data.

False causes the screen saver to display a message that the function has been disabled.

Example:

```
CLIENT-SCREEN-SAVER FALSE
== screen saver not
== permitted
```

CNF01DB

(Default = subvolume of BWMOMI object)

CNF01DB <file-name>

Specifies the name of the MOMI configuration database. This database is used to store MOMI configuration information.

This keyword is not required. The file is automatically created if not found at the location (or default) specified. MOMI must have create/write/read security access to this file.

The I/O activity on this file is generally very low.

Note that if this keyword is used and an existing file is present in the default location, you must stop MOMI, manually move the file, add the keyword and then restart MOMI.

Example:

```
                                == MOMI configuration database
CNF01DB $data1.momi.cnf01db
```

DEFAULT-SECURITY-USER

(server version 4.03 or later)

(Default = user that started MOMI)

DEFAULT-SECURITY-USER <User-ID>

Specifies the User ID, i.e. Guardian or Safeguard alias, that is the Default Security User for MOMI.

The User ID is not case sensitive.

The user that starts the MOMI server on the NonStop System is considered the Default Security User. This user has the initial ability to perform configuration and other operations such as creating alarms in the MOMI PC Client. Other users may also be given full or partial authority to perform these actions. See [Client Access](#) for detailed information about the Default Security User.

In the situation where the User ID that started the MOMI server, for example Super-Super, is not directly accessible (i.e. no one may logon to that ID) this keyword solves the chicken-and-egg problem by providing an alternate User ID with the initial authority to "configure and define" within the client.

Example:

```
== fred is default security user
DEFAULT-SECURITY-USER admin.fred
```


DEFAULT-WORK-LOCATION

(server version 4.11 or later)

(Default = vol/subvol when MOMI was started)

DEFAULT-WORK-LOCATION <\$vol.subvol>

Specifies an alternate location for MOMI to place work files which typically are MEASURE data files.

The default value for this keyword is the default vol / subvol specified when MOMI was started which normally is the subvolume of the BWMOMI program.

The User ID MOMI runs under must have read / write / execute / purge / create access in this subvolume. It is recommended that SAFEGUARD is not used for this subvolume.

Example:

```
                                == $data1.momiwork for temp files
DEFAULT-WORK-LOCATION $data1.momiwork
```

DISABLE-MEAS-SQLPROC

(server version 4.12 or later)

(Default = true)

DISABLE-MEAS-SQLPROC TRUE | FALSE

Determines if MOMI is allowed to report on the SQLPROC (SQL Process) entity via MEASURE.

True means this entity is not allowed to operate. False allows this entity to operate.

Certain versions of the operating system may have issues with this MEASURE entity. As a precaution, it is not enabled by default.

Example:

```
DISABLE-MEAS-SQLPROC FALSE           == enable SQLPROC
```

DISABLE-MEAS-SQLSTMT

(default changed in server version 4.06 or later)

(Default = true)

DISABLE-MEAS-SQLSTMT TRUE | FALSE

Determines if MOMI is allowed to operate an SQL Statement measurement.

True means this entity is not allowed to operate. False allows this entity to operate.

Certain versions of the operating system may have issues with this MEASURE entity. As a precaution, it is not enabled by default.

The MEASURE manual warns that this entity may consume more CPU in its data collection activities. Additionally, some O/S releases may encounter processor halts. Prior to enabling this ability, check your operating system version for any applicable software updates or alerts.

Example:

```
DISABLE-MEAS-SQLSTMT FALSE      == enable SQL statement
```

DNS-TCPIP-NAME

(server version 5.31 or later)

(Default = first [TCPIP-LISTEN](#))

DNS-TCPIP-NAME <tcpip-process-name>

Defines the TCP/IP process stack name that MOMI uses when resolving DNS names into an IP address.

By default, the first TCP/IP process defined to MOMI for establishing client connections is used.

When MOMI encounters a DNS name and requires an IP address, the socket library is directed to use this stack name to issue the query.

This keyword would generally be used when an explicate TCP/IP stack should be used for DNS resolution or the subnet(s) defined to listen for MOMI PC Client connections does not support DNS.

Example:

```
ALARM-SMTP-TCPIP-NAME $ZSAM1
```

== TCP/IP process used
== for alarm output

ENCRYPTION-ALGORITHM

(server version 5.06 or later - updated 5.57)

(Default = 2 / S-Series and older 5)

ENCRYPTION-ALGORITHM 0 .. 5

Specifies the type of data encryption used between the MOMI PC Client and the MOMI Server in the TCP/IP data flow.

The following settings are available:

- 0 - None
- 1 - FAS
- 2 - AES
- 3 - FAS No Port
- 4 - AES No Port
- 5 - FAS 2

0 - None means that normal MOMI traffic is not encrypted. This provides the highest level of performance with the lowest CPU cost.

1 - FAS uses a proprietary algorithm with a 256 bit asymmetric key to provide a "Fast and Simple" encryption of the data. A fairly high level of performance is obtained with a modest CPU cost.

2 - AES uses the Advance Encryption Standard with a 256 bit key with an industry standard algorithm. The performance impact varies depending on the NonStop CPU. The System should be checked after selecting this option to insure no adverse amount of processor is being consumed.

3 - FAS No Port uses a proprietary algorithm with a 256 bit asymmetric key to provide a "Fast and Simple" encryption of the data. A fairly high level of performance is obtained with a modest CPU cost. This algorithm may be automatically selected if the TCP/IP dynamic port varies between the MOMI PC Client and MOMI Server.

4 - AES No Port uses the Advance Encryption Standard with a 256 bit key with an industry standard algorithm. The performance impact varies depending on the NonStop

CPU. The System should be checked after selecting this option to insure no adverse amount of processor is being consumed. This algorithm may be automatically selected if the TCP/IP dynamic port varies between the MOMI PC Client and MOMI Server.

5 - FAS 2 uses a proprietary algorithm with a 256 bit asymmetric key to provide a "Fast and Simple" encryption of the data. A fairly high level of performance is obtained with a modest CPU cost. This implementation is improved over the original 1 - FAS algorithm.

Regardless of the chosen setting note the following:

- Logon information is always (and always has been) encrypted.
- Header and control information in the data flow may not be encrypted.
- The encryption level may be automatically downgraded to comply with US export controls.

Generally speaking, MOMI takes advantage of the multiple processing running within its environment and pushes encryption processing down-to the level where a request is actually serviced. This push helps to limit the amount of encryption overhead that occurs in the higher priority processes of a MOMI subsystem. See [Process Priority](#) for additional information on how MOMI divides its workload.

Example:

```
ENCIPHER-ALGORITHM 2                                == Encrypt type AES
```

EVENTCX

(server version 4.10 or later)

(Default = \$SYSTEM.SYSTEM.EVENTCX)

EVENTCX <file-name>

Specifies an alternate location an existing EMS user defined cause and recommended action file. Usage of this keyword means the file is exclusively used by MOMI since the location is non-standard.

This optional file, defined by HP for the Viewpt subsystem, provides a means of user defined verbiage for an EMS event. If the file is 1) present and 2) if a record is found with the same owner, subsystem and event number for a given EMS event then the content of the record is displayed.

On a system that does not have an EVENTCX file, the FUP obey file FUPEVTCX (located in the subvolume where MOMI is installed) is provided to allow its creation. The following command would be used to create the file:

FUP / in FUPEVTCX /

See [EMS EVENTCX](#) for additional information.

Example:

```
EVENTCX $data1.momi.eventcx
```

== alternate location
== for EVENTCX

EXPAND-IO-DELAY

(Default = 5)

EXPAND-IO-DELAY <.01 seconds>

Specifies the amount of time, in an implied .01 seconds, of delay in-between individual I/Os used to gather information about Expand objects.

This delay reduces the CPU in gathering information by spreading the I/Os out over a longer period of time.

Example:

```
EXPAND-IO-DELAY 200
```

== delay 2 seconds between
== I/Os

EXPAND-NETWORK-NAME

(Default = spaces)

EXPAND-NETWORK-NAME <name>

Specifies a unique name on an Expand network that MOMI uses to group systems for reporting purposes.

The name may be up to eight characters.

It is possible that a MOMI Client could be connected to more than one Expand network. For network diagram or other reporting purposes, MOMI needs to know how to group this information. This parameter provides that grouping.

All MOMI servers in this 'network' must use the same name in order for the client to properly establish network node relationships.

Example:

```
EXPAND-NETWORK-NAME USA
```

```
== network name USA
```

EXPAND-UPDATE-INTERVAL

(Default = 60)

EXPAND-UPDATE-INTERVAL <seconds>

Specifies the frequency in seconds in which Expand objects are updated. The higher the value, the longer in-between updates.

Lower values result in more frequent updates, but result in higher CPU usage.

The time spent gathering data also lengthens the update frequency.

Example:

```
EXPAND-UPDATE-INTERVAL 30 == update every 30 seconds
```

EXPAND-UPDATE-INTERVAL-ERR

(Default = 30)

EXPAND-UPDATE-INTERVAL-ERR <seconds>

Specifies the frequency in seconds in which Expand objects are updated after an error condition has been detected.

By default, MOMI uses a faster update interval during error conditions such as when a line or path down are present. This allows MOMI to report updates more quickly. After the error condition is corrected and detected by MOMI, the normal update interval is used.

See the parameter [EXPAND-UPDATE-INTERVAL](#) for additional considerations.

Example:

```
EXPAND-UPDATE-INTERVAL-ERR 15 == update every 15 seconds
```

FNAME-SPOOLER-n

(Default = \$SYSTEM.SYSTEM.SPOOL)

FNAME-SPOOLER-n <object-file-name-pattern>

Specifies the standard SPOOLER supervisor object file name. MOMI identifies SPOOLER subsystems by object file name.

Usage of this parameter will override the default value. If the default is required along with other entries, it must be included.

Multiple file names may be specified when more than one object file is in use, such as during a version upgrade. A file name pattern may also be specified.

The n in the parameter name provides a means to create unique parameter names. Up to 9 object file names may be specified.

Examples:

```
FNAME-SPOOLER-1 $SYSTEM.SYSTEM.SPOOL
FNAME-SPOOLER-2 $*.*.SPOOL
```

FNAME-SPOOLER-PLUS-n

(Default = none)

FNAME-SPOOLER-PLUS-n <object-file-name-pattern>

Specifies the SPOOLER 'plus' supervisor object file name. MOMI identifies SPOOLER subsystems by object file name.

Use of this parameter is required to identify a SPOOLER 'plus' subsystem. SPOOLER 'plus' is an optional product that requires certain changes in the access method versus the standard SPOOLER.

Multiple file names may be specified when more than one object file is in use, such as during a version upgrade. A file name pattern may also be specified.

The n in the parameter name provides a means to create unique parameter names. Up to 9 object file names may be specified.

Examples:

```
FNAME-SPOOLER-PLUS-1  $SYSTEM.SPLUS.SPOOL
FNAME-SPOOLER-PLUS-2  $*.*.SPOOL
```

HSTnnDB

HST01DB <file-name> (optional but must be first)
HST02DB <file-name> (optional but must be second)
HST03DB <file-name> (optional but must be third)
HST04DB <file-name> (optional but must be fourth)

Specifies the name of the MOMI history database(s). These database are used to maintain various history statistics.

The file is automatically created if not found at the location specified. MOMI must have create/write/read security access to the files and the subvolume location.

The HST01DB file is used by MOMI to dump the initial history statistics. If history is enabled, the HST01DB file must be specified first, followed optionally by HST02DB as second and so on.

History files should NOT be placed on \$SYSTEM, \$AUDIT nor any other extremely active disk volume.

Examples:

```
HST01DB $data1.momi.hst01db  
HST02DB $data1.momi.hst02db  
HST03DB $data1.momi.hst03db  
HST04DB $data1.momi.hst04db
```

HSTnnDB-DELETE-TIME

(revised in server version 5.20 or later)

HST01DB-DELETE-TIME <days> (default = 14)
HST02DB-DELETE-TIME <days> (default = 28)
HST03DB-DELETE-TIME <days> (default = 60)
HST04DB-DELETE-TIME <days> (default = 600)

Specifies how long (in days) data is retained before it is deleted from the history database. Another way to think about it is this value determines how far back history is allowed to accumulate.

If the number of days specified is greater than zero, data is automatically deleted based on the specified time criteria.

If the number of days specified is zero, data is not deleted from the file based on its age. This setting allows a history file to fill all its available file disk space. The oldest data in the file is automatically deleted to make room for new data.

If the number of days specified is -1, data is not deleted from the file based on its age and new data is no longer written to the file. This setting is provided to support the situation where it is necessary to examine a saved history file (usually in a second copy of the MOMI server environment).

When data is written to a history file but the file had reached its maximum capacity, either maximum number extents or no more disk space is available, MOMI automatically and always deletes the oldest data to make room for the new data. MOMI does not generate any out of disk space or file full messages.

Examples:

```
hst01db-delete-time 7      == keep HST01DB history 7
days
hst02db-delete-time 30     == keep HST02DB history 30
days
```

HSTnnDB-HISTORY-DUMP

HST01DB-HISTORY-DUMP	<seconds>	(default = 120)	2 minutes
HST02DB-HISTORY-DUMP	<seconds>	(default = 600)	10 minutes
HST03DB-HISTORY-DUMP	<seconds>	(default = 3600)	1 hour
HST04DB-HISTORY-DUMP	<seconds>	(default = 86400)	1 day

Specifies the amount of time (in seconds) for MOMI history windows.

MOMI initially writes history to the HST01DB file at the interval specified by HST01DB-HISTORY-DUMP. MOMI reads data from HST01DB and consolidates it into HST02DB at the interval specified by HST02DB-HISTORY-DUMP. This process is repeated for the other history files.

For example, using the default values, MOMI reads 10 minutes of history from the HST01DB file and writes the consolidated data into HST02DB. MOMI then reads 1 hour of history from HST02DB and writes the consolidated data into HST03DB. MOMI reads 1 day of history from HST03DB and writes the consolidated data into HST04DB. If a history file reaches capacity or no more disk space is available, the oldest data in the file is automatically deleted to free up space.

A value of zero (or less than an internal minimum) turns history dumping off for that file.

Values given for each history file should be progressively larger than the next and a multiple of the previous (i.e. follow the pattern as seen in the default values). History always starts with HST01DB, followed by HST02DB and so on.

The value entered here will effectively still be a multiple of the raw data collection time, which defaults to 10 seconds.

Examples:

```
hst01db-history-dump 30 = dump HST01DB every 30 secs
hst02db-history-dump 120 = dump HST01DB every 2 mins
```


IIT-NORMAL-INTERVAL-INCREMENT

(Default = 10, minimum 10)

IIT-NORMAL-INTERVAL-INCREMENT <seconds>

Specifies the number of seconds that a normal Measure interval is to increase. An attempt to set the value below the minimum is forced to the minimum.

Measurements started on demand run for an [initial period of time](#), stop, report data, restart the measurement but increase the time interval by an increment value. The computed time interval is capped at a [maximum amount](#). This keyword determines the amount a measurement interval is increased.

A normal Measure are the time periods associated with measurements such as Disk Entity, DiskFile Entity and File Entity. It is not associated with time periods for details such as Process Detail.

Example:

```
IIT-NORMAL-INTERVAL-INCREMENT 20 == increase by 20 seconds
```

IIT-NORMAL-MAXIMUM

(Default = 240, minimum 30)

IIT-NORMAL-MAXIMUM <seconds>

Specifies the maximum number of seconds of a normal measurement interval. An attempt to set the value below the minimum is forced to the minimum.

Measurements started on demand run for an [initial period of time](#), stop, report data, restart the measurement but increase the time interval by an [increment value](#). The computed time interval is capped at a maximum amount. This keyword determines the maximum amount of a measurement interval.

A normal Measure are the time periods associated with measurements such as Disk Entity, DiskFile Entity and File Entity. It is not associated with time periods for details such as Process Detail.

Example:

```
IIT-NORMAL-MAXIMUM 60 == increase stops at 60 seconds
```

IIT-NORMAL-STARTING

(updated server version 5.57)

(Default = 15, minimum 10)

IT-NORMAL-STARTING <seconds>

Specifies the initial number of seconds for a normal measurement interval. An attempt to set the value below the minimum is forced to the minimum.

Measurements started on demand run for an initial period of time, stop, report data, restart the measurement but increase the time interval by an [increment value](#). The computed time interval is capped at a [maximum amount](#). This keyword determines the first measurement interval.

A normal Measure are the time periods associated with measurements such as Disk Entity, DiskFile Entity and File Entity. It is not associated with time periods for details such as Process Detail.

Example:

```
IIT-NORMAL-STARTING 20 == first interval is 20 seconds
```

INTERVAL

(default = 10)

INTERVAL <seconds>

Specifies the amount of time (in seconds) in-between each gathering of the main body of information collected by MOMI. This main body of information is primarily the status of each CPU, process, OSS CPU and OSS Name Server on the system.

The value has a range of 5 to 180 seconds.

A value smaller or larger than allowed is set to the respective minimum or maximum permitted.

Internally, MOMI will generally round this value. The accepted values are 5, 10, 20, etc...

The default value is recommended.

Example:

```
INTERVAL 20 == stats every 20 seconds
```

IO-STUCK-EXCLUDE-n

(server version 4.06 or later)

(Default = none)

IO-STUCK-EXCLUDE-n <object-file-name-pattern>

Specifies object file names to exclude from the determination if a process is 'stuck' in an I/O.

Processes with object files located in \$SYSTEM.SYSTEM and \$SYSTEM.SYSnn are excluded automatically.

A process which remains in a wait state of %004, and is not consuming any processor time (i.e. no CPU busy time), may possibly be caught in some sort of I/O which is not completing. This may or may not indicate a problem.

Multiple file names may be specified when more than one object file is in use, such as during a version upgrade. A file name pattern may also be specified.

The n in the parameter name provides a means to create unique parameter names. Up to 9 object file names may be specified.

Examples:

```
IO-STUCK-EXCLUDE-1 $DATA1.DEVEL.FREDOBJ == exclude fredobj
IO-STUCK-EXCLUDE-2 $*.*.PRODCATB == exclude prodcatb
```

IO-STUCK-INTERVAL

(default = 30)

IO-STUCK-INTERVAL <seconds>

Specifies the amount of time (in seconds) that a process must be in a wait state of %004 before it is declared as possibly 'stuck' in an I/O.

The value has a lower range of twice the [INTERVAL](#), which defaults to 10 seconds.

A process which remains in a wait state of %004, and is not consuming any processor time (i.e. no CPU busy time), may possibly be caught in some sort of I/O which is not completing. This may or may not indicate a problem.

See [IO-STUCK-EXCLUDE-n](#) for additional information.

Example:

```
IO-STUCK-INTERVAL 60      == define 'stuck' as 60 seconds
```

LOG01DB

(Default = subvolume of BWMOMI object)

LOG01DB <file-name>

Specifies the name of the MOMI log file. This file stores events generated by MOMI.

This keyword is not required. The file is automatically created if not found at the location (or default) specified. MOMI must have create/write/read security access to this file.

The I/O activity on this file can be high if logging is enabled on high activity alerts.

Data is retained until the file is full. When a full file is detected, the oldest data is deleted to make room for a new record. To increase the maximum file storage, increase the maximum number of extents for the file.

Note that if this keyword is used and an existing file is present in the default location, you must stop MOMI, manually move the file, add the keyword and then restart MOMI.

Example:

```
LOG01DB $data1.momi.log01db == MOMI log file location
```

PASSWORD

(REQUIRED for full operation)

PASSWORD password

The keyword specifies a password string used to control the operation of MOMI. The password either allows MOMI to operate on a specific NonStop System, or on any NonStop system for a limited period of time. Optional features and other program capabilities can also be controlled by the password.

Password must be entered EXACTLY as supplied. The entire password is on one single line. There is a single space after the keyword PASSWORD and no quotes around password.

After the Server is started and the Client connects, the status of the password may be viewed on the [Diagnostics](#) page.

Example:

```
== MOMI password
PASSWORD 2932938045092384...420394852093845848
```


PATHWAY-TCP

(Default = none)

PATHWAY-TCP <pathtcp2-object-file-name>

Defines an additional, or secondary, object file location for a Pathway TCP.

By default, MOMI only considers \$SYSTEM.SYSTEM.PATHTCP2 as the object file for Pathway TCP process.

In order for MOMI to identify a Pathway TCP process, the object file name is examined. This keyword supports the situation where an additional or perhaps customer modified copy of the original Pathway TCP object is maintained. MOMI considers the standard location and this secondary location, if specified, as Pathway TCP object files.

Example:

```
                                == Location of our copy
                                == of PATHTCP2
PATHWAY-TCP $data1.alttcp.pathtcp2
```

PRIORITY-ALARM-EMS

(server version 4.06 or later)

(Default = 92)

PRIORITY-ALARM-EMS <value-1-199>

Specifies the process priority of a MOMI server for Alarm operations relating to EMS messages.

This server generally reads the EMS log and scans for events defined to trigger and clear Alarms.

Example:

```
PRIORITY-ALARM-EMS 101 == Alarm EMS priority at 101
```

PRIORITY-ALARM-FILE

(server version 4.06 or later)

(Default = 93)

PRIORITY-ALARM-FILE <value-1-199>

Specifies the process priority of a MOMI server for Alarm operations relating to Disk and File.

This server generally issues commands to obtain disk volume and file information to trigger and clear defined Alarms.

Example:

```
PRIORITY-ALARM-FILE 102           == Alarm File priority at 102
```

PRIORITY-BATCH

(Default = 90)

PRIORITY-BATCH <value-1-199>

Specifies the process priority of a MOMI server for 'batch' type operations within MOMI. Batch operations are operations where a server MOMI is started for demand type of operations such as measuring files, processes, ProcessH, etc...

Example:

```
PRIORITY-BATCH 89
```

```
== batch at priority 89
```

PRIORITY-DB-HST01DB

(Default = 95)

PRIORITY-DB-HST01DB <value-1-199>

Specifies the process priority of a MOMI server for database operations relating to the HST01DB file. This file is used as the initial location for storing performance information.

Specifically, this keyword controls the priority for writing new data to the file and reading the most current data. It is recommended that the priority specified here be the highest of the MOMI servers, operating in the batch priority area, to insure data is written timely to disk.

Example:

```
PRIORITY-DB-HST01DB 94
```

```
== hst01db priority at 94
```

PRIORITY-DB-HSTxxDB-CON

(Default = 80)

PRIORITY-DB-HSTxxDB-CON <value-1-199>

Specifies the process priority of a MOMI server for database operations relating to the data consolidation of the HSTxxDB files. These files are used for storing performance information.

Specifically, this keyword controls the priority for consolidating history from one file into another and deleting old data. This is an ongoing but fairly consistent operation and should occur at a fairly low priority.

Example:

```
PRIORITY-DB-HSTXXDB-CON 75 == history consolidation at 75
```

PRIORITY-DB-HSTxxDB-DEL

(Default = 80)

PRIORITY-DB-HSTxxDB-DEL <value-1-199>

NOTE: This parameter is not currently used, but is kept for compatibility. See [PRIORITY-DB-HSTxxDB-CON](#).

Specifies the process priority of a MOMI server for database operations relating to the HSTxxDB files. These files are used for storing performance information.

Specifically, this keyword controls the priority for deleting old data or cleanup of the files and as such, this is an ongoing but fairly consistent operation and should occur at a fairly low priority.

PRIORITY-DB-HSTxxDB-R

(Default = 85)

PRIORITY-DB-HSTxxDB-R <value-1-199>

Specifies the process priority of a MOMI server for database operations relating to the HSTxxDB files. These files are used for storing performance information.

Specifically, this keyword controls the priority for initial, or possibly long running, read operations against the files. It is recommended that this priority be rather low.

Example:

```
PRIORITY-DB-HSTXXDB-R 87          == history read at 87
```


PRIORITY-DB-LOG01DB

(server version 4.06 or later)

(Default = 94)

PRIORITY-DB-LOG01DB <value-1-199>

Specifies the process priority of a MOMI server for database operations (write and delete of old data) relating to the LOG01DB file.

This file stores events generated by MOMI.

Example:

```
PRIORITY-DB-LOG01DB 100          == log01db priority at 100
```

PRIORITY-EMS

(Default = 91)

PRIORITY-EMS <value-1-199>

Specifies the process priority of a MOMI server for EMS message retrieval within MOMI. EMS distributors and a MOMI server are started for obtaining this data.

Example:

```
PRIORITY-EMS 50
```

```
== EMS at priority 50
```

PRIORITY-EXPAND

(Default = Main MOMI - 3)

PRIORITY-EXPAND <value-1-199>

Specifies the process priority for the Expand Server/Collector. This process collects Expand information and services Client requests.

The default value is recommended.

Example:

```
PRIORITY-EXPAND 167 == expand at priority 167
```

PRIORITY-MOMI

(Default = as started)

PRIORITY-MOMI <value-1-199>

Specifies the priority for \$MOMI.

While the process priority of \$MOMI is set when the process is started, sometimes \$CMON can alter or prevent the priority given at run-time. This keyword causes the program to alter its own priority directly via a GUARDIAN procedure.

This keyword will override the value specified when the program was started.

Example:

```
PRIORITY-MOMI 168
```

```
== MOMI at priority 168
```

PRIORITY-PA

(Default = Main MOMI - 2)

PRIORITY-PA <value-1-199>

Specifies the process priority for Process Actions.

Process Actions are short duration 'command' type of activities. For example:

```
logon
process stop / abend / altpri / etc...
BWSSG (which handles Ping, Trace Route, maintain system time, etc...)
```

The handling of Process Actions at a rather high priority helps to insure that these commands are processed in a timely manner. A low priority could cause them to be hindered by low-priority intense batch type of activity in a CPU.

Example:

```
PRIORITY-PA 168
```

```
== Process Actions at 168
```

SELECTION-DEFAULT-VHS

(server version 4.11 or later)

(Default = none)

SELECTION-DEFAULT-VHS <\$vol.subvol>

Specifies the default location the file selector displays when selecting a VHS log file to display. VHS, or the Virtual Hometerm Subsystem, provides a stable location for processes to log message usually related to a problem or status update.

Usage of this parameter may aid users in selecting the proper log file as the File Locator on the screen [VHS Log](#) as it will automatically drill-down to the location specified.

Examples:

```
SELECTION-DEFAULT-VHS $DATA1.VHSLOG
```

SNTP-ALLOW-ADJUSTMENT

(server version 4.16 or later)

(Default = no adjustment)

SNTP-ALLOW-ADJUSTMENT

Allows MOMI to adjust the time on the Nonstop System.

This keyword is provided as an 'extra' step to insure that it is desired for MOMI to make adjustments to the System time.

MOMI adjusts the System time, it does not set the time. Adjusting the System time means that MOMI compares the current time at the Network time source to the Nonstop System and based on that result "nudges" the System clock either forward or backward. "Nudges" is effectively slightly speeding up or slowing down the system clock, but not forcing it to a specific time. This action may be performed on an active system without concern for setting the clock backward, which certain systems such as TMF could not tolerate.

By default, MOMI will not alter the System time.

Example:

```
SNTP-ALLOW-ADJUSTMENT
```

```
== Allow MOMI to adjust  
== the system time
```

SNTP-BIND-ADDR

(server version 5.19 or later)

(Default = determined by system)

SNTP-BIND-ADDR <DNS-name> | <IP-address>

Defines the DNS name or IP address of the specific NonStop TCP/IP stack that MOMI should bind to when sending SNTP messages. The address specified here forces the 'source' address for the message.

Note that the address specified must be valid for the TCP/IP stack MOMI uses as specified by the keyword [SNTP-TCPIP-NAME](#). If the IP address is not valid for the TCP/IP stack MOMI uses to send the email, a failure to send occurs.

Some NonStop Systems use communication hardware which have multiple physical Ethernet ports controlled by a single NonStop process. For example, the TCP/IP CLIM has several physical Ethernet ports and all communication occurs through only one NonStop process, for example \$ZTC0. By default, a TCP/IP listen on a TCP/IP stack process (again for example \$ZTC0) would allow incoming connection on every physical Ethernet port in the CLIM and an outbound connection would use a path chosen by the system, which may not be desirable. The specification of a particular IP address (or DNS name) would limit and direct all communication to a single physical Ethernet card.

Technically, this keyword causes a socket level call to bind() after a socket is opened to force an association with IP address specified.

Example:

```
SNTP-BIND-ADDR 10.21.36.124
```

== SNTP message
== source IP address

SNTP-SERVER-ADDR

(server version 4.16 or later)

(Default = none)

SNTP-SERVER-ADDR <DNS-name> | <IP-address>

Defines the DNS name or IP address of the NTP server (i.e. network time source). The NTP server is queried by MOMI to determine if the System time requires adjustment. Note that the NonStop System must have the resolver active if a DNS-Name is used.

MOMI uses the SNTP protocol to access the NTP server.

Fault tolerance is provided if a DNS name is used and resolves into multiple IP addresses. MOMI connects to the first IP address returned but if communication fails over a certain threshold, a connect is attempted on the second address and so on.

This keyword is required in order to have MOMI adjust the System time.

Examples:

```
name                                     == NTP server
SNTP-SERVER-ADDR us.pool.ntp.org

address                                 == NTP server
SNTP-SERVER-ADDR 10.10.1.1
```

SNTP-STARTUP-CHECK

(server version 5.05 or later)

(Default = FALSE)

SNTP-STARTUP-CHECK TRUE | FALSE

Allows MOMI during the initial query of the SNTP server to make any needed time adjustments if an adjustment is required and adjustments are allowed.

If SNTP processing is enabled, a query is made to the SNTP server shortly after MOMI is started to confirm that the configured SNTP server is accessible. This initial query is made regardless of the configured time interval. By default, the initial query does not make adjustments to the system time (i.e. it operates in preview mode). If this keyword and the keyword [SNTP-ALLOW-ADJUSTMENT](#) are both enabled, the initial access to the SNTP server may perform a system time adjustment.

By default, no adjustments are made to the system time by the initial SNTP query.

The purpose of this keyword is to allow MOMI to make any needed time adjustments shortly after start up. This is particularly handy if SNTP processing is enabled for the first time and a time adjustment is desired to confirm proper configuration and operation. This keyword should probably be removed after an initial use.

Example:

```
SNTP-STARTUP-CHECK TRUE
```

== Allow MOMI to adjust
== the system time
== shortly after MOMI
== is started

SNTP-TCPIP-NAME

(server version 4.16 or later)

(Default = first [TCPIP-LISTEN](#))

SNTP-TCPIP-NAME <tcpip-process-name>

Defines the TCP/IP process name that MOMI uses to access the NTP server. The NTP server provides a network time source and MOMI uses this to determine if the System time should be adjusted.

By default, the first TCP/IP process defined to MOMI for establishing client connections is used.

This keyword would generally be used in the situation where the NTP server is isolated or not accessible from the same subnet MOMI PC Clients connect.

Example:

```
SNTP-TCPIP-NAME $ZSAM1           == specify SNTP TCP/IP stack
```

SNTP-UPDATE-INTERVAL

(server version 4.16 or later)

(Default = 1)

SNTP-UPDATE-INTERVAL <hours>

Specifies the frequency that MOMI accesses the NTP server to obtain a network time. The NTP server provides a network time source and MOMI uses this to determine if the System time should be adjusted.

The frequency of access has a minimum value of 1 hour and a maximum value of 744 hours (which is approximately 1 month). A value less than the minimum is set to the minimum. A value over the maximum is set to the maximum.

The time when MOMI begins the time update process is approximately an LCT multiple of the value specified here. What this means is if a value of 24 is specified, i.e. update every 24 hours, MOMI begins its processing of updating the system time at 12:00 am. If the value of 2 is specified, time update processing occurs at 12:00 am, 2:00 am, 4:00 am and so on. The time update processing may take several minutes so any adjustment will not be on the multiple, but usually the same number of few minutes after the multiple.

Example:

```
SNTP-UPDATE-INTERVAL 48
```

```
== check system time  
== every 2 days
```

SPI-IO-TIMEOUT

(server version 4.06 or later)

(default = 5)

SPI-IO-TIMEOUT <seconds>

Specifies the maximum amount of time (in seconds) that MOMI waits for a single SPI I/O to complete. SPI is a programmatic interface used to obtain information about various subsystems such as Expand, TMF, Tape, etc... .

A server that does not respond within the specified time generates an error 40 (Timeout).

It is not recommended to increase the value greatly as this could slow down other processing within MOMI.

Example:

```
SPI-IO-TIMEOUT 12           == set timeout to 12 seconds
```

SPOOLER-IO-DELAY

(server version 4.05 or later)

(Default = 5)

SPOOLER-IO-DELAY <.01 seconds>

Specifies the amount of time, in an implied .01 seconds, of delay in-between individual I/Os used to gather information about Spooler objects

This delay reduces the CPU in gathering information by spreading the I/Os out over a longer period of time.

Example:

SPOOLER-IO-DELAY 200 == delay 2 seconds between

SPOOLER-UPDATE-INTERVAL

(server version 4.05 or later)

(Default = 60)

SPOOLER-UPDATE-INTERVAL <seconds>

Specifies the frequency in seconds in which Spooler objects are updated for Alarm purposes while the object is in a non-alarm (i.e. normal state).

The higher the value, the longer in-between updates. Lower values result in more frequent updates, but result in higher CPU usage.

The time spent gathering data also lengthens the update frequency.

The parameter [SPOOLER-IO-DELAY](#) determines the amount of time in-between each I/O during an update interval.

Example:

```
SPOOLER-UPDATE-INTERVAL 30      == update every 30 seconds
```

SPOOLER-UPDATE-INTERVAL-ERR

(server version 4.05 or later)

(Default = 30)

SPOOLER-UPDATE-INTERVAL-ERR <seconds>

Specifies the frequency in seconds in which Spooler objects are updated for Alarm purposes after an error condition has been detected.

By default, MOMI uses a faster update interval during error conditions such as when a line or path down are present. This allows MOMI to report updates more quickly. After the error condition is corrected and detected by MOMI, the normal update interval is used.

See the parameter [SPOOLER-UPDATE-INTERNAL](#) for additional considerations.

Example:

```
SPOOLER-UPDATE-INTERVAL-ERR 15 == update every 15 seconds
```


SYSTEM-DESCRIPTION

(Default = none)

SYSTEM-DESCRIPTION <string>

An informational field that specifies the nature or characteristics of the NonStop System on which MOMI is running.

The <string> is limited in length to the first 30 bytes.

The string may be quoted to include an embedded space.

Examples:

```
SYSTEM-DESCRIPTION  Production
SYSTEM-DESCRIPTION  'Communication Front End'
SYSTEM-DESCRIPTION  "Production 1"
```

TCPIP-INFO-n

TCPIP-INFO-n <tcpip-process-name> <port>

Specifies the TCP/IP process name and TCP/IP port to place a 'listen' on. Up to 20 specifications may be made.

The 'n' is a value portion of the keyword is present to make the parameter name unique.

This keyword has been superseded by [TCPIP-LISTEN](#).

Examples:

```
TCPIP-INFO-1  $ZSAM1 2010    == TCP/IP $ZSAM1 2010
TCPIP-INFO-2  $ZTC1 3000     == TCP/IP $ZTC1 port 3000
TCPIP-INFO-3  $ZTCP0 2040    == TCP/IP $ZTCP0 port 2040
```

TCPIP-LISTEN

(server version 5.15 or later)

(At least 1 is REQUIRED)

TCPIP-LISTEN <tcpip-process-name> * | <IP-address> | <DNS-name> <port>

Specifies the TCP/IP process name, optional IP address / DNS name and TCP/IP port to place a 'listen' on.

A total of up to 20 specifications may be made, of both TCPIP-LISTEN and TCP-INFO-n. A minimum of one specification is required for either of the keywords.

This keyword replaces and expands upon the keyword [TCPIP-INFO-n](#) by allowing the TCP/IP address listen.

Some NonStop Systems use communication hardware which have multiple physical Ethernet ports controlled by a single NonStop process. For example, the TCP/IP CLIM has several physical Ethernet ports and all communication occurs through only one NonStop process, for example \$ZTC0. By default, a TCP/IP listen on a TCP/IP stack process (again for example \$ZTC0) would allow incoming connection on every physical Ethernet port in the CLIM and an outbound connection would use a path chosen by the system, which may not be desirable. The specification of a particular IP address (or DNS name) would limit and direct all communication to a single physical Ethernet card.

If a DNS name is specified, it is resolved once at MOMI start up time.

The first occurrence of this keyword in the CONFMOMI file sets defaults for the following keywords:

[ALARM-SMTP-TCPIP-NAME](#)

[DNS-TCPIP-NAME](#)

[SMTP-TCPIP-NAME](#)

Examples:

```
TCPIP-LISTEN  $ZSAM1  *  2010

== TCP/IP stack $ZSAM1
== all IP addresses
== port 2010
```

```

== TCP/IP stack $ZTC1
== address 192.168.1.10
== port 3000
TCPIP-LISTEN $ZTC1 192.168.1.10 3000
```

```

== TCP/IP stack $ZTC1
== address by DNS
== port 3019
TCPIP-LISTEN $ZTC1 tdm.mycompany.com 3010
```

```

== TCP/IP stack $ZTCP0
== address 10.11.54.21
== port 2040
TCPIP-LISTEN $ZTCP0 10.11.54.21 2040
```

TCPIP-WRITE-BYTES-SEC

(Default = varies-see below)

TCPIP-WRITE-BYTES-SEC <value64>

Specifies the maximum number of TCP/IP bytes that may be written per second from the MOMI server to all PC Clients. When data traffic exceeds the specified limit, I/Os are limited (i.e. throttled) to honor the limit.

The default value is determined based on the processor type which \$MOMI is running and may vary in releases.

This parameter has the indirect effect of limiting the amount of CPU usage consumed by \$MOMI in handling TCP/IP traffic to and from the MOMI PC Clients.

A value of zero disables limitation.

The following table lists the default value:

<u>Processor</u>	<u>Default</u>
prior to S-Series	300,000
S7000, S70000, S7400, S7600	300,000
S72000	500,000
S7800[B]	500,000
S74000, S76000	600,000
S86000, S86100	800,000
S88000	900,000
Later S-Series processors	1,400,000
NS5000T	800,000
NS1000, NS1200, NS3000AC	900,000
NS2300	1,000,000
NS2400	1,500,000
NS14000, NS14200	2,000,000
NS16000, NS16200	3,000,000
NB50000C, NB54000C	4,000,000
NB56000C	4,500,000
Later NS-Series processors	2,000,000

X86 processors

4,000,000

Examples:

TCPIP-WRITE-BYTES-SEC 0	== remove limitation
	== limit to 350,000
	== bytes/sec
TCPIP-WRITE-BYTES-SEC 350000	

Advanced Keywords

The keywords located in this section are not generally needed or required for most Users. They are present to support internal development, activate internal diagnostic routines or seldom used functionality.

ALARM-BREAKPOINTS-MAXIMUM

(server version 5.17 or later)

(Default = 50)

ALARM-BREAKPOINTS-MAXIMUM <value>

Defines the maximum number of breakpoints available in each processor of the system.

The operating system maintains a table of breakpoints currently defined in each processor. A breakpoint is used by a programmer to stop the execution of a process at a particular location. If the processor breakpoint table becomes full, new breakpoints are not allowed to be set.

The current number of breakpoints defined with a process is available to MOMI via a system call. However, the maximum available in a processor is not available to MOMI. This keyword defines a maximum that MOMI uses for computational purposes.

S-Series systems has a fixed limit in the size of the table used to store breakpoints. H-Series and later do not have a practical limit on the number of breakpoints.

Example:

```
== Set MAXIMUM breakpoints
== to 75
```

```
ALARM-BREAKPOINTS-MAXIMUM 75
```


ALARM-EMS-EVENT-NBR

(server version 5.00 or later)

(Default = zero)

ALARM-EMS-EVENT-NBR <value>

Defines the EMS event number for messages logged by MOMI that are a result of an alarm.

Value has a recommended range of 20000 through 32767.

MOMI does generally create EMS messages in a 'formatted' manner, but logs its information as text with an event number of zero. However, to allow for any possible future enhancement in this area the recommended range of values should be followed.

Example:

```
== Set event number  
== for EMS alarm messages
```

```
ALARM-EMS-EVENT-NBR 22000
```

ALARM-SMTP-PORT

(server version 5.50 or later)

default = 25

ALARM-SMTP-PORT <value>

Overrides the default port for output email (i.e. SMTP).

Example:

== Set SMTP to 2026

```
ALARM-SMTP-PORT 2026
```

CLIENT-ACC

(Default = TRUE)

CLIENT-ACC TRUE | FALSE

Determines if PC Client acceleration is activated. This optimization allows the server to construct multiple responses to a Client a request (i.e. block up responses into fewer transmissions).

By default, this optimization is turned on. The keyword is provided for internal testing.

Example:

```
Client-acc false == acceleration off
```

CLIENT-INITIAL-MSG

(client/server version 5.24 or later-default changed 6.00)

(Default = TRUE)

CLIENT-INITIAL-MSG TRUE | FALSE

Determines if the PC Client (or screen saver) is required to use extra level of initial protocol to successfully communication with the MOMI server on the NonStop System.

The keyword is provided for internal testing purposes only.

The MOMI Server on the NonStop System opens and listens a TCP/IP port as specified by [TCPIP-LISTEN](#). Certain security testing programs may open the port and attempt communication. This feature was introduced to help insure that these testing programs were more quickly disconnected.

A side effect of this feature is that no MOMI PC Client prior to version 5.08 or MOMI screen saver prior to version 4.13 (issued in 5.24 release package) can communicate with the server.

Example:

```
Client-initial-msg  false           == initial message off
```

COLLECT-ALL-PROCESSES

(server version 4.17 or later)

(Default = FALSE)

COLLECT-ALL-PROCESSES TRUE | FALSE

Directs MOMI to collect all processes on the system regardless of its creation time.

By default, processes created in the future are not collected.

MOMI, in order to prevent possible process collection hangs, in its normal data collection [INTERVAL](#) does not monitor processes with a process creation time greater than the start of a particular collection interval. In the situation where numerous processes are continually being created (i.e. 100's or 1000's), trying to pick up newly created processes could hang a MOMI CPU collector. The default operation of MOMI, in order to work-around this possible situation, is to not pick-up processes created in the "future".

Systems used for test purposes that may adjust or play with (rather dramatically) the system time can use the keyword to alter the normal data collection operation. A side effect of using this keyword, is that HUNG or STOP may be seen on the [Main Overview](#) screen for CPUs if the situations described above occur.

Example:

```
COLLECT-ALL-PROCESSES true
```

== collect all processes
== regardless of process
== creation time

CPU-COLLECTOR-NOREPORT-TIMEOUT

(server version 4.06 or later)

(default = (3 * [INTERVAL](#)))

CPU-COLLECTOR-NOREPORT-TIMEOUT <seconds>

Specifies the maximum amount of time (in seconds) that MOMI waits for a CPU collector process to report.

A CPU collector process that does not report in a timely manner is stopped and its data cleared. The client initially reports the CPU as HUNG (or STOP). The collector is automatically restarted about 1 minute later.

It is not recommended to increase this value as data reported by the client for that affected processor may be old and incorrect. However, certain system configurations may not be able to provide MOMI the CPU cycles needed to operate timely and this keyword allows for a greater timeout value.

The minimum value allowed is the default. Any value less than the default is set to the default. No maximum is imposed. .

This value is not 'exact' as the internal processing for to determine if a CPU collector is not reporting timely is only performed about once a minute. In other words, the effective value specified here will usually be somewhat higher.

Example:

```
== set timeout to 30 seconds
CPU-COLLECTOR-NOREPORT-TIMEOUT 30
```

CPU-NOT-PRESENT

(server version 5.35 or later)

(Default = none)

CPU-NOT-PRESENT <cpu-nbr>

This parameter is intended for special circumstances where a nonstandard configuration is required.

Specifies if MOMI should consider a processor AS not present.

By default, and under normal systems configurations, processors in a NonStop System are contiguously populated starting with CPU 0 and sequentially going up to a maximum of CPU 15 (16 total for the system). However, certain configurations may have a hole or gap and processors are not physically populated sequentially. MOMI at start-up considers any 'missing' processor as down between (and inclusive) CPU 0 and the highest numerical value determined to be running (i.e. the CPU's O/S is loaded and responding).

A processor defined with this keyword is omitted or not initialized within MOMI and in turn does not appear on MOMI screens. After MOMI is started, if a processor is physically loaded (i.e. O/S responding) MOMI will see the CPU UP system message and report its activity regardless of this keyword setting.

Note that at MOMI start-up if a processor is defined with this keyword and is physically present (i.e. O/S is responding) it is not reported.

Multiple processors are defined by multiple uses of this keyword in the CONFMOMI file (only one cpu-nbr per line may be specified).

Example:

```
CPU 4 & 5                                == System missing
CPU-NOT-PRESENT 4
CPU-NOT-PRESENT 5
```

CPU-LIMIT

(Default = no limit)

CPU-LIMIT <percent-limit>

Imposes a maximum percentage of CPU busy each MOMI process is allowed to consume.

This parameter sets a default global limit for all MOMI processes except where another CPU-LIMIT-* keyword is defined or has a default. In other words, this parameter is a 'catch all', or starting point, for all MOMI programs including the main \$MOMI.

By default, no limitation is imposed. It is generally not advisable or required to use this parameter.

Example:

```
CPU-LIMIT 22                == limit CPU usage to 22%
```


CPU-LIMIT-ALARM-DETECT

(Default = 5)

CPU-LIMIT-ALARM-DETECT <percent-limit>

Specifies the percentage of CPU busy a MOMI server is allowed to consume in alarm detection activity.

The value may range from 0 to 99. A value of 0 disables CPU limit.

Alarm detection is the processing in stand alone servers associated determining if a threshold has been reached. For example, this could be scanning through disk files and obtaining attributes, requesting information from the SPOOLER, performing PING, etc...

Example:

```
CPU-LIMIT-ALARM-DETECT 15      == limit CPU usage to 15%
```

CPU-LIMIT-EMS

(Default = none)

CPU-LIMIT-EMS <percent-limit>

Specifies the percentage of CPU busy a MOMI server is allowed to consume in reading from EMS.

The value may range from 0 to 99. A value of 0 disables CPU limit.

Reading from EMS is in response to a MOMI PC Client request to obtain information from either \$0, other collectors or an EMS log file. By limiting or slowing down the MOMI process requesting from EMSDIST, indirectly the CPU usage consumed by both may be reduced.

Example:

```
CPU-LIMIT-EMS 16                == limit CPU usage to 16%
```

CPU-LIMIT-HSTxxDB-CONSOL

(Default = 4)

CPU-LIMIT-HSTxxDB-CONSOL <percent-limit>

Specifies the percentage of CPU busy the MOMI history consolidate and delete processing is allowed to consume.

The value may range from 0 to 99. A value of 0 disables CPU limit.

History consolidation is the process of moving data from one history file to another. This process takes data from many history periods and adds them together to a more consolidated or 'less detailed' view. Delete processing is removing old data from the history file after consolidation has completed.

Example:

```
CPU-LIMIT-HSTXXDB-CONSOL 8           == limit CPU usage to 8%
```

D47-OR-LATER

(Default = automatic)

D47-OR-LATER TRUE | FALSE

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the D47 or later version of the operating system.

True instructs MOMI that the O/S specific features are available. False instructs MOMI that the O/S specific features are not available.

By default, MOMI will automatically determine the proper setting for this parameter. Fields reported in the client that are not available are reported as zero or spaces (as appropriate). Usage of this parameter will override the automatic determination.

D48-OR-LATER

(Default = automatic)

D48-OR-LATER TRUE | FALSE

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the D48 or later version of the operating system.

True instructs MOMI that the O/S specific features are available. False instructs MOMI that the O/S specific features are not available.

By default, MOMI will automatically determine the proper setting for this parameter. Fields reported in the client that are not available are reported as zero or spaces (as appropriate). Usage of this parameter will override the automatic determination.

DEBUG1

(Default=not enabled)

DEBUG1

This parameter is intended for internal use only.

If present, activates special debug code used to determine if server is sending invalid data to Client. Will cause MOMI to ABEND if the condition is found.

DEBUG2

(Default=not enabled)

DEBUG2

This parameter is intended for internal use only.

If present, activates special debug code used to determine if MOMI is trying to terminate due to an unexpected error condition. Will cause MOMI to ABEND if the condition is found.

DEBUG3

(Default=not enabled)

DEBUG3

This parameter is intended for internal use only.

If present, activates special debug code used to confirm if data compression is working correctly. Data is compressed, decompressed and compared to the original. Will cause MOMI to ABEND if a mismatch is found.

DISABLE-LIST-LOCKS

(server version 5.03 or later)

(Default = false)

DISABLE-LIST-LOCKS TRUE | FALSE

Determines if MOMI is allowed to obtain information about the presence and status of locks on files.

True means this entity is not allowed to operate. False allows this entity to operate, which is the default.

The keyword is not normally used but is provided in the event that the listing of locks is not recommended for the current release of the operating system.

Example:

```
DISABLE-LIST-LOCKS TRUE
```

```
== prevent list locks
```

DISABLE-LOGON-COMMANDS

(Default = false)

DISABLE-LOGON-COMMANDS TRUE | FALSE

Specifies if MOMI allows commands to function that require LOGON with a User ID and password.

Certain sensitive commands require the user to LOGON with a GUARDIAN and password. This setting can be used to disable LOGON commands and prevent such commands from being executed.

True causes all sensitive commands requiring LOGON to be disabled. False allows the user to enter a User ID and password and if authentication is accepted, execute sensitive commands.

Example:

```
DISABLE-LOGON-COMMANDS TRUE == disable LOGON
```

DISABLE-MEAS-COUNTER-WRITE

(server version 5.05 or later)

(Default = see below)

DISABLE-MEAS-COUNTER-WRITE TRUE | FALSE

Determines if MOMI disables writing of MEASURE counters to any data file where counters are accessed online (i.e. via LISTACTIVE).

True means MEASURE counters are not written to disk. False means MEASURE counters are written to disk.

The default value for this keyword varies based on the operating system release. See the table below:

Operating System release	Default value
G Series	False
H Series prior to H06.14	False
H Series H06.14 or later	True
J Series J06.06 or later	True
any other release	True

A measurement is started shortly after MOMI start up that collects information for CPU's, Processes, TMF, Expand, etc... This measurement is left running the entire time MOMI operates. The measure has no collection interval as data is retrieved via the LISTACTIVE function. However, MEASURE will write records such as process start / stop to the file until it fills. At that time each processor in the CPU will log an error 45 to EMS. This error, however, does not impact MOMI's ability to access the data via the LISTACTIVE function. It simply means that data is no longer written to the MEASURE data file. This feature of MEASURE to disable recording of counter records to disk effectively prevents the error 45 situation.

Setting this value to True, when MEASURE support is not available, will cause the initial measurement started by MOMI to fail. This would be seen in the MOMI PC Client on the screen [Overview](#) as the error indication MEAS.

Example:

```
                                == counters written to disk  
DISABLE-MEAS-COUNTER-WRITE FALSE
```

DISABLE-MEAS-OSSCPU

(server version 4.09 or later)

(Default = false)

DISABLE-MEAS-OSSCPU TRUE | FALSE

Determines if MOMI is allowed to report on the OSS CPU entity via MEASURE.

True means this entity is not allowed to operate. False allows this entity to operate.

Certain versions of the operating system may have issues with this MEASURE entity so this keyword provides a disable capability.

Example:

```
DISABLE-MEAS-OSSCPU TRUE
```

```
== disable OSS CPU
```

DISABLE-MEAS-OSSNS

(server version 4.09 or later)

(Default = false)

DISABLE-MEAS-OSSNS TRUE | FALSE

Determines if MOMI is allowed to report on the OSS Name Server (NS) entity via MEASURE.

True means this entity is not allowed to operate. False allows this entity to operate.

Certain versions of the operating system may have issues with this MEASURE entity so this keyword provides a disable capability.

Example:

```
DISABLE-MEAS-OSSNS TRUE           == disable OSS Name Server
```

DISABLE-MEAS-RM-DISC

(server version 5.58 or later)

(Default = false)

DISABLE-MEAS-RM-DISC TRUE | FALSE

Determines if MOMI is allowed to gather the DISC entity of MEASURE via the system procedure call MEAS_READACTIVE_MANY_.

True means this operation is not allowed to be performed. False allows this operation to be performed.

Certain versions of the operating system may have issues with this MEASURE operation so this keyword provides a disable capability.

Example:

== disable reading DISC via
== MEAS_READACTIVE_

MANY_
DISABLE-MEAS-RM-DISC TRUE

DISABLE-TMF-REPORT

(server version 4.20 or later)

(Default = false)

DISABLE-TMF-REPORT TRUE | FALSE

Determines if MOMI is allowed to query TMF to obtain information such as the overall transactions per second and the state of TMF.

True means this entity is not allowed to operate. False allows this entity to operate.

The keyword would be used if TMF is not present or not normally in operation. By default, MOMI will query TMF on a regular basis to obtain status and would log errors in the event of a failure to communicate with TMF.

Example:

```
DISABLE-TMF-REPORT TRUE == prevent automatic TMF reporting
```


DISK-COMPRESSION-TYPE

(default changed server version 6.00)

(Default = 3)

DISK-COMPRESSION-TYPE 0 | 2 | 3

Specifies or disables the compression algorithm used for storing data on disk, primarily history.

The following selections are available:

0 - None

2 - Type 2

3 - Type 3 (Default)

None causes data to be saved without compression and consumes the most disk space.

Type 2 is the default and is present in MOMI Server versions 3.xx, 4.xx and 5.xx.

Type 3 is available in MOMI server version 5.00 or later. This type compresses longer strings of repeat data than Type 2 and generally provides a higher level of compression.

A newer version of the MOMI server can read data compressed from an older server version. However, an older version of the MOMI server cannot read data created by a newer server version if the compression type is not known.

MOMI's ability to read existing data is not affected by a change in this value as the compression selection is stored in each data record.

The default is recommended.

Example:

```
DISK-COMPRESSION-TYPE 2 == use old disk compression
```

G0612-OR-LATER

(Default = automatic)

G0612-OR-LATER TRUE | FALSE

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the G06.12 or later version of the operating system.

True instructs MOMI that the O/S specific features are available. False instructs MOMI that the O/S specific features are not available.

By default, MOMI will automatically determine the proper setting for this parameter. Fields reported in the client that are not available are reported as zero or spaces (as appropriate). Usage of this parameter will override the automatic determination.

G0626-OR-LATER

(Default = automatic)

G0626-OR-LATER TRUE | FALSE

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the G06.26 or later version of the operating system.

True instructs MOMI that the O/S specific features are available. False instructs MOMI that the O/S specific features are not available.

By default, MOMI will automatically determine the proper setting for this parameter. Fields reported in the client that are not available are reported as zero or spaces (as appropriate). Usage of this parameter will override the automatic determination.

H0604-OR-LATER

(server version 4.07 or later)

(Default = automatic)

H0604-OR-LATER TRUE | FALSE

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the H06.04 or later version of the operating system.

True instructs MOMI that the O/S specific features are available. False instructs MOMI that the O/S specific features are not available.

By default, MOMI will automatically determine the proper setting for this parameter. Fields reported in the client that are not available are reported as zero or spaces (as appropriate). Usage of this parameter will override the automatic determination.

H0614-OR-LATER

(server version 5.05 or later)

(Default = automatic)

H0614-OR-LATER TRUE | FALSE

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the H06.14 or later version of the operating system.

True instructs MOMI that the O/S specific features are available. False instructs MOMI that the O/S specific features are not available.

By default, MOMI will automatically determine the proper setting for this parameter. Fields reported in the client that are not available are reported as zero or spaces (as appropriate). Usage of this parameter will override the automatic determination.

H0624-J0613-OR-LATER

(server version 5.32 or later)

(Default = automatic)

H0624-J0613-OR-LATER TRUE | FALSE

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the H06.24/J06.13 or later version of the operating system.

True instructs MOMI that the O/S specific features are available. False instructs MOMI that the O/S specific features are not available.

By default, MOMI will automatically determine the proper setting for this parameter. Fields reported in the client that are not available are reported as zero or spaces (as appropriate). Usage of this parameter will override the automatic determination.

H0625-J0614-OR-LATER

(server version 5.32 or later)

(Default = automatic)

H0625-J0614-OR-LATER TRUE | FALSE

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the H06.25/J06.14 or later version of the operating system.

True instructs MOMI that the O/S specific features are available. False instructs MOMI that the O/S specific features are not available.

By default, MOMI will automatically determine the proper setting for this parameter. Fields reported in the client that are not available are reported as zero or spaces (as appropriate). Usage of this parameter will override the automatic determination.

H0627-J0616-OR-LATER

(server version 5.32 or later)

(Default = automatic)

H0627-J0616-OR-LATER TRUE | FALSE

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the H06.27/J06.16 or later version of the operating system.

True instructs MOMI that the O/S specific features are available. False instructs MOMI that the O/S specific features are not available.

By default, MOMI will automatically determine the proper setting for this parameter. Fields reported in the client that are not available are reported as zero or spaces (as appropriate). Usage of this parameter will override the automatic determination.

H0629-J0618-L1708-LATER

(server version 6.00 or later)

(Default = automatic)

H0629-J0618-L1708-LATER TRUE | FALSE

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the H06.29/J06.18/L17.08 or later version of the operating system.

True instructs MOMI that the O/S specific features are available. False instructs MOMI that the O/S specific features are not available.

By default, MOMI will automatically determine the proper setting for this parameter. Fields reported in the client that are not available are reported as zero or spaces (as appropriate). Usage of this parameter will override the automatic determination.

HIGHEST-RUNNING-CPU

(Default = automatic)

HIGHEST-RUNNING-CPU <cpu>

Specifies the numerically highest CPU number that should be running on the system.

When MOMI is started, by default it uses the current highest 'up' CPU as the number of processors to 'expect' as running on the system.

This keyword over-rides the default computation. If the value specified is less than the highest 'up' CPU it is not used. Any time a new processor is added to the system MOMI bumps its own internal value and will expect the processor in the system configuration.

The purpose of this keyword is to insure that a minimum number of processors exists on the system. It is possible that is MOMI is started while a CPU is down, no alarm indication would result.

Example:

```
HIGHEST-RUNNING-CPU 5           == 6 processor system
```

LOGON-SPOOLER-VIEW-JOB

(server version 5.24 or later)

(Default = TRUE)

LOGON-SPOOLER-VIEW-JOB TRUE | FALSE

Determines if the MOMI requires a user to logon in order to view the contents of a Spooler job.

Setting this keyword to FALSE means that the User ID \$MOMI is started under is used to access the contents of a spooler job. By default, the command is executed under the authority of the user logon.

The keyword is provided for environments where they desire (and should) use MOMI's [Client Access](#) feature instead of Guardian / SafeGuard security.

Setting this keyword to FALSE has the following effects:

- Viewing of a Spooler job occurs under the logon security used to start \$MOMI
- If \$MOMI is started under Super.Group (or better) ID the contents any Spooler job may be displayed
- By default, the [NOT LOGGED ON](#) user can display the contents of any Spooler jobs

Example:

```
logon-spooler-view-job false           == logon not required
```

MAX-COUNT-CONTEXT-ALLOWED

(server version 5.05 or later)

(default = 100)

MAX-COUNT-CONTEXT-ALLOWED <value32>

This parameter is intended for internal use only.

Specifies the maximum number of context control blocks a single client may request from a single MOMI server.

The server will not set a value lower than an internal minimum value.

The MOMI server usually creates context to service individual Client requests. As a protection, the maximum number client context control blocks are limited. This prevents, in a worse case situation, the appearance of a MOMI server looping or consuming a great deal of CPU resources when the client disconnects and internal clean up occurs.

Example:

```
MAX-COUNT-CONTEXT-ALLOWED 60          == limit context to 60
```

MEAS-SQLSTMT-WILD-CARD

(Default = Space)

MEAS-SQLSTMT-WILD-CARD <"character">

Defines the character used as a wild-card for the field run^unit on the MEASURE entity SQL Statements.

MOMI always retrieves all SQL Statements in a process when requested. However, at some point the MEASURE interface changed and an asterisk ("*") no longer functioned as a wild-card. Instead, a space was required.

This keyword allows the definition of the character used for this particular MEASURE entity field.

Examples:

```
== set SQL Statements wild-card
== to an asterisk
MEAS-SQLSTMT-WILD-CARD "*"
```

OSS01-API-VERSION

(server version 4.20 or later)

(Default = automatically determined)

OSS01-API-VERSION 1 | 2

Determines the API set used by MOMI when accessing OSS.

Version 1 uses 32-bit OSS file system calls. Version 2 uses 64-bit OSS file system calls.

Later versions of the Operating System provides for OSS files larger than 2 Gigabytes in size. However, this requires that an extended set of API calls be used that generally return 64-bit instead of 32-bit values. The 64-bit OSS file system calls may be used on 64 and 32-bit files. However, 32-bit OSS file system calls cannot be used on 64-bit files.

Usage of this keyword is NOT recommended as the default is automatically determined by MOMI based on the current operating system version. The keyword is provided primarily for internal testing.

Example:

```
OSS01-API-VERSION 2      == use 64-bit OSS file system calls
```

PRIORITY-COLLECTOR-MST

(Default = Main MOMI - 1)

PRIORITY-COLLECTOR-MST <value-1-199>

Specifies the priority for the Collector Master. This process configures the master measurement used by all MOMI CPU collectors and performs other coordination activities.

The default value is recommended.

Example:

```
PRIORITY-COLLECTOR-MST 165      == master at priority 165
```

PROCESS-ENTITY-EXCLUDE

(server version 5.21 or later)

(Default = None)

PROCESS-ENTITY-EXCLUDE <file-name>

Defines object file names that are excluded from the MEASURE entity Process.

File-name is a MEASURE Guardian format object file name. Wild-cards are supported but only as a whole volume, subvolume or file portion of the name. Up to 10 entries are supported.

This capability is provided to as a work-around where certain object files must be excluded from the process entity measurements made by MOMI. Any exclusion specified causes a Process Entity and SQLPROC Entity exclusion from 1) the master measurement started when MOMI is started, and 2) the measurement started on the client screen [Processes / Process Entity](#).

Note that literally processes with object files specified with this keyword will no longer be reported on MOMI screens where their information is obtained from MEASURE.
However, the process may be reported where information is obtained from Guardian and cause discrepancies between client screens.

Examples:

```
                                == exclude these objects
                                == from process entity
PROCESS-ENTITY-EXCLUDE $SYSTEM.*.mxosrvr
PROCESS-ENTITY-EXCLUDE $OSS.*.*
PROCESS-ENTITY-EXCLUDE $data1.test.fredobj
```


SNTP-OFFSET

(server version 5.18 or later)

(Default = zero)

SNTP-OFFSET <+/-hmm>

Specifies an offset added to the NTP server reported time.

The value specified may either be positive (the default) or negative and is encoded as hours and 2 digits for minutes. For example, 1 hour is represented as 100. 2 hours and 15 minutes is represented as 215.

This keyword provides for the situation when the original NTP server time value, which is generally GMT, is not desired but requires an adjustment. Literally, MOMI adds the value specified here to the time reported by the NTP server and the result is used in the time adjustment calculations.

It is recommended that if this feature is required, MOMI should be placed into preview mode, via commenting out the keyword [SNTP-ALLOW-ADJUSTMENT](#), to confirm the value specified here is correct. Time adjustment information is reported in the [MOMI Log](#) when operating in preview mode.

Example:

SNTP-OFFSET 100	== add 1 hour to NTP == reported time
SNTP-OFFSET -215	== subtract 2 hours and == 15 minutes from == NTP reported time

SNTP-SET-IF-BEHIND

(server version 5.00 or later)

(Default = FALSE)

SNTP-SET-IF-BEHIND TRUE | FALSE

Directs MOMI to perform a SET of the system time if a correction is needed that would move the system time forward.

This setting provides a capability to 'force' an adjustment of the system time. Moving the system time forward is not considered 'dangerous', where moving the system time backward (on an active system) is not desirable, especially to TMF.

By default, MOMI will only adjust or request a gradual correction to the system time.

Customers generally should NOT use this capability.

Example:

```
SNTP-SET-IF-BEHIND  TRUE
```

```
== Allow MOMI to set  
== the system time forward
```

SNTP-VERBOSE

(server version 4.16 or later)

(Default = not verbose)

SNTP-VERBOSE

Directs MOMI to write additional information about SNTP operations into the [MOMI Log](#).

This information would be used to help diagnose a problem with SNTP processing.

By default, MOMI will not generate this additional information.

Example:

SNTP-VERBOSE

```
== Generate additional  
== information about  
== SNTP processing
```

TCPIP-THREADS

(default changed 6.00)

(Default = 150)

TCPIP-THREADS <value16>

Specifies the maximum number of TCP/IP threads or concurrent Client connections supported. The absolute maximum allowed is 350.

A value smaller or larger than allowed is set to the respective minimum or maximum permitted.

Resources are allocated dynamically for TCP/IP connections, so using this keyword will not generally 'save' anything nor is it generally required.

The number of connections current, high water and the maximum available may be viewed in the PC Client.

Example:

```
TCPIP-THREADS 150
```

```
== TCP/IP threads 150
```

TCPIP-TIMEOUT

(server version 4.19 or later)

(default = 600)

TCPIP-TIMEOUT <seconds>

Specifies the maximum amount of time (in seconds) that MOMI waits for any data to arrive from the MOMI PC Client. This value acts as a "sanity check" to insure that a socket connection eventually is either used (i.e. valid) or closed and does not simply hang.

If a timeout occur, the socket is closed.

This value also indirectly determines the maximum amount of time that the MOMI PC Client may be globally paused (i.e. all activity suspended) before the TCP/IP socket is disconnected.

The minimum value of 60, or 1 minute. Any value less than the minimum is set to the minimum.

Example:

```
TCPIP-TIMEOUT 60 == set timeout to 1 minute
```

History

Enabling History

MOMI has the ability to store many of its statistics for later review. This feature is activated by enabling it in the CONFMOMI file. By defining a history file, MOMI will automatically create and begin recording predetermined statistical information. If a file fills up, either for lack of disk space or maximum extents, the oldest data is automatically deleted to make room for newest data.

Up to four history files may be created. These are referred to as HST01DB -> HST04DB. History is initially written to HST01DB and then consolidated into the other files at different intervals. This gives the User the ability to maintain high resolution history for a short period of time and lower resolution history for a longer period of time.

The line to define each history file name ([HSTnnDB](#)) is the only line required. Other history attributes all have default values.

History is configured on the NonStop as follows:

1. Determine the disk volume(s) where the history files are to reside.
2. Edit CONFMOMI and un-comment out or add the following lines (HST01DB is required, others optional):

```
== MOMI History Files
HST01DB $vol.subvol.HST01DB
HST02DB $vol.subvol.HST02DB
HST03DB $vol.subvol.HST03DB
HST04DB $vol.subvol.HST04DB
```

3. Optional - add keyword(s) : [HSTnnDB-DELETE-TIME](#)
4. Optional - add keyword(s) : [HSTnnDB-HISTORY-DUMP](#)
5. Start (or restart) MOMI via the TACL obey file OBYMOMI.

History files are created automatically. If a file fills up, its oldest data in the file is automatically deleted to make room for newest data.

Resizing History Files

(changed server version 6.01 or later)

MOMI automatically creates history files when enabled. The initial size of these files are as follows:

File	Primary Extent	Secondary Extents	Default Maximum Extents	Default Size Gigabytes
HST01DB	35000	35000	60	4.3
HST02DB	30000	30000	50	3.1
HST03DB	28000	28000	40	2.3
HST04DB	27000	27000	30	1.7

Two methods are available to re-size the history file.

Alter maximum extents

The utility FUP may be used, while \$MOMI is running, to alter the maximum extents of the history files.

To increase the amount of history disk space allowed, raise the MAXEXTENTS of the history file(s).

To decrease the amount of history disk space allowed, reduce the MAXEXTENTS of the history file(s). The file system will not allow a reduction in the maximum extents below the End of File (EOF).

On systems with limited amounts of disk space, it is suggested to start MOMI, wait a few seconds to allow the files to automatically create, and then stop MOMI. In FUP "set like" a history file, purge the old file, set the MAXEXTENTS and/or primary/secondary extent sizes, then create a new file. MOMI must be able to allocate at least one extent on every history file defined or an error will result.

See the screen [Server Info](#) for information on how to alter the history files MAXEXTENTS from within the MOMI PC Client.

Convert file from Format 1 to Format 2

If history files were transferred from older NonStop Systems it is possible your history files were created as format 1. This old format is limited to a maximum size of approximately 2 Gigabytes. MOMI has always supported opening and reading format 2 files

which are generally limited only to available disk volume space, assuming the primary and secondary extent sizes are sufficiently large.

The procedure to convert a file is to create a new file **just like** the old file and change a) format 2, and b) primary and secondary extent sizes. Data is transferred from the old file to the new via the FUP LOAD command.

The following steps describe how to perform the conversion. The values in **green** are dependent on your configuration and needs. HST01DB is used in this example sequence. Substitute the HST01DB name with the desired file on your system. Compute a primary and secondary extent size for your system:

1. Stop \$MOMI. Wait until the file is closed.
2. Start FUP and enter the following sequence of commands -

FUP

```
RENAME HST01DB,HST01DB1
```

```
SET LIKE HST01DB1
```

```
SET FORMAT 2
```

```
SET EXT (70000,70000)
```

```
SET MAXEXTENTS 16
```

```
CREATE HST01DB
```

```
LOAD HST01DB1,HST01DB,SORTED
```

3. After the load completes, exit FUP and restart MOMI. Check the EMS log to insure that the new file was accepted.

Considerations:

a) absolutely, positively, and without a doubt insure that other applications will not be impacted and that sufficient free disk space is available. Use the DSAP utility to confirm the availability of the extent sizes chosen. Remember that total free disk space does not indicate the availability of the extent size chosen.

b) to allow a history file over 2 Gigabytes in size, consider a primary and secondary extent sizes of at least 70000. This will create a file just over 2 Gigabytes which you can then alter the maximum extents to gain additional disk space.

c) depending on the file size and system performance, the LOAD command may take 15-20 minutes. One way to speed the process is to perform the LOAD from one disk volume to another disk volume and after the load completes FUP DUP the file back (if necessary). This may be faster than a LOAD with both input/output on the same volume.

Leave all other attributes of a MOMI file 'as is'. MOMI will not use the file if an expected attribute is changed. Check the EMS log immediately after restarting MOMI to insure that the converted history file is accepted (MOMI writes a message to the EMS log (i.e. \$0) if the history file is not accepted). Fallback to the original file should the new file not be accepted.

History Considerations

The collection of history may require consideration before activation on older platforms or systems short of disk space.

History files (HSTxxDB) are simple Enscribe keyed sequence files with a single primary key. No alternate keys are used and the files are not TMF audited. If necessary, history files may be purged. Stop MOMI, purge the desired files (or purge data) and restart MOMI. MOMI automatically creates files if needed. No special recovery procedures are required.

The activation of history primarily 1) will consume disk space, and 2) increase the I/O load to the disk volume(s) where MOMI history files reside. Additionally, older processors prior to the S72000 may notice a slight increase in CPU utilization. However, disk space and I/O load is really the primary considerations.

The default amount of disk space consumed by MOMI history files may be found in [Resizing History Files](#). Care should be given to not impact disk space required by other applications.

MOMI initially writes history to the HST01DB file. History is consolidated from HST01DB into HST02DB, from HST02DB into HST03DB and finally from HST03DB into HST04DB. The consolidation process generally a) reads all needed records from one file, b) writes all needed records into the second file and c) goes back and deletes oldest eligible data from the first file. Spreading MOMI history files out across multiple disk does not really 'help' to provide any performance improvements at least to MOMI, however it may help other applications also residing on the same volume if it is heavily loaded.

History is written to HST01DB every few minutes by default. All MOMI history is compressed and consolidated to help avoid unnecessary I/O. Consolidation into the other files occur at their history dump interval (default history dump intervals are found in [HSTnnDB-HISTORY-DUMP](#)).

Older or smaller powered processors, such as the S7000, may see an increase of one to two percent in CPU utilization. Processors such as the S72000 and beyond would hardly report any difference.

History Questions and Answers

Where do I start with the history parameters?

We recommend using the defaults. Remove comments or add the lines to the CONFMOMI file as referenced elsewhere in this document.

What if my file is not large enough? Will MOMI generate an error 45 (file is full) message?

If MOMI needs to write data to the history file and space is not available, some of the oldest data in the file is automatically deleted to make room for new. MOMI does not generate error 45 (file is full) messages nor error 43 (no disk space) for history files. This action occurs regardless of any other settings pertaining to how long data is retained.

Does dumping data more frequently cause MOMI to work harder?

Directly no, but indirectly yes. The information MOMI dumps to the history file has already been collected. Activation of history is the process of dumping this data to disk, allowing the PC Client to read the history data and maintain or delete old data from the history file. Therefore, no additional CPU cost is directly imposed in the collection process, just in what you do with the data after it is collected.

At what priority will the history be dumped to disk? Will it be high like MOMI (by default) is?

MOMI uses a server process, by default running at priority 95, to write data to disk. It does not write at the priority of \$MOMI. MOMI uses three different servers to manage the history file. One server to write data, a second server to read data for PC Client requests, and a third server to delete or cleanup old data. See the CONFMOMI keyword documentation for additional information. Three keywords used to control the priority for access to the history file:

<u>PRIORITY-DB-HST01DB</u>	- priority write
<u>PRIORITY-DB-HSTxxDB-R</u>	- priority read
<u>PRIORITY-DB-HSTxxDB-CON</u>	- priority delete/cleanup

What will happen if the server process that MOMI uses to write data to disk is bogged down or otherwise not able to get its data written out to disk?

MOMI will initially queue in memory the data waiting to be written to disk. This queue will continue for a period of time, before new data is discarded. Overall, MOMI will try to protect itself and your System by using more memory and discarding history data if necessary. In order to insure that all history data is collected, the MOMI server used to write data to disk should be given sufficient CPU so it will not normally be bogged down by batch or other long running programs.

I see a high CPU utilization of a MOMI process running at a low priority, and by using MOMI I tracked it down as performing large number of disk reads from a history file. What is going on?

Normally, that is normal. The PC Client has a great deal of flexibility in accessing the history data. The PC Client could be searching for a named process, reading data for display or perhaps performing a history export operation. MOMI protects your System by using a separate, configurable priority process to perform "bulk" history reads. If the default priority is too high for your System, lower the priority by using the keyword [PRIORITY-DB-HSTxxDB-R](#) .

I cannot find history records for a process?

To conserve disk space MOMI history records are written when a process 'changes' state or is active. If a process is active, inactive for a period of time, then active, there may be no history records for a portion of the inactive period of time. If you were to view all of the history records for this process, at the start of the inactive period of time there would be at least one record showing zero CPU busy, a gap in real time and then followed by a record showing activity. Activity is start/stop, CPU Busy, or other change in process state.

System Quirks

The following links describes various situations or "quirks" present on the NonStop System:

[CPU Up/Down determination](#)

[Expand throughput](#)

[O/S version determination](#)

[SQL/MP - DiskFile Entity](#)

[SQL/MP errors](#)

[Virtual Memory changes via NSKCOM / Virtual memory statistics](#)

CPU Up/Down determination

NonStop Systems are not configured with the number of processors expected . From a system configuration perspective, the operating system is always ready to accept (software wise) a maximum of 16 processors.

MOMI, every time is it started, uses the numerically highest 'up' processor in the system as the number of processors for up/down determination. For example, if the numerically highest 'up' processor is 5, which indicates 6 CPUs numbered 0 through 5, and processor 4 crashes, processor 4 is reported as down.

Additional processors added to the system while MOMI is operating automatically increase the numerically highest 'up' processor determination. In the above example, if an additional two processors were added, processors 6 and 7, MOMI now assumes the system is 8 processors numbered 0 through 7.

If processors are removed from the system 'on-line', i.e. without a cold-load, restart MOMI to force a new up/down calculation.

If processors are removed from within the system, for example CPUs 2 & 3 in a six processors system, and it is necessary to operate the system in that manner for a period of time, the CONFMOMI keyword [CPU-NOT-PRESENT](#) may be used to indicate to MOMI the CPUS that are expected to be down. **Be sure** and remove this keyword when the system configuration is restored to normal.

Expand throughput

Byte rates for Expand lines are generally only available for Expand over TCP/IP. Byte rates for other types of lines such as Expand over X.25 are estimated by using the Frame rate times the average bytes per frame. Expand over Fox and Supercluster (Expand over ServerNet which is reported as a NAM connection) do not provide a byte rate.

O/S version determination

Operating Systems versions prior to G06.24 do not provide the exact Operating System version as known by Users (i.e. G06.21) via supported system calls. You can determine the major portion (i.e. G06), but not the minor portion (i.e. .21).

The documented System procedure call `PROCESSOR_GETINFOLIST_` has an item code defined to return the minor version number, but it always returns zero on systems prior to G06.24. To work around this limitation MOMI reads an undocumented file `$SYSTEM.SYSnn.RLSEID`. This file appears to be used by the utility `SYSINFO` and by `TACL` to obtain this information.

On Operating Systems G06.24 and later, the documented System procedure `PROCESSOR_GETINFOLIST_` correctly returns the minor version number. The undocumented file `$SYSTEM.SYSnn.RLSEID` is not accessed.

The TNS/E Integrity System must use the `RLSEID` file. Hopefully, this may be removed in a future O/S release.

SQL/MP - DiskFile Entity

Secondary partitions on SQL/MP files do not always show up under this measurement. This is due to MEASURE not providing data. Try the DiskOpen Entity in this situation.

SQL/MP errors

The SQL/MP screens may display various SQL error codes, with 4060 as the most common. The appearance of these codes may indicate a discrepancy in the SQL catalog itself. MOMI assumes that the catalog structure and data within the catalog has full integrity.

In the PC Client, on the [SQL/MP / Catalog](#) screen, the column Status Message shows an error code if a simple query of that catalog fails. Any Status Message displayed here indicates that MOMI will have problems with SQL/MP reporting. This is the first place to check and perhaps identify the catalog in question.

We suggest consulting with your Database Administrator (DBA) if you have any integrity issues with your SQL/MP catalogs.

Below are some additional steps you can perform to check your catalog integrity. From a TACL prompt:

- 1) SQLCI GET CATALOG OF SYSTEM;exit
- 2) Volume to this location.
- 3) SQLCI SELECT * FROM CATALOGS;exit
- 4) The first column (CATALOGNAME) in the output consists of all of the catalogs on your system registered to SQL. For each of those entries do a fileinfo of the \$vol.subvol.*
- 5) If a \$vol.subvol is listed in the CATALOGS table that does not exist, or does not contain SQL catalog objects, an inconsistency is present. Consult with your DBA and/or HP to resolve the problem.

If your SQL/MP catalogs do not show a problem, please send us an email with a screen shot and description of the SQL/MP error encountered.

Virtual Memory changes via NSKCOM / Virtual memory statistics

Virtual memory configuration and statistics are not available from either the Guardian Operating System procedures nor MEASURE. To work around this limitation, MOMI starts a copy of NSKCOM and periodically parses its text output to determine the amount of virtual memory available, the highest usage (i.e. high water mark), and the current usage.

Some users have reported that they were unable to alter the virtual memory on their system due to NSKCOM reporting:

"... ZSYSCFG is locked by another user..."

Note: The file in question is really \$SYSTEM.SYSTEM.KMSFLOCK

They corrected this problem by stopping MOMI, making changes via NSKCOM and then restarting MOMI.

MOMI does not make any changes to virtual memory but just uses NSKCOM for 'reading' virtual memory status. However, we believe this situation may occur if a delete of a swapfile is pending after a system cold-load and if the NSKCOM started by MOMI is the first instance of this utility after a cold-load of the system.

The suggested work-around is to start an NSKCOM, under a Super.Group User ID or better, rather early in your system startup files a) after all processors have been loaded, but b) before MOMI is started. The purpose of this NSKCOM is to cleanup any pending swapfile operations after a cold-load. It is possible that the pending operation may take some time if a great deal of cleanup is involved. The recommended command to consider in your system startup file is:

comment	== start NSKCOM, allow any
comment	== pending cleanup then exit

NSKCOM EXIT

Update ➔ As of MOMI Server version 5.00 and later the NSKCOM used by MOMI is restarted after the initial request of swapfile information. This restart should prevent, or at least automatically correct, a locked configuration file. Note that pending changes to the swapfile may keep the initial instance of NSKCOM 'busy' for a while. This may delay the

initial report swapfile information within MOMI. If your site changes the swapfile often, placing an NSKCOM EXIT in your startup files, as described above, is still recommended.

MOMI PC Client

Overview

The MOMI PC Client provides the presentation/access interface to MOMI. It is a standard Windows 32-bit program that uses TCP/IP (i.e. Winsock) to communicate with the MOMI server on the NonStop System. No additional communication software such as RSC is required.

The Client is written in Borland Delphi that generates a high performance stand-alone executable and does not require 'registration' within the Windows environment in order to function. The Client makes extensive use of Windows graphics and other resources. As such, a professional version of the Windows operating system (or better) is recommended.

The MOMI PC Client *technically* does not require any Windows installation or setup. You can run the PC Client by double-clicking on the MOMI.EXE executable. This stand-alone executable feature helps support various deployment options. The MOMI PC Client activates additional features when expected subdirectories are present in the location where the executable is present. For example, if the subdirectory \Help\WebHelp is present, local HTML help may be invoked when pressing the Help button.

When a Client is started for the first time, it creates the MOMI.INI file. This file contains the configuration information for the program. We chose to use an INI file versus registry entries because a User can easily look at or relocate an INI file. Registry entries are a little more involved.

The default location where MOMI stores its INI and other working files:

Windows 7 / Windows 10 and later -

C:\Users\<User ID>\AppData\Roaming\BlackWood
Systems\MOMI\

Where <User ID> is the name used at logon to Windows. You must enable *Show hidden files, folders and drives* under Windows Folder Options to enable their display.

After the Client creates the MOMI.INI file, it will prompt the User for a TCP/IP address and port. This is an address and port the MOMI server on the NonStop System is 'listening' on. After entering this information the Client will establish a socket connection and begin exchanging data with the MOMI Server. Additional NonStop Systems may be defined in the Client. Each TCP/IP address and port is defined on this same screen.

After the initial connection, the User is taken to the [Main Overview](#) screen. This main screen of MOMI provides an overview of the general System health.

The available screens are organized by functional groups. Select the Tab or button of the group to navigate to the desired screen. The mouse will change to a [pointing hand](#) when over a jump point. The letters L and/or R will appear to indicate what mouse keys (Left / Right) are available.

Tool Tips or pop-up windows are used extensively throughout the MOMI PC Client to describe fields and actions. Move the mouse over any field or column heading to obtain additional information.

Security is imposed when access to the data or an operation requires user specific authorization. For example, specific security is required to view the contents of a file, but specific security is not required to view the names of files in a directory. Additionally, commands that perform an action such as purging a SPOOLER job or renaming a file require security. The User obtains security by logging on. This is obtained by pressing the [LOGON](#) button in the lower right hand corner of the screen. A Guardian User ID or Safeguard Alias and password is entered.

[Client Access](#) provides a means to restrict access to particular screens within the MOMI PC Client. Client Access does not replace Guardian/Safeguard security, but is a separate subsystem specific to MOMI.

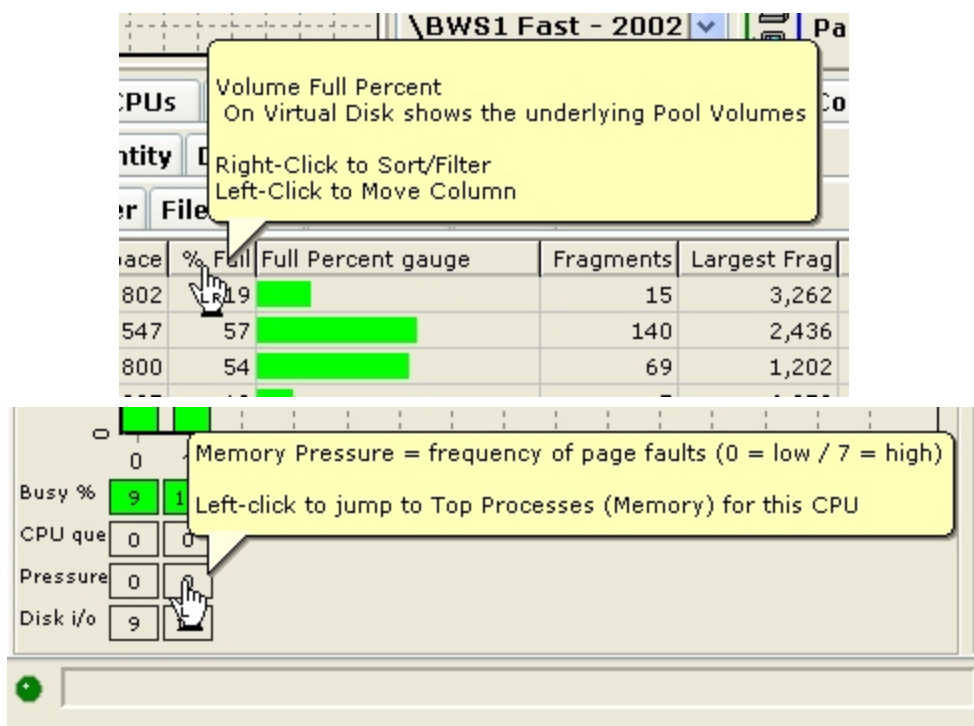
During the course of accessing various screens and requesting information, additional MOMI servers on the NonStop System are started. This action allows MOMI to [prioritize](#) and multi-thread operations. After a period of time (3-4 minutes) unused servers are stopped. Additionally, when the MOMI PC Client is stopped or disconnects from the System, unused servers are also stopped.

Common screen items

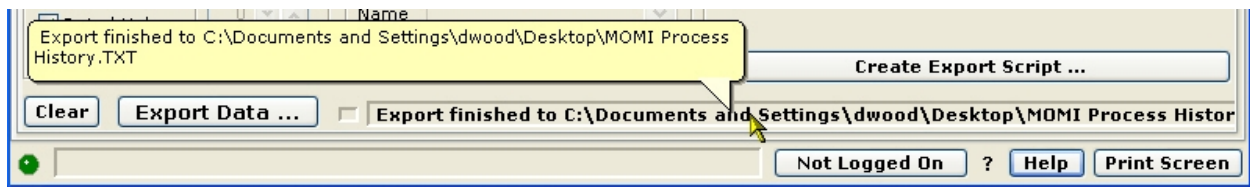


The ...mouse pointer displays an indication when a jump point or 'hot spot' is available. It will change to a hand with a L and/or R indicating when a Left and/or Right mouse click is available. Left clicks generally perform the default action and a right click brings up a context sensitive menu with the default action in **bold**. A mouse click in this document refers to the left mouse button.

Tool tips, or Hints, are yellow text windows that automatically display when the mouse is moved over certain fields. Tool tips are present throughout the PC MOMI Client. They provide information such as field descriptions, column descriptions and navigational assistance. Tool tips may be disabled or the amount of time before they appear are adjusted on the screen [Settings / System Wide](#). Below are some sample tool tips:





Tool tips are also available to display the entire message in notification areas located at the bottom of most screens. In the example below, the text not visible on screen is shown in the tool tip.



All MOMI screens have common items at the top and bottom of the screen. Place your mouse over items below and click for descriptions of these common items.



 **Rated Values** The Rated Values option allows the selection of either values on a per-second basis, or raw values for the measurement window. The measurement window is usually displayed in the status area or on the end of the data line.

 The Tool button in the lower left hand corner of most grids presents a pop-up window called Grid Tools and provides options for exporting, printing, hiding columns, setting the columns to export, and saving or restoring the column order. The number of tabs

visible may vary from screen-to-screen. Press the **Save Settings** button to have any setting changes apply the next time the MOMI PC Client is started (otherwise the changes only apply during the current instance). Settings within the Grid Tools window affect only the current screen from which the Tool button was pressed.

The **Export Grid** tab shows some general stats but primarily provides the ability to export, print and send the data to the clipboard. These functions are generic to the grid.

The screenshot shows the 'Grid Tools for All Processes' window with the 'Export Grid' tab selected. The window has a title bar with a close button (X). The tabs are 'Export Grid', 'Show Columns', 'Set Export Columns', 'Column Order/Fixed', and 'View'. The 'Export Grid' tab contains the following elements:

- Rows:** A text box containing '421'.
- Columns:** A section with 'Display' and 'Export' text boxes, both containing '75'.
- Message:** A green text message: 'Columns Exported/Printed are set in 'Set Export Columns' Tab'.
- Create Delimited File:** A section with an 'Export File' button and an 'Exclude Headings' checkbox.
- Print Grid to:** A section with 'Printer' and 'Clipboard' buttons.
- Create HTML file:** A section with a text box containing '\\BWS1-2004 All Processes', an 'HTML Table Title' label, and an 'Export HTML' button.
- Buttons:** 'Save Settings' and 'Close' buttons at the bottom.

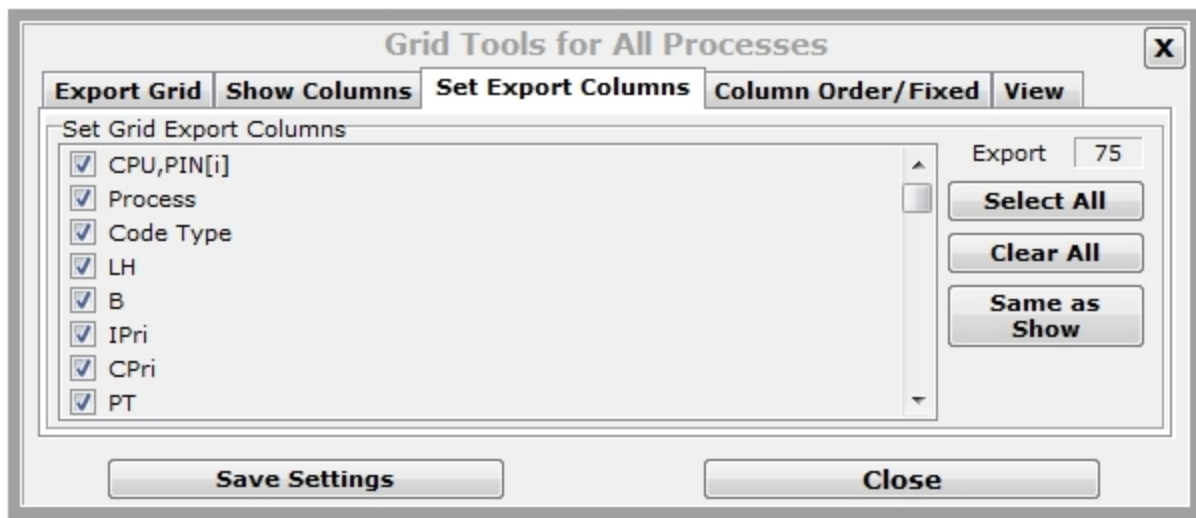
The **Show Columns** tab provides the ability to show or hide columns displayed within the grid. Some fields also provide the option to modify their contents. String fields provide the ability to remove a constant number of leading or trailing characters.

The screenshot shows the 'Grid Tools for All Processes' window with the 'Show Columns' tab selected. The window has a title bar with a close button (X). The tabs are 'Export Grid', 'Show Columns', 'Set Export Columns', 'Column Order/Fixed', and 'View'. The 'Show Columns' tab contains the following elements:

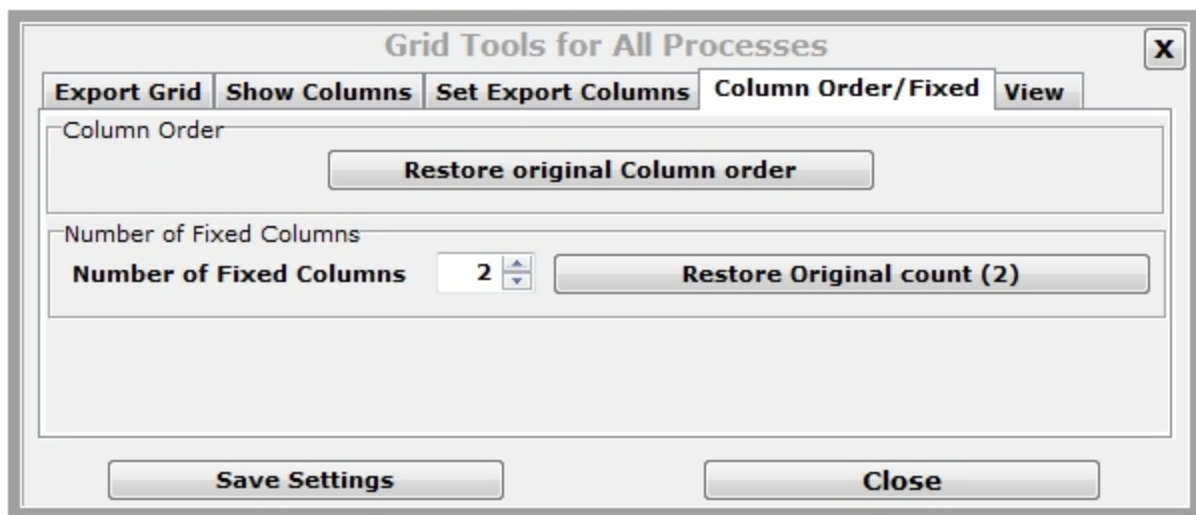
- Show Grid Columns:** A table with columns 'X', 'Column Name', 'Display Alter', and 'Value'.
- Display:** A text box containing '75'.
- Buttons:** 'Select All', 'Clear All', and 'Reset Alter values' buttons.
- Buttons:** 'Save Settings' and 'Close' buttons at the bottom.

X	Column Name	Display Alter	Value
<input checked="" type="checkbox"/>	CPU_PIN[i]	0_Display As-Is	0
<input checked="" type="checkbox"/>	Process	1_Chop Leading	2
<input checked="" type="checkbox"/>	Code Type	0_Display As-Is	0
<input checked="" type="checkbox"/>	LH	0_Display As-Is	0
<input checked="" type="checkbox"/>	B	0_Display As-Is	0
<input checked="" type="checkbox"/>	IPri		
<input checked="" type="checkbox"/>	CPri		
<input checked="" type="checkbox"/>	PT	0_Display As-Is	0

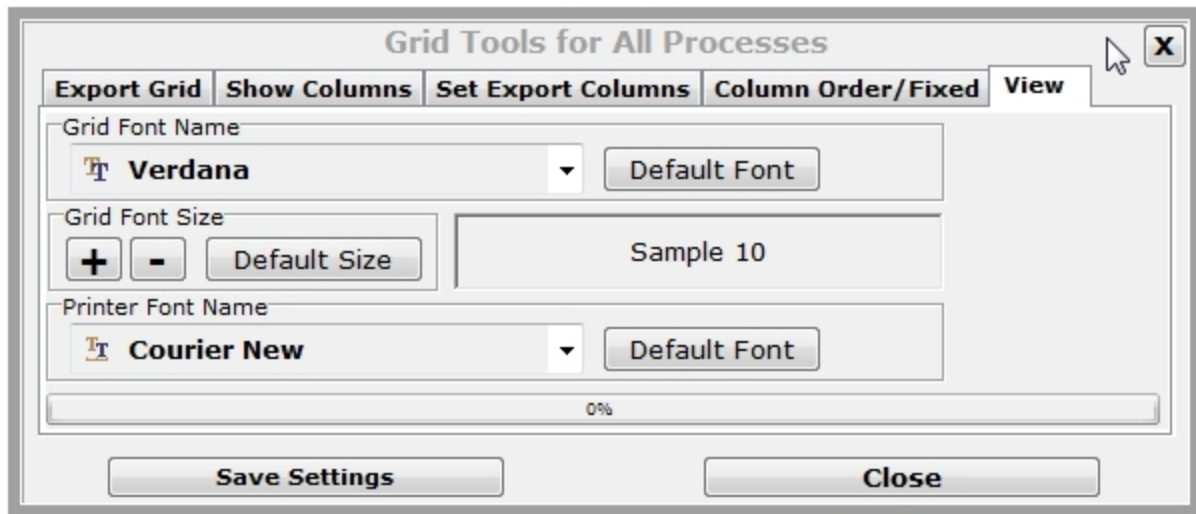
The **Set Export Columns** tab determines which columns are present (i.e. not exported) when the data is exported.



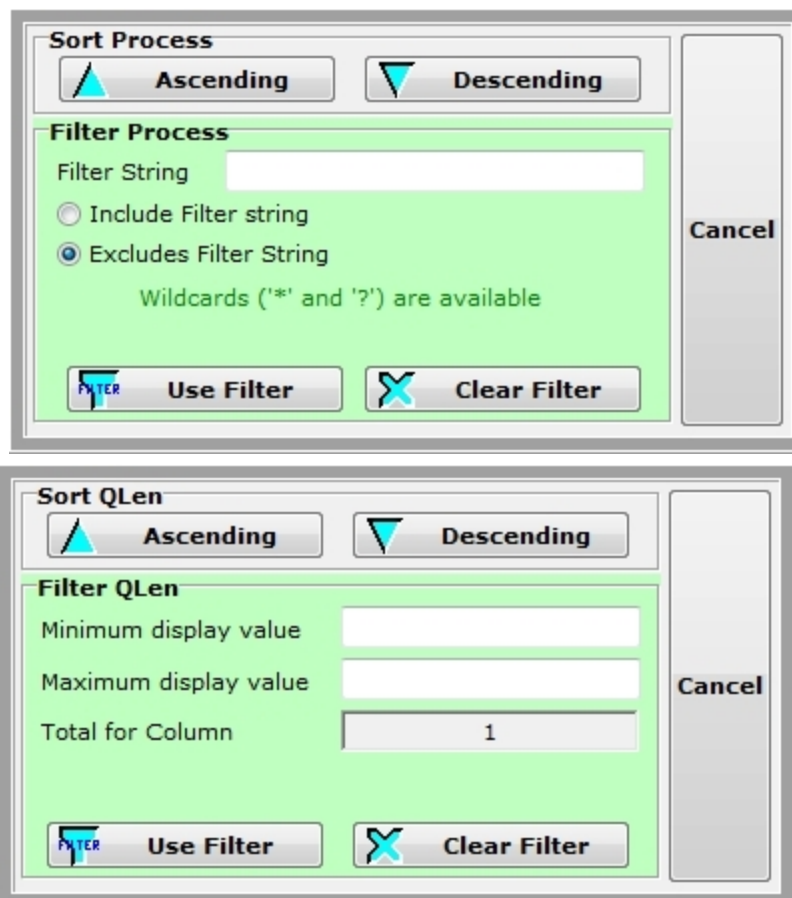
The **Column Order/Fixed** tab determines how many columns from the left hand side of the grid do not move when a grid is scrolled left/right. Typically, the default are field(s) which identify the data on the line such as a process or file name.



The **View** tab of the Grid Tools window changes the font for viewing data within the grid and font used for printing data from the grid. The font size for viewing may also be increased or decreased in size by pushing the +/- keys.



Columns in display grids usually have a sort/filter function available. A pop-up window allows the column to be sorted ascending or descending and control filtering. Columns of string data have a single filter item. The entered filter string is exactly matched unless wild card characters * or ? are used. Columns of numeric data provide a minimum and maximum display value. Additionally, the sum of each row in the column is visible but this value is not always useful. Date ranges may be selected and columns with a single character may be selected/deselected.



Sort CreatedTime

Ascending
Descending

Filter CreatedTime

Set Times

Start
Now
1899/12/30
00:00:00

Stop
Now
1899/12/30
00:00:00

or Set Age

Age over
0
Days
old

Age under

FILTER
Use Filter
Clear Filter

Cancel

Sort N

Ascending
Descending

Filter N

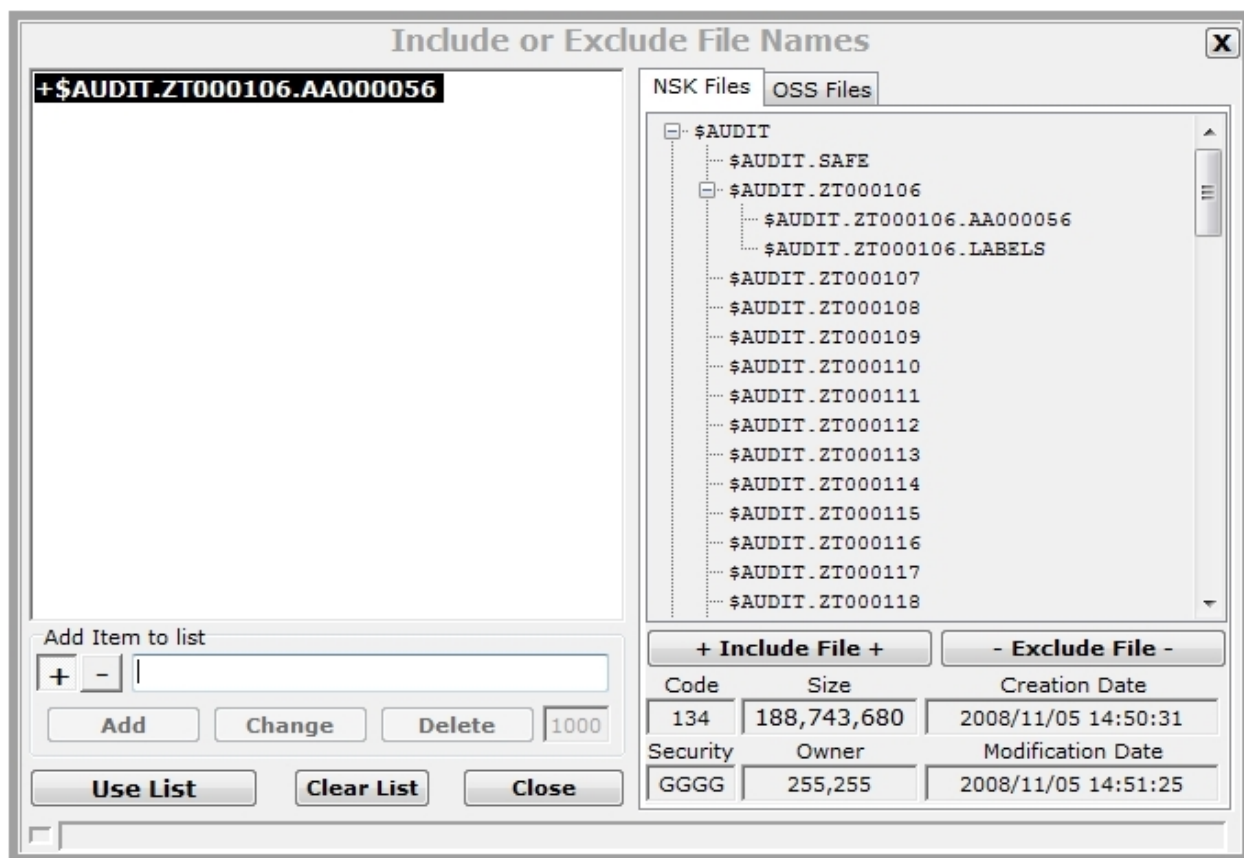
Include only N (Native Mode)
Exclude if N (Native Mode)

FILTER
Use Filter
Clear Filter

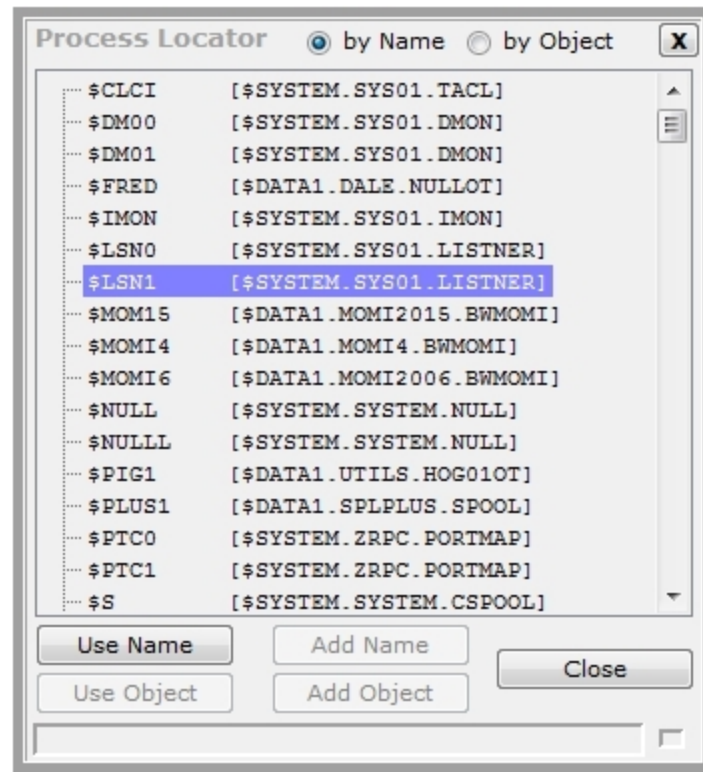
Cancel



or These screen graphic buttons represents a \$volume, subvolume and/or file selector option. It can represent an open of a PC file or of a NonStop System based file. Pressing this button for a NonStop System based file brings up a tree view window that allows the user to expand the Volume, Subvolume and down to the file level (where appropriate).



This screen graphic button opens a tree view window that allows the user select a process name. The types of processes presented are usually limited to the type applicable for the given situation within the MOMI PC Client (for example a listing of all Tape processes) and may be shown by process name or by object file name.



Alarm Overview

MOMI Alarms are the ability to set thresholds and trigger notifications.

An Alarm definition is unique for each threshold monitored but the Alarm also references a reusable monitor time and action record. By default, an Alarm is monitored continuously and displays in red on the [Alarms / Active](#) screen.

Creation of an Alarm generally follows the sequence of entering a unique name, description, selection of an Entity Type and Sub-type, setting thresholds, entering entity name(s), selecting the Times to monitor and Action to take. If a desired Times or Action record does not already exist, the View button may be pressed to jump to the appropriate Define screen to create the record and then push Back to continue with the Alarm Definition.

Alarm processing may be delayed at MOMI start by using the CONFMOMI keyword [ALARM-SUSPEND-DELAY](#).

Alarm Security

By default, only the user that started the MOMI server is allowed to configure an Alarm. Additional users may be granted this authority by activating [Client Access](#).

CONFMOMI keywords

One of the available Actions to an Alarm is the generation of Email.

Email requires an external SMTP server (i.e. outgoing email) and the return Email address. The following must be defined in the CONFMOMI file to enable Email:

[ALARM-SMTP-SERVER-ADDR](#)
[ALARM-EMAIL-ADDRESS-FROM](#)

Some SMTP (i.e. email) servers require the HELO sequence which requires a portion of your email address in this keyword:

[ALARM-DOMAIN-NAME](#)

If you have CLIMs on your system, you may need to direct which physical Ethernet is used for sending email:

[ALARM-SMTP-BIND-ADDR](#)

The TCP/IP process used to communicate with the SMTP server has a default which may be overridden:

[ALARM-SMTP-TCPIP-NAME](#)

Common screen items

Definition screens usually have several common commands:



Display causes the selected record to appear.

Save New creates a record. If a record with the same name is already present, an error is displayed.

Change updates an existing record. If a record with the same name does not exist, an error is displayed.

Delete removes an existing record.

International Issues

Dates

All Dates in the Client, where the value is output, are in the format of yyyy/mm/dd (year/-month/day) except where the date is contained within a text message. An example of this exception is EMS messages.

In certain regional language selections, the Calendar display for Dates displays some invalid characters, although the calendar still works. On the Config screen the User may select a roll up/down style instead of a calendar to prevent this display irregularity.

Export data

Data exported contains a leading HardSpace (ASCII value 160) for fields that contain numeric information intended to be treated as a string field. An example is the CPU,PIN field. The default character may have adverse implications when using a multi-byte character set. The leading character used for these fields may be altered on the [Settings / System Wide](#) page.

Specifying run-time parameters

Various parameters may be given to the MOMI PC Client at start up. These parameters control certain aspects of the program operation. Multiple parameters are separated by spaces and may be specified in any order.

Syntax may enclose descriptions in the characters < >, however these characters are not used. For example, this description:

inipath="<location>"

is used as follows at a command line:

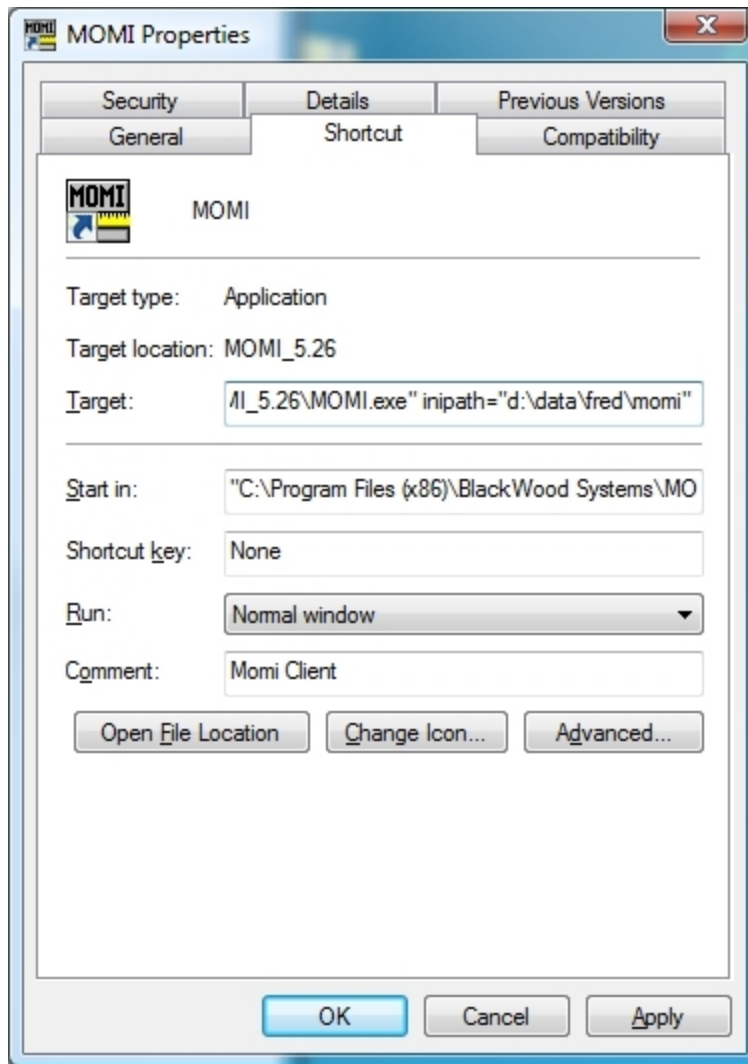
```
MOMI.EXE inipath="d:\data\fred\momi"
```

Examples:

MOMI.EXE script-history=ProcessScript	<i>executes script ProcessScript</i>
MOMI.EXE nocail	<i>don't load the CAIL emulator</i>
	<i>sets INI to d:\data\fred\momi,</i>
	<i>execute script ProcessScript</i>
	<i>script=ProcessScript</i>
MOMI.EXE inipath=d:\data\fred\momi	

As viewed from the Target field of a short-cut:

"C:\Program Files (x86)\BlackWood Systems\MOMI_5.26\MOMI.exe" inipath-h="d:\data\fred\momi"



Run-Time Parameters

FUNCTION-EVENTBX-EXPORT-UNFORMATTED

(client version 5.27 or later)

Function-EventBX-Export-Unformatted="**<pc-file-name>**"

This parameter directs the client to export all EVENTBX information as ASCII text.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

Format of the exported data:

- one line per record
- each line is "owner ~ SSID ~ event number ~ text <CRLF>"
- event number is leading sign(+/-) and 5 digit leading zeros
- default item separator is Tilde ~ (#126) (may be changed in Configure)
- default embedded line-feeds within the text are <ETX> (#3) (may be changed in Configure)
- each line ends with <CRLF> (#10#13)

This parameter supersedes the parameter SCRIPT-EVENTBX-EXPORT-UNFORMATTED used during the BETA release of the software.

The syntax is as follows:

```
MOMI.EXE function-eventbx-export-unformatted=<pc-file-name>
```

Example:

```
exports
EventBX
records
into
'myBXs'
```

```
MOMI.EXE function-eventbx-export-unformatted=d:\data\fred\myBXs
```

FUNCTION-USERHINTS-IMPORT

(client version 5.27 or later)

Function-UserHints-Import="<pc-file-name>"

This parameter directs the client to import User Hints from a PC file into MOMI. See [User Hints](#) for the format of the file imported.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

This parameter supersedes the parameter SCRIPT-USERHINTS-IMPORT.

The syntax is as follows:

MOMI.EXE function-userhints-import=<pc-file-name>

Example:

```
                                imports userhints file 'myhints'
MOMI.EXE function-userhints-import=d:\data\fred\myhints
```


INIPATH

INIPATH="<location>" (default = user profile area)

This parameter directs the MOMI PC Client to store its configuration information at the location specified.

Note there are no spaces between the keyword, equal sign and the location.

The Client configuration information is stored in a simple text file using standard INI format. By default, this file is located in the user's profile area. This location is typically:

Windows 7 / Windows 10 and later -

C:\Users\<User ID>\AppData\Roaming\BlackWood Systems\MOMI\

Where <User ID> is the name used at logon to Windows. You must enable *Show hidden files, folders and drives* under Windows Folder Options to enable their display.

MOMI will also store Calendar.mom, CustErrors.mom and MomiData in the location specified by this parameter.

The default location provides user specific storage for MOMI settings and usually has no security implications. However, using the parameter to define a fixed location may be desirable if more than one User accesses the PC and common settings are needed.

The User could have different INI files to store different configurations for multiple Systems. Each System could have its own filters, color-coded EMS messages, thresholds, etc... Specify a different location for each MOMI shortcut.

Example:

```
MOMI.EXE inipath="d:\data\fred\momi" redirects INI to d:\data\fred\momi
```

LOG

Log

This parameter activates a logging feature in the MOMI PC Client to obtain information in special problem situations. When enabled, a file called **MOMI-Actions.log** is created on the desktop and "- *** **Action Logging** ***" is appended to the information in the programs title bar (upper left hand corner of the screen).

Usage of this parameter would be requested by BlackWood support. The information in the log would not normally be of any benefit to a user.

The syntax is as follows:

MOMI.EXE log

Example:

MOMI.EXE log

activate special logging

NOCAIL

Nocail

This parameter directs the client to NOT load the CAIL terminal emulator.

The option is provided if the CAIL terminal emulator is not desired or cannot be loaded.

The syntax is as follows:

MOMI.EXE nocail

Examples:

MOMI.EXE nocail *(do not load the CAIL emulator)*

NOSPEECH

(client version 4.07 or later)

Nospeech

Directs the client to NOT attempt speech activity.

The option is provided if the normal detection mechanism used by the MOMI PC Client fails on speech detection.

The syntax is as follows:

MOMI.EXE nospeech

Examples:

MOMI.EXE nospeech

don't enable speech

SAME

Same

The MOMI.INI file is placed in the same location as the MOMI.EXE.

The syntax is as follows:

MOMI.EXE same

Examples:

MOMI.EXE same	<i>redirects INI to same location as</i>
<i>EXE</i>	

MOMI.EXE same script=fred	<i>redirects INI to same location</i>
	<i>as EXE, run script FRED</i>

SCRIPT

Script="<script-name>"

This parameter directs the client to export information from the MOMI history files. See [History / Export Data](#) or information on defining the script of "predefined" commands that are executed.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

This parameter is replaced by [SCRIPT-HISTORY](#).

The syntax is as follows:

MOMI.EXE script=<script-name>

Examples:

MOMI.EXE script=ProcessScript

executes script ProcessScript

MOMI.EXE inipath=d:\data\fred\momi script=ProcessScript

*sets INI to d:\data\fred\momi,
execute
script ProcessScript*

SCRIPT-HISTORY

(client version 4.20 or later)

Script-History="<script-name>"

This parameter directs the client to export information from the MOMI history files. See [History / Export Data](#) for information on defining the script of "predefined" commands that are executed.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

This parameter supercedes the obsolete parameter [SCRIPT](#) .

The syntax is as follows:

MOMI.EXE script-history=<script-name>

Examples:

```
MOMI.EXE script-history=ProcessScript           executes script ProcessScript
```



```
MOMI.EXE inipath=d:\data\fred\momi script-history=ProcessScript sets INI to d:\data\fred\momi,  
execute  
script ProcessScript
```

SCRIPT-LOG

(client version 4.20 or later)

Script-Log="<script-name>"

This parameter directs the client to export information from the MOMI log file. See [MOMI Log](#) or information on defining the script of "predefined" commands that are executed.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

The syntax is as follows:

MOMI.EXE script-log=<script-name>

Examples:

```
MOMI.EXE script-log=LogScript                                executes script ProcessScript
```



```
MOMI.EXE inipath=d:\data\fred\momi script-log=LogScript      sets INI to d:\data\fred\momi,  
execute  
script LogScript
```


SCRIPT-USERHINTS-IMPORT

(client version 5.16 or later)

Script-UserHints-Import="<pc-file-name>"

This parameter directs the client to import User Hints from a PC file into MOMI. See [User Hints](#) for the format of the file imported.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

This parameter is superseded by the parameter [FUNCTION-USERHINTS-IMPORT](#).

The syntax is as follows:

```
MOMI.EXE script-userhints-import=<pc-file-name>
```

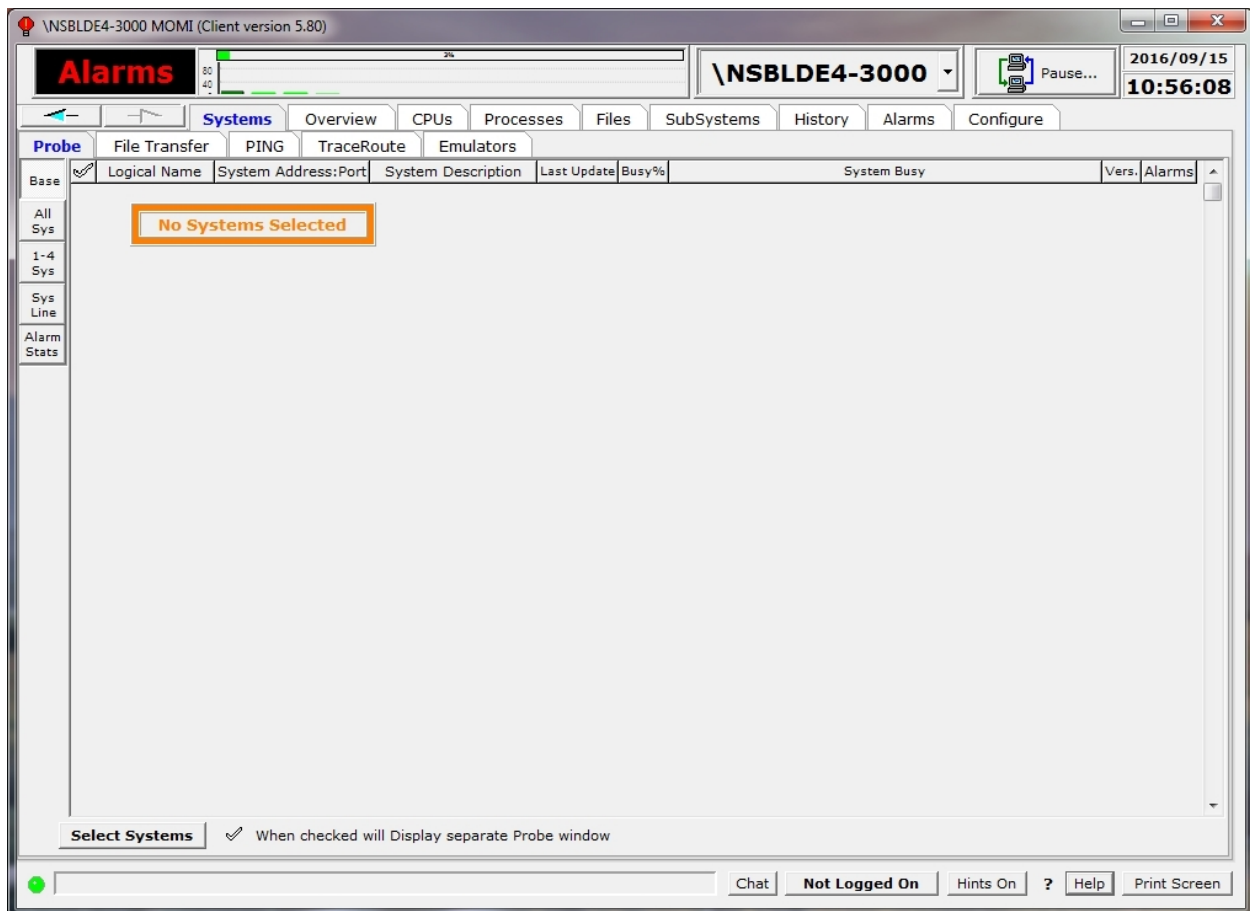
Example:

```
                                imports userhints file 'myhints'
MOMI.EXE script-userhints-import=d:\data\fred\myhints
```

Screens

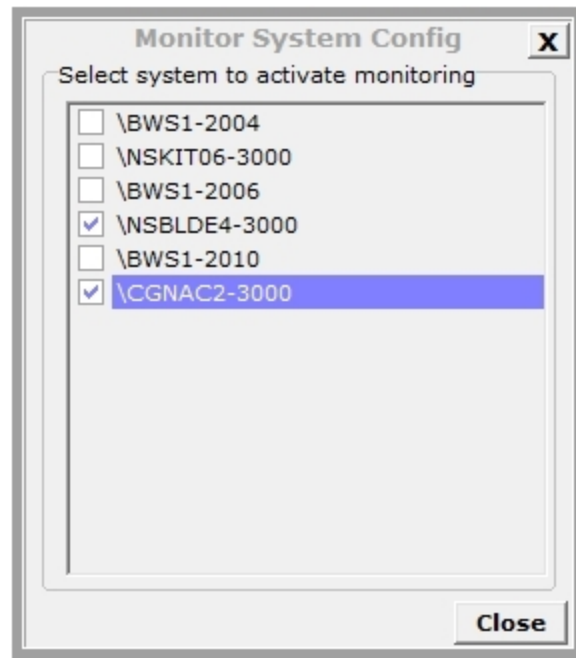
Systems

Systems / Probe

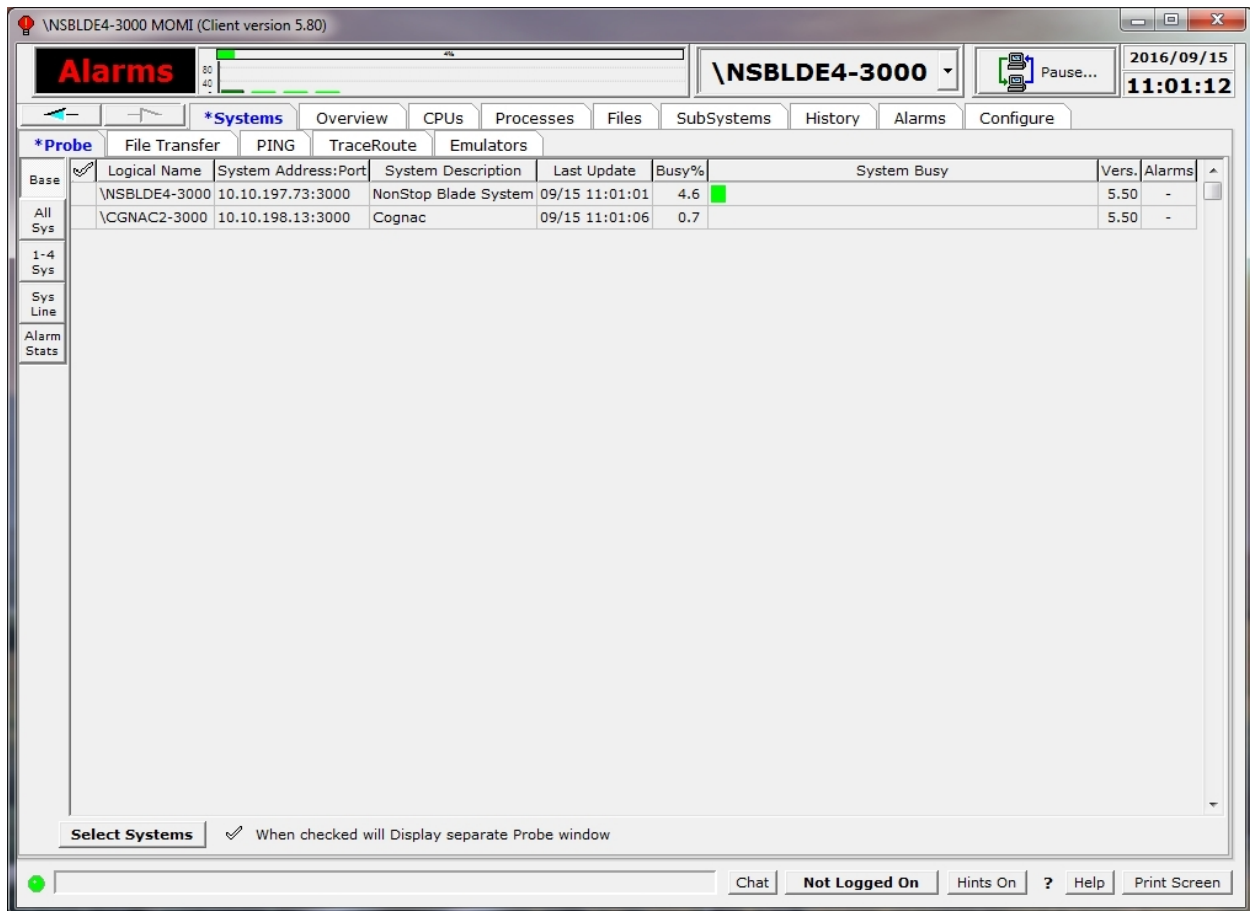


The Probe screen provides a method to configure the MOMI PC Client to display high level details on more than one system. The systems available on this screen were initially configured to MOMI on the [Define Systems](#) screen.

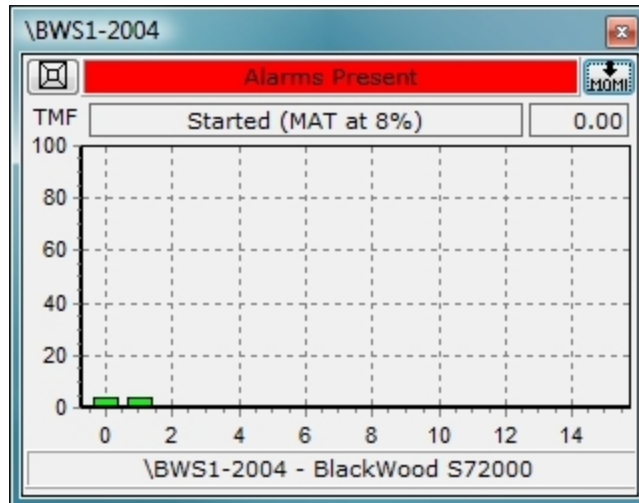
To configure the display, press the **Select Systems** screen. Check each system desired.



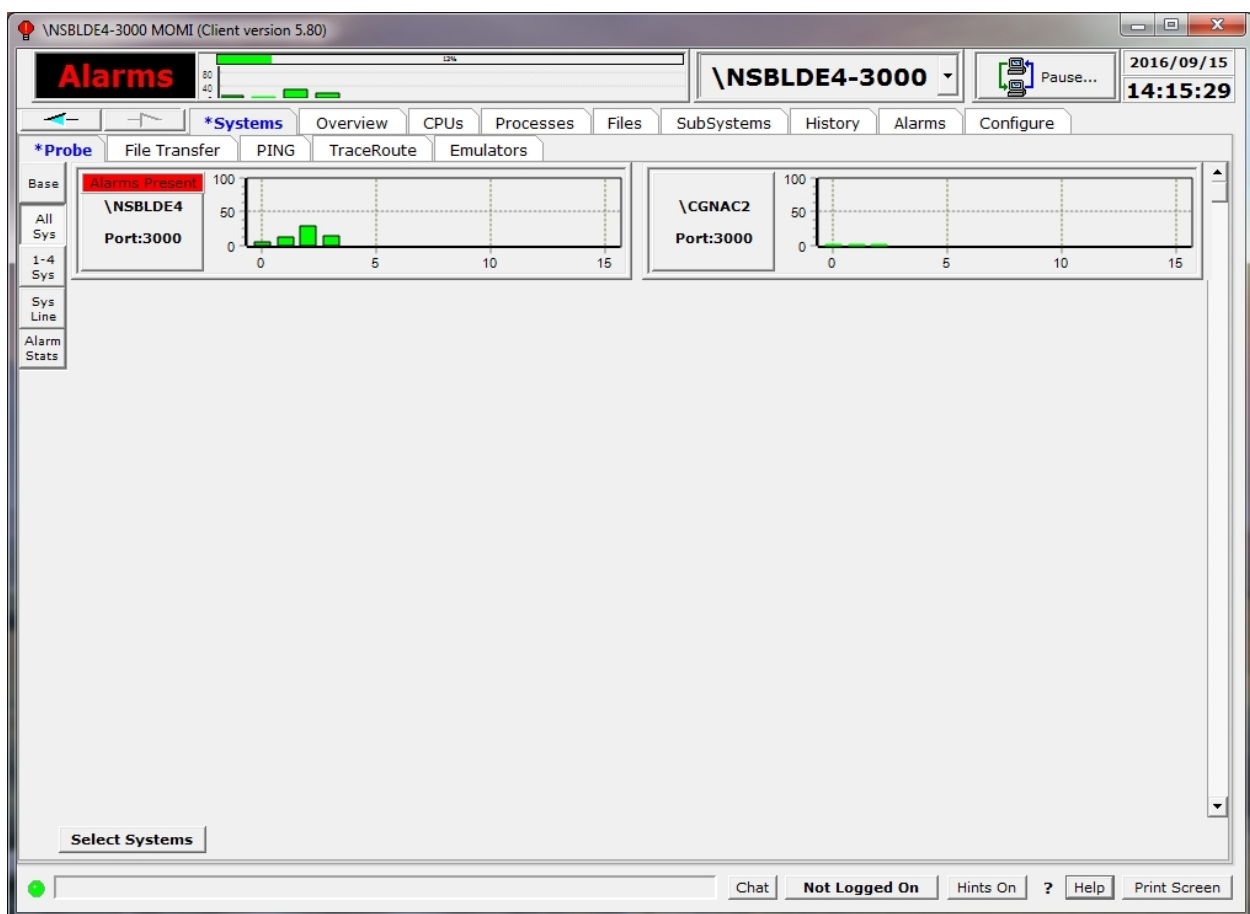
Information is displayed for each system selected. The column "Alarms" provides a general indication of any Alarms present on a system being probed. This column is not displayed by default. It is enabled on the screen [Settings / Single Screen](#).

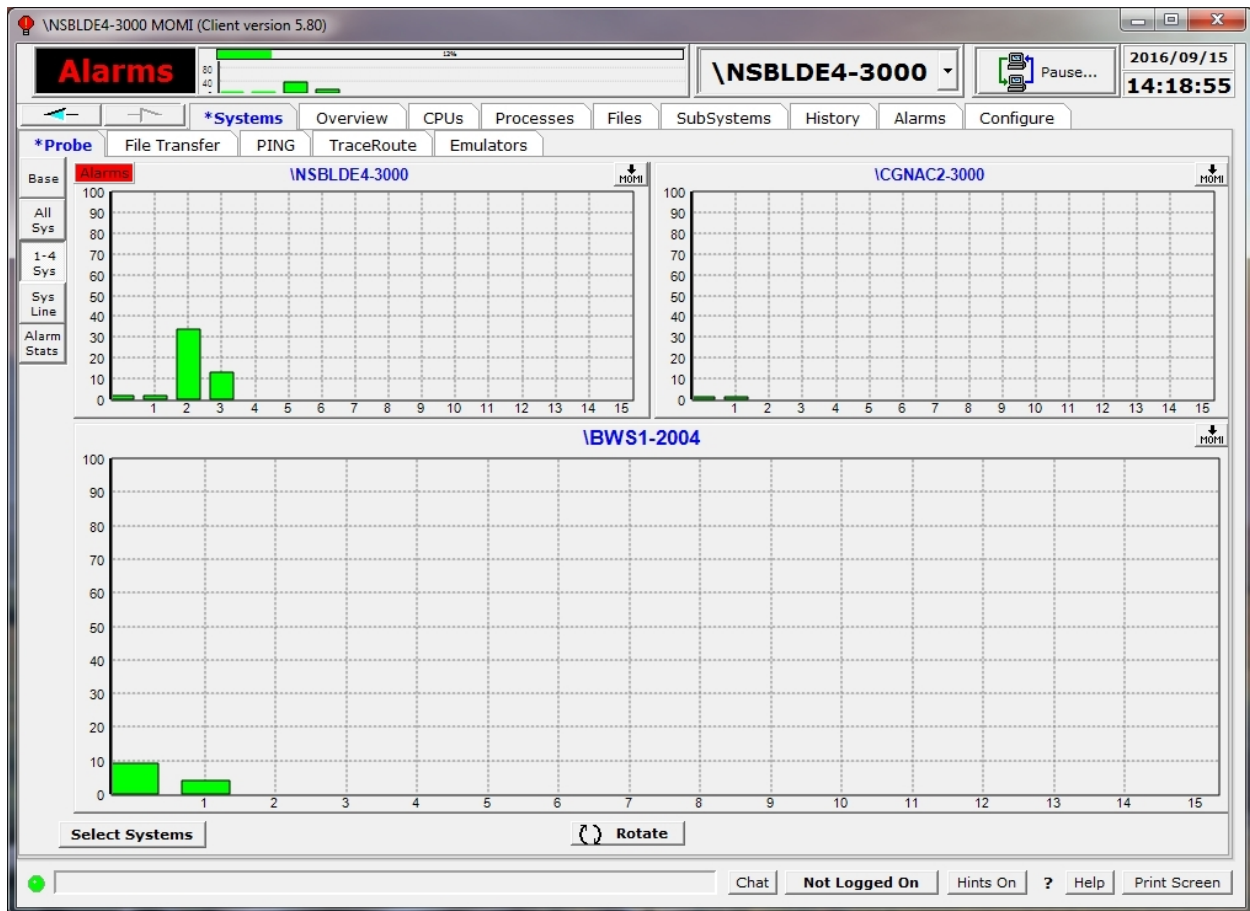


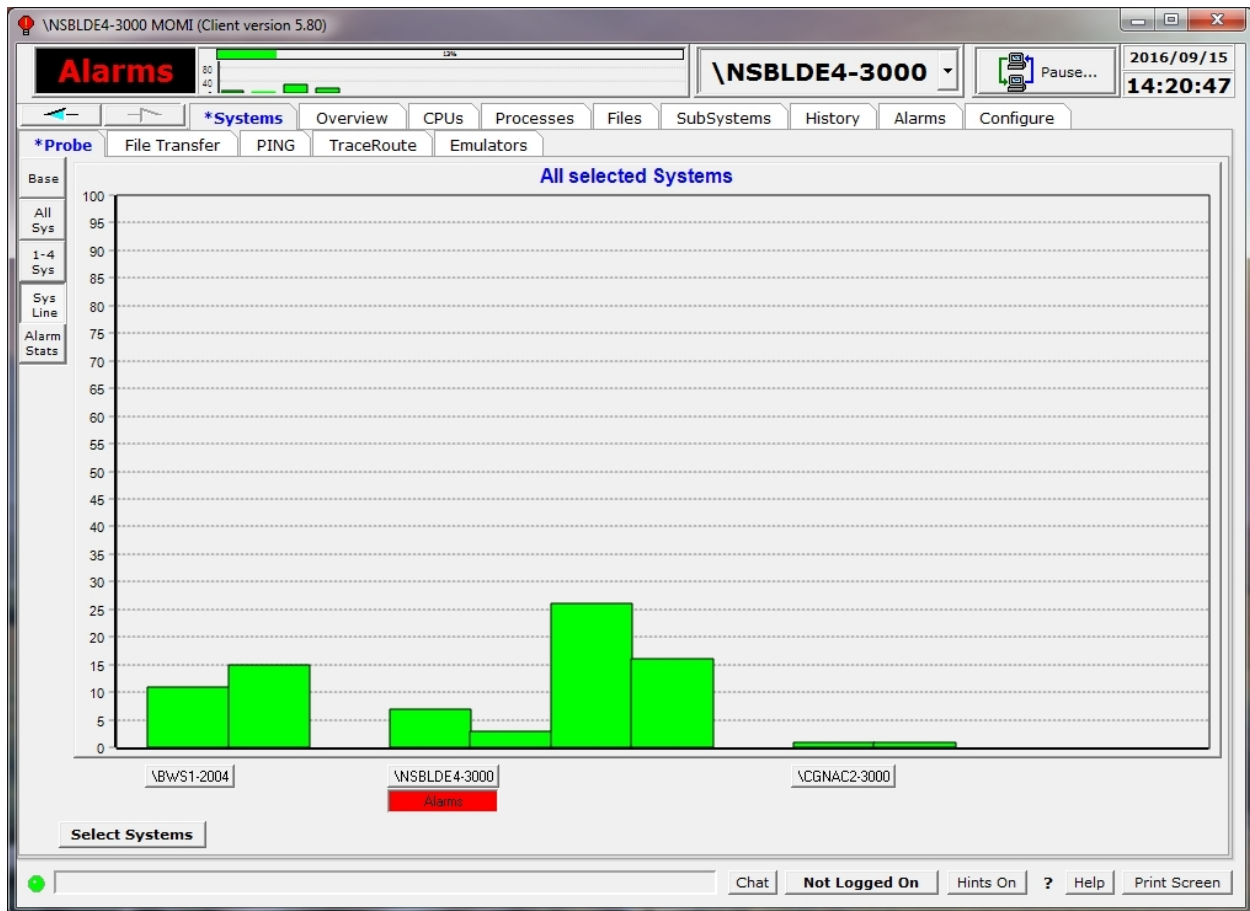
A floating independent window is available by checking provides basic information about a system. This resizable (grab the window edge and drag) window may be positioned anywhere on the desktop. Clicking on the cpu busy graph bar displays the top few processes busy in that processor. Clicking on the MOMI arrow button will select the main MOMI screen to that system.



Additional sub-screens are available to present multiple systems in different formats. Press the All Sys, 1-4 Sys and Sys Line buttons to display these screens. Press the **Select Systems** button to choose which systems are displayed.







The Alarm Stats sub-screen performs two functions. First, it activates which systems are probed for alarm information. Second, the information is displayed here and on other screens.

\\NSBLDE4-3000 MOMI (Client version 5.80)

Alarms Local - Remote

20 40 100%

\\NSBLDE4-3000

Pause...

2016/09/15 14:21:56

*Systems Overview CPUs Processes Files SubSystems History Alarms Configure

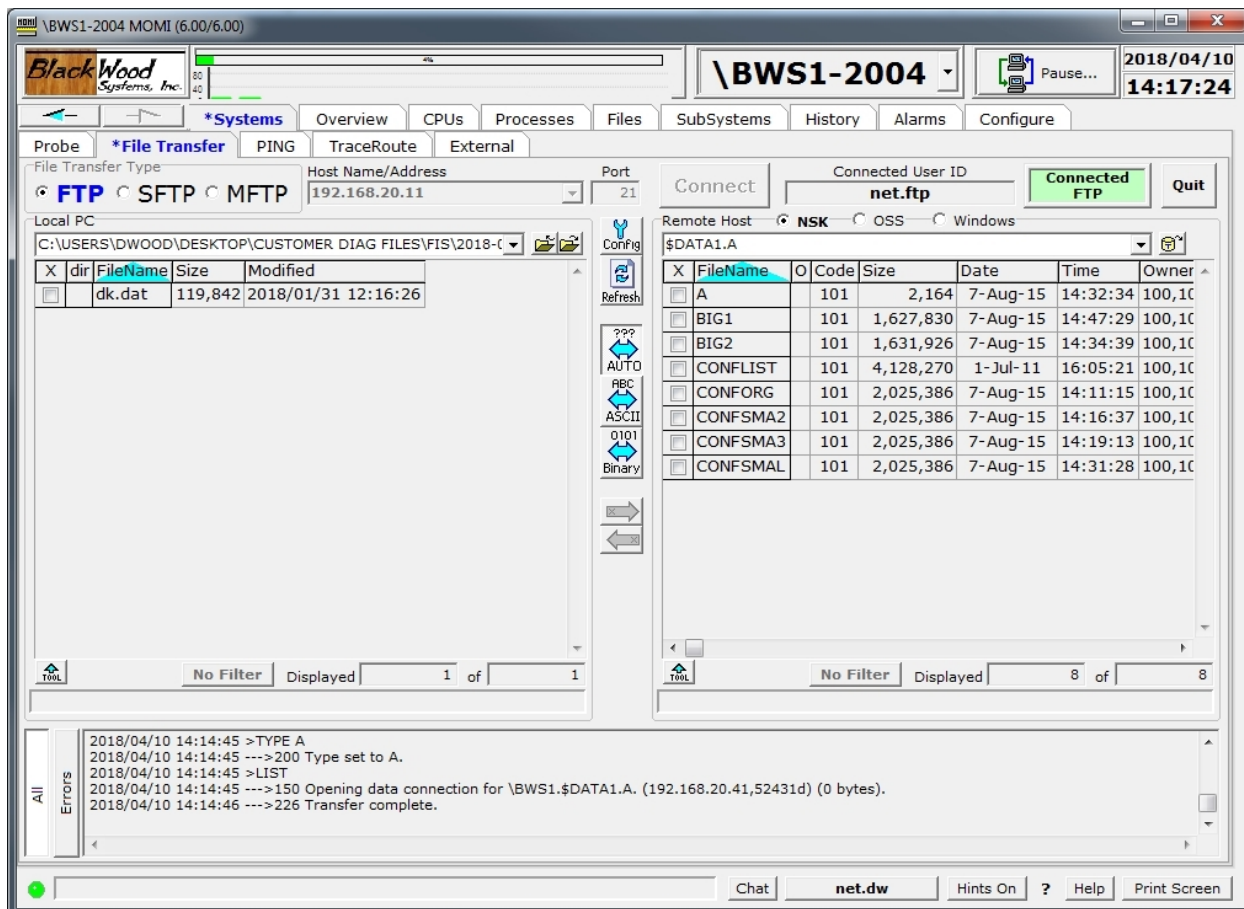
*Probe File Transfer PING TraceRoute Emulators

Base	Logical Name	System Address:Port	System Description	Last Update	Active Red	Active Yellow	Active Info	Off Red	Off Yellow	Off Info	Non-screen
NSBLDE4-3000	10.10.197.73:3000	NonStop Blade System	09/15 14:21:39	10	4	70	0	0	0	0	
All Sys	\\CGNAC2-3000	10.10.198.13:3000	Cognac	09/15 14:21:48	1	0	0	0	0	0	
1-4 Sys											
Sys Line											
Alarm Stats											

Select Systems

Chat Not Logged On Hints On ? Help Print Screen

Systems / File Transfer



The Systems / File Transfer screen provides multiple methods for transferring files to and from the local PC to a remote system. The methods available for FTP, SFTP and MFTP. Connections to Tandem hosts may display files in Guardian or OSS format.

FTP (unsecured File Transfer Protocol) and SFTP (Secured File Transfer Protocol) are industry standard methods which require the appropriate server operating on the remote host. MFTP (MOMI File Transfer Protocol) uses and requires a MOMI server previously configured on the screen [Defined Systems](#).

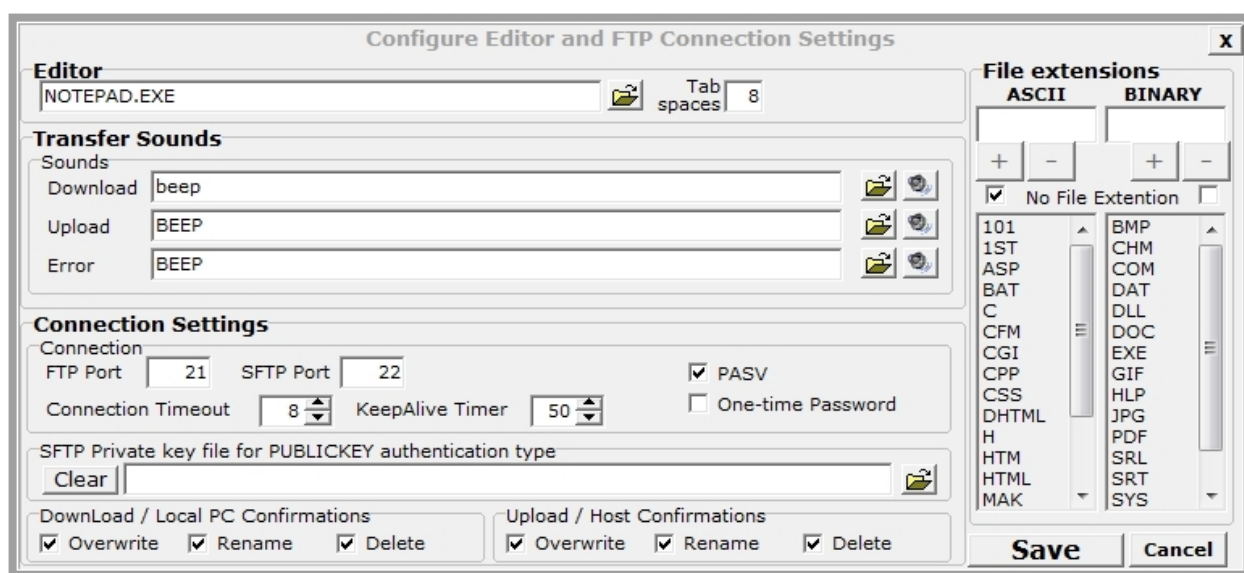
All file transfer methods on this screen generally operate in the same manner, select the method, enter the destination IP address or select the MOMI system, User ID and Password then press **Connect**. Files at the default location are displayed after a successfully connection.

Files are transferred by drag and drop or by selecting the file(s) then press a direction arrow. The manner in which the files are interpreted when read is either ASCII or binary. ASCII transfers assumes the file contains printable characters and uses CR/LF as line

delimiters. Files on the NonStop System with a file code of 101 are edit format and are read/written using O/S supplied routines to maintain the internal ASCII structure. Binary files are transferred 'as-is' or byte-for-byte. AUTO or Automatic uses the file extension to determine the ASCII or binary format. File extensions are defined by pressing the **Config** button. The pop-up window also sets other features such as the editor, sounds and other default connection settings.

If automatic transfer mode is enabled and the file extension is not found in either ASCII or BINARY, the following logic applies:

<u>Location</u>	<u>Action</u>
PC	read the first 10 lines of the file and if all the characters are printable - transfer in ASCII
NSK	file code 101 (edit file) transfers in ASCII
OSS	ASCII
Windows	ASCII



After a drag and drop or selecting a file and pushing a file transfer direction arrow, by default a window appears to set or change transfer attributes. Pushing the More... button expand the pop-up with additional options such as structured file transfers. Available options vary based on the transfer protocol.

New File Name for Remote Host [X]

The Local PC file named
R0607ALA

will be renamed on the Tandem to
R0607ALA

with a File Code of **0** [More ...](#)

☒ Overwrite existing file

Transfer File and Rename

Skip

Cancel

New File Name for Remote Host [X]

The Local PC file named
R0607ALA

will be renamed on the Tandem to
R0607ALA

with a File Code of **0** [More ...](#)

☒ Overwrite existing file

File attributes

File Type **Do NOT set File Structure** ▼

<input checked="" type="radio"/> Auto Size	Pri Ext	Sec Ext	Max Ext
<input type="radio"/> Set Sizes	339	339	16
Rec Len	Pri Key Len	Key Off	Indx Blk Len
0	0	0	4096 ▼

Transfer File and Rename

Skip

Cancel

New File Name for Local PC [X]

The Tandem file named
TACLCSTM

will be renamed on the PC to
TACLCSTM

with an Extension of **txt**

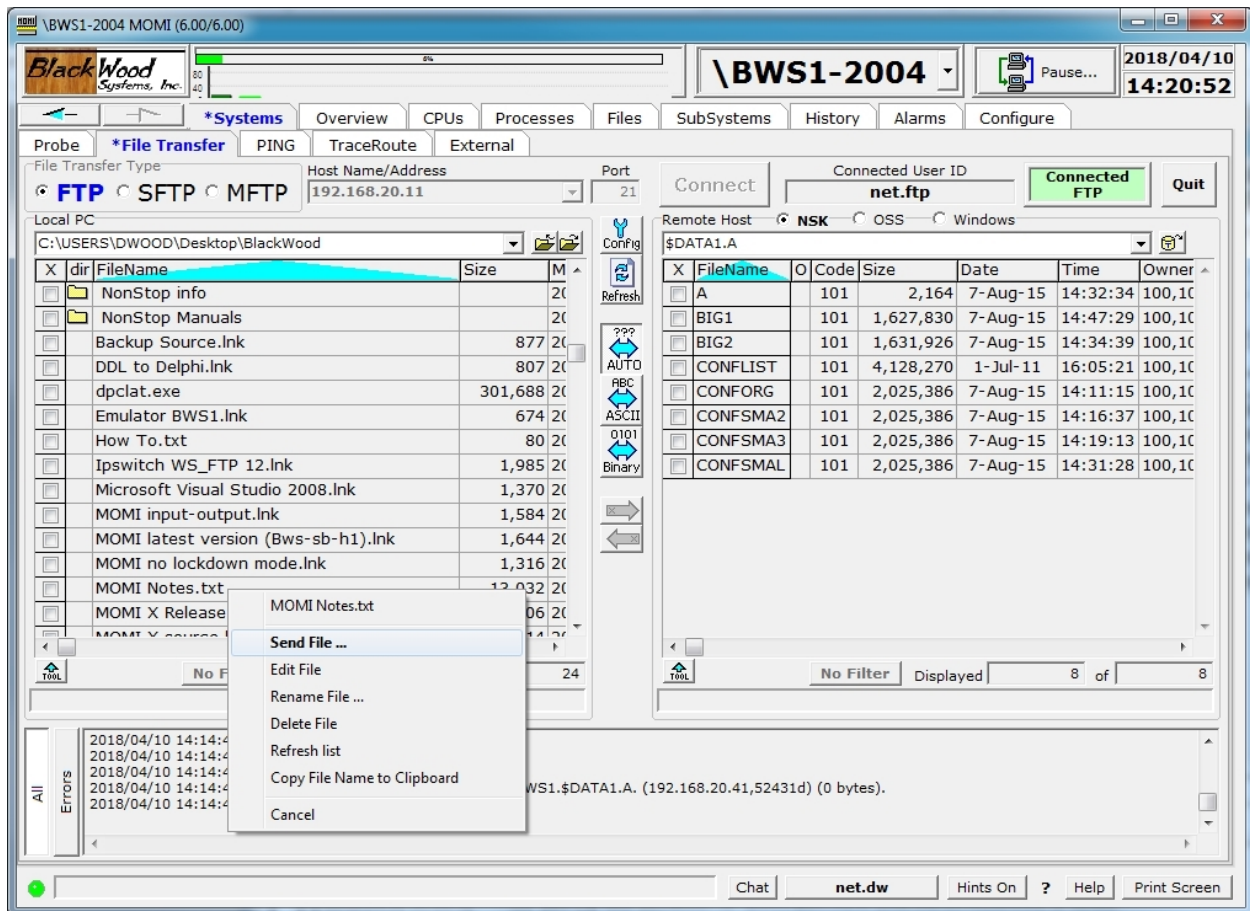
☐ Overwrite existing file

Transfer File and Rename

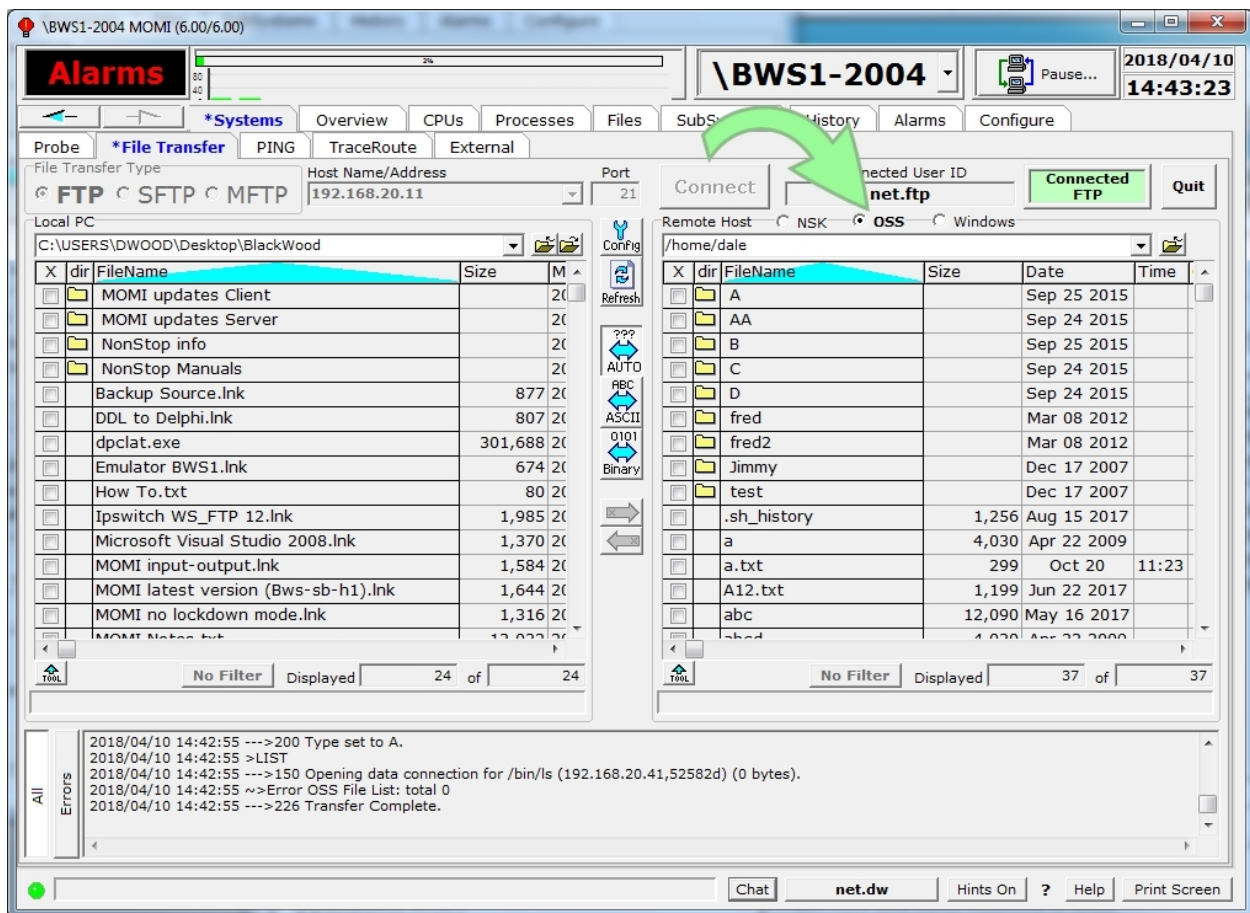
Skip

Cancel

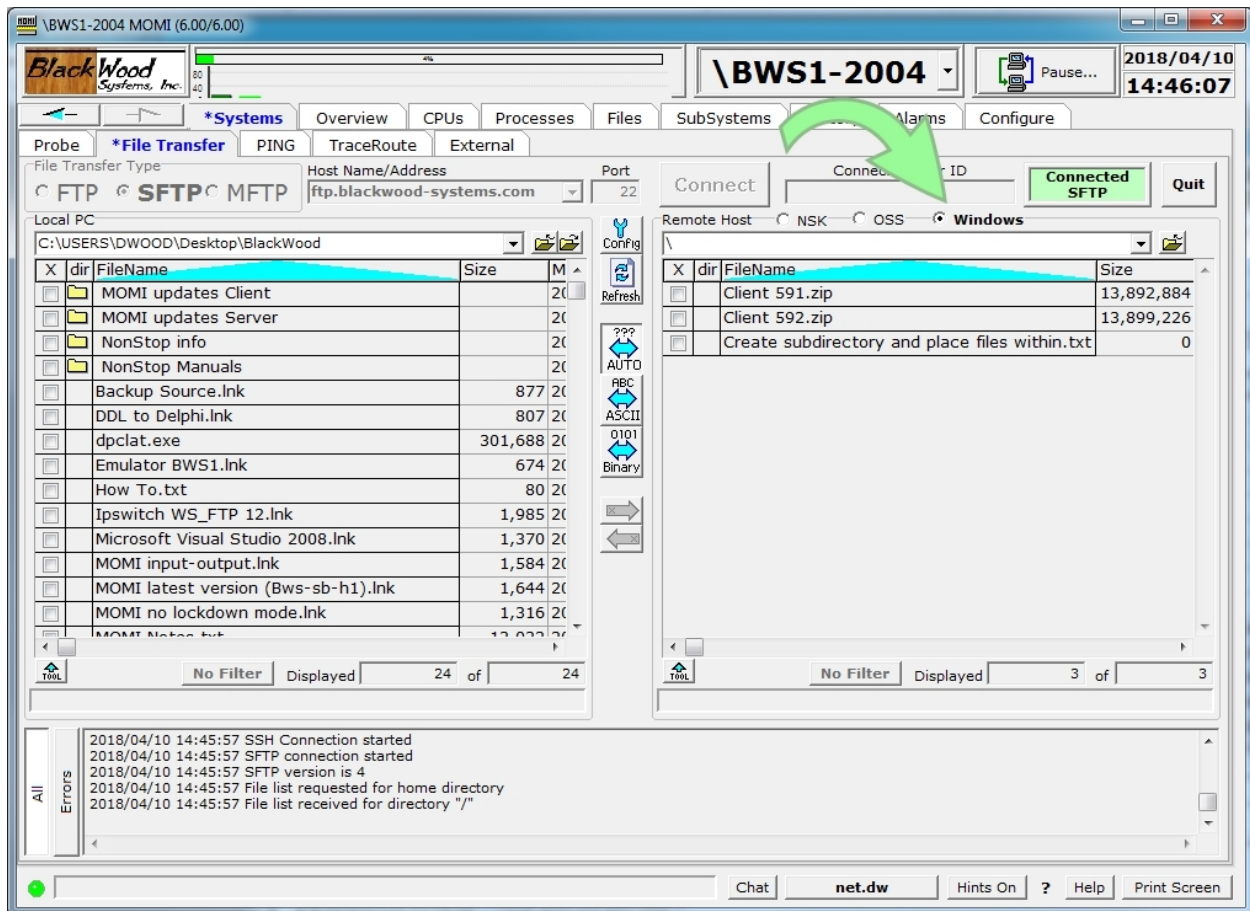
Right-click on a file name to display a context sensitive menu containing operation to transfer, edit, rename or delete. Edit File... causes the file to transfer to the local system, if needed, and then transfer back after the editing is complete. The editor invoked is set within **Config**.



Files on the right hand side may be displayed in the UNIX type format by selecting **OSS**. Folders are displayed for subdirectories (the field is blank for files). Click on a folder to display its contents. Click on the folder with the up arrow (to the right of the current path field) to navigate up one level.



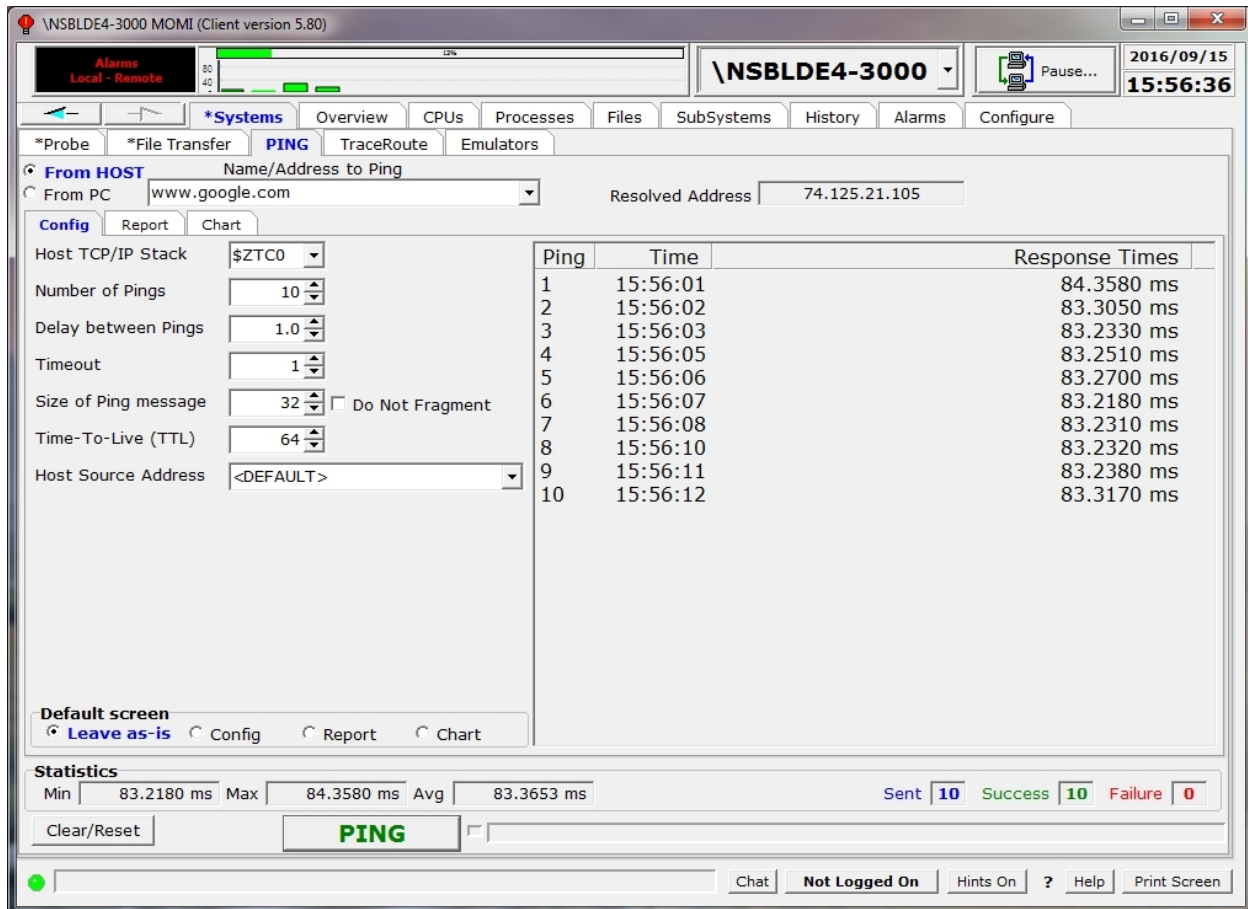
Click on the circle next to the **Windows** label to enable the conventional PC personality. Folders are displayed for subdirectories (the field is blank for files). Click on a folder to display its contents. Click on the folder with the up arrow (to the right of the current path field) to navigate up one level.



Press **Quit** to drop an established session.

Certain file transfer activities while active may temporarily freeze or lock-up other MOMI PC Client screens.

Systems / PING



The PING screen provides the ability to issue a communication test from either the NonStop System or the PC to the specified IP address. The PING may originate either from the currently connected HOST or from the local PC.

PING is the generic name used to describe a simple diagnostic of the communication path between the source (i.e. NonStop System or PC) and destination.

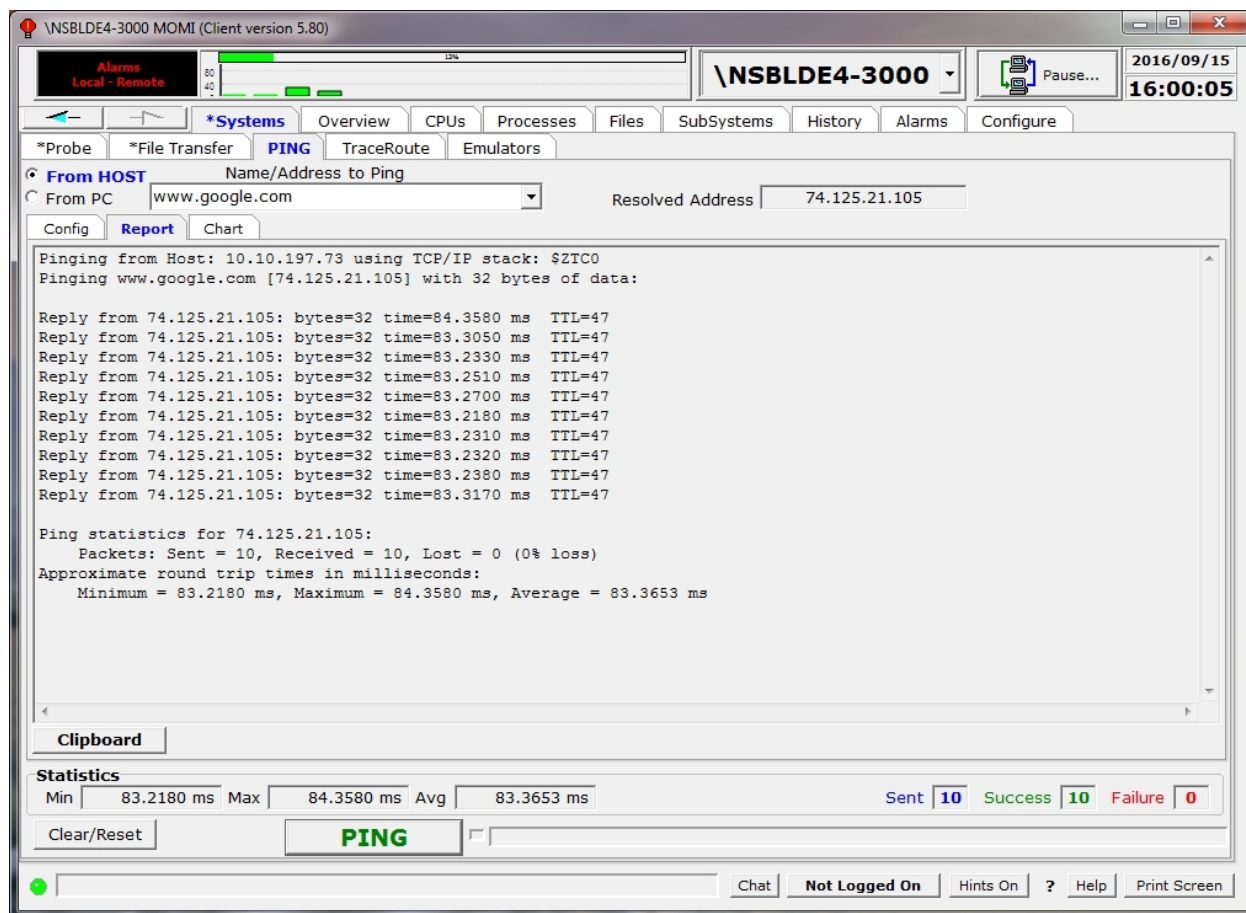
A PING consists of an ICMP echo message that most TCP/IP stacks acknowledge by simply echoing the original request. Note that a) some networks disable the ability to respond to the PING, and b) just because a PING works that does not mean other protocols will work.

The screen is used by selecting either "From Host" or "From PC", entering a destination as an DNS name or IP address and pressing the PING button. Optionally, the number of PING attempts (Count), the time delay in seconds between each attempt, the amount of time to wait for a PING to respond and the TCP/IP Stack to issue the PING through. The

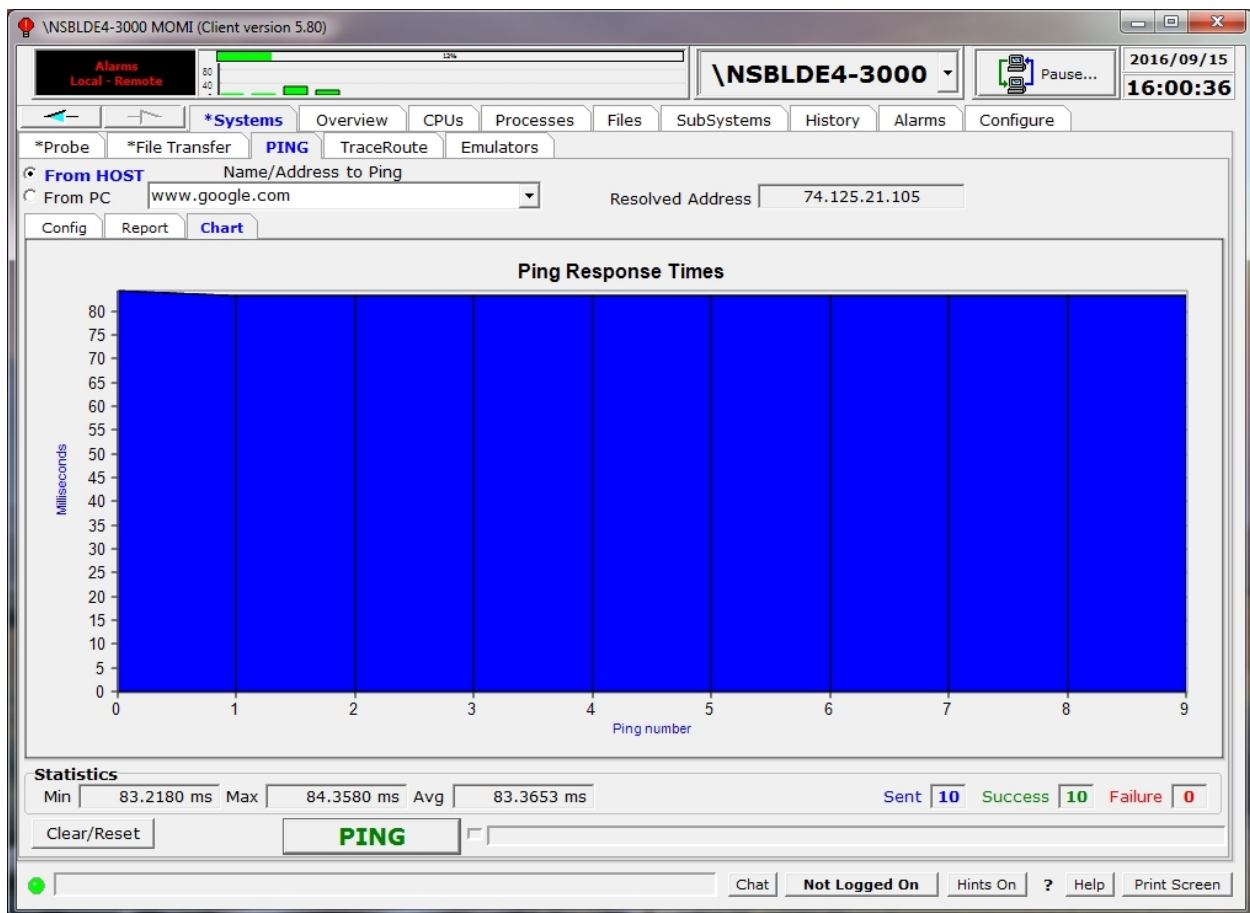
center of the screen displays the amount of time each response took and a graphical presentation of the response time. General statistics about the number of attempts, successful and failed pings are also displayed.

The ability to PING from the HOST may require the setup of an additional MOMI server to perform the function. See [General considerations](#) for additional information.

The Report tab displays the results in a format similar to the Windows PING utility.



The Chart tab display a graphic of the response time.



Systems / TraceRoute

Hop	IP Address	Resp.Time	Result	Host Name
1	10.10.197.1	3.1500 ms	next	*Unknown*
2	50.59.187.113	1.0500 ms	next	*Unknown*
3	*Unknown*		timeout	*Unknown*
4	66.193.205.69	3.1640 ms	next	*Unknown*
5	67.17.65.46	6.1920 ms	next	ae2-100g.ar1.sjo
6	4.68.72.218	7.0380 ms	next	*Unknown*
7	4.69.209.181	6.8920 ms	next	ae-1-9.edge2.sar
8	*Unknown*		timeout	*Unknown*
9	89.149.130.102	14.5640 ms	next	xe-8-1-2.lax10.ip
10	23.73.233.238	15.1620 ms	complete	a23-73-233-238.c

The TraceRoute screen provides the ability to PING all devices in-between another host or device on the TCP/IP network. The PING may originate either from the currently connected HOST or from the local PC.

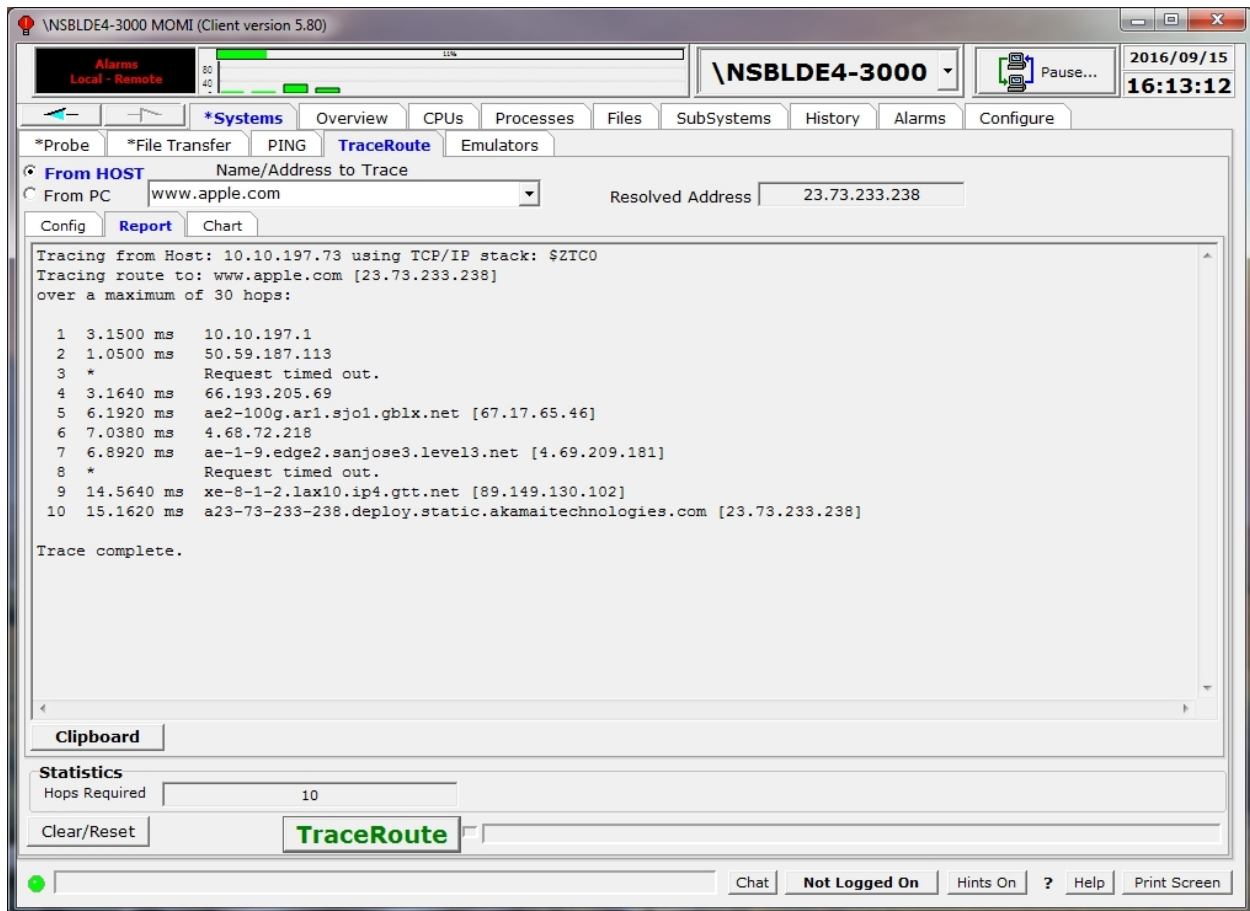
PING is the generic name used to describe a diagnostic to test if communication is possible between the source (i.e. HOST or PC) to the destination. A TraceRoute uses a form of PING where the TTL (Time-To-Live) count starts at 1 and is incremented (to an absolute maximum of 255) allowing the display of each intervening device (usually a router) until the destination is reached. The resultant trace of information is an indication of the number of hops through the devices required to achieve a communications connection end-to-end.

The screen is used by selecting either "From Host" or "From PC", entering a destination as an DNS name or IP address and pressing the TraceRoute button. Optionally, the maximum number of Hops, the retries per device, the amount of time to wait for a response and the TCP/IP Stack to issue the PING through. The center of the screen displays a

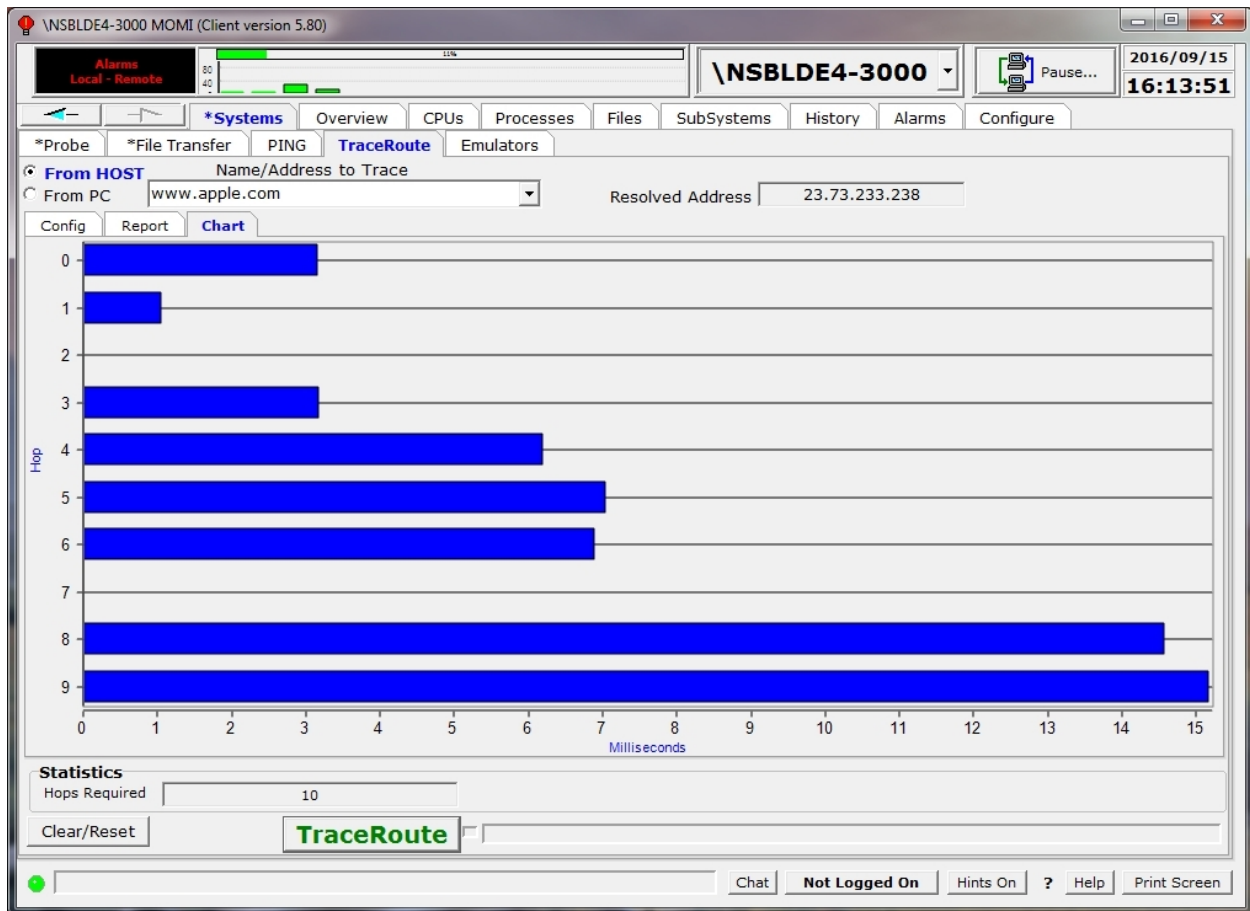
trace of each device (IP address and DNS name if available) and the amount of time each response took. The graphic displays the response time.

The ability to PING from the HOST may require the setup of an additional MOMI server to perform the function. See [General considerations](#) for additional information.

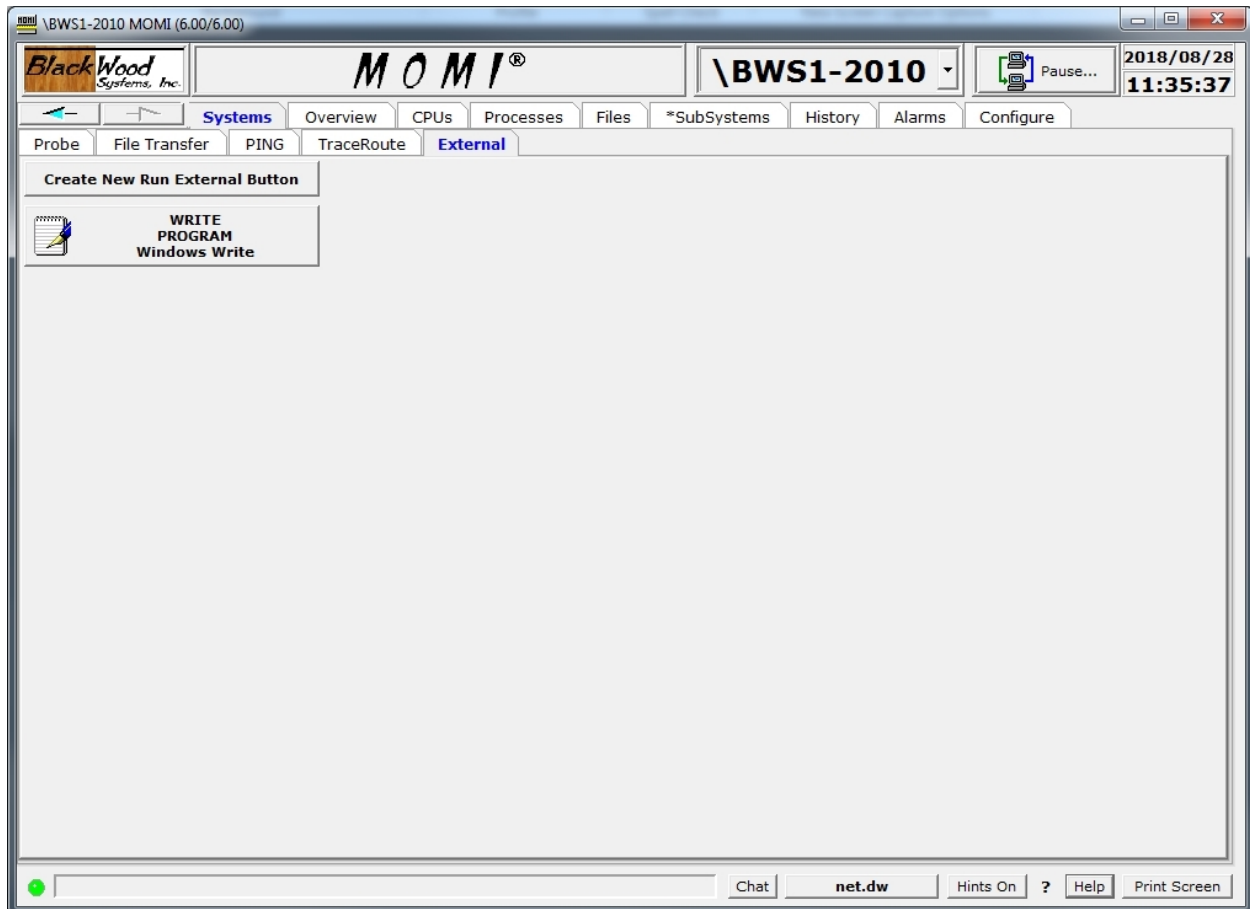
The Report tab displays the results in a format similar to the Windows Tracert utility.



The Chart tab display a graphic of the PING response time.



Systems / External



The Systems / External screen provides the ability to define and launch a process external to the MOMI Client providing access to other applications.


An entry is created pushing **Create New Run External Button**. In the pop-up window enter the requested information and **Create**. The new button created may then be pressed to launch the application. Right-click on the created emulator button to delete.

Create new External program/CAIL Launch X

Type

☒ External program ☐ Internal CAIL ☐ External CAIL

External program to run



Name for this Button

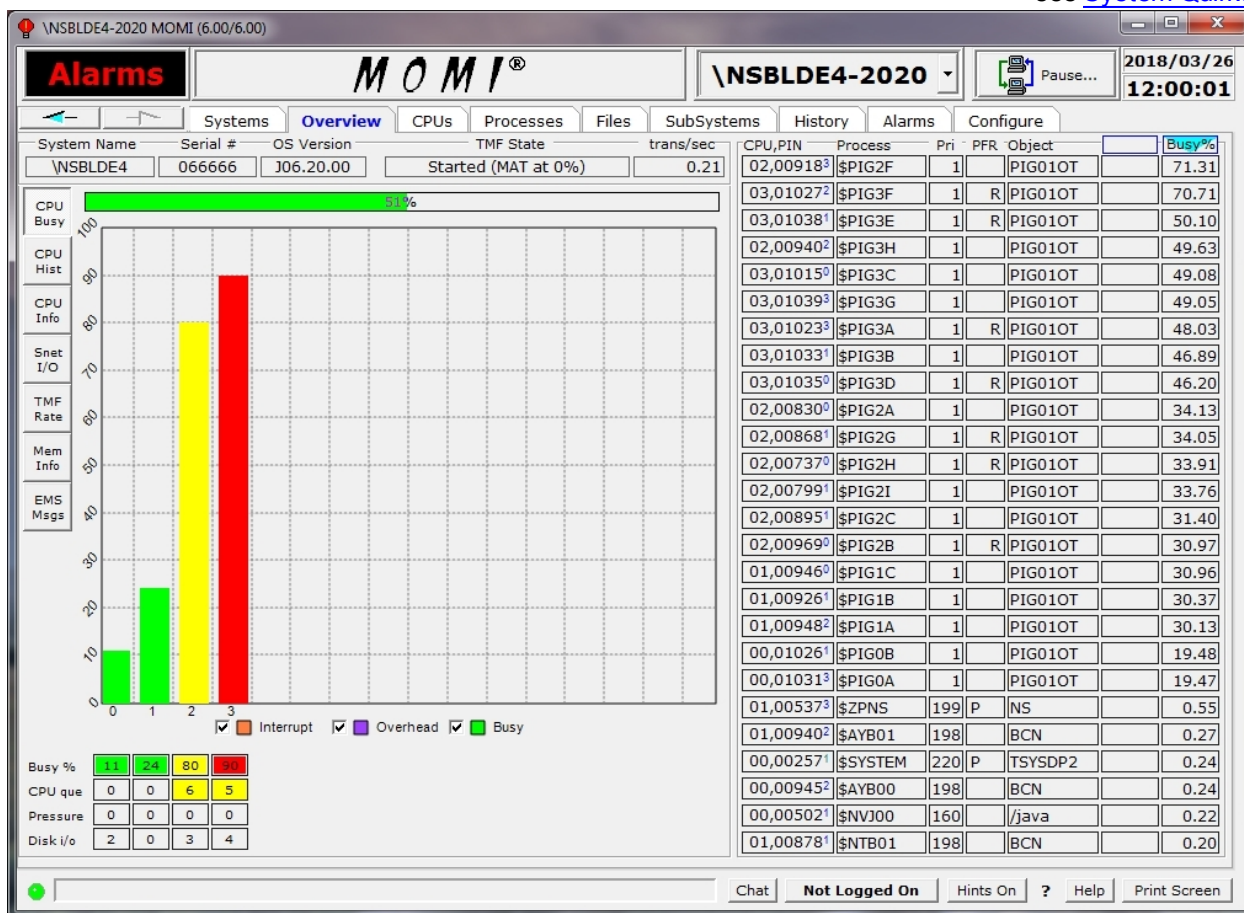
Description

Create Cancel

Overview

Main Overview

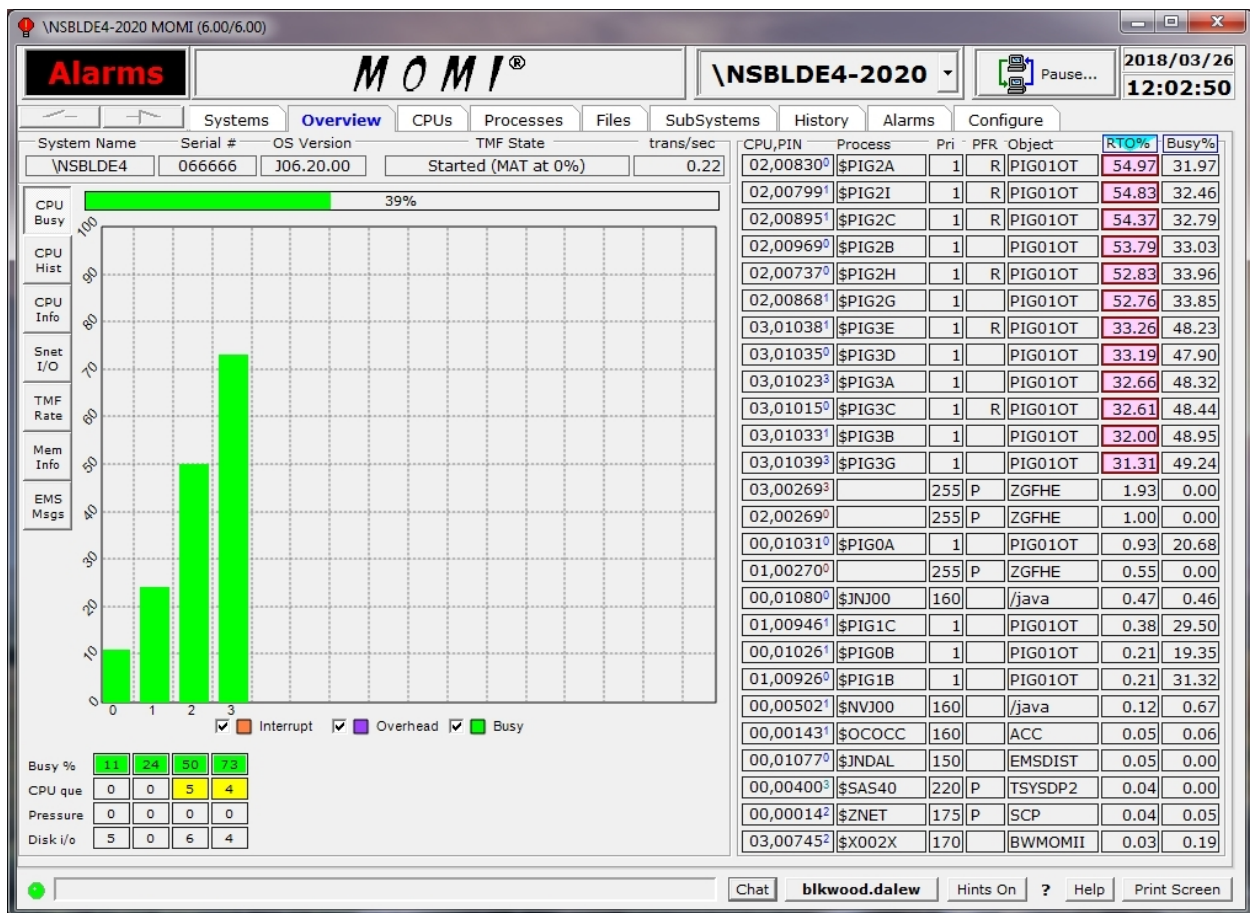
see [System Quirks](#)



The Main Overview screen provides the launch point for general information about the health of the System.

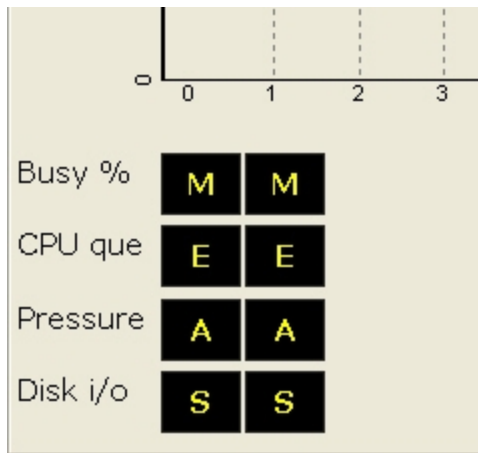
The top left side of the screen contains the System name, System serial number and operating system version. The next two fields provide the state of TMF and the current transactions per second. The TMF State displays the percent utilization of the audit trail (largest value is displayed if TMF is configured with auxiliary audit trails).

The fields in the lower left handle corner Busy %, CPU que, Pressure and Disk I/O display the Overall CPU busy, average CPU queue depth, memory pressure (a value from 0 to 7 where 7 is the highest) and physical disk I/Os per second respectively. Additionally, these fields are used to relate special information as described below.

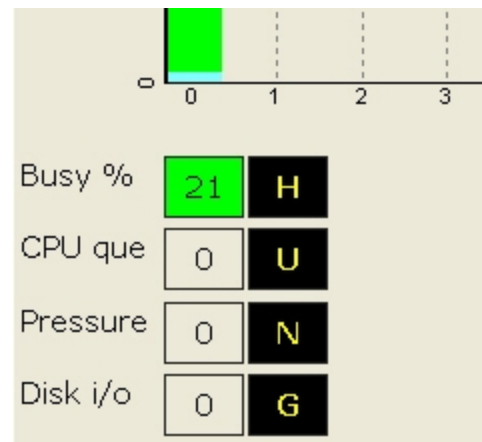
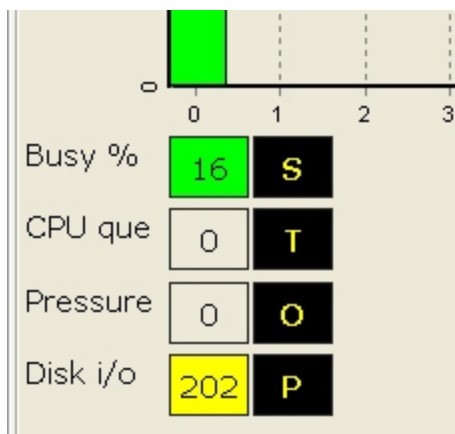


Information for the right side of the screen normally displays process and sorted by process busy percent. Right-click on the heading of the blank column to display process \$RECEIVE Queue Length, the process Ready Time Only (RTO is the process Ready Time less Process Busy Time) or blank to restore an empty column. The selection displays and sorts by the chosen value. Click on the Busy% column to sort by process busy percent.

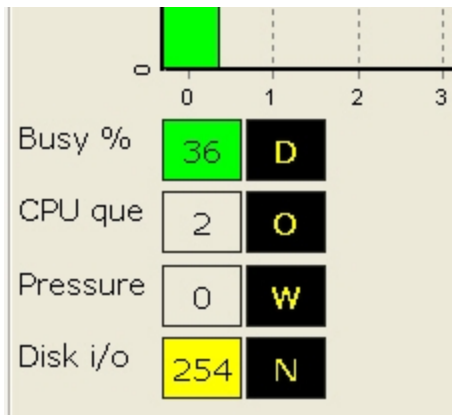
If MEASURE is not started, **MEAS** is reported in each affected processor. Use MEASCOM to start the MEASURE subsystem (for the system or a particular processor):



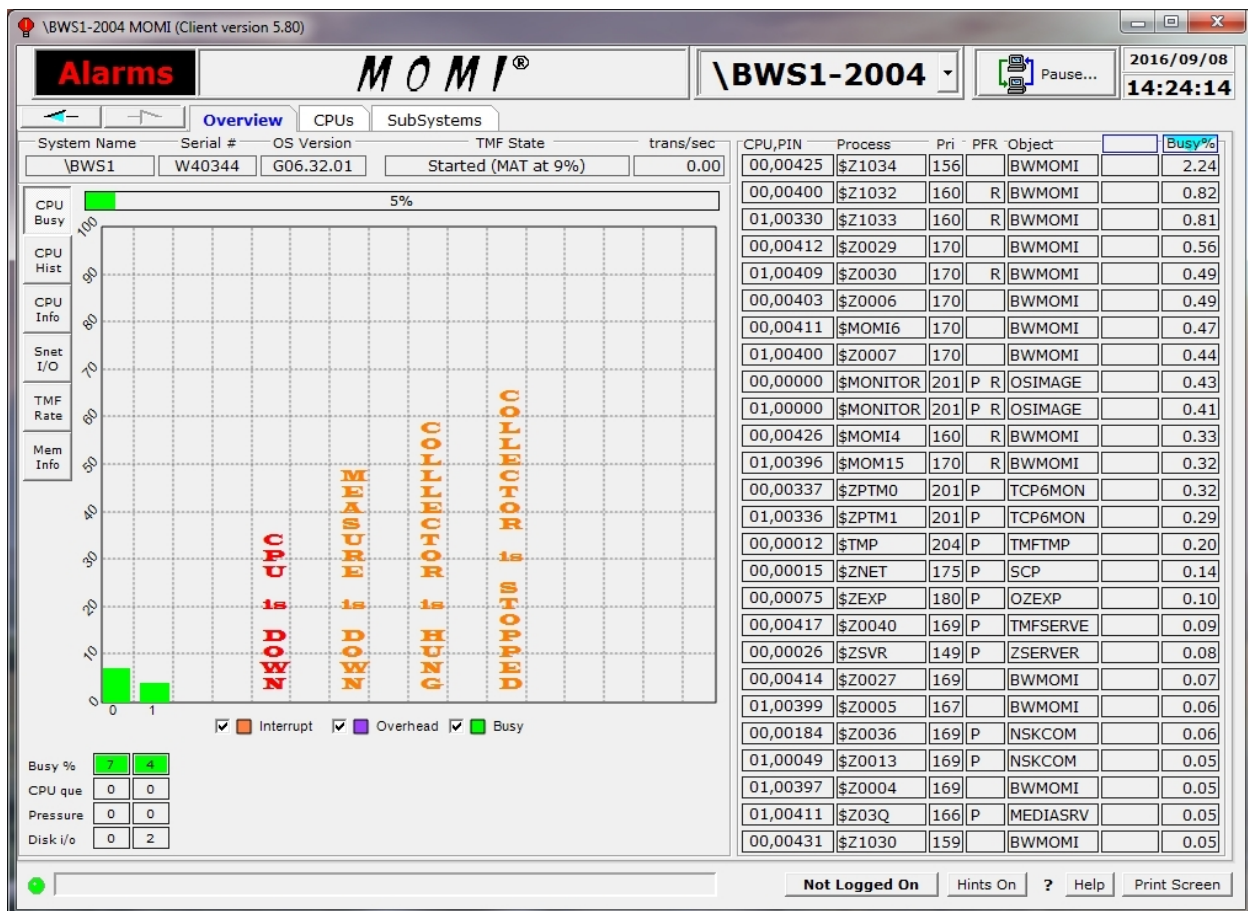
If a MOMI CPU collector process does not report in a timely manner, typically after 30 seconds, **STOP** is reported. MOMI then issues a Guardian stop on the collector process and the process is automatically restarted by MOMI (the automatic restart occurs approximately 1 minute after the **STOP** is displayed). Technically, the processor is marked as **HUNG** but this is usually not visible if the CPU collector process stops as directed:



In the event a CPU fails, **DOWN** is reported for the affected CPU. MOMI automatically restarts a collector process approximately 1 minute after the CPU is reloaded:

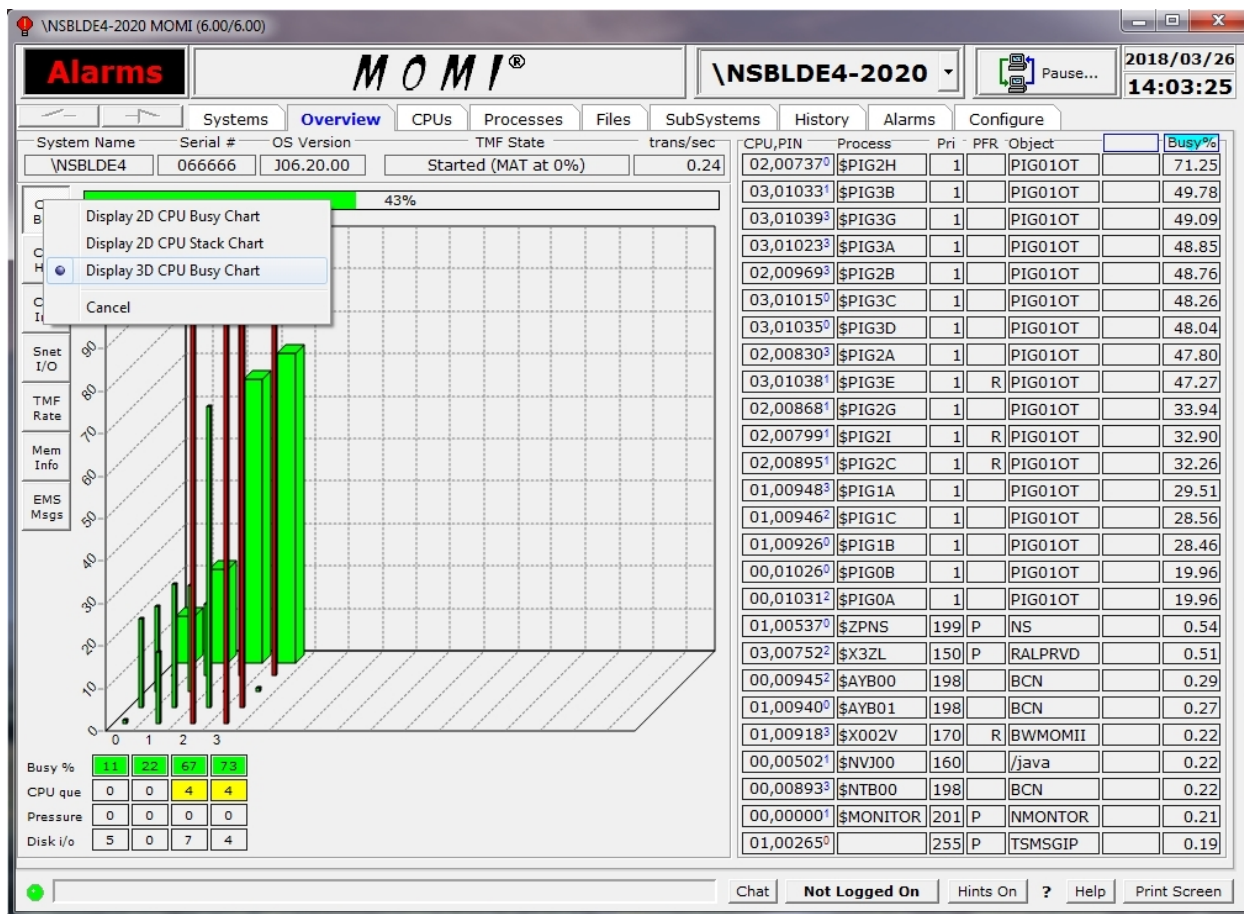


Later versions of MOMI display a more prominent CPU / MOMI status (the text below are samples, real text appears over the affected CPU).



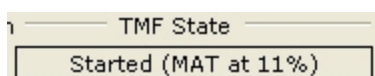
Additional CPU busy information is available for NonStop Blade and later Systems. Right-click on the CPU Busy button on the left hand side and select **Display 3D CPU Busy Chart**. This setting enables the display of individual IPU's (small narrow bar)

along with the overall process busy (wide bar). Note that on the right side of the screen that it is possible for an individual process to be at (or near 100%) and yet the overall CPU busy is nowhere near 100%. A processes percent busy is based on its activity within an individual IPU as it may not span multiple IPU's. So, for example, if a CPU has four IPU's and a single process is running at 100% the total CPU busy reported is 25% (yes, it does take some getting used to).



TMF State reports the general status of TMF (Started, Stopped, etc...) along with over-flow and other error indicators. The percentage full (i.e. in use) of the largest of the Master (MAT) or Auxiliary (AUXnn) audit trails is also reported in parentheses for most states. Generally speaking, the "worst" state or condition is selected for display.

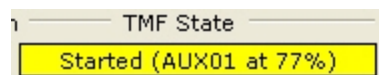
Below are some sample TMF States:



Master audit trail at 11% full



Auxiliary audit trail 1 at 33% full



Auxiliary audit trail 1 at 77% full



Auxiliary audit trail 1 cannot rollover (out of space and no overflow available)



Auxiliary audit trail 1 using overflow



Begin transactions disabled within TMF

CPU,PIN	Process	Pri	PFR	Object	RTO%	Busy%
00,00257 ²	\$SYSTEM	220	P	TSYSDP2	0.24	2.67
01,00000	\$MONITOR	201	P	NMONTOR	0.00	1.31
02,00976	\$Y4G0	150	P	RALPRVD	0.00	1.14
00,00000	\$MONITOR	201	P	NMONTOR	0.00	1.13
01,01123	\$Y4DW	180		STCPUR	0.17	0.80
00,00266 ⁰		255	P	TSMSGIP	0.09	0.76
02,00265 ⁰		255	P	TSMSGIP	0.04	0.60
01,00650	\$X8MG	180		STCPUR	0.08	0.57
02,00000	\$MONITOR	201	P	NMONTOR	0.00	0.55

The right side of the screen shows the busiest or top processes on the entire System. The columns listed are the CPU, PIN [IPU], process name (blank if unnamed), current priority, PFR, Object file name, RTO% and Busy Percent.

The **Busy%** column is the percentage of total CPU busy for the process during the last

monitored interval (by default MOMI scans the CPUs every 10 seconds). Note that for multiple IPU CPUs the percent busy represents the single IPU.

The **RTO%** column is a user selectable column that may display nothing, \$RECEIVE Queue Time (average queue length), or Ready Time Only.

The screen may be sorted by clicking in either the RTO% or Busy% column.

The **Object** column displays the last portion of a Guardian or OSS executable file name

The **PFR** column indicate with single letter descriptors if the process is P - Privileged , F - page Faulting or R - on the Ready list. A process is Privileged if it has been granted authority to run without security limitations (many System processes are Privileged). A

process needing memory space is page Faulting during the time it takes to free or swap needed memory pages. A process is on the Ready list when it is waiting for CPU execution. Additionally, a process can be on the Ready list while waiting on a page Fault.

The **Pri** column is the current process priority field. The surrounding box is yellow if the operating system has reduced the process priority and the process is a disk. A red color is used for any other process with a reduced priority. Disk processes will assume the priority of the requesting process while waiting for executing time. It is normal to see a disk process running at different priorities. User processes have their priority lowered by the System if they are determined to be CPU bound (i.e. taking a great deal of CPU resources).

The **Process** column displays the process \$Name, a system special name (such as \$MONITOR), or nothing to represent an unnamed process.

The **CPU,PIN^[IPU]** column shows the processor number, process identification number and optionally the CPU core number (i.e. IPU) where the process is running. The IPU is displayed, by default, if it has been specifically assigned by the operating system or by the user. If the IPU is not displayed it is assumed to be floating or in other words the process is dispatched in any available CPU core.

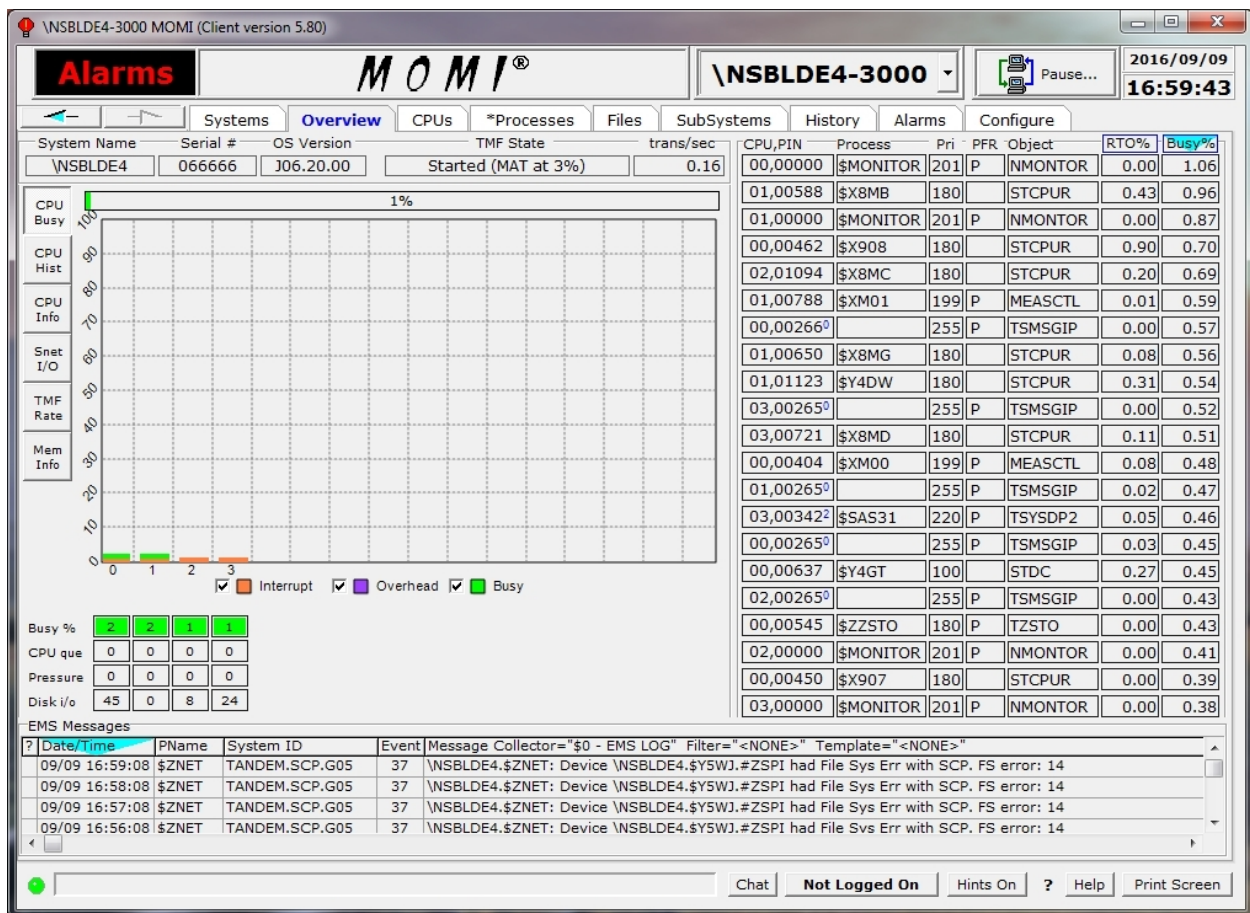
Placing the mouse over a CPU,PIN displays a pop-up window presenting additional information for that process. Below is a sample image:

Process Detail			
Process	\$ZPNS	Busy%	0.65%
Cpu,Pin ^{ipu}	01,005371	PFR	P
Memory	32.9 MB	WaitState	%015
Rdy Time%	0.00%	QTime	0.00
IPU Affinity	Soft		
State	Runnable		
Process Access ID	255,255		
Login Name	SUPER.SUPER		
Process Type	Guardian		
File Name	\$SYSTEM.SYS05.NS		
Ancestor	\$ZPMON		
Hometerm	\$ZHOME		
GMOM		JobID	
Created	2018/03/14 10:15:47	12 02:52:20	
Primary	<input checked="" type="checkbox"/>	Backup	<input type="checkbox"/>
IPri	199	CPri	199

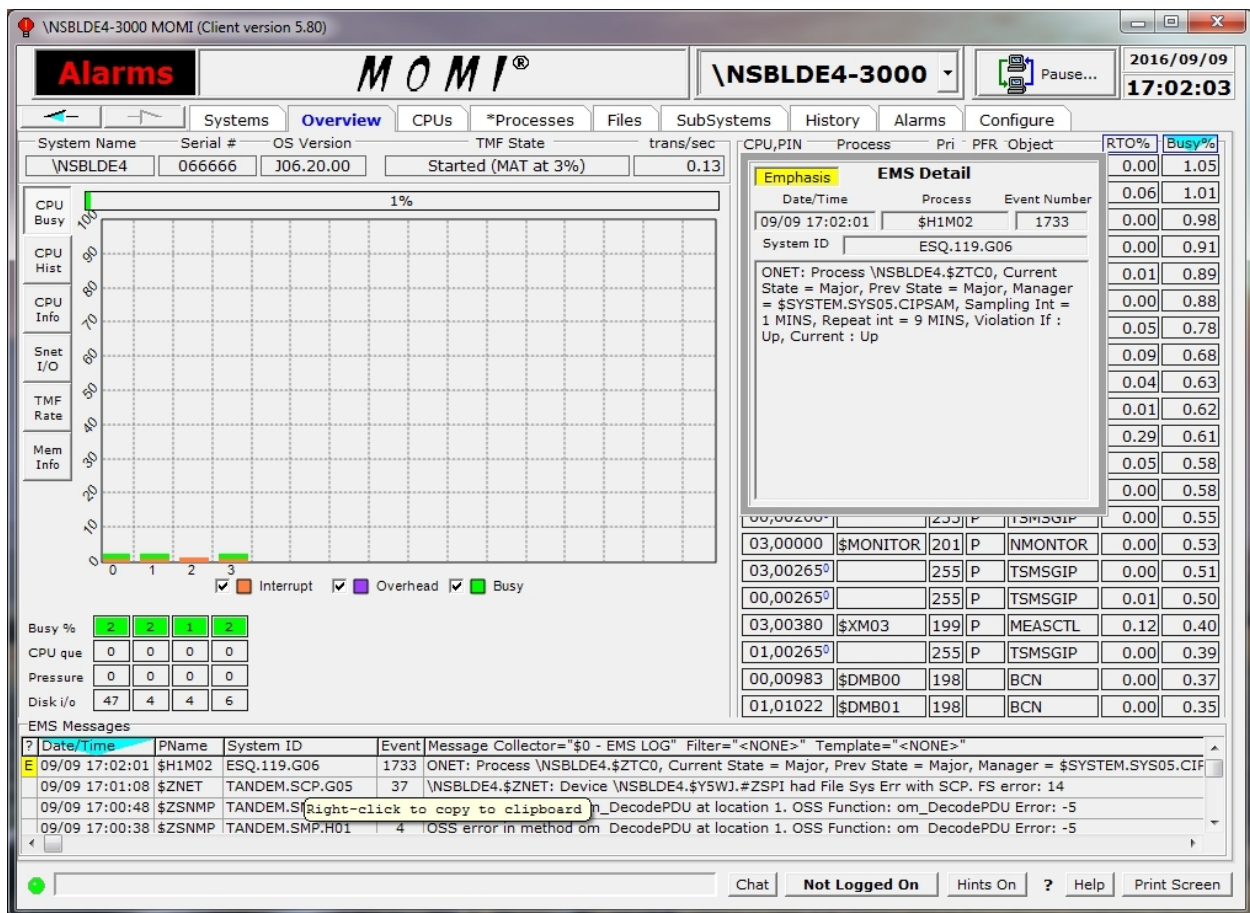
A right click on the CPU,PIN or Process field will bring up a menu allowing the User to select a variety of jumps or actions using the selected process (the actions available vary depending on the process):

Systems History Alarms Configure							
	CPU,PIN	Process	Pri	PFR	Object	RTO%	Busy%
01,00788		\$XM01	199	P	MEASCTL	0.01	1.13
01,01		\$Y4DW - (01,01123)					0.01 1.11
01,00						.00	1.08
00,00		View Process Detail					.06 1.00
00,00		View ProcessH Entity					.00 0.95
00,00		View PgmRay					.01 0.90
02,00		View File Entity					.00 0.78
03,00		View SQL Statement					.23 0.73
00,00		View Process History					.00 0.72
02,00		View Discovery Screen					.00 0.70
01,00		Perform Action on Process					.00 0.63
02,00		Display All Processes with same					.00 0.61
03,01		Display this Processes Descendants					.02 0.55
03,00		Copy "\$Y4DW" to Clipboard					.02 0.52
02,00		Cancel					.00 0.52
03,00000		\$MONITOR	201	P	NMONITOR	0.00	0.50

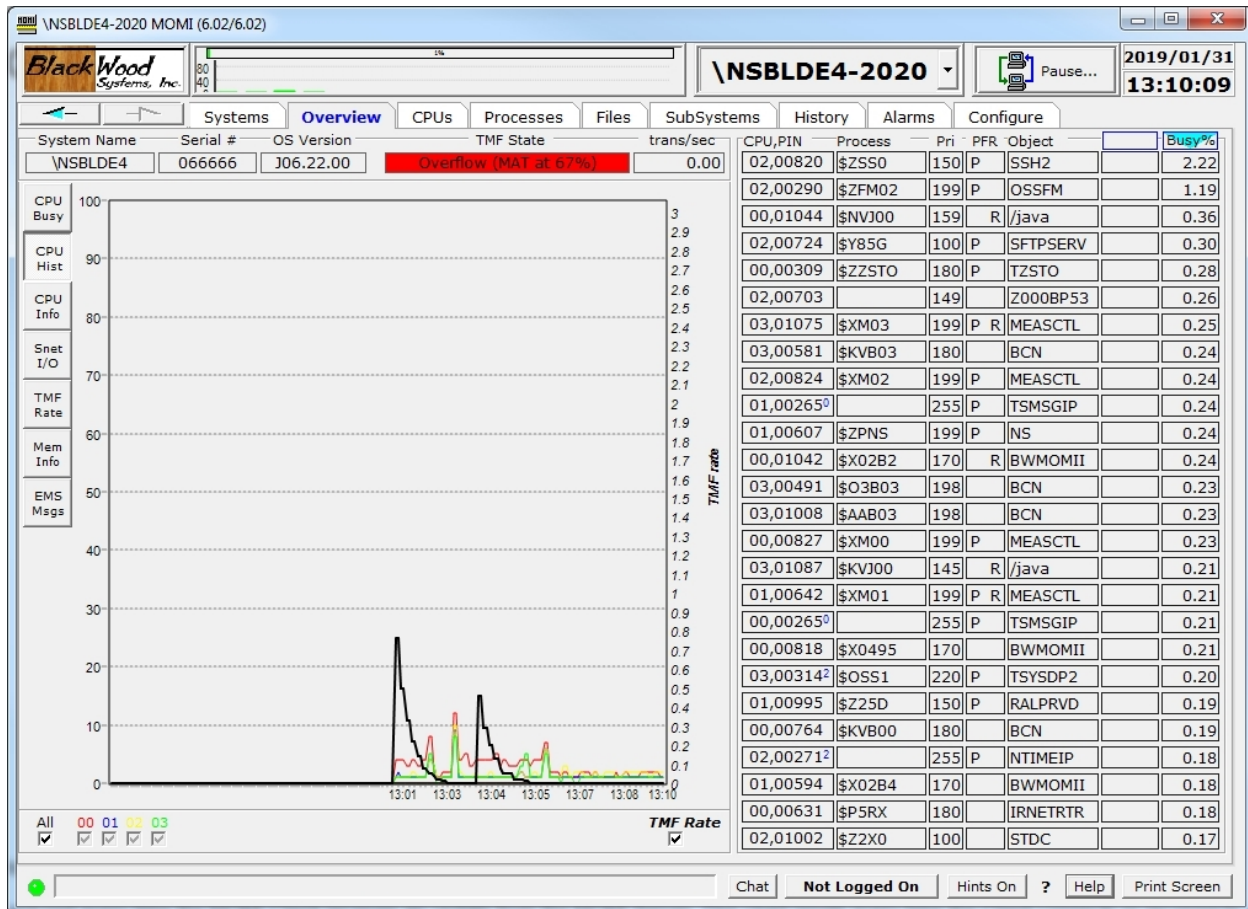
The Overview screen may also be configured, on the page [Settings / Single Screen](#) to an alternate format that displays EMS information along the bottom on the screen. Note that in this mode the EMS Msgs button along the left side is not longer present. To change the text size of the EMS messages, right-click on any EMS column heading and select Display Grid Tools... Note that space is limited on this screen so a large font selection will not normally work well.



Placing the mouse over an EMS message display a pop-up detail.



Overview CPU History



The Overview CPU History screen charts the busy history of the CPU's on the System with the TMF transaction rate. The last 200 values are retained.

Data for this chart is captured every time the MOMI Client receives an update from the MOMI Server. This chart resets every time the Client connects or reconnects unless the system is being probed (from any sub-screen) on [Systems / Probe](#) or [Expand / Diagram](#).

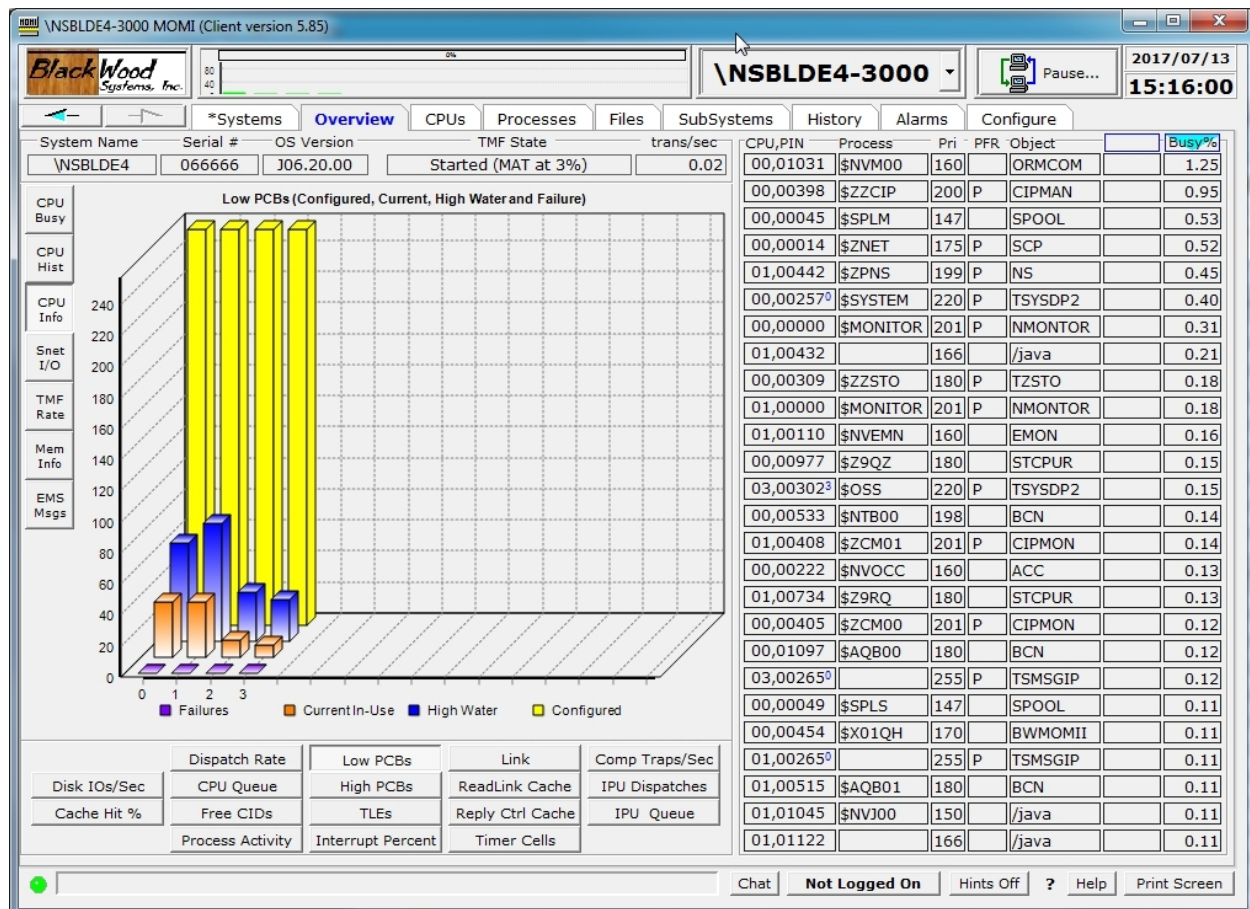
Selection boxes near the bottom of the screen may be unchecked to removed CPUs or the TMF Rate from the display.

Place the mouse over a chart line and click to display the top few processes at that point in time.

CPU 03 at 13:11:13 reported 1% busy

CPU,PIN	Process	Object	Priority	Busy%
03,01087	\$KVJ00	/java	145	0.21
03,00700	\$X0498	BWMOMII	170	0.17
03,00293	\$ZFM03	OSSFMM	199	0.16
03,00546	\$X42B	STCPUR	180	0.16
03,01201	\$X43G	STDC	100	0.15
03,00271		NTIMEIP	255	0.14

Overview CPU Info

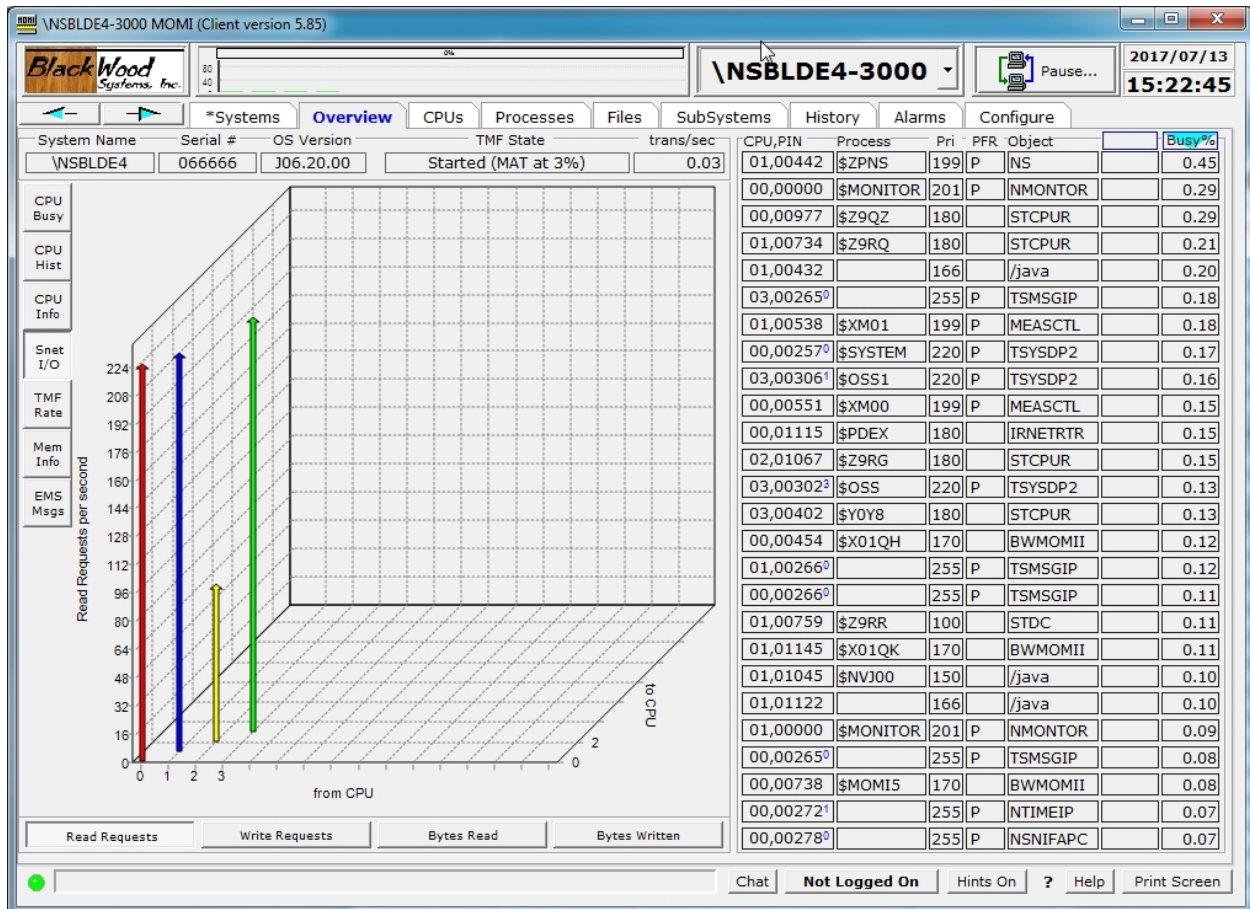


The Overview CPU Info charts various values pertaining to a CPU.

Place the mouse over the Bar to see the actual value. Several bars are hot spots jump for additional information about a particular value. For example, pressing the **Comp Traps/Sec** button and clicking on a bar will jump to the **Processes / Process Entity** screen and configure a process entity measurement to display the highest generators of Comp Traps (**Computational Traps**¹) in the particular CPU.

¹Also known as Computational Traps is the situation when memory is accessed and the data is not "well aligned". Well aligned data is located at a multiple of the size of the field. For example, a 32-bit value is four bytes. The address of the value should be evenly divisible by four. A Comp Trap indicates that the system had to perform extra work in order to process the exception. Generally speaking, 16-bit programs always cause Comp Traps and 32-bit programs ideally have zero to very few Comp Traps.

Overview Snet I/O

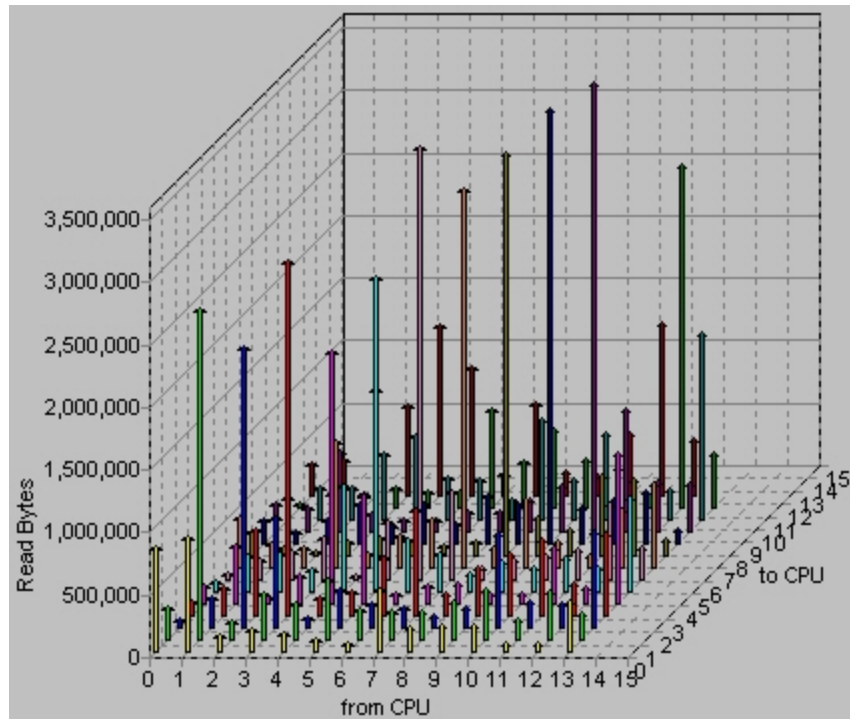


The Overview Snet I/O screen displays the traffic in and out of the ServerNet interconnects at the CPU level. Certain traffic is counted twice, so the chart is just a general idea of the traffic rate and distribution.

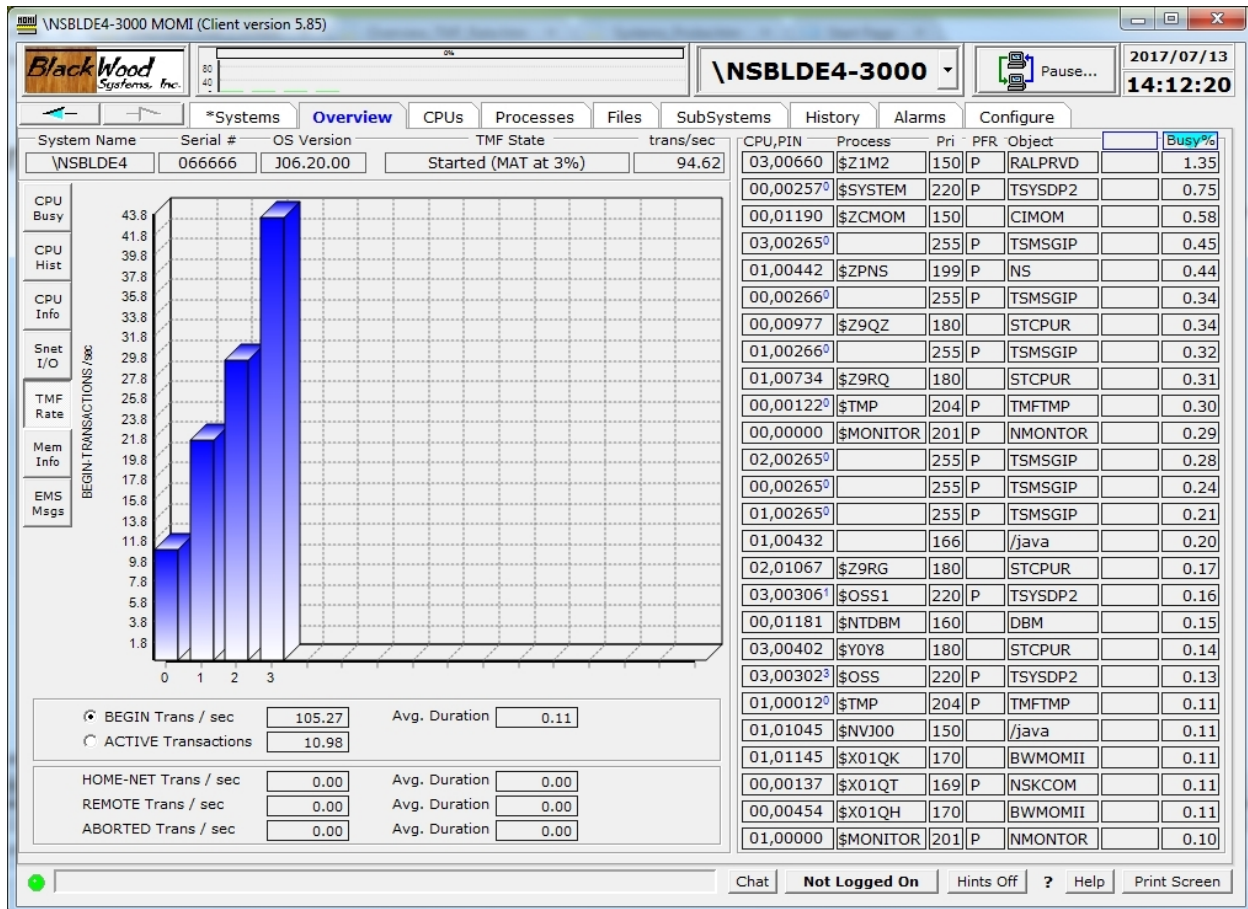
The 3D chart presents data transfers from all CPUs to all CPUs. On older ServerNet systems the chart appears more 3-dimensional than on newer systems. Newer systems seem to only display a 3-dimensional effect under very heavy load.

The chart presents the Read / Write Requests and the Read / Write Byte rates.

Below is a portion of the same screen from an older system showing the 3-dimensional affect.



Overview TMF Rate

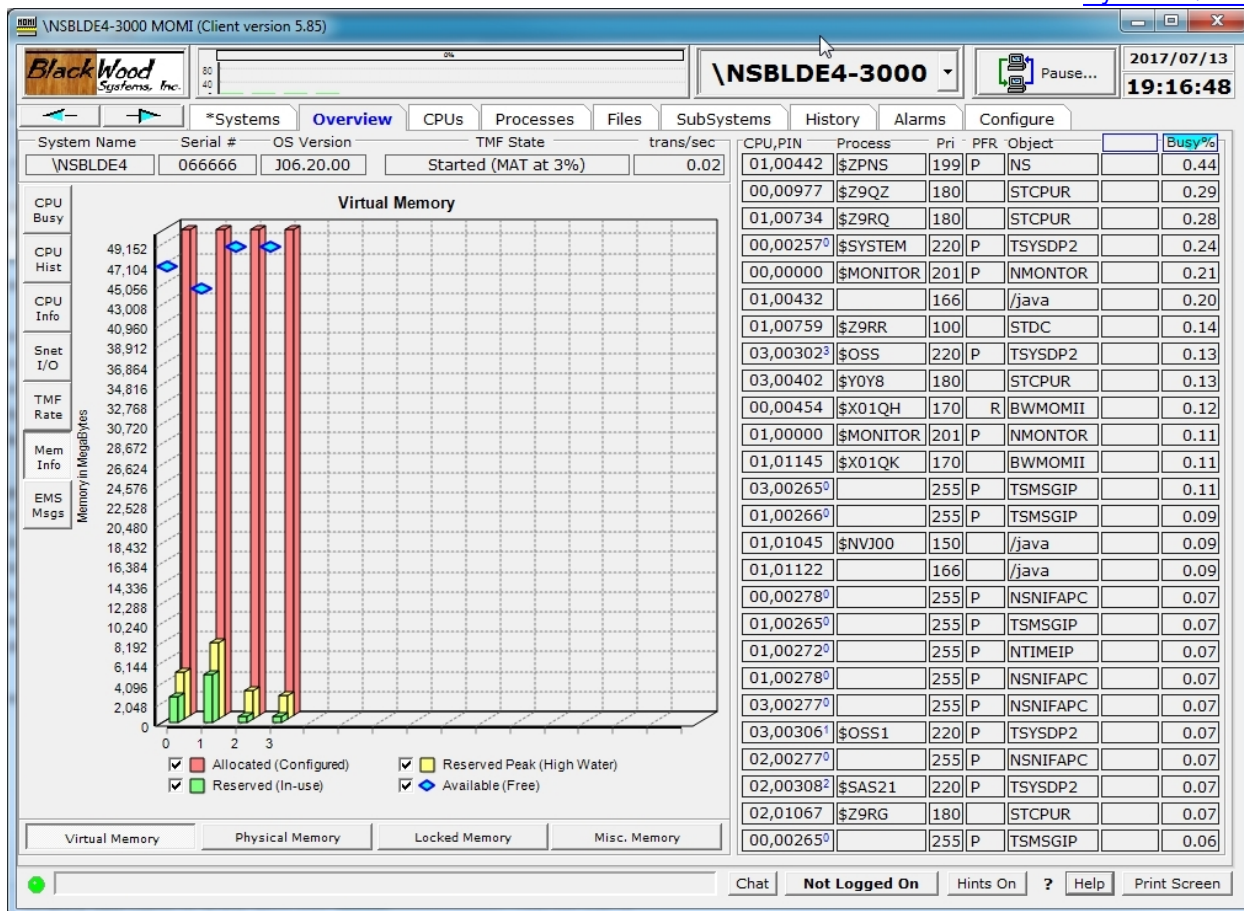


The Overview TMF rate chart presents the TMF transaction rate at a per CPU level.

Two options are available. Plotting data at **BEGIN** shows the count of transactions that were started. Plotting data at **ACTIVE** shows the number of transactions that were started but not yet completed. **ACTIVE** transactions are an approximation, based on available information from MEASURE .

Overview Mem Info

see [System Quirks](#)



The Overview Mem Info screen presents the status of various aspects of virtual memory.

Each process running in a CPU consumes both physical and virtual memory. Virtual memory is the underlying disk space made available via NSKCOM to each CPU. A "rule of thumb", a CPU has allocated 2.5 times the amount of virtual memory than physical memory.

Physical memory is the memory actually present in the CPU. For example, you have a 32 Gigabyte processor.

Not all memory is available for virtual use. When memory is locked, it is not allowed to swap to disk. A certain amount of memory is always locked by the operating system at start up. This amount varies as processes start and stop.

Misc. Memory is a 'catch area' for other useful memory counters.

- Unsponsored memory is memory that is temporarily not owned by any process but must remain allocated.
- Memory pressure is a value from 0 to 7 where 0 is low. It is an indicator of the demand for memory. Systems with plenty of memory have a pressure of 0.
- A page fault is the situation where a memory page is needed but not present. This occurs when a process is first started and continues until all needed memory is accessed at least once. Additionally, a page fault can occur when memory that was previously accessed is no longer present, perhaps due to another process needing memory.
- Memory Queue is an indication of the number of processes waiting for memory. Newer systems do not seem to have a general memory queue. The servicing of page faults is now handled within the context of a user process (via system code in the background). On older machines, a memory queue was a second ready list because a process must first have memory accessible before it can wait to execute.

Overview EMS Msgs

BlackWood Systems, Inc. \NSBLDE4-3000 MOMI (Client version 5.85) 2017/07/13 14:26:09

Pause...

*Systems Overview CPUs Processes Files SubSystems History Alarms Configure

System Name Serial # OS Version TMF State trans/sec

WSBLDE4 066666 J06.20.00 Started (MAT at 3%) 0.01

CPU, PIN	Process	Pri	PFR	Object	Busy%
03,00924	\$Z5N7	150	P	RALPRVD	0.46
01,00442	\$ZPNS	199	P	NS	0.41
00,00257	\$SYSTEM	220	P	TSYSDP2	0.41
00,00000	\$MONITOR	201	P	NMONTOR	0.30
00,01115	\$PDEX	180		IRNETRTR	0.19
01,00432		166		/java	0.18
03,00306	\$OSS1	220	P	TSYSDP2	0.16
01,00000	\$MONITOR	201	P	NMONTOR	0.15
00,00977	\$Z9QZ	180		STCPUR	0.15
01,00734	\$Z9RQ	180		STCPUR	0.14
03,00265		255	P	TSMGIP	0.14
03,00302	\$OSS	220	P	TSYSDP2	0.14
00,00454	\$X01QH	170		BWMOMII	0.12
00,01097	\$AQB00	180		BCN	0.12
01,00515	\$AQB01	180		BCN	0.11
01,00759	\$Z9RR	100		STDC	0.11
01,01145	\$X01QK	170		BWMOMII	0.11
02,01067	\$Z9RG	180		STCPUR	0.10
01,00790	\$NTB01	198		BCN	0.10
01,01122		166		/java	0.10
00,00398	\$ZZCIP	200	P	CIPMAN	0.10
00,00533	\$NTB00	198		BCN	0.10
00,00551	\$XM00	199	P	MEASCTL	0.10
02,00499	\$NTB02	198		BCN	0.09
02,00535	\$AQB02	180		BCN	0.09
01,01045	\$NVJ00	150		/java	0.09

Collector \$0 - EMS LOG Filter <NONE> Template <NONE>

Date/Time	PName	System ID	Event	Message
07/13 14:26:02	\$ZPM4	TANDEM.RPC.H01	4	WSBLDE4.\$ZTC4 Socket Librai
07/13 14:25:47	\$NVM00	TANDEM.OVMON.J01	15311	OVNM: CLIM-IP Port 9183, Viol
07/13 14:25:47	\$NVM00	TANDEM.OVMON.J01	15311	OVNM: CLIM-IP Port 9182, Viol
07/13 14:25:45	\$NVM00	TANDEM.OVMON.J01	3607	OVNM SPOOLERSTATUS2 error
07/13 14:25:15	\$NVM00	TANDEM.OVMON.J01	13300	OVNM: NETBATCH SCHEDULER
07/13 14:25:15	\$NVM00	TANDEM.OVMON.J01	13300	OVNM: NETBATCH SCHEDULER
07/13 14:25:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR
07/13 14:25:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR
07/13 14:25:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR
07/13 14:25:15	\$NVM00	TANDEM.OVMON.J01	2130	OVNM: Cpu \NSBLDE4.1, Violat
07/13 14:25:15	\$ZNET	TANDEM.SCP.G05	37	WSBLDE4.\$ZNET: Device \NSE
07/13 14:25:15	\$ZNET	TANDEM.SCP.G05	37	WSBLDE4.\$ZNET: Device \NSE
07/13 14:25:10	\$NVJVA	TANDEM.OVNM.H06	4024	OSSG:\$NVJ00 OSS-JAVA PROC
07/13 14:25:02	\$ZPM4	TANDEM.RPC.H01	4	WSBLDE4.\$ZTC4 Socket Librai
07/13 14:24:45	\$NVM00	TANDEM.OVMON.J01	3607	OVNM SPOOLERSTATUS2 error
07/13 14:24:15	\$NVM00	TANDEM.OVMON.J01	13300	OVNM: NETBATCH SCHEDULER
07/13 14:24:15	\$NVM00	TANDEM.OVMON.J01	13300	OVNM: NETBATCH SCHEDULER
07/13 14:24:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR
07/13 14:24:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR
07/13 14:24:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR
07/13 14:24:15	\$NVM00	TANDEM.OVMON.J01	2130	OVNM: Cpu \NSBLDE4.1, Violat
07/13 14:24:15	\$ZNET	TANDEM.SCP.G05	37	WSBLDE4.\$ZNET: Device \NSE
07/13 14:24:15	\$ZNET	TANDEM.SCP.G05	37	WSBLDE4.\$ZNET: Device \NSE
07/13 14:24:10	\$NVJVA	TANDEM.OVNM.H06	4024	OSSG:\$NVJ00 OSS-JAVA PROC

Chat Not Logged On Hints Off ? Help Print Screen

The Overview EMS Msgs screen presents EMS log messages from the system log \$0.

BlackWood Systems, Inc. \NSBLDE4-3000 MOMI (Client version 5.85)

2017/07/13 14:28:19

*Systems Overview CPUs Processes Files SubSystems History Alarms Configure

System Name: \NSBLDE4 Serial #: 066666 OS Version: J06.20.00 TMF State: Started (MAT at 3%) trans/sec: 0.01

CPU	Collector	\$0 - EMS LOG	Filter	<NONE>	Template	<NONE>	Busy%
CPU Busy	07/13 14:28:15	\$NVM00	TANDEM.OVMON.J01	13300	OVNM: NETBATCH SCHEDULER		0.59
CPU Hist	07/13 14:28:15	\$NVM00	TANDEM.OVMON.J01	13300	OVNM: NETBATCH SCHEDULER		0.43
CPU Info	07/13 14:28:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.40
Snet I/O	07/13 14:28:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.34
TMF Rate	07/13 14:28:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.30
Mem Info	07/13 14:28:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.25
EMS Msgs	07/13 14:28:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.20
	07/13 14:28:15	\$NVM00	TANDEM.OVMON.J01	2130	OVNM: Cpu \NSBLDE4.1, Violat		0.15
	07/13 14:28:15	\$ZNET	TANDEM.SCP.G05	37	\NSBLDE4.\$ZNET: Device \NSE		0.13
	07/13 14:28:15	\$ZNET	TANDEM.SCP.G05	37	\NSBLDE4.\$ZNET: Device \NSE		0.12
	07/13 14:28:10	\$NVJVA	TANDEM.OVNM.H06	4024	OSSG:\$NVJ00 OSS-JAVA PROC		0.12
	07/13 14:28:02	\$ZPM4	TANDEM.RPC.H01	4	\NSBLDE4.\$ZTC4 Socket Librai		0.12
	07/13 14:27:54	\$NVSFG	TANDEM.OVNM.H06	4229	Open error on \$SYSTEM.SAFE..		0.11
	07/13 14:27:45	\$NVM00	TANDEM.OVMON.J01	3607	OVNM SPOOLERSTATUS2 error		0.11
	07/13 14:27:15	\$NVM00	TANDEM.OVMON.J01	13300	OVNM: NETBATCH SCHEDULER		0.11
	07/13 14:27:15	\$NVM00	TANDEM.OVMON.J01	13300	OVNM: NETBATCH SCHEDULER		0.11
	07/13 14:27:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.10
	07/13 14:27:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.09
	07/13 14:27:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.09
	07/13 14:27:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.08
	07/13 14:27:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.08
	07/13 14:27:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTOR		0.07
	07/13 14:27:15	\$NVM00	TANDEM.OVMON.J01	2130	OVNM: Cpu \NSBLDE4.1, Violat		0.07
	07/13 14:27:15	\$ZNET	TANDEM.SCP.G05	37	\NSBLDE4.\$ZNET: Device \NSE		0.07
	07/13 14:27:15	\$ZNET	TANDEM.SCP.G05	37	\NSBLDE4.\$ZNET: Device \NSE		0.07
	07/13 14:27:10	\$NVJVA	TANDEM.OVNM.H06	4024	OSSG:\$NVJ00 OSS-JAVA PROC		0.07
	07/13 14:27:02	\$ZPM4	TANDEM.RPC.H01	4	\NSBLDE4.\$ZTC4 Socket Librai		0.07
	07/13 14:26:45	\$NVM00	TANDEM.OVMON.J01	3607	OVNM SPOOLERSTATUS2 error		0.07
	07/13 14:26:20	\$NVM00	TANDEM.OVMON.J01	2230	OVNM: Disk \NSBLDE4.\$AUDIT		0.07

Emphasis EMS Detail

Date/Time: 07/13 14:28:02 Process: \$ZPM4 Event Number: 4

System ID: TANDEM.RPC.H01

\NSBLDE4.\$ZTC4 Socket Library Routine error 14: Nonexistent device; Procedure: NOWAITED SOCKET; Socket type: UDP

Chat Not Logged On Hints Off ? Help Print Screen

Place the mouse over an EMS line and a pop-up window displays the entire message.

NSBLDE4-3000 MOMI (Client version 5.85)

BlackWood Systems, Inc.

NSBLDE4-3000

2017/07/13 14:38:47

Pause...

*Systems Overview CPUs Processes Files SubSystems History Alarms Configure

System Name: NSBLDE4 Serial #: 066666 OS Version: J06.20.00 TMF State: Started (MAT at 3%) trans/sec: 0.03

CPU Busy Collector \$0 - EMS LOG Filter <NONE> Template <NONE>

CPU	Date/Time	PName	System ID	Event	Message
07/13 14:38:46	\$NVM00	TANDEM.OVMON.J01	3607	OVNM SPOOLERSTATUS2 err	
07/13 14:38:15	\$NVM00	TANDEM.OVMON.J01	13300	OVNM: NETBATCH SCHEDULE	
07/13 14:38:15	\$NVM00	TANDEM.OVMON.J01	13300	OVNM: NETBATCH SCHEDULE	
07/13 14:38:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTO	
07/13 14:38:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTO	
07/13 14:38:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTO	
07/13 14:38:15	\$NVM00	TANDEM.OVMON.J01	13346	OVNM: NETBATCH EXECUTO	
07/13 14:38:15	\$NVM00	TANDEM.OVMON.J01	2130	OVNM: Cpu NSBLDE4.1, Viol	
07/13 14:38:15	\$ZNET	TANDEM.SCP.G05	37	NSBLDE4.\$ZNET: Device \N	
07/13 14:38:15	\$ZNET	TANDEM.SCP.G05	37	NSBLDE4.\$ZNET: Device \N	
07/13 14:38:14	\$ZCM00	TANDEM.CIP.H03	5227	CLIM Event CLIM Name: C10	
07/13 14:38:10	\$NVM00	TANDEM.OVMON.H06	4024	OSSG:\$NVM00 OSS-JAVA PR	

EMS Actions

- EM.RPC.H01 4 NSBLDE4.\$ZTC4 Socket Libr
- EM.211.H11 856 EMSTEXT -- No template and
- EM.CIP.H03 5227 CLIM Event CLIM Name: C10
- EM.CIP.H03 5227 CLIM Event CLIM Name: C10
- EM.OVNM.H06 4229 Open error on \$SYSTEM.SAF
- EM.OVMON.J01 3607 OVNM SPOOLERSTATUS2 err
- EM.CIP.H03 5227 CLIM Event CLIM Name: C10
- EM.OVMON.J01 13300 OVNM: NETBATCH SCHEDULE

Pause Messages

Resume Messages

Stop receiving Messages

Cancel

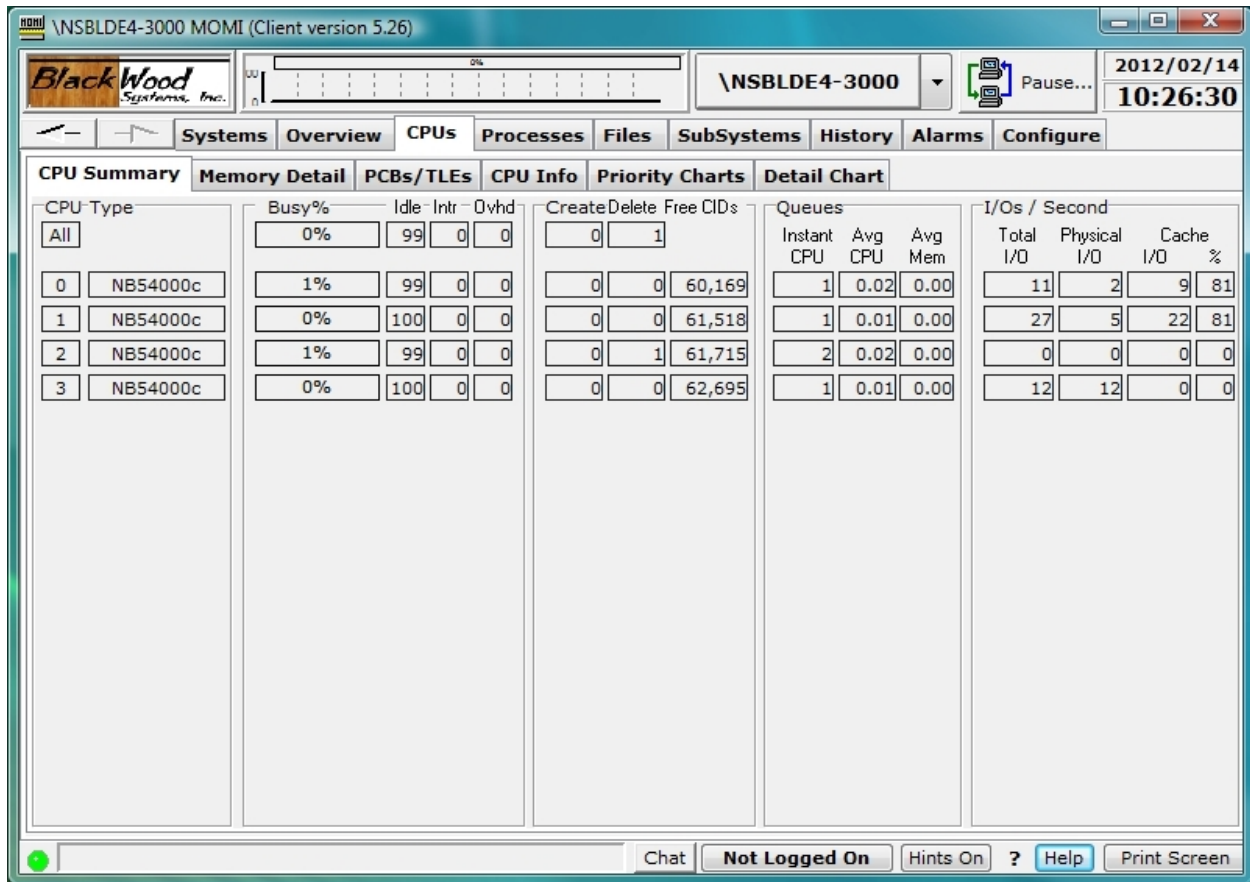
CPU	PIN	Process	Pri	PFR	Object	Busy%
01,00442	\$ZPNS	199	P	NS		0.45
00,00000	\$MONITOR	201	P	NMONTOR		0.29
00,00977	\$Z9QZ	180		STCPUR		0.29
01,00734	\$Z9RQ	180		STCPUR		0.27
00,00257	\$SYSTEM	220	P	TSYSDP2		0.23
01,00432		166		//java		0.19
03,00306	\$OSS1	220	P	TSYSDP2		0.16
02,01067	\$Z9RG	180		STCPUR		0.15
03,00265		255	P	TSMGIP		0.13
03,00302	\$OSS	220	P	TSYSDP2		0.13
03,00402	\$Y0Y8	180		STCPUR		0.13
01,00000	\$MONITOR	201	P	NMONTOR		0.11
01,01045	\$NVM00	150		//java		0.11
01,01145	\$X01QK	170		BWMOMII		0.11
00,00454	\$X01QH	170		BWMOMII		0.11
01,00759	\$Z9RR	100		STDC		0.10
01,01122		166		//java		0.10
01,00266		255	P	TSMGIP		0.09
00,00265		255	P	TSMGIP		0.09
01,00272		255	P	NTIMEIP		0.07
01,00278		255	P	NSNIFAPC		0.07
02,00277		255	P	NSNIFAPC		0.07
00,00266		255	P	TSMGIP		0.07
00,00278		255	P	NSNIFAPC		0.07
00,00738	\$MOMI5	170		BWMOMII		0.07
03,00277		255	P	NSNIFAPC		0.07

Chat Not Logged On Hints Off ? Help Print Screen

A right-click on the EMS Msgs button allows actions to pause, resume or stop EMS message processing on this screen.

CPUs

CPUs / CPU Summary



The CPUs / CPU Summary screen provides high level detail on the activity of each processor in the System.

Busy % breaks down the total CPU busy value into Idle, Interrupts, and Overhead. Idle is the percent of time the processor did nothing. Interrupts is the percent of time the processor serviced low-level disruptions to normal processing such as an I/O completion. Overhead is the percent of time the processor spent creating or deleting processes.

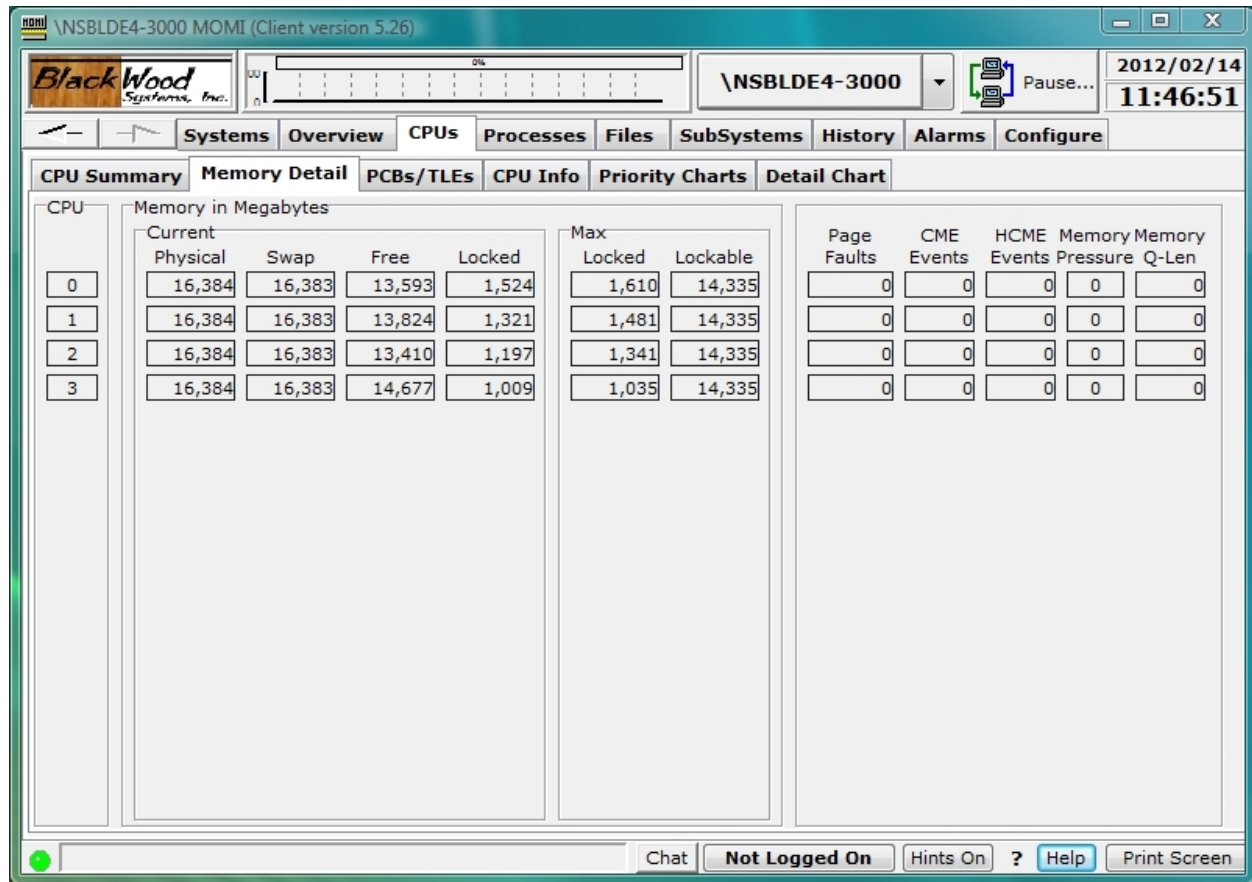
Create and **Delete** show the number of processes new to the system and removed from the system as seen by MOMI. This gives an indication as to the level of process turnover on the System. Typical Guardian-based processes usually start and stay started. A high process turnover may indicate a problem. OSS-type processes usually have a much higher turnover due to the nature of the UNIX-like environment.

Free CIDs are a MEASURE resource used to contain counters for measurements. Enough Free CIDs should be available to support current and additional measurements.

CPU Queues are reported as Instant, or what is in the queue right now, and Average, which is the queue over the Interval period. The Instant queue is a whole number of processes while the Average is a decimal value. The Average memory queue is only available (i.e. have a non-zero value) on older platforms.

I/Os / Second indicate the gross total disk I/O activity at the CPU level. The physical I/Os plus the I/Os satisfied from cache equal the total I/Os. The percent of cache hits indicates the overall effectiveness of the disk cache. High levels of I/Os with a low cache hit percentage may indicate insufficient cache allocated to disk.

CPU / Memory Detail



The CPUs / Memory Detail screen provides the detail of the physical memory of each processor.

Physical memory refers to what was installed in the CPU, such as a 2 Gigabyte processor. Swappable is the memory available for virtual memory usage. Memory that is locked is forced to remain in the processor and may not be swapped out to disk (i.e. virtual memory). System processes, control blocks and I/O buffers are examples of memory that is usually locked.

Page Faults occur when a process needs to access memory but it is not present. The System must either read the memory from disk or create a new page.

CME Events (Correctable Memory Errors) is the situation where a hardware check-sum algorithm indicates a memory bit was in error but the System could recover from the event. CMEs are usually transient in nature. The value reported here comes from the Guardian procedure call `PROCESSOR_GETINFOLIST_`.

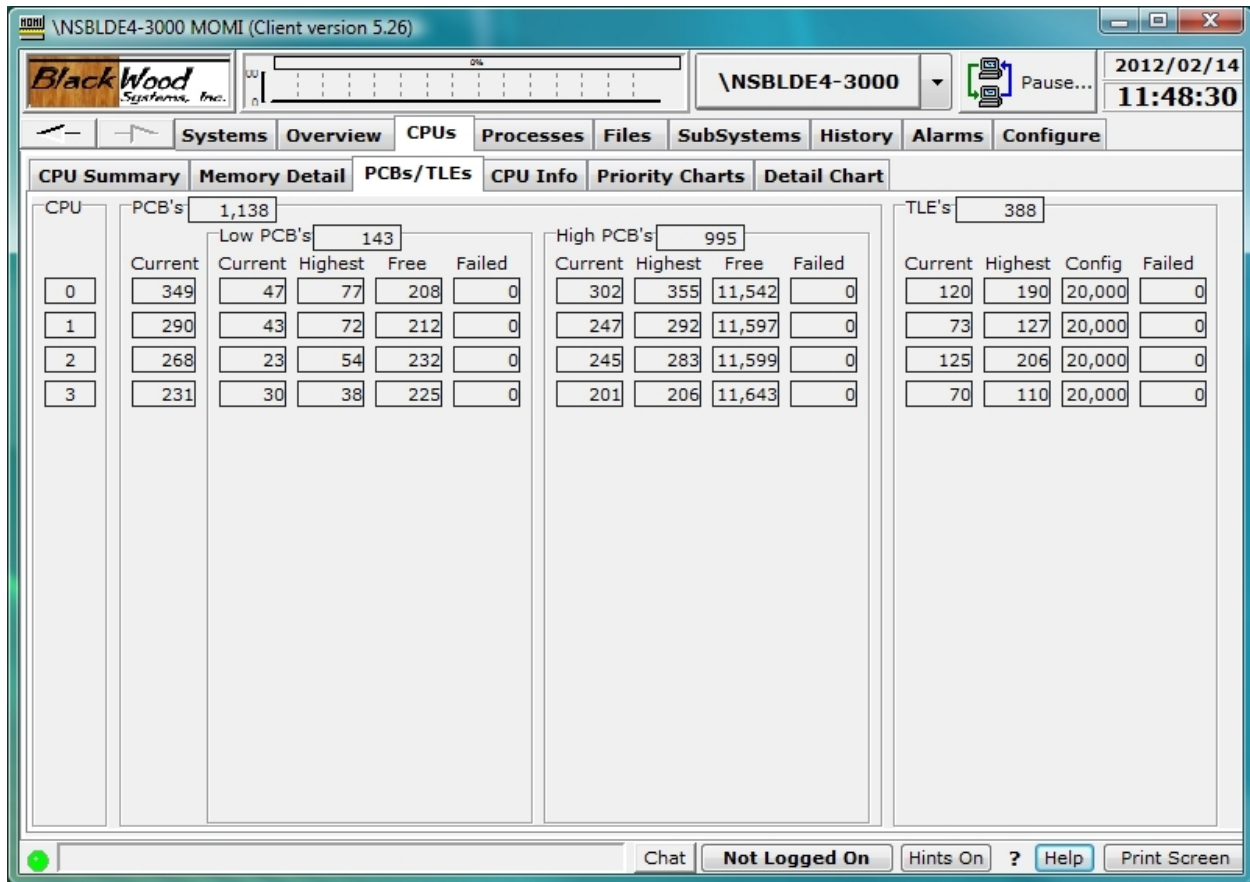
HCME Events (Hard Correctable Memory Errors) is a situation on newer NonStop platforms where a CME memory errors exist but has exceeded an internal threshold triggering for removal the memory page where the error is located. The problem does not necessarily indicate a hardware failure. The value reported here comes from the MEASURE CPU Entity.

UCME Events (Uncorrectable Memory Errors) is the situation on older NonStop platforms where a hardware check-sum algorithm indicates a memory bit(s) was in error but the System could NOT recover from the event. If the UCME located in an unused area of memory is 'locked out' from further usage. If the error is located in a User process the operating system may cause the process to abend. If the error is located in a system process or system data area it may cause the operating system to halt the CPU. The value reported here comes from the MEASURE CPU Entity.

Memory pressure is an indication of the need for memory. This value ranges from 0 to 7, with 0 being no pressure and 7 being extreme pressure. Observation of this value indicates it is an average over time that increases rather rapidly but decreases rather slowly.

Memory queue length is the number of processes waiting for memory. Newer platforms do not see a value in this field because memory service occurs within the context of the process itself.

CPU's / PCBs/TLEs



The CPU's / PCBs/TLEs screen provides details on the availability of Process Control Blocks (PCB) and Time List Elements (TLE).

Each running process on the system requires one PCB. Additionally, a process may require one or more TLEs, if it has requested notification of an elapsed amount of time.

A PCB is considered low if it is allocated within the range of 0 to 254 and is considered high if 256 or greater. Older programs that do not have the High Pin enabled flag set within the executable are limited to the low range. PCB 255 is not used.

Any failure to allocate one of these resources shows in **RED**.

CPUs / CPU Info

The screenshot displays the 'CPU Info' tab within the NSBLDE4-3000 MOMI application. The top bar shows the system name '\NSBLDE4-3000' and the date/time '2012/02/14 11:54:56'. The main content area is divided into several sections:

- System Information:**
 - SysNN Volume: \$SYSTEM.SYS04
 - Local Time Offset: -08:00
 - SysGen Time: 2011/11/10 14:14:11
 - Expand System Number: 102
 - ColdLoad Time: 2011/11/16 09:50:50
- CPU Table:**

CPU	Model	Name	CPU Busy Percent	Irpt %	Send %	OverH %	Idle %	CPU Queue	Avg CPU Queue Len	Memory Queue	Avg Mem Queue Len	Disk I/Os	Cache Hits	IP
0	NB54000c	NSE-AB	0%	0	0	0	99	0	0.02	0	0.00	0	8	
1	NB54000c	NSE-AB	0%	0	0	0	100	0	0.01	0	0.00	5	23	
2	NB54000c	NSE-AB	1%	0	0	0	99	0	0.02	0	0.00	0	0	
3	NB54000c	NSE-AB	0%	0	0	0	100	0	0.01	0	0.00	11	1	

At the bottom, there are buttons for 'Chat', 'Not Logged On', 'Hints On', '?', 'Help', and 'Print Screen'.

The CPUs / CPU Info screen presents an assortment of miscellaneous System and processor information.

SysNN Volume is the location where the Operating System was loaded.

The **Local Time Offset** is a system value used to determine LCT (Local Civil Time) and LST (Local Standard Time). The NonStop System technically maintain internal time as GMT (Greenwich Mean Time) and use the Local Time Offset to present LCT. Internally using GMT provides an easy and safe value for systems networked throughout the world to exchange.

The **SysGen Time** is when the Operating System was generated (via DSM/SCM).

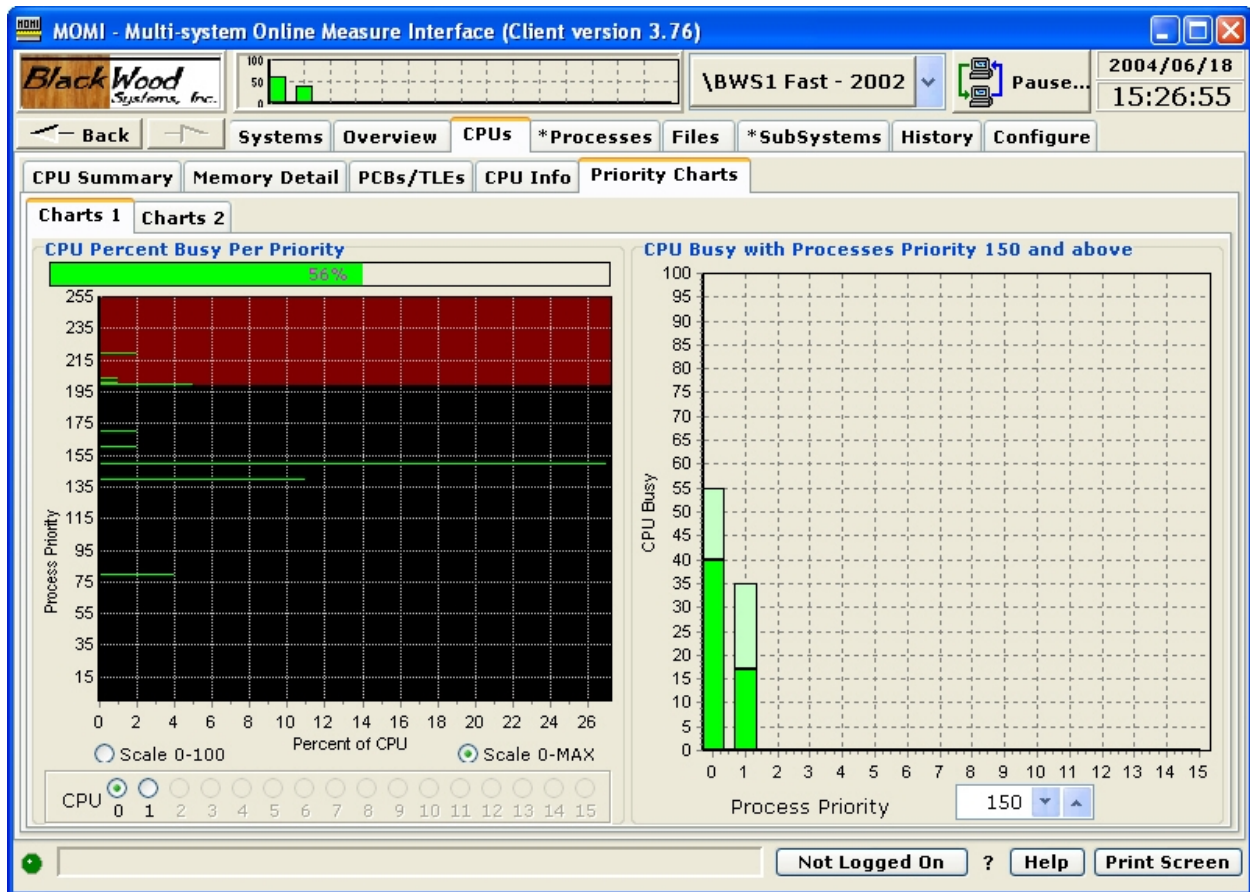
The **Cold Load Time** is when the system was loaded with the Operating System.

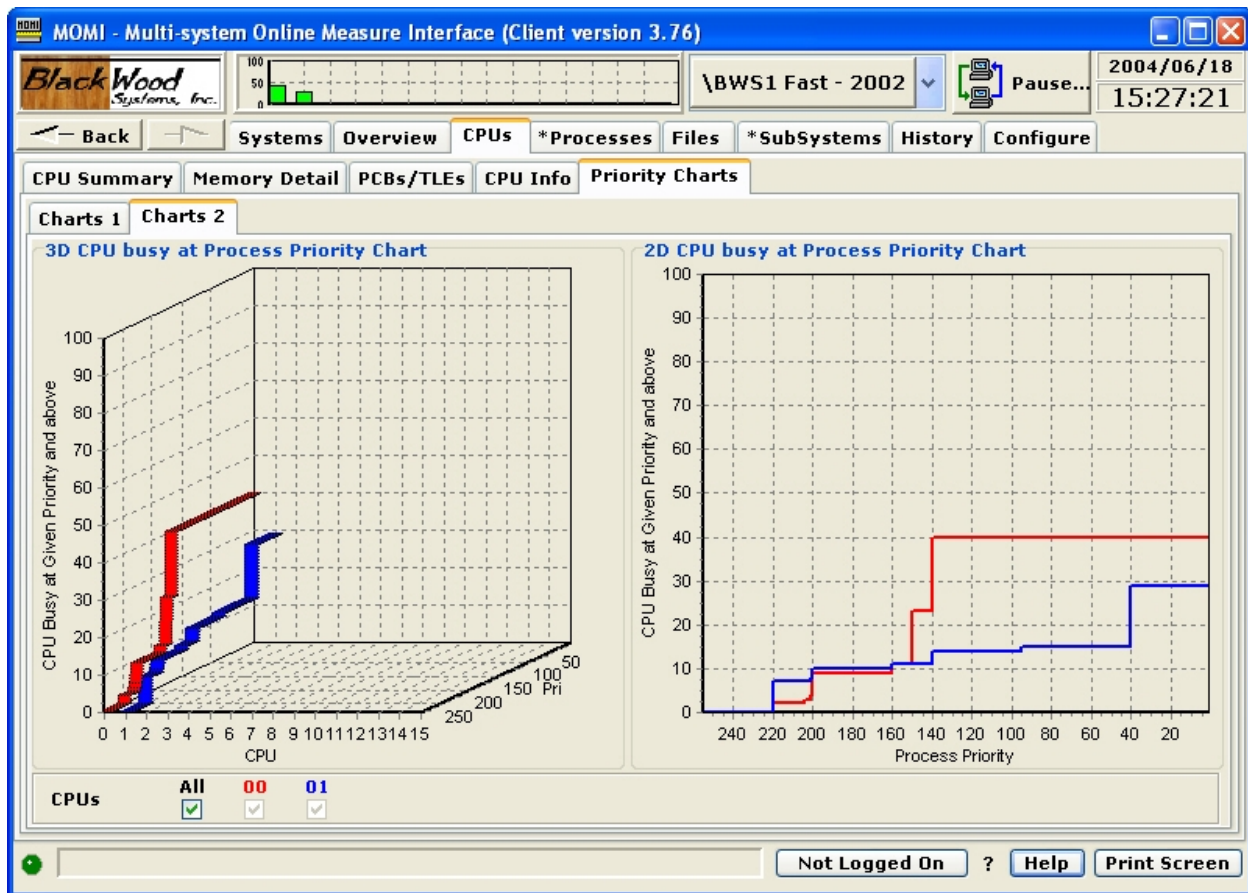
The **SysGen Time** or System Generation time is when the operating system was constructed.

The **Expand System Number** is a unique numeric identifier from 0 to 254 that identifies a System linked on a network.

Other fields of interest are the **System Loads**. This indicates the number of times the operating system was started or loaded from \$SYSTEM. **Breakpoints** are the number of stops or holds placed in an executing process by the system debugger Inspect. Older platforms had to configure the maximum number of breakpoints allowed within a CPU.

CPU's / Priority Charts / Charts



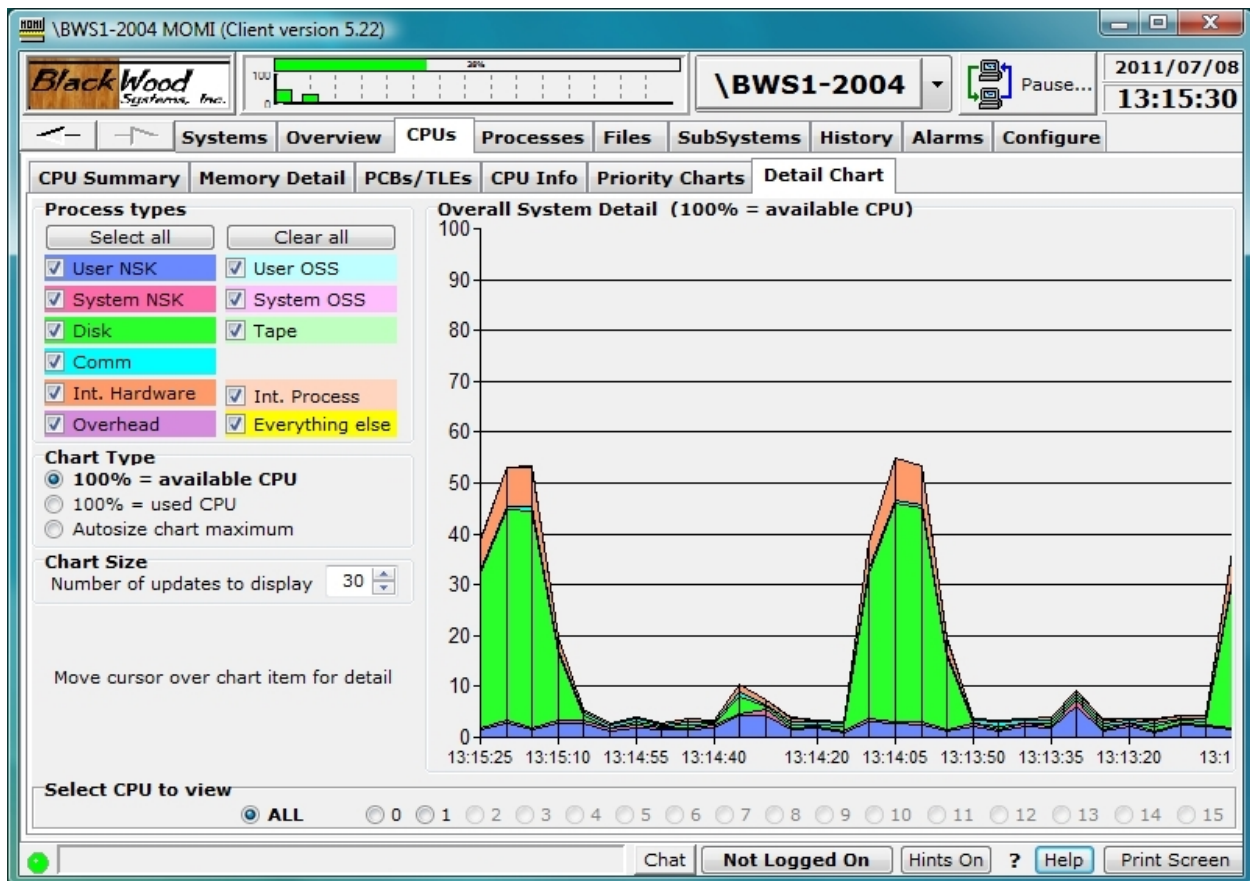


The CPUs / Priority Charts / Charts screens display the relative CPU busy as related to priority.

These screens give several visualizations to the CPU usage. While a CPU could be 100% busy, if 90% was being used at priority 10, the overall CPU health may be good but the processor is currently performing a batch type of operation.

The **Process Priority** up/down selector allows the setting of a threshold in which the lighter color represents a level below the threshold and the darker color of the bar represents the level above the threshold. For example, if the System runs production processes at priority 170 and above, and the indicator is set to 170, the dark portion of the bar presents the CPU usage at and above 170. The lighter color represents the CPU usage below that level. The total bar height still indicates the complete CPU usage.

CPUs / Detail Chart



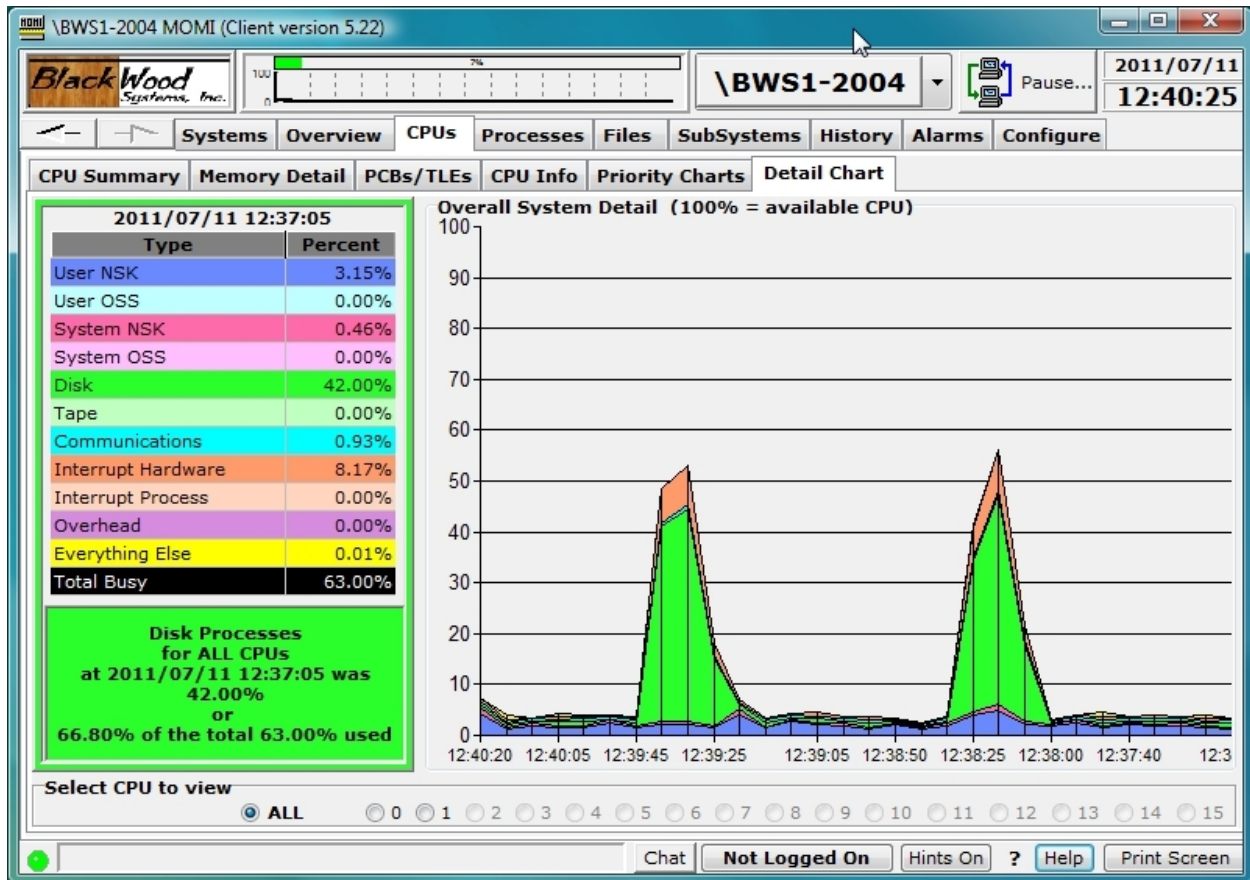
The CPUs / Detail Chart provides moving graph breakdown of CPU utilization by major category such as disk, communications and user processes.

The following are the field meanings:

- User NSK - Guardian processes at or below priority 199
- User OSS - OSS processes at or below priority 199
- System NSK - Guardian processes above priority 199
- System OSS - OSS processes above priority 199
- Disk - Disk processes (physical or virtual)
- Tape - Tape process
- Comm - Communication processes (i.e. LAN, SWAN)
- Int. Hardware - CPU interrupt handler routine
- Int. Process - System Interrupt Processes (i.e. processes at priority 255)
- Overhead - System time for process start up/shutdown

Everything else - all other processing not within an existing category

Placing the mouse over the graph displays a pop-up window on the left showing detail for the area under the mouse.



This chart clears and restarts when a system is selected.

Processes

Processes / Top Processes

MOMI (5.90/ 5.59)

BlackWood Systems, Inc. **MOMI®** \BWS1-2010 2018/01/24 15:42:50

Systems Overview CPUs ***Processes** Files SubSystems History Alarms Configure

Top Processes Last Start/Stop All Processes *Process Detail ProcessH Entity Process Entity

CPU, PIN[i]	Process	UserID	Busy%	Busy Percent	IPri	CPri	PT	B	P	F	R	I	SI	Mem	\$RQlen	ReadyTO	Object
01,00275	\$OSS	255,255	3.59%		220	220	G	P						16.4			\$SYSTEM.SYS01.TSYS
00,00257	\$SYSTEM	255,255	2.33%		220	220	G	P						47.2			\$SYSTEM.SYS01.OSIM
00,00287	\$OSS	255,255	0.74%		220	220	G	B	P					17.0			\$SYSTEM.SYS01.TSYS
01,00271	\$DATA1	255,255	0.69%		220	220	G	P						67.0			\$SYSTEM.SYS01.TSYS
00,00291	\$DATA1	255,255	0.21%		220	220	G	B	P					70.6			\$SYSTEM.SYS01.TSYS
01,00296	\$OSS	255,255	0.08%		220	220	G	P						1.7			\$SYSTEM.SYS01.TSYS
01,00257	\$SYSTEM	255,255	0.06%		220	220	G	B	P					51.8			\$SYSTEM.SYS01.OSIM
01,00295	\$DATA1	255,255	0.04%		220	220	G	P						2.4			\$SYSTEM.SYS01.TSYS
00,00373	\$VDP01	255,255	0.02%		219	219	G	P						1.2			\$SYSTEM.SYS01.OVDP
00,00376	\$VDP11	255,255	0.02%		219	219	G	P						1.2			\$SYSTEM.SYS01.OVDP
01,00366	\$VDP10	255,255	0.02%		219	219	G	P						1.5			\$SYSTEM.SYS01.OVDP
01,00369	\$VDP04	255,255	0.02%		219	219	G	P						1.2			\$SYSTEM.SYS01.OVDP
01,00370	\$VDP02	255,255	0.02%		219	219	G	P						1.2			\$SYSTEM.SYS01.OVDP
01,00373	\$VDP12	255,255	0.02%		219	219	G	P						2.2			\$SYSTEM.SYS01.OVDP
00,00263	\$SYSTEM	255,255	0.01%		220	220	G	P						5.3			\$SYSTEM.SYS01.TSYS
00,00285	\$SYSTEM	255,255	0.01%		220	220	G	P						7.1			\$SYSTEM.SYS01.TSYS
00,00301	\$DATA2	255,255	0.01%		220	220	G	P						0.3			\$SYSTEM.SYS01.TSYS
00,00369	\$VDP09	255,255	0.01%		219	219	G	P						2.5			\$SYSTEM.SYS01.OVDP
00,00370	\$VDP07	255,255	0.01%		219	219	G	P						1.2			\$SYSTEM.SYS01.OVDP
00,00371	\$VDP05	255,255	0.01%		219	219	G	P						1.2			\$SYSTEM.SYS01.OVDP
00,00372	\$VDP03	255,255	0.01%		219	219	G	P						1.2			\$SYSTEM.SYS01.OVDP
00,00374	\$VDP15	255,255	0.01%		219	219	G	P						1.2			\$SYSTEM.SYS01.OVDP

Select Process Type to view
☒ Everything ☐ NSK Processes ☐ NSK User Processes ☒ Disks ☐ Priority Changing ☐ Inspect ☐ Stuck on I/O
☐ OSS Processes ☐ OSS User Processes ☐ Tapes ☐ Interrupt Processes ☐ Suspended

Select CPU to view
☒ ALL ☐ Busiest ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15

Chat Not Logged On Hints Off ? Help Print Screen

The Processes / Top Processes screen presents the top 'hitters' of various system resources. The information presented on this screen is quickly displayed as it is always maintained by MOMI.

The screen is configured by starting at the bottom and working your way up. **Select CPU to view, Process Type** and click one of the highlighted headings at the top of the page (**Busy%**, **F**, **Mem**, **\$RQlen**, **ReadyTO**).

For example, to view the top memory users in CPU 1 of user processes, click CPU to view 1, Process Type to view Process Only and then click the Mem heading.

In the section "Select Process Type to view":

Everything	displays all processes
NSK Processes	all Guardian processes

NSK User Processes	all Guardian processes except system processes
OSS Processes	all OSS processes
OSS User Processes	all OSS processes except system processes
Disks	disk process
Tapes	tape process
Priority Changing	processes with priority lowered by system (priority 255)
Interrupt Processes	on TNS/E interrupt processes
Stuck on I/O	processes in wait state of %004 (see IO-STUCK-INTERVAL)
Inspect	any process in Debug / Inspect
Suspended	any process suspended

Processes / Last Start/Stop

MOMI (5.90/ 5.59)

BlackWood Systems, Inc. MOMI® \BWS1-2010

2018/01/24 15:41:34

Systems Overview CPUs ***Processes** Files SubSystems History Alarms Configure

Top Processes **Last Start/Stop** All Processes *Process Detail ProcessH Entity Process Entity

Last Processes STARTED

Start Date/Time	Cpu,Pin	Process	B	Pri	PT	SI	Object	UserID	LoginName	Ancestor	Home Terminal	GMom	Jo
2018/01/24 14:51:08	00,00430	\$Z5WG		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER	\$ZCMOM	\$ZHOME		
2018/01/24 14:40:30	01,00051	\$Z5VS		149	G		\$SYSTEM.SYSTEM.ZTCISCF	100,109	NET.DW	\$:1:31	\$ZT0.#PTAAADV		
2018/01/24 14:40:26	01,00031			149	G		\$SYSTEM.SYSTEM.SCF	100,109	NET.DW	\$Z5TW	\$ZT0.#PTAAADV		
2018/01/24 14:29:33	00,00416	\$Z2261		168	G		\$DATA1.MOMI2006.BWMOMI	100,107	NET.SB	\$MOMI6	\$ZHOME		

No Filter Displayed 4 of 4

Last Processes STOPPED

Stop Date/Time	Start Date/Time	Duration	Cpu,Pin	Process	B	Pri	PT	SI	Object	UserID	LoginName	Ar
2018/01/24 15:21:10	2018/01/24 14:51:08	0 00:30:02	00,00430	\$Z5WG		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER	\$Z
2018/01/24 15:07:20	2018/01/24 14:40:26	0 00:26:53	01,00031			149	G		\$SYSTEM.SYSTEM.SCF	100,109	NET.DW	\$Z
2018/01/24 15:07:20	2018/01/24 14:40:30	0 00:26:49	01,00051	\$Z5VS		149	G		\$SYSTEM.SYSTEM.ZTCISCF	100,109	NET.DW	\$:
2018/01/24 14:30:20	2018/01/24 14:29:33	0 00:00:47	00,00416	\$Z2261		168	G		\$DATA1.MOMI2006.BWMOMI	100,107	NET.SB	\$M
2018/01/24 14:29:50	2018/01/24 13:51:07	0 00:38:42	00,00402	\$Z5TT		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER	\$Z

No Filter Displayed 5 of 5

Chat Not Logged On Hints Off ? Help Print Screen

The Processes / Last Start/Stop screen presents the last few processes that were created or terminated on the System.

This view of process turnover is as seen by MOMI. Short lived processes, those running less than the [Interval](#), may not be reported on this screen.

During process creation, there is a short period of time where accurate information is not available and this initial creation period is ignored by MOMI. A process is not considered stopped until it has been completely removed from the System or replaced by another process.

Processes started by MOMI, and any direct descendants are intentionally omitted from this screen.

Processes / All Processes

The screenshot displays the MOMI (5.90/5.59) Processes / All Processes screen. The interface includes a top menu bar with options like Systems, Overview, CPUs, *Processes, Files, SubSystems, History, Alarms, and Configure. Below this is a sub-menu bar with Top Processes, Last Start/Stop, All Processes, *Process Detail, ProcessH Entity, and Process Entity. The main area is a table of processes with columns: CPU, PIN[i], Process, Code Type, LH, B, IPri, CPri, PT, QLen, P, F, R, I, FL, O, S, L, D, C, Q, BT, SP, T, M, @, *, Mem, MBytes, Seg64, IPU(lr), and IPU. The table lists 45 processes, including Native (Non-PIC) and TNS Accelerated processes. The bottom of the screen features a toolbar with buttons for Clear, Config, Tree, AutoUpdate, Request, and data collection status.

CPU	PIN[i]	Process	Code Type	LH	B	IPri	CPri	PT	QLen	P	F	R	I	FL	O	S	L	D	C	Q	BT	SP	T	M	@	*	Mem	MBytes	Seg64	IPU(lr)	IPU
00,00000		Native (Non-PIC)	L	201	201	G	0	P													32-Bit	SP				0.8	851,968	0	0	Nor	
00,00001		Native (Non-PIC)	L	210	210	G	0	P													32-Bit	SP				73.3	76,906,496	0	0	Nor	
00,00002		Native (Non-PIC)	L	210	210	G	0	P													32-Bit	SP				0.1	163,840	0	0	Nor	
00,00004		Native (Non-PIC)	L	211	211	G	0	P													32-Bit	SP				12.1	12,746,752	0	0	Nor	
00,00005	\$0	Native (Non-PIC)	L	201	201	G	0	P												Q	32-Bit	SP				0.9	999,424	0	0	Nor	
00,00006	\$ZNU	Native (Non-PIC)	L	200	200	G	0	P													32-Bit	SP				0.1	163,840	0	0	Nor	
00,00007	\$Z0	Native (Non-PIC)	L	200	200	G	0	P													32-Bit	SP				0.2	262,144	0	0	Nor	
00,00008	\$ZOPR	Native (Non-PIC)	L	201	201	G	0	P													32-Bit	SP				0.4	425,984	0	0	Nor	
00,00009	\$ZRM00	Native (Non-PIC)	L	200	200	G	0	P													32-Bit	SP				0.1	180,224	0	0	Nor	
00,00010	\$ZTM00	Native (Non-PIC)	L	200	200	G	0	P						FL				L			32-Bit					0.7	835,584	0	0	Nor	
00,00011	\$ZL00	TNS Accelerated	L	200	200	G	0	P													16-Bit	SP				0.3	409,600	0	0	Nor	
00,00012	\$TMP	Native (Non-PIC)	L	204	204	G	0	P						FL				L			32-Bit					2.5	2,654,208	0	0	Nor	
00,00013	\$ZM00	Native (Non-PIC)	L	201	201	G	0	P											D		32-Bit					41.2	43,270,144	0	0	Nor	
00,00014	\$ZZLAN	Native (Non-PIC)	L	180	180	G	0	P											D		32-Bit					2.0	2,195,456	0	0	Nor	
00,00015	\$ZNET	TNS	L	175	175	G	0	P										L	D		16-Bit					0.8	884,736	0	0	Nor	
00,00026	\$ZSVR	TNS	L	149	149	G	0	P										L	D		16-Bit					0.9	950,272	0	0	Nor	
00,00031	\$Z1703	TNS Accelerated	L	169	169	G	0	P										L	D		16-Bit					0.9	999,424	0	0	Nor	
00,00033	\$Z00J	TNS Accelerated	L	30	30	G	0												D		16-Bit					0.6	655,360	0	0	Nor	
00,00034	\$Z00L	TNS Accelerated	L	30	30	G	0												D		16-Bit					0.2	212,992	0	0	Nor	
00,00038	\$NULL	TNS	L	B	167	167	G	0											D		16-Bit					0.1	147,456	0	0	Nor	
00,00040	\$NULLL	TNS	L	B	10	10	G	0											D		16-Bit					0.1	114,688	0	0	Nor	
00,00042	\$ZEXP	TNS Accelerated	L	180	180	G	0	P										L	D		16-Bit					0.8	868,352	0	0	Nor	
00,00043	\$NCP	Native (Non-PIC)	L	199	199	G	0	P											D		32-Bit	SP				0.8	917,504	0	0	Nor	
00,00045	\$SPLS	TNS Accelerated	L	B	149	149	G	0											D		16-Bit					11.1	11,665,408	0	0	Nor	

NSK/OSS All Processes No Filter Displayed 390 of 390

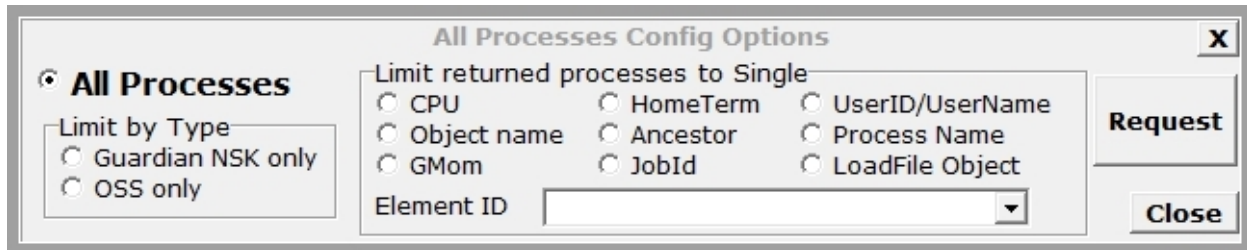
Clear Config Tree ☐ AutoUpdate ☒ Request data collected 2018/01/24 15:23:54

Chat Not Logged On Hints Off ? Help Print Screen

The Processes / All Processes screen presents a comprehensive detail of each process requested. The detail provided is generally everything you wanted to know but were afraid to ask! The information is generally *static* in nature and less performance related.

The **AutoUpdate** check box causes automatic request of new data.

By default, pressing the **Request** button will gather and report all processes on the System. While the data can be filtered and sorted as needed, the **Config** button allows the User to qualify the desired data.



All Processes Config Options [X]

☒ **All Processes**

Limit by Type

- ☐ Guardian NSK only
- ☐ OSS only

Limit returned processes to Single

- ☐ CPU
- ☐ Object name
- ☐ GMom
- ☐ HomeTerm
- ☐ Ancestor
- ☐ JobId
- ☐ UserID/UserName
- ☐ Process Name
- ☐ LoadFile Object

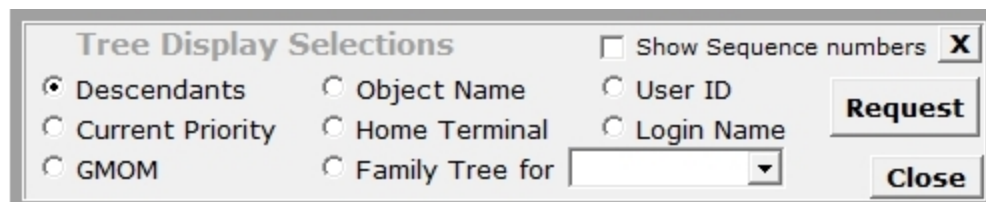
Element ID

Request

Close

Limits entered on the Config Options pop-up require that the information return match the specified criteria. This reduces the information collected and speeds up the request.

Once data is retrieved, it may also be organized in a Tree View fashion. Pressing the Tree button displays the following:



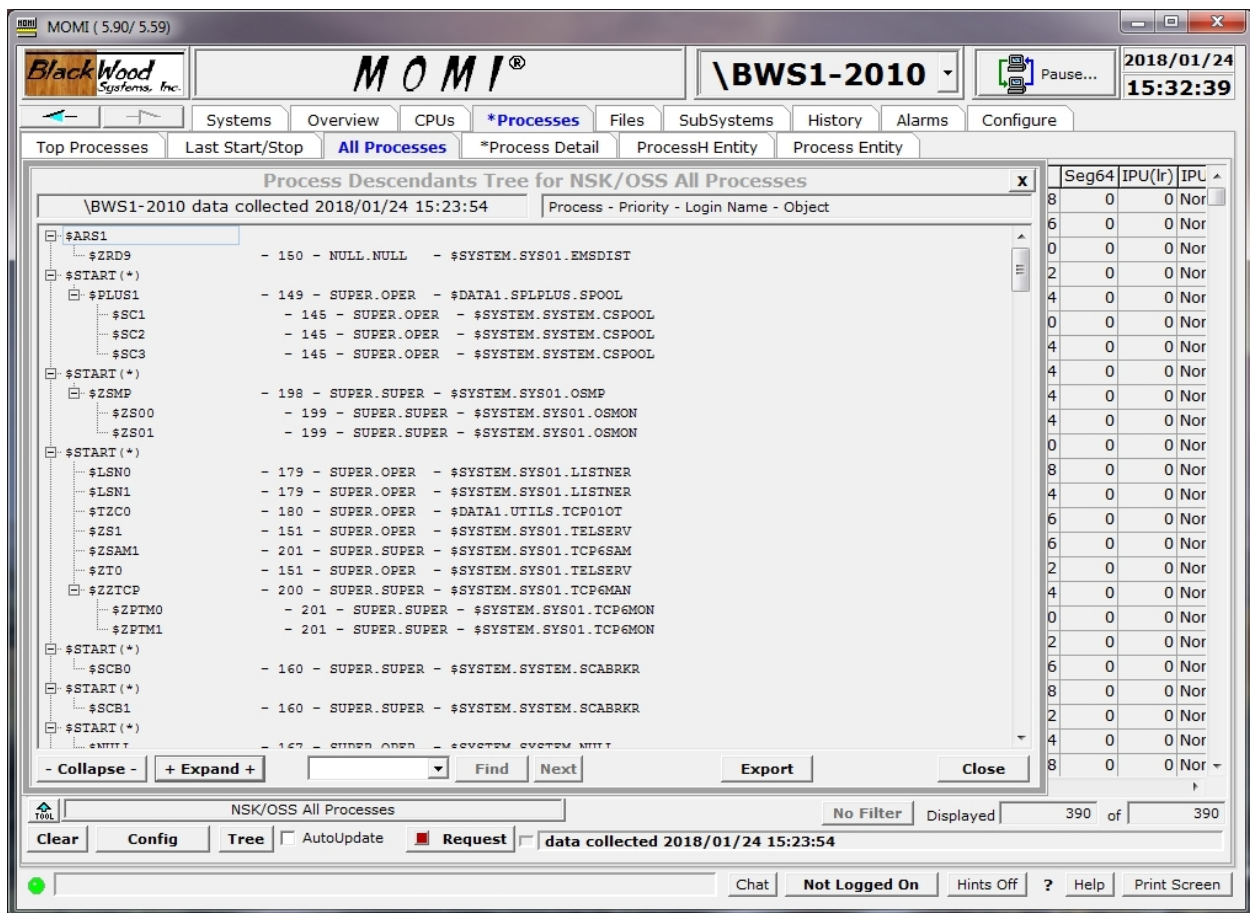
Tree Display Selections ☐ Show Sequence numbers [X]

- ☒ Descendants
- ☐ Current Priority
- ☐ GMOM
- ☐ Object Name
- ☐ Home Terminal
- ☐ Family Tree for
- ☐ User ID
- ☐ Login Name

Request

Close

The organization items allow relationships to be better viewed. For example, displaying data by Descendants presents a hierarchy of the order of process creation.



The **Tree View** is based on the information gathered from running processes. Processes referenced in a hierarchy that are no longer active may cause gaps in the Tree View (i.e. a process may refer to an ancestor no longer running).

The Find button allows searching for text within the Tree View. This can be useful on large systems with a great deal of data.

MOMI server version 5.24 and later:

If a subtype 30 process is suspended or in debug/inspect a device query (where a message is sent) is avoided and error 160 (ZFIL^ERR^INVALIDSTATE) displayed in the **DI Error** column.

Processes / Process Detail

Process Detail for \$ZNET

Process Entity

CPU-Busy-Time	0.40%	Ready-Time	0.02%	TLEs	0
TNSR-Busy-Time	0.09%	Page-Faults	0.00	Checkpoints	0.60
TNS-Busy-Time	0.29%	Dispatches	4.10	Comp-Traps	158.00
Accel-Busy-Time	0.01%	Launches	0.00		
Launch-WaitTime	0.00%	Avg-Launch-Time	0.000000		
Recv-Qtime	0.00	Recv-Qlen-Max			
Msgs-Received	1.70	Msgs-Sent	1.50		
Received-Bytes	69.60	Sent-Bytes	3,115.80		
Reply-Bytes	1,280.40	Returned-Bytes	1,273.20		

File Entity

File Name	File Busy Time	Avg Op Time	Opener File Nbr	File Type Description	Messages	Reads	Writes	Updates or Replies	Deletes or WriteReads	Info Calls	Timeouts or Cancels	Misc Calls
\$RECEIVE	0.00%	1.029453	0	unstructured	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
\$ZTC0.#ZSPI	0.00%	0.000075	2	unstructured	0.41	0.00	0.00	0.00	0.33	0.00	0.00	0.00

SQL Statements

Process: \$ZNET

Clear Config Rated Values Stop

Chat Not Logged On Hints Off ? Help Print Screen

The Processes / Process Detail screen presents a comprehensive look into a process.

Click on the areas in the image above display additional information.

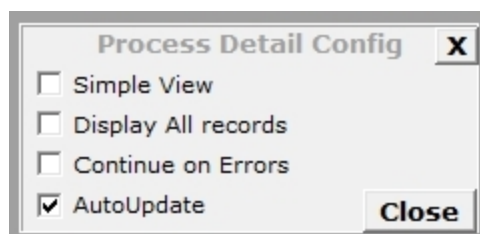
The screen presents resources consumed, files opened by the process, files opened to the process, and SQL Statements activity. The SQL Statements section is not activated by default.

Information on this screen is obtained via Guardian procedure calls and the MEASURE entities of Process, [File](#), [DiskOpen](#), SQL Process and [SQL Statement](#).

Values by default are rated in a "Per Second" mode such as 1.40 Comp-Traps. Uncheck the Rated box causes raw values to display. The window of time for the Process Entity is visible by pushing the Page 3 button. The window of time for the File, DiskOpen and SQL Statements entities are visible by scrolling all the way over to the right.

A Disk process displays similar information except the SQL Statements button is replaced by the [Disk Entity](#).

The operation of the screen may be altered by the **Config** button:



Simple View will reduce or 'down size' the amount of information presented. By Default, records in the File, DiskOpen and SQL Statements do not display records with zero values (i.e. open but not active).

Display All records option allows zero value records to be displayed.

Continue on Errors option causes the screen to continue gathering data even when the process being measured has stopped (i.e. the display of data automatically picks back up again if the process is restarted). This is useful for transient processes or during debugging sessions.

AutoUpdate, checked by default, determines if the screen continues to update after Request is pushed.

Below is a sample screen for the **Simple View** selection:

The screenshot displays the MOMI (5.90/ 5.59) software interface. The top bar shows the BlackWood Systems, Inc. logo, the MOMI® title, a dropdown menu set to \BWS1-2010, a Pause... button, and the date/time 2018/01/24 15:20:19. The main menu includes Systems, Overview, CPUs, *Processes (selected), Files, SubSystems, History, Alarms, and Configure. Below this, there are tabs for Top Processes, Last Start/Stop, All Processes, *Process Detail (selected), ProcessH Entity, and Process Entity. The central area is divided into two main sections: Process and Process Entity. The Process section shows details for \$ZNET, including Object (\$SYSTEM.SYS01.SCP), CPU, Pin, IPr, CPri, User ID, Backup, Memory Used (884,736), Wait (011), PFR, Code Type (TNS), Bits, Type (G), Start (2017/11/06 19:51:07), Stop (N), State (Runnable), and ServerClass. The Process Entity section shows various performance metrics such as CPU-Busy-Time (0.59%), TNSR-Busy-Time (0.16%), TNS-Busy-Time (0.40%), Accel-Busy-Time (0.02%), Launch-WaitTime (0.00%), Recv-Qtime (0.00), Msgs-Received (2.50), Received-Bytes (156.00), Reply-Bytes (3,175.60), Checkpoints (0.60), Ready-Time (0.58%), Page-Faults (0.00), Dispatches (6.90), Launches (0.00), Avg-Launch-Time (0.000000), Recv-Qlen-Max, Msgs-Sent (3.10), Sent-Bytes (3,340.00), Returned-Bytes (3,102.80), Comp-Traps (182.00), IPU Affinity Class (None), TLEs (0), Begin-Trans (0.00), Abort-Trans (0.00), File-Open-Calls (0.00), and File-Info-Calls (0.00). Below these sections is a table with columns: File Name, File Busy Time, Avg Op Time, Opener File Nbr, File Type Description, Messages, Reads, Writes, Updates or Replies, Deletes or WriteReads, Info Calls, Timeouts or Cancels, Misc Calls, Recs Used, Recs Accessed, and P D R. The table contains three rows of data for \$ZEXP.#ZSPI, \$RECEIVE, and \$ZTC0.#ZSPI. At the bottom, there is a status bar with a Process dropdown set to \$ZNET, a Clear button, a Config button, a checked Rated Values checkbox, a Stop button, a Data Time display (15:20:03 - Next 00:02), and buttons for Chat, Not Logged On, Hints Off, Help, and Print Screen.

File Name	File Busy Time	Avg Op Time	Opener File Nbr	File Type Description	Messages	Reads	Writes	Updates or Replies	Deletes or WriteReads	Info Calls	Timeouts or Cancels	Misc Calls	Recs Used	Recs Accessed	P D R
\$ZEXP.#ZSPI	0.16%	0.001554	16	unstructured	1.09	0.00	0.00	0.00	1.09	0.00	0.00	0.00	0.00	0.00	
\$RECEIVE	0.02%	0.381597	0	unstructured	0.00	2.63	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	
\$ZTC0.#ZSPI	0.00%	0.000106	2	unstructured	0.27	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	

Processes / ProcessH Entity

The screenshot displays the MOMI Processes / ProcessH Entity screen. The top bar shows the MOMI logo and the system name \BWS1-2010. The main window is divided into several sections:

- Process Information:**
 - Process: **\$ZNET**
 - Object: **\$SYSTEM.SYS01.SCP**
 - CPU, PIN: 00,00015; IPri: 175; CPri: 175; User ID: 255,255; Backup: 01,00014
 - Memory Used: 884,736; PFS: 0.60%
 - Wait: 011; PFR: P; Code Type: TNS; Type: G
 - Start: 2017/11/06 19:51:07; Stop: N
 - State: Runnable
 - CPU Busy %: 0.28%
 - Comp-Traps: 374; 37.40/sec
 - Process samples: 101
 - Session Time: 0:04:43
- Code Range Table:**

Code Space ID	Code Range Name	CR Proc Busy Percent	CR Busy Samples	CR Busy Percent	Code Space File/Path
SCr	CODERANGE-0X80800000-0X81FBFFFF	20.79	21	100.0	\$SYSTEM.SYS01.OSIMA
UC	APPL^PROCESSIONREQUEST	13.86	14	22.5	\$SYSTEM.SYS01.SCP
SLr	CODERANGE-0X7C000000-0X7C5EBFFF	8.91	9	100.0	\$SYSTEM.SYS01.OSIMA
UC	KP^GETMEMORYTAGGED	5.94	6	9.6	\$SYSTEM.SYS01.SCP
UC	KP^CYCLELOOP	4.95	5	8.0	\$SYSTEM.SYS01.SCP
UC	SCP^SERVERSEND	4.95	5	8.0	\$SYSTEM.SYS01.SCP
UC	KP^GETRECEIVEINFO	3.96	4	6.4	\$SYSTEM.SYS01.SCP
ULr	CODERANGE-0X7F800000-0X7F827FFF	3.96	4	100.0	\$SYSTEM.SYS01.OSIMA
UC	KP^FILENAMEOSTRING	3.96	4	6.4	\$SYSTEM.SYS01.SCP
UC	KP^PUSHBOTTOM	2.97	3	4.8	\$SYSTEM.SYS01.SCP
UC	KP^PUTMEMORY	2.97	3	4.8	\$SYSTEM.SYS01.SCP
SL	CODERANGE-0X7A000000-0X7A01FFFF	1.98	2	100.0	\$SYSTEM.SYS01.OSIMA
UC	KX^READRECEIVE	1.98	2	3.2	\$SYSTEM.SYS01.SCP
UC	KX^RECEIVEDONE	1.98	2	3.2	\$SYSTEM.SYS01.SCP
UC	APPL^EXECUTE	1.98	2	3.2	\$SYSTEM.SYS01.SCP
UC	KP^TIMERECALL	0.99	1	1.6	\$SYSTEM.SYS01.SCP
UC	KX^ISSUEREPLY	0.99	1	1.6	\$SYSTEM.SYS01.SCP
UC	SCP^PUTMEMORY	0.99	1	1.6	\$SYSTEM.SYS01.SCP
UC	FILENAMESTOPPROCESSHANDLE	0.99	1	1.6	\$SYSTEM.SYS01.SCP
UC	SCP^SERVERRECEIVE	0.99	1	1.6	\$SYSTEM.SYS01.SCP
UC	KP^CALL	0.99	1	1.6	\$SYSTEM.SYS01.SCP
UC	KP^DELINK	0.99	1	1.6	\$SYSTEM.SYS01.SCP
- Measurement Code Type:**
 - ☒ User
 - ☐ System
 - ☐ Both
- Process:** \$ZNET
- Buttons:** Clear, Print List, Stop, Data Time 14:44:27 - Next 01:53
- Footer:** Chat, Not Logged On, Hints Off, Help, Print Screen

The Processes / ProcessH screen presents the locations within the process code where CPU time is spent. This information is obtained from the MEASURE ProcessH entity.

While a process has a busy time, the areas of code where it spends its execution time are of interest to developers and may reveal locations that are not performing efficiently. Generally, only a developer with access to the source code can interpret the meaning of the values given on this screen.

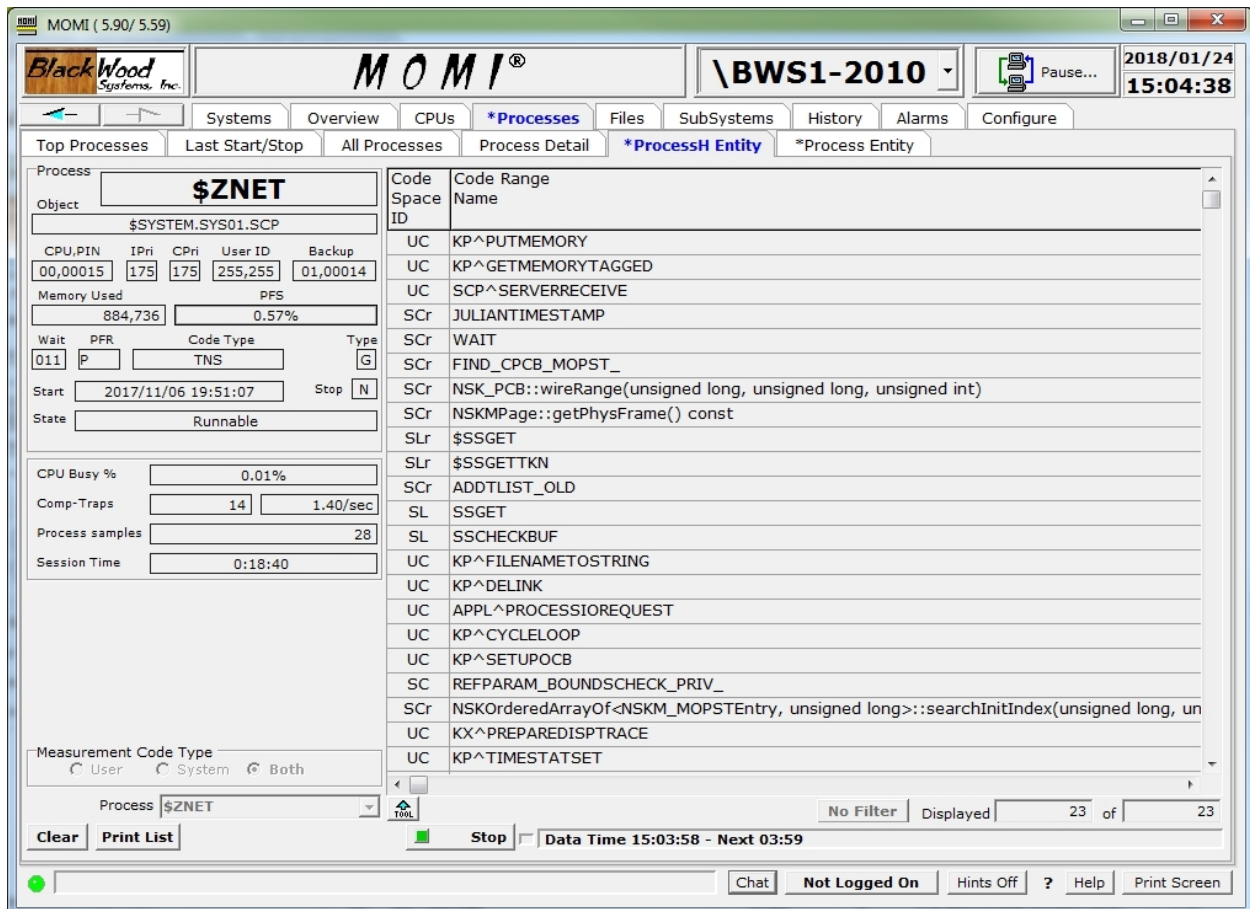
Three types of Measurements are available: **User**, **System**, or **Both**.

User code generally is the area of the program the developer has actually coded. This includes the main object file plus all loadfiles (i.e. SLRs and DLLs) not located in \$SYSTEM.SYSnn or \$SYSTEM.ZDLL.

System code is the area spent in the operating system supplied routines and is defined as the loadfiles (i.e. SLRs and DLLs) located in \$SYSTEM.SYSnn or \$SYSTEM.ZDLL.

Both are a combination of **User** and **System**.

The image below shows some of the additional procedure information obtained with **Both** is selected.



Measuring the System code may be an interesting exercise, but will usually result in reporting locations that don't make much sense. This is due to the fact that documentation on internal operating system routines are not published. On occasion, the code area may have a name that directly relates to a system call initiated by the developer (such as FILE_SETKEY_ (position within an Enscribe file) or malloc (a C memory allocation routine)).

A Code Range with a name of CODERANGE (sample highlighted in yellow above) followed by hexadecimal numbers are locations where time was spent but a procedure (or function) name was not available. More recent releases of MEASURE seem to collect

information on the entire process even if only the user area is selected. The Code Range may indicate system code, SRL's or DDL's.

A Code Range is an individual function or procedure within a program. Programs are typically comprised of many functions or procedures. Exceptions to this are COBOL and Java which is interpreted code not supported by this MEASURE entity.

A Code Space is a logical grouping of one or more Code Ranges. This typically could be thought of as all of the Code Ranges within program file comprise a Code Space. However, a process accesses many Code Spaces as each SRL or DLL and the Operating System itself are divided into Code Spaces.

The column CR Proc Busy Percent reports the percentage of the total process busy time the code range was active. This column is the best overall indicator to the activity of a Code Range.

This screen continually gathers data in increasing increments. The initial sample is of a short period of time increasing to longer periods of time. This allows a relatively quick display of initial samples while easing the system load if the measurement is left to run. Internally, MOMI combines data from each measurement and displays the seamless results. You can leave this measurement running for hours to gather data, which is sometimes required.

Security Note: The User ID that MOMI operates under must be able to READ the object file(s) of the process under measurement. MEASURE requires this information in order to obtain procedure / function names and code range locations.

Processes / Process Entity

CPU, PIN[i]	Process Name	Program File Name	Server Class Name	Program Code Type	Init Pri	CPU Busy Time	Ready Time	Ready Time only	TNS Busy Time	TNS Busy Time
00,00069	\$NVT51	\$SYSTEM.SYS07.TACL	TACL	Accelerated	149	0.00%	0.00%	0.00%	0.00%	0.00%
03,01081	\$Z1JG	...03_27MAR18_AFT_H337_02/bin/httpd	HTTPD	TNS/E - Native EPIC	170	0.00%	0.00%	0.00%	0.00%	0.00%
02,00831	\$Z1JF	...03_27MAR18_AFT_H337_02/bin/httpd	HTTPD	TNS/E - Native EPIC	170	0.00%	0.00%	0.00%	0.00%	0.00%
01,00648	\$Z1JD	...03_27MAR18_AFT_H337_02/bin/httpd	HTTPD	TNS/E - Native EPIC	170	0.00%	0.00%	0.00%	0.00%	0.00%
00,00834	\$Z1JC	...03_27MAR18_AFT_H337_02/bin/httpd	HTTPD	TNS/E - Native EPIC	170	0.00%	0.00%	0.00%	0.00%	0.00%
03,01080	\$Z1JB	...03_27MAR18_AFT_H337_02/bin/httpd	HTTPD	TNS/E - Native EPIC	170	0.00%	0.00%	0.00%	0.00%	0.00%
00,00835	\$Z1JH	...AFT_H337_02/bin/generic-cgi.pway	GENERIC-CGI	TNS/E - Native EPIC	170	0.00%	0.00%	0.00%	0.00%	0.00%
02,00830	\$Z1JA	...samples/C_Demo/example-form.pway	EXAMPLE-FORM	TNS/E - Native EPIC	160	0.00%	0.00%	0.00%	0.00%	0.00%
00,00270		\$SYSTEM.SYS07.ZGFHE		TNS/E - Native EPIC	255	0.00%	0.00%	0.00%	0.00%	0.00%
00,00271		\$SYSTEM.SYS07.ZSTME		TNS/E - Native EPIC	255	0.00%	0.00%	0.00%	0.00%	0.00%
00,00279		\$SYSTEM.SYS07.NALIVEAP		TNS/E - Native EPIC	255	0.00%	0.00%	0.00%	0.00%	0.00%
00,00272		\$SYSTEM.SYS07.NTIMEIP		TNS/E - Native EPIC	255	0.17%	0.17%	0.00%	0.00%	0.00%
00,00280		\$SYSTEM.SYS07.ZDBGMON		TNS/E - Native EPIC	200	0.00%	0.00%	0.00%	0.00%	0.00%
00,00291	\$ZPP00	\$SYSTEM.SYS07.OSSPS		TNS/E - Native EPIC	199	0.00%	0.00%	0.00%	0.00%	0.00%
00,00292	\$ZCDB	\$SYSTEM.SYS07.ZCDB		TNS/E - Native EPIC	199	0.00%	0.00%	0.00%	0.00%	0.00%
00,00011	\$ZTM00	\$SYSTEM.SYS07.TMFMON2		TNS/E - Native EPIC	200	0.00%	0.00%	0.00%	0.00%	0.00%
00,00275		\$SYSTEM.SYS07.NSQMPROC		TNS/E - Native EPIC	255	0.00%	0.00%	0.00%	0.00%	0.00%
00,00274		\$SYSTEM.SYS07.ZSAME		TNS/E - Native EPIC	255	0.00%	0.00%	0.00%	0.00%	0.00%
00,00273		\$SYSTEM.SYS07.NSMIPIP		TNS/E - Native EPIC	255	0.00%	0.00%	0.00%	0.00%	0.00%
00,00258	\$XIO00	\$SYSTEM.SYS07.TXMON		TNS/E - Native EPIC	253	0.00%	0.00%	0.00%	0.00%	0.00%
00,00263		\$SYSTEM.SYS07.ZMABIP		TNS/E - Native EPIC	255	0.00%	0.00%	0.00%	0.00%	0.00%
00,00259	\$SIM00	\$SYSTEM.SYS07.OIFMR		TNS/E - Native EPIC	252	0.00%	0.00%	0.00%	0.00%	0.00%

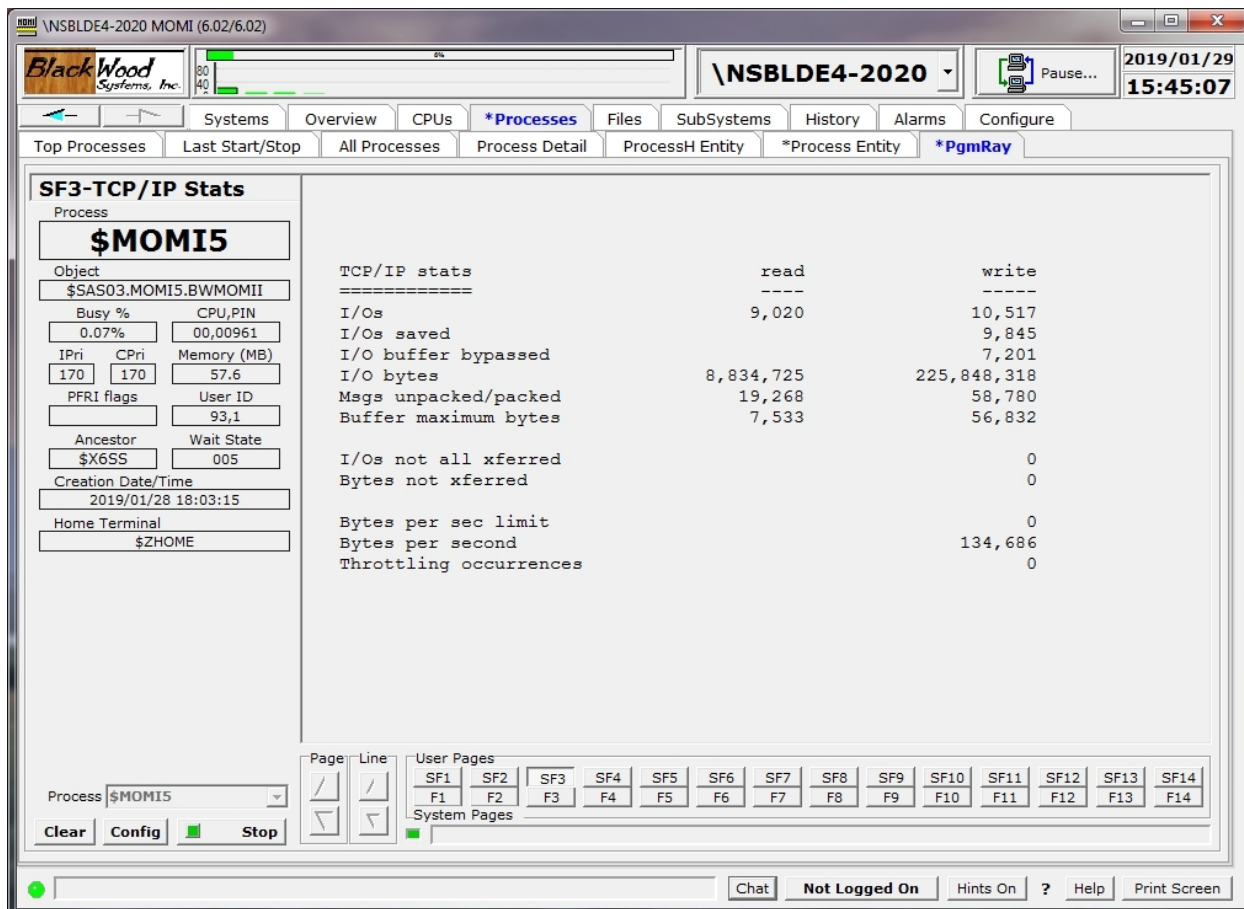
The Processes / Process Entity screen presents the MEASURE Process Entity in tabular format for a number of processes.

This screen differs from the [Processes / All Processes](#) screen in that MEASURE is used to obtain the information rather than Guardian procedure calls.

The data retrieved may be limited to a single process or all processes in a CPU.

Values such as **CPU Busy Time** and **Page Faults** by default are rated to result in a percentage of the measurement window or a "Per Second" as appropriate. Uncheck the **Rated** box will cause raw values to display. The measurement window is the last column all the way over to the right.

Processes / PgmRay



The Processes / PgmRay screen presents information using an internal interface into MOMI and other programs written by BlackWood Systems.

The screen is used internally by BlackWood Systems and may be required in troubleshooting certain end-user problems.

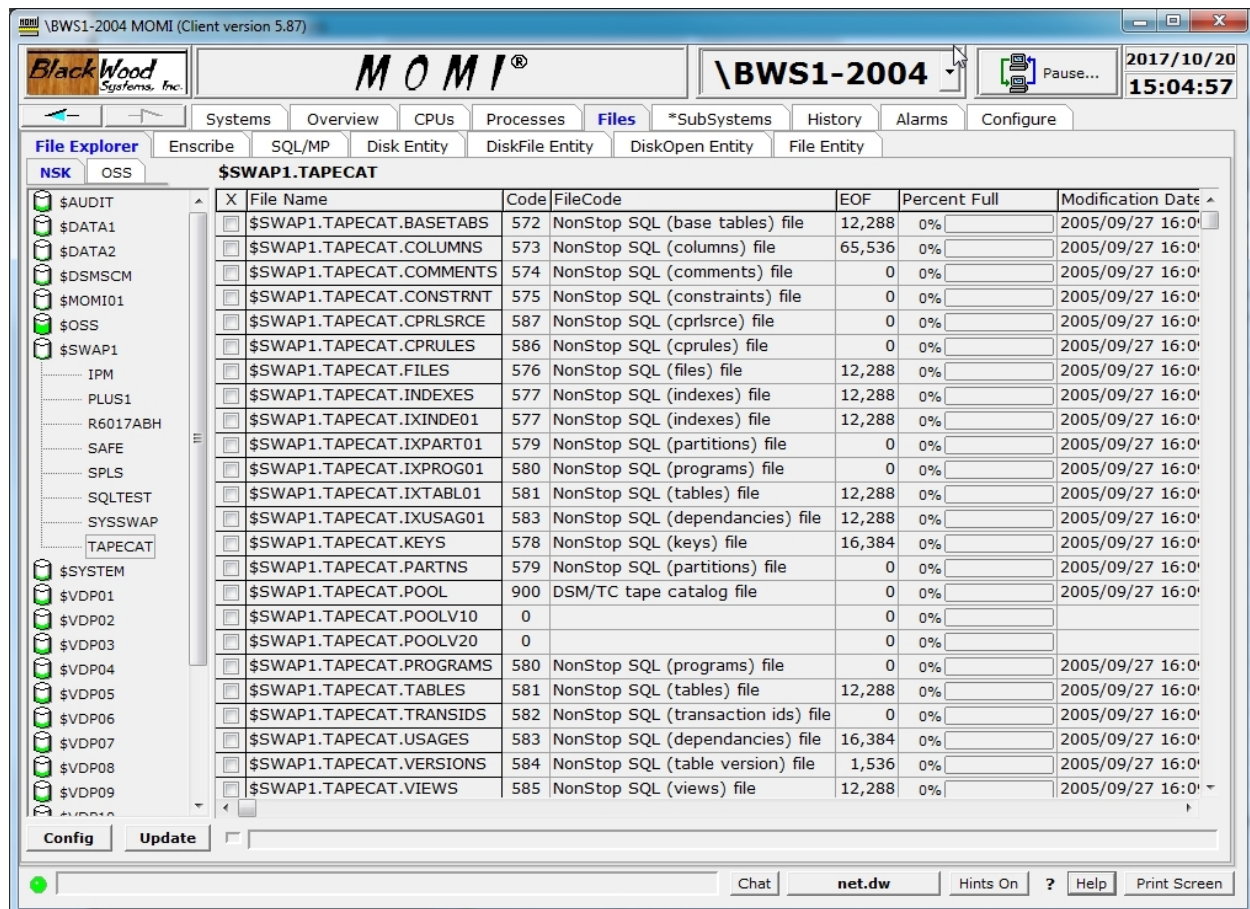
Various internal information such as memory usage, open files, message traffic and task status are available. The function keys F1 through F14 provide generally fixed information. The function keys SF1 through SF14 provide information specific to the program.

This screen is only for use in BlackWood Systems programs and you should not attempt to use it on any other processes. Doing so causes an open to the specified process and query for information that may adversely affect its operation.

This screen is turned off by default and is enabled on the screen [Configure / Client / Single Screen](#) under **Optional Screens**.

Files

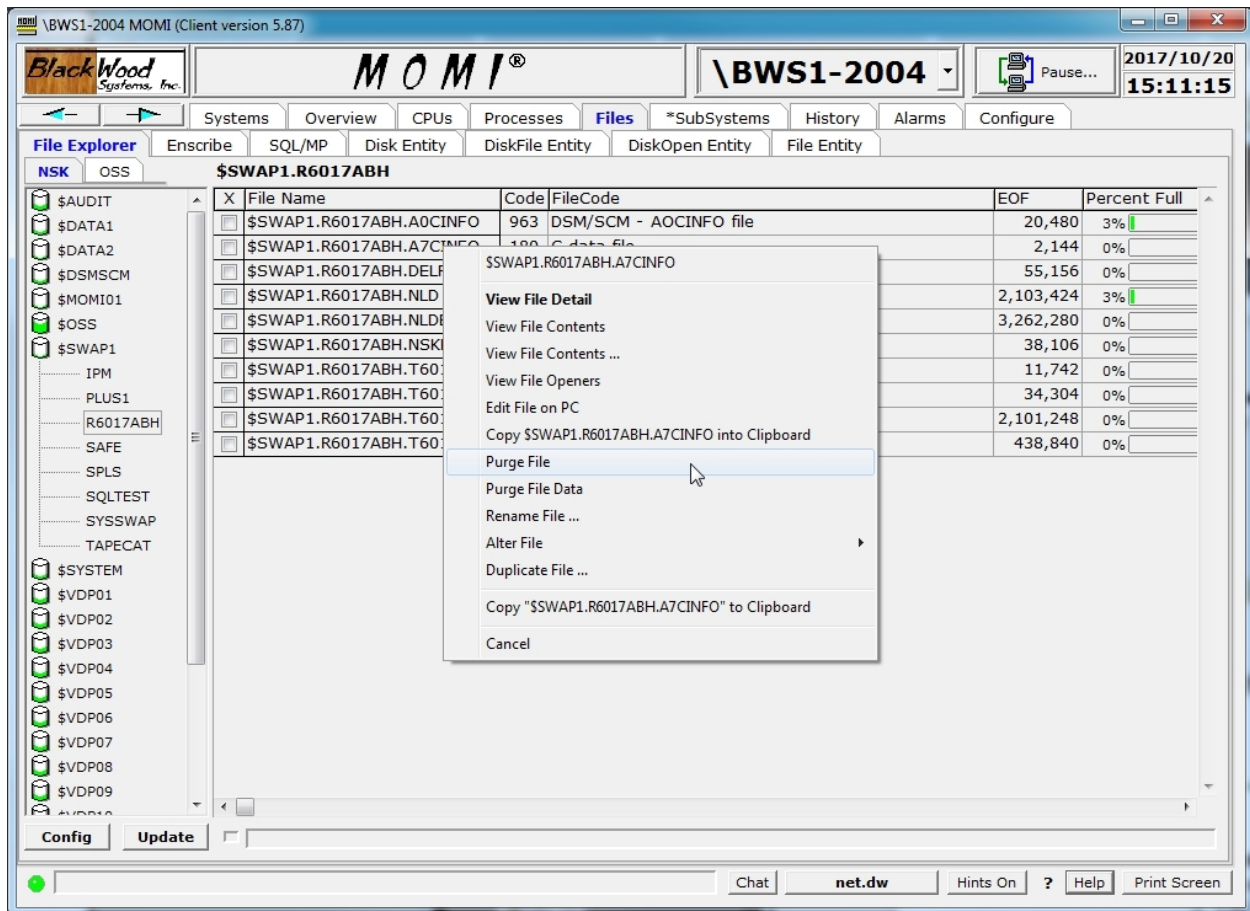
Files / File Explorer



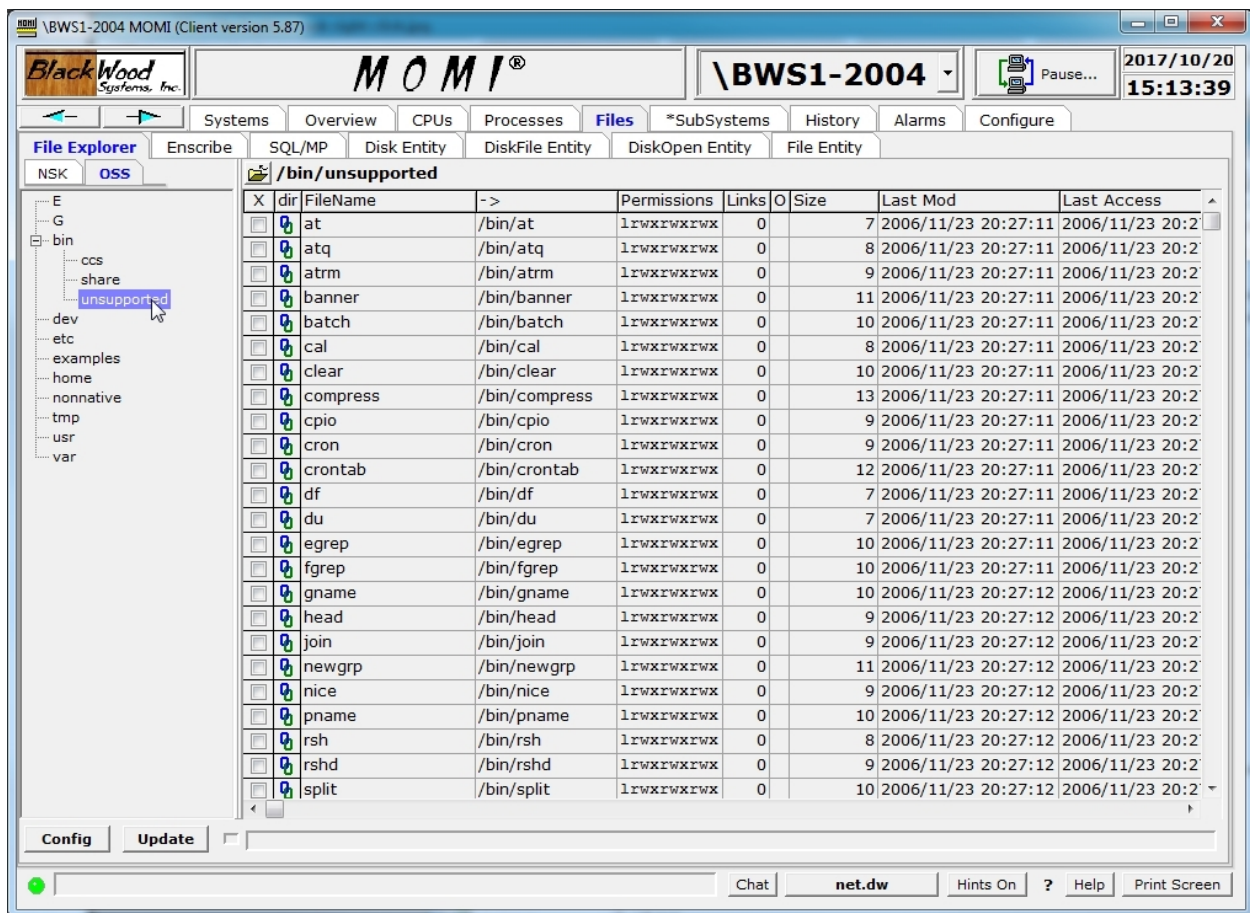
The Files / File Explorer screen provides a powerful high level graphical navigator for NSK (i.e. Guardian) and OSS files. Operations such as drag-and-drop, copy-and-paste and other right-click functions are supported.

On the left side of the screen are listed disk volumes and clicking on a disk volume displays its subvolumes. Clicking on a subvolume displays on the right the files under that subvolume. The disk volume displays in color the approximate percentage full for the disk.

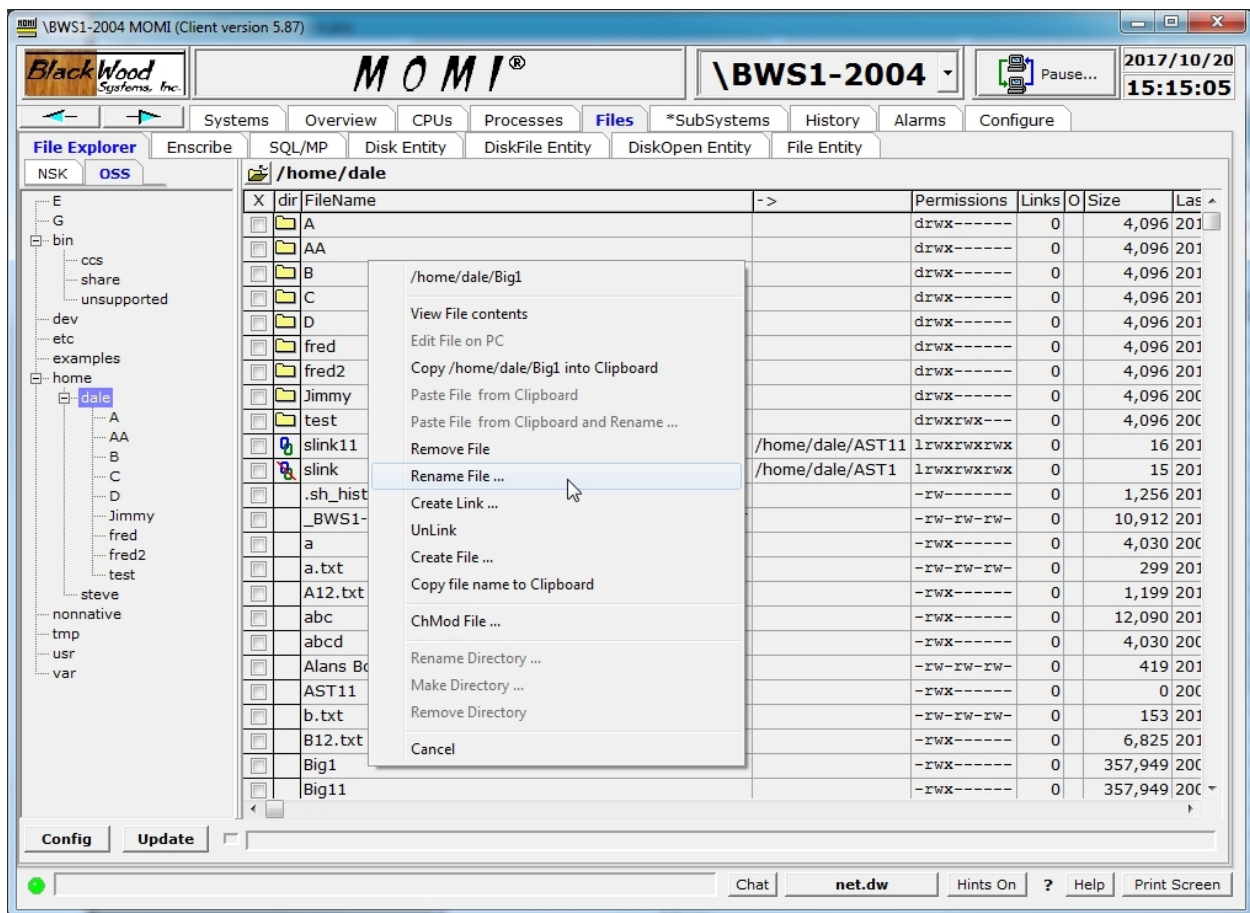
Actions that are available are displayed by right-clicking on a file name.



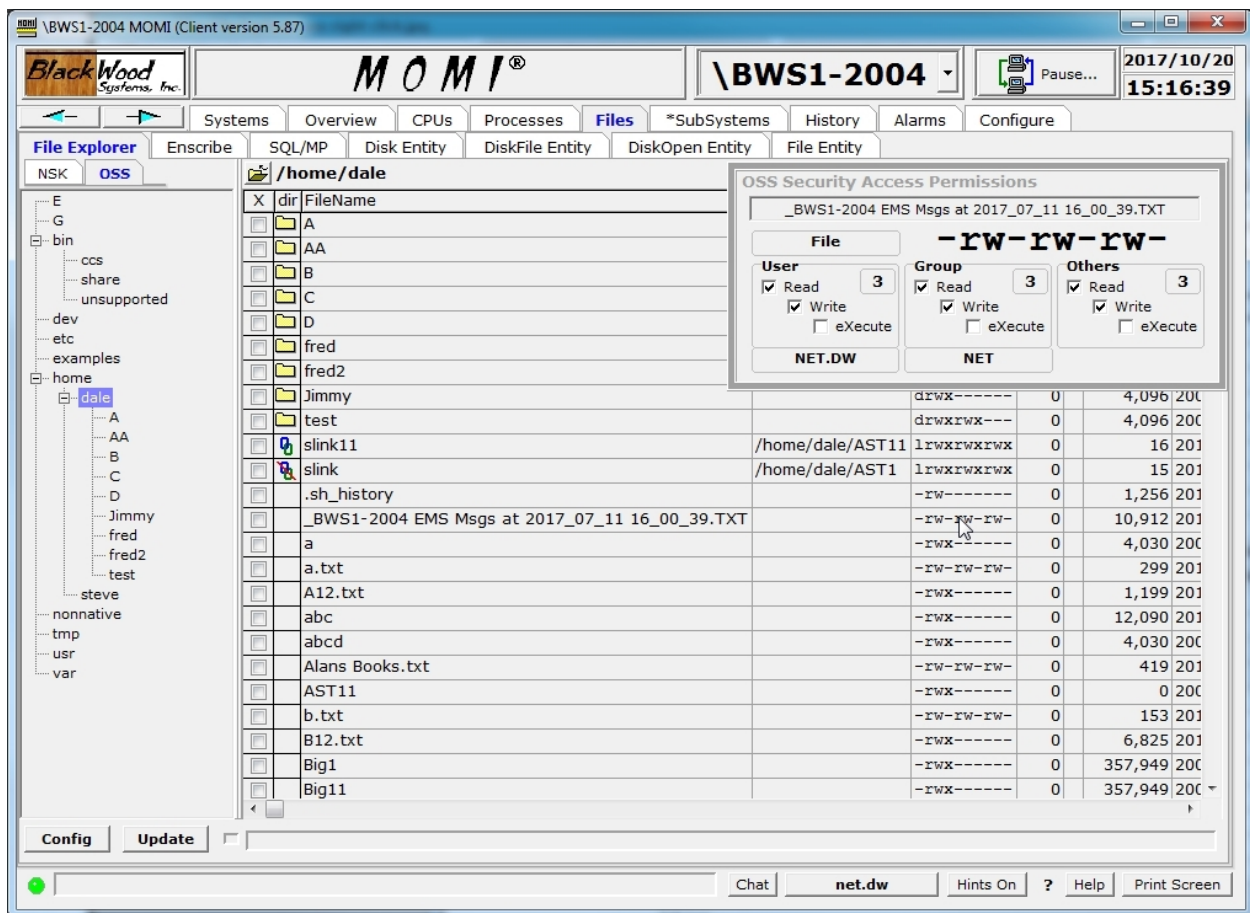
Selecting the OSS tab displays a tree view of the OSS file system on the left and files under the currently selected subdirectory. Subdirectories on the left continue to drill-down if selected.



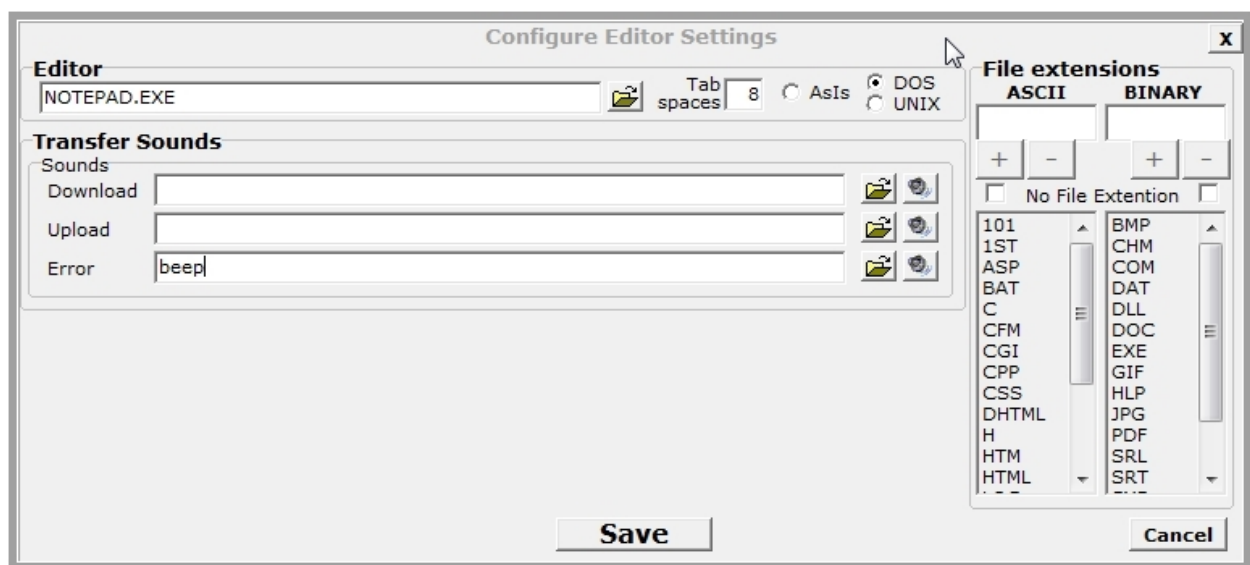
Actions that are available are displayed by right-clicking on a file name.



Additional pop-up information is displayed if the mouse is placed over the Permissions field. This pop-up provides a more friendly translation for the security screen field.



The Config button displays configuration settings for this screen such as the Windows editor to launch when editing a file and sounds played.



The **Editor** field defines the Windows program that is launched when editing a file. Editing a file involves the following steps: 1) the file is transferred from the NonStop System to the PC using an internal transfer method (FTP is not involved), 2) the Editor is launched and, 3) after exiting the Editor the file is transferred back to the NonStop System (if changed)

The **DOS** and **UNIX** format selection determines how line termination is formatted for ASCII files. The DOS Format uses a CR/LF and the UNIX Format uses a LF to terminate a line. This selection determines how the file is prepared for the Editor.

Edit On PC Settings selects various sounds played during file transfers and if an error occurs.

The **ASCII File extensions** determine when a file is considered ASCII, or a readable text file, and edit is allowed. Otherwise, the file is considered binary and is not editable.

Enscribe

Enscribe / Volume

The screenshot shows the Enscribe / Volume screen with a table of disk volumes. The table has columns for Volume, LDEV, Type, DiskPath(P) Primary, DiskPath(B) Backup, DiskPath(M) Mirror, DiskPath(MB) MirrorBackup, Capacity (MB), Capacity (Pages), FreeSpace (MB), and FreeSpace (Pages). The volumes listed include \$AUDIT, \$DATA1, \$DATA2, \$DSMSCM, \$MOMI01, \$OSS, \$SWAP1, \$SYSTEM, and a series of \$VDP volumes from \$VDP01 to \$VDP13. The \$VDP volumes are marked as Virtual.

Volume	LDEV	Type	DiskPath(P) Primary	DiskPath(B) Backup	DiskPath(M) Mirror	DiskPath(MB) MirrorBackup	Capacity (MB)	Capacity (Pages)	FreeSpace (MB)	FreeSpace (Pages)
\$AUDIT	169	Magnetic	UP	*UP	UP	*UP	71,906	35,110,501	51,432	25,113,429
\$DATA1	167	Magnetic	UP	*UP	UP	*UP	71,906	35,110,501	60,567	29,573,915
\$DATA2	166	Magnetic	*UP	UP	*UP	UP	71,906	35,110,501	70,464	34,406,325
\$DSMSCM	165	Magnetic	UP	*UP	UP	*UP	71,906	35,110,501	69,359	33,866,717
\$MOMI01	160	Magnetic	*UP	UP	*UP	UP	71,906	35,110,501	68,609	33,500,589
\$OSS	159	Magnetic	UP	*UP	UP	*UP	71,906	35,110,501	52,546	25,657,361
\$SWAP1	149	Magnetic	*UP	UP	*UP	UP	71,906	35,110,501	66,829	32,631,377
\$SYSTEM	6	Magnetic	*UP	UP	*UP	UP	71,906	35,110,501	62,173	30,358,356
\$VDP01	145	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP02	144	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP03	143	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP04	142	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP05	141	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP06	140	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP07	139	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP08	138	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP09	137	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP10	136	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP11	135	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP12	134	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP13	133	Virtual	*UP				215,718	105,331,503	183,577	89,637,601

At the bottom of the screen, there is a search bar with the text "Volume \$*", a "Total Volume Capacity(MB)" field showing "4,026,736", and a "data collected 2018/08/29 14:36:08" timestamp. There are also buttons for "Clear", "AutoUpdate", "Request", "No Filter", "Displayed", and "24 of 24".

The Enscribe / Volume screen presents the disk present on the System. Virtual and Magnetic (real disk drives) are displayed.

Information displayed includes capacity, free space, fragments, if the volume may have TMF audited files, and drive product number. Mirrored volumes display additional information.

The screen supports drill down by right clicking on a drive to bring up a selection of jump options.

BlackWood Systems, Inc. \BWS1-2004 MOMI (6.00/6.00) 2018/08/29 14:38:00

Systems Overview CPUs Processes **Files** SubSystems History Alarms Configure

File Explorer **Enscribe** SQL/MP DiskFile Entity DiskOpen Entity File Entity

Volume SubVolume File File Opener File Detail View File Cache Locks

Volume	LDEV	Type	DiskPath(P) Primary	DiskPath(B) Backup	DiskPath(M) Mirror	DiskPath(MB) MirrorBackup	Capacity (MB)	Capacity (Pages)	FreeSpace (MB)	FreeSpace (Pages)
\$AUDIT					UP	*UP	71,906	35,110,501	51,432	25,113,429
\$DATA1					UP	*UP	71,906	35,110,501	60,567	29,573,915
\$DATA2					UP	*UP	71,906	35,110,501	70,464	34,406,325
\$DSMSCN					UP	*UP	71,906	35,110,501	69,359	33,866,717
\$MOMIO1					UP	*UP	71,906	35,110,501	68,609	33,500,589
\$OSS					UP	*UP	71,906	35,110,501	52,546	25,657,361
\$SWAP1					UP	*UP	71,906	35,110,501	66,829	32,631,377
\$SYSTEM					UP	*UP	71,906	35,110,501	62,173	30,358,356
\$VDP01	145	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP02	144	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP03	143	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP04	142	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP05	141	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP06	140	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP07	139	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP08	138	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP09	137	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP10	136	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP11	135	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP12	134	Virtual	*UP				215,718	105,331,503	183,577	89,637,601
\$VDP13	133	Virtual	*UP				215,718	105,331,503	183,577	89,637,601

Volume \$* Total Volume Capacity(MB) 4,026,736

No Filter Displayed 24 of 24

Clear AutoUpdate Request data collected 2018/08/29 14:36:08

Chat net.dw Hints On ? Help Print Screen

Enscribe / SubVolume

The screenshot displays the BlackWood Systems, Inc. Enscribe / SubVolume interface. The window title is '\BWS1-2004 MOMI (6.00/6.00)'. The interface shows a table of subvolumes with columns: SubVolume, SubVol Size, Files, O, and OCount. The table lists various subvolumes like \$DSMSCM.NETBACK, \$DSMSCM.SAFE, \$DSMSCM.SQL, etc. The bottom status bar shows 'data collected 2018/08/29 14:33:36'.

SubVolume	SubVol Size	Files	O	OCount
\$DSMSCM.NETBACK	17,806,428	48	0	0
\$DSMSCM.SAFE	0	1	0	0
\$DSMSCM.SQL	292,352	28	0	0
\$DSMSCM.SQLTEST	0	1	0	0
\$DSMSCM.SYS	10,322	4	0	0
\$DSMSCM.TESTCAT	1,435,820	23	0	0
\$DSMSCM.XBWS1	40,401,454	118	0	0
\$DSMSCM.XPHIADB	62,354,556	211	0	0
\$DSMSCM.ZPHI0001	1,949,672,674	6,481	0	0
\$DSMSCM.ZPHI0002	17,878,418	20	0	0
\$DSMSCM.ZPHI0003	2,572,300	7	0	0
\$DSMSCM.ZPHI0004	4,685,500	5	0	0
\$DSMSCM.ZPHI0005	1,820,011	9	0	0
\$DSMSCM.ZPHI0006	2,601,294	18	0	0
\$DSMSCM.ZPHI0007	1,269,845	6	0	0
\$DSMSCM.ZPHI0008	694,158	8	0	0
\$DSMSCM.ZPHI0009	56,469,098	8	0	0
\$DSMSCM.ZPHI000A	17,835,511	4	0	0
\$DSMSCM.ZPHI000B	6,472,286	6	0	0
\$DSMSCM.ZPHI000C	769,868	4	0	0
\$DSMSCM.ZPHI000D	166,870	5	0	0
\$DSMSCM.ZPHI000E	2,232,326	8	0	0

Vol.SubVol: \$DSMSCM
Total SubVol Size: 2,302,919,136
No Filter
Displayed: 35 of 35
Clear
☐ No Details
☐ AutoUpdate
☒ Request
data collected 2018/08/29 14:33:36

The Enscribe / SubVolume screen presents a list of subvolumes following the Guardian file naming convention.

The total number of bytes of the files comprising the subvolume, number of files present, if any files are open and the count of open files are displayed.

The option **No Details** directs that statistics are not gathered which speeds processing.

Temporary files on a disk are referenced as \$vol.##. The search specification of \$*.## displays all volumes with temporary disk files.

Enscribe / File

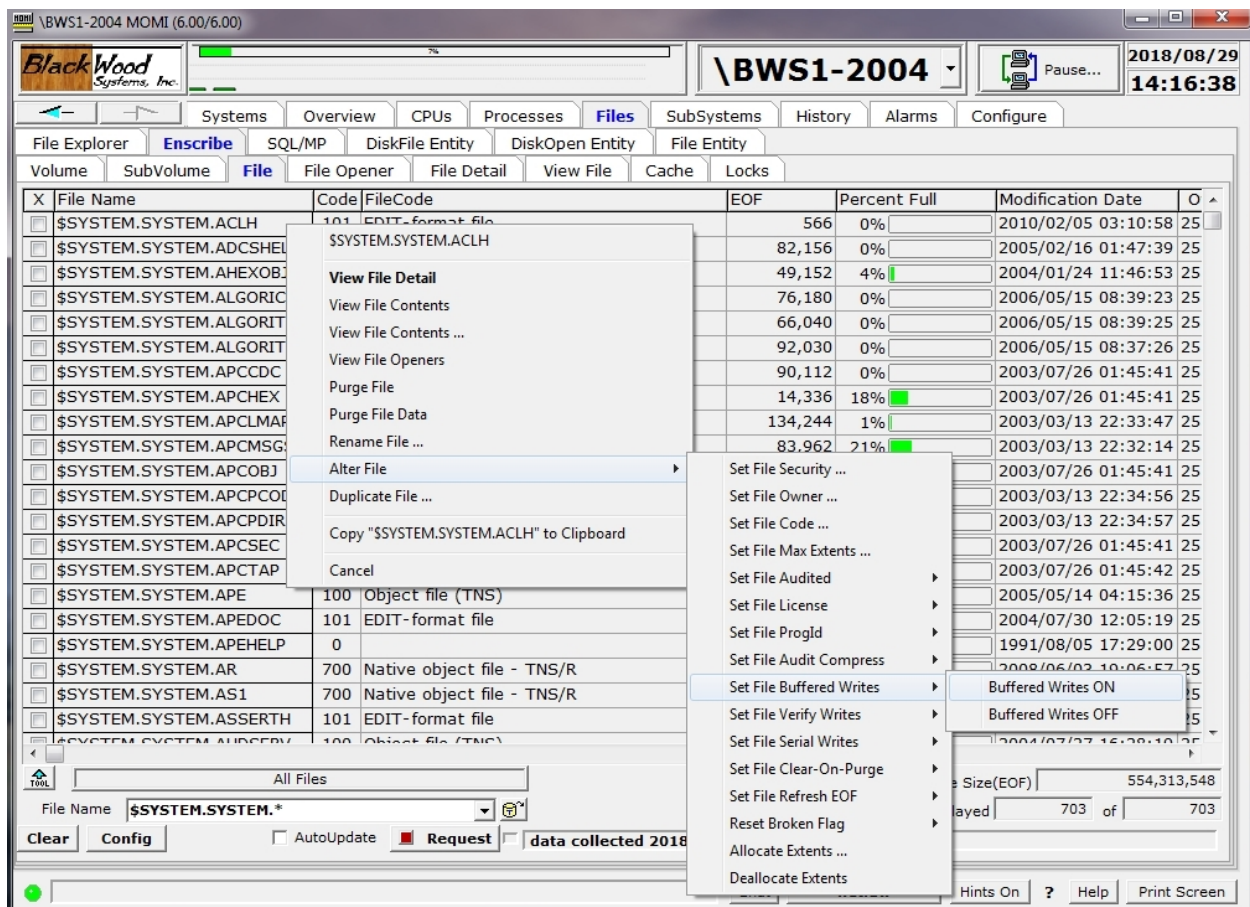
The screenshot displays the Enscribe / File window for the system \BWS1-2004. The window title is \BWS1-2004 MOMI (6.00/6.00). The interface includes a menu bar with options like Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. Below the menu bar is a toolbar with icons for File Explorer, Enscribe, SQL/MP, DiskFile Entity, DiskOpen Entity, File Entity, Volume, SubVolume, File, File Opener, File Detail, View File, Cache, and Locks. The main area shows a list of files with the following columns: File Name, Code, FileCode, EOF, Percent Full, and Modification Date. The list includes files such as \$SYSTEM.SYSTEM.ACLH, \$SYSTEM.SYSTEM.ADCSHELL, \$SYSTEM.SYSTEM.AHEXOBJ, \$SYSTEM.SYSTEM.ALGORICC, \$SYSTEM.SYSTEM.ALGORIT2, \$SYSTEM.SYSTEM.ALGORITM, \$SYSTEM.SYSTEM.APCCDC, \$SYSTEM.SYSTEM.APCHEX, \$SYSTEM.SYSTEM.APCLMAP, \$SYSTEM.SYSTEM.APCMSG, \$SYSTEM.SYSTEM.APCOBJ, \$SYSTEM.SYSTEM.APCPCOD, \$SYSTEM.SYSTEM.APCPDIR, \$SYSTEM.SYSTEM.APCSEC, \$SYSTEM.SYSTEM.APCTAP, \$SYSTEM.SYSTEM.APE, \$SYSTEM.SYSTEM.APEDOC, \$SYSTEM.SYSTEM.APEHELP, \$SYSTEM.SYSTEM.AR, \$SYSTEM.SYSTEM.AS1, and \$SYSTEM.SYSTEM.ASSERTH. The status bar at the bottom shows the total file size (EOF) as 554,313,548 and the number of files displayed as 703 of 703.

File Name	Code	FileCode	EOF	Percent Full	Modification Date
\$SYSTEM.SYSTEM.ACLH	101	EDIT-format file	566	0%	2010/02/05 03:10:58
\$SYSTEM.SYSTEM.ADCSHELL	101	EDIT-format file	82,156	0%	2005/02/16 01:47:39
\$SYSTEM.SYSTEM.AHEXOBJ	100	Object file (TNS)	49,152	4%	2004/01/24 11:46:53
\$SYSTEM.SYSTEM.ALGORICC	101	EDIT-format file	76,180	0%	2006/05/15 08:39:23
\$SYSTEM.SYSTEM.ALGORIT2	101	EDIT-format file	66,040	0%	2006/05/15 08:39:25
\$SYSTEM.SYSTEM.ALGORITM	101	EDIT-format file	92,030	0%	2006/05/15 08:37:26
\$SYSTEM.SYSTEM.APCCDC	100	Object file (TNS)	90,112	0%	2003/07/26 01:45:41
\$SYSTEM.SYSTEM.APCHEX	100	Object file (TNS)	14,336	18%	2003/07/26 01:45:41
\$SYSTEM.SYSTEM.APCLMAP	0		134,244	1%	2003/03/13 22:33:47
\$SYSTEM.SYSTEM.APCMSG	101	EDIT-format file	83,962	21%	2003/03/13 22:32:14
\$SYSTEM.SYSTEM.APCOBJ	100	Object file (TNS)	1,722,368	1%	2003/07/26 01:45:41
\$SYSTEM.SYSTEM.APCPCOD	301	TPS (Pathway) TCL program code file	60,416	2%	2003/03/13 22:34:56
\$SYSTEM.SYSTEM.APCPDIR	300	TPS (Pathway) TCL program directory file	1,536	0%	2003/03/13 22:34:57
\$SYSTEM.SYSTEM.APCSEC	100	Object file (TNS)	20,480	0%	2003/07/26 01:45:41
\$SYSTEM.SYSTEM.APCTAP	100	Object file (TNS)	274,432	0%	2003/07/26 01:45:42
\$SYSTEM.SYSTEM.APE	100	Object file (TNS)	641,602	0%	2005/05/14 04:15:36
\$SYSTEM.SYSTEM.APEDOC	101	EDIT-format file	28,068	0%	2004/07/30 12:05:19
\$SYSTEM.SYSTEM.APEHELP	0		24,576	0%	1991/08/05 17:29:00
\$SYSTEM.SYSTEM.AR	700	Native object file - TNS/R	200,752	0%	2008/06/03 19:06:57
\$SYSTEM.SYSTEM.AS1	700	Native object file - TNS/R	2,455,056	4%	2008/02/07 00:01:51
\$SYSTEM.SYSTEM.ASSERTH	101	EDIT-format file	744	0%	2010/02/05 03:10:58

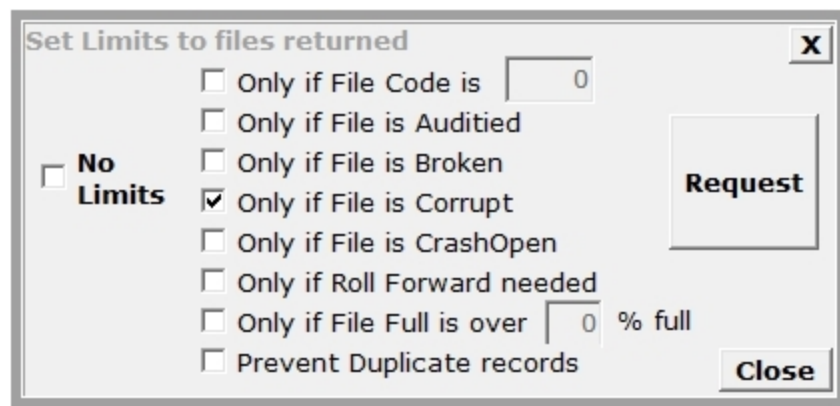
The Enscribe / File screen presents information about disk files.

Files listed may also include OSS files. The path name is listed in a column further to the right on the scroll bar.

Actions available may be taken by right-clicking on the file name.



To obtain a limited set of files, the **Config** button provides several options:



The files retrieved are restricted by any option enabled and may result in faster processing as only those records with matching criteria are returned to the Client. The above example requests only files with the Corrupt attribute. If multiple limits are enabled everything checked must match (i.e. evaluates to true).

OSS files have a different structure from Enscribe files. While the underlying Guardian files are displayed by this screen, columns such as "% full" and "maximum extents" may not apply or have strange information displayed.

Enscribe / File Opener

FileName	PName	Opener Program Name	Pri CPU, Pin	Access Mode	Exclusion Mode	SyncDepth	UserId	Bak CP
\$AUDIT.SAFE.GUARD	\$ZS01	\$SYSTEM.SYS01.OSMON	01,00328	read/write	shared	1	255,255	
\$AUDIT.ZTMFAT.AA000156	\$TMP	\$SYSTEM.SYS01.TMFTMP	01,00011	read/write	shared	0	255,255	
\$AUDIT.ZTMFAT.AA000156	\$TMP	\$SYSTEM.SYS01.TMFTMP	00,00012	read/write	shared	0	255,255	
\$DATA1.#0023210	\$XBK0	\$SYSTEM.SYS01.TMFBOUT	00,00051	read/write	exclusive	0	255,255	
\$DATA1.#0029555	\$Z59H	\$SYSTEM.SYS01.TACL	01,00039	read only	shared	0	100,109	
\$DATA1.#0029555		\$SYSTEM.SYS01.OSIMAGE	01,00000	read/write	protected	0	255,255	
\$DATA1.#0029568	\$Z59T	\$SYSTEM.SYS01.TACL	00,00131	read only	shared	0	100,109	
\$DATA1.#0029568		\$SYSTEM.SYS01.OSIMAGE	00,00000	read/write	protected	0	255,255	
\$DATA1.#0029569		\$SYSTEM.SYS01.OSIMAGE	00,00000	read/write	protected	0	255,255	
\$DATA1.#0029569	\$Z59V	\$SYSTEM.SYS01.TACL	00,00067	read only	shared	0	100,109	
\$DATA1.ALOG1.ZZEV0000	\$ALOG1	\$SYSTEM.SYS01.EMSACOLL	01,00412	read/write	protected	1	100,109	
\$DATA1.ALOG1.ZZEVCONF	\$ALOG1	\$SYSTEM.SYS01.EMSACOLL	01,00412	read/write	protected	1	100,109	
\$DATA1.ALOG2.ZZEV0000	\$ALOG2	\$SYSTEM.SYS01.EMSACOLL	01,00410	read/write	protected	1	100,109	
\$DATA1.ALOG2.ZZEVCONF	\$ALOG2	\$SYSTEM.SYS01.EMSACOLL	01,00410	read/write	protected	1	100,109	
\$DATA1.MOMI.BWMOMI		\$SYSTEM.SYS01.OSIMAGE	01,00000	read only	protected	0	255,255	
\$DATA1.MOMI.BWMOMI		\$SYSTEM.SYS01.OSIMAGE	00,00000	read only	protected	0	255,255	
\$DATA1.MOMI.DCPUS	\$XMM	\$SYSTEM.SYS01.MEASMON	01,00381	read/write	shared	1	255,255	00,003
\$DATA1.MOMI.DCPUS	\$XM00	\$SYSTEM.SYS01.MEASCTL	00,00385	read/write	shared	1	100,109	
\$DATA1.MOMI.DCPUS	\$XM01	\$SYSTEM.SYS01.MEASCTL	01,00382	read/write	shared	1	100,109	
\$DATA1.MOMI.LOG01DB	\$Y7485	\$DATA1.MOMI.BWMOMI	00,01548	read/write	shared	1	100,109	
\$DATA1.MOMI2006.BWMOMI		\$SYSTEM.SYS01.OSIMAGE	00,00000	read only	protected	0	255,255	
\$DATA1.MOMI2006.BWMOMI		\$SYSTEM.SYS01.OSIMAGE	01,00000	read only	protected	0	255,255	
\$DATA1.MOMI2006.CNF01DB	\$Y5026	\$DATA1.MOMI2006.BWMOMI	00,03450	read/write	shared	1	100,109	

The Enscribe / File Opener screen presents a list of 'opens' (the establishment of a communication path) from one entity to another. This is similar to the FUP LISTOPENS command.

Generally, only System processes such as the disk process provide opener information.

Enscribe / File Detail

The screenshot displays the Enscribe / File Detail window for the file \$DATA1.JUNK.TEST2. The window includes a top menu bar with options like Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. Below this is a sub-menu bar with File Explorer, Enscribe, SQL/MP, DiskFile Entity, DiskOpen Entity, File Entity, Volume, SubVolume, File, File Opener, File Detail (selected), View File, Cache, and Locks. The main content area is divided into several sections:

- File:** A table showing file details for \$DATA1.JUNK.TEST2.
- Partitions:** A table listing partitions \$DATA2, \$SWAP1, \$MOMI01, and \$VDP01.
- Alternate Keys:** A table listing alternate keys "OK", "dw", and "sb".
- Alternate Key Files:** A table listing alternate key files \$DATA1.JUNK.TEST2KA, \$DATA1.JUNK.TEST2KB, and \$DATA1.JUNK.TEST2KC.

At the bottom, there is a status bar with a "Full FileName" field set to \$DATA1.JUNK.TEST2, a "Clear" button, an "AutoUpdate" checkbox, a "Request" button, and a timestamp "data collected 2018/08/29 11:16:44". The bottom right corner contains links for Chat, net.dw, Hints On, Help, and Print Screen.

File Name	Code	FileCode	EOF	Percent Full	Modification Date	Owner	Security	O	P	L	T	A	B	FAK	FAP	PriExt	SecExt
\$DATA1.JUNK.TEST2	0		0	0%	2018/08/29 11:16:39	100,109	CCCC					0	B	FAK	FAP	4	32

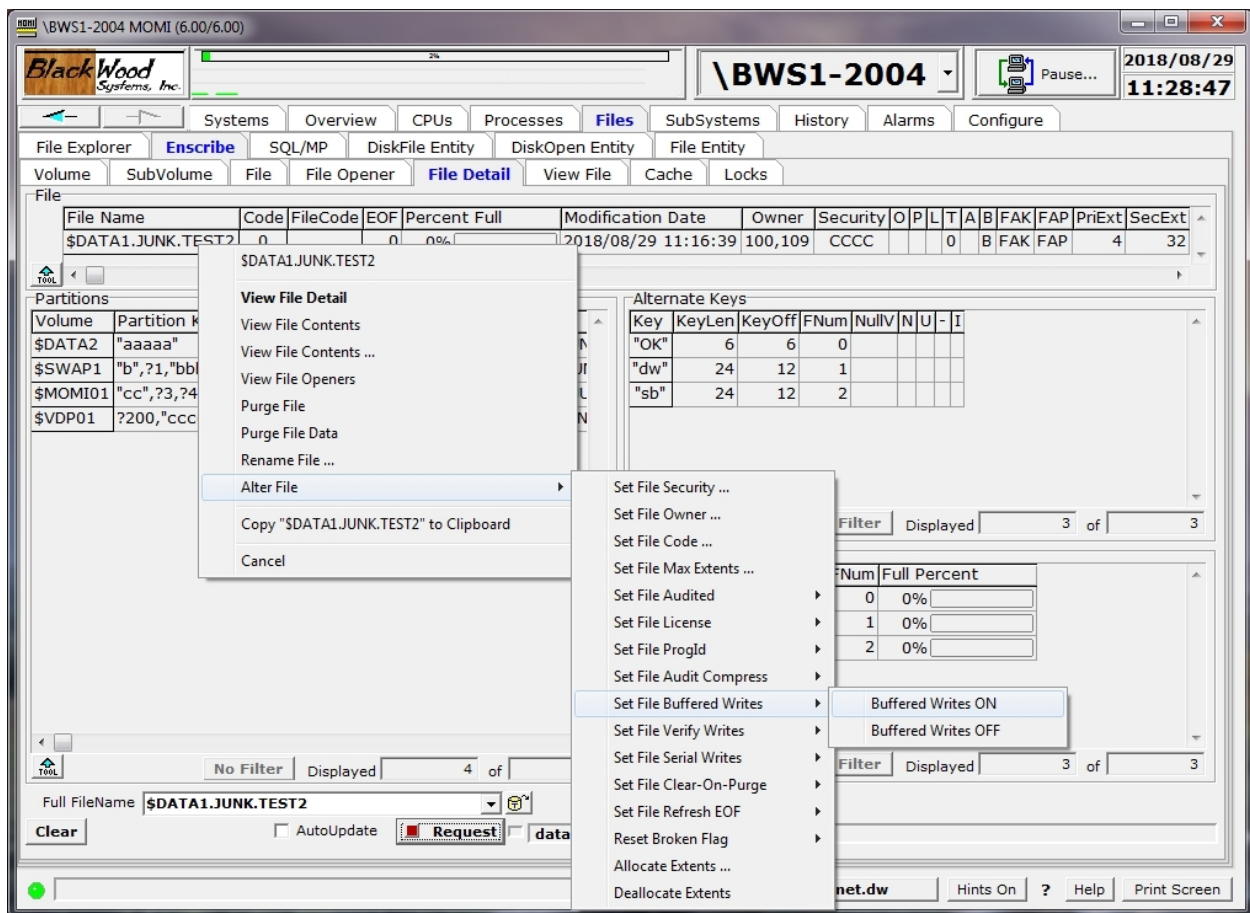
Volume	Partition Key	PIdx	Full Percent	FileName
\$DATA2	"aaaaa"	1	0%	\BWS1.\$DATA2.jun
\$SWAP1	"b",?1,"bbb"	2	0%	\BWS1.\$SWAP1.jur
\$MOMI01	"cc",?3,?4,?5	3	0%	\BWS1.\$MOMI01.ju
\$VDP01	?200,"cccc"	4	0%	\BWS1.\$VDP01.junl

Key	KeyLen	KeyOff	FNum	NullV	N	U	-	I
"OK"	6	6	0					
"dw"	24	12	1					
"sb"	24	12	2					

FileName	FNum	Full Percent
\$DATA1.JUNK.TEST2KA	0	0%
\$DATA1.JUNK.TEST2KB	1	0%
\$DATA1.JUNK.TEST2KC	2	0%

The Enscribe / File Detail screen presents details of the Partitions, Alternate Keys and Alternate Key Files associated with an Enscribe file.

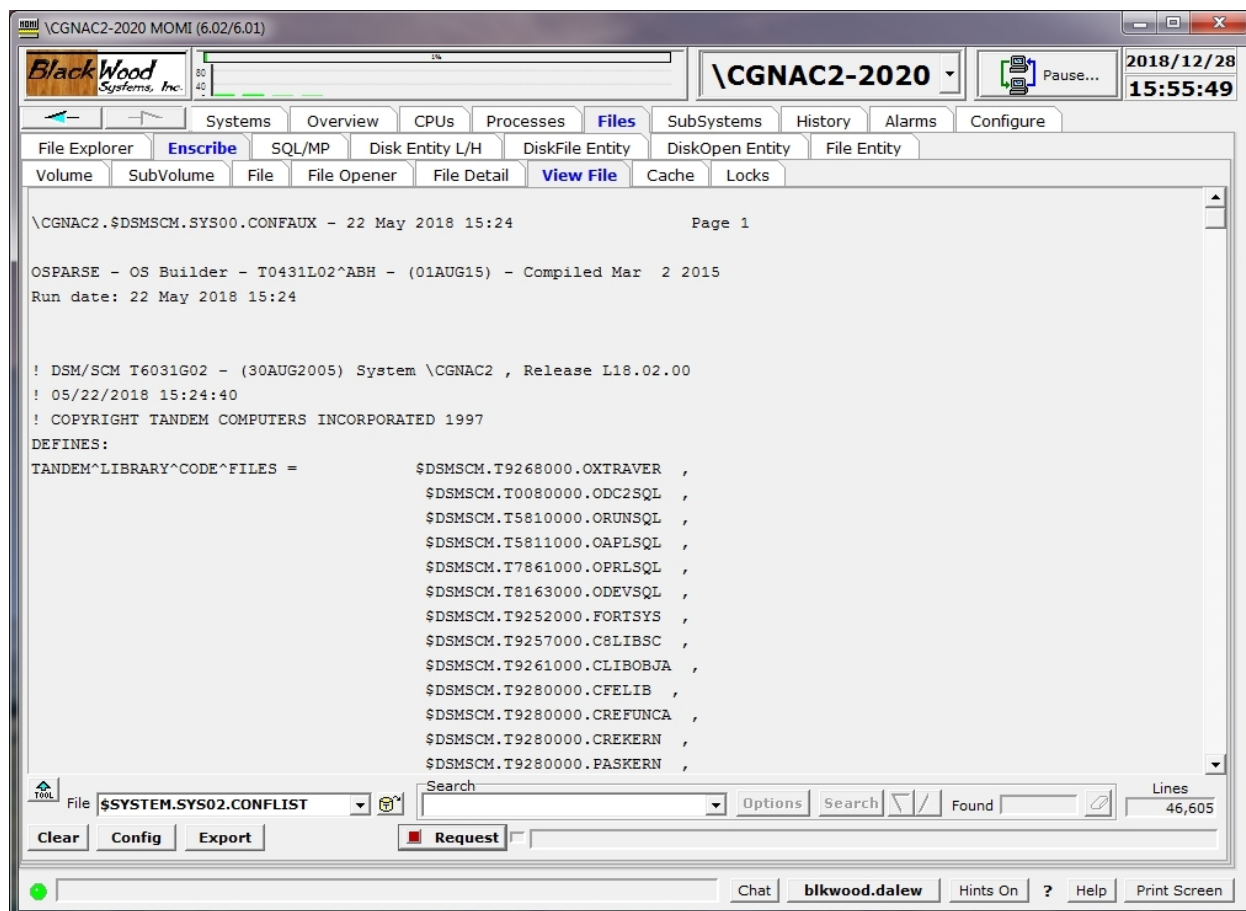
File level detail is the same as presented on the Enscribe / Files screen.



Right click actions are available on the File, Partitions and Alternate Key files.

SQL and OSS files may not display correctly as the Guardian procedures do not always return correct information these types of files.

Enscribe / View File

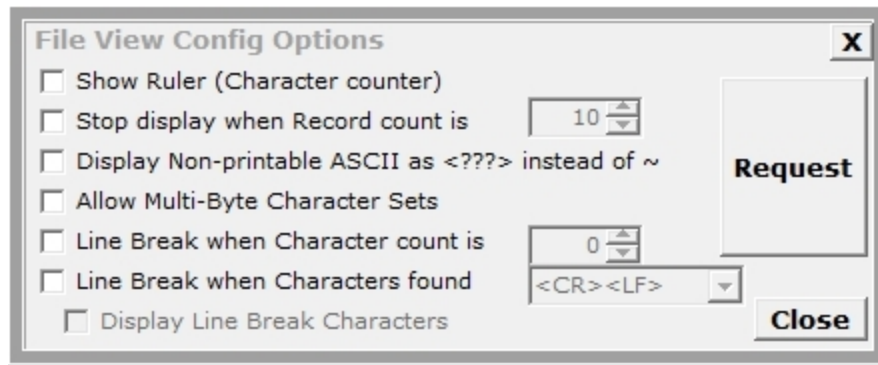


The Enscribe / View File screen allows display of the contents of a disk file. The User must Logon in order to perform action on this screen.

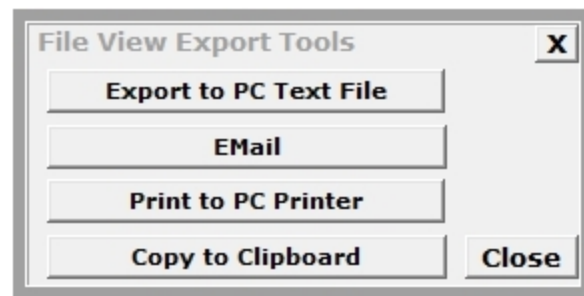
The file selected may either be an edit type or other type of file (such as an object file). By default, null characters are converted to ~ (tilde).

Object files, file codes 100, 700 and 800, have a fixed line length of 132 bytes. Edit files have variable length lines. All other files have a line length determined by the file record size.

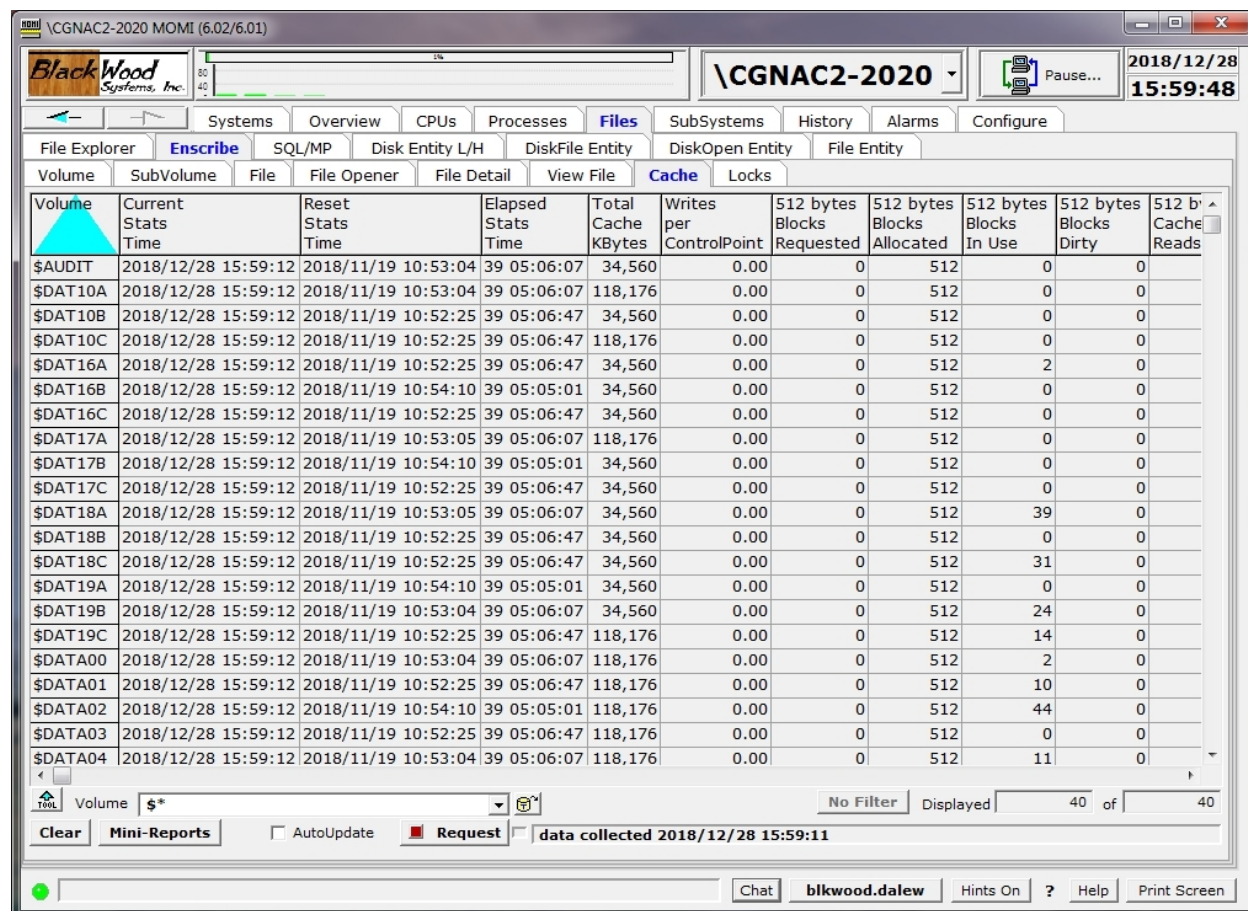
The Config button display a pop-up window to alter screen defaults, such as not converting unprintable ASCII characters to ~ (tilde). Unstructured files with fixed length lines or lines terminated by particular characters (such as CR/LF) may also be processed.



The Export button is used to transfer the displayed information to a file, printer on the local PC or via an Email.



Enscribe / Cache



The Enscribe / Cache screen presents the cache allocated and statistics about cache efficiency.

Disk cache is memory allocated in the disk process that is referenced prior to a physical access to disk. Data found in the cache reduces physical disk access and is inherently faster.

Disk cache is divided into 4 groups or block sizes. A block size is specified when a disk file is created. Cache blocks are allocated to each size. The sum of these blocks represents the Total Cache size.

A high percentage of "Cache Read Hits" and "Cache Write Dirties" are desired. Generally, additional cache blocks are allocated (via SCF) until percentages in the 90's are achieved. However, Users should also give attention to the Cache Faults counter. If a processor is running low on memory, the memory manager can take memory allocated to the disk cache. This counter indicates the frequency of this event. Consideration

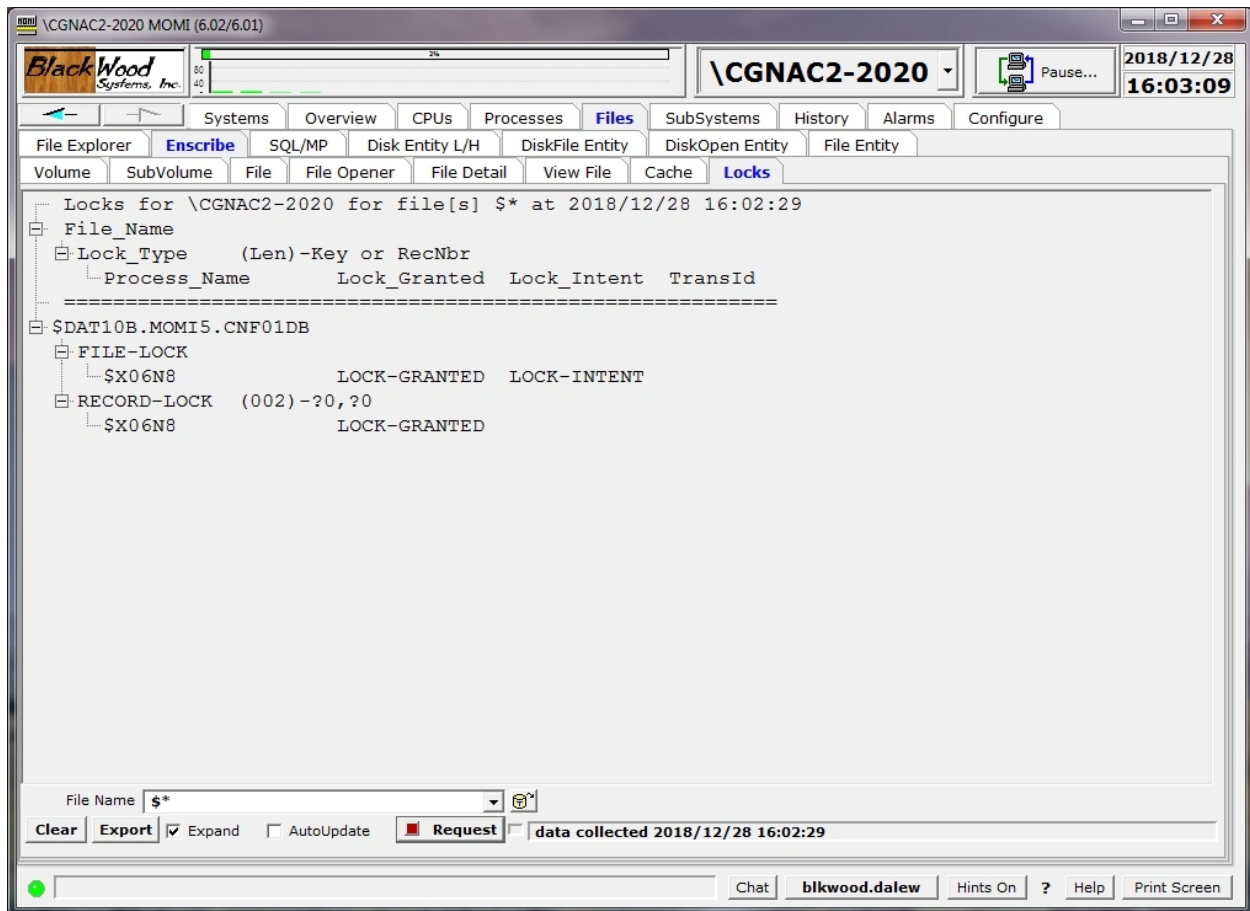
should be given to reducing the amount of disk cache or increasing memory in a processor when cache faults is constantly incrementing.

Clicking on a disk will bring up an SCF-like output containing detail for that volume:

Disk Volume Cache Detail x						
\$SYSTEM	Cache Block Size	512	1024	2048	4096	32768
Cache Bytes	Blocks Requested	0	0	0	0	0
34,560.0 KB	Blocks Allocated	512	512	512	4,096	512
Cache Bytes in Use	Blocks in Use	87	512	11	3,475	0
14,477.5 KB	Blocks Dirty	0%	0%	0%	0%	0%
Current Time	Cache Reads	99%	99%	23%	96%	0%
2018/12/28 15:59:12	Cache Read Hits	99%	99%	78%	99%	0%
Counter Reset Time	Cache Read Misses	1%	1%	22%	1%	0%
2018/11/19 10:52:49	Cache Writes	1%	1%	77%	4%	0%
Elapsed Time	Cache Write Dirties	0%	38%	0%	46%	0%
39 05:06:22	Cache Write Cleans	100%	61%	100%	51%	0%
Writes/Control Point	Cache Write Misses	0%	1%	0%	3%	0%
0.00	Cache Calls	176,897	60,814,278	226	1,384,155,193	0
Graphic Clipboard	Cache Faults	0	0	0	0	0
	Audit Forces	0	0	0	0	0

Enscribe / Locks

see [System Quirks](#)



The Enscribe / Locks screen presents file and record lock information similar to the FUP LISTLOCKS command.

This screen only functions on systems running G06.26 or later.

The information is presented in a tree-view format. The first level is the file name, the second level a file level or record level type of lock and the third level the locking process.

The following are descriptions of the columns:

```
File_Name = File Name that has the Lock
Lock_Type = Type of Lock (File or Record)
(Len)-Key = (length of Key)-Key Value for Key-Sequenced
files or
RecNbr = Record Number for non-Key-Sequenced files
Process_Name = Name of Process that requested the Lock or
               process that initiated the TMF transaction
Lock_Granted = Lock is Granted
```

Lock_Intent = Lock Intent requested by DP2
TransId = Transaction ID (if TMF active on participant)

The underlying Guardian procedure to return locking information does not include the requesting process name if a Transaction ID is returned. MOMI queries TMF and requests the process name that initiates the TMF transaction. This is not necessarily the process performing I/O to the listed file.

If a lock cannot be granted, indicated by a space in the Lock_Granted column, then the request is placed in a queue until the lock is granted or the requesting process times out.

SQL/MP

SQL/MP / Catalog

see [System Quirks](#)

The screenshot shows the SQL/MP / Catalog screen within the BlackWood Systems MOMI (6.02/6.01) application. The interface includes a top menu bar with options like Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. Below this is a sub-menu bar with File Explorer, Enscribe, SQL/MP (selected), DiskFile Entity, DiskOpen Entity, File Entity, Catalog (selected), Base Table, Table, File, Partition, Index, Table Detail, Program, Usage, and Statement. The main content area displays two tables: 'System Catalog' and 'User Catalogs'. The 'System Catalog' table has one entry: \$DSMSCM.SQL, SQL, A345. The 'User Catalogs' table lists several catalogs: \$DATA1.TESTCAT, \$DATA1.TESTCAT2, \$DSMSCM.TESTCAT, \$DSMSCM.XBWS1, \$DSMSCM.XPHIHD, and \$SWAP1.TAPECAT, all with SubSystem Name SQL and Version A350. The 'Status Message' column for the user catalogs is empty. At the bottom, there is a 'Clear' button, a 'System SQL Version' field set to 350, a 'Request' button, and a status bar with 'Chat', 'net.dw', 'Hints On', '?', 'Help', and 'Print Screen'.

Catalog Name	SubSystem Name	Version	Version Upgrade	Status Message
\$DSMSCM.SQL	SQL	A345		

Catalog Name	SubSystem Name	Version	Version Upgrade	Status Message
\$DATA1.TESTCAT	SQL	A350	2002/09/25 16:34:49	
\$DATA1.TESTCAT2	SQL	A350		
\$DSMSCM.TESTCAT	SQL	A350		
\$DSMSCM.XBWS1	SQL	A350		
\$DSMSCM.XPHIHD	SQL	A350		
\$SWAP1.TAPECAT	SQL	A350		

The SQL/MP / Catalog screen presents the SQL/MP Catalog of the System and User Catalogs defined on the system.

The NonStop System itself has a version number for SQL/MP. This version is shown in the lower right hand corner of the display. The System Catalog and User Catalogs are usually at or below the version of SQL/MP of the system.

The column Status Message displays an error message if a simple query of the listed User Catalogs fails. An error in this column either indicates that MOMI does not have security access to the catalog or that the catalog is not present. Any error message in this column indicates that MOMI will encounter errors on other SQL/MP screens.

SQL/MP / Base Table

see [System Quirks](#)

Catalog Name	Table Name	TC	TI	FileName	Stats Time	Row Count	Row Size	VDef
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2			\$DATA1.SQLTEST.ORDERS2		1	21	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.BASSETABS		TI	\$DATA1.TESTCAT.BASSETABS	2002/09/20 16:03:08	16	90	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.COLUMNS		TI	\$DATA1.TESTCAT.COLUMNS	2002/09/23 10:02:33	158	490	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.COMMENTS		TI	\$DATA1.TESTCAT.COMMENTS		1	202	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CONSTRNT		TI	\$DATA1.TESTCAT.CONSTRNT		1	3,068	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CPRLSRCE		TI	\$DATA1.TESTCAT.CPRLSRCE		1	294	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CPRULES		TI	\$DATA1.TESTCAT.CPRULES		1	72	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.FILES		TI	\$DATA1.TESTCAT.FILES		1	126	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.INDEXES		TI	\$DATA1.TESTCAT.INDEXES		1	131	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.KEYS		TI	\$DATA1.TESTCAT.KEYS		1	74	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PARTNS		TI	\$DATA1.TESTCAT.PARTNS		1	3,096	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PROGRAMS		TI	\$DATA1.TESTCAT.PROGRAMS		1	135	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.TABLES		TI	\$DATA1.TESTCAT.TABLES		1	99	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.TRANSIDS		TI	\$DATA1.TESTCAT.TRANSIDS		1	16	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.USAGES		TI	\$DATA1.TESTCAT.USAGES		1	124	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.VERSIONS		TI	\$DATA1.TESTCAT.VERSIONS		1	48	VDef
\$DATA1.TESTCAT	\$DATA1.TESTCAT.VIEWS		TI	\$DATA1.TESTCAT.VIEWS		1	3,041	VDef
\$DATA1.TESTCAT	\$DATA2.SQLTEST.ORDERS2			\$DATA2.SQLTEST.ORDERS2		1	21	VDef
\$DATA1.TESTCAT	\$DSMSCM.SQLTEST.ORDERS2			\$DSMSCM.SQLTEST.ORDERS2		1	21	VDef
\$DATA1.TESTCAT	\$MOMI01.SQLTEST.ORDERS2			\$MOMI01.SQLTEST.ORDERS2		1	21	VDef
\$DATA1.TESTCAT	\$OSS.SQLTEST.ORDERS2			\$OSS.SQLTEST.ORDERS2		1	21	VDef

The SQL/MP / Base Table screen presents information about base tables.

Base tables are physically present and are not a logical 'view' of the data. SQL tables are made up of rows and columns where a row can be thought of as a record and a column is a field in a record.

SQL/MP / Table

see [System Quirks](#)

BlackWood Systems, Inc. \BWS1-2004 MOMI (6.02/6.01) 2018/12/27 10:47:07

Systems Overview CPUs Processes **Files** SubSystems History Alarms Configure

File Explorer Enscribe **SQL/MP** DiskFile Entity DiskOpen Entity File Entity

Catalog Base Table **Table** File Partition Index Table Detail Program Usage Statement

Catalog Name	Table Name	Type	Code	Cols	UserID	Create Time	Invalid Time	Security	SM	Vers
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	TA	0	5	100,109	2009/09/09 14:14:50	2009/09/09 14:15:04	NNNN	G	350
\$DATA1.TESTCAT	\$DATA1.TESTCAT.BASETABS	TA	572	9	255,255	2002/09/25 16:30:40	2002/09/25 16:30:38	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.COLUMNS	TA	573	26	255,255	2002/09/25 16:30:40	2002/09/25 16:34:49	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.COMMENTS	TA	574	5	255,255	2002/09/25 16:30:41	2002/09/25 16:30:38	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CONSTRNT	TA	575	4	255,255	2002/09/25 16:30:42	2002/09/25 16:30:38	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CPRLSRCE	TA	587	3	255,255	2002/09/25 16:34:54	2002/09/25 16:34:49	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CPRULES	TA	586	6	255,255	2002/09/25 16:34:54	2002/09/25 16:34:49	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.FILES	TA	576	26	255,255	2002/09/25 16:30:41	2002/09/25 16:34:49	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.INDEXES	TA	577	15	255,255	2002/09/25 16:30:41	2002/09/25 16:34:49	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.KEYS	TA	578	5	255,255	2002/09/25 16:30:41	2002/09/25 16:34:49	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PARTNS	TA	579	5	255,255	2002/09/25 16:30:41	2002/09/25 16:30:38	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PROGRAMS	TA	580	19	255,255	2002/09/25 16:30:41	2002/09/25 16:34:49	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.TABLES	TA	581	12	255,255	2002/09/25 16:30:41	2002/09/25 16:34:49	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.TRANSIDS	TA	582	3	255,255	2002/09/25 16:30:42	2002/09/25 16:30:38	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.USAGES	TA	583	7	255,255	2002/09/25 16:30:42	2002/09/25 16:30:38	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.VERSIONS	TA	584	6	255,255	2002/09/25 16:30:42	2002/09/25 16:34:49	NNNN	G	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.VIEWS	TA	585	7	255,255	2002/09/25 16:30:42	2002/09/25 16:30:38	NNNN	G	1
\$DATA1.TESTCAT	\$DATA2.SQLTEST.ORDERS2	TA	0	5	100,109	2009/09/09 14:14:51	2009/09/09 14:15:04	NNNN	G	350
\$DATA1.TESTCAT	\$DSMSCM.SQLTEST.ORDERS2	TA	0	5	100,109	2009/09/09 14:14:51	2009/09/09 14:15:04	NNNN	G	350
\$DATA1.TESTCAT	\$MOMI01.SQLTEST.ORDERS2	TA	0	5	100,109	2009/09/09 14:14:51	2009/09/09 14:15:04	NNNN	G	350
\$DATA1.TESTCAT	\$OSS.SQLTEST.ORDERS2	TA	0	5	100,109	2009/09/09 14:14:50	2009/09/09 14:15:04	NNNN	G	350

Catalog \$*.* No Filter Displayed 260 of 260
 Table \$*.*.*
 Clear Request

Chat net.dw Hints On ? Help Print Screen

The SQL/MP / Table screen presents the TABLES table which is a catalog table that contains information about tables, views, and collations.

The TABLES table contains a row for each table, view, and collation in the catalog, including itself and other catalog tables.

SQL/MP / File

see [System Quirks](#)

BlackWood Systems, Inc. \BWS1-2004 MOMI (6.02/6.01) \BWS1-2004 2018/12/27 10:47:17

Systems Overview CPUs Processes **Files** SubSystems History Alarms Configure

File Explorer Enscribe **SQL/MP** DiskFile Entity DiskOpen Entity File Entity

Catalog Base Table Table **File** Partition Index Table Detail Program Usage Statement

Catalog Name	File Name	EOF	Full Percent	FT	ActIndx	BlockSize	PriExt	SecExt	MaxExt	Alloc Ext
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	0	0%	K	0	4,096	65,535	65,535	500	0
\$DATA1.TESTCAT	\$DATA1.TESTCAT.BASSETABS	12,288	0%	K	1	4,096	16	128	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.COLUMNS	61,440	0%	K	1	4,096	16	128	940	2
\$DATA1.TESTCAT	\$DATA1.TESTCAT.COMMENTS	0	0%	K	0	4,096	16	128	940	0
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CONSTRNT	0	0%	K	0	4,096	16	128	940	0
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CPRLSRCE	0	0%	K	0	4,096	16	128	950	0
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CPRULES	0	0%	K	0	4,096	16	128	950	0
\$DATA1.TESTCAT	\$DATA1.TESTCAT.FILES	20,480	0%	K	1	4,096	16	128	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.INDEXES	16,384	0%	K	1	4,096	16	128	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.IXINDE01	12,288	0%	K	1	4,096	16	64	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.IXPART01	16,384	0%	K	1	4,096	16	64	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.IXPROG01	0	0%	K	0	4,096	16	64	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.IXTABL01	12,288	0%	K	1	4,096	16	64	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.IXUSAG01	221,184	0%	K	1	4,096	16	64	940	3
\$DATA1.TESTCAT	\$DATA1.TESTCAT.KEYS	20,480	0%	K	1	4,096	16	128	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PARTNS	12,288	0%	K	1	4,096	16	128	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PROGRAMS	0	0%	K	0	4,096	16	128	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.TABLES	12,288	0%	K	1	4,096	16	128	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.TRANSIDS	0	0%	K	0	512	1	1	940	1
\$DATA1.TESTCAT	\$DATA1.TESTCAT.USAGES	241,664	0%	K	1	4,096	16	128	940	2
\$DATA1.TESTCAT	\$DATA1.TESTCAT.VERSIONS	1,536	0%	K	1	512	1	1	940	1

Catalog \$*.* Total File Size(EOF) 47,340,032
 File \$*.* No Filter Displayed 420 of 420
 Clear Request

Chat net.dw Hints On ? Help Print Screen

The SQL/MP / File screen presents attributes of files that contain tables and indexes.

A file is the physical entity where data or descriptive information is stored.

The Actual Index (ActIndx) column displays the number of index levels in the file at the time of the screen display. This value does not come from the catalog. A high number of index levels can affect System performance. Sorting the screen by this column allows index levels to be quickly checked.

SQL/MP / Partition

see [System Quirks](#)

Catalog Name	File Name	Primary	Partition Name	Catalog Part Name	First Key Values	Status Message
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	Y	\$DATA1.SQLTEST.ORDERS2	\$DATA1.TESTCAT		
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2		\$OSS.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(1000)	
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2		\$DSMSCM.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(2000)	
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2		\$MOMI01.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(3000)	
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2		\$SWAP1.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(4000)	
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2		\$DATA2.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(5000)	
\$DATA1.TESTCAT	\$DATA2.SQLTEST.ORDERS2	Y	\$DATA1.SQLTEST.ORDERS2	\$DATA1.TESTCAT		
\$DATA1.TESTCAT	\$DATA2.SQLTEST.ORDERS2		\$OSS.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(1000)	
\$DATA1.TESTCAT	\$DATA2.SQLTEST.ORDERS2		\$DSMSCM.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(2000)	
\$DATA1.TESTCAT	\$DATA2.SQLTEST.ORDERS2		\$MOMI01.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(3000)	
\$DATA1.TESTCAT	\$DATA2.SQLTEST.ORDERS2		\$SWAP1.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(4000)	
\$DATA1.TESTCAT	\$DATA2.SQLTEST.ORDERS2		\$DATA2.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(5000)	
\$DATA1.TESTCAT	\$DSMSCM.SQLTEST.ORDERS2	Y	\$DATA1.SQLTEST.ORDERS2	\$DATA1.TESTCAT		
\$DATA1.TESTCAT	\$DSMSCM.SQLTEST.ORDERS2		\$OSS.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(1000)	
\$DATA1.TESTCAT	\$DSMSCM.SQLTEST.ORDERS2		\$DSMSCM.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(2000)	
\$DATA1.TESTCAT	\$DSMSCM.SQLTEST.ORDERS2		\$MOMI01.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(3000)	
\$DATA1.TESTCAT	\$DSMSCM.SQLTEST.ORDERS2		\$SWAP1.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(4000)	
\$DATA1.TESTCAT	\$DSMSCM.SQLTEST.ORDERS2		\$DATA2.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(5000)	
\$DATA1.TESTCAT	\$MOMI01.SQLTEST.ORDERS2	Y	\$DATA1.SQLTEST.ORDERS2	\$DATA1.TESTCAT		
\$DATA1.TESTCAT	\$MOMI01.SQLTEST.ORDERS2		\$OSS.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(1000)	
\$DATA1.TESTCAT	\$MOMI01.SQLTEST.ORDERS2		\$DSMSCM.SQLTEST.ORDERS2	\$DATA1.TESTCAT	(2000)	

The SQL/MP / Partition screen presents information about how large logical files are split across multiple smaller physical files.

As files grow in either physical size or number of accesses, partitions are used to spread the load across multiple disk drives. Multiple drives provide more physical space and/or better access time by overlapping I/O across more hardware.

SQL/MP / Index

see [System Quirks](#)

Catalog Name	Table Name	Index Name	Code	Cols	Create Time	KeyTag	UV	VDef	VData
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	\$DATA2.SQLTEST.ORDERS2B	0	6	2009/09/09 14:14:54	2		VDef	VData
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	\$DATA2.SQLTEST.ORDERS2C	0	7	2009/09/09 14:14:56	3		VDef	VData
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	\$DATA2.SQLTEST.ORDERS2D	0	6	2009/09/09 14:14:57	4		VDef	VData
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	\$OSS.SQLTEST.ORDERS2E	0	6	2009/09/09 14:14:59	5		VDef	VData
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	\$OSS.SQLTEST.ORDERS2F	0	6	2009/09/09 14:15:01	6		VDef	VData
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	\$OSS.SQLTEST.ORDERS2G	0	6	2009/09/09 14:15:02	7		VDef	VData
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	\$OSS.SQLTEST.ORDERS2H	0	6	2009/09/09 14:15:04	8		VDef	VData
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	\$SWAP1.SQLTEST.ORDERS2A	0	6	2009/09/09 14:14:52	1		VDef	VData
\$DATA1.TESTCAT	\$DATA1.TESTCAT.INDEXES	\$DATA1.TESTCAT.IXINDE01	577	2	2002/09/25 16:30:43	1	UV	VDef	VData
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PARTNS	\$DATA1.TESTCAT.IXPART01	579	5	2002/09/25 16:30:43	1		VDef	VData
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PROGRAMS	\$DATA1.TESTCAT.IXPROG01	580	4	2002/09/25 16:30:44	1		VDef	VData
\$DATA1.TESTCAT	\$DATA1.TESTCAT.TABLES	\$DATA1.TESTCAT.IXTABL01	581	4	2002/09/25 16:30:43	1		VDef	VData
\$DATA1.TESTCAT	\$DATA1.TESTCAT.USAGES	\$DATA1.TESTCAT.IXUSAG01	583	8	2002/09/25 16:30:44	1		VDef	VData
\$DATA1.TESTCAT2	\$DATA1.SQLTEST.ORDERS2	\$DATA2.SQLTEST.ORDERS2A	0	6	2009/09/09 14:14:52	1		VDef	VData
\$DATA1.TESTCAT2	\$DATA1.TESTCAT2.INDEXES	\$DATA1.TESTCAT2.IXINDE01	577	2	2002/10/15 12:22:00	1	UV	VDef	VData
\$DATA1.TESTCAT2	\$DATA1.TESTCAT2.PARTNS	\$DATA1.TESTCAT2.IXPART01	579	5	2002/10/15 12:22:01	1		VDef	VData
\$DATA1.TESTCAT2	\$DATA1.TESTCAT2.PROGRAMS	\$DATA1.TESTCAT2.IXPROG01	580	4	2002/10/15 12:22:02	1		VDef	VData
\$DATA1.TESTCAT2	\$DATA1.TESTCAT2.TABLES	\$DATA1.TESTCAT2.IXTABL01	581	4	2002/10/15 12:21:59	1		VDef	VData
\$DATA1.TESTCAT2	\$DATA1.TESTCAT2.USAGES	\$DATA1.TESTCAT2.IXUSAG01	583	8	2002/10/15 12:22:01	1		VDef	VData
\$DSMSCM.SQL	\$DSMSCM.SQL.INDEXES	\$DSMSCM.SQL.IXINDE01	577	2	1998/03/21 15:55:37	1	UV	VDef	VData
\$DSMSCM.SQL	\$DSMSCM.SQL.MAP	\$DSMSCM.SQL.MAPI1	900	2	2005/09/27 16:07:28	"GL"	UV	VDef	VData

The SQL/MP / Index screen presents information about files used to provide ordered access to data.

Indexes are comprised of data accessible in an ordered manner. As indexes physically grow in size, the number of levels within the index also increase, which can affect performance. Generally speaking, access to a data record requires the number of index levels plus 1. As such, it is advisable to maintain index levels as low as possible. Note that disk cache generally favors indexes over data so the number of physical drive I/Os is usually reduced by adding cache.

The screen columns ActIndx, IndexL and IndxVar, as shown below, provide the Actual Index levels at the time of screen display, the Index levels recorded in the associated Catalog and the difference. Sorting by and/or comparing these values provides two pieces of information: 1) how many index levels are physically present, and 2) SQL/MP compiles may not be choosing the most optimum access path if the catalog differs greatly from the physical underlying files.

BlackWood Systems, Inc. \BWS1-2004 MOMI (6.02/6.01) 2018/12/27 10:54:57

\BWS1-2004

Systems Overview CPUs Processes **Tables** SubSystems History Alarms Configure

File Explorer Enscribe SQL/MP DiskFile Entity Disk Entity File Entity

Catalog Base Table Table File Partition **Index** Table Detail Program Usage Statement

Catalog Name	Table Name	UV	VDef	VData	ActIndx	IndexL	IndxVar	RowSize	File Name	Securit
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH37B		VDef	VData	1	2	1	49	\$DSMSCM.XPHIADB.PHIH37I0	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH37B		VDef	VData	1	2	1	56	\$DSMSCM.XPHIADB.PHIH37I2	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH37B		VDef	VData	1	2	1	44	\$DSMSCM.XPHIADB.PHIH37I4	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH38B		VDef	VData	1	1	0	28	\$DSMSCM.XPHIADB.PHIH38I0	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH38B		VDef	VData	1	1	0	36	\$DSMSCM.XPHIADB.PHIH38I1	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH39B		VDef	VData	1	1	0	36	\$DSMSCM.XPHIADB.PHIH39I1	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH41B		VDef	VData	1	1	0	36	\$DSMSCM.XPHIADB.PHIH41I0	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH43B		VDef	VData	1	1	0	61	\$DSMSCM.XPHIADB.PHIH43I0	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH43B		VDef	VData	1	1	0	44	\$DSMSCM.XPHIADB.PHIH43I1	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH43B		VDef	VData	1	1	0	44	\$DSMSCM.XPHIADB.PHIH43I2	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH44B		VDef	VData	2	2	0	185	\$DSMSCM.XPHIADB.PHIH44I0	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH44B		VDef	VData	1	1	0	31	\$DSMSCM.XPHIADB.PHIH44I1	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH44B		VDef	VData	1	2	1	37	\$DSMSCM.XPHIADB.PHIH44I2	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH44B		VDef	VData	1	1	0	37	\$DSMSCM.XPHIADB.PHIH44I3	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH44B		VDef	VData	1	2	1	69	\$DSMSCM.XPHIADB.PHIH44I4	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH45B		VDef	VData	1	1	0	36	\$DSMSCM.XPHIADB.PHIH45I0	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH62B		VDef	VData	2	2	0	70	\$DSMSCM.XPHIADB.PHIH62I0	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH64B		VDef	VData	1	1	0	49	\$DSMSCM.XPHIADB.PHIH64I0	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH64B		VDef	VData	1	1	0	48	\$DSMSCM.XPHIADB.PHIH64I1	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH64B		VDef	VData	1	1	0	36	\$DSMSCM.XPHIADB.PHIH64I2	UUUU
\$DSMSCM.XPHIADB	\$DSMSCM.XPHIADB.PHIH64B		VDef	VData	1	1	0	44	\$DSMSCM.XPHIADB.PHIH64I3	UUUU

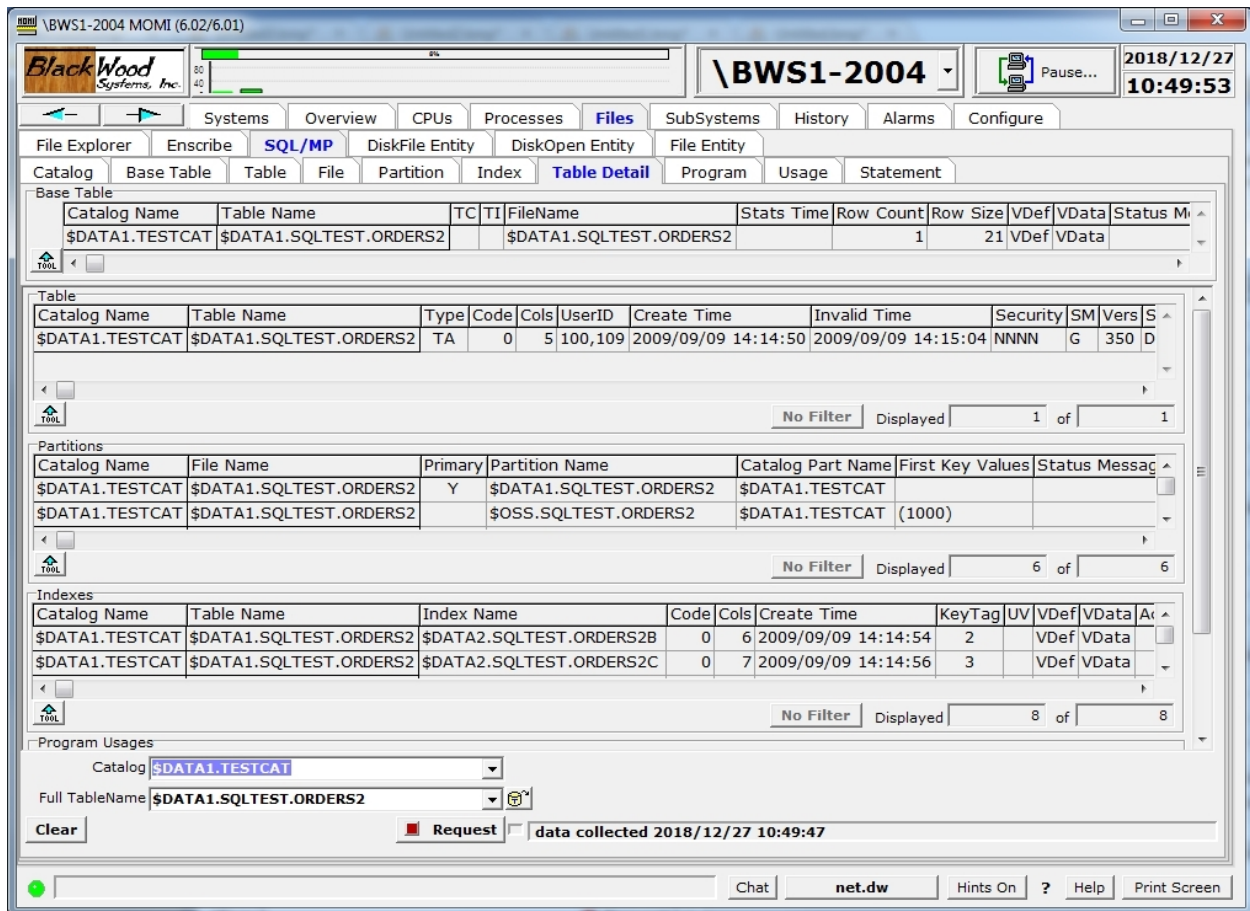
Catalog \$*.*.*
Table \$*.*.*
No Filter Displayed 185 of 185

Clear Request

Chat net.dw Hints On ? Help Print Screen

SQL/MP / Table Detail

see [System Quirks](#)



The SQL/MP / Table Detail screen presents the details associated with a Base Table.

All link-able entries to a Base Table are displayed. These include table(s), partition(s), index(es) and program usage(s). A scroll bar is used to display off-screen data.

If a non-Base Table is selected, available information is displayed

SQL/MP / Program

see [System Quirks](#)

BlackWood Systems, Inc. \BWS1-2004 MOMI (6.02/6.01) 2018/12/27 10:50:06

\BWS1-2004

Systems Overview CPUs Processes **Files** SubSystems History Alarms Configure

File Explorer Enscribe **SQL/MP** DiskFile Entity DiskOpen Entity File Entity

Catalog Base Table Table File Partition Index Table Detail **Program** Usage Statement

Catalog Name	Program Name	UserId	Security	Create Time	ReCompile Time	AC	VP	P	CP	SM	PFV	PCV	F
\$DATA1.TESTCAT2	\$DATA1.DALEMOMI.SQL02OC	100,109	CCCC	2002/10/15 12:53:15	2002/10/15 12:53:15	AC				G	350	1	
\$DSMSCM.SQL	\$SYSTEM.SYSTEM.SQCI2	255,255	NUNU	2002/09/26 11:08:29	2002/09/26 11:08:29	AC	VP			G	350	1	F
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T11OC	100,109	CCCC	2002/10/16 14:03:43	2002/10/16 14:03:43	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T12OC	100,109	CCCC	2002/10/16 14:03:50	2002/10/16 14:03:50	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T13OC	100,109	CCCC	2002/10/16 14:03:56	2002/10/16 14:03:56	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T144OC	100,109	CCCC	2002/10/16 14:16:44	2002/10/16 14:16:44	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T146OC	100,109	CCCC	2002/10/16 14:16:55	2002/10/16 14:16:55	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T147OC	100,109	CCCC	2002/10/16 14:17:01	2002/10/16 14:17:01	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T148OC	100,109	CCCC	2002/10/16 14:17:07	2002/10/16 14:17:07	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T149OC	100,109	CCCC	2002/10/16 14:17:12	2002/10/16 14:17:12	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T14OC	100,109	CCCC	2002/10/16 14:04:03	2002/10/16 14:04:03	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T150OC	100,109	CCCC	2002/10/16 14:17:18	2002/10/16 14:17:18	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T151OC	100,109	CCCC	2002/10/16 14:17:23	2002/10/16 14:17:23	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T152OC	100,109	CCCC	2002/10/16 14:17:28	2002/10/16 14:17:28	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T153OC	100,109	CCCC	2002/10/16 14:17:34	2002/10/16 14:17:34	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T154OC	100,109	CCCC	2002/10/16 14:17:40	2002/10/16 14:17:40	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T155OC	100,109	CCCC	2002/10/16 14:17:45	2002/10/16 14:17:45	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T156OC	100,109	CCCC	2002/10/16 14:17:51	2002/10/16 14:17:51	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T157OC	100,109	CCCC	2002/10/16 14:17:56	2002/10/16 14:17:56	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T158OC	100,109	CCCC	2002/10/16 14:18:02	2002/10/16 14:18:02	AC				G	350	1	
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T159OC	100,109	CCCC	2002/10/16 14:18:08	2002/10/16 14:18:08	AC				G	350	1	

Catalog \$*.*
 Program \$*.*.*
 No Filter Displayed 955 of 955
 Clear Request

Chat net.dw Hints On ? Help Print Screen

The SQL/MP / Program screen presents programs registered in the SQL/MP catalog.

An SQL-compiled program is by default registered in the catalog. This allows for cross reference and gauging of possible impacts when table changes are made. Not all uses of SQL/MP tables are registered in the catalog.

SQL/MP / Usage

see [System Quirks](#)

Catalog Name	Used Object Name	UType	RType	Using Object Name	DType	Used Catalog Name	Using Catalog Name
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	TA	DP	\$DATA1.SQLTEST.ORDERS2	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	TA	DP	\$DATA2.SQLTEST.ORDERS2A	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	TA	DP	\$DATA2.SQLTEST.ORDERS2B	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	TA	DP	\$DATA2.SQLTEST.ORDERS2C	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	TA	DP	\$DATA2.SQLTEST.ORDERS2D	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	TA	DP	\$OSS.SQLTEST.ORDERS2E	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	TA	DP	\$OSS.SQLTEST.ORDERS2F	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	TA	DP	\$OSS.SQLTEST.ORDERS2G	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.SQLTEST.ORDERS2	TA	DP	\$OSS.SQLTEST.ORDERS2H	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.BASSETABS	TA	DP	\$DATA1.TESTCAT.BASSETABS	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.COLUMNS	TA	DP	\$DATA1.TESTCAT.COLUMNS	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.COMMENTS	TA	DP	\$DATA1.TESTCAT.COMMENTS	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CONSTRNT	TA	DP	\$DATA1.TESTCAT.CONSTRNT	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CPRLSRCE	TA	DP	\$DATA1.TESTCAT.CPRLSRCE	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.CPRULES	TA	DP	\$DATA1.TESTCAT.CPRULES	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.FILES	TA	DP	\$DATA1.TESTCAT.FILES	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.INDEXES	TA	DP	\$DATA1.TESTCAT.INDEXES	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.INDEXES	TA	DP	\$DATA1.TESTCAT.IXINDE01	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.KEYS	TA	DP	\$DATA1.TESTCAT.KEYS	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PARTNS	TA	DP	\$DATA1.TESTCAT.IXPART01	IN	\$DATA1.TESTCAT	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PARTNS	TA	DP	\$DATA1.TESTCAT.PARTNS	IN	\$DATA1.TESTCAT	\$DATA1.TES

The SQL/MP / Usage screen presents relationships within the SQL/MP environment.

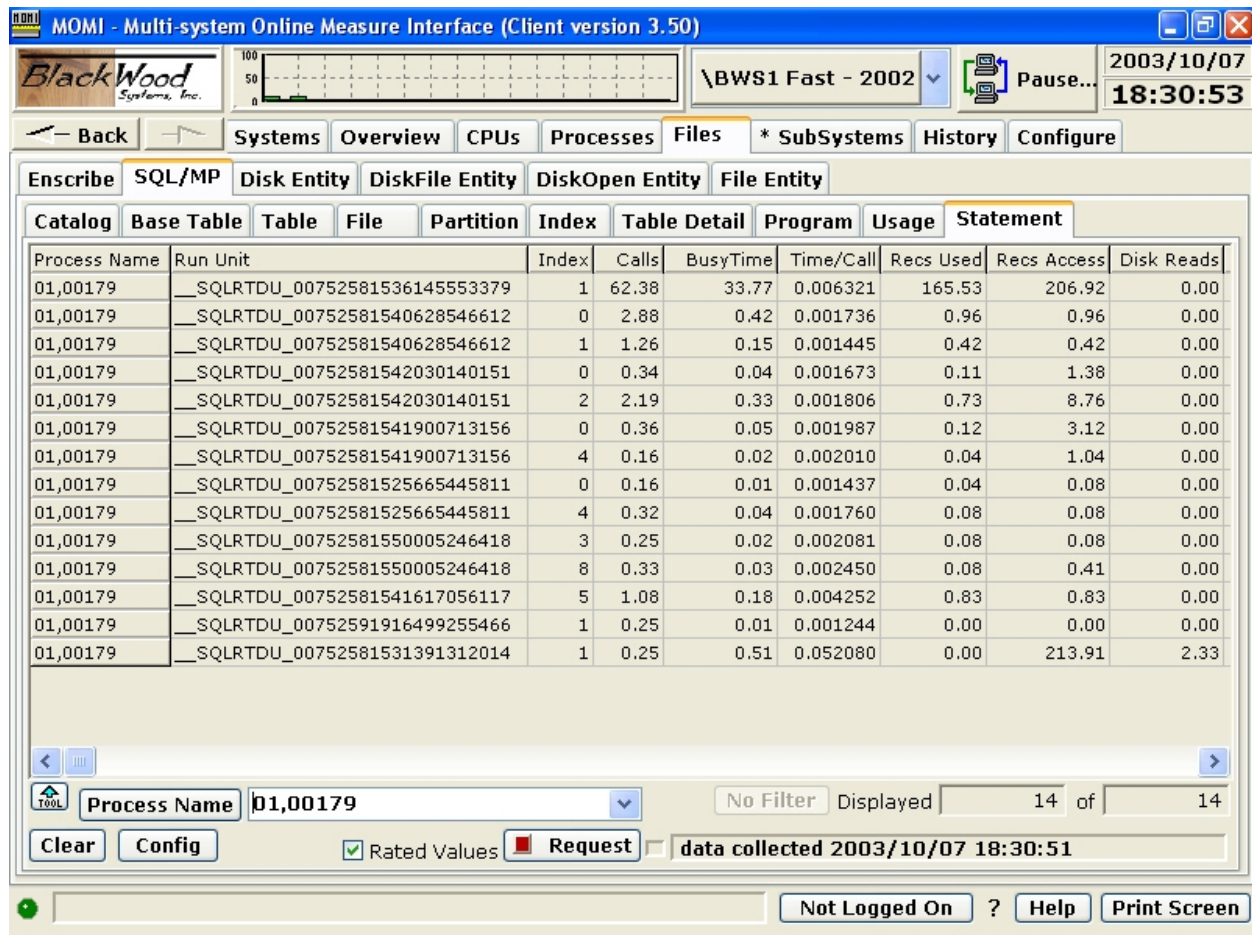
The USAGES table is a catalog table that keeps records of dependencies between objects and between programs and objects.

Relationships recorded in the USAGES table:

- Program uses view, table, or index
- View uses view or table
- Index uses table
- Table, view, index, or program uses collation

SQL/MP / Statement

see [System Quirks](#)



The SQL/MP / Statement screen provides a way to drill-down further within a process that uses SQL to see the level of activity performed by individual SQL statements. This information is obtained from MEASURE via the SQLSTMT entity.

The SQL Statement entity describes the cost in terms of time and I/O associated with individual SQL statements in a process. The statements are identified by an Index (0,1,2,3, etc...) obtained from a listing during SQL compilation (specify the SQLMAP option to SQLCOMP).

To use this screen, find a busy SQL application process on your system, perhaps from the Overview screen. Enter the process name (or CPU,PIN) in the Process Name field and push request. After 30 seconds or so, if the process is active and using SQL/MP statements, the results are displayed. The screen continues to update with progressively longer update intervals.

Generally, in order to interpret the output for this screen, you need to work with your DBA and/or application developer as the SQL Statement index is obtained during program compilation. Even with the statement index, usually only the application developer

and/or DBA could determine if the SQL statement is executing as intended (knowledge of the data layout, meaning of the data and accesses available into the data really help).

If you are dealing with SQL/MX, things get a little strange as SQL/MX has the requirement that an SQL Statement measurement must be in place prior to starting the program. This is really backward (and does not make much sense to us) but in theory allows reduced measurement overhead. SQL/MX really did things differently from a historical NonStop perspective. Unfortunately, it may be better to a) run MEASURE manually to collect the data OR b) manually start an external measurement and then go into this screen within MOMI. In the latter case, the measurement that MOMI launches is internally "latching into" an existing measurement which allows data to be obtained.

This screen is disabled by default. See the CONFMOMI keyword [DISABLE-MEAS-SQLSTMT](#) for additional information.

Disk Entity L/H

CGNAC2-2020 MOMI (6.00/6.00)

Alarms | **CGNAC2-2020** | 2018/07/31 18:33:54

Systems | Overview | CPUs | Processes | **Files** | SubSystems | History | Alarms | Configure

File Explorer | Enscribe | SQL/MP | **Disk Entity L/H** | DiskFile Entity | DiskOpen Entity | File Entity

Live Data (VolView) Disk Entity Live Rated collected at 2018/07/31 18:33:40

Disk Name	Path	CPU	PIN	Disc Rate	Average Service Time	Device Service Time	Capacity	Storage Pool	Requests QTime	Requests	Reads	Writes	Input Bytes	Output Bytes	Swa
\$SYSTEM		00,00257		45.69	0.000	0.001	300.00 GB		0.057	129.09	38.09	7.59	2,023,743.94	15,564.11	82.
\$DATA13		01,00425		15.60	0.001	0.004	300.00 GB		0.044	31.00	0.00	15.60	0.00	238,403.50	0.
\$OSS		01,00509		0.40	0.000	0.007	300.00 GB		0.002	228.11	0.00	0.40	0.00	819.25	0.
\$AUDIT		00,00401		0.19	0.001	0.009	300.00 GB		0.001	0.99	0.00	0.19	0.00	409.58	0.
\$DATA04		00,00453		0.19	0.000	0.000	300.00 GB	\$PL04	0.000	0.89	0.19	0.00	1.59	0.00	0.
\$DATA10		02,00404		0.00	0.000	0.000	74.00 GB		0.000	0.90	0.00	0.00	0.00	0.00	0.
\$DSMSCM		01,00432		0.00	0.000	0.000	300.00 GB		0.000	1.00	0.00	0.00	0.00	0.00	0.
\$DATA18		02,00408		0.00	0.000	0.000	74.00 GB		0.000	0.90	0.00	0.00	0.00	0.00	0.
\$DATA20		02,00410		0.00	0.000	0.000	300.00 GB	\$PL20	0.000	0.90	0.00	0.00	0.00	0.00	0.
\$DATA05		01,00415		0.00	0.000	0.000	300.00 GB		0.000	1.40	0.00	0.00	0.00	0.00	0.
\$DATA19		03,00406		0.00	0.000	0.000	74.00 GB		0.000	0.79	0.00	0.00	0.00	0.00	0.
\$DATA17		01,00431		0.00	0.000	0.000	74.00 GB		0.000	1.00	0.00	0.00	0.00	0.00	0.
\$DATA15		03,00404		0.00	0.000	0.000	300.00 GB		0.000	0.79	0.00	0.00	0.00	0.00	0.
\$DATA08		00,00455		0.00	0.000	0.000	300.00 GB	\$PL08	0.000	0.99	0.00	0.00	0.00	0.00	0.
\$DATA14		02,00406		0.00	0.000	0.000	300.00 GB	\$PL14	0.000	0.90	0.00	0.00	0.00	0.00	0.
\$DATA09		01,00420		0.00	0.000	0.000	300.00 GB	\$PL09	0.000	1.00	0.00	0.00	0.00	0.00	0.
\$DATA11		03,00402		0.00	0.000	0.000	300.00 GB		0.000	0.79	0.00	0.00	0.00	0.00	0.
\$DAT10B		01,00391		0.00	0.000	0.000	74.00 GB		0.000	0.90	0.00	0.00	0.00	0.00	0.
\$DATA06		02,00402		0.00	0.000	0.000	300.00 GB		0.000	0.90	0.00	0.00	0.00	0.00	0.
\$DATA12		00,00457		0.00	0.000	0.000	300.00 GB		0.000	0.89	0.00	0.00	0.00	0.00	0.
\$DATA03		03,00398		0.00	0.000	0.000	300.00 GB		0.000	0.79	0.00	0.00	0.00	0.00	0.

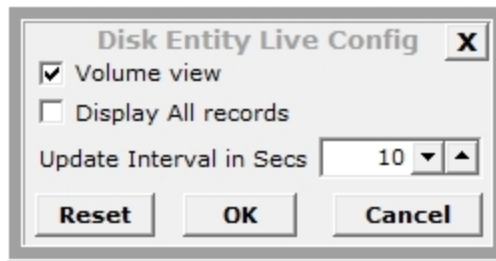
Data Type: ☒ Live ☐ History | Mini-Reports | ☒ Rated Values | ☐ Pause | No Filter | Displayed 40 of 40

Chat | blkwood.dalew | Hints On | ? | Help | Print Screen

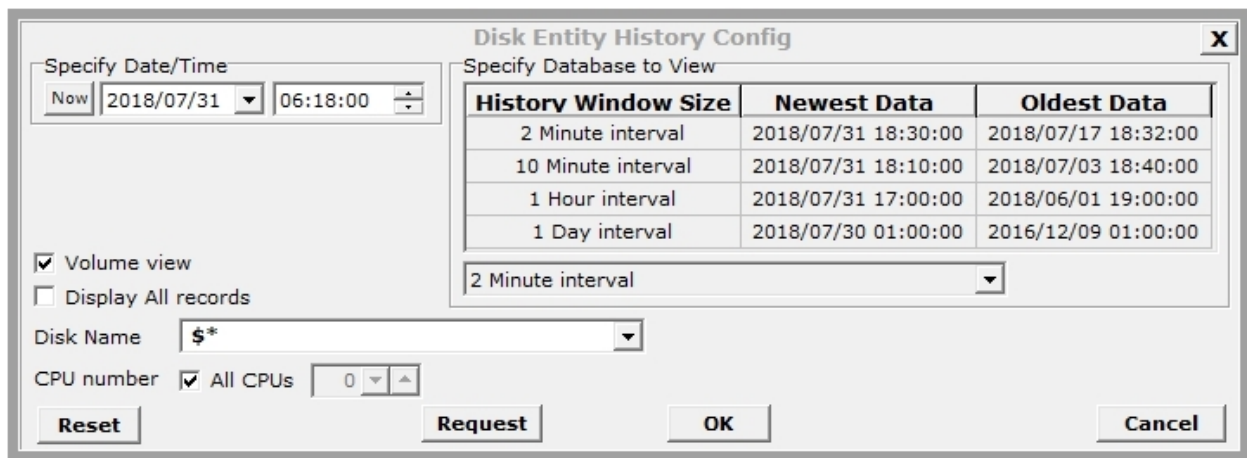
The Files / Disk Entity LH screen presents the MEASURE entity DISC. Data is available live or via history.

The MEASURE entity DISC provides information about the overall disk volume. A mirrored drive would have four paths, Primary, Backup, Mirror and Mirror Backup. By default, MOMI combines these paths into a single line of information referred to as Volume View.

The Data Type field selects either Live (the default) or History. The Config button displays available options which are different depending on the Data Type selection.



Config for Live allows the selection of Volume view, if records with all zero values are displayed, and the screen update interval.



Config for History determines the starting date/time, selection of Volume view, history file where data is retrieved, if records with all zero values are displayed and filtering by Disk and/or CPU.

\$SYSTEM		History Disk Cache Detail					
Volume View		Cache Block Size	512	1024	2048	4096	32768
Rated		Blocks in Use	16	343	2	4,096	0
Cache Bytes Alloc		Blocks Dirty	0	0	0	923	0
34,560 KB		Block Splits	0.00	0.00	0.00	0.00	0.00
Cache Bytes in Use		Cache Calls	0.00	12.53	0.00	272.73	0.00
16,739 KB		Cache Faults	0.00	0.00	0.00	0.00	0.00
Current Time		Audit Forces	0.00	0.00	0.00	0.00	0.00
2018/07/31		Read +%	0.00	12.30	0.00	268.22	0.00
06:18:00		Read Hits +%	0.00	12.30	0.00	256.39	0.00
Elapsed Time		Read Misses +%	0.00	0.00	0.00	11.83	0.00
2 Minute interval		Writes +%	0.00	0.22	0.00	4.50	0.00
Writes/Control Point		Write Cleans +%	0.00	0.22	0.00	3.01	0.00
0.00		Write Dirties +%	0.00	0.00	0.00	1.35	0.00
Graphic Clipboard		Write Misses +%	0.00	0.00	0.00	0.00	0.00

Percent of Total Writes = 29%
Percent is in color

Clicking on a Disk Name displays Cache Detail showing all cache sizes and cache specific counts. The color bars, on lines with +%, represent percent of the total for that particular operation. Place the mouse over the cell and the tool-tip displays the underlying value.

Screen Notes

Volume view

Volume view combines values from all four disk paths (P, B, M, MB) in an attempt to represent the overall activity on the logical disk drive. When Volume view is NOT selected, MEASURE data is displayed as is, with the exception of derived values.

Output bytes represents the bytes written to one disk volume of the mirrored set. For example, Input Bytes and Output Bytes would equal each other if 4096 bytes were written and immediately read (technically, 8192 bytes were written as the data is copied to each physical disk of the mirrored set).

Derived values

The following values are derived:

```
disc_rate
    reads + writes
```

Cache Detail

MEASURE does not directly provide all the values displayed and the following values are derived (and may be changed as we learn more about how to obtain them):

```
cache_calls
    hits
    + misses
```

```
cache_writes
    cache_write_cleans
    + cache_write_dirties
    + cache_write_misses
```

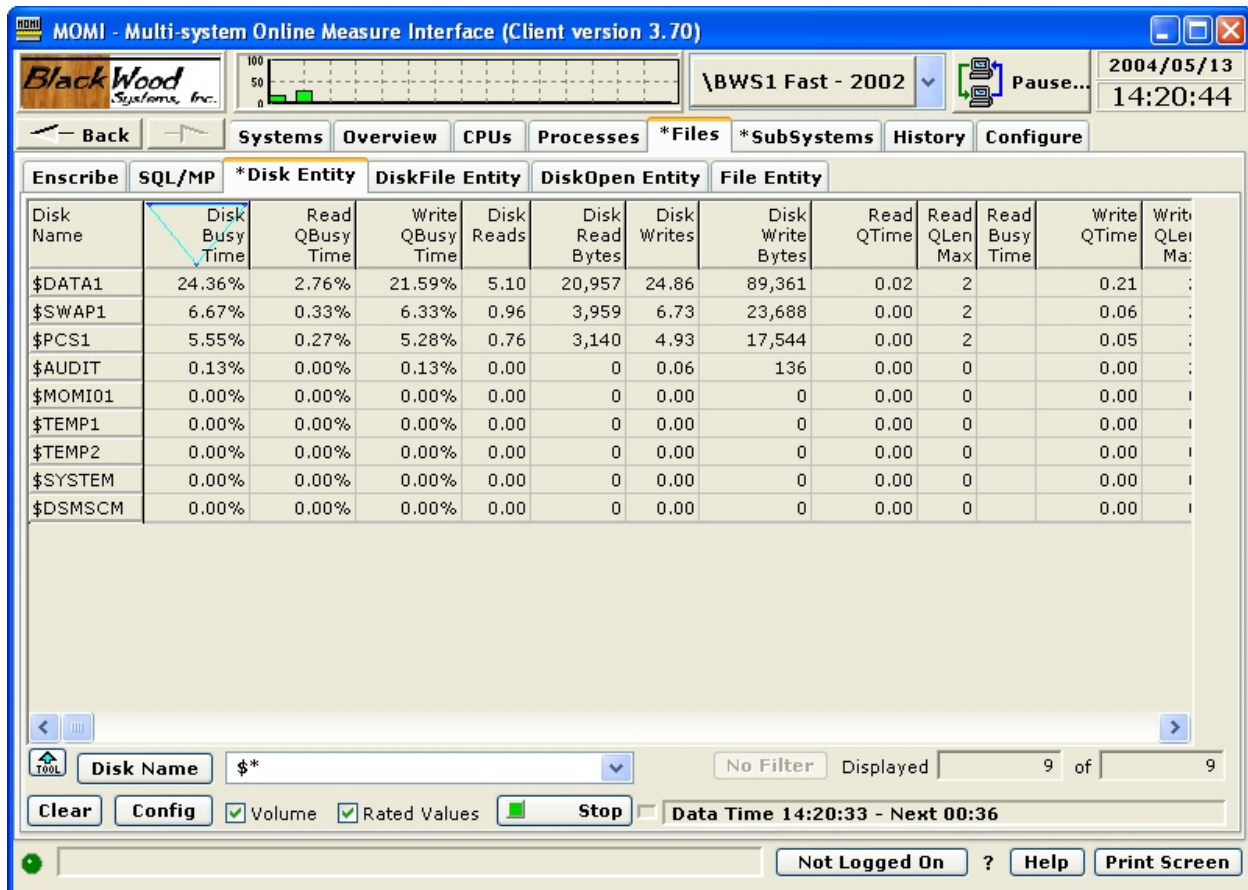
cache_reads

- cache_calls
- cache_writes

cache_read_hits

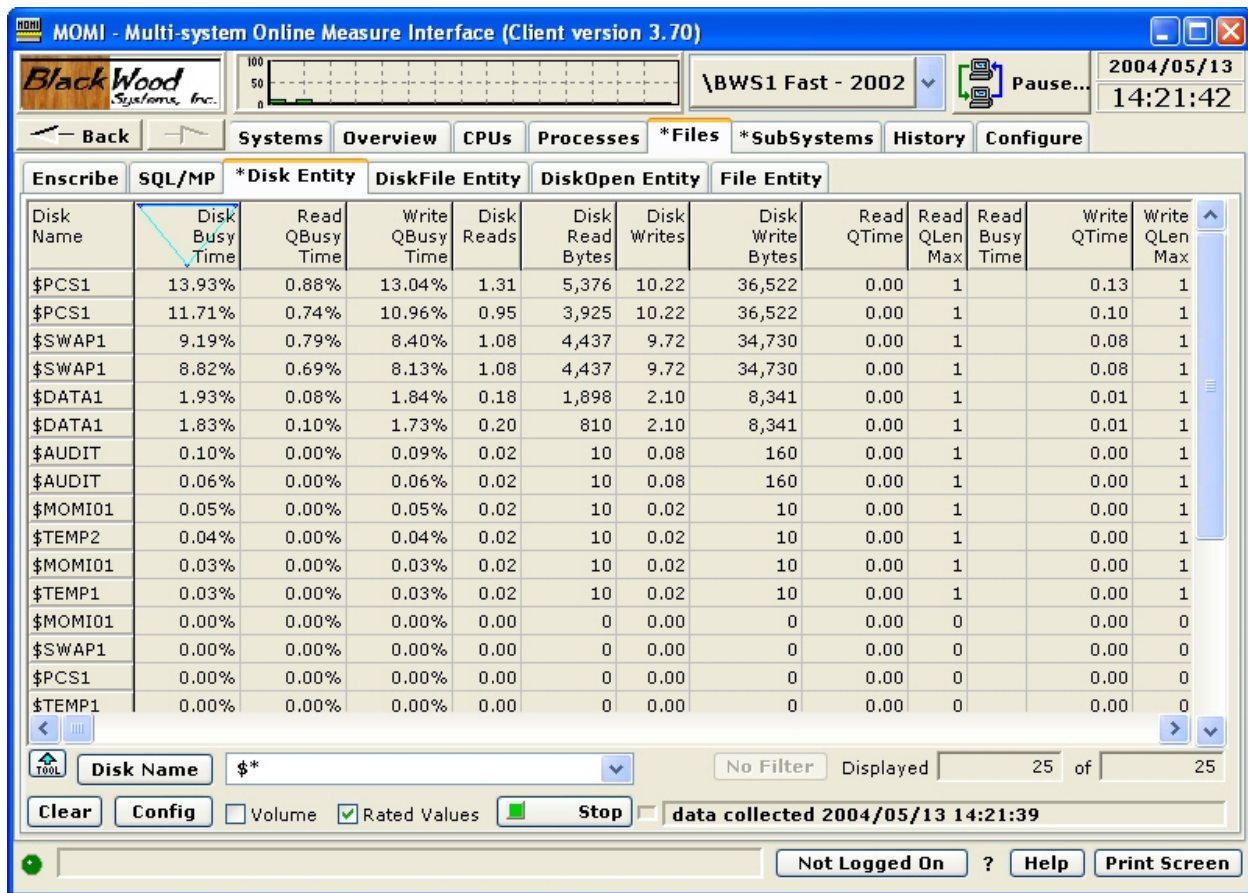
- cache_reads
- misses

Files / Disk Entity



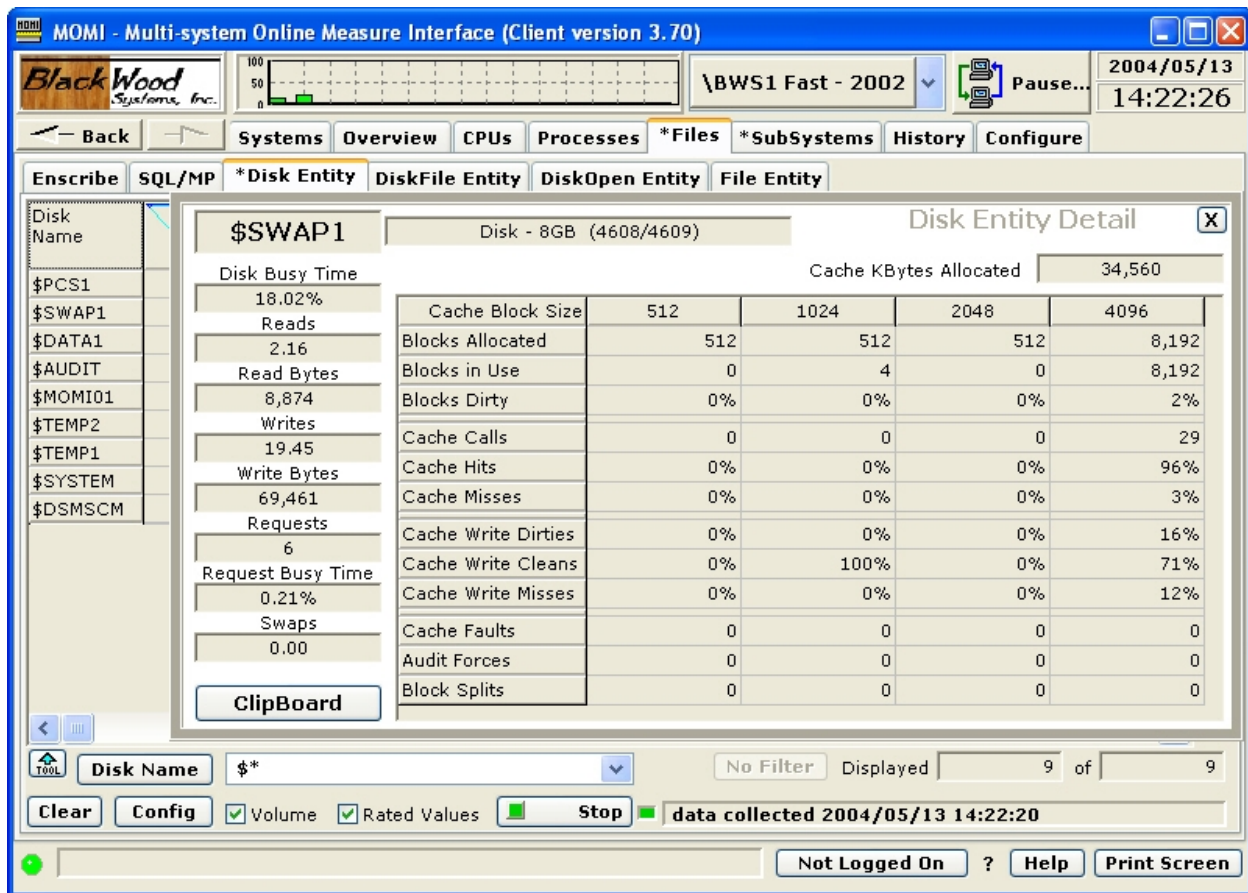
The Files / Disk Entity screen presents the MEASURE Disk Entity which reports statistics at a physical disk volume level.

The Disk Entity provides information on all four possible disk paths (primary, primary backup, mirror and mirror backup) for both the primary and mirror drive. By default, MOMI consolidates this information into a single line of performance information. The combining of this information can result in percentages of usually up to 200% when mirrored drives are present. For example, if the Write-QBusy-Time is 145%, this effectively means that 72.5% of the time of each disk ($145 / 2$) is being consumed. Uncheck the **Volume** selection to display information in the original or native format as seen below:



In the non-Volume view, the ServerNet Location (Group:Module:Slot) on newer platforms can be used to distinguish between primary and mirror drives.

Detailed disk cache information for a particular entry may be presented in a consolidated window by right-clicking on a disk name and selecting **View Disk Entity Detail** as seen below. MEASURE does not provide the same level of detail concerning cache as SCF (hence a few screen differences) and not all disk paths return cache information.



This is an approach to consider when diagnosing disk drive performance issues:

- Drill down starting at the volume level, working down sequentially through the DiskFile, DiskOpen and finally to the process level.
- Starting from the Disk Entity screen, click on a volume and select [DiskFile Entity](#) to see all of the active files on the disk.
- On an entry on the DiskFile Entity screen, click to select [DiskOpen Entity](#) which displays all of the processes accessing the file.
- On an entry on the DiskOpen screen, click on the Opener Process Name to view [Process Detail](#) of the opener process of that file (you can also click on the File Name to view the [File Entity](#) which provides different I/O counters).

Files / DiskFile Entity

see [System Quirks](#)

File Name	File Size (EOF)	File Type	File Code	Requests	Driver Input Calls	Driver Output Calls	Cache Read Hits	Cache Write Hits	Cache Write Cleans	Physical Reads	Physical Writes	Block Splits	DB Re
\$DAT17A.JENBNCH.VTSTORE	72,417,280	key-sequenced	1511	317.71	315.71	0.14	0.00	0.00	0.14	315.71	0.14	0.00	
\$DAT17A.JENBNCH.TRUSTSTR	266,042	unstructured	180	96.60	91.00	0.86	91.00	0.00	0.86	0.00	0.86	0.00	
\$DAT17A.JENBNCH.HOSTTOOL	8,706,944	unstructured	500	91.66	135.60	0.00	135.60	0.00	0.00	0.00	0.00	0.00	
\$DAT17A.SAFE.GUARD	0	key-sequenced	542	41.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
\$DAT17A.JENBNCH.ZZMEAS	1,691,688	unstructured	175	40.28	56.85	7.14	56.85	4.28	0.71	0.00	2.86	0.00	
\$DAT17A.JENBNCH.ETBDP712	2,100,000	unstructured	180	34.40	34.20	0.06	34.20	0.00	0.06	0.00	0.06	0.00	
\$DAT17A.JENBNCH.ETBDP713	2,100,000	unstructured	180	34.40	34.20	0.06	34.20	0.00	0.06	0.00	0.06	0.00	
\$DAT17A.JENBNCH.ETBDP710	2,100,000	unstructured	180	34.40	34.20	0.06	34.20	0.00	0.06	0.00	0.06	0.00	
\$DAT17A.JENBNCH.ETBDP711	2,100,000	unstructured	180	34.40	34.20	0.06	34.20	0.00	0.06	0.00	0.06	0.00	
\$DAT17A.JENBNCH.ZZMEAS	1,019,904	unstructured	175	16.50	0.00	38.00	0.00	26.50	1.50	0.00	11.50	0.00	
\$DAT17A.JENBNCH.ETBVC711	718,838	unstructured	180	11.93	11.73	0.06	11.73	0.00	0.06	0.00	0.06	0.00	
\$DAT17A.JENBNCH.ETBVC710	719,514	unstructured	180	11.93	11.73	0.06	11.73	0.00	0.06	0.00	0.06	0.00	
\$DAT17A.JENBNCH.ETBVC713	718,696	unstructured	180	11.93	11.73	0.06	11.73	0.00	0.06	0.00	0.06	0.00	
\$DAT17A.JENBNCH.ETBVC712	718,994	unstructured	180	11.93	11.73	0.06	11.73	0.00	0.06	0.00	0.06	0.00	
\$DAT17A.JENBNCH.ZZOUT090	6,158	unstructured	101	7.00	6.00	1.00	5.00	0.00	1.00	1.00	1.00	0.00	
\$DAT17A.JENBNCH.ZZOUT101	6,158	unstructured	101	7.00	6.00	1.00	5.00	0.00	1.00	1.00	1.00	0.00	
\$DAT17A.JENKINS.TACLCSTM	2,294	unstructured	101	5.13	2.93	0.73	2.93	0.00	0.73	0.00	0.73	0.00	
\$DAT17A.JENBNCH.VTSTRWRT	156,728	unstructured	500	4.20	4.40	0.06	4.40	0.00	0.06	0.00	0.06	0.00	
\$DAT17A.JENBNCH.ZZOUT021	874	unstructured	101	4.00	0.00	2.00	0.00	0.50	1.00	0.00	1.50	0.00	
\$DAT17A.JENBNCH.ZZOUT032	874	unstructured	101	4.00	0.00	2.00	0.00	0.50	1.00	0.00	1.50	0.00	
\$DAT17A.JENBNCH.ZZOUT010	874	unstructured	101	4.00	0.00	2.00	0.00	0.50	1.00	0.00	1.50	0.00	
\$DAT17A.JENBNCH.ZZOUT043	874	unstructured	101	4.00	0.00	2.00	0.00	0.50	1.00	0.00	1.50	0.00	

The Files / DiskFile Entity screen presents information about the MEASURE DiskFile entity.

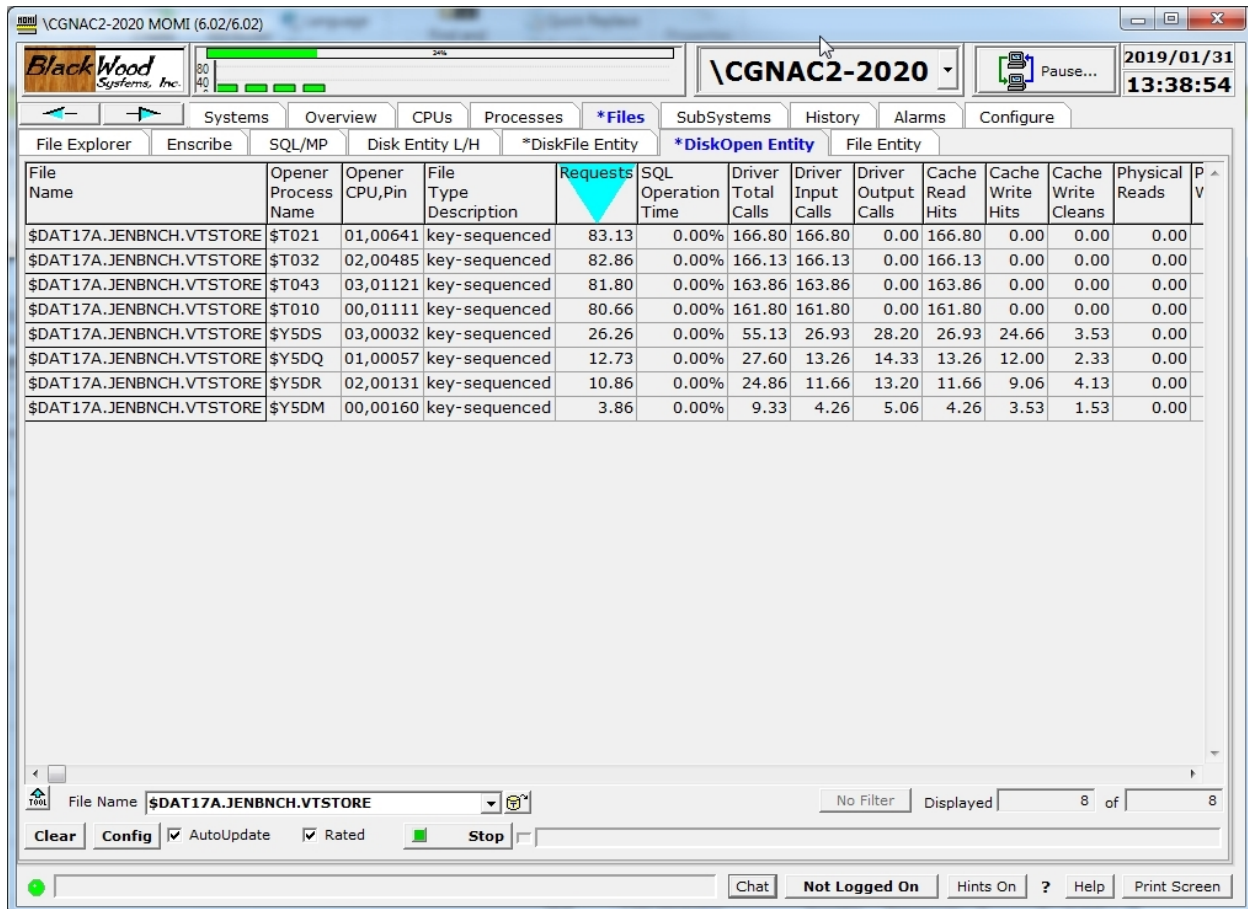
The MEASURE DiskFile entity displays one record for each open (or active) file on a disk volume. This entity can be considered the next level down from the Disk Entity.

This is an approach to consider when diagnosing disk drive performance issues:

- Drill down starting at the volume level, working down sequentially through the DiskFile, DiskOpen and finally to the process level.
- Starting from the Disk Entity screen, click on a volume and select [DiskFile Entity](#) to see all of the active files on the disk.

- On an entry on the DiskFile Entity screen, click to select [DiskOpen Entity](#) which displays all of the processes accessing the file.
- On an entry on the DiskOpen screen, click on the Opener Process Name to view [Process Detail](#) of the opener process of that file (you can also click on the File Name to view the [File Entity](#) which provides different I/O counters).

Files / DiskOpen Entity



The Files / DiskOpen Entity screen presents the MEASURE DiskOpen entity.

The MEASURE DiskOpen entity is I/O activity on a file from an opener process perspective. One line is present for every open to a file.

The MEASURE DiskOpen entity does not store the Opener Process Name, only the Opener CPU and Opener PIN. The Opener Process Name column is derived by looking up the current process name at the CPU & PIN currently running at that location.

This is an approach to consider when diagnosing disk drive performance issues:

- Drill down starting at the volume level, working down sequentially through the DiskFile, DiskOpen and finally to the process level.
- Starting from the Disk Entity screen, click on a volume and select [DiskFile Entity](#) to see all of the active files on the disk.

- On an entry on the DiskFile Entity screen, click to select [DiskOpen Entity](#) which displays all of the processes accessing the file.
- On an entry on the DiskOpen screen, click on the Opener Process Name to view [Process Detail](#) of the opener process of that file (you can also click on the File Name to view the [File Entity](#) which provides different I/O counters).

Files / File Entity

File Name	Opener Process Name	Opener CPU, Pin	Opener Program Name	File Busy Time	Avg Op Time	Opener File Nbr	File Type Description	Messages	Reads	Writes	Updates or Replies	Delete or Write
\$MOMI5.#MOMI	\$X0GH2	03,00548	\$DAT10B.MOMI5.BWMOMIX	0.00%	0.000085	6	unstructured	0.80	0.00	0.80	0.00	
\$MOMI5.#MOMI	\$X0GH1	02,00831	\$DAT10B.MOMI5.BWMOMIX	0.00%	0.000049	6	unstructured	0.85	0.00	0.85	0.00	
\$MOMI5.#MOMI	\$X0GGZ	00,01145	\$DAT10B.MOMI5.BWMOMIX	0.00%	0.000033	6	unstructured	0.95	0.00	0.95	0.00	
\$MOMI5.#MOMI	\$X0GH0	01,00739	\$DAT10B.MOMI5.BWMOMIX	0.01%	0.000165	6	unstructured	1.15	0.00	1.15	0.00	
\$MOMI5.#MOMI	\$X0H5A	03,00525	\$DAT10B.MOMI5.BWMOMIX	0.00%	0.000018	5	unstructured	0.10	0.00	0.00	0.00	

The Files / File Entity screen presents the MEASURE File Entity.

The MEASURE File entity is I/O activity on a file. A file is a communication path from one process to another and is **not** necessarily to a disk file. This entity is unique with its ability to track and report on all sorts of different I/O activity from inter-process, TCP/IP, OSS and process to disk.

The File entity is measured from the perspective of the opener. A process on a remote system opening a local file cannot be measured on the local system using this entity.

A local process opening a remote file can be measured locally. For example, if you are on system \BWS1 and want to see the file level activity across Expand, you would enter in the File Name field \BWS2.\$*.*.*.

SubSystems

Logs

EMS Msgs

The screenshot displays the BWS1-2004 MOMI (Client version 5.24) interface. The top bar shows the system name and version. Below this, a navigation menu includes tabs for Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. The main window is titled 'EMS Msgs' and contains a table of logged messages. The table has columns for Date/Time (LogLct), Process, System ID, Event, and Message. The messages are filtered to show 13 of 100 possible entries. The interface also includes a toolbar with buttons for Clear, Config, Export, Mini-Reports, and Resume, and a status bar at the bottom with buttons for Chat, Not Logged On, Hints On, Help, and Print Screen.

Date/Time (LogLct)	Process	System ID	Event	Message (13 of possible 100)
2008/07/08 14:03:04	\$Z1574	TANDEM.CLOCK.F40	102	System time reset
2008/07/08 14:03:04	\$Z1574	BWS.0.0	0	BWSSG -> SNTP: System time will be SET by MOMI forward 0.608772 seconds
2008/07/08 13:56:45	\$Z1570	BWS.0.0	200	BWMOMI -> Spooler \$S Collector - Percent full at 9% (over threshold of 1%)
2008/07/08 13:56:19	\$Z1570	BWS.0.0	200	BWMOMI -> Expand \$EP2BWS2 is DOWN
2008/07/08 13:55:45	\$MOMI4	BWS.0.0	200	BWMOMI -> Alarm processing resumed - time expired
2008/07/08 13:55:13	\$Z1570	BWS.0.0	200	BWMOMI -> Spooler \$S: All Alarms suspended
2008/07/08 13:55:13	\$Z1570	BWS.0.0	200	BWMOMI -> Expand \$EP2BWS2: All Alarms suspended
2008/07/08 13:55:13	\$MOMI4	BWS.0.0	200	BWMOMI -> Alarm processing

The EMS Msgs screen presents information logged to an EMS collector or from an EMS log file. Messages may be displayed from one or more collectors/log files, filtered on-the-fly and color coded based on content.

EMS messages provide a means for system and user programs to communicate and record significant events on the system.

To display current EMS messages from \$0, the primary system collector, press the **Request** button.

To view messages from an alternate EMS collector or to change other display options, press the **Config** button. In the pop-up window, enter or select the various fields. Press the right pointing arrow to add to the list and **Request with new options** when finished.

Request Display EMS configuration options

Collector or LogFile
\$0 - EMS LOG \$ [icon]

START date/time
Now 2012/02/03 14:29:59 [icon]

STOP date/time
[] Now 2012/02/03 14:59:59 [icon]

STOP message count
[] Message Count 10 [icon] Reset

Distributor Filter
<NONE> [icon]

Template file
<NONE> [icon]

Collector Lists
<NONE> Save Delete

Collector	Distributer Filter	Template File	Queued	Status

Request with new options

Close

Collector or LogFile determines which EMS collector or file to obtain information. The two buttons to the right display either a list of EMS collector processes or a disk file picker keyed to EMS log files (i.e. file code 843).

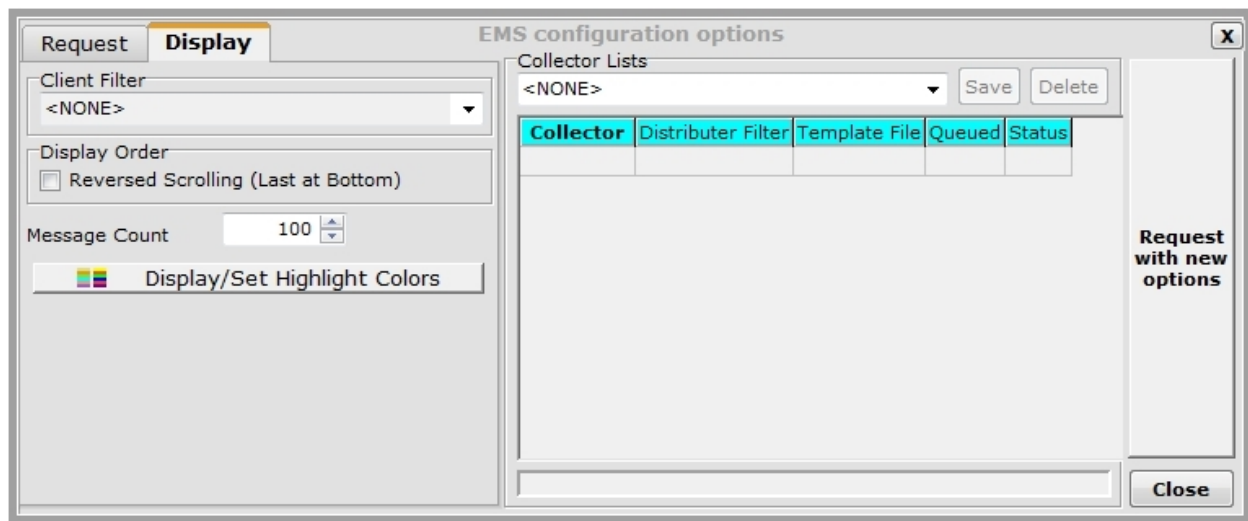
START date/time is the time location to begin retrieving records.

STOP date/time is the time location to stop retrieving records. By default records are read until End of File is reached.

STOP message count determines how many EMS messages are retrieved. The actual number of message returned may exceed this value somewhat due to internal optimizations.

Distributor Filter allows the use of a precompiled EMS filter. A pre-compiled filter is a very efficient means to limit information reported, based on the filter criteria, as this functions as a pre-filter at the distributor level and only provides to MOMI records with matching criteria. This filter is may be used in addition to on-the-fly or client based filtering described later.

Template file allows the definition of templates that are used when converting the EMS tokens to text. This is equivalent to specifying the TACL DEFINE =_EMS_TEMPLATES.

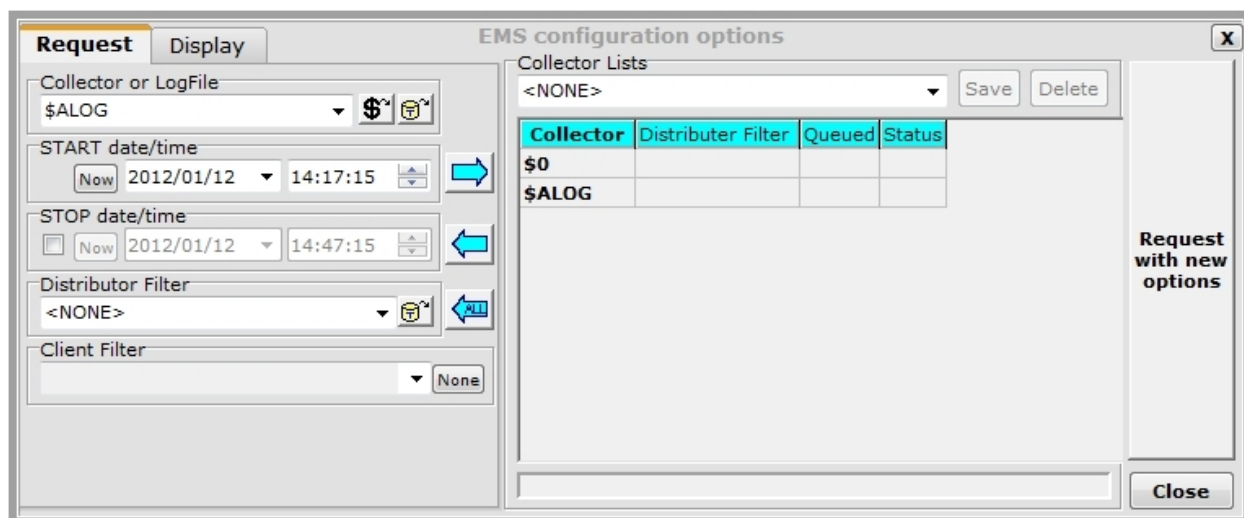


Client Filter allows the selection of a client based filter previously saved. The filter applies to all data displayed on this screen.

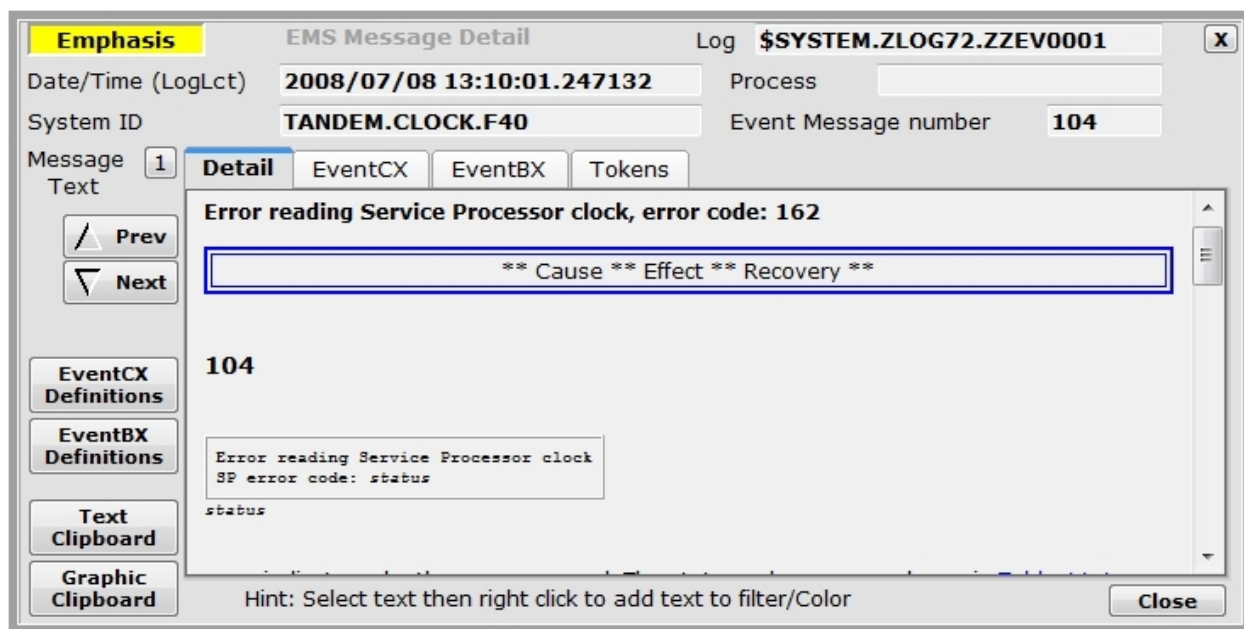
Display Order option of **Reversed Scrolling (Last to Bottom)** causes new messages to initially appear on the bottom of the grid and scroll up. By default, new messages appear at the top of the grid and scroll down.

Msg Count determine the maximum number of messages available in the scrollable window area. EMS collectors or EMS log files only provide records from a start time moving forward. No 'backward' ability is available. MOMI allows the user to determine how many EMS messages are loaded with the screen window and to scroll through these messages. When the number of message exceeds the Msg Count, the oldest message is discarded. When filtering messages, described later in this section, the action of **Filter** and **PreFilter** determine if messages are actually present in the screen buffer but hidden (**Filter**) or if messages are actually discarded when the filtering criteria is met (**PreFilter**). Turning a filter off (**No Filter**) causes hidden messages to appear.

Multiple EMS collectors or log files may also be selected. After entering or selecting an EMS collector or log file, press the right array button. The collector and any precompiled EMS filter, now appear in Collector Lists area. Add as many collectors/log files as desired. Press **Request with new options** to display EMS records from the entered collectors/log files. A single entry may be removed by clicking on it then pressing the left arrow. The left arrow labeled ALL clears the **Collector Lists** area.



Clicking on a displayed EMS message displays a pop-up window with additional information. The **Detail** tab contains the entire EMS message followed by Cause/Effect/Recovery information retrieved from the EVENTTX file (an HP supplied file located on the system).



The **EventCX** tab displays any user defined information associated with the EMS message from the HP defined file. See [EVENTCX](#) for additional information.

The screenshot shows the 'EMS Message Detail' window. At the top, the 'Emphasis' tab is highlighted. The window displays the following information:

- Log:** \$SYSTEM.ZLOG72.ZZEV0001
- Date/Time (LogLct):** 2008/07/08 13:10:01.247132
- Process:** (empty field)
- System ID:** TANDEM.CLOCK.F40
- Event Message number:** 104
- Message Text:** 1

The 'Detail' tab is selected, and within it, the 'EventCX' sub-tab is active. The main content area is empty. On the left side, there are buttons for 'Prev', 'Next', 'EventCX Definitions', 'EventBX Definitions', 'Text Clipboard', and 'Graphic Clipboard'. A 'Close' button is located at the bottom right.

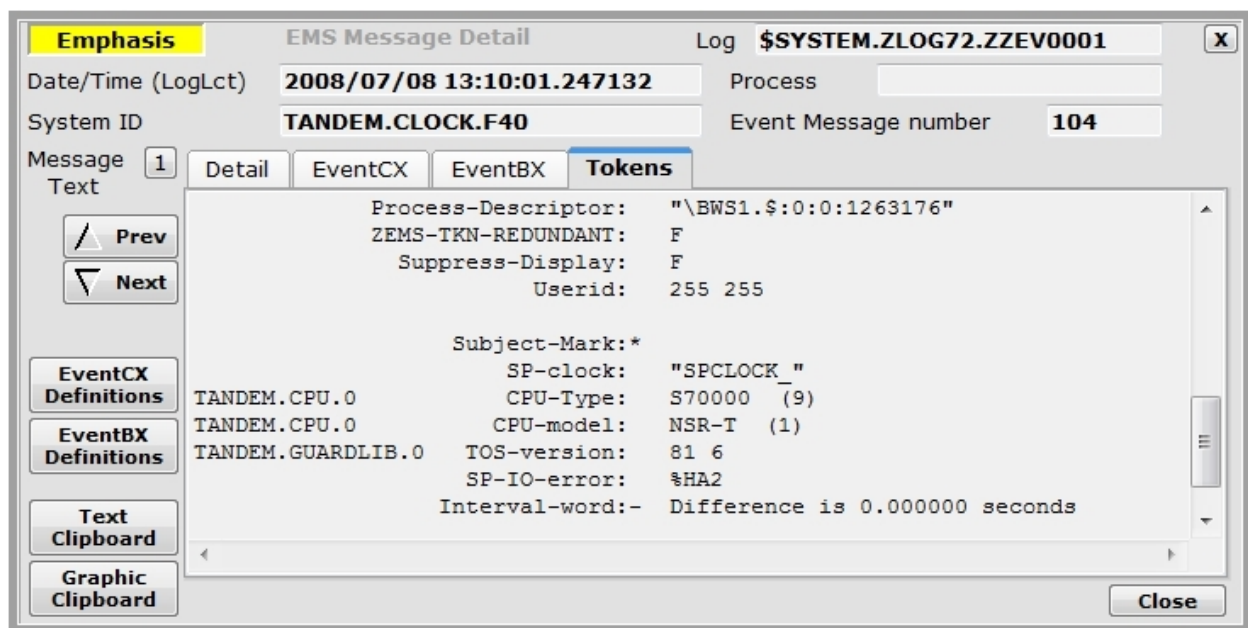
The **EventBX** tab contains any user defined information associated with the EMS message from a BlackWood defined area. See [EventBX / Define](#) for additional information.

This screenshot shows the same 'EMS Message Detail' window, but with the 'EventBX' sub-tab selected under the 'Detail' tab. The main content area contains the following information:

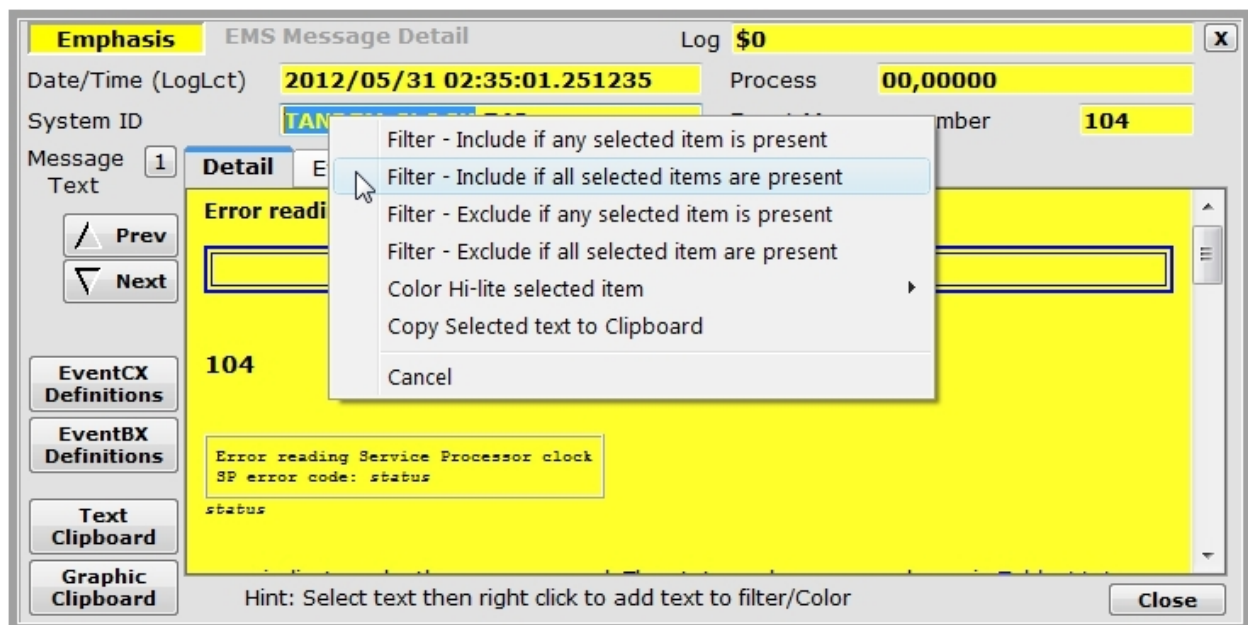
- CAUSE:** Cause. The operating system encountered an error when reading the Remote Maintenance Interface (RMI) clock while trying to reset the system time. Check the status code for the reason why the error occurred.
- EFFECT:** Effect. The system time is not automatically initialized. The RMI clock might have failed. *(my edit)*
- RECOVERY:** A single event does not require escalation. Email HP Systems on multiple events. Escalate to HP Systems if the event is received on a recurring hourly intervals - 2 or more hours.

The left sidebar and 'Close' button remain the same as in the previous screenshot.

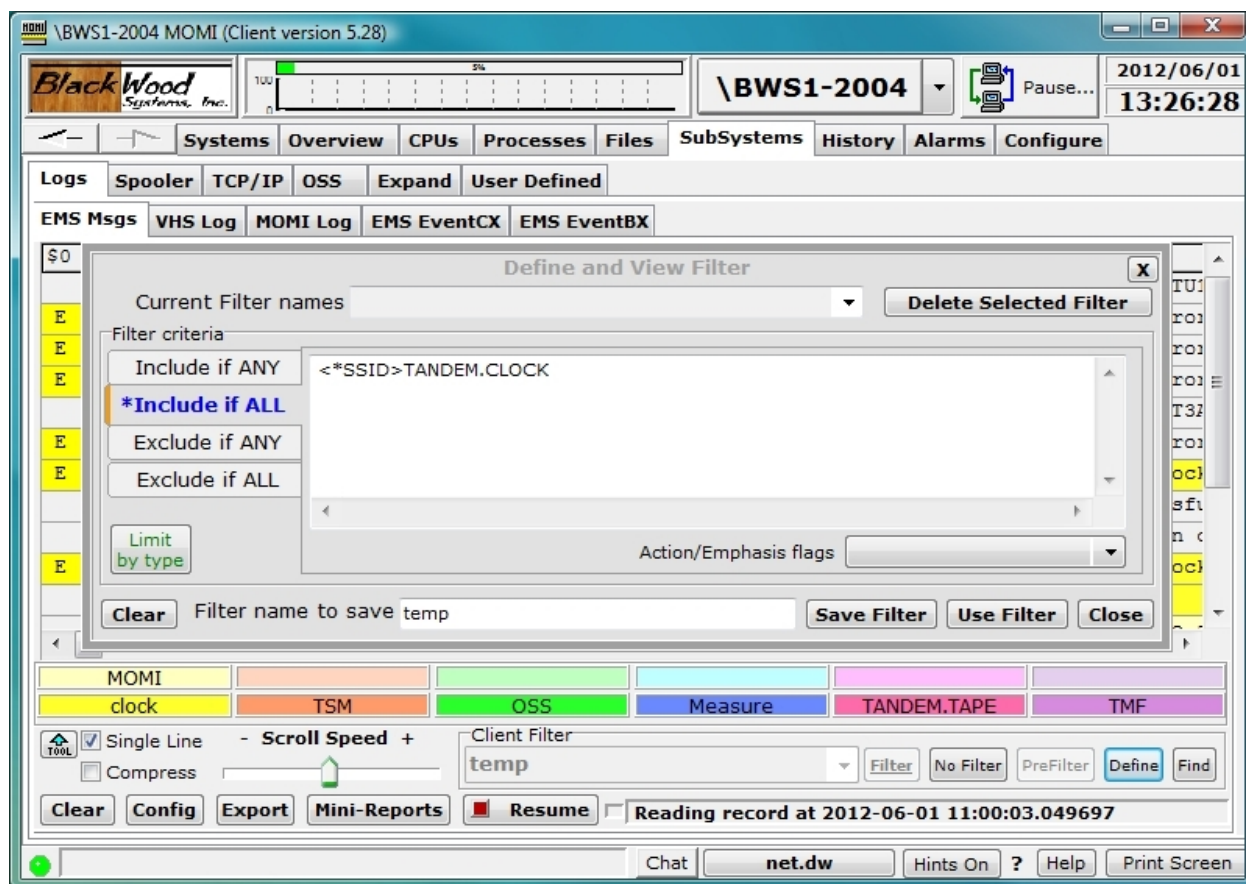
The **Tokens** tab contains all of the EMS tokens within the EMS message. EMS messages may contain additional tokens that are not displayed in the template that formats the text output located under the **Detail** tab.



Displayed messages may be easily filtered "on-the-fly" to remove unneeded messages or only display particular messages. This is accomplished by clicking on a message to bring it up in detail (you might need to **Pause** the screen), highlight the text (left-click and hold then drag mouse over the desired text) and then right-click over the highlighted text. A menu selection provides filtering to include the item or exclude it. *Note: Highlighting text then placing the mouse over it does not change the mouse pointer to a hand cursor.*



Filters constructed on-the-fly may be saved for later reuse. Press the **Define** button to display all of the current filter criteria. Saved filters may be viewed, edited, selected or deleted. Fields searched within the EMS message may be limited by the **Limit by type** button. In the sample image TANDEM.CLOCK is only searched in the SSID portion of the EMS message. If no limit is specified, the search is through the entire EMS message.

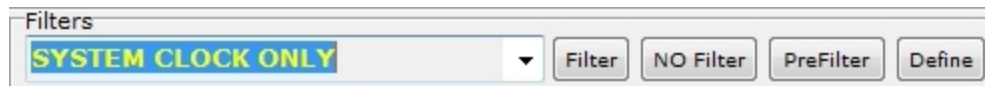


Saved filters may be selected from a drop-down box in the **Client Filter** area (or on the **Config** pop-up window). Once a filter is selected, the **Filter**, **No Filter** and **PreFilter** buttons are available.

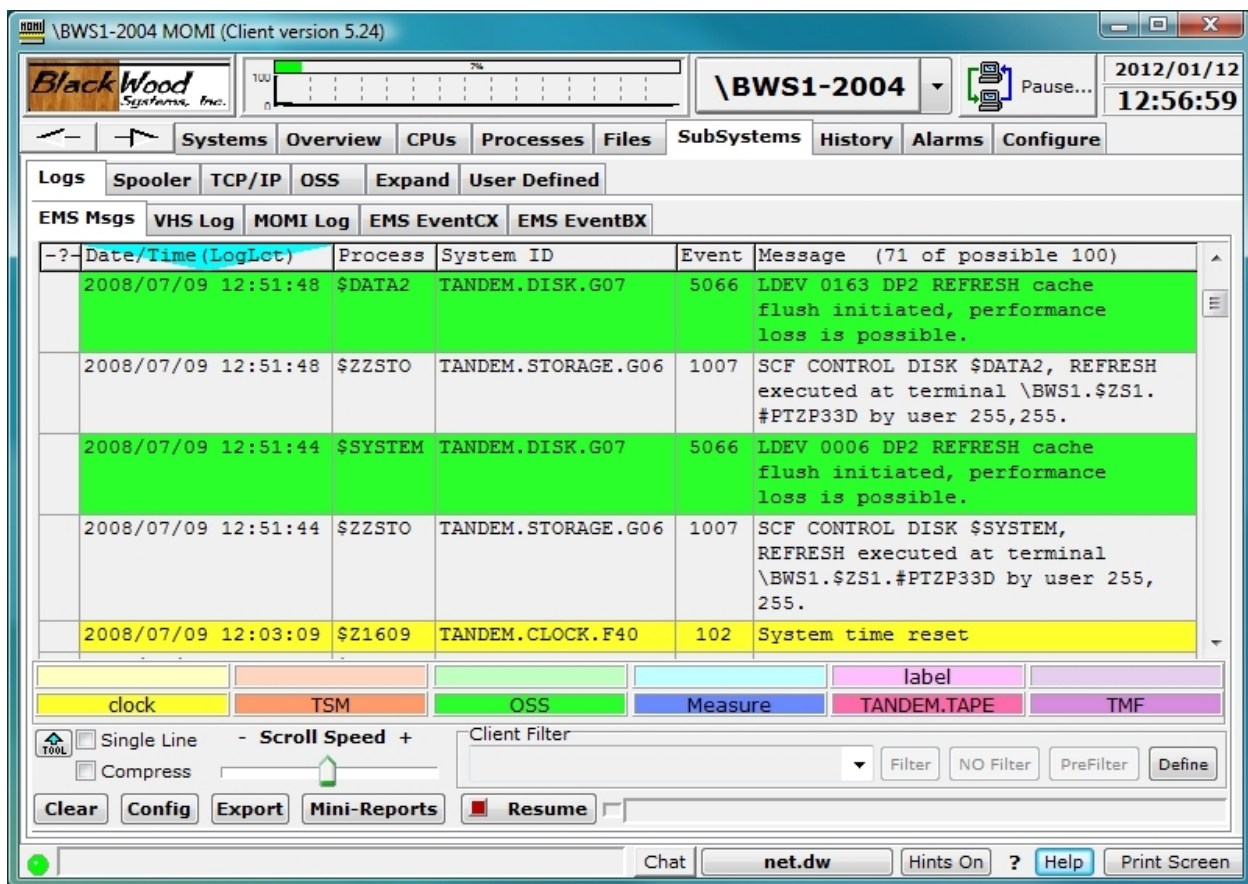
The **Filter** button enables logic that alters only the display of the EMS messages with matching criteria. The messages are stored within memory and may be redisplayed by pressing the **No Filter** button. EMS messages are stored until the screen queue is filled and then the oldest message is discarded to make room for the newest.

The **PreFilter** button enables logic that discards any EMS message with matching criteria. Discarding the record means it is not stored in memory and pressing the **No Filter** button does not alter the messages currently displayed.

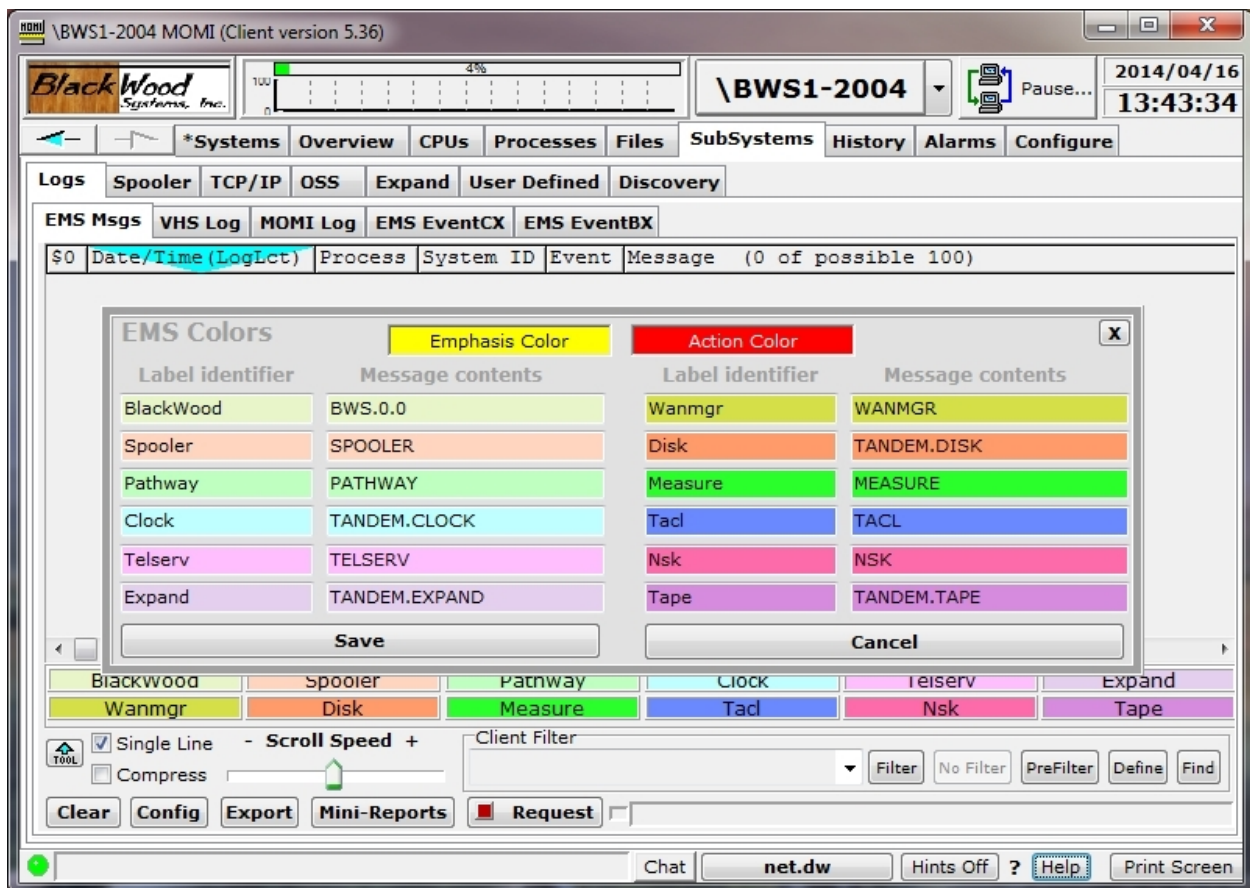
The Find button allows



Messages may be color highlighted based on their content.



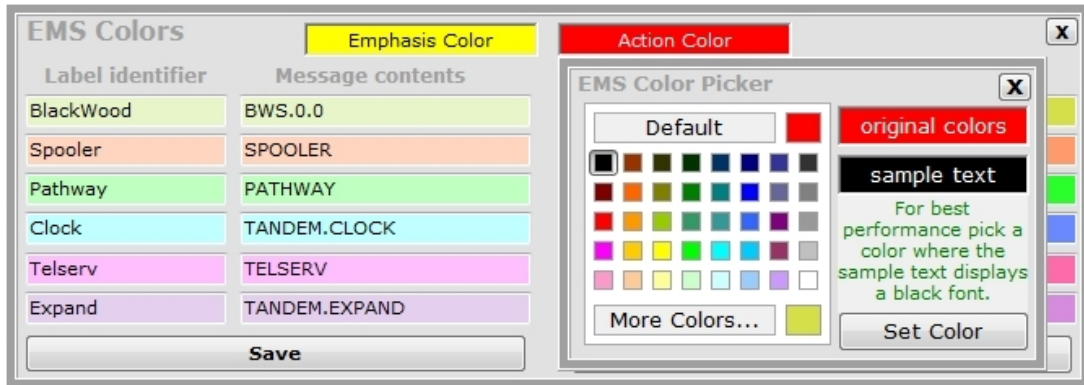
To activate this feature, right click on the color guides near the bottom of the window and select **Display/Change Color Sections...** Enter the label text and message content text that should cause that color to be displayed. By default, the entered text is considered "one string" for comparison purposes. Multiple strings may be entered by separating them with a | (i.e. vertical bar) character. Enclose the entered text in quotes (i.e. " ") to retain leading and/or trailing spaces. Press **Save** when complete.



The scanning of text for color determination stops after the first match and is performed in the following order (also the default colors):

light yellow
light orange
light green
light blue
light red
light purple
bright yellow
bright orange
bright green
bright blue
bright red
bright purple

The colors used on this screen may also be altered. Right-click on the color choose **Set Color** to display a color picker. **More Colors...** displayed an extended color selector.



The **Mini-Reports** button displays a pop-up to provide a quick summary of counts by different criteria. The totals are computed based on the messages currently displayed and in the message buffer (i.e. these are the messages you can scroll up/down and see on the screen).

EMS Mini-Reports						
<div> <div>By Owner</div> <div>By SubSystem</div> <div>By Event Number</div> <div>By Process Name</div> <div>By Severity</div> <div>By Color</div> <div>By Collector</div> </div>						
Owner	SubSys	Event	Count	%	% of Total (23)	
TANDEM	OSM	1108	4	17%	<div></div>	
TANDEM	TELSERV	2	3	13%	<div></div>	
BWS	0	0	3	13%	<div></div>	
TANDEM	CLOCK	107	3	13%	<div></div>	
TANDEM	OSM	1101	3	13%	<div></div>	
TANDEM	OSM	1102	2	8%	<div></div>	
TANDEM	EMS	520	1	4%	<div></div>	
TANDEM	EMS	514	1	4%	<div></div>	
TANDEM	CLOCK	104	1	4%	<div></div>	

VHS Log

The screenshot shows the VHS Log screen in the MOMI client. The window title is '\BWS1-2004 MOMI (Client version 5.16)'. The interface includes a top menu bar with options like Back, Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. Below this is a sub-menu bar with Logs, Spooler, TCP/IP, OSS, Expand, and User Defined. The main display area shows a table of log messages with columns for Msg Date/Time, FName, Cpu.Pin, and Text. The table contains several entries, including file creation, volume information, system details, and command execution. At the bottom, there are controls for scroll speed and direction, a filter input, and buttons for Clear, Config, Export, and Resume. The status bar at the very bottom shows 'net.dw', 'Hints On', and 'Print Screen'.

Msg Date/Time	FName	Cpu.Pin	Text
2007/03/07 15:03:03	0,466		Save file created: \BWS1.\$DATA1.VHSDUMP.SAVE0059
2007/03/07 15:03:03	0,466		001,0,466-SAVE \BWS1.\$DATA1.VHSDUMP.SAVE0059;LOW;D;T;S
2007/03/07 15:03:02	0,466		VOLUME \$DATA1.DALE
2007/03/07 15:03:02	0,466		SYSTYPE GUARDIAN
2007/03/07 15:03:02	0,466		SYSTEM
2007/03/07 15:03:02	0,466		SOURCE SYSTEM
2007/03/07 15:03:02	0,466		SCOPE TDS^MAIN(0)
2007/03/07 15:03:02	0,466		PROGRAM BWMOMI
2007/03/07 15:03:02	0,466		LOG (Logging turned off)
2007/03/07 15:03:02	0,466		LANGUAGE TAL
2007/03/07 15:03:02	0,466		DIRECTORY /G/DATA1/DALE
2007/03/07 15:03:02	0,466		001,0,466-HIGH;ENV
2007/03/07 15:03:02	\$Z41T	00,00495	-BWMOMI-INSPECT ONCE FILE \$SYSTEM.SYSTEM.INSPECT;HIGH;SET PROMPT P P,L
2007/03/07 15:03:02	\$Z41T	00,00495	Executing command file \$DATA1.DALE.INSPECSTM
2007/03/07 15:03:02	\$Z41T	00,00495	001,00,00466 BWMOMI #TDS^MAIN.#2920 (TDS01HT)

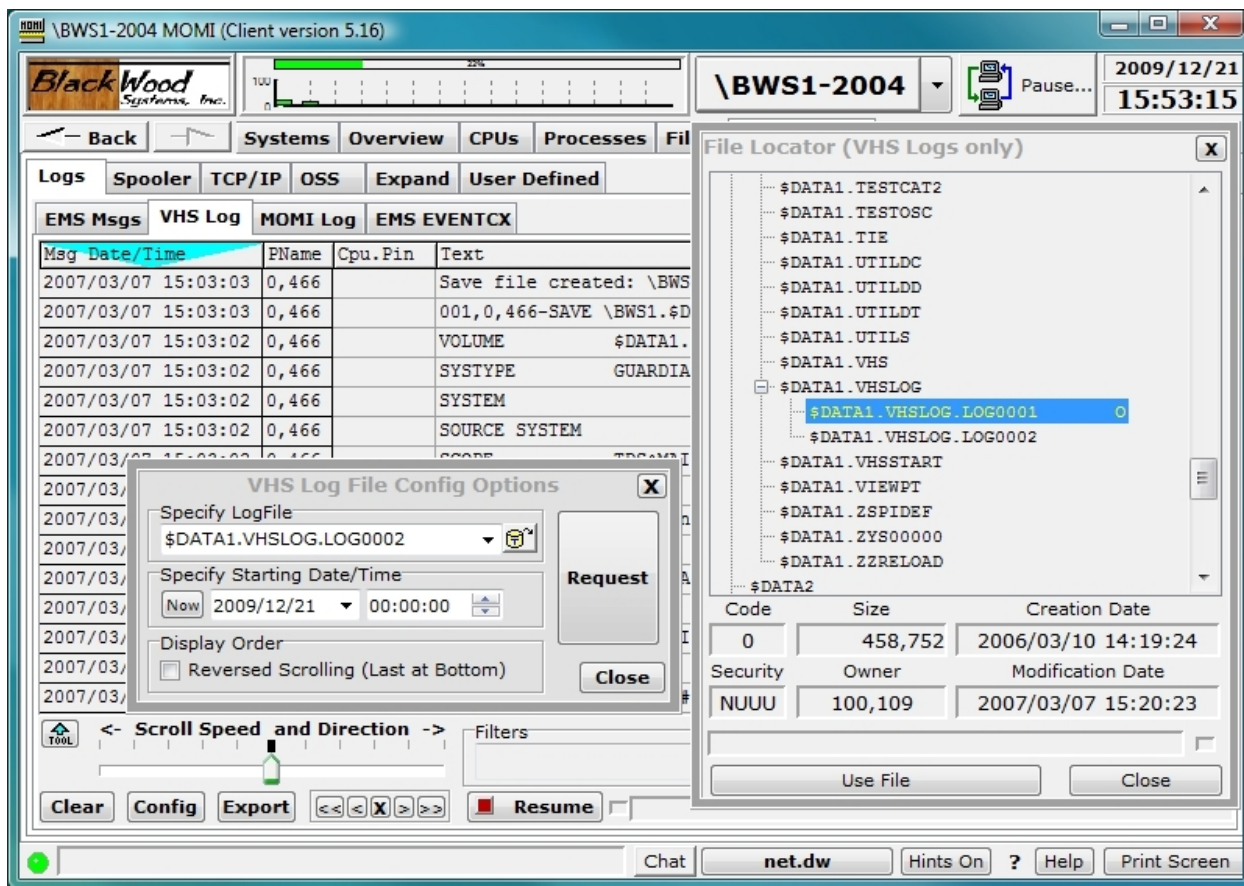
The VHS Log screen presents information collected by a VHS process.

VHS, or the Virtual Hometerm Subsystem, provides a stable location for processes to log message usually related to a problem or status update. Messages received by VHS are logged to a file which may be viewed on this screen. If the screen is going forward in time and reaches the end of file, new messages are automatically displayed shortly after they are written. However, if VHS switches to a new log file, the screen will stop displaying new messages. The user must manually select a new log file in order to continue viewing new messages.

The log file used by VHS does not have a unique file code assigned by default, so It is necessary to logon to MOMI and have the necessary security to view a VHS Log.

To start viewing VHS Log files, press the Config button and Specify a log file. To aid in selecting a log file, press the locator button to display the File Locator pop-up window. Unfortunately, MOMI cannot automatically determine the active LogFile since VHS does

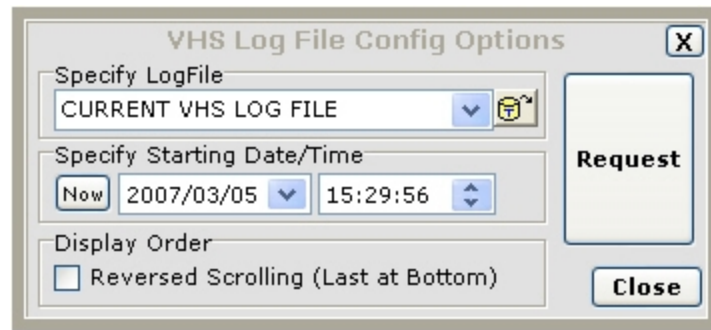
not provide such a mechanism. However, using the File Locator, *usually* the file with the highest sequence number is the current file.



Once a file is selected, you may scroll continuously at different speeds with the slider, forward or back one line at a time <>, 10 lines at a time <<>> or stop X.

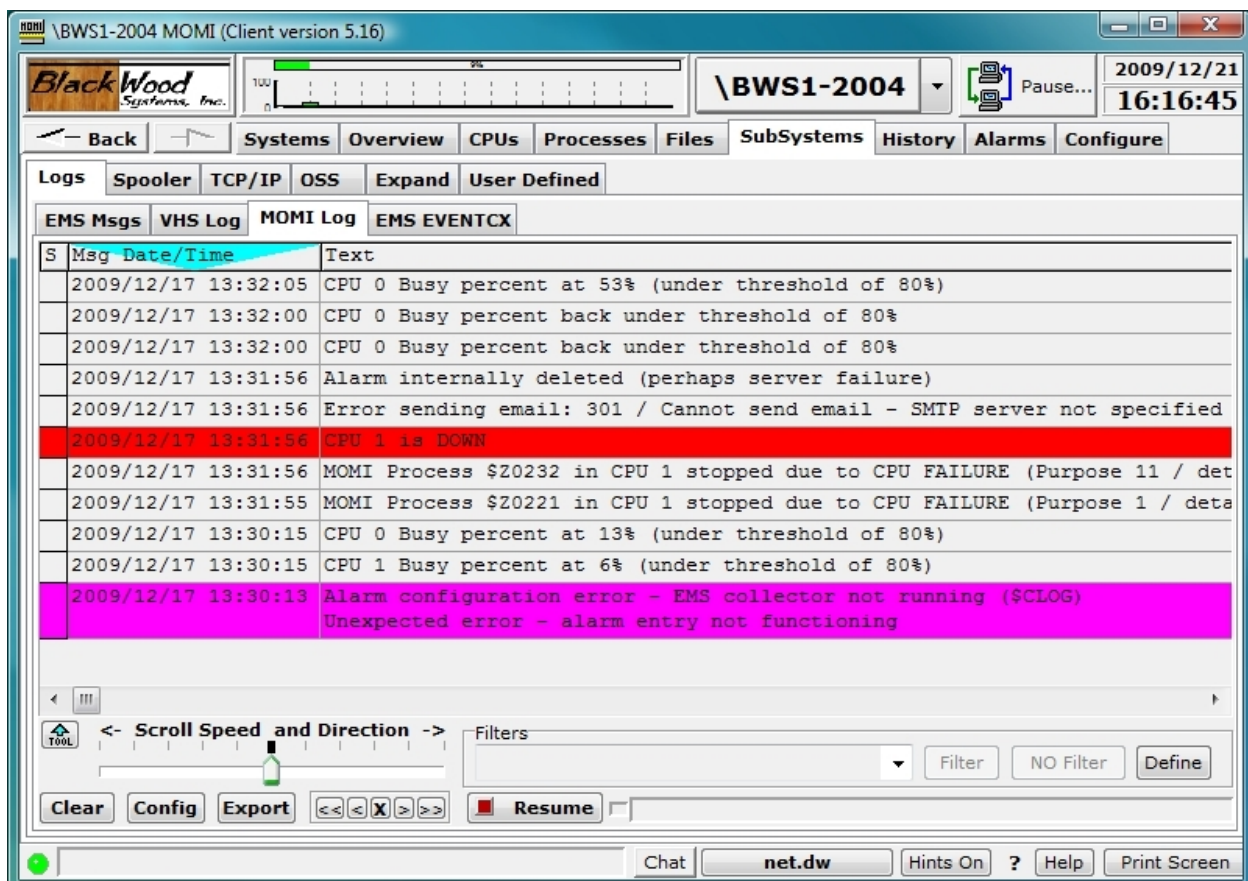


A default location where the File Locator drills-down to may be set with the CONFMOMI keyword [SELECTION-DEFAULT-VHS](#). This keyword provides two functions. First, the File Locator automatically drills down to the subvolume specified (the File Locator may display files other than VHS log files). Second, the special name of "CURRENT VHS LOG FILE" appears and will automatically select the current VHS Log file based on modification date. The automatic selection only occurs when **Request** is pressed.



After selecting the log file, press **Request**. Use the scroll bar to move forward and backward in time through the file.

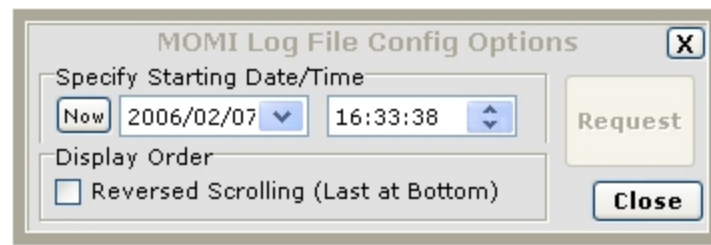
MOMI Log



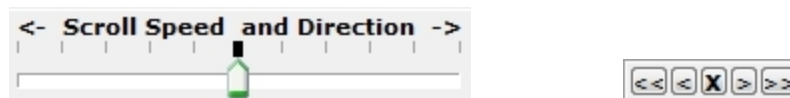
The MOMI Log screen displays records from the MOMI log file, provides an export capability and the definition of an export script. Records in this file are specific to MOMI.

Pressing the Request button, when the screen is clear, causes the client to read and display the last or most recent records in the file. The client then goes into a mode where new records are automatically displayed. Once data is display, used the slider to scroll forward and backward in time through the file.

The Config button is used to configure the starting location for record retrieval.



Once a starting time is selected, you may scroll continuously at different speeds with the slider, forward or back one line at a time <>, 10 lines at a time <<>> or stop X.



The Report/Export button is used to generate a report, export records or create an export script. To create a report or export data, first select report/export. Second, select a single day or multiple days. Third, select to report on all records or on specific Alarm records. Press Create Report... to begin generation (a pop-up window is displayed to select the Report/Export file name and location).

The screenshot shows a dialog box titled "MOMI LogFile Report/Export" with a close button (X) in the top right corner. The dialog is divided into three sections:

- 1st select Export Data or Create Report**: Contains two radio buttons: "Create Report" (selected) and "Export Data".
- 2nd select date and times**: Contains a "Single Day" section with three radio buttons: "Today", "Yesterday" (selected), and "Multiple Days". To the right of these are two time selection boxes: "Start Time" (set to 00:00:00) and "Stop Time" (set to 23:59:59). Below the "Yesterday" radio button is a date dropdown menu showing "2007/02/16".
- 3rd set Selection**: Contains three radio buttons: "All Items" (selected), "Alarms Only", and "Selected Items".

At the bottom of the dialog, there are four buttons: "Clear", "Create Report...", "Create Export Script ...", and "Close".

The Create Export Script button provides a means to define a script to define an export operation launched via the MOMI PC client run-time parameter [SCRIPT-LOG](#). A script is defined and saved prior to referencing it via the run-time parameter. To place the current date within the Export File Name, in YYYYMMDD format, insert the field <date> (see the tool-tip over this field for an example).

Export Script Creation X

Current Script names Delete Selected Script Clear

Script Definition

System to Export
\BWS1-2004 Set by Current Monitored System **Execute Script**

Export Date and Time

☐ Today ☐ This Week ☐ This Month
☒ Yesterday ☐ Last Week ☐ Last Month

Start Time
00:00:00
Stop Time
23:59:59

Export Data Type

☒ All Items
☐ Alarms Only
☐ Selected Items

Settings
☒ Tab-Delimited
☐ HTML Ouptut

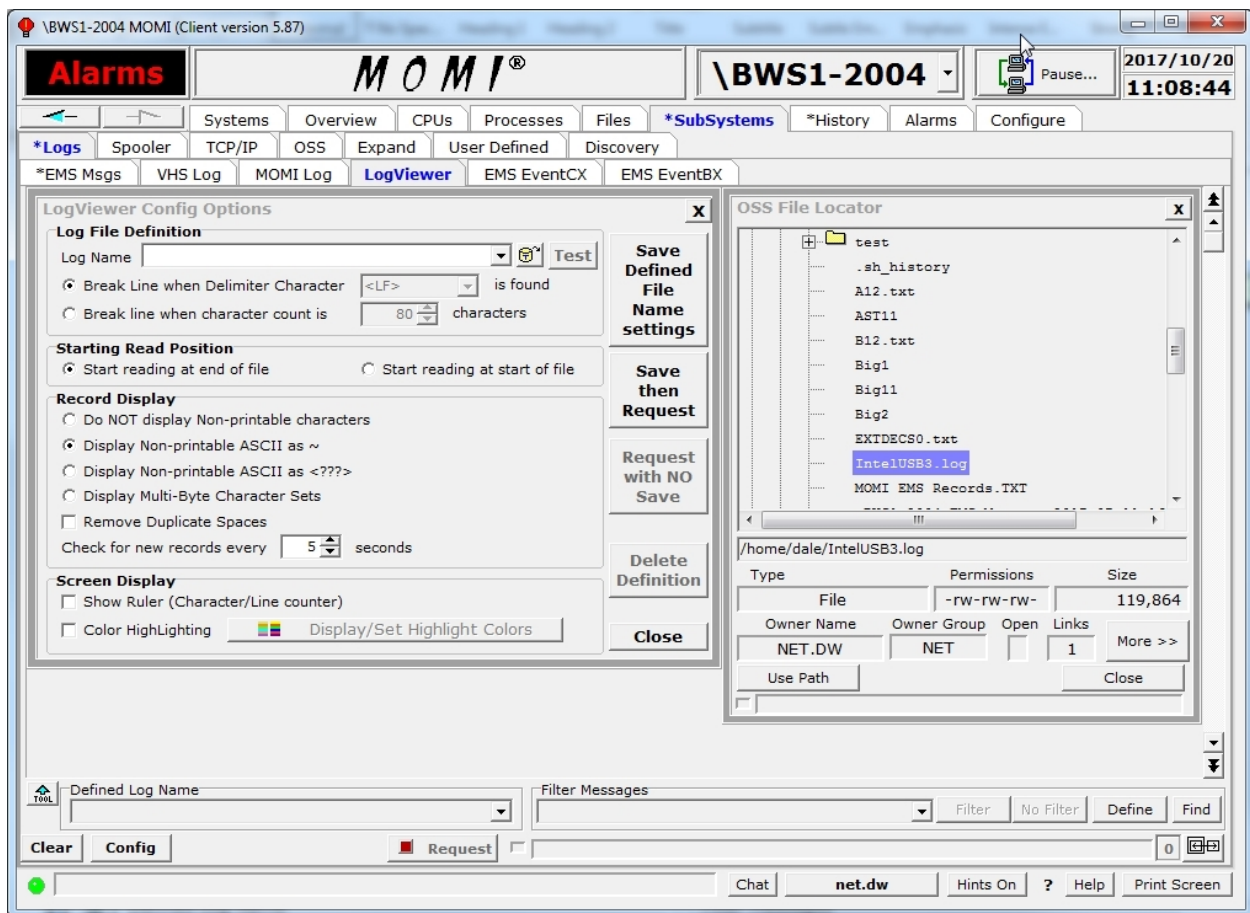
Export File Name (including Directory)
C:\Documents and Settings\dwood\Desktop\ExportFileName.txt 📁

Name of Script to save TempScript **Save Script** Close

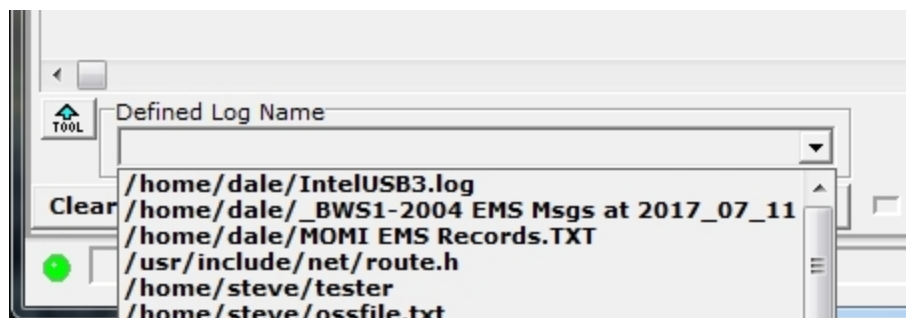
See [LOG01DB](#) for additional information.

The screenshot shows the BWS1-2004 MOMI (Client version 5.85) application. The main window has a menu bar with 'File', 'Edit', 'View', 'Tools', 'Help', and 'Window'. Below the menu bar is a toolbar with icons for 'New', 'Open', 'Save', 'Print', 'Find', 'Copy', 'Paste', 'Undo', 'Redo', 'Zoom In', 'Zoom Out', 'Full Screen', and 'Exit'. The main window is divided into several panes. The top pane shows the 'Systems' tab selected, displaying a list of systems with columns for 'Name', 'Status', 'CPU', 'Memory', 'Disk', and 'Network'. The 'BWS1-2004' system is selected. The middle pane shows the 'Log Viewer' tab, displaying a log of events. The bottom pane shows the 'Filter Messages' dialog box, which is currently empty. The status bar at the bottom displays 'Waiting for new records', '0', and 'Print Screen'.

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Using the screen for the first time, push the **Config** button. A pop-up options window displays. Next push the file locator button (round disk with T and arrow to the right of **File Name**). Navigate to the desired file and push **Use Path** to load the **File Name** field. The **Starting Read Position** section determines reading from the end of the file or the beginning. The **Record Display** section determines how unprintable characters are handled and frequency of checking for new data once end of file is reached. The **Screen Display** area allows display a ruler at the top of the window area and enabling of text color highlighting based on message content. Once options are set and push **Save then Request** to start data display.



After files are defined, they may be easily reused by pressing the drop-down arrow on the **Defined Log Name** box.

EMS EVENTCX

The screenshot shows the MOMI EMS EVENTCX interface. The window title is "\\BWS1-2004 MOMI (Client version 5.87)". The top bar includes "Alarms", "MOMI", and "\\BWS1-2004". The navigation bar has tabs for Systems, Overview, CPUs, Processes, Files, SubSystems (selected), History, Alarms, and Configure. Below this is a sub-menu bar with Logs, Spooler, TCP/IP, OSS, Expand, User Defined, and Discovery. The main area has tabs for EMS Msgs, VHS Log, MOMI Log, LogViewer, EMS EventCX (selected), and EMS EventBX. Fields for Owner (TANDEM), SubSystem (3), and Event Nbr (1) are present. Two text areas for "User Defined Probable Cause" and "User Defined Recommended Action" are shown. At the bottom are buttons for Prev, Next, Clear, Display, Save New, Change, and Delete. A status bar at the very bottom contains Chat, net.dw, Hints On, Help, and Print Screen.

The EMS EVENTCX screen allows the creation, display and maintenance of records in the EVENTCX file. This file is defined by Viewpt.

The EVENTCX file allows a user defined probable cause and recommended action for EMS events. An EMS message displayed in detail will add the content of this record if a matching Owner, SubSystem and Event Number is found.

The field layout of this file is not really 'user friendly' as it stores the SubSystem number and not the SubSystem name. For example, Tandem.8 is the equivalent of Tandem.Pathway. MOMI attempts to help in this area as it will automatically convert a SubSystem name into the SubSystem number if it is valid for that Owner. It is necessary

that EMS Templates be present (which is built-in for Tandem subsystems) for this conversion to occur.

The screen provides navigation through the file in that the **Prev** and **Next** buttons allow scrolling forward and backwards through the file. Pressing **Next** with a blank screen displays the first record in the file. Pressing **Prev** with a blank screen displays the last record in the file.

See the CONFMOMI keyword [EVENTCX](#) for additional information.

EMS EventBX

EMS EventBX / Define

The screenshot displays the 'EMS EventBX / Define' window. At the top, the title bar reads '\BWS1-2004 MOMI (Client version 5.29)'. Below the title bar is a toolbar with icons for navigation and a status bar showing the date '2012/08/24' and time '14:36:19'. The main menu includes 'Systems', 'Overview', 'CPUs', 'Processes', 'Files', 'SubSystems', 'History', 'Alarms', and 'Configure'. The 'SubSystems' menu is open, showing 'EMS Msgs', 'VHS Log', 'MOMI Log', 'EMS EventCX', and 'EMS EventBX'. The 'Define' tab is selected, and the 'List-Import-Export' sub-tab is active. The form contains the following fields and sections:

- Owner:** TANDEM
- SubSystem:** ZTC6
- Event Nbr:** 25
- Last Update:** 2012/08/24 14:33:40
- Buttons:** Reset, Copy, Cut, Paste, Undo, Verdana (font), 10 (size), N, B, I, U, A (bold), Find
- CAUSE:** An IP address was resolved with an Ethernet/MAC address.
- EFFECT:** This is an informational event that occurs when an IP address is resolved with a MAC address. No other effect should occur in the PTCPIP subsystem. This event is usually observed when the subnets are first configured and brought up. If this event happens continuously, report the incident to your service provider.
- RECOVERY:** Prod: if we are inundated with them they are very important and Ops should contact both HP Systems and the Network folks. However, an occasional small set of these (usually one per processor, there are 10 processors on PR1,), is normal and not an issue.
- Navigation Buttons:** Prev, Next, Clear, Display, Save New, Change, Delete

The bottom of the window features a status bar with 'Chat', 'net.dw', 'Hints On', '?', 'Help', and 'Print Screen' buttons.

The EMS EventBX / Define screen provides for the definition and maintenance of user supplied information associated with an EMS message. The information is keyed by an EMS SSID (also known as the Owner.Subsystem & event number).

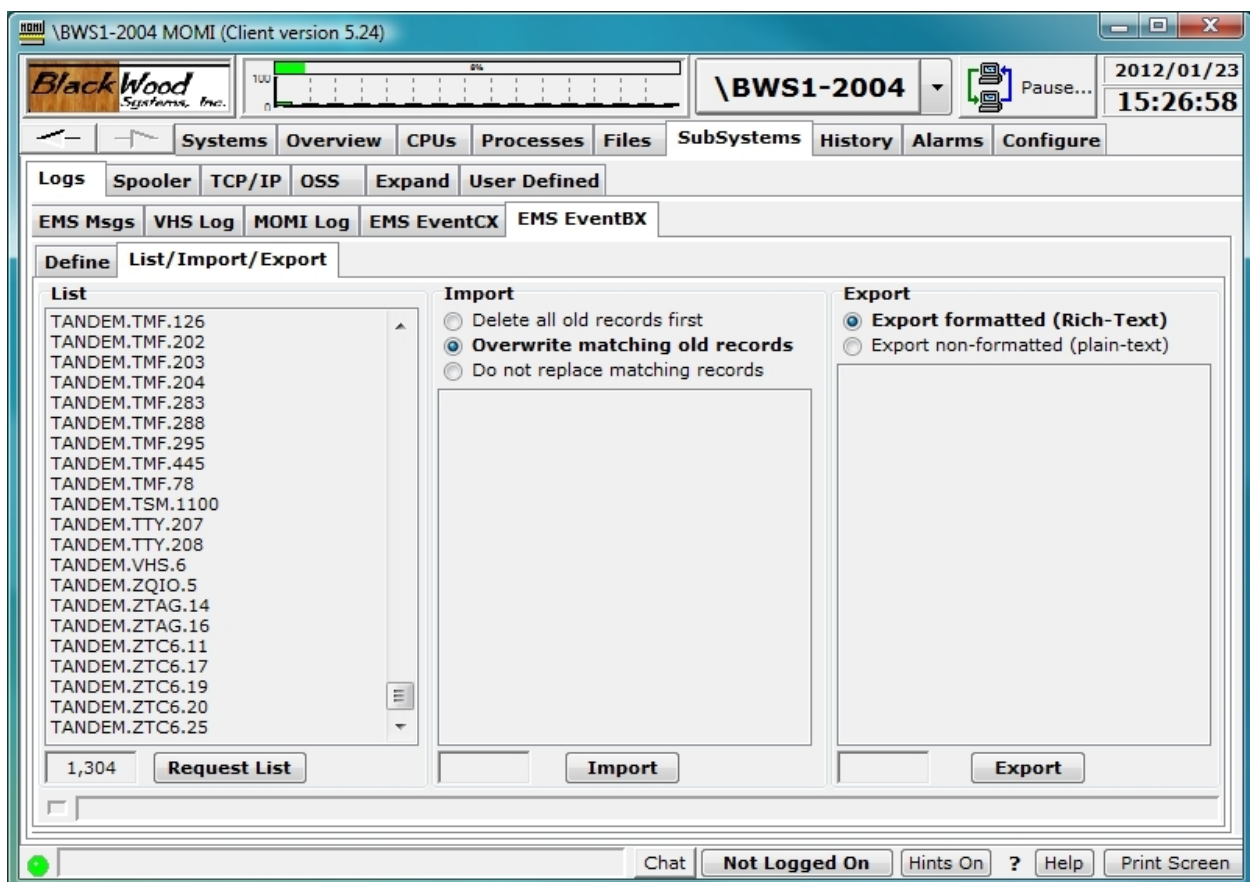
Information entered here is available on the [EMS Msgs](#) detail screen and could be considered a super-set of the EventCX file functionality.

EMS records by themselves may not contain enough information for an operator or system administrator to determine an action. This screen provides a method for storing additional details and/or actions associated with an EMS message. The information entered here is free form and virtually unlimited in size.

To use the feature, enter the EMS **Owner**, **SubSystem** and **Event Nbr**. Enter the desired text and press **Save New**. Existing entries may be alter or deleted.

The tool bar across of the text entry area is used to format text such as selecting different fonts or choosing bold, underline and italic to selected text. Information may also be copied and pasted from external sources.

EMS EventBX / List-Import-Export



The EMS EventBX / List-Import-Export screen provides for 1) a list definitions, 2) import of definitions and 3) export of the definitions.

A list of current definitions displaying the Owner.SubSystem.Event Nbr is obtained by pushing **Request List**. Clicking an item in the list jumps to the [Define](#) screen and displays the record.

Existing information may be exported. The Rich-Text format is internal to MOMI and used to move data from one MOMI environment to another. The plain-text format is a simple open format.

To move EventBX data from one MOMI environment to another. Under Export, select Export formatted (Rich-Text) to create a file. Connect to another MOMI environment and then select Import. Options are provided to completely replace any existing definitions, just overwrite existing definitions (which leaves existing non-matching data alone) or don't replace any existing definitions. Note that the exact same MOMI PC Client version must be used for both export and import.

Export non-formatted records creates an ASCII text file using one line per record with the following format:

Owner <ETB> **SubSystem** <ETB> **Event Nbr** <ETB> **Text** <CRLF>

Where -

Owner is the overall creator of the record (i.e. Tandem, BWS, etc...)

SubSystem is the particular group of software generating the record (i.e. Pathway, Storage, etc...)

Event Nbr is the particular message being generated

Text is the line-by-line of information

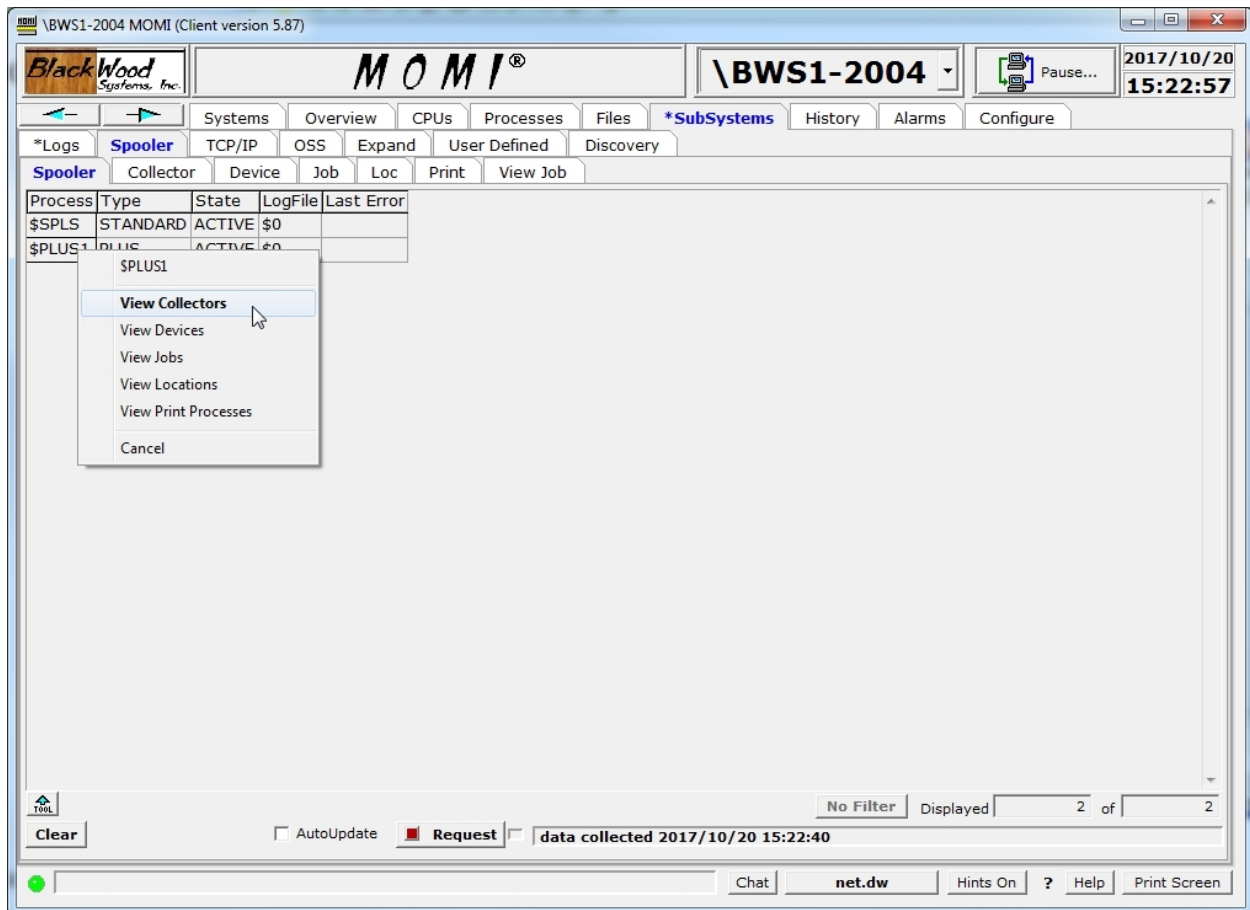
ETB is the ASCII control character with the value 23

CRLF are the ASCII control characters carriage return line feed with the values of 13 + 10

Any embedded CRLF within **Text** is converted to an ETX with a value of 3

Spool

Spool / Spooler



The Spool / Spooler screen presents the Spoolers present on the System and their state.

MOMI supports both the standard Spooler and Spooler Plus. See [FNAME-SPOOLER-PLUS-n](#) for additional information concerning configuration considerations for Spooler Plus.

The processes listed on this screen are the supervisor, or controlling process, for a Spooler. A Spooler is generally comprised of a single supervisor and then one or more of the following: collector, device, location and print process.

Spool / Collector

BlackWood Systems, Inc.

\NSBLDE4-2020

2018/12/27 11:59:02

Systems Overview CPUs Processes Files SubSystems History Alarms Configure

Logs Spooler TCP/IP OSS Expand User Defined Discovery

Spooler Collector Device Job Loc Print View Job

Process	Collector	State	Percent Full gauge	Last Error	UnitSz	UnitAlloc	UnitTotal	PageSz	DataFile	PriC	BakC	Pri	f
\$SPLT	\$ST	ACTIVE	20%	0	16	4,350	21,269	60	\$SAS21.SPOOLER.SPLDATA	1	0	159	\$
\$SPLM	\$M	ACTIVE	6%	0	4	489	8,062	60	\$SYSTEM.SPLM.DATA	0	1	146	\$
\$SPLS	\$S	ACTIVE	45%	0	4	3,615	8,062	60	\$SYSTEM.SPLS.DATAS	0	1	146	\$
\$SPLS	\$XYPRO	ACTIVE	0%	0	4	0	225,028	60	\$SAS02.COLLECT.SPLDATA	0	55	145	\$

Spooler * Collector * No Filter Displayed 4 of 4

Clear AutoUpdate Request data collected 2018/12/27 11:58:53

Chat blkwood.dalew Hints On ? Help Print Screen

The Spool / Collector screen presents the state and status of the Spooler collector processes.

A Spooler collector process is a system location where process output is directed. This output is usually formatted in a manner for printing. The collector process has an underlying data file where space for each output (i.e. job) is allocated. A space available in the data file is organized in units where a unit is equal to 1024 bytes.

Spool / Device

BlackWood Systems, Inc. \NSBLDE4-2020 MOMI (6.02/6.01) 2018/12/27 11:59:20

Systems Overview CPUs Processes Files **SubSystems** History Alarms Configure

Logs **Spooler** TCP/IP OSS Expand User Defined Discovery

Spooler Collector **Device** Job Loc Print View Job

Process	Device	State	Last Error	B	E	T	P	D	H	X	F	FormName	RetryI	RetryX	Speed	PrintP	Job#	Param	Width	Retry	BusyTime	ResIr
\$SPLS	\$Q1ETR.#PRINT	WAITING	0	E				H					5	360	100	\$EP	0	0	0	0	0	3

Spooler * Device * No Filter Displayed 1 of 1

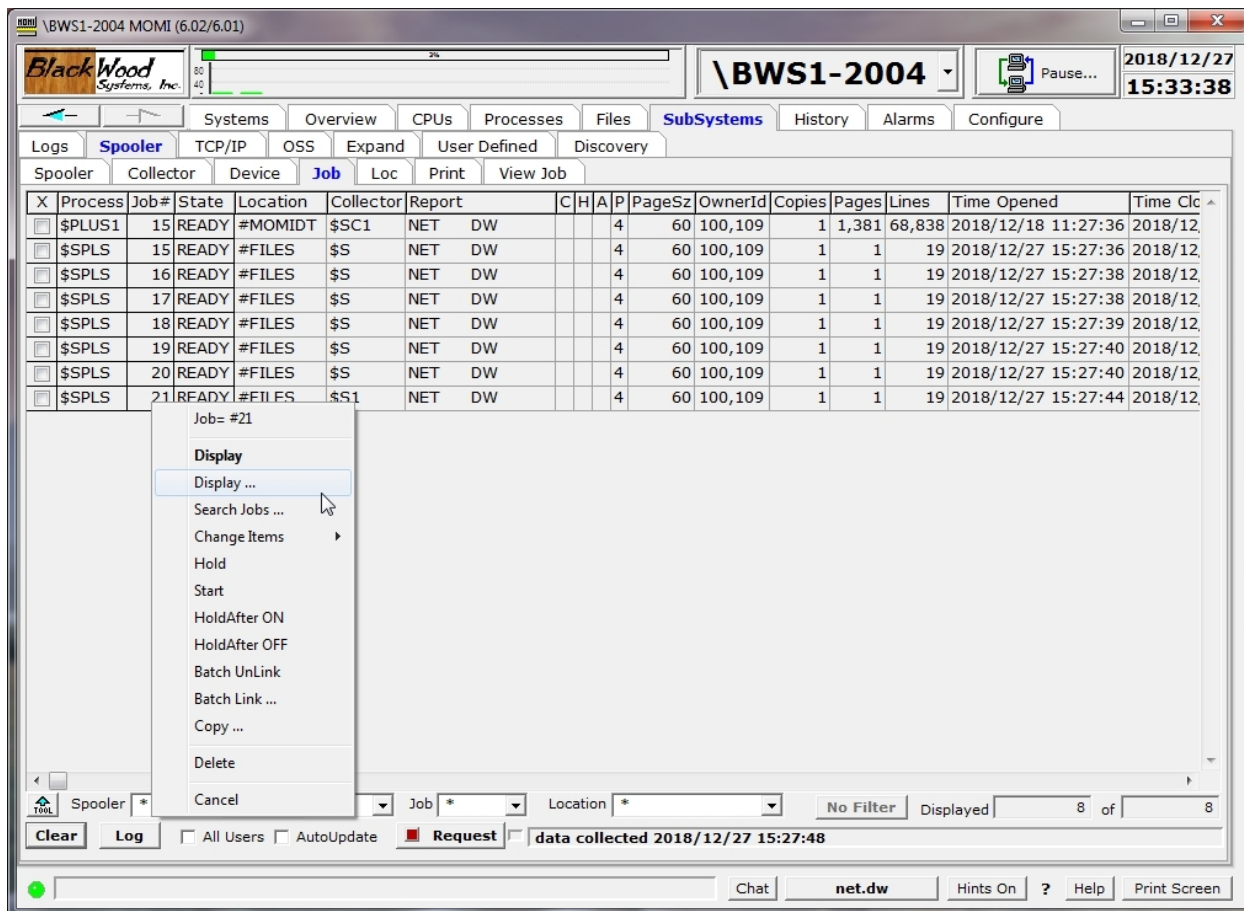
Clear ☐ AutoUpdate ☒ Request data collected 2018/12/27 11:59:15

Chat blkwood.dalew Hints On ? Help Print Screen

The Spool / Device screen presents the status of the devices that handle generation of hard-copy from the Spooler.

Each hard-copy device in the Spooler is represented and associated with a print process. The print process is an actual process running on the NonStop System.

Spool / Job

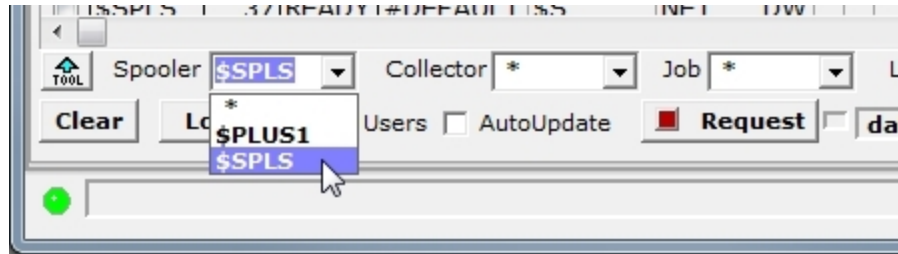


The Spool / Job screen presents the status and state of data waiting in the Spooler.

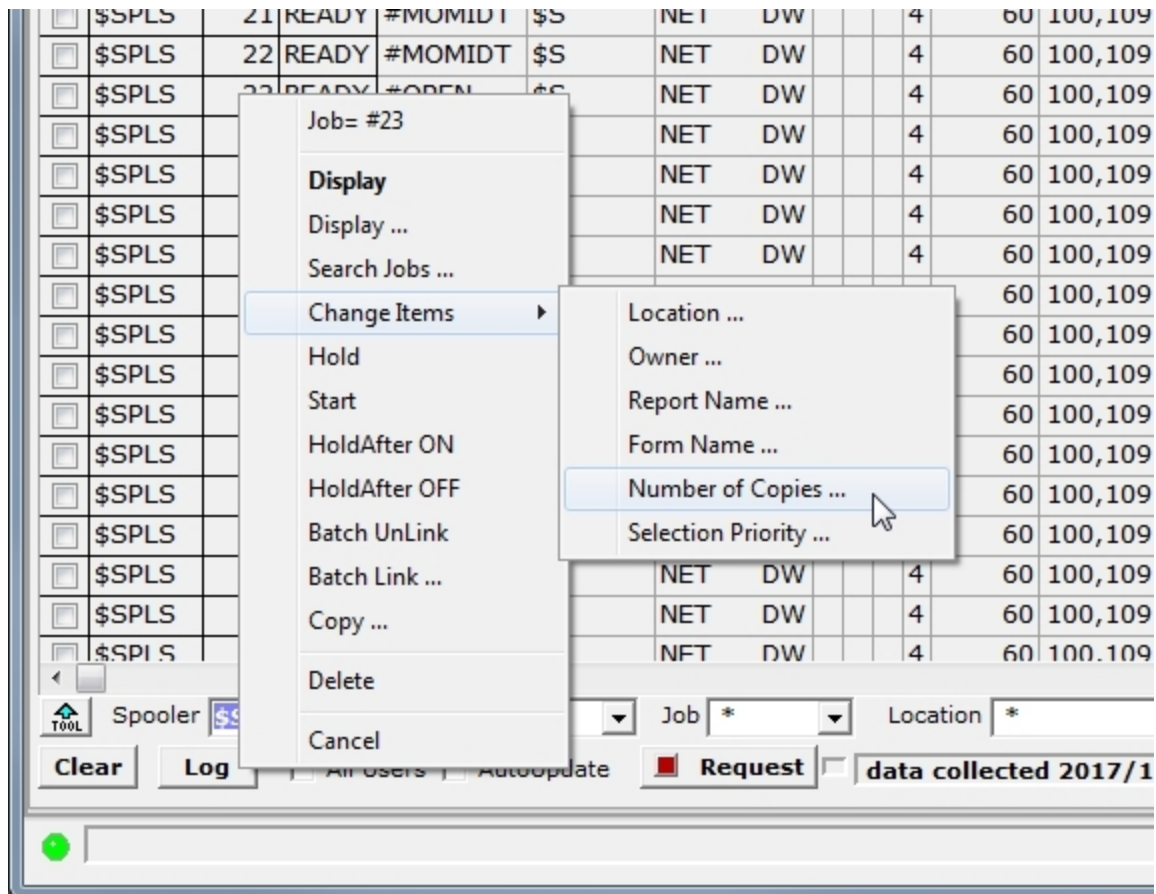
Data is organized in the Spooler in units known as jobs. Generally, a job represents the output of a single process sending data to the Spooler.

Jobs are displayed when the User presses the Request button. In the logged off state, all jobs are displayed. If a User is logged on, only the user's jobs are displayed by default. Checking the All Users box will cause all jobs to be displayed.

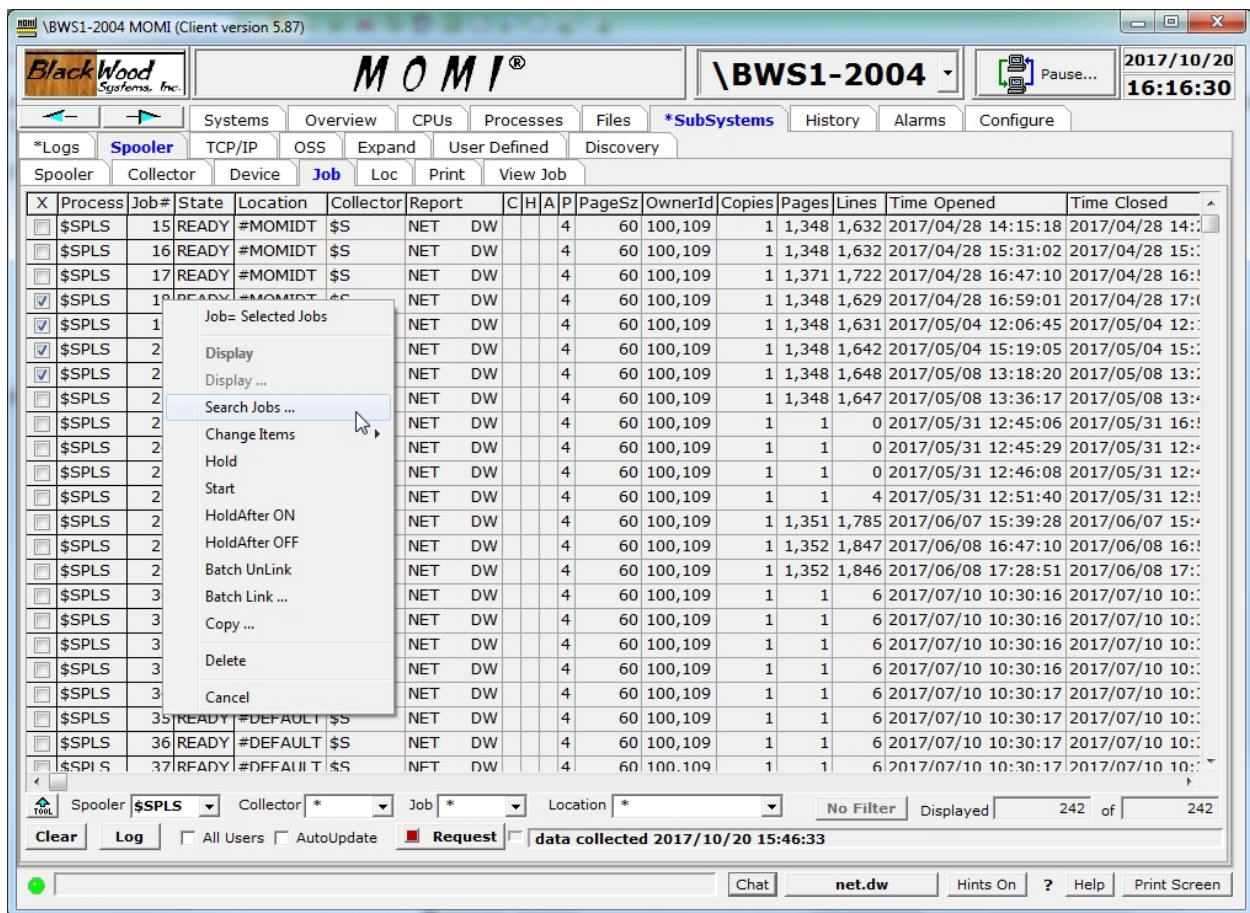
Display of Jobs may also be limited by selecting a particular Spooler and / or Collector in which to retrieve jobs.



Right click on a job brings up a menu of actions. Actions require the User to be logged on.



The **Search Jobs...** selection provides the function of scanning through selected jobs looking for desired text. In the first column, left-click to check one or more jobs then right-click over one of the jobs and select Search Jobs...



In the pop-up window, enter the text to find and enable any desired options. Press **Search Jobs** and the client will scan through all selected jobs displaying the results. Click on a line in the the search results to display the job contents in [View Job](#).

BlackWood Systems, Inc. MOMI® \BWS1-2004 2017/10/20 16:20:22

Systems Overview CPUs Processes Files *SubSystems History Alarms Configure

*Logs Spooler TCP/IP OSS Expand User Defined Discovery

Spooler Collector Device Job Loc Print View Job

X	Process	Job#	State	Location	Collector	Report	C	H	A	P	PageSz	OwnerId	Copies	Pages	Lines	Time Opened	Time Closed	
<input type="checkbox"/>	\$SPLS	236	READY	#STUFF	\$S	NET DW					4	60	100,109	1	100	5,613	2017/07/10 10:41:22	2017/07/10 10:41:22
<input type="checkbox"/>	\$SPLS	237	READY												100	5,613	2017/07/10 10:41:23	2017/07/10 10:41:23
<input type="checkbox"/>	\$SPLS	238	READY												1,351	1,795	2017/07/11 13:38:22	2017/07/11 13:38:22
<input type="checkbox"/>	\$SPLS	244	READY												1,351	1,795	2017/07/14 15:04:21	2017/07/14 15:04:21
<input type="checkbox"/>	\$SPLS	245	READY												1,356	2,009	2017/07/27 10:45:07	2017/07/27 10:45:07
<input type="checkbox"/>	\$SPLS	246	READY												1,356	2,022	2017/07/27 11:03:55	2017/07/27 11:03:55
<input type="checkbox"/>	\$SPLS	247	READY												1,356	2,020	2017/07/27 12:11:11	2017/07/27 12:11:11
<input type="checkbox"/>	\$SPLS	248	READY												1,356	2,012	2017/07/27 14:01:56	2017/07/27 14:01:56
<input type="checkbox"/>	\$SPLS	249	READY												1,356	2,017	2017/07/27 14:28:01	2017/07/27 14:28:01
<input type="checkbox"/>	\$SPLS	250	READY												1,356	2,012	2017/07/27 14:40:26	2017/07/27 14:40:26
<input type="checkbox"/>	\$SPLS	251	READY												1,356	2,028	2017/07/27 14:54:43	2017/07/27 14:54:43
<input type="checkbox"/>	\$SPLS	252	READY												1,356	2,028	2017/07/27 15:08:20	2017/07/27 15:08:20
<input type="checkbox"/>	\$SPLS	253	READY												1,356	2,028	2017/07/27 15:38:34	2017/07/27 15:38:34
<input type="checkbox"/>	\$SPLS	254	READY												1,356	2,023	2017/07/27 15:57:51	2017/07/27 15:57:51
<input type="checkbox"/>	\$SPLS	255	READY												1,356	2,024	2017/08/10 16:57:06	2017/08/10 16:57:06
<input type="checkbox"/>	\$SPLS	256	READY												1,356	2,032	2017/08/31 18:07:32	2017/08/31 18:07:32
<input type="checkbox"/>	\$SPLS	257	READY												1,356	2,032	2017/08/31 18:15:57	2017/08/31 18:15:57
<input type="checkbox"/>	\$SPLS	258	READY	#MOMIDT	\$S	NET DW					4	60	100,109	1	1,357	2,053	2017/09/20 11:50:27	2017/09/20 11:50:27
<input type="checkbox"/>	\$SPLS	259	READY	#MOMIDT	\$S	NET DW					4	60	100,109	1	1,357	2,053	2017/09/20 12:31:57	2017/09/20 12:31:57
<input type="checkbox"/>	\$SPLS	260	READY	#MOMIDT	\$S	NET DW					4	60	100,109	1	1,357	2,062	2017/10/06 11:32:28	2017/10/06 11:32:28
<input type="checkbox"/>	\$SPLS	261	READY	#MOMIDT	\$S	NET DW					4	60	100,109	1	1,357	2,072	2017/10/11 14:43:55	2017/10/11 14:43:55
<input type="checkbox"/>	\$SPLS	263	READY	#KEYB	\$S	NET DW					4	60	100,109	1	1	3	2017/10/20 16:18:31	2017/10/20 16:18:31

Spooler Jobs Search

Search text: text i am looking for

☒ Use Wildcards ☒ Ignore text case ☐ Match entire line

Current: 5 of 5 Overall Job Search progress: 100%

Searching Job: Done Page: 0%

Located text in following jobs: \$SPLS.#263 : #KEYB Search Completed

Jobs Skipped because of errors:

Search Jobs Pause Clear

Spooler \$SPLS Collector * Job * Location * No Filter Displayed 243 of 243

Clear Log ☐ All Users ☐ AutoUpdate ☒ Request data collected 2017/10/20 16:18:48

Chat net.dw Hints On ? Help Print Screen

The security of the Spooler subsystem itself, **not MOMI**, gives any "Super Group" User the right to perform an action regardless of the owner of the job.

Spool / Loc

BlackWood Systems, Inc.

NSBLDE4-2020

2018/12/27 12:00:22

Systems Overview CPUs Processes Files SubSystems History Alarms Configure

Logs Spooler Collector Device Job Loc Print View Job

Process	Location	Device	Font
\$SPLS	#NDM.FUP		
\$SPLS	#NESIB		
\$SPLS	#NESIB.DEFAULT		
\$SPLS	#NESIR		
\$SPLS	#NESIR.DEFAULT		
\$SPLS	#OUT		
\$SPLS	#OUT.TACL		
\$SPLS	#PWERR		
\$SPLS	#PWERR.DEFAULT		
\$SPLS	#Q1ETR		
\$SPLS	#Q1ETR.PRINT	\$Q1ETR.#PRINT	
\$SPLS	#R9999		
\$SPLS	#R9999.DEFAULT		
\$SPLS	#SYSGEN		
\$SPLS	#SYSGEN.DEFAULT		
\$SPLS	#T0909		
\$SPLS	#T0909.DEFAULT		
\$SPLS	#T9999		
\$SPLS	#T9999.DEFAULT		
\$SPLS	#TERM		
\$SPLS	#TERM.COB		
\$SPLS	#UA342		
\$SPLS	#UA342.DPAK		

Spooler * Location * No Filter Displayed 97 of 97

Clear AutoUpdate Request data collected 2018/12/27 11:59:52

Chat blkwood.dalew Hints On ? Help Print Screen

The Spool / Loc screen presents information about the locations in the Spooler.

A location defines the device to receive a job. Locations have attributes associated with them, such as font. If no Device is defined, the job waits in the Spooler.

Locations are defined as associated with a Device and optionally a Font. Locations are statically and dynamically created. Static locations are created when the Spooler is configured. Dynamic locations are created when a process opens a Spool Collector and outputs to a location not statically defined. Dynamic locations generally cause jobs to sit in the Ready state until they are either deleted or their location is changed to a Static, which in turn causes the Job to print.

Spool / Print

The screenshot displays the BlackWood Systems, Inc. \BWS1-2004 MOMI (6.02/6.01) Spooler interface. The window title bar includes the company logo and version information. The main menu bar contains options like Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. Below this, a secondary menu bar includes Logs, Spooler, TCP/IP, OSS, Expand, User Defined, and Discovery. The Spooler menu is currently active, showing a table of processes.

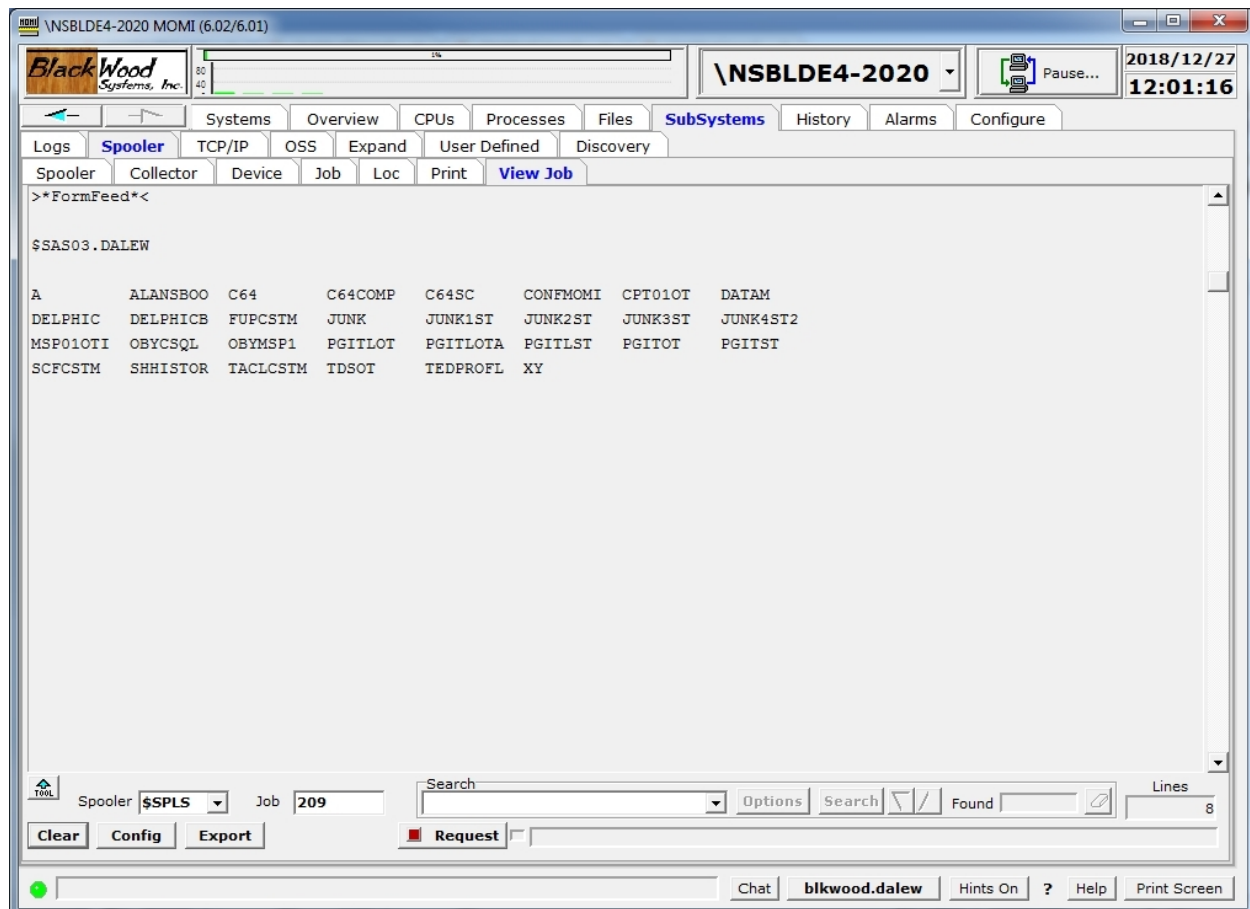
Process	Print	State	A	D	Last Error	Program File	Pri	Bak	Pri	Param
\$PLUS1	\$SP1	DORMANT			0	\$SYSTEM.SYSTEM.FASTPTCP	1	0	145	0
\$PLUS1	\$SP2	DORMANT			0	\$SYSTEM.SYSTEM.FASTPTCP	0	1	145	0
\$PLUS1	\$SP3	DORMANT			0	\$SYSTEM.SYSTEM.FASTPTCP	1	0	145	0
\$PLUS1	\$SP4	DORMANT			0	\$SYSTEM.SYSTEM.FASTPTCP	0	1	145	0
\$PLUS1	\$SP5	DORMANT			0	\$SYSTEM.SYSTEM.FASTPTCP	0	1	145	0
\$SPLS	\$PP1	DORMANT			0	\$SYSTEM.SYSTEM.FASTPTCP	1	0	145	0
\$SPLS	\$PP2	DORMANT			0	\$SYSTEM.SYSTEM.FASTPTCP	0	1	145	0
\$SPLS	\$PP3	DORMANT			0	\$SYSTEM.SYSTEM.FASTPTCP	1	0	145	0
\$SPLS	\$PP4	DORMANT			0	\$SYSTEM.SYSTEM.FASTPTCP	0	1	145	0
\$SPLS	\$PP5	DORMANT			0	\$SYSTEM.SYSTEM.FASTPTCP	1	0	145	0

A context menu is open for the \$PP5 process, showing options: Start Device and Cancel. The bottom of the window features a status bar with a 'Clear' button, an 'AutoUpdate' checkbox, a 'Request' button, and a timestamp 'data collected 2018/12/27 15:31:36'. The bottom right corner includes links for Chat, net.dw, Hints On, Help, and Print Screen.

The Spool / Print screen presents the status of the Spool Print processes.

A Print process handles the actual transfer of data from the Spooler to the hard-copy device or to another Spool Collector.

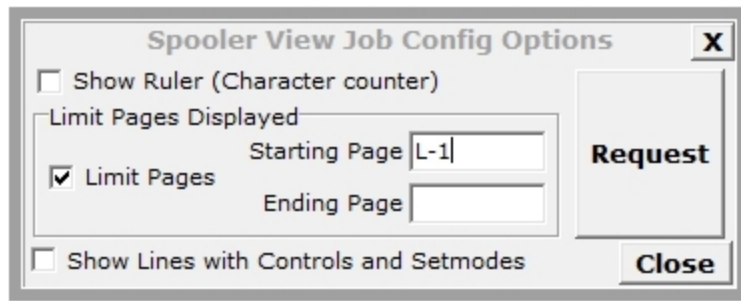
Spool / View Job



The Spool / View Job screen displays the contents of a Spooler Job.

The User must be logged on to view the contents of a job.

Pressing the Config button brings up a pop-up window. This window can be used before a job is requested to limit the number of pages downloaded. This is particularly useful for large jobs where only a few pages need to be examined. The characters F and L represent First page and Last page with an optional + / - followed by a number. In the screen below, only the last page of the job is retrieved and displayed.

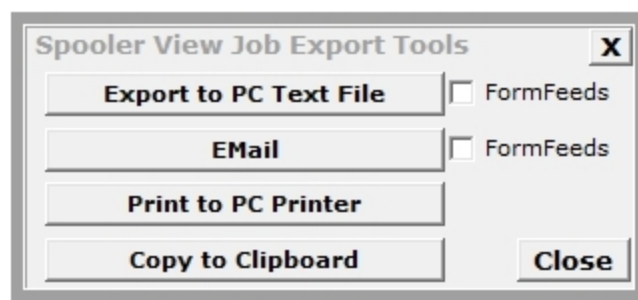


After a job is displayed, press the Tool  button in the lower left hand corner bring up a window to change font size.

In the displayed text, special lines indicate various Spooler operations rather than a line of data. Below are examples:

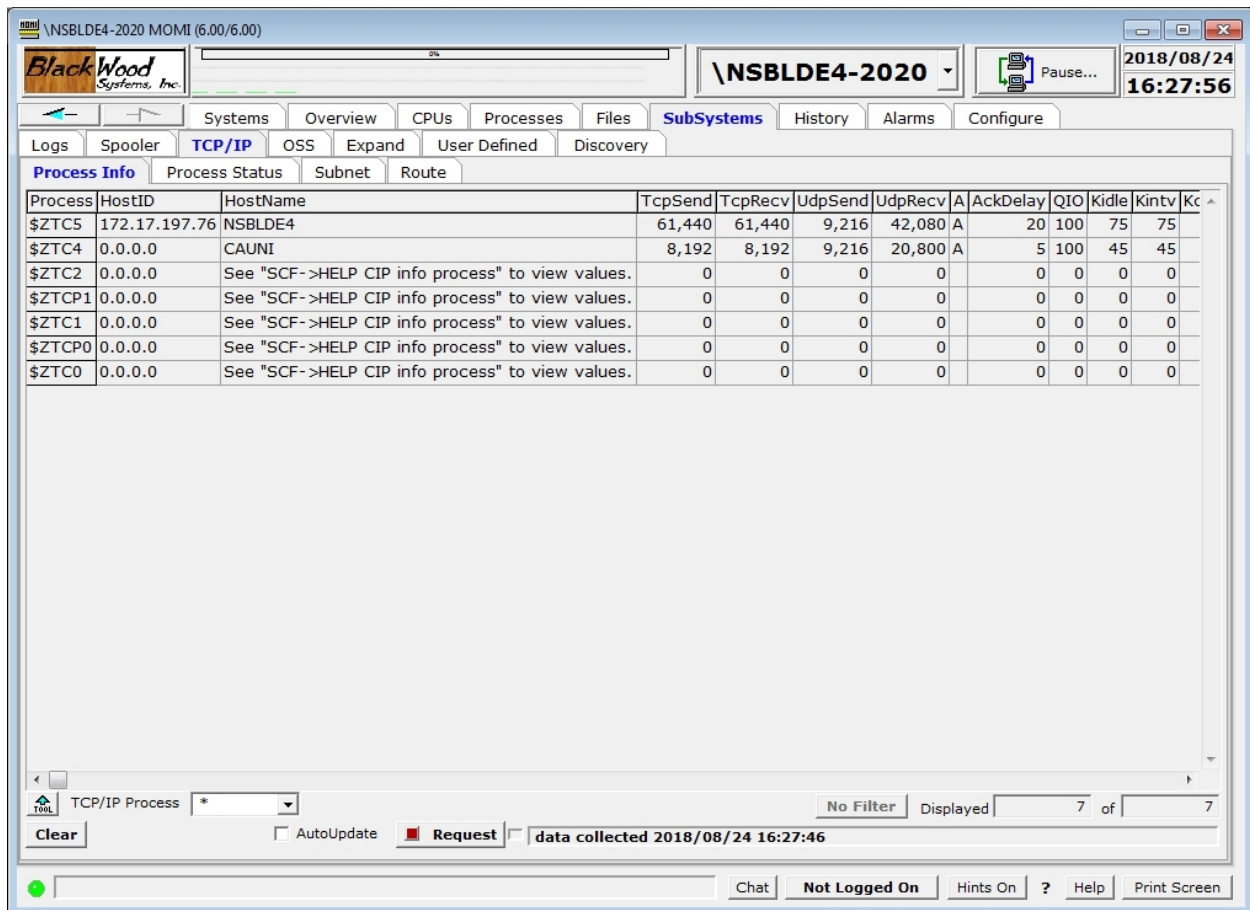
```
>*Controlbuf*<
>*Setmode* Function ##### Param1 ##### Param2 #####<
>*Control* Operation <?INT16> Param <?INT16><
>*FormFeed*<
```

The Export Tools button displays a window to allow the displayed job to 1) export to a text file on the PC, 2) sent to a PC printer, or 3) loaded into an Email (MOMI invokes the default email client configured for the PC).



TCP/IP

TCP/IP / Process Info



The screenshot shows the BlackWood Systems, Inc. MOMI (6.00/6.00) interface. The main window displays the TCP/IP Process Info screen. The interface includes a menu bar with options like Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. Below the menu bar, there are tabs for Logs, Spooler, TCP/IP, OSS, Expand, User Defined, and Discovery. The TCP/IP tab is selected, and the Process Info sub-tab is active. The main area displays a table of TCP/IP processes.

Process	HostID	HostName	TcpSend	TcpRecv	UdpSend	UdpRecv	AckDelay	QIO	Kidle	Kintv	Kc
\$ZTC5	172.17.197.76	NSBLDE4	61,440	61,440	9,216	42,080	A	20	100	75	75
\$ZTC4	0.0.0.0	CAUNI	8,192	8,192	9,216	20,800	A	5	100	45	45
\$ZTC2	0.0.0.0	See "SCF->HELP CIP info process" to view values.	0	0	0	0	0	0	0	0	0
\$ZTCP1	0.0.0.0	See "SCF->HELP CIP info process" to view values.	0	0	0	0	0	0	0	0	0
\$ZTC1	0.0.0.0	See "SCF->HELP CIP info process" to view values.	0	0	0	0	0	0	0	0	0
\$ZTCP0	0.0.0.0	See "SCF->HELP CIP info process" to view values.	0	0	0	0	0	0	0	0	0
\$ZTC0	0.0.0.0	See "SCF->HELP CIP info process" to view values.	0	0	0	0	0	0	0	0	0

At the bottom of the screen, there is a status bar showing "data collected 2018/08/24 16:27:46". The interface also includes a "Clear" button, an "AutoUpdate" checkbox, and a "Request" button. The status bar at the very bottom shows "Chat", "Not Logged On", "Hints On", "?", "Help", and "Print Screen".

The TCP/IP / Process Info screen presents the TCP/IP processes or protocol stacks running on the System.

The TCP/IP process is the IOP (Input/Output Process) responsible for handling the TCP/IP traffic for a communication interface.

S-Series systems always have two TCP/IP processes used in support of the system console. These are \$ZTCP0 and \$ZTCP1. Most systems have a \$ZTC0 TCP/IP process running, which is the default selection for socket programs.

At a TACL prompt, the default TCP/IP process is changed by using a DEFINE. Below is an example which sets the default process to \$ZSAM1 and then starts an FTP:

```
1> ADD DEFINE =TCPIP^PROCESS^NAME, FILE $ZSAM1
```

```
2> TRACER www.hpe.com
```

TCP/IP / Process Status

Alarms

\NSBLDE4-2020

Pause...

2018/08/24
15:38:45

Systems Overview CPUs Processes Files **SubSystems** History Alarms Configure

Logs Spooler **TCP/IP** OSS Expand User Defined Discovery

Process Info

Process Status

Subnet

Route

System	Process	OpenerPName	State	Local Addr	LPort	Foreign Addr	FPort	Proto	CLIM	SendQ	RecvQ	SokQ	SokQL	PcbC
\NSBLDE4-2020	\$ZTC0	\$ZONA	LISTEN	172.17.197.73	80	0.0.0.0		0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$ZONA	PRIV N/B	0.0.0.0		0.0.0.0		0	TCP		0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$ZON6	PRIV N/B	0.0.0.0		0.0.0.0		0	TCP		0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$MOMI5	N/B	0.0.0.0		0.0.0.0		0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$SSL5	LISTEN N/B	0.0.0.0	5023	0.0.0.0		0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$MOMI5	ESTAB N/B	172.17.197.73	2020	10.20.1.41	53323	TCP	C1002581	6,620	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$SSFS	LISTEN N/B	0.0.0.0	5021	0.0.0.0		0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$MXOAS	LISTEN		18650			0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$Z0P3	LISTEN		18661			0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$Z0N8	LISTEN	172.17.197.73	80	0.0.0.0		0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$Z0N8	PRIV N/B	0.0.0.0		0.0.0.0		0	TCP		0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$Z0R5	LISTEN		18727			0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$Z0R9	LISTEN		18731			0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$Z0QX	LISTEN		18719			0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$Z0R1	LISTEN		18723			0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$MOMI5	ESTAB N/B	172.17.197.73	2020	10.20.1.41	53322	TCP	C1002581	0	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$MOMI5	N/B	0.0.0.0		0.0.0.0		0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$Z0RD	LISTEN		18735			0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$MOMI5	N/B	0.0.0.0		0.0.0.0		0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$Z0RF	LISTEN		18736			0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$TIME		172.17.197.73	123	0.0.0.0		0	UDP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$ZBK0	LISTEN	0.0.0.0		593	0.0.0.0	0	TCP	C1002581	0	0	0	0
\NSBLDE4-2020	\$ZTC0	\$Z0RA	LISTEN		18732			0	TCP	C1002581	0	0	0	0

TCP/IP Process

*

Select Systems

No Filter

Displayed

264

of

264

Clear

Mini-Reports

☐ AutoUpdate

☒ Request

data collected 2018/08/24 15:34:54

Chat

Not Logged On

Hints On

?

Help

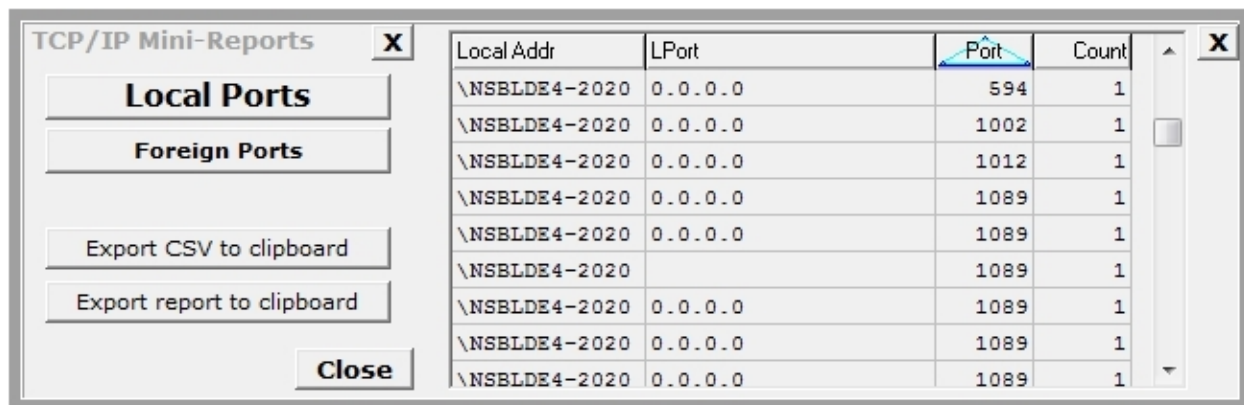
Print Screen

The TCP/IP / Process Status screen presents all of the active sockets. CLIM and VIO devices are displayed.

A socket is the term for a TCP/IP communications connection. The states of connection displayed include Listen (waiting for a connection), Established (where communication is taking place) or Closing (where the communications connection is terminating).

Established TCP level sockets will have an LPort (local port) that is the same as the listening port but will have a randomly chosen FPort (foreign port). The combination of the local address, local port, foreign address and foreign port make a socket unique to the TCP/IP stack.

The Mini-Reports button brings up a pop-up screen that provides quick statistics for the count of local and foreign ports based on the address.



Local Addr	LPort	Port	Count
\NSBLDE4-2020	0.0.0.0	594	1
\NSBLDE4-2020	0.0.0.0	1002	1
\NSBLDE4-2020	0.0.0.0	1012	1
\NSBLDE4-2020	0.0.0.0	1089	1
\NSBLDE4-2020	0.0.0.0	1089	1
\NSBLDE4-2020		1089	1
\NSBLDE4-2020	0.0.0.0	1089	1
\NSBLDE4-2020	0.0.0.0	1089	1
\NSBLDE4-2020	0.0.0.0	1089	1
\NSBLDE4-2020	0.0.0.0	1089	1

The column State has the following meaning when the Proto is TCP (other states may be present - unknown states displayed in hexadecimal as ?%Hnnnn):

CLOSING

waiting for a terminate connection request acknowledgment from the remote site.

CLOSE-WAIT

waiting for a terminate connection request from the local user.

ESTAB

ESTAB N/B (N/B = Non-Blocking)

connection is open and the user can send and receive data. This is the normal state for data transfer.

FIN-WAIT-1

waiting for a terminate connection request from the remote TCP site or if waiting for acknowledgment of the terminate connection request that the process has sent previously.

FIN-WAIT-2

waiting for a termination of data to be received after having sent a FIN (termination of data being sent).

LISTEN

LISTEN N/B (N/B = Non-Blocking)

waiting for a connection request from any remote TCP site.

LAST-ACK

waiting for acknowledgment of the terminate connection request previously sent to the remote site (which includes an acknowledgment of its terminate connection request).

N/B

a Non-Blocking socket.

PRIV N/B

a Privileged Non-Blocking socket.

SYN-RCVD

waiting for an acknowledgment of a SYN-ACK sent in response to a SYN.

SYN-SENT

waiting for a SYN-ACK after having sent a SYN.

TIME-WAIT

waiting for sufficient time to pass (about two round trips) to be sure that stray packets are flushed from the network.

TCP/IP / Subnet

The screenshot shows the BlackWood Systems, Inc. \BWS1-2004 MOMI (6.02/6.01) interface. The top bar includes the company logo, a progress bar, the system name, a 'Pause...' button, and the date/time '2018/12/27 15:39:58'. The main menu includes 'Systems', 'Overview', 'CPUs', 'Processes', 'Files', 'SubSystems', 'History', 'Alarms', and 'Configure'. The 'TCP/IP' tab is selected, showing a table of network interfaces.

Process	SubNet	State	Type	IP Addr	CIDR	Mask(Hex)	Mask(Dec)	G	Q	R	A	MTU	SubDevice	T	TraceName	IOP Name
\$ZTCP0	#LOOP0	STARTED	LOOP-BACK	127.0.0.1	/8	%hFF000000	255.0.0.0					32728				\NOSYS.\$
\$ZTCP0	#SN1	STARTED	ETHERNET	192.168.10.220	/24	%hFFFFFFF00	255.255.255.0	Q				1500				\$SYSTEM.
\$ZTCP1	#LOOP0	STARTED	LOOP-BACK	127.0.0.1	/8	%hFF000000	255.0.0.0				A	32728				\NOSYS.\$
\$ZTCP1	#SN1	STARTED	ETHERNET	192.168.10.221	/24	%hFFFFFFF00	255.255.255.0	Q			A	1500				\$SYSTEM.
\$ZSAM1	#SN2	STARTED	ETHERNET	192.168.20.14	/24	%hFFFFFFF00	255.255.255.0	Q				1500				\$SYSTEM.
\$ZSAM1	#SN1	STARTED	ETHERNET	192.168.20.11	/24	%hFFFFFFF00	255.255.255.0	Q				1500				\$DATA1.C
\$ZSAM1	#LOOP0	STARTED	LOOP-BACK	127.0.0.1	/8	%hFF000000	255.0.0.0					32768				
\$ZTC0	#LOOP0	STARTED	LOOP-BACK	127.0.0.1	/8	%hFF000000	255.0.0.0				A	32728				\NOSYS.\$
\$ZTC0	#SN1	STARTED	ETHERNET	192.168.20.10	/24	%hFFFFFFF00	255.255.255.0	Q			A	1500				\$DATA1.C

At the bottom, there are filters for 'TCP/IP Process' and 'TCP/IP SubNet', both set to '*'. A 'Clear' button is next to them. There is also an 'AutoUpdate' checkbox and a 'Request' button. The status bar at the bottom shows 'data collected 2018/12/27 15:39:37' and a 'Chat' button with the text 'net.dw'.

The TCP/IP / Subnet screen presents the status of the connection between the protocol stack and the physical LAN interfaces.

A Subnet is associated with an address and 1) an IOP (Input/Output Process) on older platforms, or 2) a LIF (Logical InterFace) on newer platforms.

The Subnet Mask determines when routing of outgoing messages requires the usage of a default gateway.

The TCP/IP address of 127.0.0.1 is a built-in address used for loop-back testing and is an address that does not go anywhere but is still valid.

TCP/IP / Route

BlackWood Systems, Inc. **BWS1-2004** 2018/12/27 15:41:36

Systems Overview CPUs Processes Files **SubSystems** History Alarms Configure

Logs Spooler **TCP/IP** OSS Expand User Defined Discovery

Process Info Process Status Subnet **Route**

Process	Route	State	Dest Addr	Gateway Addr	CIDR	Mask(Hex)	Mask(Dec)	H	G	I	Subnet	Users	Metric
\$ZTCP0	#GW	STARTED	0.0.0.0	192.168.10.2	/0	%h00000000	0.0.0.0				#SN1	0	1
\$ZTCP0	#RT1	STARTED	192.168.10.0	192.168.10.220	/24	%hFFFFFFF0	255.255.255.0				#SN1	2	0
\$ZTCP0	#RT2	STARTED	127.0.0.1	127.0.0.1	/8	%hFF000000	255.0.0.0	H			#LOOP0	0	0
\$ZTCP1	#GW	STARTED	0.0.0.0	192.168.10.2	/0	%h00000000	0.0.0.0				#SN1	0	1
\$ZTCP1	#RT1	STARTED	192.168.10.0	192.168.10.221	/24	%hFFFFFFF0	255.255.255.0				#SN1	0	0
\$ZTCP1	#RT2	STARTED	127.0.0.1	127.0.0.1	/8	%hFF000000	255.0.0.0	H			#LOOP0	0	0
\$ZSAM1	#RT6	STARTED	127.0.0.1	127.0.0.1	/32	%hFFFFFFF	255.255.255.255	H			#LOOP0	1	0
\$ZSAM1	#RT2	STARTED	192.168.20.0	192.168.20.11	/24	%hFFFFFFF0	255.255.255.0				#SN1	1	0
\$ZSAM1	#RT3	STARTED	192.168.20.11	192.168.20.11	/32	%hFFFFFFF	255.255.255.255	H			#SN1	0	0
\$ZSAM1	#RT4	STOPPED	192.168.20.0	192.168.20.14	/24	%hFFFFFFF0	255.255.255.0				#SN2	1	0
\$ZSAM1	#RT5	STOPPED	192.168.20.14	192.168.20.14	/32	%hFFFFFFF	255.255.255.255	H			#SN2	0	0
\$ZSAM1	#ROL0	STARTED	192.168.100.0	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL1	STARTED	192.168.100.1	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL2	STARTED	192.168.100.2	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL3	STARTED	192.168.100.3	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL4	STARTED	192.168.100.4	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL5	STARTED	192.168.100.5	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL6	STARTED	192.168.100.6	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL7	STARTED	192.168.100.7	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL8	STARTED	192.168.100.8	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL9	STARTED	192.168.100.9	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL10	STARTED	192.168.100.10	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1
\$ZSAM1	#ROL11	STARTED	192.168.100.11	192.168.20.1	/32	%hFFFFFFF	255.255.255.255	H	G		#SN1	0	1

Clear ☐ AutoUpdate ☒ Request data collected 2018/12/27 15:41:26

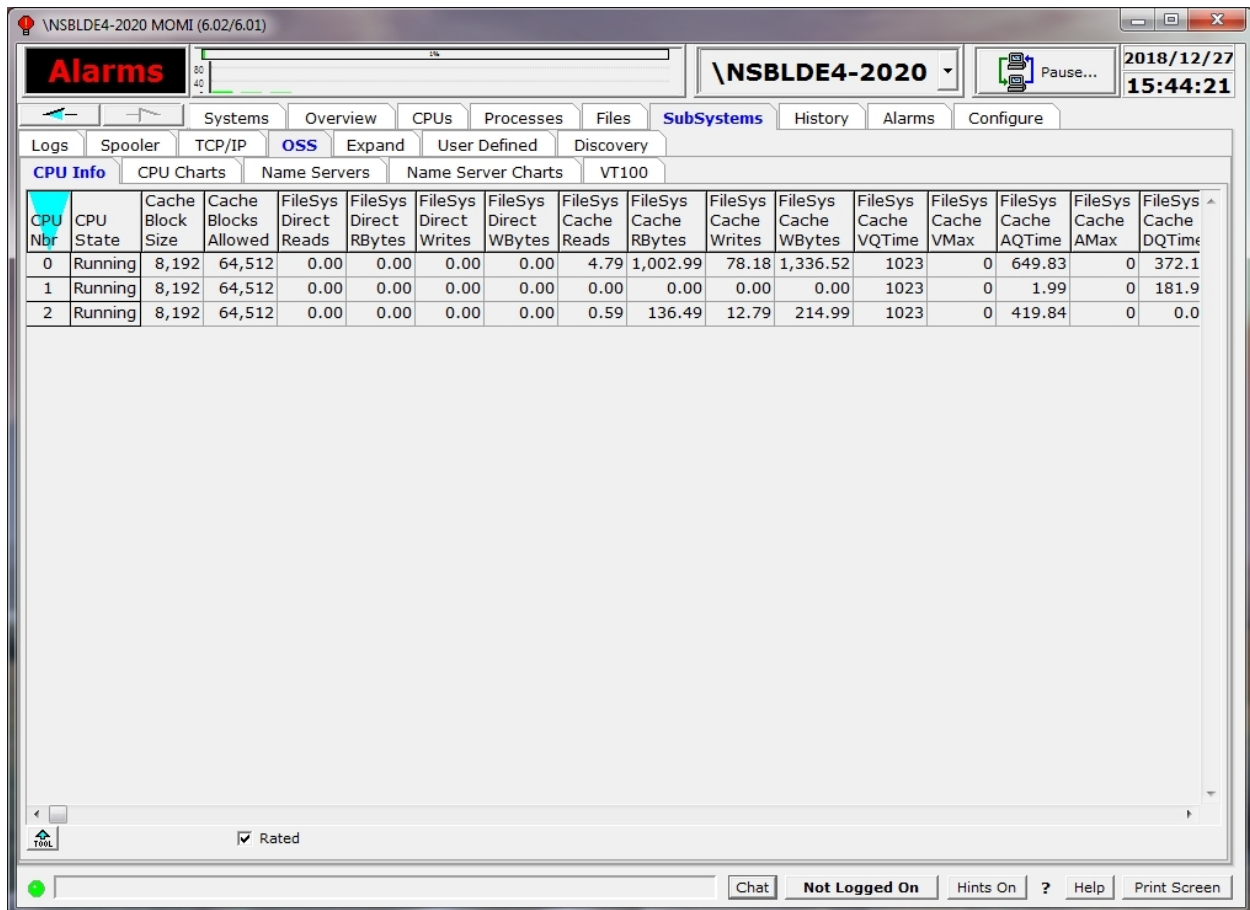
Chat net.dw Hints On ? Help Print Screen

The TCP/IP / Route screen presents the paths used in determining where data is sent if the destination is not on the local Subnet.

TCP/IP routing generally comes into play if the destination is not local. Data is sent to a default gateway (usually a router) so that it may be forwarded either to the destination or to another router in order to reach the final destination.

OSS

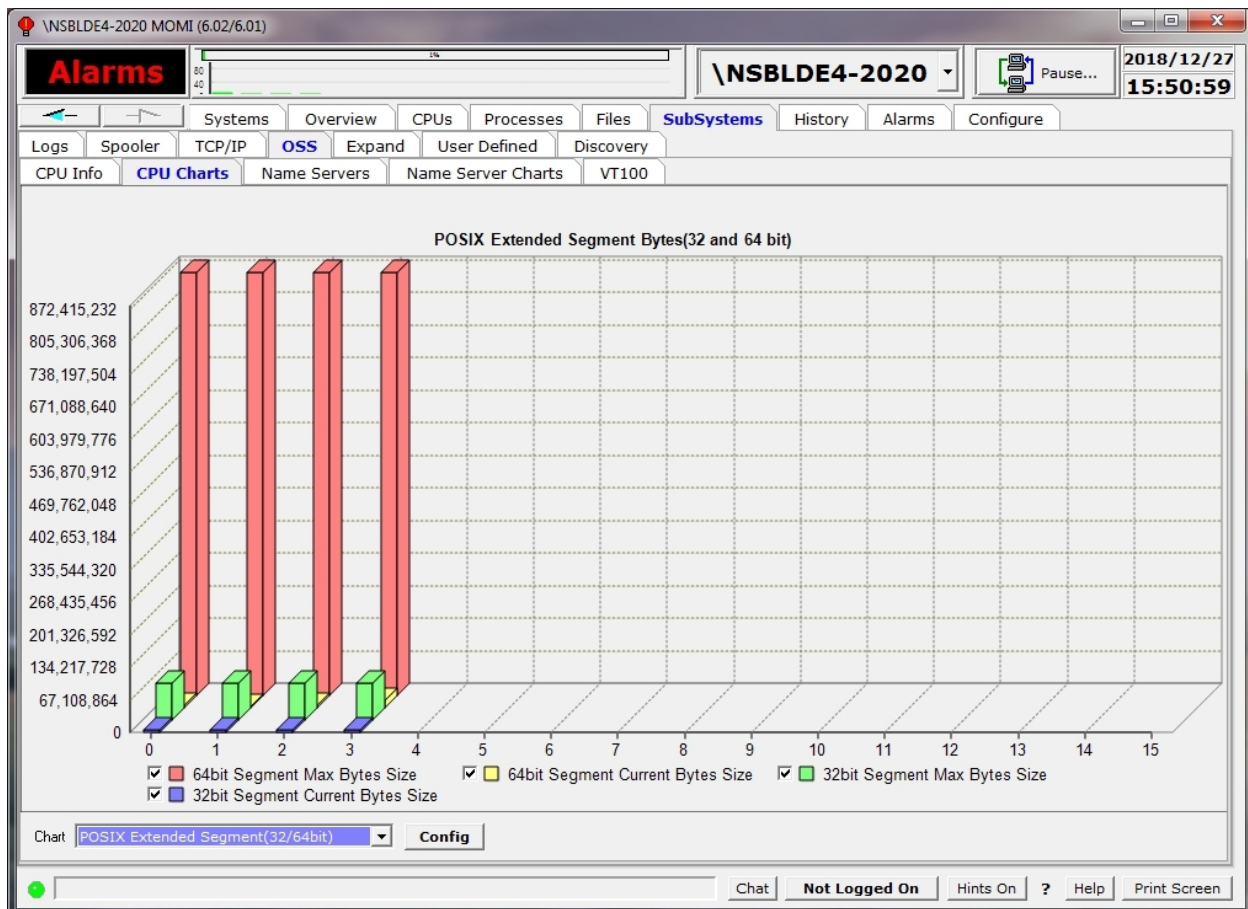
OSS / CPU Info



The OSS / CPU Info screen presents the MEASURE OSS CPU entity.

The MEASURE OSS CPU entity provides insight into the various counters concerning OSS at the CPU level. This primarily deals with file cache blocks, local CPU-to-CPU I/O activity and remote CPU-to-CPU I/O activity.

OSS / CPU Charts

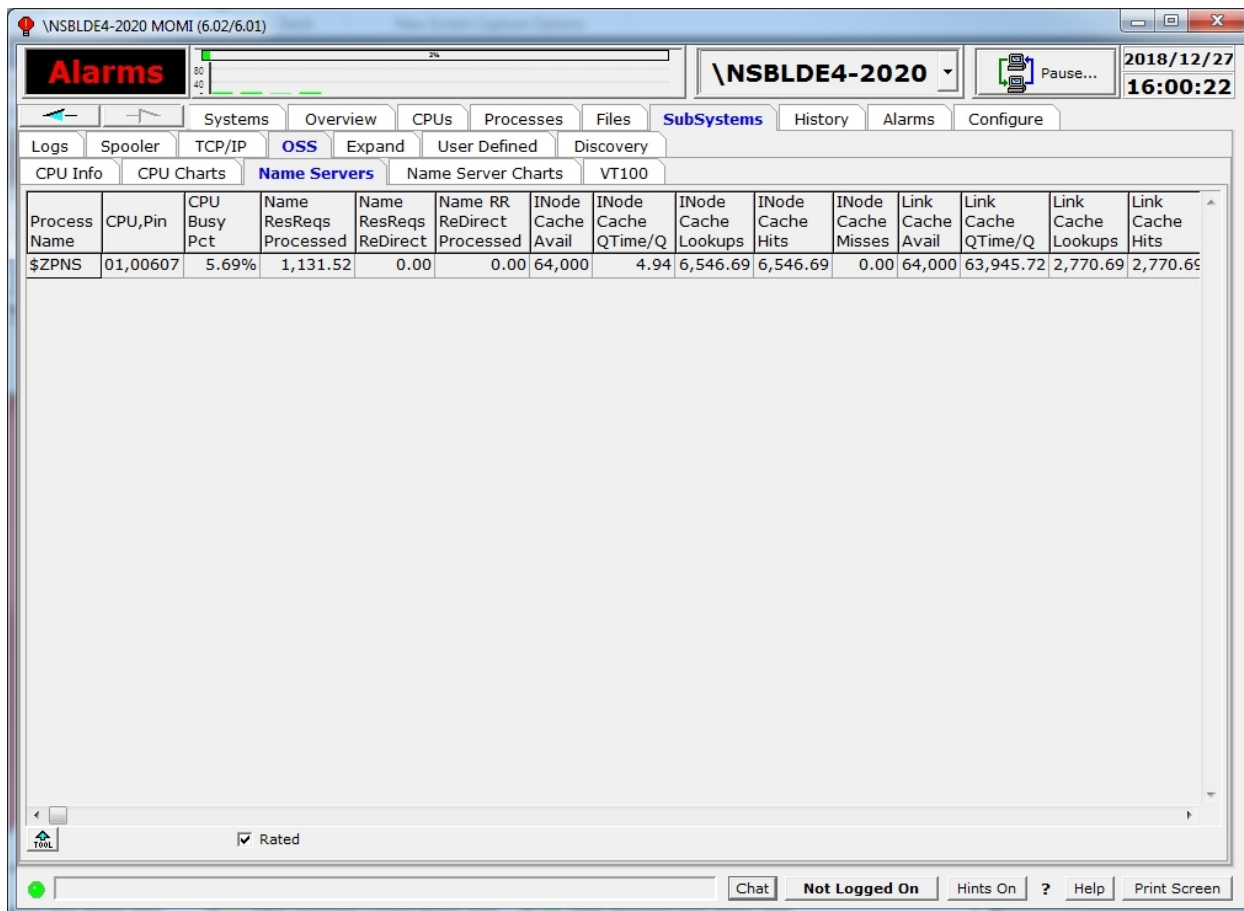


The OSS / CPU Charts screen presents selected data from the OSS / CPU Info screen in graphical form. The information displayed is obtained from the MEASURE OSS CPU entity.

Select the desired data in the drop-down box to display the graph. The Config button allows the definition of predefined buttons on the screen for fast access to graphs.

The MEASURE OSS CPU entity provides insight into the various counters concerning OSS at the CPU level. This primarily deals with file cache blocks, local CPU-to-CPU I/O activity and remote CPU-to-CPU I/O activity.

OSS / Name Servers

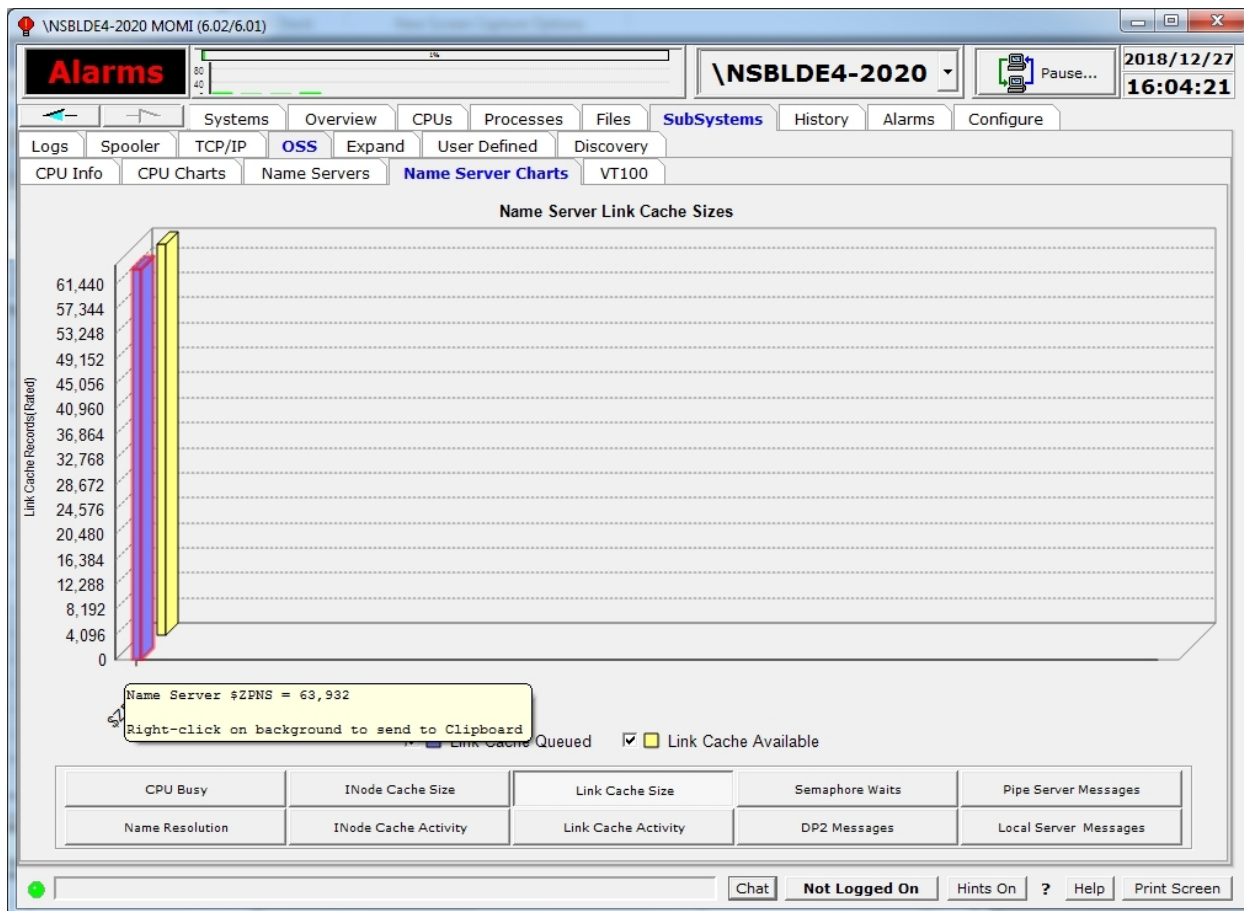


The OSS / Name Server Charts screen presents the MEASURE OSS Name Server entity.

The OSS Name Server is responsible for translating OSS path names into Guardian \$volume.subvol.file type names and vice versa. The Name Server also provides the isolation of physical disk drives from the unified path names. Path names do not generally represent physical volumes except when representing Guardian format file names.

A system running OSS has at least one Name Server running, but usually one Name Server per CPU.

OSS / Name Server Charts



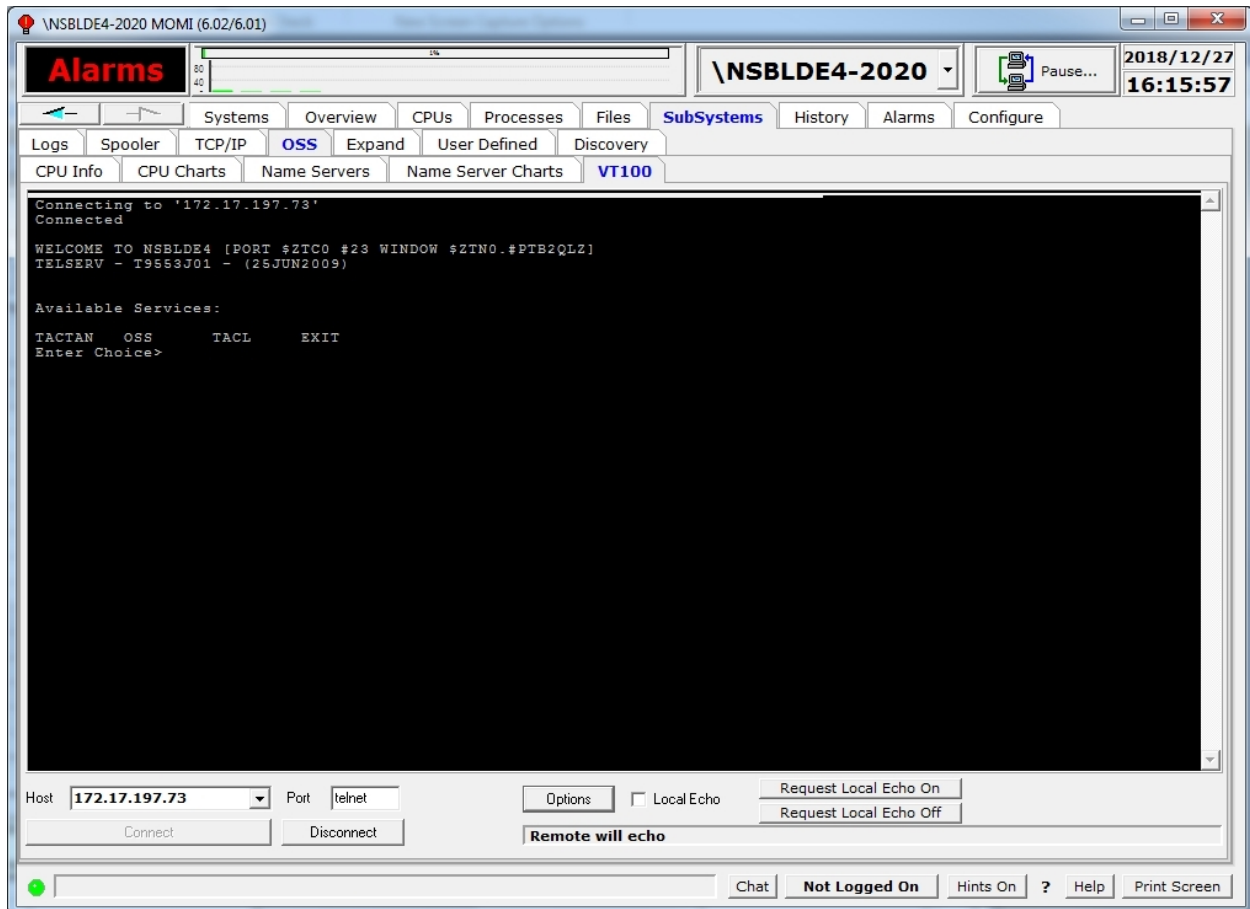
The OSS / Name Server Charts screen presents selected data from the Name Server screen in graphical form. The information displayed is obtained from the MEASURE OSS Name Server entity.

Press the desired button to display the graph.

The OSS Name Server is responsible for translating OSS path names into Guardian \$volume.subvol.file type names and vice versa. The Name Server also provides the isolation of physical disk drives from the unified path names. Path names do not generally represent physical volumes except when representing Guardian format file names.

A system running OSS has at least one Name Server running, but usually one Name Server per CPU.

OSS / VT100



The OSS / VT100 screen provides a simple emulator useful in the OSS environment.

Enter the Host TCP/IP address (or Name) and press Connect.

Various options can be set by pressing the Options button and these are saved in the MOMI.INI file. Buttons in the center of the pop-up provide commonly used defaults. Selecting the VT100 Function Keys are recommended for OSS.

Options for 172.17.197.73

Rows	<input type="text" value="25"/>	Line Zoom	<input type="text" value="1.000"/>
Cols	<input type="text" value="80"/>	Char Zoom	<input type="text" value="1.000"/>
LHeight	<input type="text" value="12"/>		
AutoCR	<input type="checkbox"/>	<input type="text" value="A11"/>	<input type="text" value="Font"/>
AutoLF	<input type="checkbox"/>	<input type="text" value="Labo"/>	
Local Echo	<input type="checkbox"/>	<input type="text" value="RDV"/>	
Monochrome	<input type="checkbox"/>	<input type="text" value="USUS"/>	
OEM charset	<input type="checkbox"/>	Graphic Draw	<input type="checkbox"/>
Upper Case	<input type="checkbox"/>		

Function Keys

☒ SCO ☐ VT100 ☐ A11

Expand

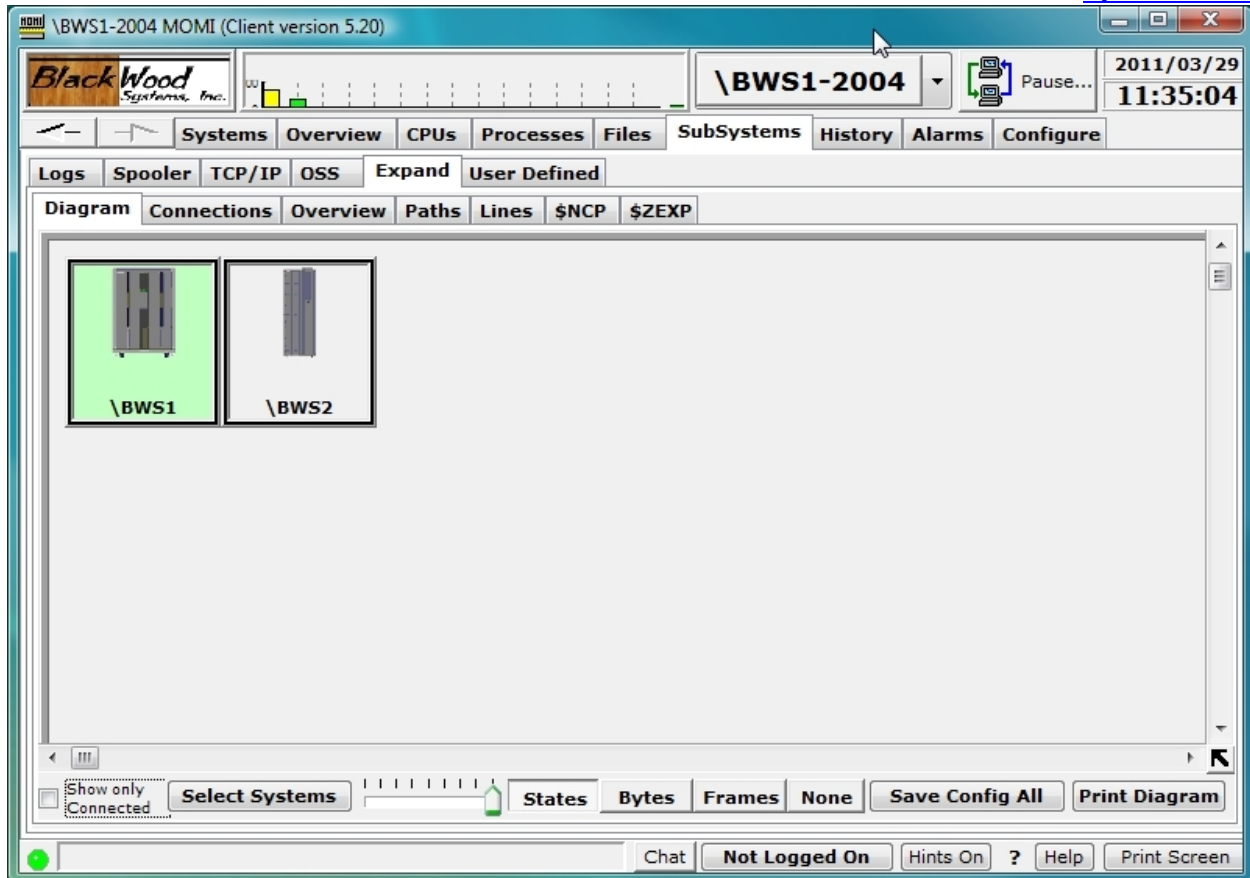
Overview

The Expand subsystem provides information on the status of the communication interconnects linking systems within a network.

All screens under this tab are automatically updated either by timer operation or by events as seen by MOMI. Certain fields such as a time stamp in the stats output are only updated when other values within the stats record change. In other words, stats records are not updated just to update the time stamp, but are updated when 'real' stats values change.

Expand / Diagram

see [System Quirks](#)

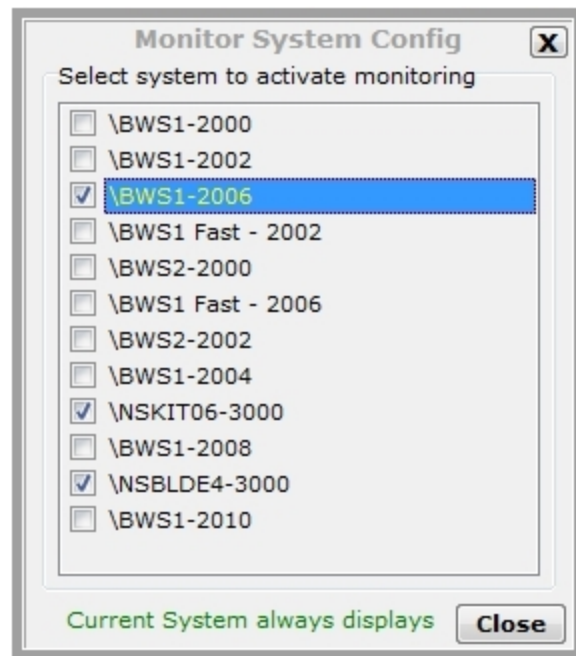


The Expand / Diagram screen provides a pictorial view of the Expand network.

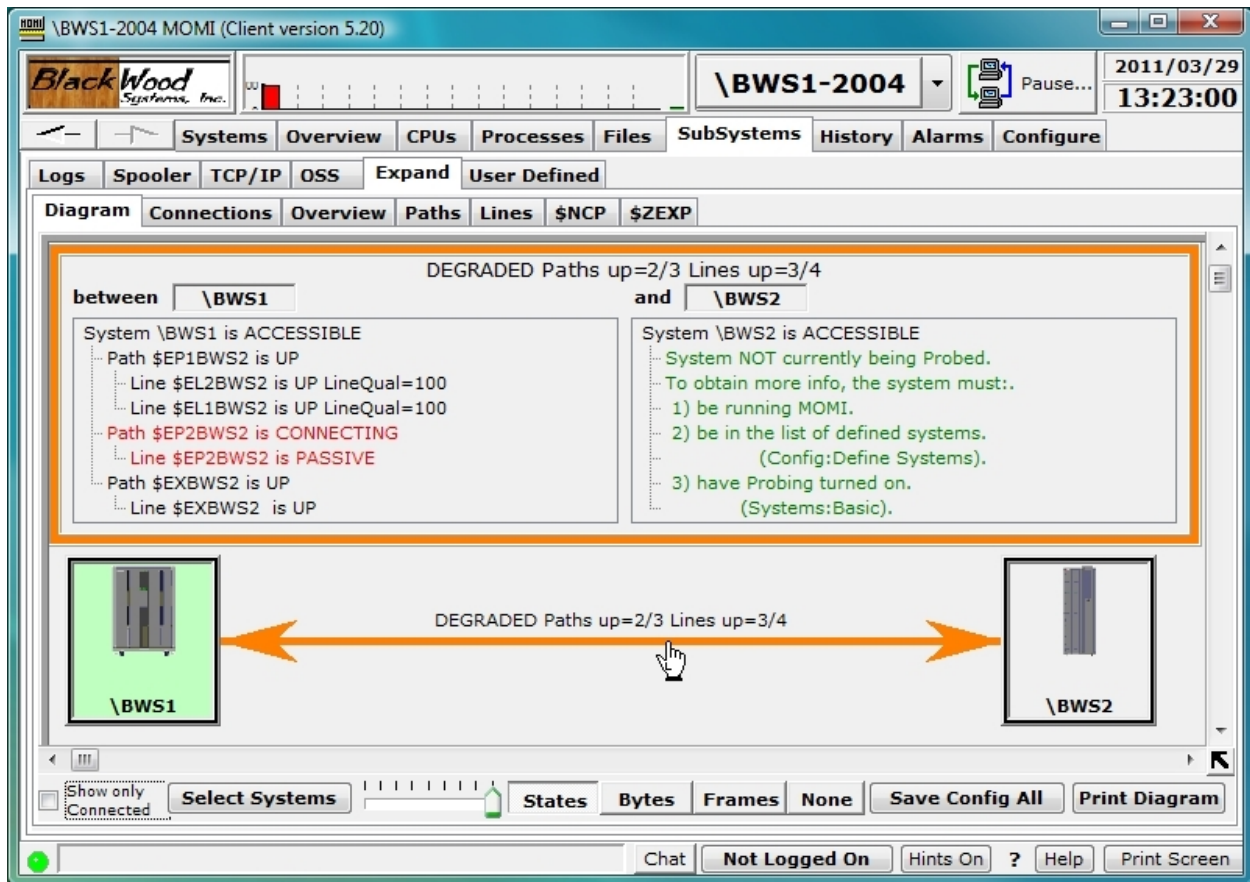
Expand is the name of the subsystem and system software that provides transparent communication between two or more NonStop Systems.

When first started, the nodes or systems on the network are placed right next to each other. Place the mouse within the system box in the 'unused' area and press and hold the mouse to drag the Systems to desired locations. Press the **Save Config All** button to store the screen layout (the locations are not automatically saved).

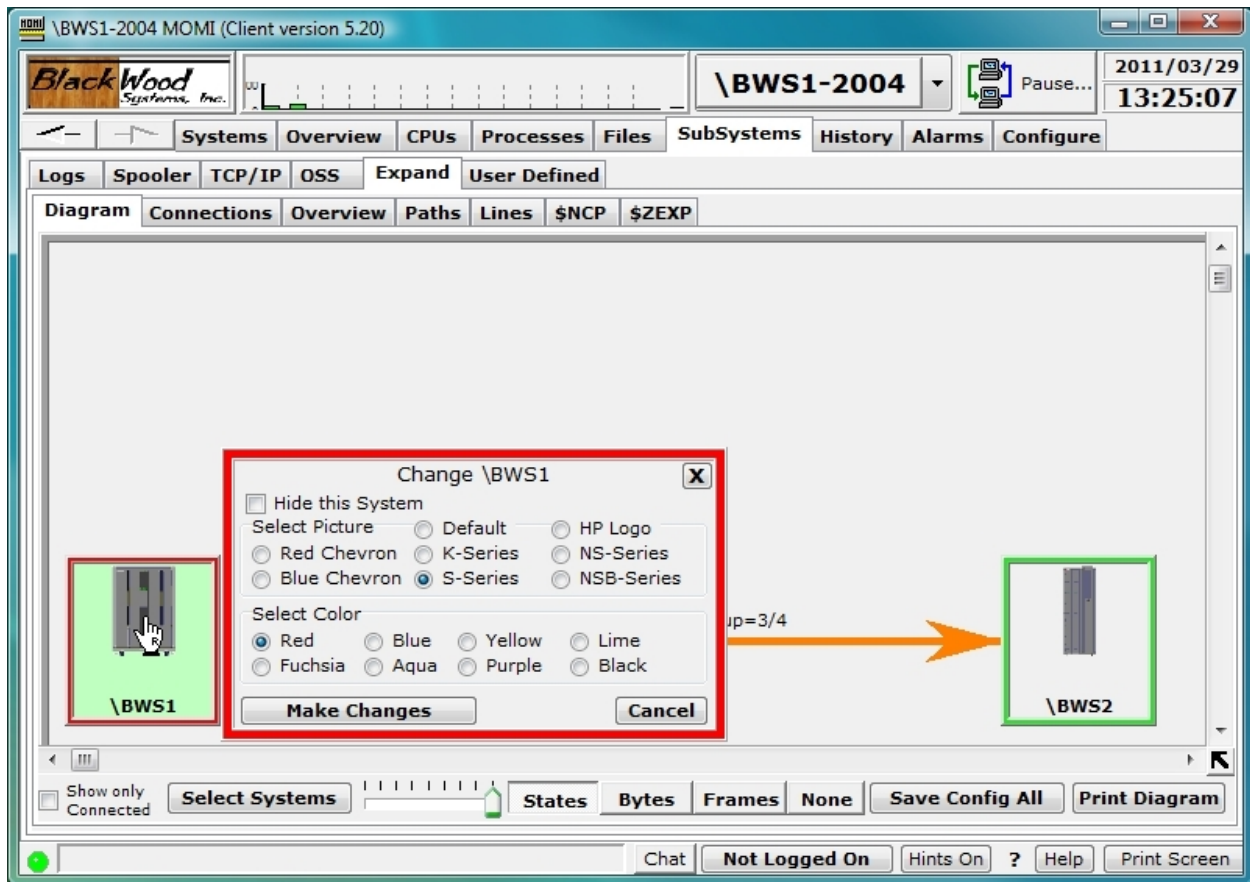
The systems displayed are selected by pressing the button **Select Systems** and choosing systems from the displayed list. The systems available are defined on the screen [Define / Systems](#). Note that the current system selected for the overall client will always display.



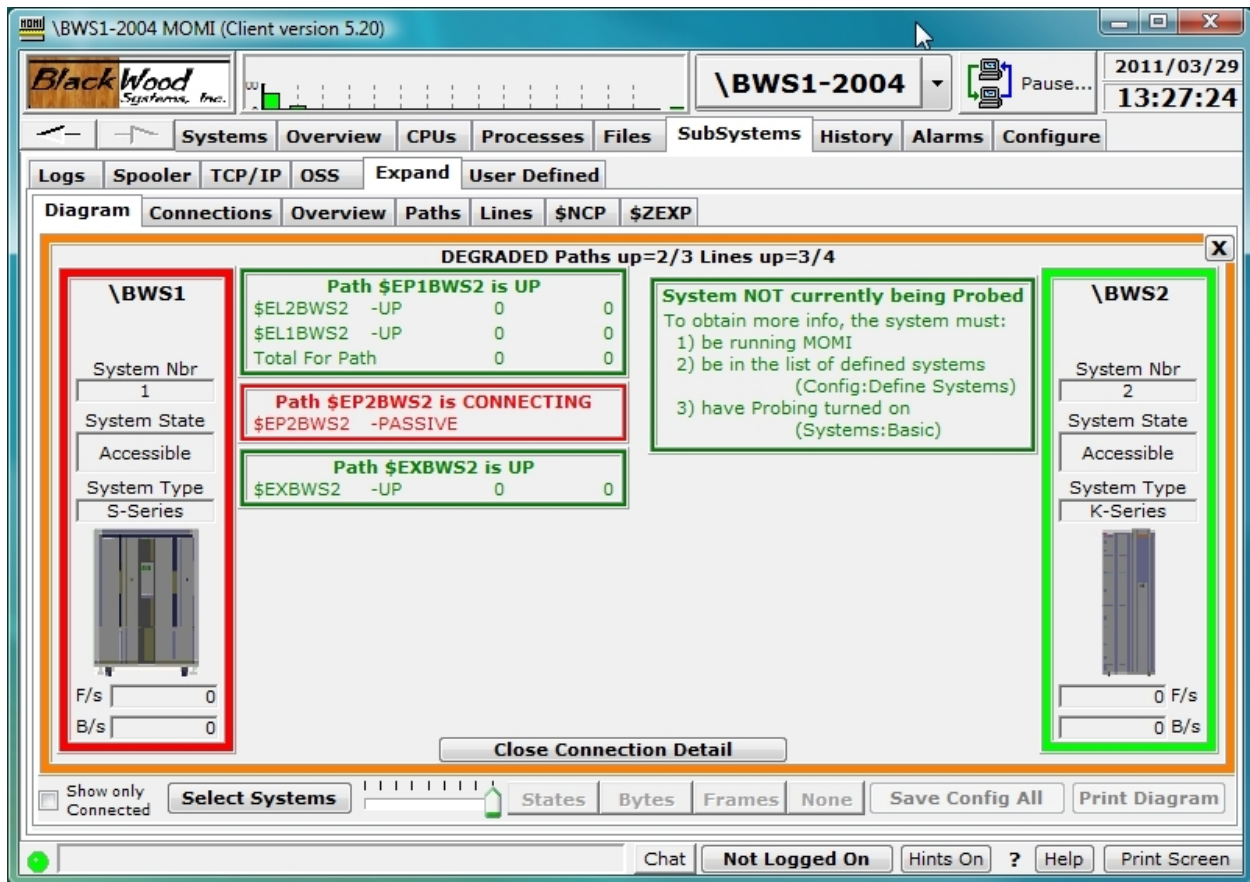
Place the mouse over a connection line displays additional detail about the underlying paths and lines.



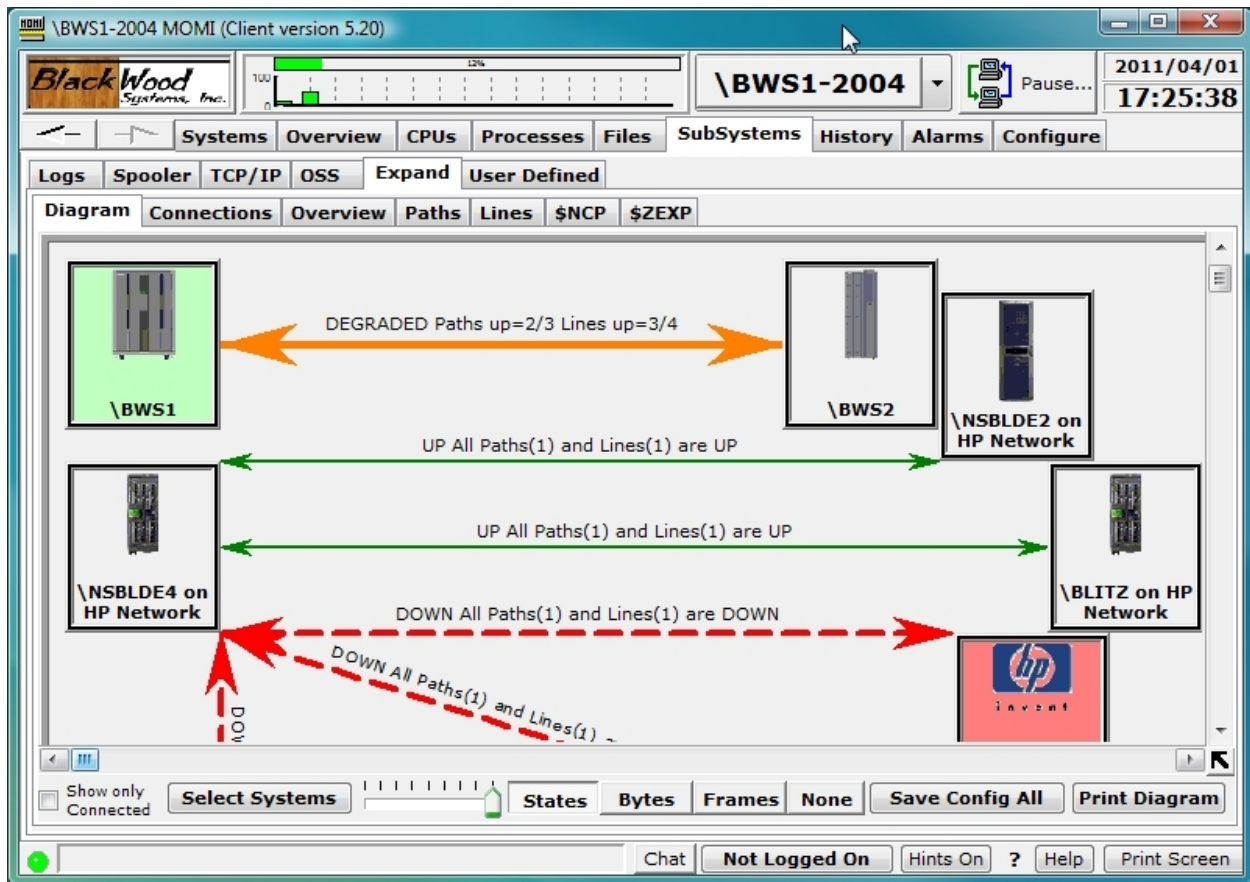
The boxes representing each System on the network may be configured by right-clicking over the image in the center of the box. Various visual attributes such as the system image and color of the box frame may be changed. The option **Hide this System** is used to prevent display on this screen of undesired Systems in the network. Systems are restored on the [Expand / Connections](#) screen.



Place the mouse over a connection between two Systems and left-click brings up a detailed diagram of the connections, states, frame rate and byte rate (if available) between the two nodes.



If a MOMI client connects to multiple systems, and the multiple systems are inter-connected using different Expand networks, it is possible group them separately by using the CONFMOMI keyword [EXPAND-NETWORK-NAME](#). Below is a diagram showing two networks. The first network comprised of \BWS1 and \BWS2 is unnamed. The second network is called ITUG2005. Notice the network name appears in the box with each system.



To obtain the maximum amount of detail, MOMI must be installed on each node.

Expand / Connections

The screenshot displays the 'Expand / Connections' window. The main table lists the following systems:

Net Name	System Name	System Expand Nbr	System Accessible	System Type	CPU Type	Hide System
HP	\CGNAC1	200	YES	NS-X	NS7 X1	NO
HP	\CGNAC2	201	YES	NS-X	NS7 X1	NO
HP	\NSBLDE4	102	YES	NS-Blades	NB54000c	NO
HP	\NSKIT06	66	YES	NS-Series	NS16000	NO
HP	\NSX12	13	YES	NS-X	NS7 X2	NO
HP	\NSX13	14	YES	NS-X	NS7 X2	NO
HP	\NSX14	26	YES	NS-X	NS7 X2	NO
HP	\NSX18	18	YES	NS-X	NS7 X2	NO
HP	\TSEK	7	YES	NS-X	NS7 X2	NO
HP	\VNSK17	50	YES	NS-X	vNS-EE	NO

A context menu is open over the row for \NSX13, showing the following options:

- \NSX13 on HP Network
- Show this System
- Hide this System
- Cancel

The Expand / Connections screen displays the details, or internal values, used to construct the Expand / Diagram screen. The values present are only a subset of information available on other screens and may change from time-to-time.

Tabs along the left hand side of the screen select different categories of information. The **Systems** tab displays all of the known Expand nodes in the network.

Systems may be hidden from view on the Expand / Diagram page by a right click over the value in the **Hide Systems** column.

The **Paths** tab displays information about each known path.

\CGNAC2-2020 MOMI (6.02/6.01)

Alarms 0% 1% **\CGNAC2-2020** Pause... **2018/12/28 14:04:04**

Systems Overview CPUs Processes Files **SubSystems** History Alarms Configure

Logs Spooler TCP/IP OSS **Expand** User Defined Discovery

Diagram **Connections** Overview Paths Lines System Entity L/H \$NCP \$ZEXP

Net Name	Path Name	Origin SysName	Origin Sys Expand Nbr	Dest Sys Name	Dest Sys Expand Nbr	Path Status	Lines Count	Lines Down	Lines Not Connected
HP	\$CGNAC1	\CGNAC2	201	\CGNAC1	200	UP	1	0	0
HP	\$NSBLDE4	\CGNAC2	201	\NSBLDE4	102	UP	1	0	0
HP	\$NSKIT06	\CGNAC2	201	\NSKIT06	66	UP	1	0	0
HP	\$VNSK17	\CGNAC2	201	\VNSK17	50	UP	1	0	0

Systems **Line Stats** Lines Paths

No Filter Displayed 4 of 4

Chat **blkwood.dalew** Hints On ? Help Print Screen

The **Lines** tab displays information about each know Line.

\CGNAC2-2020 MOMI (6.02/6.01)

Alarms 0% 1% **\CGNAC2-2020** Pause... **2018/12/28 14:05:01**

Systems Overview CPUs Processes Files **SubSystems** History Alarms Configure

Logs Spooler TCP/IP OSS **Expand** User Defined Discovery

Diagram **Connections** Overview Paths Lines System Entity L/H \$NCP \$ZEXP

Net Name	Line Name	Origin SysName	Origin Sys Expand Nbr	Line Status	Path Name
HP	\$CGNAC1	\CGNAC2	201	UP	\$CGNAC1
HP	\$NSBLDE4	\CGNAC2	201	UP	\$NSBLDE4
HP	\$NSKIT06	\CGNAC2	201	UP	\$NSKIT06
HP	\$VNSK17	\CGNAC2	201	UP	\$VNSK17

Line Stats
Lines
Paths
Systems

No Filter Displayed 4 of 4

Chat **blkwood.dalew** Hints On ? Help Print Screen

The **Line Stats** tab displays information about each known line. Frames and/or Bytes per second values are not available on all Expand line types.

Alarms

\CGNAC2-2020

2018/12/28 14:06:17

Systems Overview CPUs Processes Files SubSystems History Alarms Configure

Logs Spooler TCP/IP OSS Expand User Defined Discovery

Diagram Connections Overview Paths Lines System Entity L/H \$NCP \$ZEXP

Net Name	Line Name	Origin SysName	Origin Sys Expand Nbr	Dest SysName	Dest Sys Expand Nbr	Path Name	Frames perSec	Bytes perSec	Line Qual
HP	\$CGNAC1	\CGNAC2	201	\CGNAC1	200	\$CGNAC1	0	0	100
HP	\$NSBLDE4	\CGNAC2	201	\NSBLDE4	102	\$NSBLDE4	0	42	100
HP	\$NSKIT06	\CGNAC2	201	\NSKIT06	66	\$NSKIT06	0	0	100
HP	\$VNSK17	\CGNAC2	201	\VNSK17	50	\$VNSK17	0	0	100

No Filter Displayed 4 of 4

Chat blkwood.dalew Hints On ? Help Print Screen

This screen may show systems no longer connected to the Expand network. Formerly present systems continue to be reported by Expand until they are explicitly removed from network routing. Below are some useful SCF commands in this area:

info process \$NCP,systems	list all known systems
delete entry \$NCP.*	remove from network routing any system not directly connected
delete entry \$NCP.\sys	remove from network routing a specific system (\sys)
info process \$NCP,pathsets	displays pathmap and

info process \$NCP,systems

list all known systems

line information

Expand / Overview

The screenshot displays the 'Expand / Overview' screen of the BlackWood Systems, Inc. \CGNAC2-2020 MOMI (6.02/6.01) application. The interface includes a top menu bar with options like Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. The 'Expand' tab is active, showing status indicators for 'Expand is Available', '\$NCP is Running', and '\$ZEXP is Running'. Below these, there are three main sections: 'SYSTEMS', 'PATHS', and 'LINES'. Each section has a 'Count' and a 'Not Accessible' or 'Not Up' status. The 'SYSTEMS' section shows a count of 10 and 0 not accessible. The 'PATHS' section shows a count of 4 and 0 degraded or down. The 'LINES' section shows a count of 4 and 0 not connected or down. Each section also has a table for 'NOT Up' or 'NOT Accessible' with columns for Net Name, System Name, System Expand Nbr, and System Access. The bottom status bar includes 'Chat', 'Not Logged On', 'Hints On', '?', 'Help', and 'Print Screen'.

Net Name	System Name	System Expand Nbr	System Access
----------	-------------	-------------------	---------------

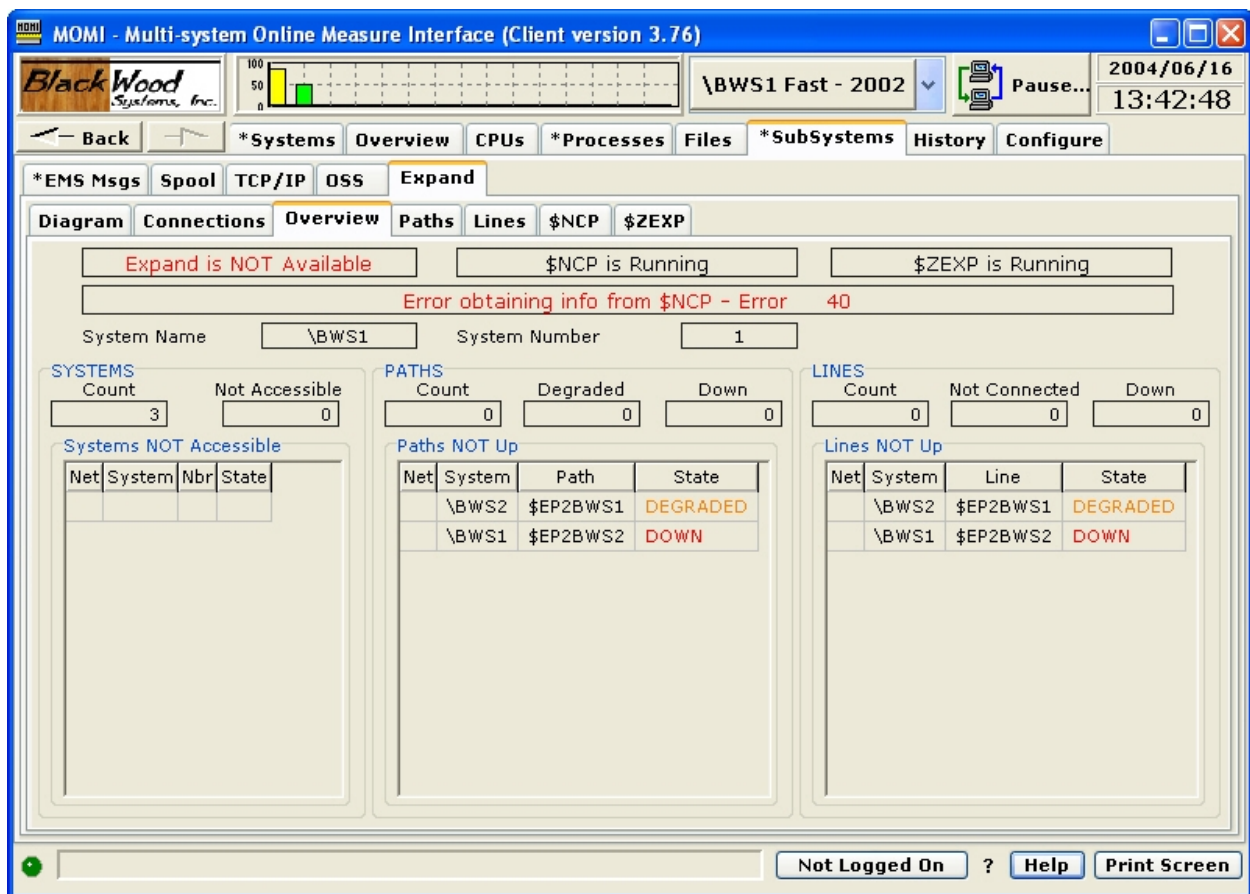
Net Name	Path Name	Dest Sys Name	Dest Sys Expand Nbr	Path Status
----------	-----------	---------------	---------------------	-------------

Net Name	Line Name	Path Name	Line Status
----------	-----------	-----------	-------------

The Expand / Overview screen presents a general view of the status of the Expand sub-system.

The top portion of the screen shows the result of a general determination of Expand availability by checking the existence of mandatory processes \$NCP and \$ZEXP. The lower portion of the screen shows any System not accessible via Expand, and any path or line not in a 'good' state. The middle portion of the screen reflects counts for these problem areas.

In the event of a severe error, an additional error message is displayed.



Paths

Paths / Detail

Info Path \$CGNAC1

Compress	ON	Next System	200	OOS Space	32,767	Expand - Single Line handler	
OOS Timeout	00:00:03.00	L4 Retries	3	PathTF	0		
L4 Timeout	00:00:20.00	L4 Send Window	254	TimeFactor	1		
L4 ExtPackets	ON	L4 Congest Ctrl	ON	SuperPath	OFF	Discard	ON

Path Block Bytes: Local 0, Remote 0, Negotiated 0, Minimum 1,024, Maximum 9,180
Path Packet Bytes: Local 9,152, Remote 9,152, Negotiated 9,152, Minimum 1,024, Maximum 9,180

Status Path \$CGNAC1

PPID	2,1021	BPID	3,441	Number of Lines	1	State	STARTED
Trace Status	OFF	Trace File					
LDEVs	228	0	0	0	0	0	0
LDEV Names	\$CGNAC1						

Stats Path \$CGNAC1

Reset Time	2018/12/28 13:15:00	Sample Time	2018/12/28 13:29:12
Current Ext Mem KBytes Used	448	Max Ext Mem KBytes Used	448
Number of known systems	1	Number of OOS Timeouts	0
Ext Mem Allocation Fails	0	QIO Allocation Fails	0
Current QIO KBytes Used	0	Max QIO KBytes Used	0
Current QIO MDs Used	0	Max QIO MDs Used	1

Level 4 Message Size Histogram

<= 64	0	<= 128	0	<= 256	0	<= 512	0	
<= 1024	0	<= 2048	0	<= 4096	0	<= 32k	0	
							> 32k	0

Level 4 Detail

LRQ	LCMP	CANCEL	ACK	NAK	ENQ	PING
SENT	0	0	0	0	0	0

Path Name: \$CGNAC1

Print

The Paths / Detail screen presents an SCF-type view of the Info, Status and Stats for an Expand Path.

The purpose of this format is to provide the User a familiar layout showing all possible data for a given path. Use the scroll bar on the right to view all of the available information.

Paths / Info

Info Path \$CGNAC1

Compress	<input type="checkbox"/> ON	Next System	200	OOS Space	32,767	Expand - Single Line handler	
OOS Timeout	00:00:03.00	L4 Retries	3	PathTF	0		
L4 Timeout	00:00:20.00	L4 Send Window	254	TimeFactor	1		
L4 ExtPackets	<input type="checkbox"/> ON	L4 Congest Ctrl	<input type="checkbox"/> ON	SuperPath	<input type="checkbox"/> OFF	Discard	<input type="checkbox"/> ON
Path Block Bytes	Local: 0	Remote: 0	Negotiated: 0	Minimum: 1,024	Maximum: 9,180		
Path Packet Bytes	9,152	9,152	9,152	1,024	9,180		

Status Path \$CGNAC1

PPID	2,1021	BPID	3,441	Number of Lines	1	State	STARTED
Trace Status	<input type="checkbox"/> OFF	Trace File					
LDEVs	228	0	0	0	0	0	0
LDEV Names	\$CGNAC1						

Stats Path \$CGNAC1

Reset Time	2018/12/28 13:15:00	Sample Time	2018/12/28 13:29:12
Current Ext Mem KBytes Used	448	Max Ext Mem KBytes Used	448
Number of known systems	1	Number of OOS Timeouts	0
Ext Mem Allocation Fails	0	QIO Allocation Fails	0
Current QIO KBytes Used	0	Max QIO KBytes Used	0
Current QIO MDs Used	0	Max QIO MDs Used	1

Level 4 Message Size Histogram

<= 64	0	<= 128	0	<= 256	0	<= 512	0	
<= 1024	0	<= 2048	0	<= 4096	0	<= 32k	0	
							> 32k	0

Level 4 Detail

SENT	LRQ	LCMP	CANCEL	ACK	NAK	ENQ	PING
0	0	0	0	0	0	0	0

Path Name:

Print

Chat blkwood.dalew Hints On ? Help Print Screen

The Paths / Info screen presents the configuration information for Expand Paths.

Various fields concerning Path Block Bytes and Path Packet Bytes used for Expand over IP are updated by Expand after the line is connected with the remote system and reflects final negotiated values.

Paths / Status

The screenshot shows the BlackWood Systems, Inc. \CGNAC2-2020 MOMI (6.02/6.01) application. The 'Paths' tab is selected, displaying a table of paths and their status. A context menu is open over the '\$CGNAC1' path, showing options: 'Display Path Detail', 'Start Path', 'Stop Path', 'Abort Path', and 'Cancel'.

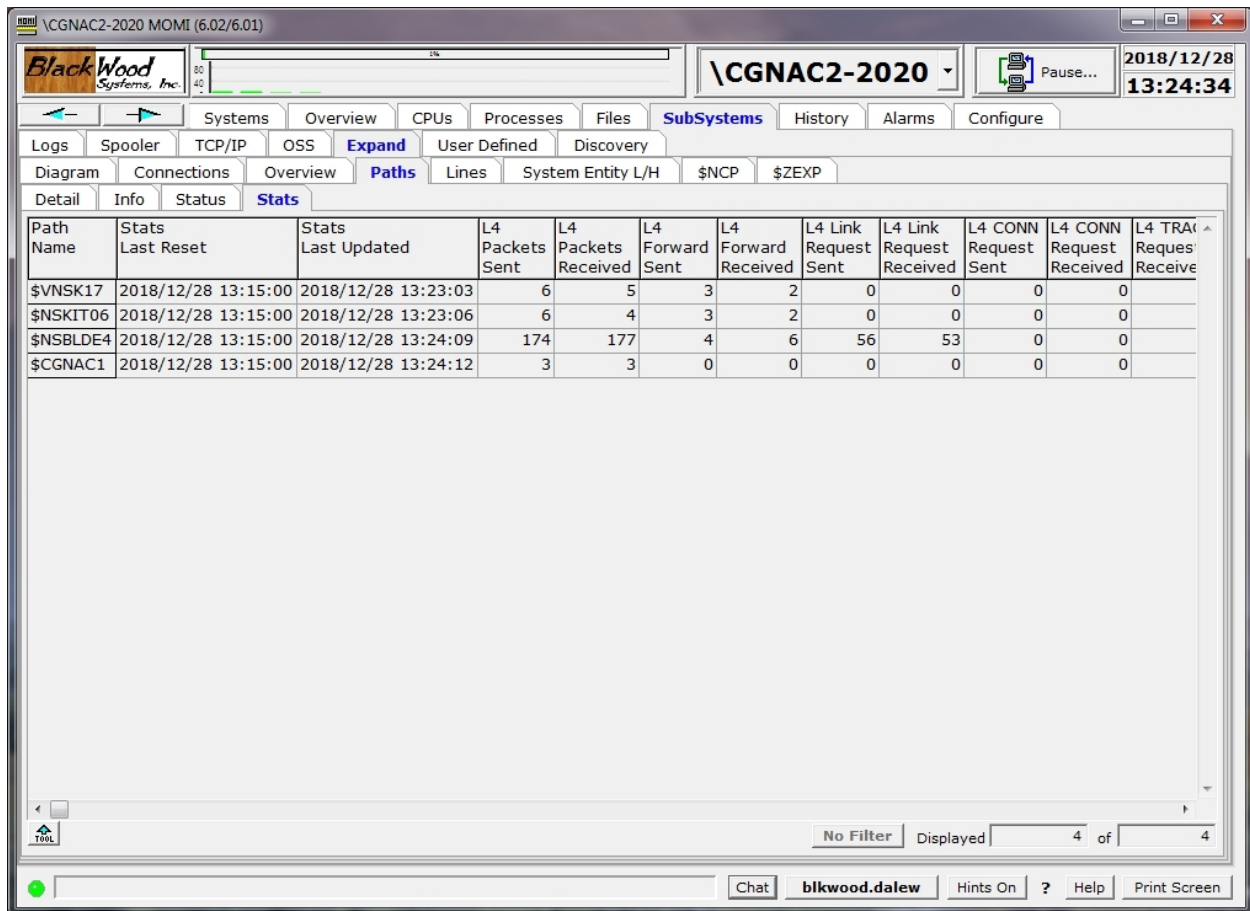
Path Name	Path State	Last Error	Clip	Total Lines	Pri Cpu	Pri Pin	Bak Cpu	Bak Pin	S	T	Trace File	LDEV1	LDEV1 Name	LDEV2	LDEV2 Name	LDEV3	LDEV3 Name	LDEV4	LDEV4 Name	LDEV5
\$VNSK17	STARTED	0	0	1	1	1201	0	800				129	\$VNSK17	0		0		0		C
\$NSKIT06	STARTED	0	0	1	0	400	1	465				152	\$NSKIT06	0		0		0		C
\$NSBLDE4	STARTED	0	0	1	0	398	1	467				153	\$NSBLDE4	0		0		0		C
\$CGNAC1	STARTED	0	0	1	2	1021	3	441				228	\$CGNAC1	0		0		0		C

The Paths / Status screen presents the state and status of Expand Paths.

A path is made up of one or more physical lines. The fields LDEV1 - LDEV8 list these lines.

Right-click on a Path Name allows the jump to display the Paths / Detail screen or perform actions on the path.

Paths / Stats



The Paths / Stats screen presents statistical information about an Expand Path.

An Expand Path is made up of one or more physical lines. The statistics represent the total of the underlying lines.

Some older versions of Expand do not report all fields displayed. QIO memory information is not reported by all Expand Path types.

Lines

Lines / Detail

CGNAC2-2020 MOMI (6.02/6.01)

BlackWood Systems, Inc.

CGNAC2-2020

2018/12/28 13:31:01

Systems Overview CPUs Processes Files SubSystems History Alarms Configure

Logs Spooler TCP/IP OSS Expand User Defined Discovery

Diagram Connections Overview Paths Lines System Entity L/H \$NCP \$ZEXP

Detail Info Status Stats

Info Line \$VNSK17

Linetype	TCP/IP	Path Name	\$VNSK17	LDEV	129
L2Protocol	Net*Ip	TimeFactor(LineTF/FTF)	0 1	SpeedK	ETHER100
Framesize	132	Rsize	0	Speed	0
LinePriority	1	Start Up	OFF	Delay	00:00:00.10
DownIfBadQuality	OFF	QualityThreshold	96	QualityTimer	00:01:00.00
TxWindow	7	MaxReconnects	0	AfterMaxRetries	Passive
TimerReconnect	00:00:30.00	RetryProbe	19	TimerProbe	00:00:01.00
AssociateDev	\$ZTC0			TimerInactivity	00:00:00.00
IP Version	IPv4				
V4DestIpAddr	172.17.222.113	DestIpPort	7206	V6DestIpAddr	::
V4SrcIpAddr	172.17.198.13	SrcIpPort	7206	V6SrcIpAddr	::

Status Line \$VNSK17

PPID	1.1201	BPID	0.800	Line State	STARTED
Path LDEV	129	Connect-Mgr LDEV	129	Detailed State	CONNECTED
Path Name	\$VNSK17	Connect-Mgr Name	\$VNSK17	Status	
Line Number	0	Effective Line Priority	1	Last Error	0
Clip Number	0	Clip Loaded State	LOADED	Line Not Ready Err	0
Path ID	-	Swan Track ID		Line Handler Type	4
Detailed Info					
Detailed Info 2					
Trace File					

CPU Channel Controller Unit Primary SubChannel Addr

Line Name \$VNSK17

Print

Chat blkwood.dalew Hints On ? Help Print Screen

The Lines / Detail screen presents an SCF-type view of the Info, Status and Stats for an Expand Line.

The purpose of this format is to provide the User a familiar layout showing all possible data for a given line. Use the scroll bar on the right to view all of the available information.

Lines / Info

BlackWood Systems, Inc. \CGNAC2-2020 MOMI (6.02/6.01)

2018/12/28 13:32:50

Systems Overview CPUs Processes Files SubSystems History Alarms Configure

Logs Spooler TCP/IP OSS Expand User Defined Discovery

Diagram Connections Overview Paths Lines System Entity L/H \$NCP \$ZEXP

Detail Info Status Stats

Line Name	Path Name	LDEV	Assoc Dev	Assoc SubDev	IP Vers	v4 Dest IP Address	v4 Dest IP AddrName	v6 Dest IP Address	Dest IP Port	v4 Src IP Address	v4 Src IP AddrName	v6 Src IP Address	Src Port
\$VNSK17	\$VNSK17	129	\$ZTC0		IPV4	172.17.222.113		::	7206	172.17.198.13		::	7
\$NSKIT06	\$NSKIT06	152	\$ZTC0		IPV4	172.17.197.116		::	8004	172.17.198.13		::	8
\$NSBLDE4	\$NSBLDE4	153	\$ZTC0		IPV4	172.17.197.73		::	8003	172.17.198.13		::	8
\$CGNAC1	\$CGNAC1	228	\$ZTC0		IPV4	172.17.198.11		::	9123	172.17.198.13		::	9

TCP/IP

No Filter Displayed 4 of 4

Chat blkwood.dalew Hints On ? Help Print Screen

The Lines / Info screen presents configuration information for Expand Lines.

Various Expand Line types report different information. Each line type is listed under tabs along the left side of the screen.

Lines / Status

The screenshot shows the BlackWood Systems, Inc. \CGNAC2-2020 MOMI (6.02/6.01) interface. The main window displays the 'Lines / Status' screen. The top navigation bar includes tabs for Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. The 'SubSystems' tab is active, and the 'Lines' sub-tab is selected. The table below shows the status of various lines. A context menu is open over the table, showing options: Display Line Detail, Start Line, Stop Line, Abort Line, and Cancel. The status bar at the bottom shows 'No Filter', 'Displayed 4 of 4', and a chat window for 'blkwood.dalew'.

Line Name	Line State	Detail State	Line Not Ready	Last Error	Primary SubChan Address	Backup SubChan Address	ConMgr LDEV Nbr	ConMgr LDEV Name	Path LDEV Nbr	Path LDEV Name	Line Pri CPU	Line Pri Pin	Line Bak CPU	Line Bak Pin	Pri LIO Addr	Alt LIO Addr	P C
\$VNSK17	STARTED	CONNECTED	0	0	0	0	129	\$VNSK17	129	\$VNSK17	1	1201	0	800	0	0	
\$NSKIT06	STARTED	CONNECTED	0	0	0	0	152	\$NSKIT06	152	\$NSKIT06	0	400	1	465	0	0	
\$NSBLDE4	STARTED	CONNECTED	0	0	0	0	153	\$NSBLDE4	153	\$NSBLDE4	0	398	1	467	0	0	
\$CGNAC1	STARTED	CONNECTED	0	0	0	0	228	\$CGNAC1	228	\$CGNAC1	2	1021	3	441	0	0	

The Lines / Status screen presents status and additional configuration information about Expand Lines.

Not all configuration fields are used by all Expand Line types. The Detail Info fields off the screen (scroll to display) supply additional information under error conditions.

Right-click on a Line Name allows a jump to display the Lines / Detail screen or to perform actions.

Lines / Stats

The screenshot shows the BlackWood Systems \CGNAC2-2020 MOMI (6.02/6.01) interface. The top menu bar includes Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. Below this is a sub-menu bar with Logs, Spooler, TCP/IP, OSS, Expand, User Defined, and Discovery. The main content area displays a table of statistics for various line types. The table has columns for Line Name, Path Name, Stats Last Reset, Stats Last Updated, Pri Cpu, Pri Pin, Bak Cpu, Bak Pin, Connect Cmds Sent, Connect Cmds Rcvd, Connect Resp Sent, Connect Resp Rcvd, Data Frames Sent, and C F R. Four line types are listed: \$VNSK17, \$NSKIT06, \$NSBLDE4, and \$CGNAC1. The bottom of the screen shows a status bar with 'No Filter', 'Displayed 4 of 4', and a chat window with the name 'blkwood.dalew'.

Line Name	Path Name	Stats Last Reset	Stats Last Updated	Pri Cpu	Pri Pin	Bak Cpu	Bak Pin	Connect Cmds Sent	Connect Cmds Rcvd	Connect Resp Sent	Connect Resp Rcvd	Data Frames Sent	C F R
\$VNSK17	\$VNSK17	2018/11/20 09:09:08	2018/12/28 13:36:04	1	1201	0	800	4	1	1	4	30,746	
\$NSKIT06	\$NSKIT06	2018/11/19 10:53:05	2018/12/28 13:36:07	0	400	1	465	1	1	1	1	1,956,252	
\$NSBLDE4	\$NSBLDE4	2018/11/19 10:53:05	2018/12/28 13:36:10	0	398	1	467	1	1	1	1	17,245,502	1
\$CGNAC1	\$CGNAC1	2018/11/20 07:43:43	2018/12/28 13:36:13	2	1021	3	441	1	1	1	1	11,954	

The Lines / Stats screen presents statistical information about an Expand Line.

Various Expand Line types report different information. Each line type is listed under tabs along the left side of the screen.

Expand / System Entity

BlackWood Systems, Inc. \CGNAC2-2020 MOMI (6.02/6.01)

2018/12/28 13:40:39

Systems Overview CPUs Processes Files SubSystems History Alarms Configure

Logs Spooler TCP/IP OSS Expand User Defined Discovery

Diagram Connections Overview Paths Lines System Entity L/H \$NCP \$ZEXP

Live Data Live Rated System Entity collected at 2018/12/28 13:40:31

System Name	System Number	Links	Link Time	Sent	Receive	Sent Forward	Receive Forward	Measure Window
\NSBLDE4	102	0.19	0.045	0.29	0.29	0.00	0.00	10.007610
\NSX13	14	0.00	0.000	0.00	0.00	0.00	0.00	10.007610
\NSX14	26	0.00	0.000	0.00	0.00	0.00	0.00	10.007610
\CGNAC1	200	0.00	0.000	0.00	0.00	0.00	0.00	9.998374
\TSEK	7	0.00	0.000	0.00	0.00	0.00	0.00	10.007610
\VNSK17	50	0.00	0.000	0.00	0.00	0.00	0.00	10.001361
\NSX18	18	0.00	0.000	0.00	0.00	0.00	0.00	10.007610
\NSX12	13	0.00	0.000	0.00	0.00	0.00	0.00	10.007610
\NSKIT06	66	0.00	0.000	0.00	0.00	0.00	0.00	10.007610

Data Type: ☒ Live ☐ History ☒ Rated ☐ Pause No Filter Displayed 9 of 9

Chat blkwood.dalew Hints On ? Help Print Screen

The Expand / System Entity screen displays the MEASURE entity System for all known network nodes. By default, the data is displayed live, collected every [Interval](#), or may be displayed from MOMI history.

When first entering the screen the data is displayed Live and automatically updated.

History, or prior information, may be displayed by pressing the **History** button.

System Entity History Config Options

Specify Date/Time

Now 2018/12/28 13:37:42

Clear

Specify Database to View

History Window Size	Newest Data	Oldest Data
2 Minute interval	2018/12/28 13:06:00	2018/12/14 13:02:00
10 Minute interval	2018/12/28 12:40:00	2018/11/30 13:10:00
1 Hour interval	2018/12/28 11:00:00	2018/10/29 15:00:00
1 Day interval	2018/12/27 00:00:00	2017/05/08 02:00:00

2 Minute interval

Request

Close

Select the desired start date/time, history file and push **Request**.

CGNAC2-2020 MOMI (6.02/6.01)

BlackWood Systems, Inc.

\CGNAC2-2020 2018/12/28 13:43:37

Systems Overview CPUs Processes Files SubSystems History Alarms Configure

Logs Spooler TCP/IP OSS Expand User Defined Discovery

Diagram Connections Overview Paths Lines System Entity L/H \$NCP \$ZEXP

History History Rated System Entity over 2 Minute interval at Friday 2018/12/28 13:36:00

System Name	System Number	Links	Link Time	Sent	Receive	Sent Forward	Receive Forward	Measure Window
\NSBLDE4	102	0.20	0.039	0.30	0.30	0.00	0.00	120.003021
\NSX12	13	0.00	0.000	0.00	0.00	0.00	0.00	120.003021
\NSKIT06	66	0.00	0.000	0.00	0.00	0.00	0.00	120.003021
\TSEK	7	0.00	0.000	0.00	0.00	0.00	0.00	120.003021
\VNSK17	50	0.00	0.000	0.00	0.00	0.00	0.00	120.000764
\CGNAC1	200	0.00	0.000	0.00	0.00	0.00	0.00	120.001319
\NSX13	14	0.00	0.000	0.00	0.00	0.00	0.00	120.003021
\NSX14	26	0.00	0.000	0.00	0.00	0.00	0.00	120.003021
\NSX18	18	0.00	0.000	0.00	0.00	0.00	0.00	120.003021

☒ Live
☒ History

☒ Config ☒ Rated

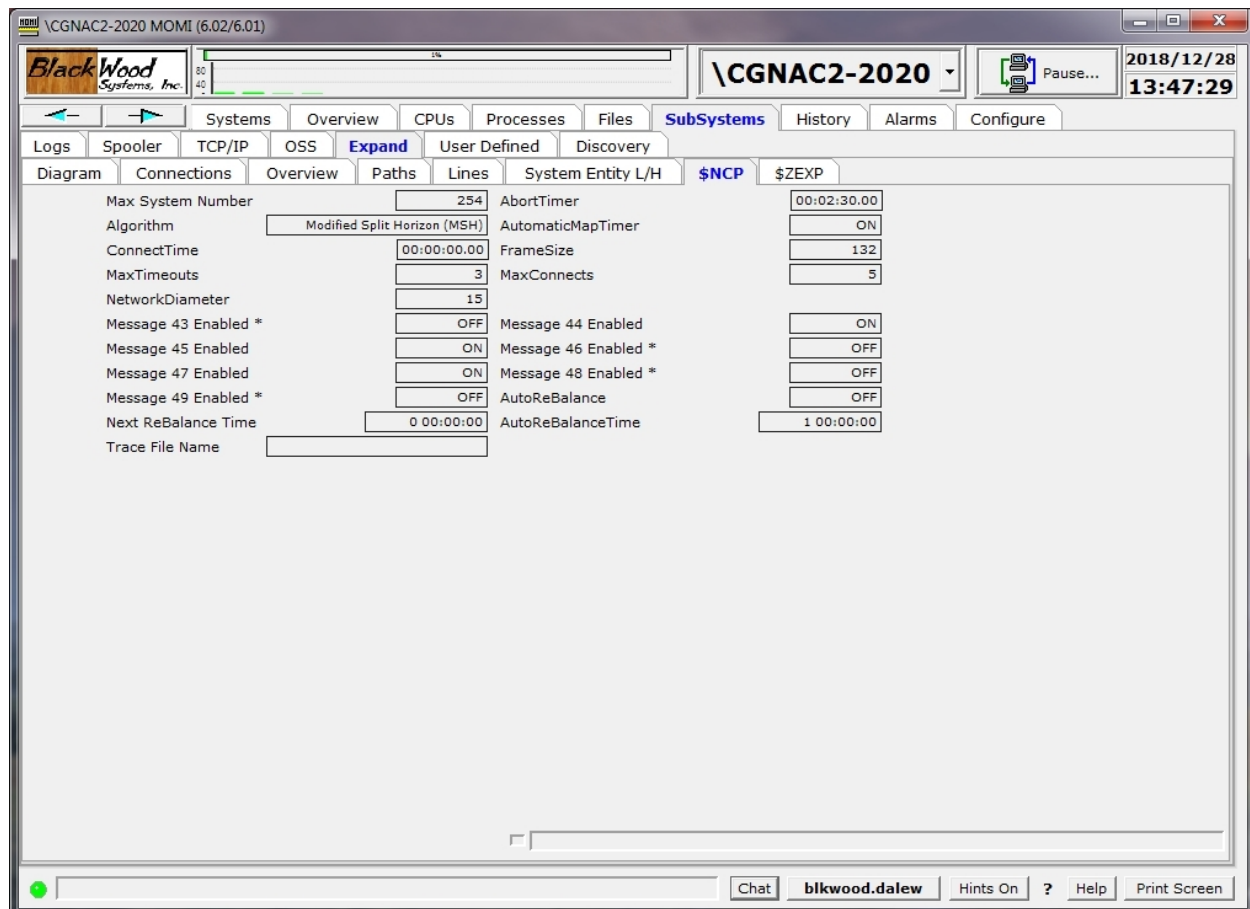
Backward Forward

No Filter Displayed 9 of 9

Chat blkwood.dalew Hints On ? Help Print Screen

The history mode of the screen shows additional **forward / backward** buttons to allow stepping through the history records.

Expand / \$NCP



The Expand / \$NCP screen presents information about the Network Control Process.

The NCP process is the main 'traffic cop' for the Expand subsystem. While actual 'user data' does not flow through this process, it does determine which Paths are used for transport and it maintains routes and the list of systems on the network.

Certain messages are logged to \$0 as the result of changes in the Expand network, such as paths/lines up/down and processors in remote nodes up/down. These messages can be turned on or off. Right-click on fields marked with an * to perform the action. Changes may not be visible right away.

Max System Number	254	AbortTimer	00:02:30.00
Algorithm	Modified Split Horizon (MSH)	AutomaticMapTimer	ON
ConnectTime	00:00:00.00	FrameSize	132
MaxTimeouts	3	MaxConnects	5
NetworkDiameter	15		
Message 43 Enabled *	OFF	Message 44 Enabled	ON
Message 45 Enabled	ON	Message 46 Enabled *	OFF
Message 47 Enabled	ON	Message 48 Enabled *	OFF
Message 49 Enabled *	OFF	AutoReBalance	OFF
Next ReBalance Time	0 00:00:00	AutoReBalanceTime	1 00:00:00
Trace File Name			

Enable Message 46

Disable Message 46

Cancel

Expand / \$ZEXP

\CGNAC2-2020

2018/12/28 13:55:45

Systems Overview CPU's Processes Files SubSystems History Alarms Configure

Logs Spooler TCP/IP OSS Expand User Defined Discovery

Diagram Connections Overview Paths Lines System Entity L/H \$NCP \$ZEXP

Primary PID 0,15
Reset Time 2018/11/19 10:53:06

Backup PID 1,27
Sample Time 2018/12/28 13:55:00

	Configured	Allocated	Max Alloc	Alloc Tries	Total Waits	Curr Waits	Max Waits	Fails	Curr Alloc
BUFPOL	56,180	10,176	10,304	3,380,857	0	0	0	0	2
MSGPOOL	39,296	0	10,048	3,375,770	0	0	0	0	0
EXTPOOL	1,117,316	29,312	55,040	11,304,332	0	0	0	0	5
TCBS	37	4	5	49	0	0	0	0	0
STACKS	3,582	5,308	416	6,606,650	0	17	16,703	0	0
CPSTACK	0	0	23	2	0	0	0	0	0
FCBS	48	1	1	2	0	0	0	0	0
IOCBS	128	3	5	3,375,775	0	0	0	0	0
RCBS	48	1	2	43	0	0	0	0	0
BUFFERS	2,048	0	0	0	0	0	0	0	0
CPBUF	4,096	1	3,649	220	0	0	0	0	0
SEMAPH	0	0	0	148	42	0	1	0	0

REQUESTS 3,375,770
REPLIES 3,375,769

Time Last Task 2018/12/28 13:54:13

Chat blkwood.dalew Hints On ? Help Print Screen

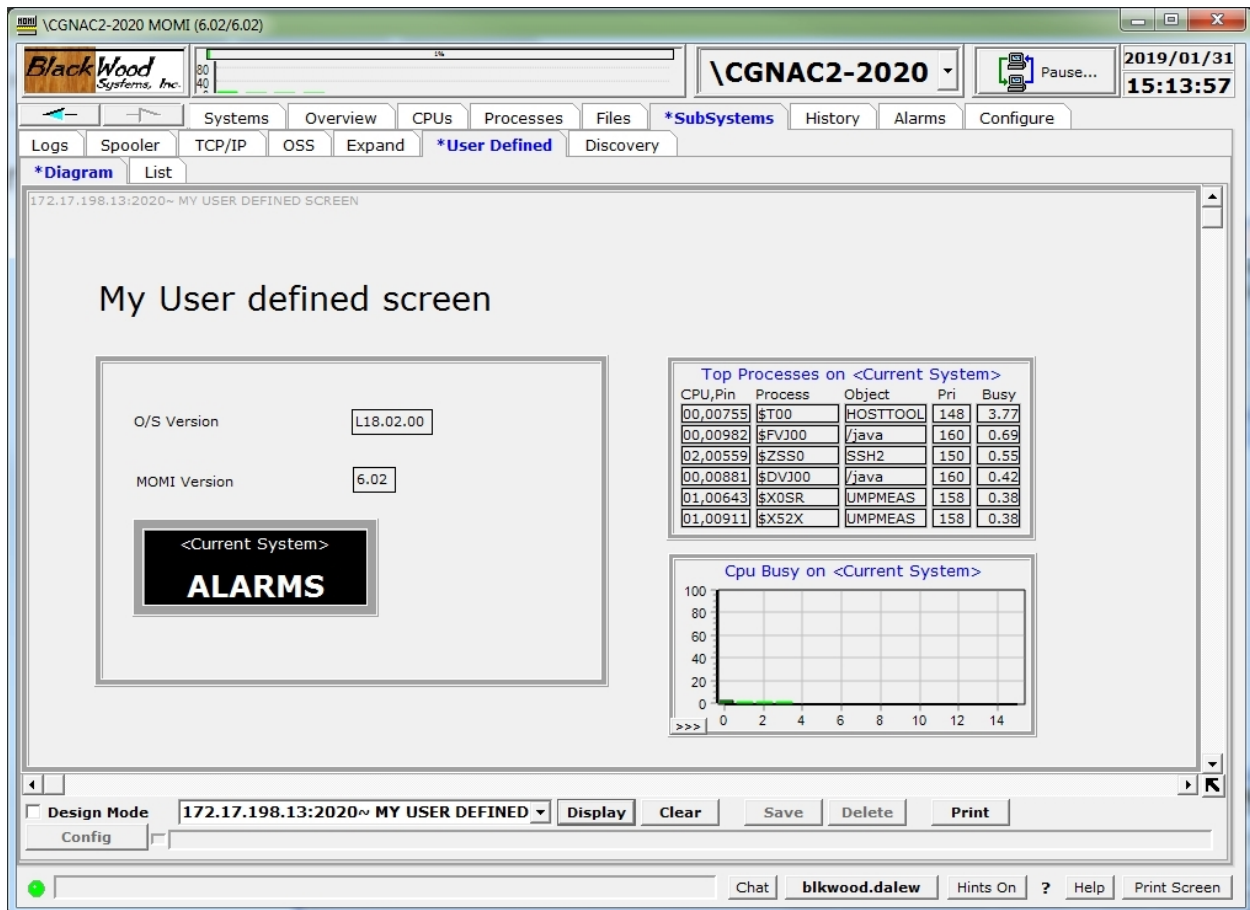
The Expand / \$ZEXP screen presents various statistics about the Expand Manager Process. This information is the equivalent of the command "SCF stats process \$ZEXP".

The Expand Manager Process supervises the Expand Path and Line handler processes and must be running in order for Expand to be active. Information requests through SCF and the SPI interface are routed through this process.

Unfortunately, the meaning of the values displayed on this screen are not known. The information presented is undocumented and nothing is available (that we can find) to interpret these values. We have included this screen because the information looked interesting.

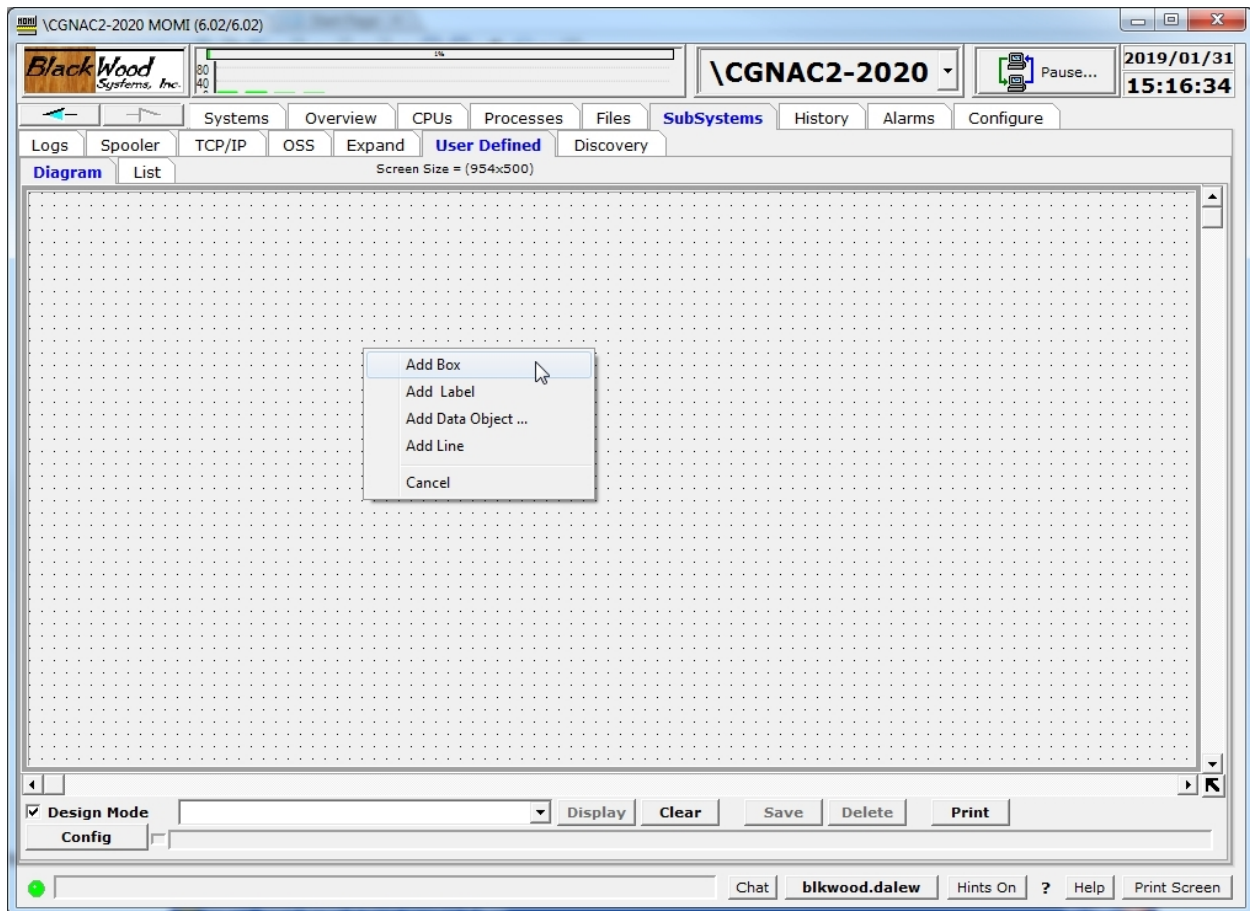
User Defined

User Defined / Diagram

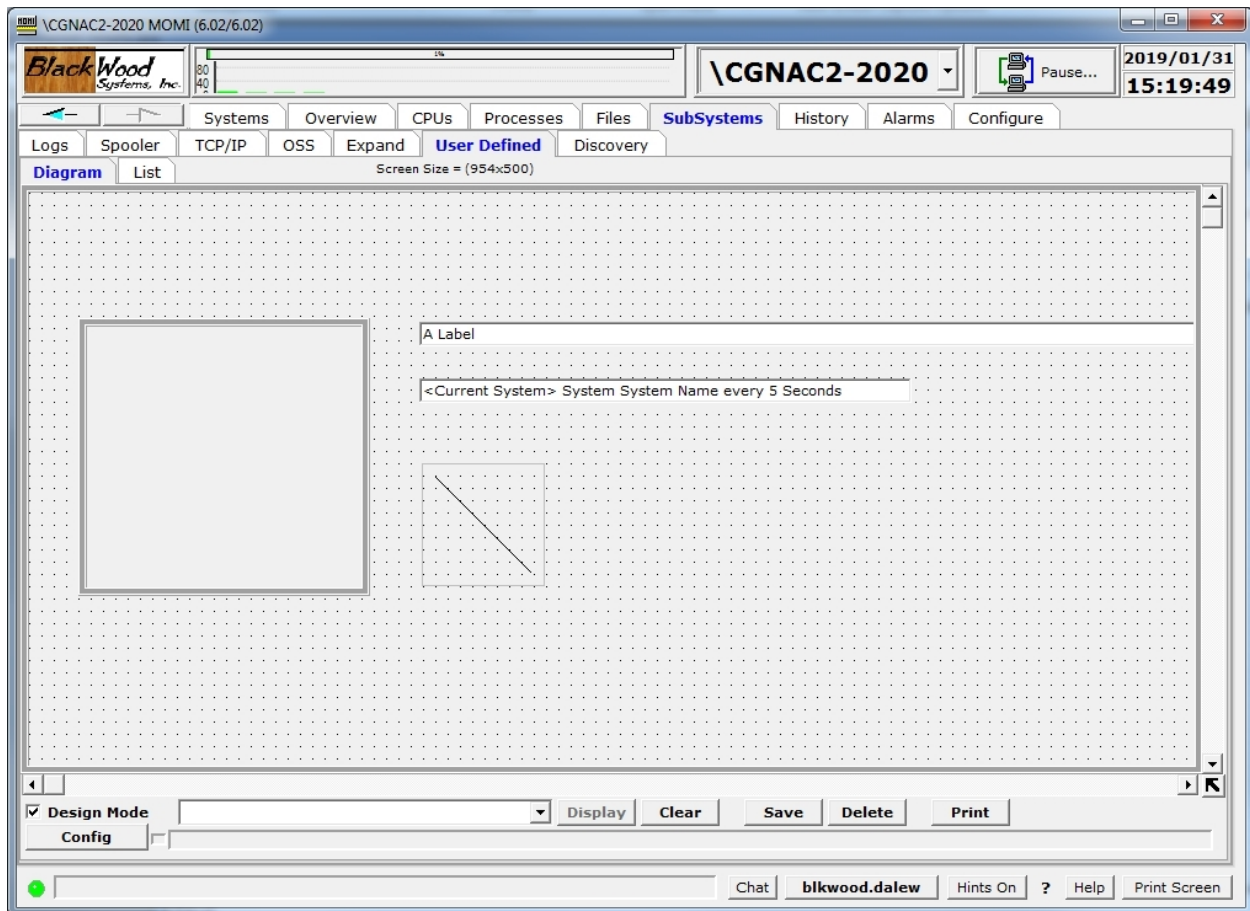


The User Defined / Diagram page allows the user to construct, in a some-what free-form manner, a page of items to display. The items on-screen automatically update. The User Defined page, once created, may be saved for later use and may be displayed within the Diagram page or in a window independent of the main MOMI PC Client screen. The MOMI PC Client must be running as the independent windows are still created by it.

The Diagram page starts 'empty'. The user clicks the box next to **Design Mode** to allow entry / definition of items on screen. Design mode is also used to change existing items. User Define screens are saved under the current User ID. Uncheck **Design Mode** to activate the screen. It may take several seconds for all fields to populate.

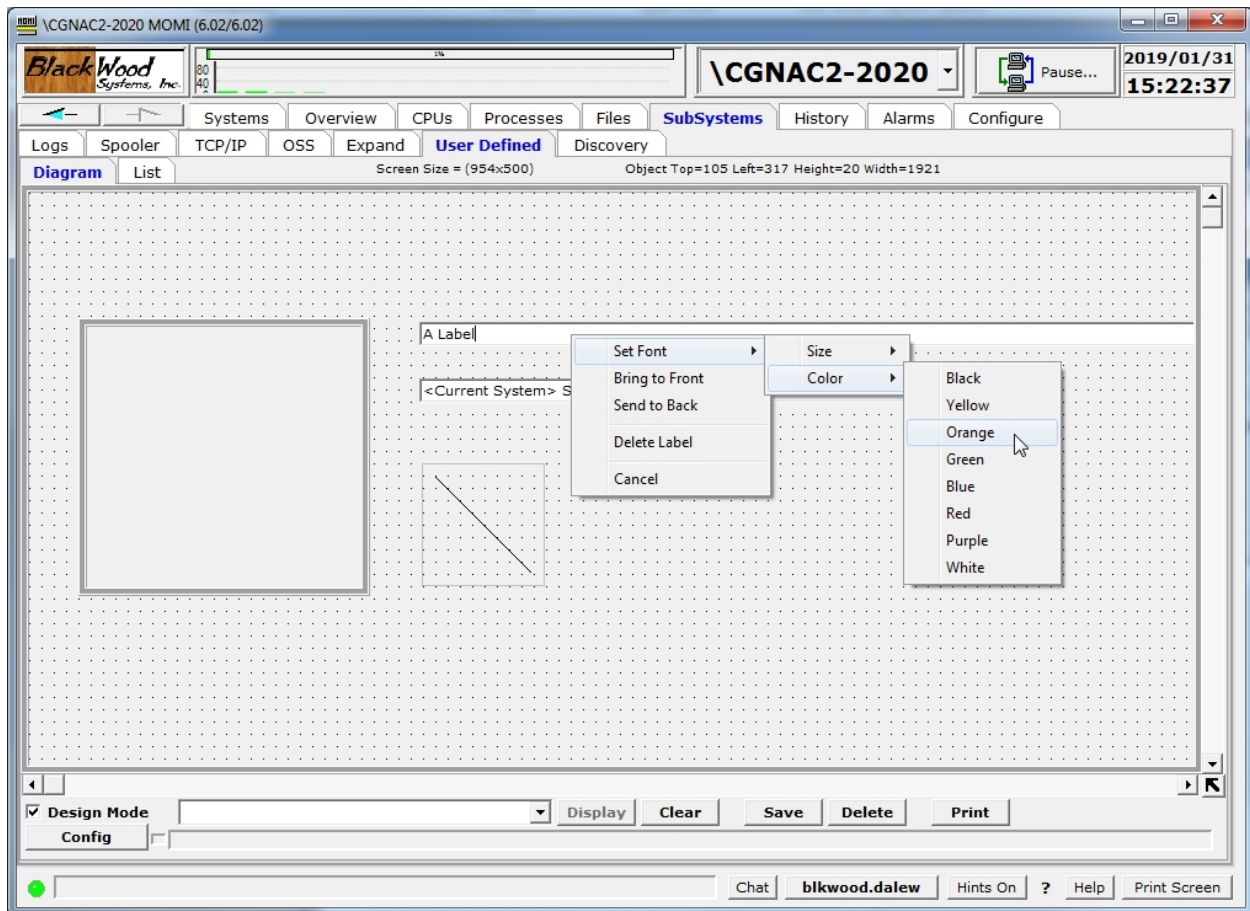


The following picture shows a box, label, data object and line added to the screen.

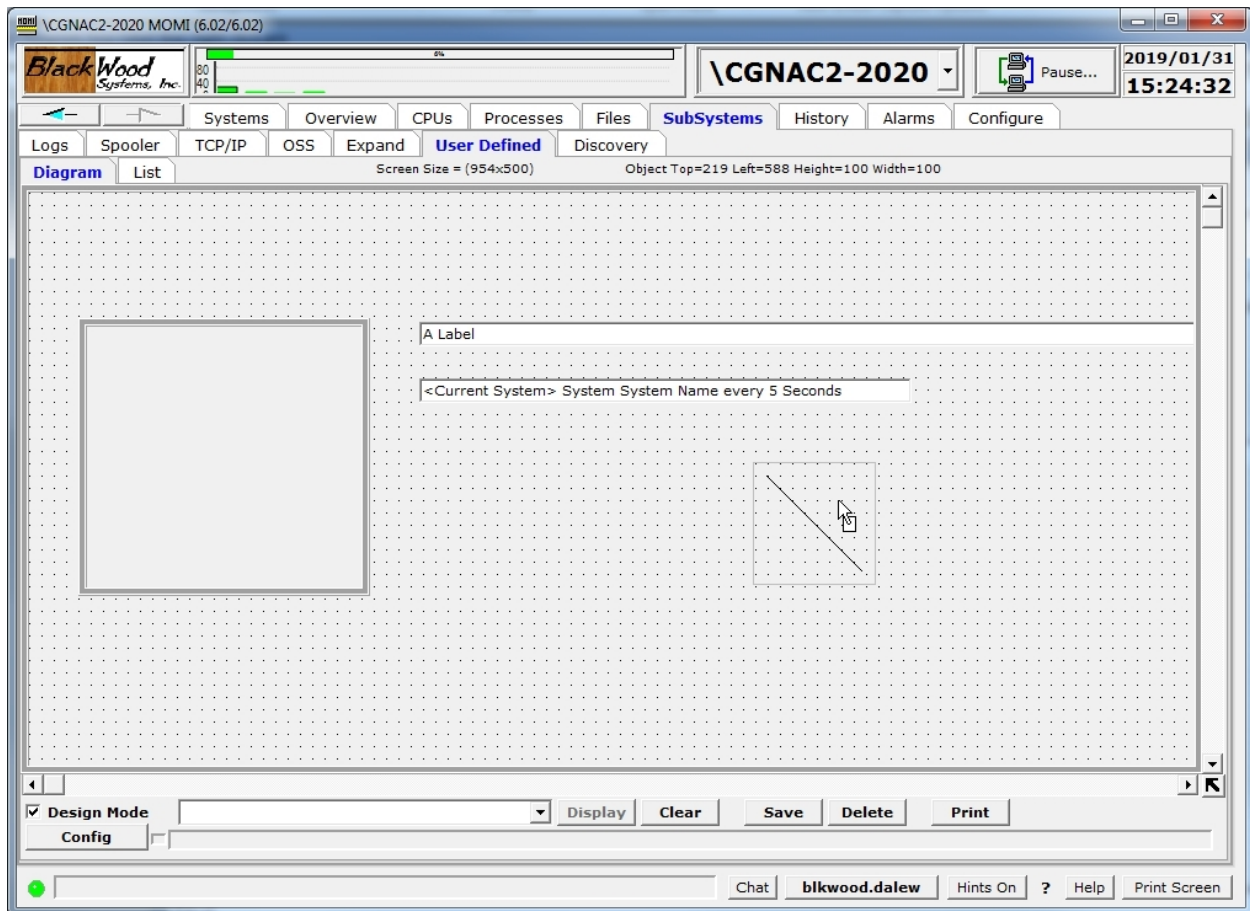


The box is an object used to group or gather items. A label allows the entry to user defined text to provide fixed text information. The data object provides many items for the user to choose from such as CPU, Process and System entities. The line provides an additional graphic for the user to separate or perhaps indicate data flows.

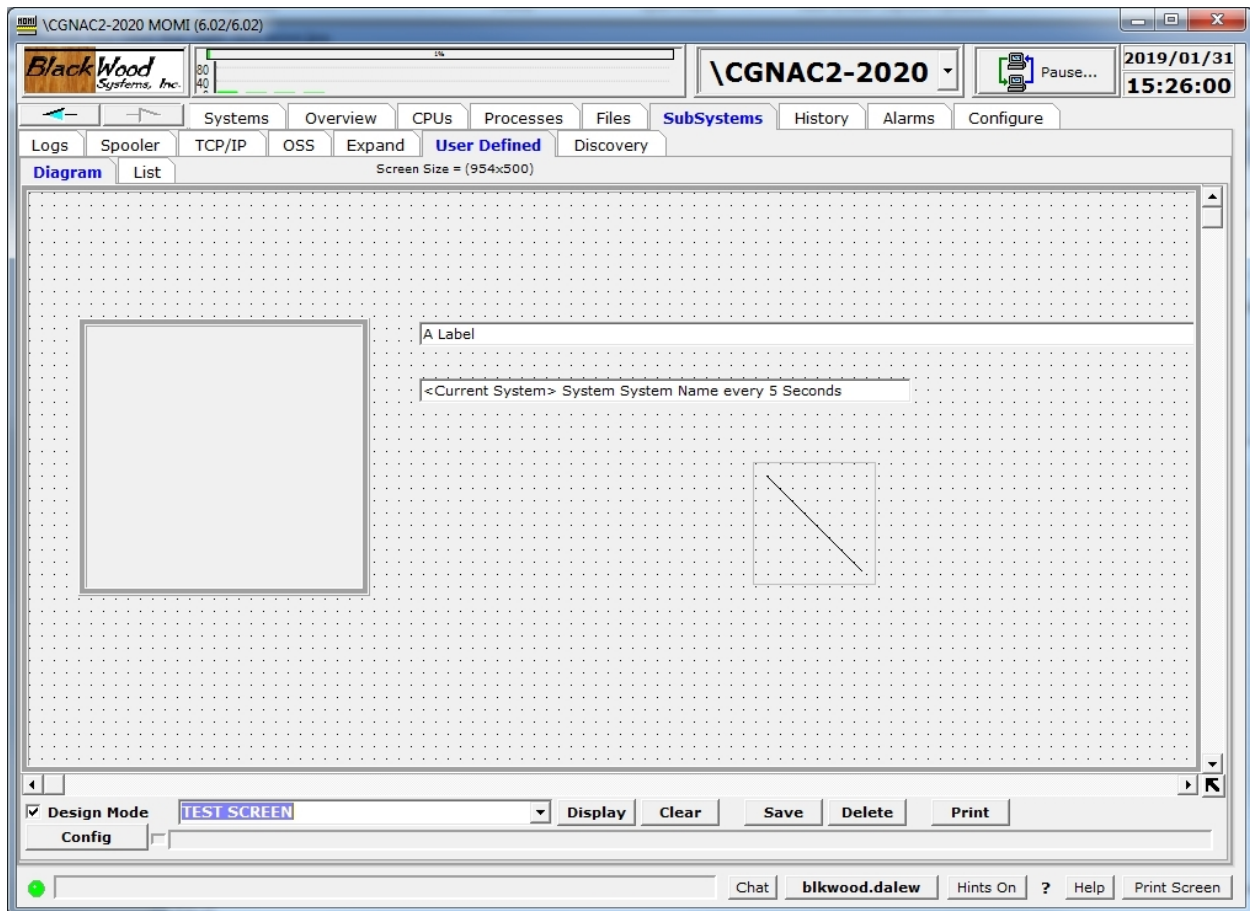
Once an item is on screen, such as the label, right-click over the item to bring up available properties. For the label, the font size and color may be changed. Many items may also be brought forward and placed on top of other items (i.e. Bring to Front) to moved behind other items (i.e. Send to Back).



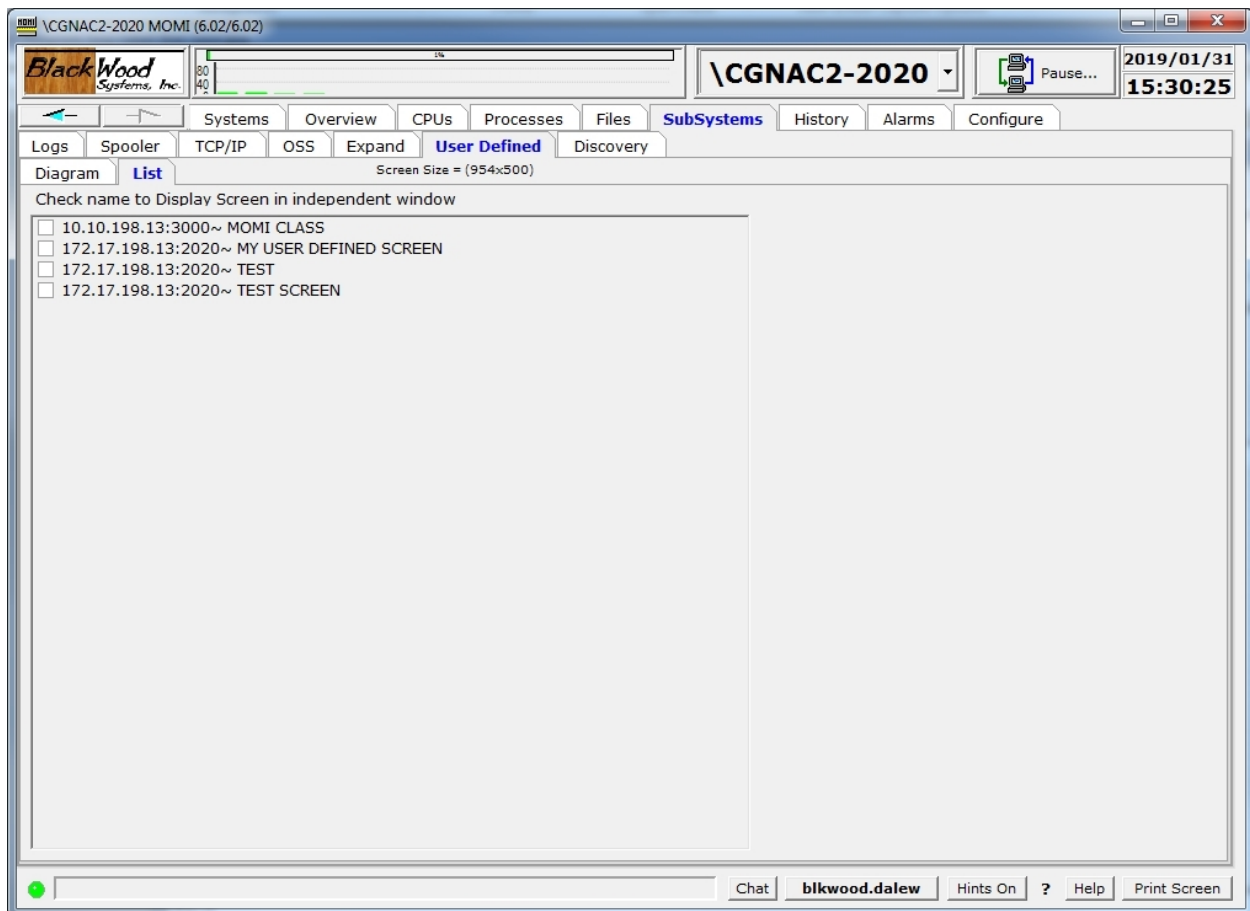
Items may also be moved by placing the mouse over the item, the actual position varies, and left-clicking the mouse and holding while moving to the new location. The line is made to go in different directions by grabbing the size of the box and dragging it larger or smaller.



To save a User Defined screen, enter a name in the field next to **Design Mode** and push **Save**. Existing screens are displayed by using the drop-down box at the end of the field then push **Display**.



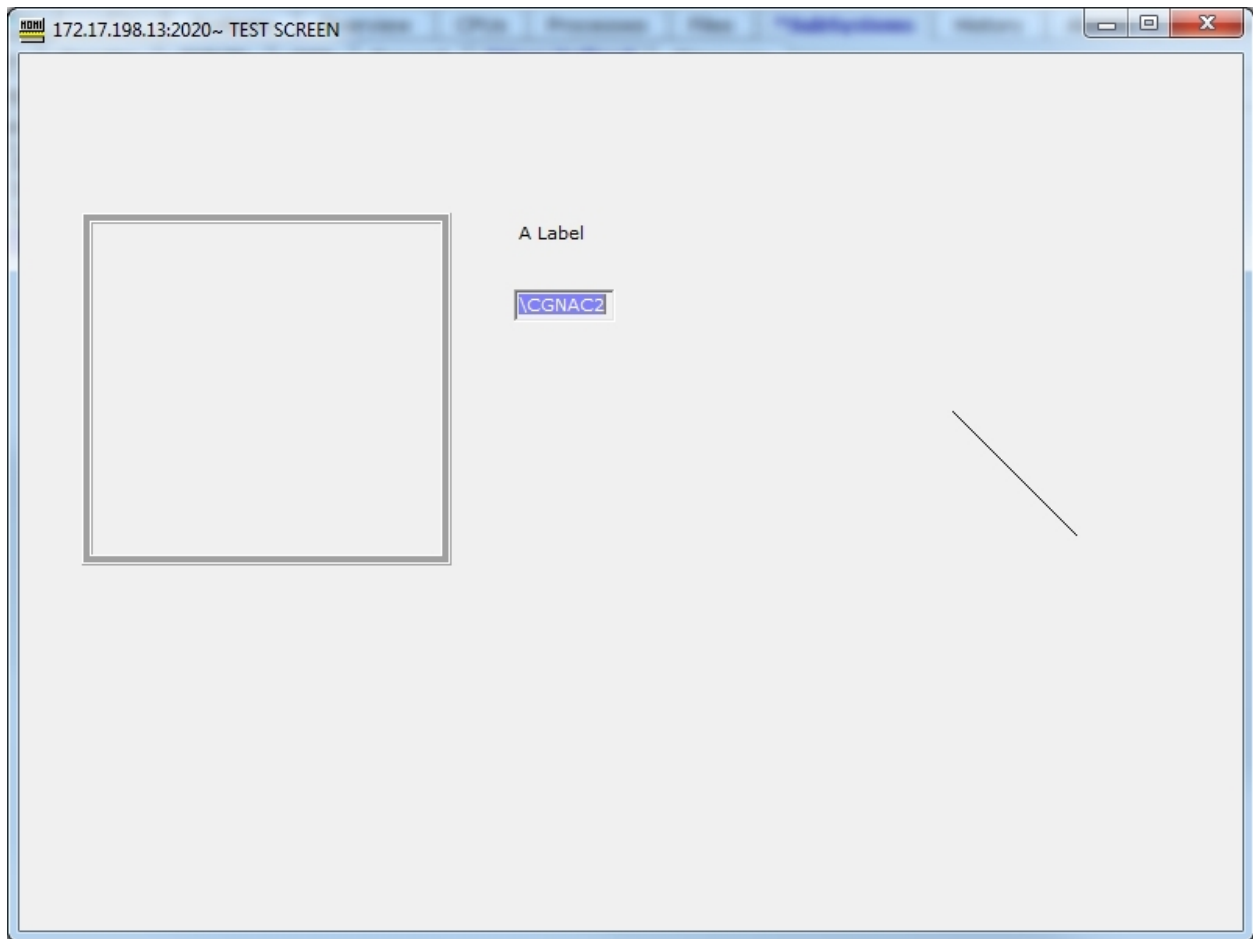
User Defined / List



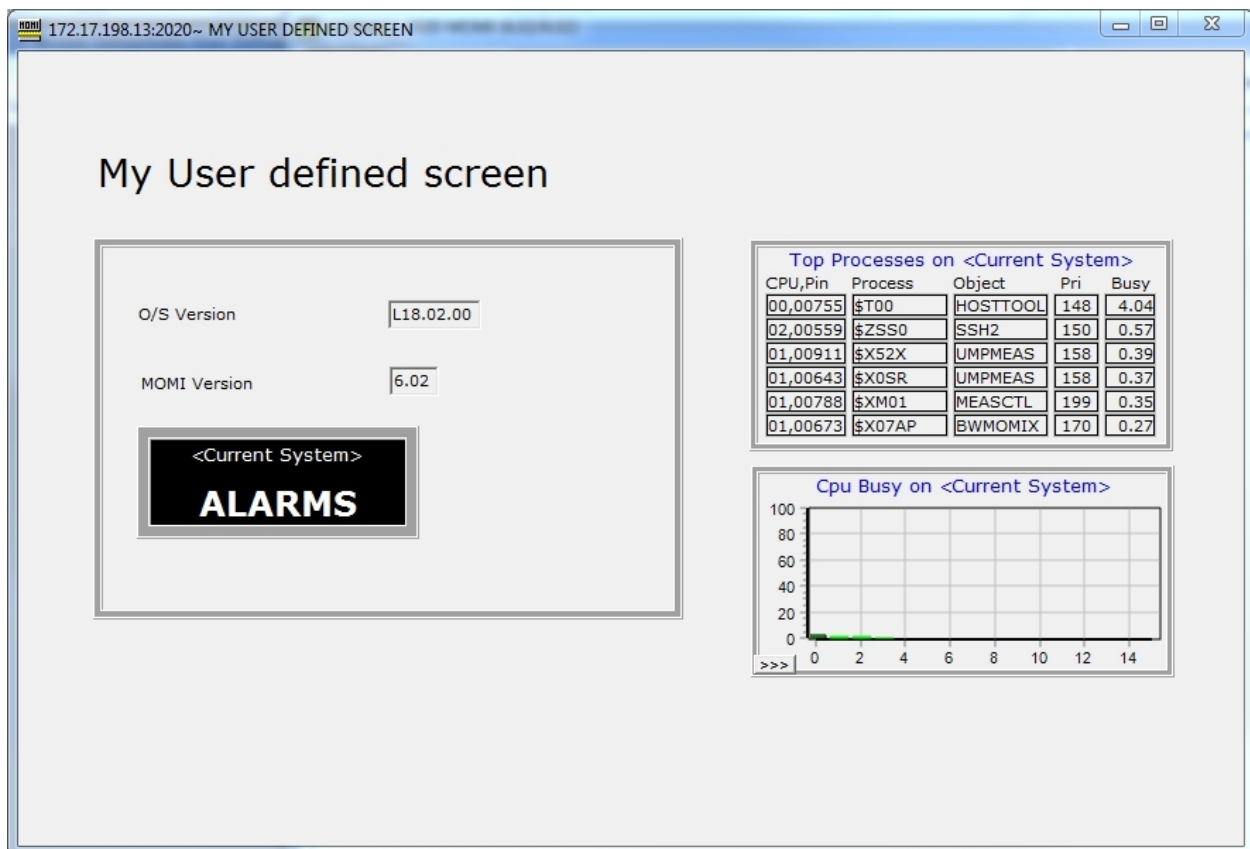
The User Defined / List screen displays screens previously defined and saved and allows them to be displayed as independent windows.

Screen definitions are physically saved on the NonStop System (i.e. not on the PC) and are organized by logged on user.

An independent window appears outside of the MOMI PC Client however the MOMI PC Client must be running for the independent window to display. A window or windows are checked and display separately from the MOMI PC Client on the PC monitor. The following window is a simple display.

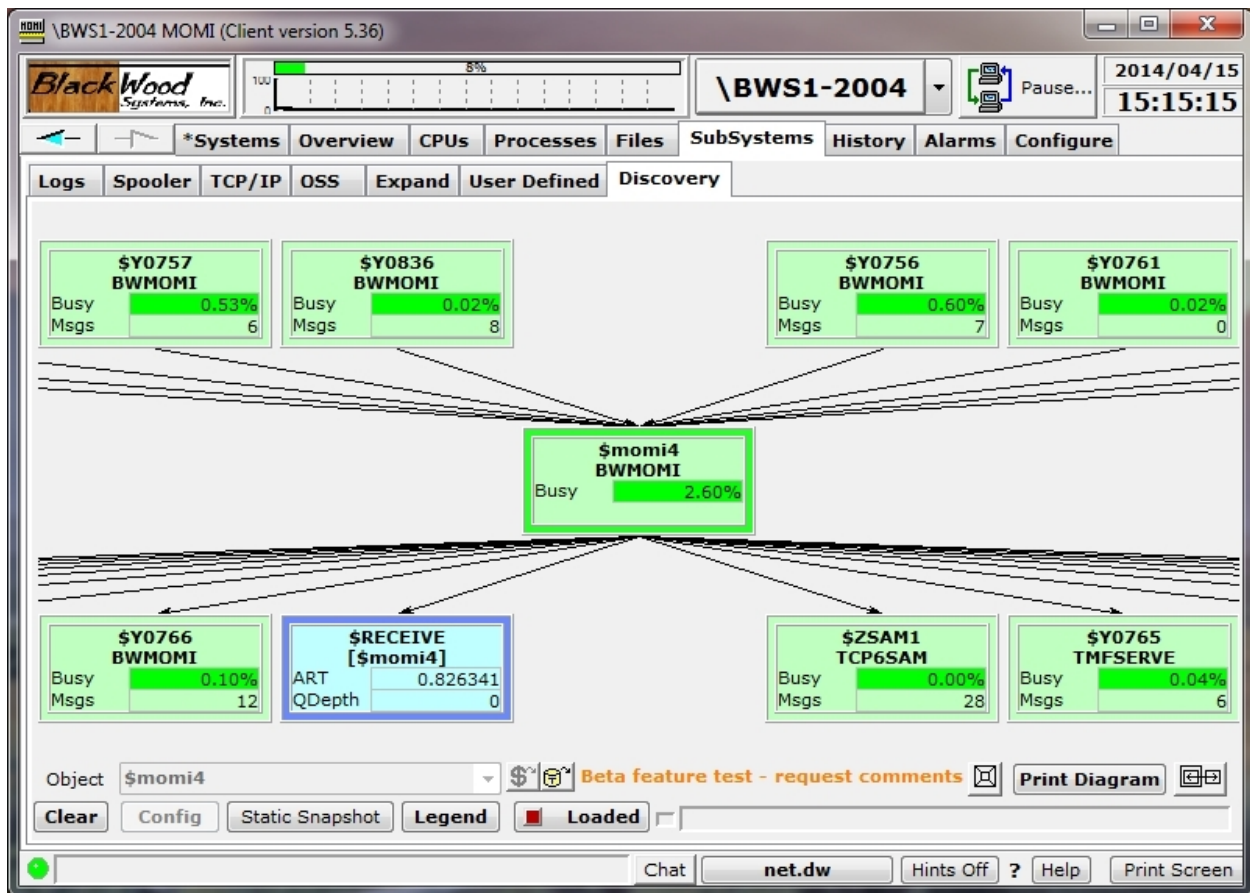


The following window displays additional items.



Discovery

(please see screen limitations below)

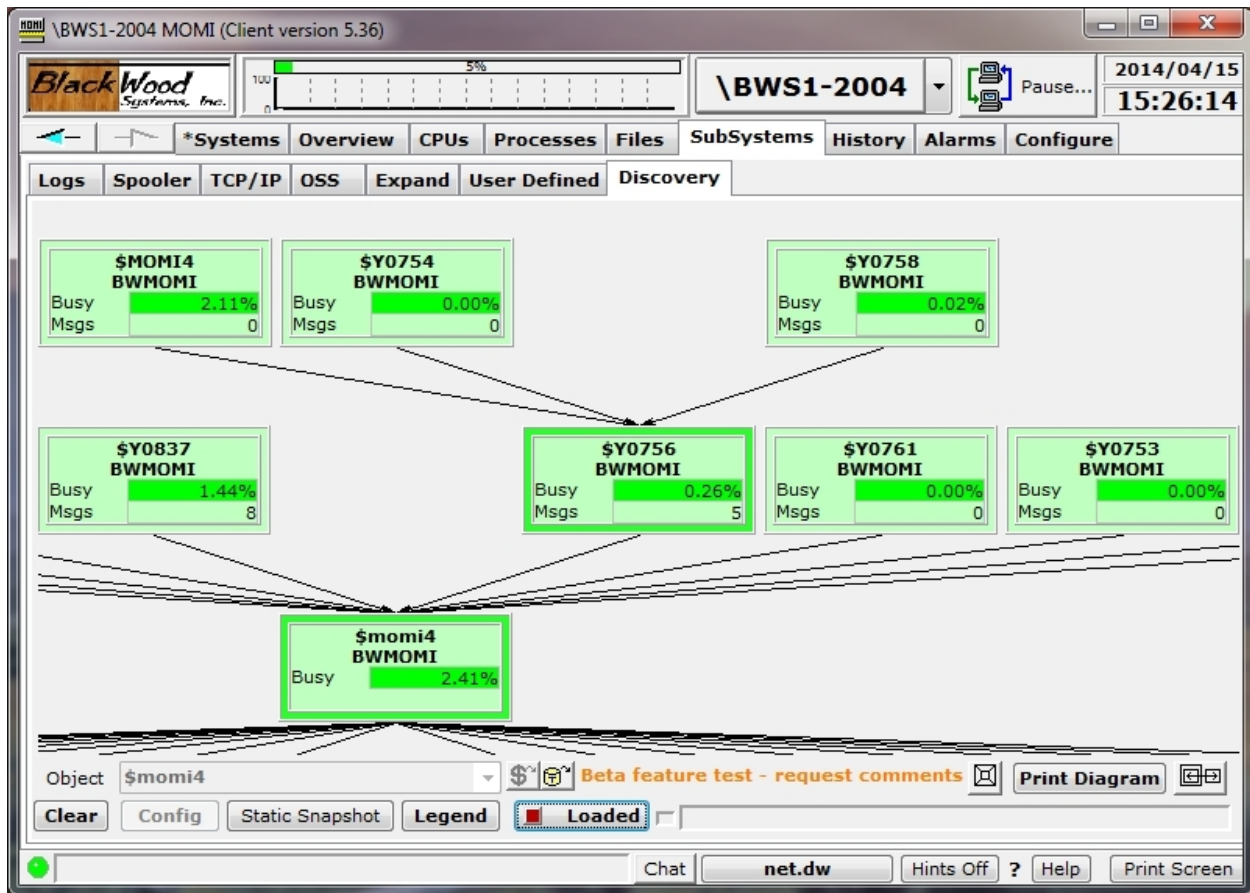


The Discovery screen displays a pictorial representation of what processes communicate "into" and "out of" the specified process.

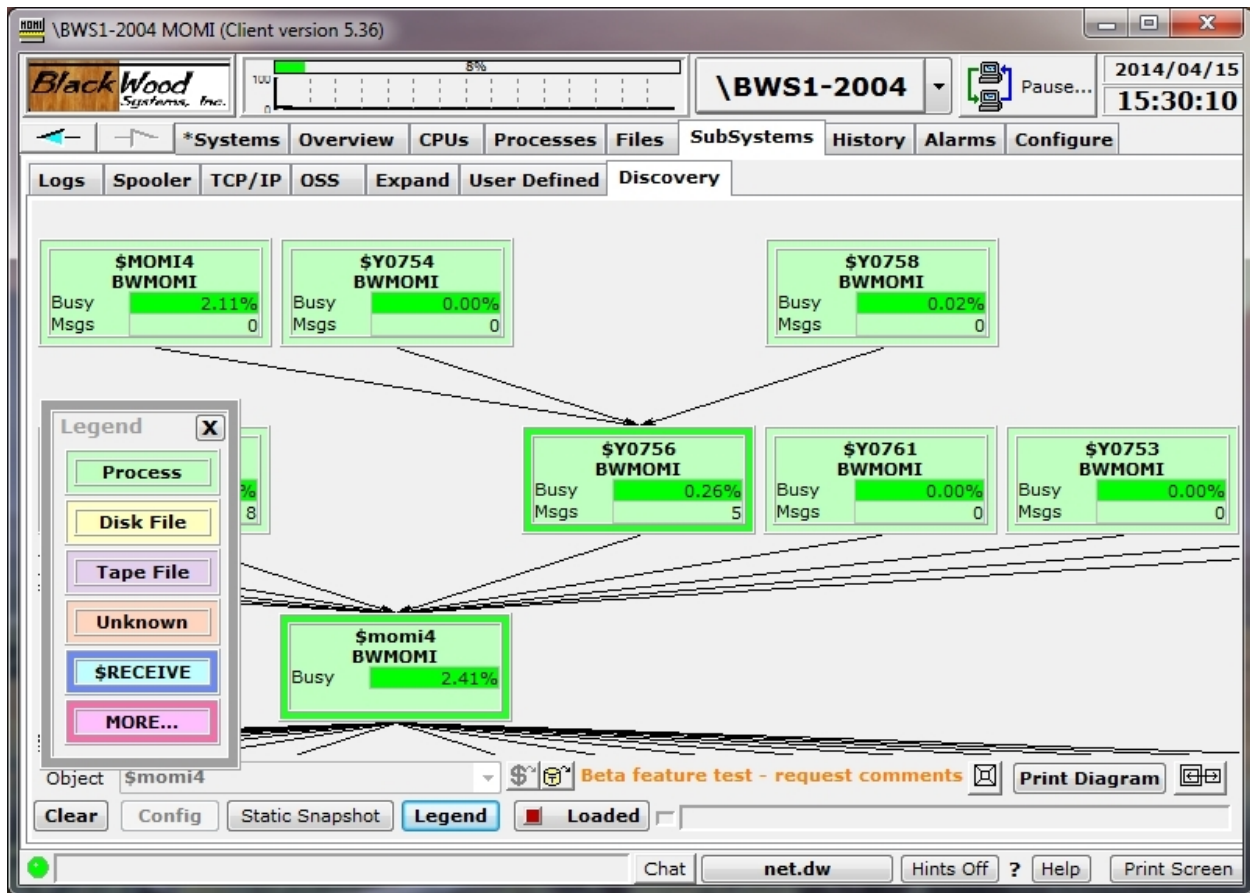
The screen starts empty. A process name is entered, or selected using a picker, and then press **Request**. The entered process is displayed in the middle of the screen. After a short measurement interval processes communicating to the specified process are displayed along the top of the screen. Processes that the selected process is communicating to are displayed along the bottom of the screen.

Place the mouse on the screen background, left-click and hold to drag the screen (i.e. move it around).

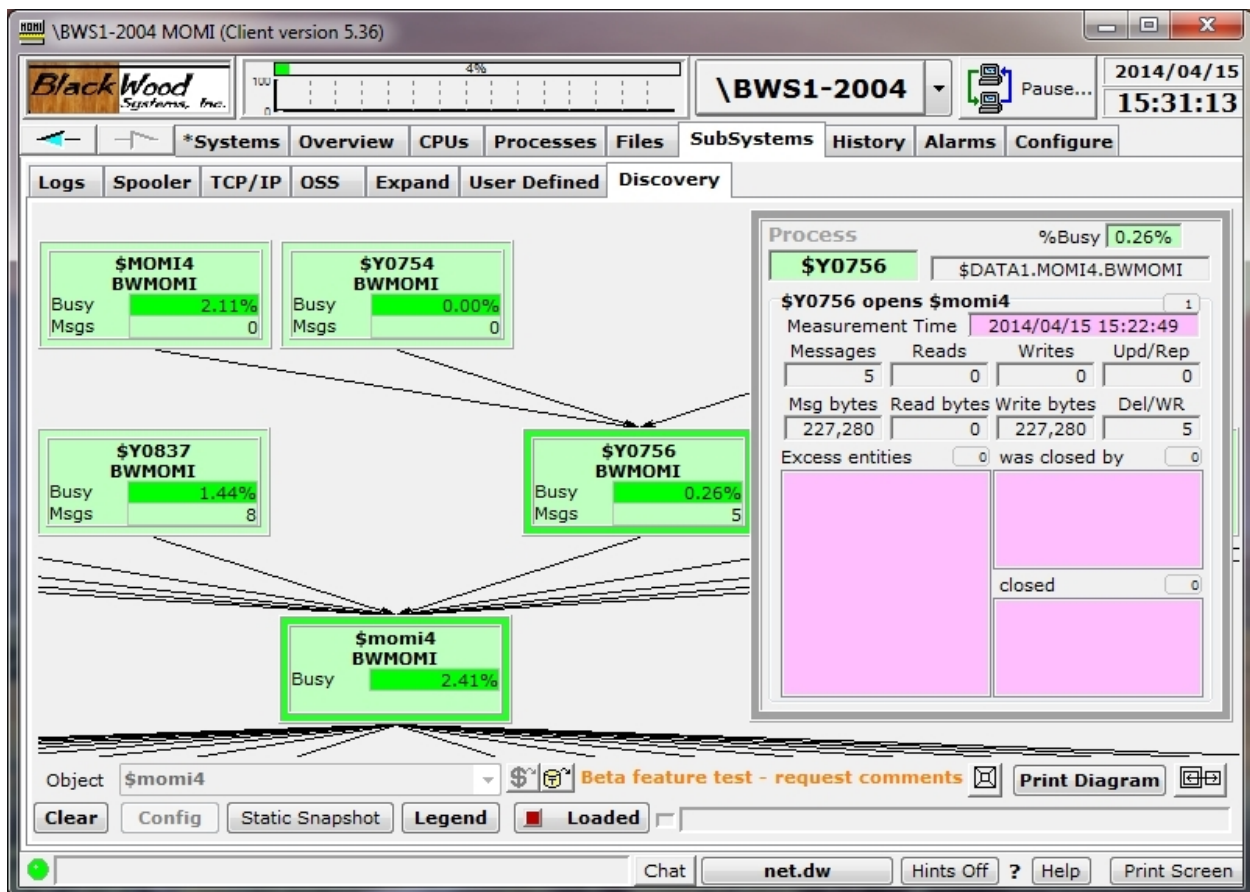
Place the mouse over an entry, right-click and select previous or next to display additional information. In the image below previous was selected.



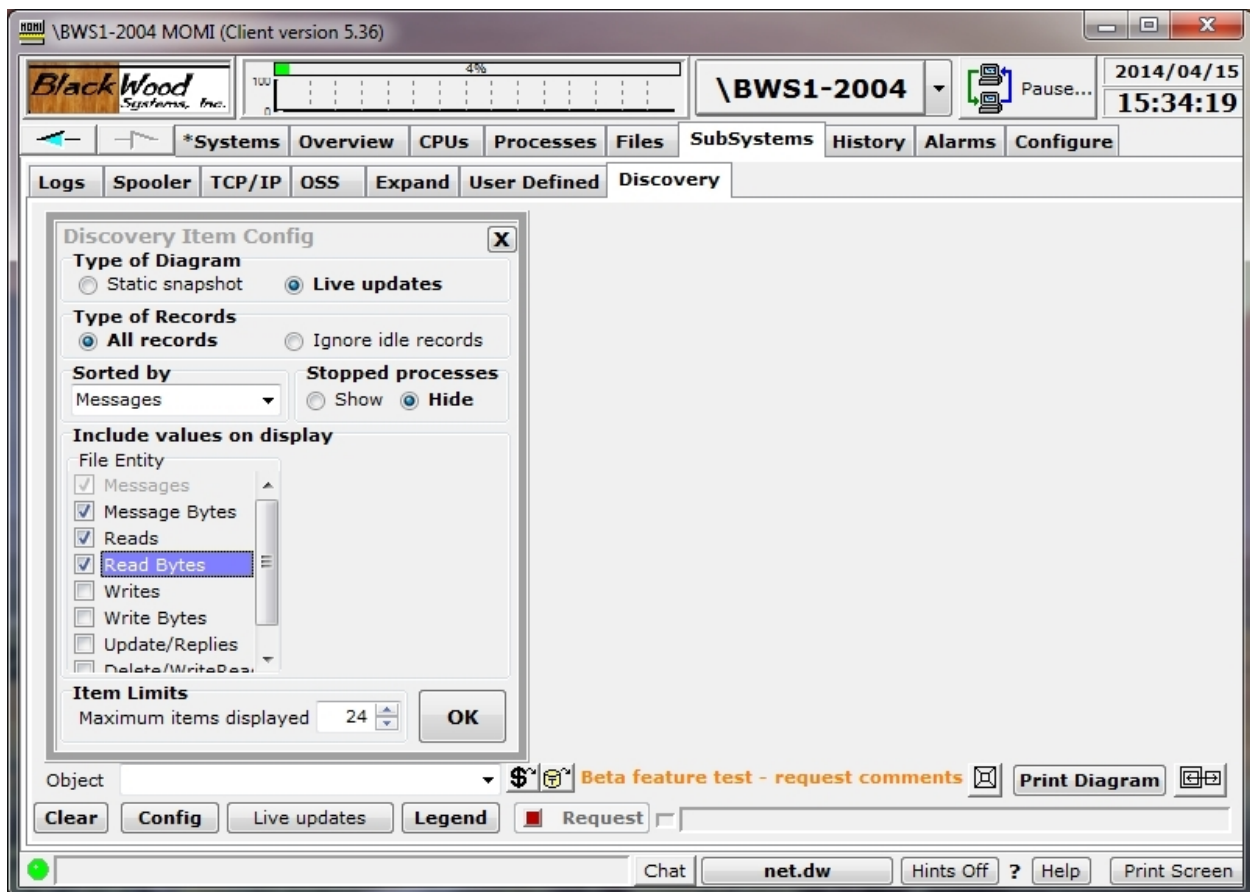
Colors are used to distinguish various process types. Press the Legend button for process types.

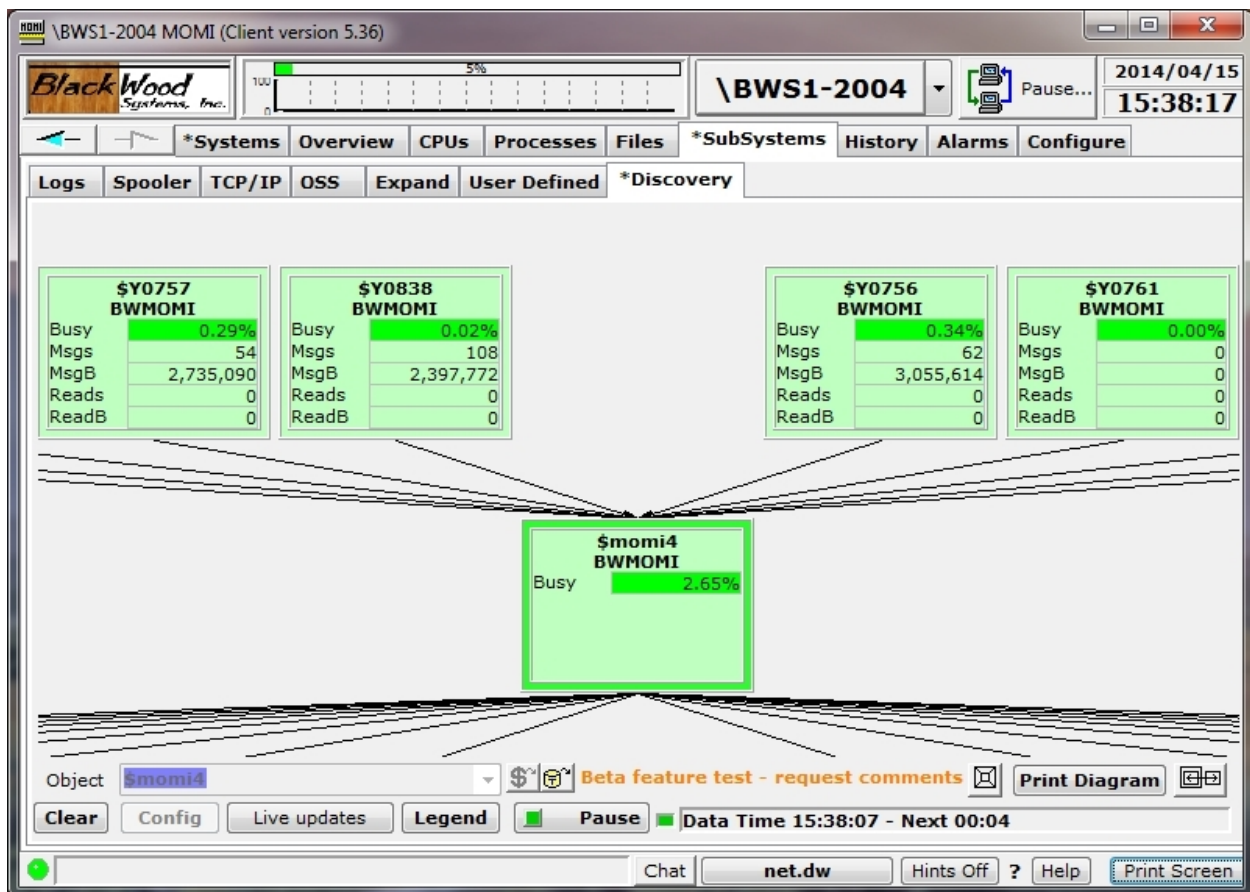


Place the mouse over an entry to display additional information.



Additional information fields about a process, live updates (of data fields) or a static snapshot are determined by pressing the **Config** button.





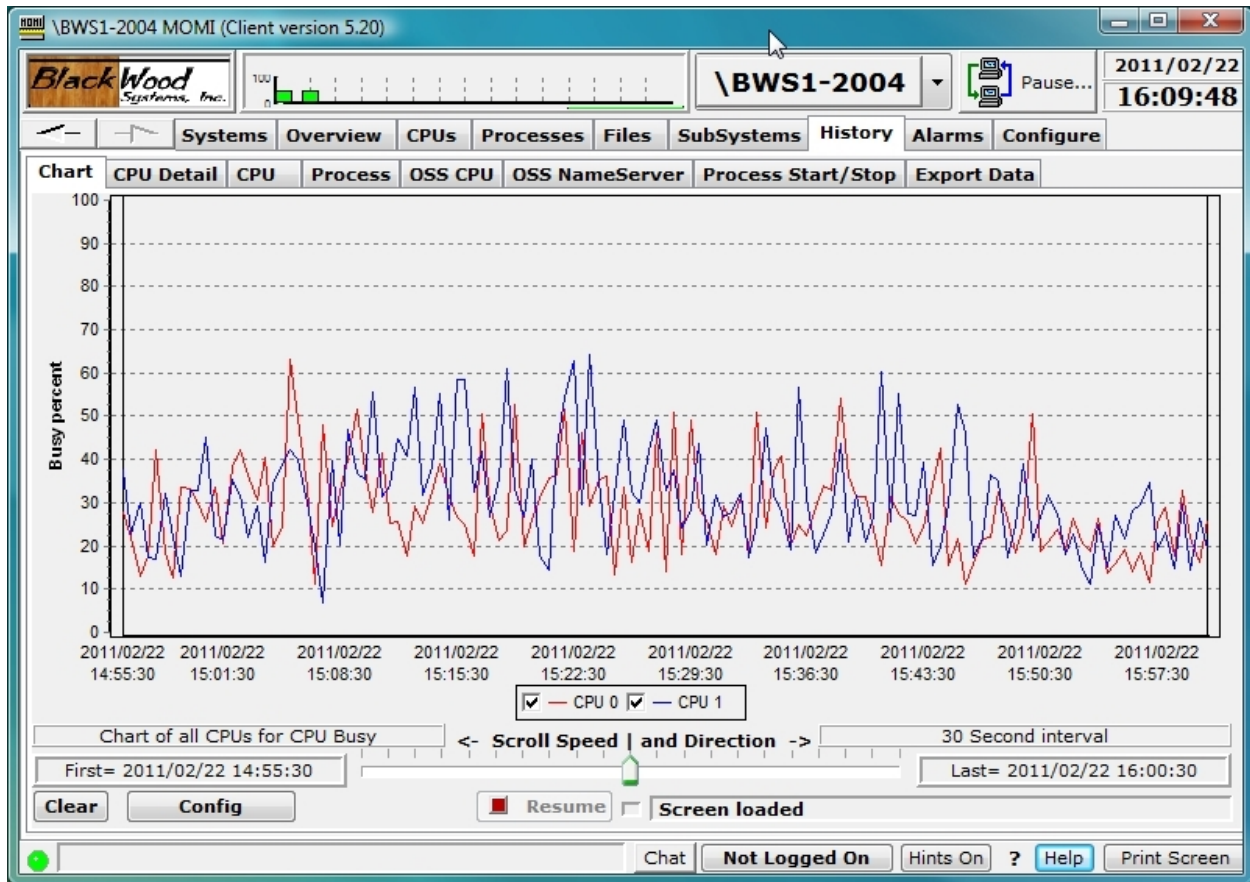
Screen limitations

This screen uses the MEASURE File entity primarily to obtain its information and to determine relationships. This works 'best' if direct I/O (i.e. open/write/read/etc...) is involved. However, if a process uses Pathsend for its I/O the LINKMON or ROUT processes effectively masks the real underlying I/O.

Unnamed processes also restrict the amount of information available from MEASURE.

History

History / Chart



The History / Chart screen graphs various data from the MOMI history files. History capture must be [enabled](#) in order for this screen to function.

Activity on this screen is started by pressing the **Config** button and selecting a pre-defined, previously saved or defining data to graph. The pop-up window allows selection of database, start/stop time and item(s) to display. Up to 16 different history items may be selected. When an **Element Type** is selected, the available items appear in the **Element Sub Type** along with other fields such as a CPU number or process name. For example, selecting a Process **Element Type** requires a process name (or cpu.pin for unnamed processes). The predefined charts **Chart all CPUs for Busy percent** or previously saved user chart are also available.

History Chart Configuration

Time and Database

Chart Elements

PreConfigured Charts

Specify Chart START date/time

Now

2013/07/29

15:53:25

Optional Chart STOP date/time
☐

Now

2013/07/29

16:03:25

PreDefined Chart Times

Chart Title

Specify Database to View

History Window Size	Newest Data	Oldest Data
30 Second interval	2013/07/29 16:02:30	2013/07/15 16:02:30
2 Minute interval	2013/07/29 15:58:00	2013/05/30 16:04:00
1 Hour interval	2013/07/29 14:00:00	2013/05/20 17:00:00
1 Day interval	2013/07/28 00:00:00	2011/12/08 00:00:00

30 Second interval

Pre-configured Charts

Chart all CPUs for Busy percent

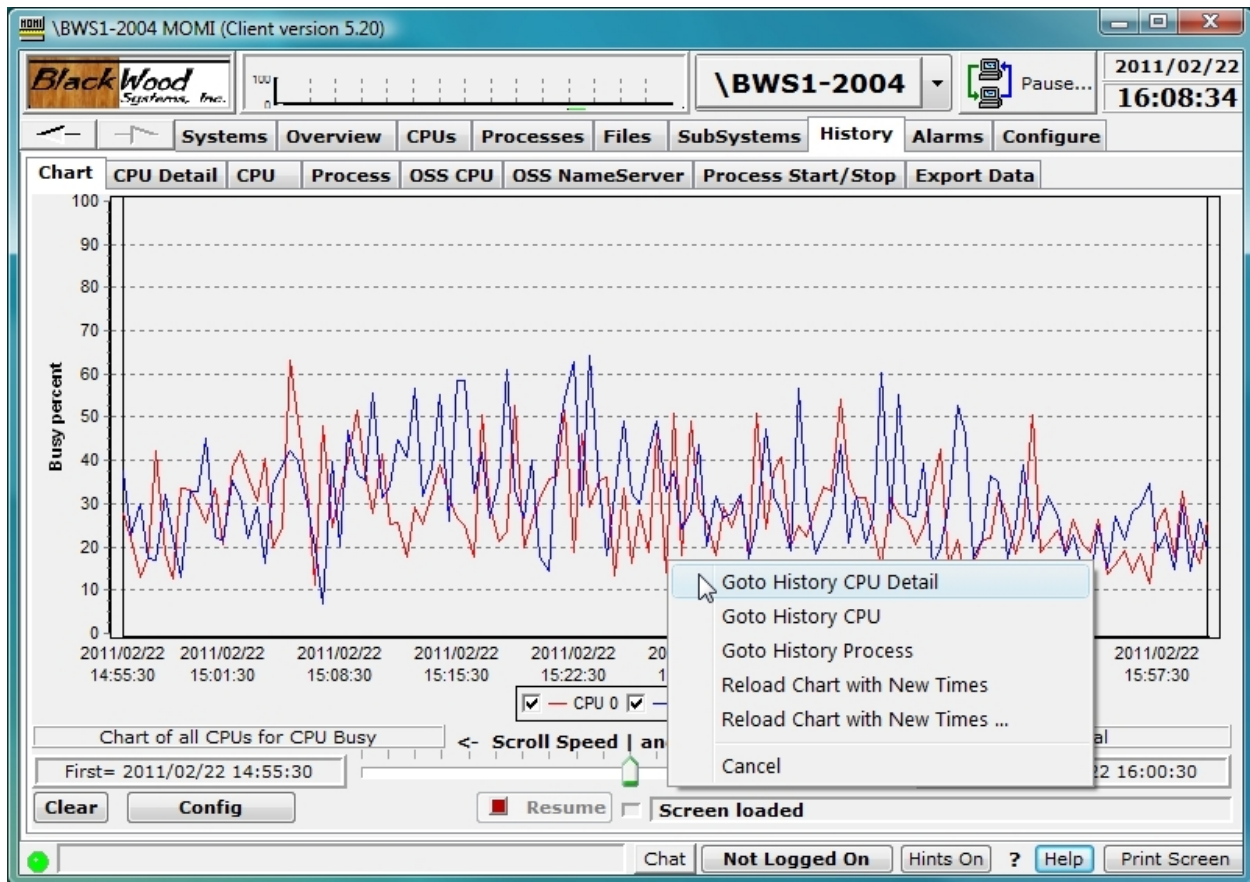
User defined Pre-configured Charts

Clear current chart

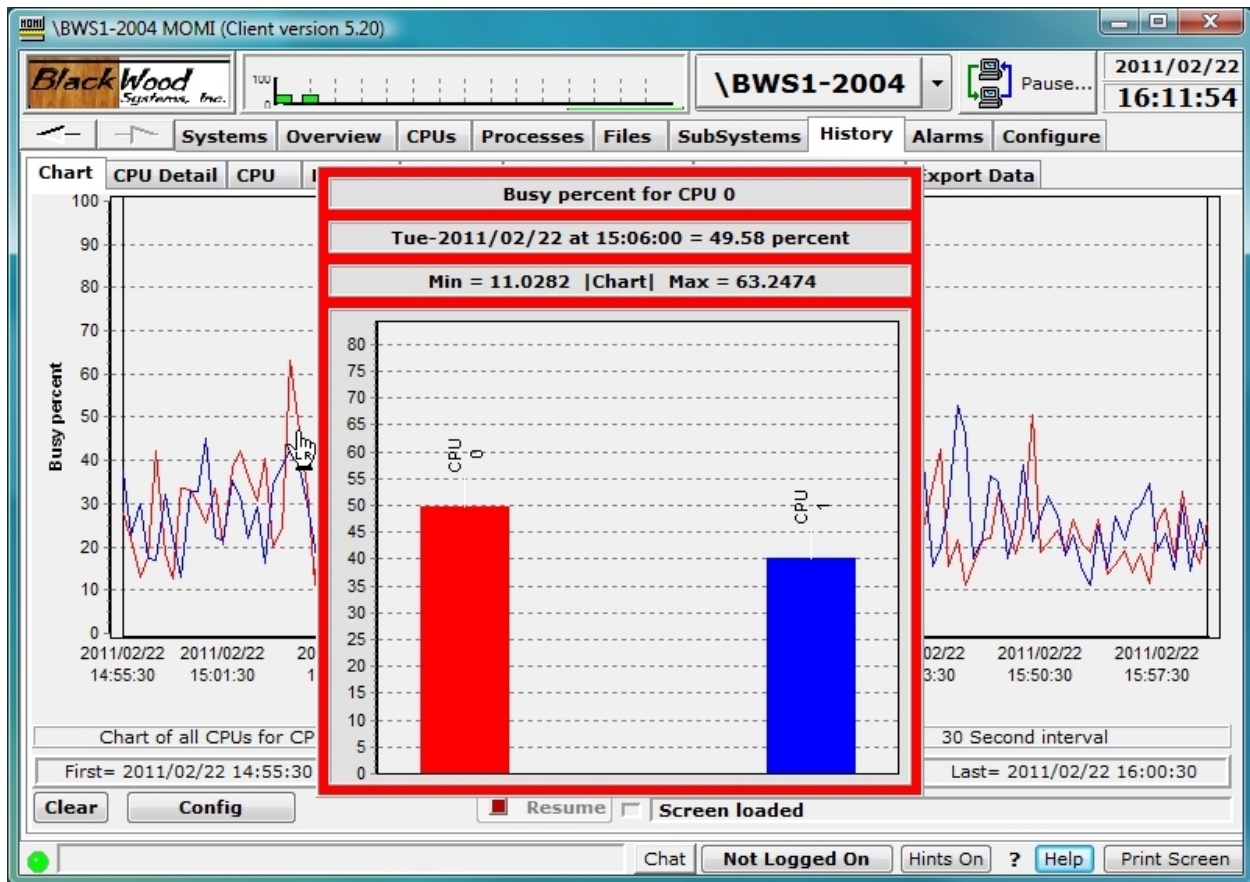
Request

Close

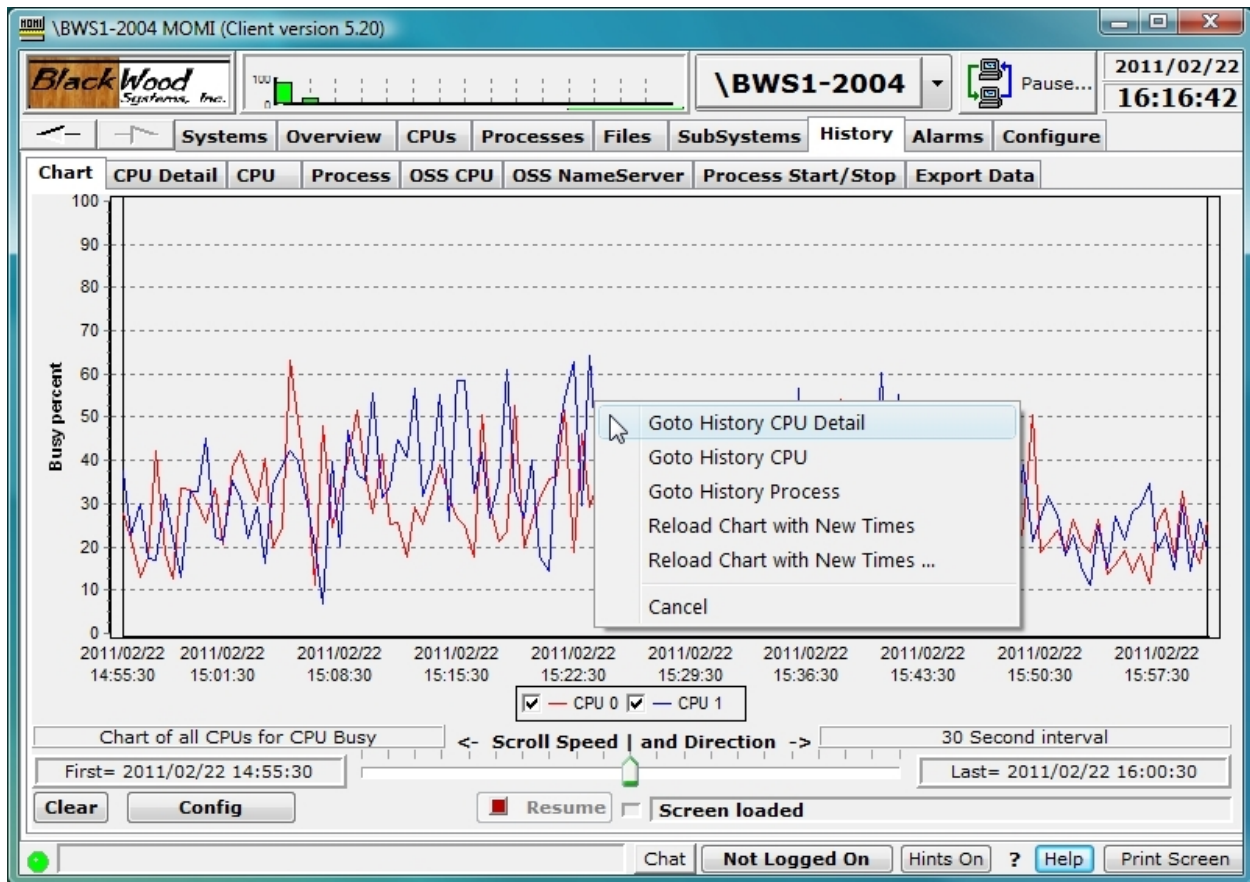
Once a graph is displayed additional information and drill down options are available by placing the mouse over a chart line or point.



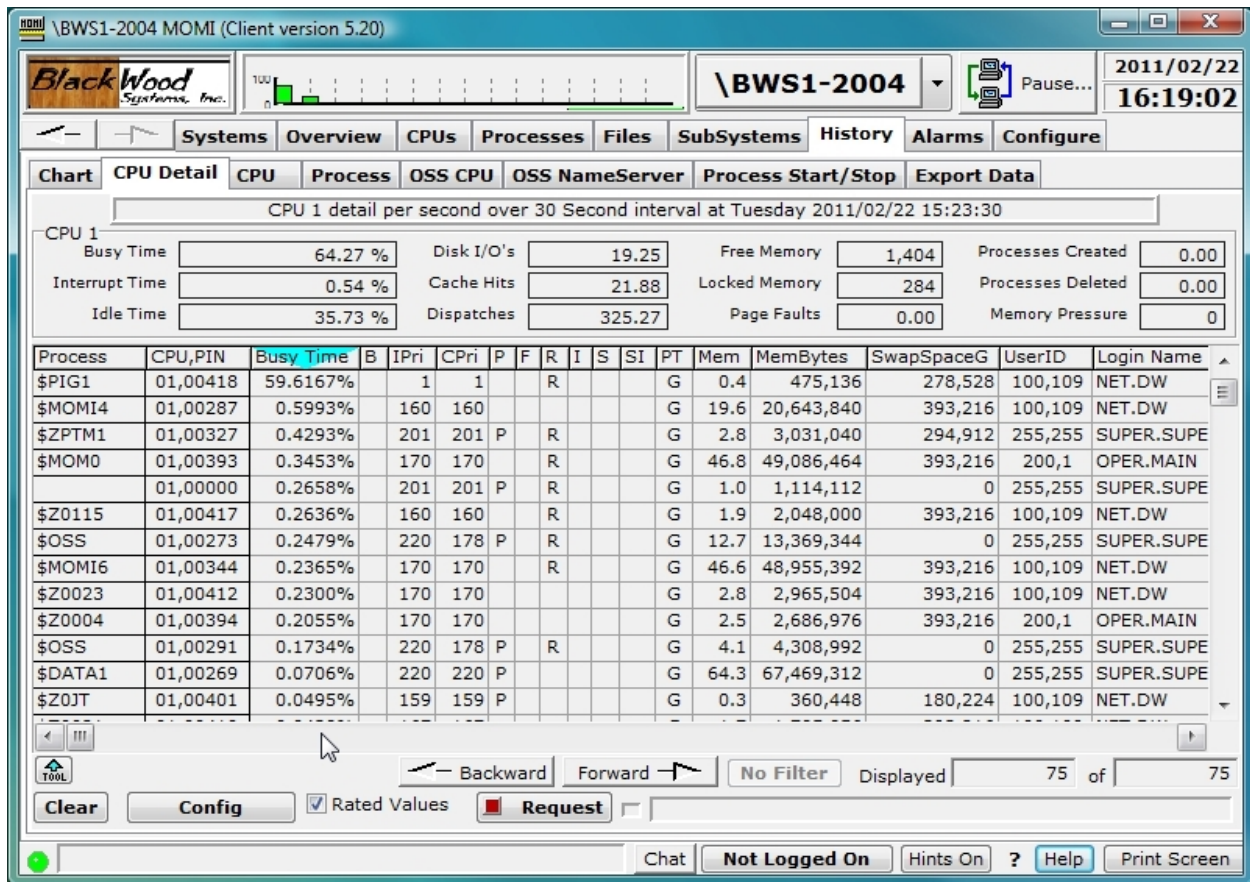
Clicking on a chart line will display the date / time, exact value, minimum, maximum values and other information as available.



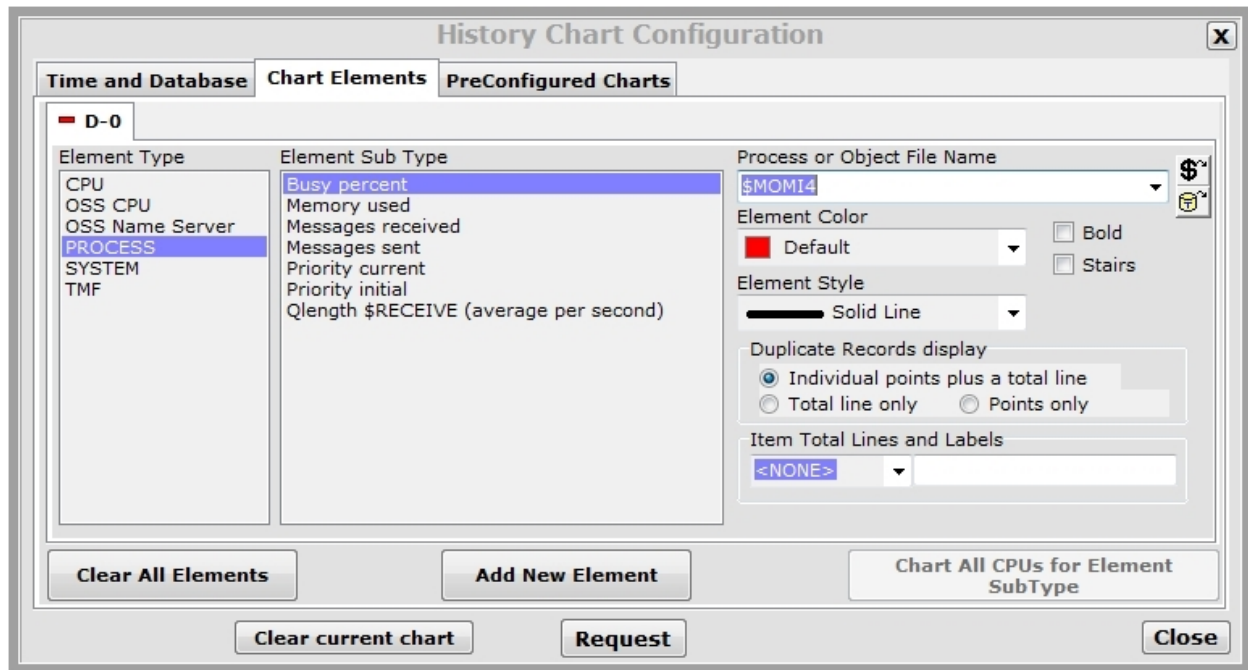
Additional data may also be displayed in some charts. For example, a right-click over a CPU busy line displays menu that allows display of History CPU Detail.



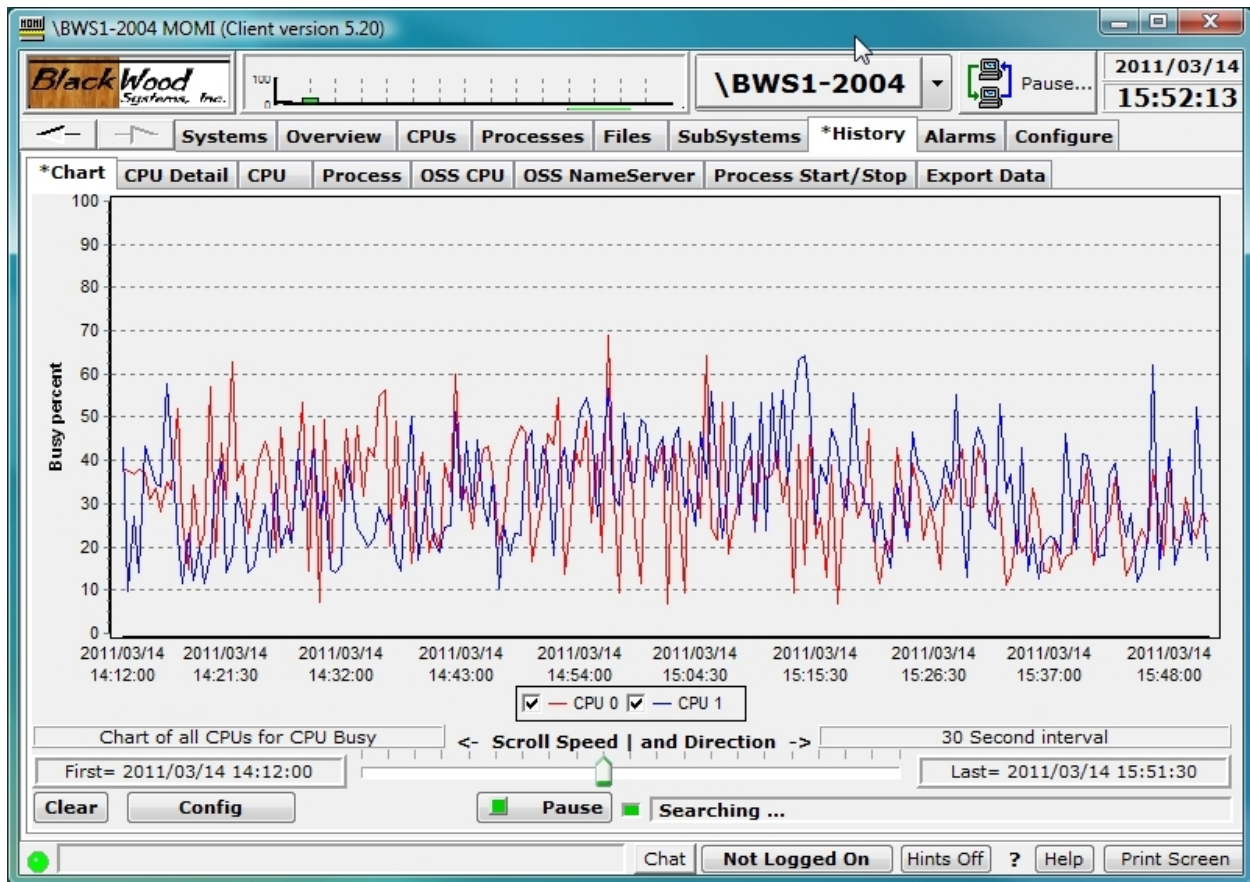
Selecting [Goto History CPU Detail](#) jumps to the [History / CPU Detail](#) screen for the chart line CPU and processes captured at that point in time. The **Backward** and **Forward** buttons allow stepping through history intervals.



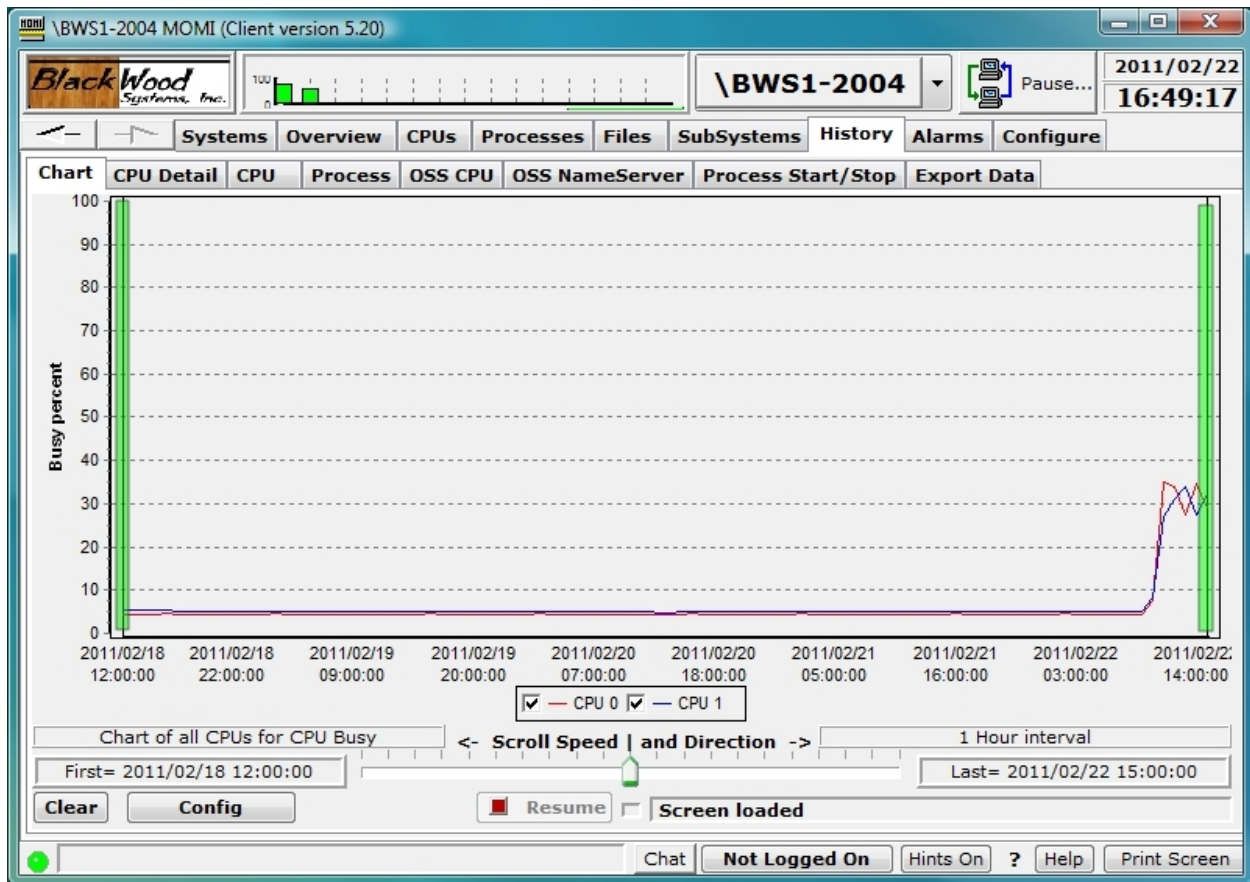
Charts of user defined entities are defined in **Config / Chart Elements**. In the image below, the CPU **Busy percent** for \$MOMI4 is selected. Additional chart elements are defined by pressing **Add New Element**.



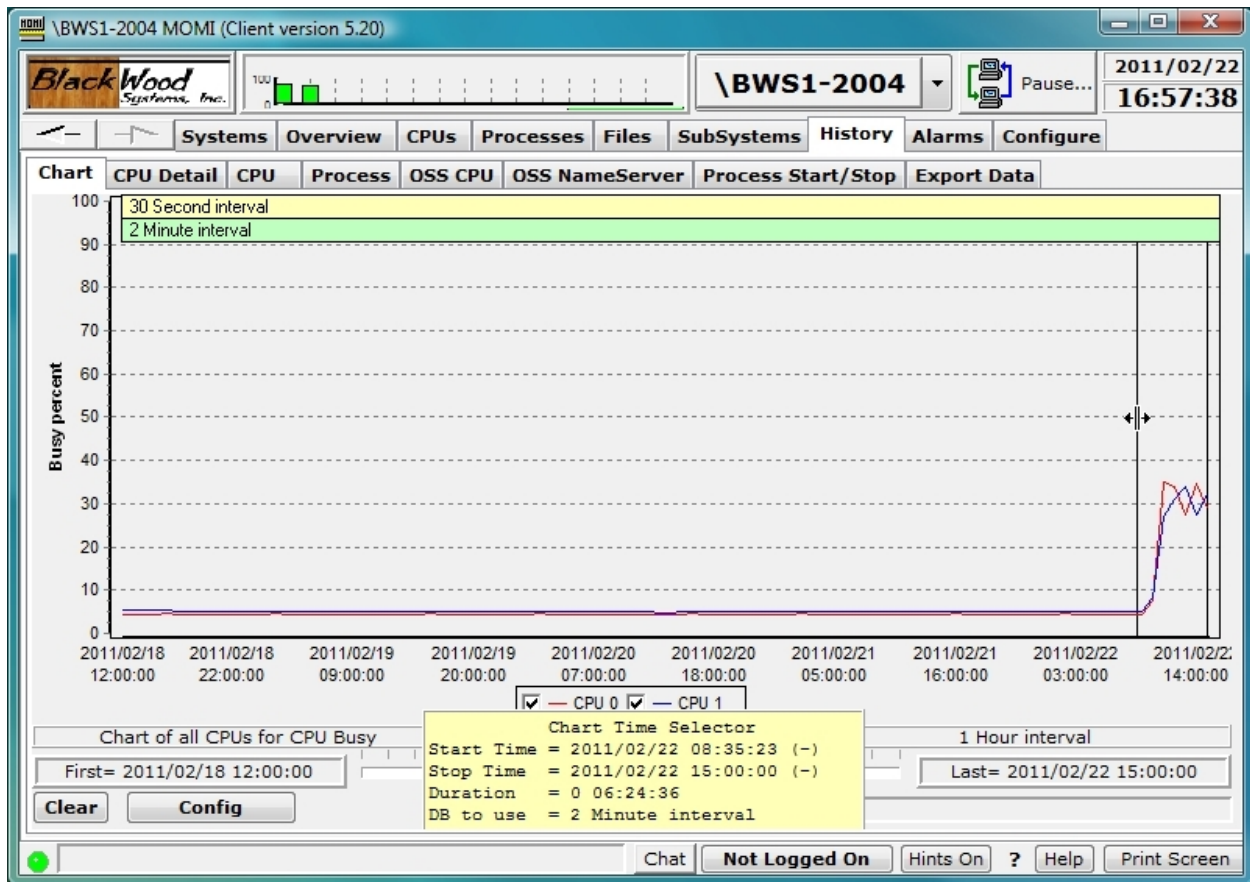
The scrolling feature allows the User to easily scroll forward and backward in time and visually search for unexpected activities. Additionally, when scrolling forward in time, the chart becomes 'live' and displays new data as it arrives.



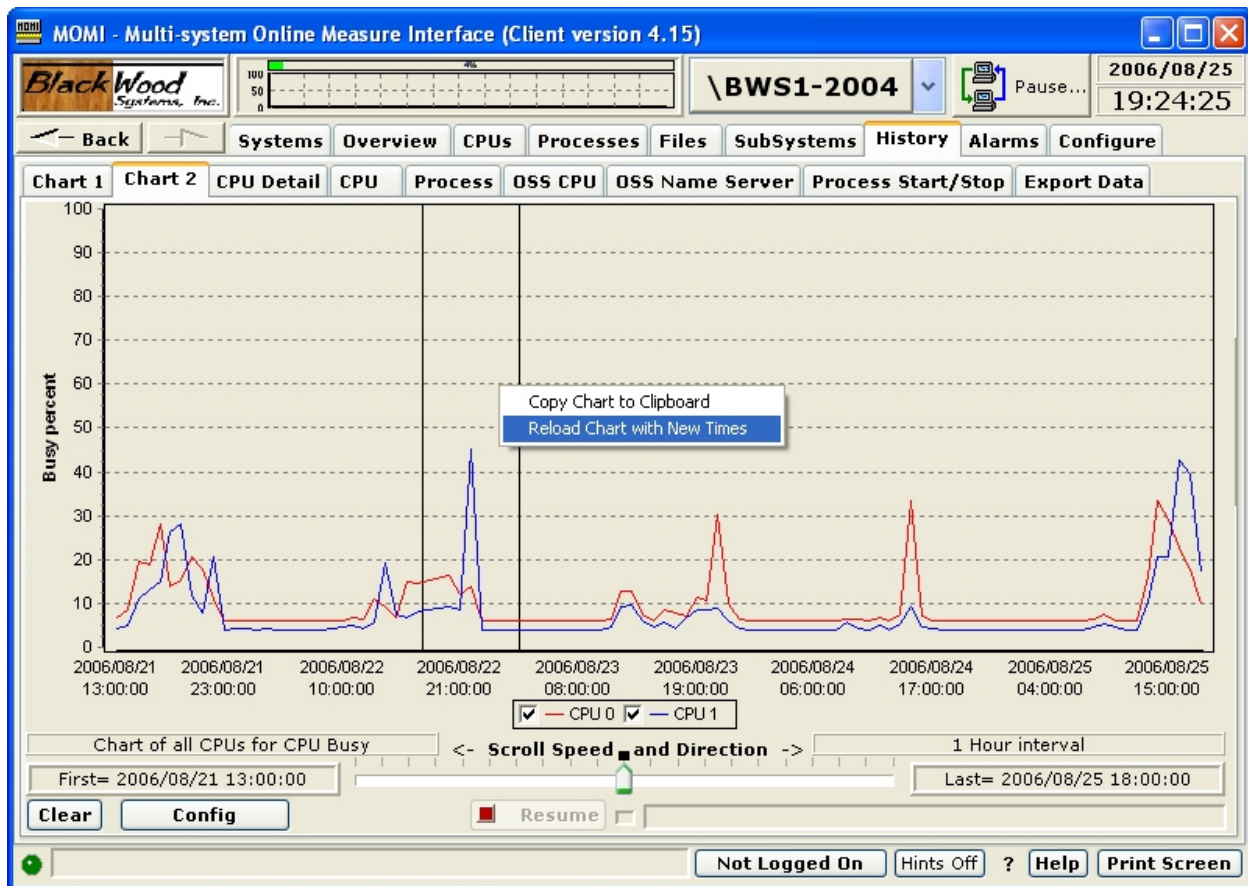
History drill-down is aided by two bars (highlighted in **green**) on the left and right hand sides of the chart. They provide a graphical means to select a window of time based on the current data displayed. In the image below, history at 1 hour is displayed.



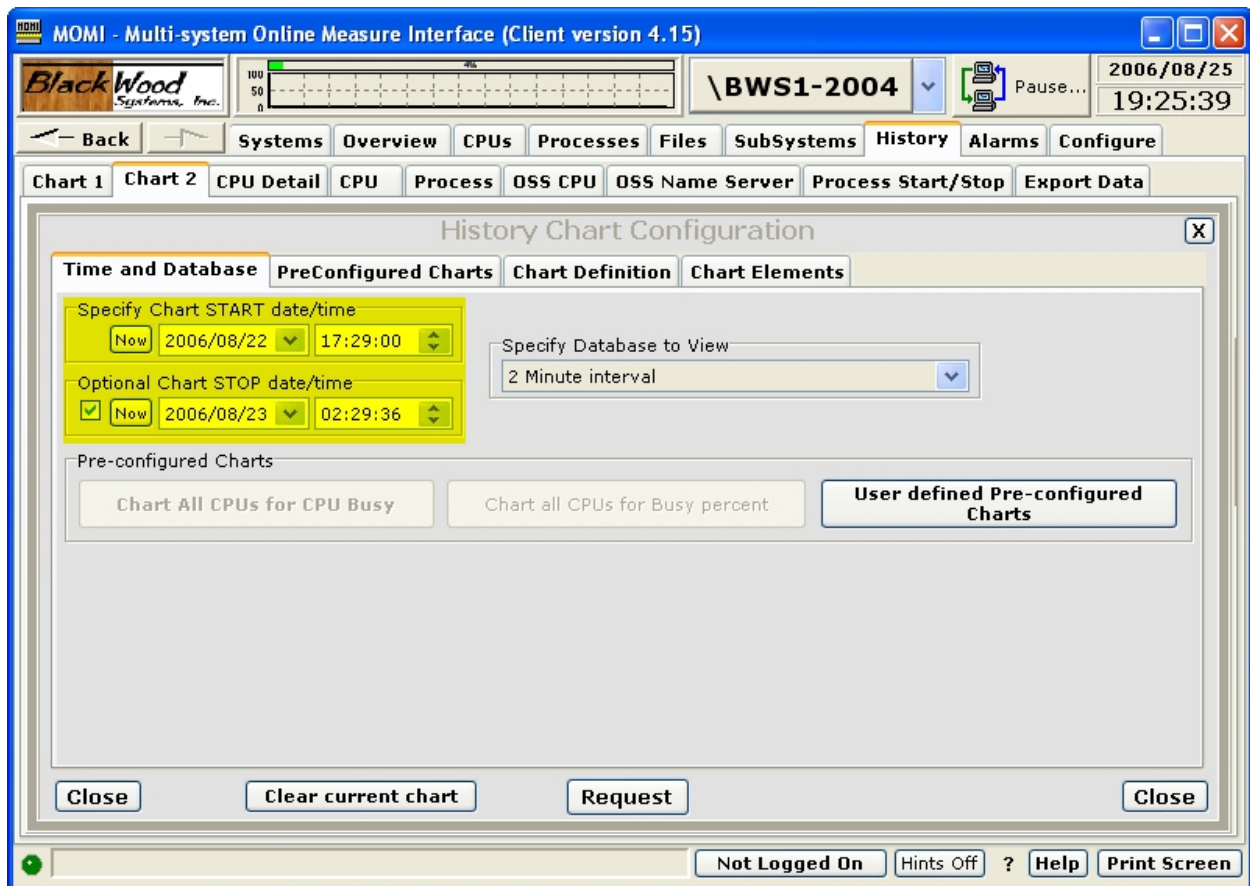
Left-click and hold on a line to move it left and right. A pop-up tool tip appears in the bottom center to show the current time values with the history bar selection. In this example, the scroll bars are moved to just either side of a 'bump' in the history chart graph data.



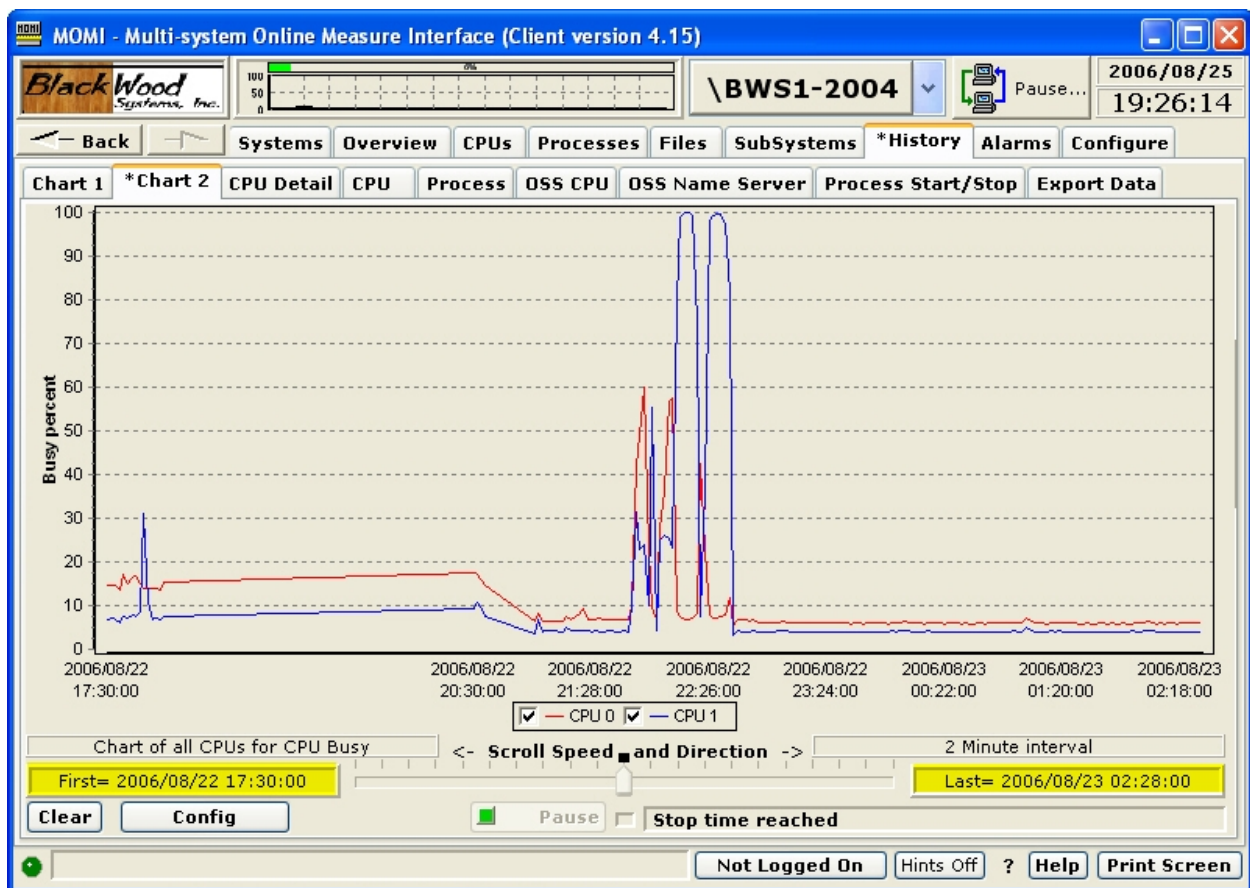
After the bars are positioned, right click on the chart area and select **Reload Chart with New Times**.



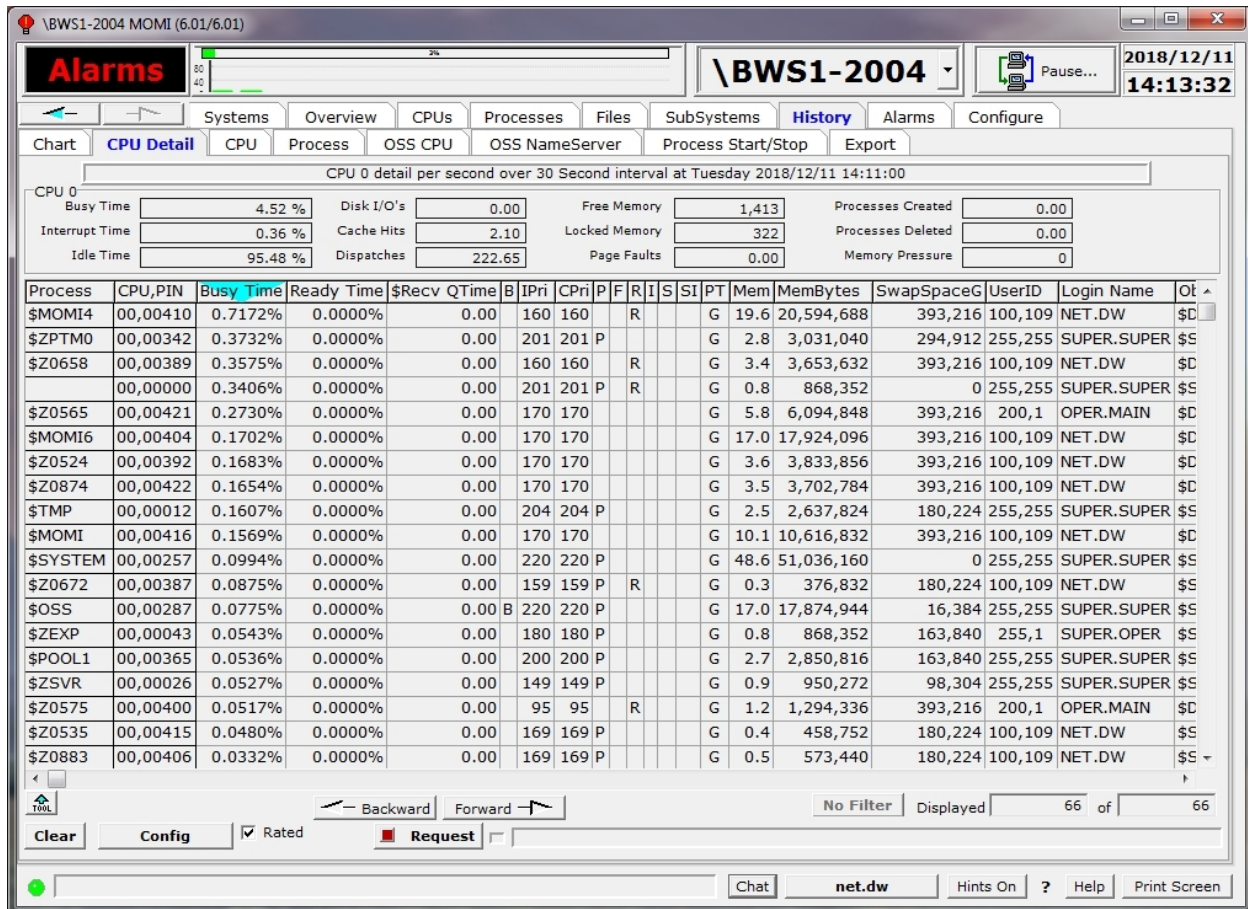
If **Reload Chart with New Times...** is selected, the History Chart Configuration pop-up is displayed. Note that the Chart START and STOP times are preloaded with the values displayed when the history bars were positioned. Additionally, the History database was pre-selected to the next higher resolution. Press Request to reload the chart based on the new time values and selected database.



The screen is reloaded with the times selected (perhaps adjusted to the capture interval).



History / CPU Detail



The History / CPU Detail screen presents details of a CPU and the processes in that CPU at a given point in time. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

The Config button displays a pop-up window allowing the specific Date/Time, CPU and Database to retrieve the data.

History CPU Detail Config Options

Specify Date/Time

Now 2018/12/11 14:11:00

for this CPU ☐

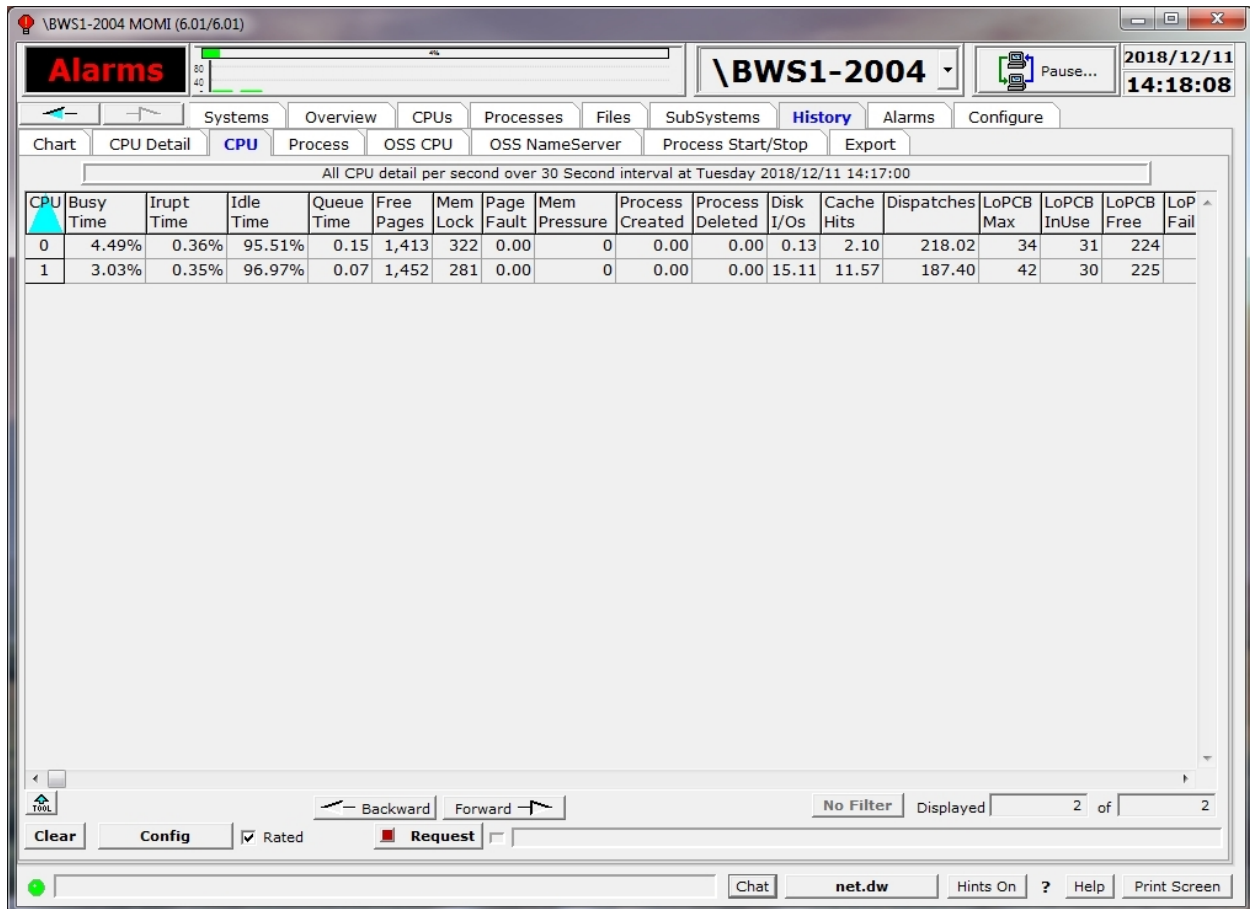
Specify Database to View

History Window Size	Newest Data	Oldest Data
30 Second interval	2018/12/11 14:14:30	2018/11/27 14:14:30
2 Minute interval	2018/12/11 14:10:00	2018/11/25 19:54:00
1 Hour interval	2018/12/11 13:00:00	2018/10/02 15:00:00
1 Day interval	2018/12/10 00:00:00	2017/04/21 00:00:00

30 Second interval

Close Request

History / CPU



The History / CPU screen presents all CPUs at a given point in time. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

The Config button displays a pop-up window allowing the specific Date/Time and Database to retrieve the data.

History CPU Config Options

Specify Date/Time

Now 2018/12/11 14:17:00

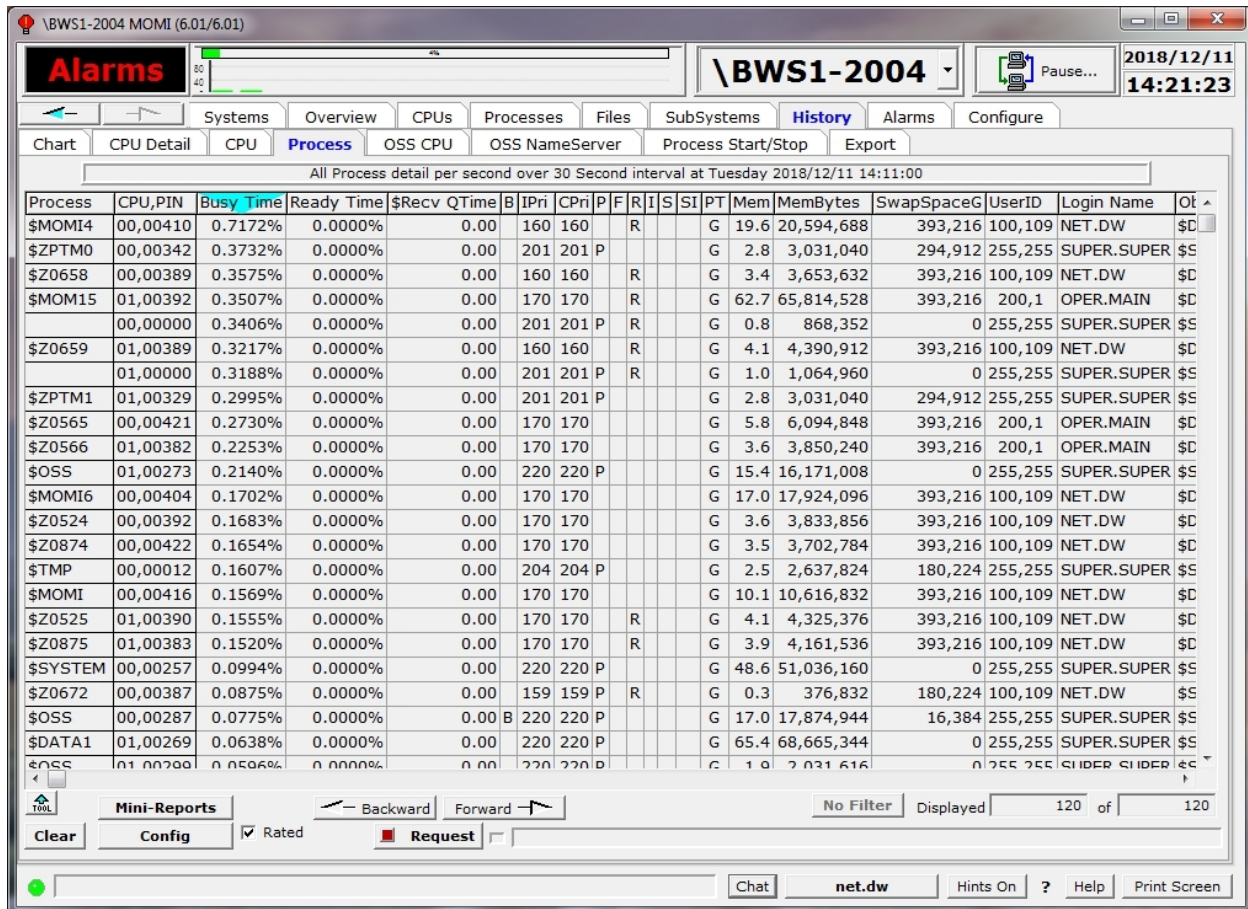
Specify Database to View

History Window Size	Newest Data	Oldest Data
30 Second interval	2018/12/11 14:18:00	2018/11/27 14:18:30
2 Minute interval	2018/12/11 14:14:00	2018/11/25 19:58:00
1 Hour interval	2018/12/11 13:00:00	2018/10/02 15:00:00
1 Day interval	2018/12/10 00:00:00	2017/04/21 00:00:00

30 Second interval

Close Request

History / Process



The History / Process screen presents all processes at a given point in time. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

The Config button displays a pop-up window allowing the specific Date/Time and Database to retrieve the data. A search by process feature is also present to limit the returned data to a single process. This is enabled by checking **If Process Exists**.

History Process Config Options

X

Specify Date/Time

Now

2018/12/11

14:11:00

☒ If Process Exists

\$fred

Close

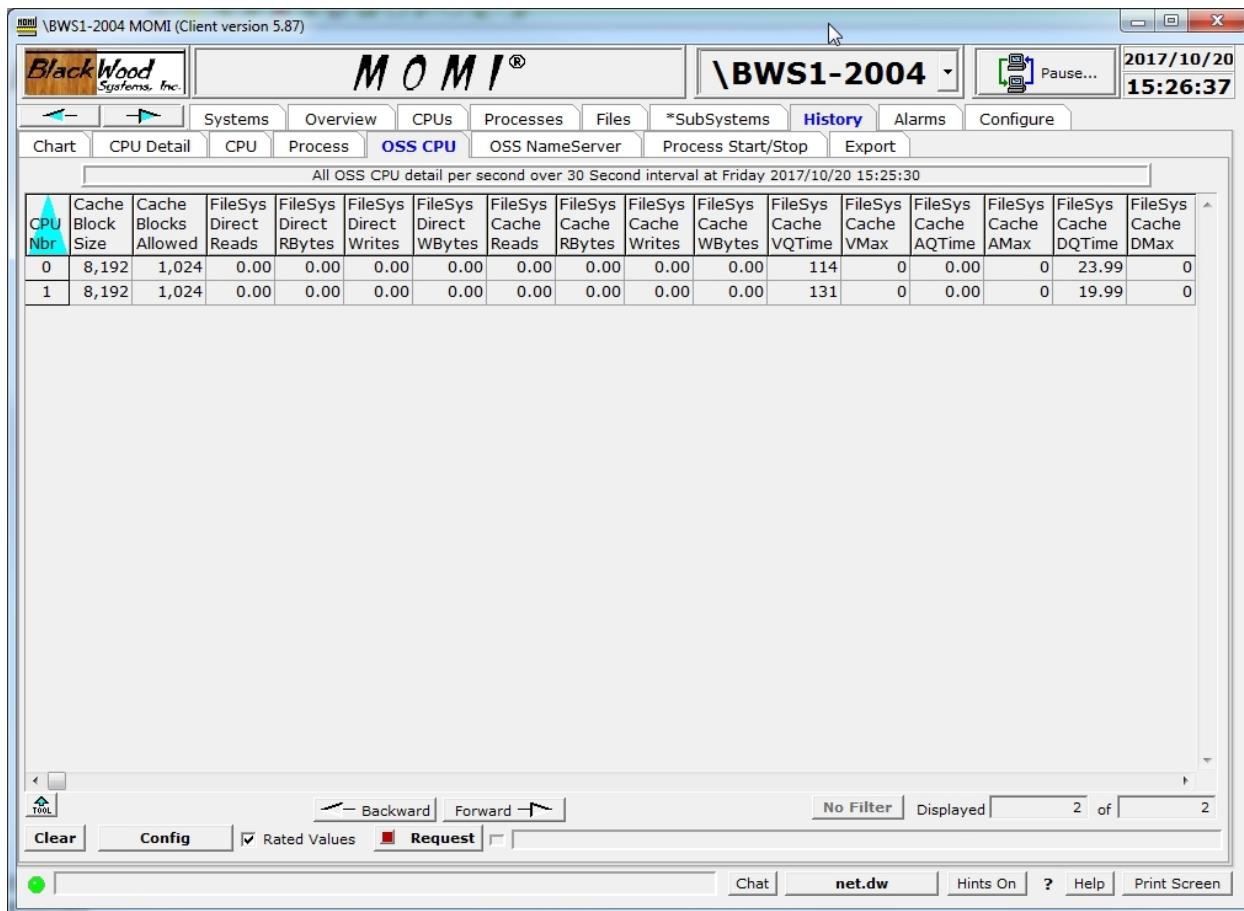
Request

Specify Database to View

History Window Size	Newest Data	Oldest Data
30 Second interval	2018/12/11 14:21:00	2018/11/27 14:22:30
2 Minute interval	2018/12/11 14:18:00	2018/11/25 20:02:00
1 Hour interval	2018/12/11 13:00:00	2018/10/02 15:00:00
1 Day interval	2018/12/10 00:00:00	2017/04/21 00:00:00

30 Second interval

History / OSS CPU



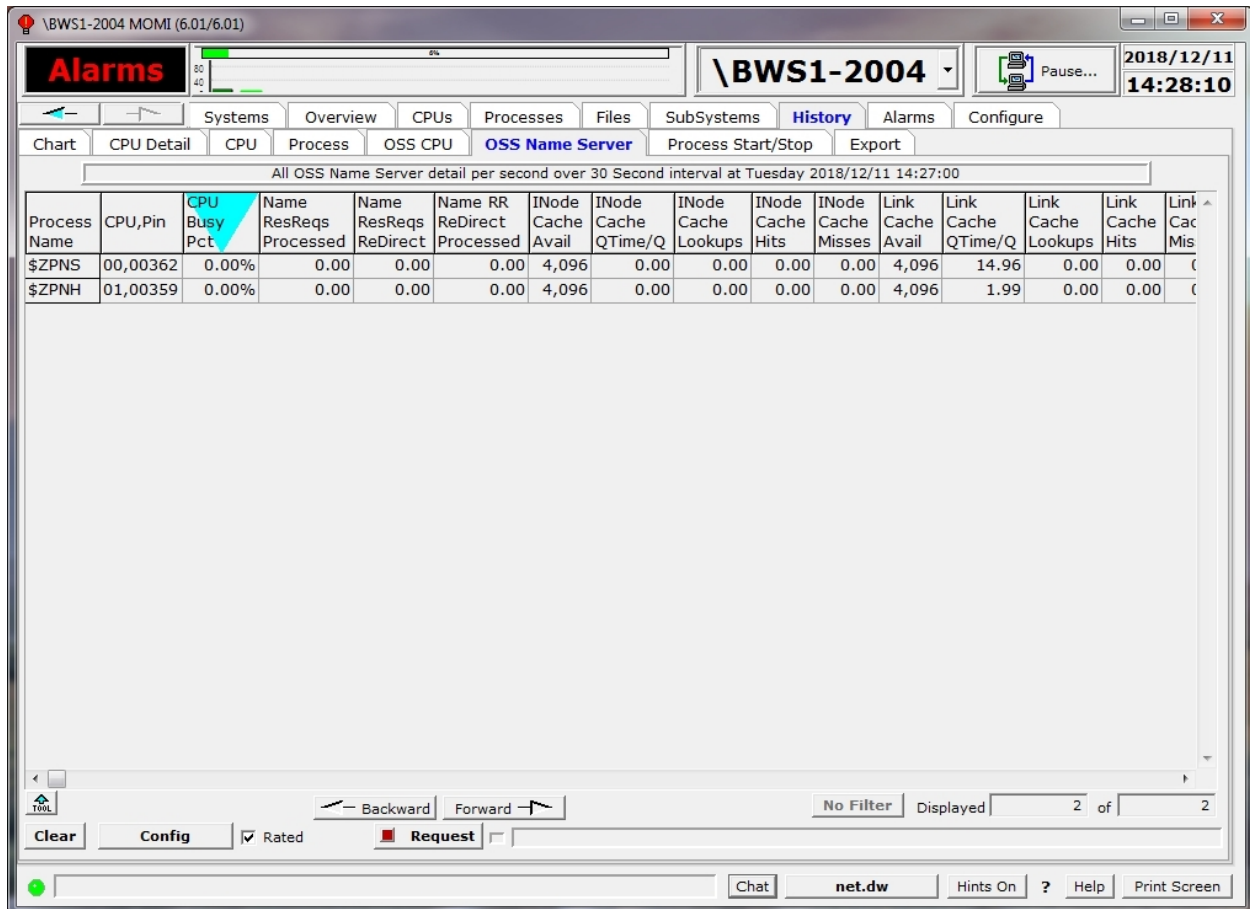
The History / OSS CPU screen presents the MEASURE OSS CPU entity for all processors at a given point in time. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

The **Config** button displays a pop-up window allowing the specific Date/Time and Database to retrieve data.

The screenshot shows the "History OSS CPU Config Options" dialog box. It has a title bar with a close button (X). The dialog is divided into two main sections. The left section is titled "Specify Date/Time" and contains a "Now" button, a date dropdown set to "2017/10/20", and a time spinner set to "15:25:30". The right section is titled "Specify Database to View" and contains a table with three columns: "History Window Size", "Newest Data", and "Oldest Data". The table has four rows of data. Below the table is a dropdown menu set to "30 Second interval". At the bottom of the dialog are "Close" and "Request" buttons.

History Window Size	Newest Data	Oldest Data
30 Second interval	2017/10/20 15:27:00	2017/10/06 15:26:30
2 Minute interval	2017/10/20 15:22:00	2017/10/07 07:00:00
1 Hour interval	2017/10/20 14:00:00	2017/08/11 16:00:00
1 Day interval	2017/10/19 00:00:00	2016/02/29 00:00:00

History / OSS Name Server



The History / OSS Name Server screen presents the MEASURE OSS Name Server entity for all name servers running on the System. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

Name Servers running, but unused, may not have MEASURE records reported.

The Config button displays a pop-up window allowing the specific Date/Time and Database to retrieve the data.

History OSS Name Servers Config Options

X

Specify Date/Time

Now

2018/12/11

▼

14:27:00

▲

▼

Close

Request

Specify Database to View

History Window Size	Newest Data	Oldest Data
30 Second interval	2018/12/11 14:27:00	2018/11/27 14:28:30
2 Minute interval	2018/12/11 14:24:00	2018/11/25 20:08:00
1 Hour interval	2018/12/11 13:00:00	2018/10/02 15:00:00
1 Day interval	2018/12/10 00:00:00	2017/04/21 00:00:00

30 Second interval

▼

History / Process Start/Stop

Processes STARTED

Start Date/Time	Cpu,Pin	Process	B	Pri	PT	SI	Object	UserID	LoginName	Ancestor	Home Terminal	GMom
2018/12/10 18:41:27	00,00411	\$Z0YF		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER	\$ZCMOM	\$ZHOME	
2018/12/10 18:07:22	00,00399	\$Z0YA		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER	\$ZCMOM	\$ZHOME	
2018/12/10 18:07:22	01,00415	\$Z0YC		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER	\$ZCMOM	\$ZHOME	
2018/12/10 17:41:26	00,00393	\$Z0Y8		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER	\$ZCMOM	\$ZHOME	
2018/12/10 17:32:46	00,00402			149	G		\$DATA1.MOMI4.PASSOT	100,109	NET.DW	\$Z0Y7	\$ZT0.#PT1QAAW	
2018/12/10 17:32:34	00,00418	\$Z0950		153	G		\$SYSTEM.SYS01.LOGIN	255,1	SUPER.OPER	\$ZT0	\$ZT0.#PT1QAAW	
2018/12/10 16:41:25	00,00420	\$Z0Y5		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER	\$ZCMOM	\$ZHOME	
2018/12/10 15:41:25	00,00411	\$Z0Y3		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER	\$ZCMOM	\$ZHOME	
2018/12/10 14:41:23	00,00396	\$Z0Y1		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER	\$ZCMOM	\$ZHOME	

Processes STOPPED

Stop Date/Time	Start Date/Time	Duration	Cpu,Pin	Process	B	Pri	PT	SI	Object	UserID	LoginName
2018/12/11 13:59:00	2018/12/11 13:57:51	0 00:01:08	01,00345	\$Z0993		90	G		\$DATA1.MOMI2006.BWMOMI	100,109	NET.DW
2018/12/10 23:11:35	2018/12/10 22:41:31	0 00:30:03	00,00393	\$Z0YP		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER
2018/12/10 22:36:15	2018/12/10 21:41:30	0 00:54:45	00,00396	\$Z0YM		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER
2018/12/10 21:11:35	2018/12/10 20:41:29	0 00:30:06	00,00418	\$Z0YK		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER
2018/12/10 20:36:15	2018/12/10 19:41:28	0 00:54:47	00,00420	\$Z0YH		30	G		\$SYSTEM.SYS01.RALPRVD	255,255	SUPER.SUPER
2018/12/10 18:00:50	2018/12/10 17:32:34	0 00:28:15	00,00231	\$Z0Y7		150	G		\$SYSTEM.SYS01.TACL	100,109	SUPER.OPER
2018/12/10 17:32:55	2018/12/10 17:32:34	0 00:00:20	00,00418	\$Z0950		153	G		\$SYSTEM.SYS01.LOGIN	255,1	SUPER.OPER
2018/12/10 14:31:35	2018/12/10 14:31:01	0 00:00:33	01,00420	\$Z0945		90	G		\$DATA1.MOMI2006.BWMOMI	100,109	NET.DW
2018/12/10 11:27:35	2018/12/10 11:22:31	0 00:05:04	01,00418	\$Z0XT		100	G		\$SYSTEM.ZTCPIP.FTPSERV	100.2	NET.FTP

The History / Process Start/Stop screen presents processes started and stopped from a given point in time. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

The screen is similar to the [Processes / Last Start/Stop](#) screen except that the underlying information is derived from the MOMI history file. Searching for start/stop records through MOMI history may take some time.

The Config button displays a pop-up window allowing the specific Date/Time and Database to retrieve the data.

History Process Start/Stop Config Options

X

Processing Mode

☒ By History Window
☐ Set limits

START Date/Time

Now

2018/12/11

14:32:11

STOP date/time

☐ Now

2018/12/11

14:31:31

Limit by Count

☐ Limit Display count

500

Search for Process Name

☐ Locate this process

Specify Database to View

History Window Size	Newest Data	Oldest Data
30 Second interval	2018/12/11 14:32:00	2018/11/27 14:32:30
2 Minute interval	2018/12/11 14:28:00	2018/11/25 20:12:00
1 Hour interval	2018/12/11 13:00:00	2018/10/02 15:00:00
1 Day interval	2018/12/10 00:00:00	2017/04/21 00:00:00

1 Day interval

Request

Close

History / Export Data

The screenshot displays the 'History / Export Data' interface of the BWS1-2004 MOMI (6.01/6.01) application. The interface is organized into several sections. At the top, there is a navigation bar with tabs for 'Systems', 'Overview', 'CPUs', 'Processes', 'Files', 'SubSystems', 'History' (which is the active tab), 'Alarms', and 'Configure'. Below this is a sub-navigation bar with tabs for 'Chart', 'CPU Detail', 'CPU', 'Process', 'OSS CPU', 'OSS Name Server', 'Process Start/Stop', and 'Export' (which is the active sub-tab). The main content area is titled 'Action Run Online Export'. It contains a 'Specify Database to Export' dropdown menu set to '30 Second interval', a 'MOMI server' dropdown menu set to '\BWS1-2004', and a 'Set by Current Monitored System' button. Below these are three tabs: '*Date/Time', 'Data Type', and 'Output'. The '*Date/Time' tab is active, showing radio buttons for 'Set Dates', 'Today', 'Yesterday', 'This Week', 'Last Week', 'Previous Database Period', 'This Month', 'This Quarter', 'Last Month', and 'Last Quarter'. The 'Today' option is selected. There are also time pickers for 'Start' (00:00:00) and 'Stop' (23:59:59). A date/time field shows '2018/12/11 14:34:00'. To the right of the date/time section, there is a button labeled 'Export Data' and a red message box stating 'Missing Required Items' with a table header showing 'Data Type' and 'Output File Name'. At the bottom of the main content area, there is a 'Clear' button and a red error message 'Must select a data type'. The status bar at the very bottom includes a green indicator, a 'Chat' button, the text 'net.dw', and links for 'Hints On', '?', 'Help', and 'Print Screen'. The top right corner of the window shows the date '2018/12/11' and time '14:35:44'.

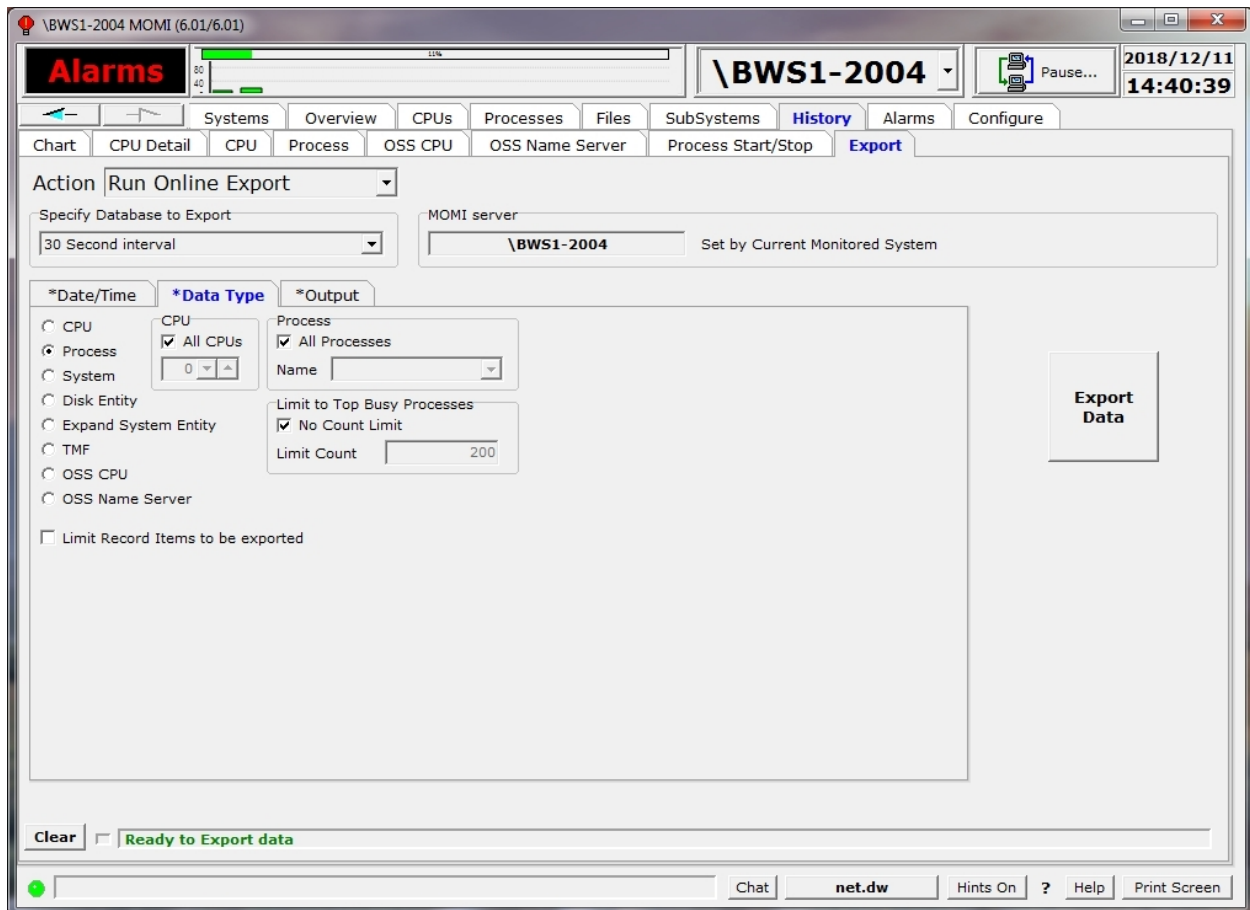
The History / Export Data screen allows the creation of raw history of either delimited separated fields or HTML. The delimiter character, TAB by default, may be changed on [Configure / Client / General](#).

The export function provides a means to obtain raw MOMI data so that the User may generate desired reports or otherwise format data to meet their requirements. The column order of data exported is fixed, however the columns exported are selectable. New information provided with an entity is generally placed on the end of the export line.

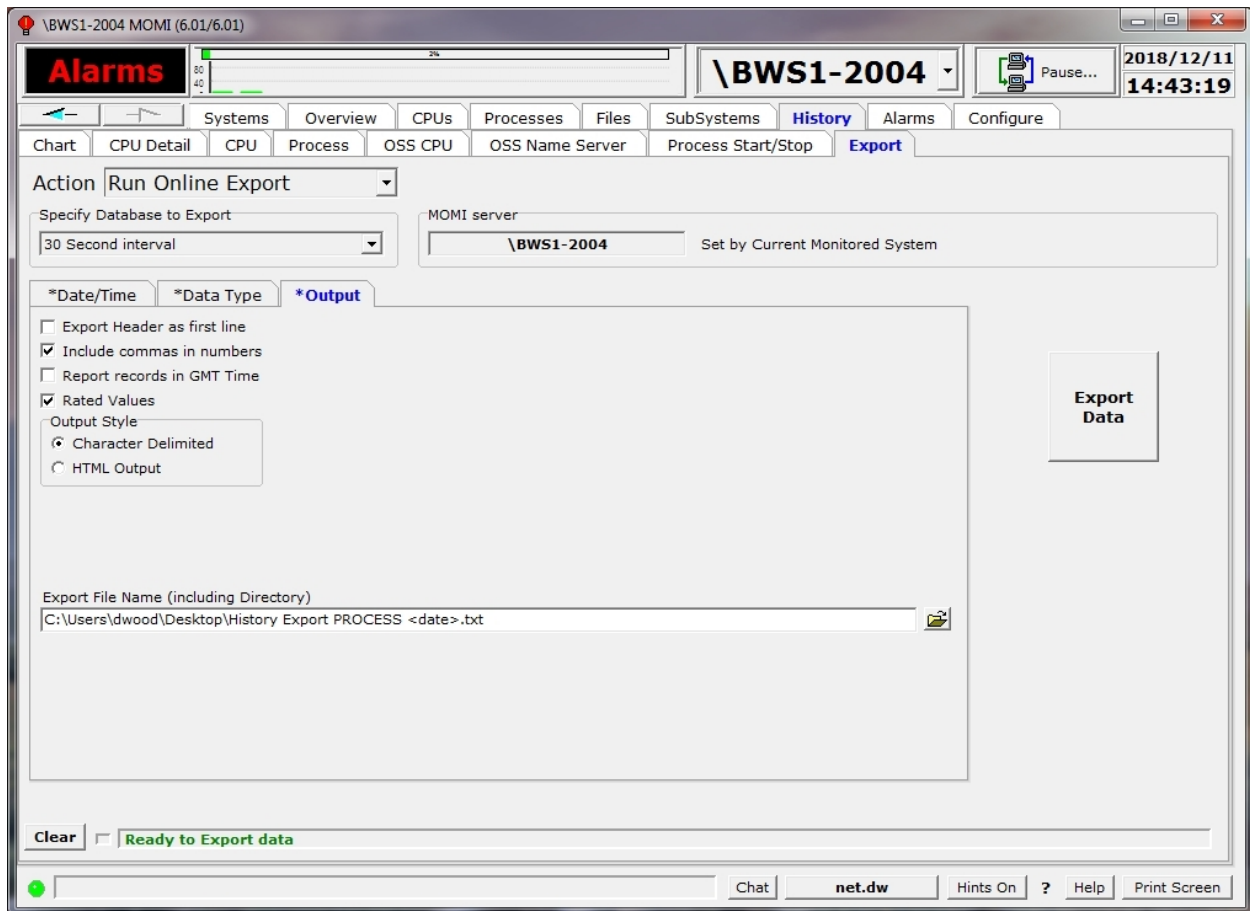
History export may return a great deal of data. It is suggested that a fast connection to the NonStop System is used.

The **Action** drop down determines if the export is immediate (Run Online Report), or a saved script (Create Script Export), or when a client is launched (Create Runtime export).

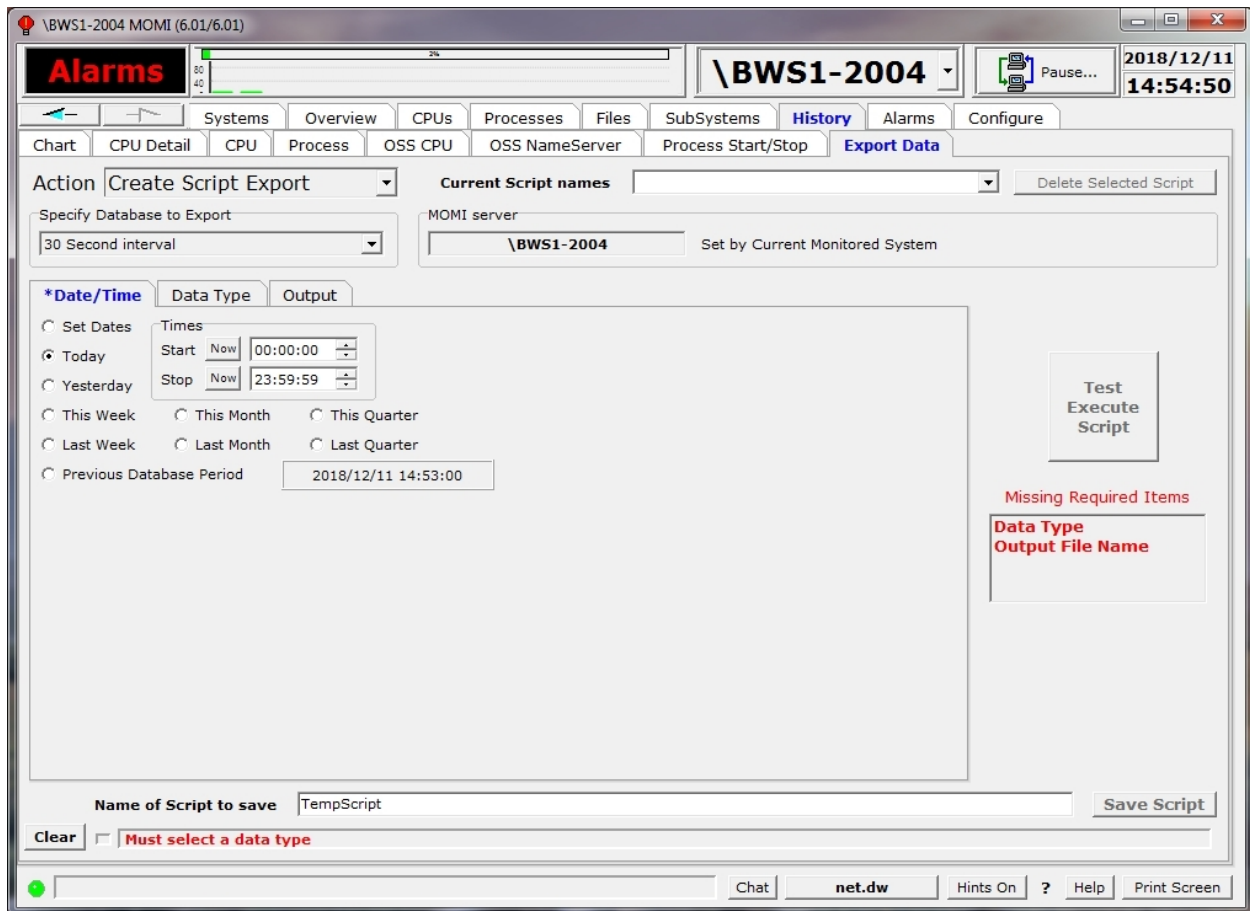
In all Actions, three tabs (Date/Time, Data Type, Output) are used to configure the export. The **Date/Time** tab (shown above) is used to select the time range and the data-base.



The **Data Type** tab determines the entity type of data to select. Some selections provide limits such as CPU or a process name.



The **Output** tab sets options such as headers, GMT time (LCT is the default), rated, style and the output file name.



An Export Script may be created to provide a means to generate export based on pre-defined settings. The **Action of Create Script Export** allows settings to be saved in the MOMI.INI file under a name and easily reused. The **Action of Create Runtime Export** displays the required settings as a series of runtime parameters to that may be given to the MOMI PC Client at start-up to launch the desired export. All other aspects of configuration under the **Date/time**, **Data type** and **Output** tabs function as described previously.

Alarms

Alarms / Active

S	Start Date/Time	Started	Alarm Name	Alarm Info
	2018/11/30 11:18:40	2018/11/30	CPU Q	CPU 3 CPU queue at 0.00 (under th
	2018/11/30 11:17:10	2018/11/30	CPU Q	CPU 1 CPU queue at 0.02 (under th
	2018/11/29 08:39:50	2018/11/29	CPU Q	CPU 2 CPU queue at 0.01 (under th
	2018/11/28 14:58:20	2018/11/28	CPU Q	CPU 0 CPU queue at 0.03 (under th
	2018/11/28 14:56:10	2018/11/28	OVERHEAD TOO LOW	CPU 1 Overhead percent at 0% (un
	2018/11/28 14:56:10	2018/11/28	OVERHEAD TOO LOW	CPU 0 Overhead percent at 0% (un
	2018/11/28 14:56:10	2018/11/28	OVERHEAD TOO LOW	CPU 2 Overhead percent at 0% (un
	2018/11/28 14:56:10	2018/11/28	OVERHEAD TOO LOW	CPU 3 Overhead percent at 0% (un
	2018/11/28 14:56:10	2018/11/28	CPU - MEMORY NOT BEING USED	CPU 1 Physical memory (megabyte:
	2018/11/28 14:56:10	2018/11/28	CPU - MEMORY NOT BEING USED	CPU 0 Physical memory (megabyte:
	2018/11/28 14:56:10	2018/11/28	CPU - MEMORY NOT BEING USED	CPU 2 Physical memory (megabyte:
	2018/11/28 14:56:10	2018/11/28	CPU - MEMORY NOT BEING USED	CPU 3 Physical memory (megabyte:

The Alarms / Active screen presents a list of alarms currently triggered or have met the required threshold criteria.

Alarms are initially create on the [Alarm / Define](#) screen. If the defined threshold is reached, and an on-screen action is requested, the alarm appears on this screen.

The buttons **Active**, **All**, **Only** and **TempOff/Hidden** control the information displayed in the main portion of the screen. The **Active** button displays only alarms that are triggered or have met their criteria. The **All** button displays every active alarm. The **Only** button displays a particular selected type of alarm after right-clicking over the button and choosing an alarm type.

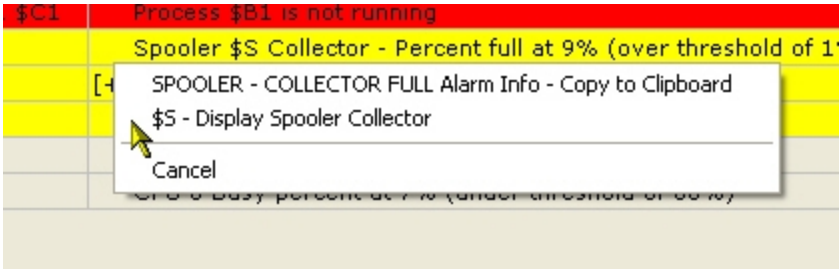


These image buttons control sounds associated with alarms. In order from left to right, they stop current sounds, replay last sound and replay all sounds.

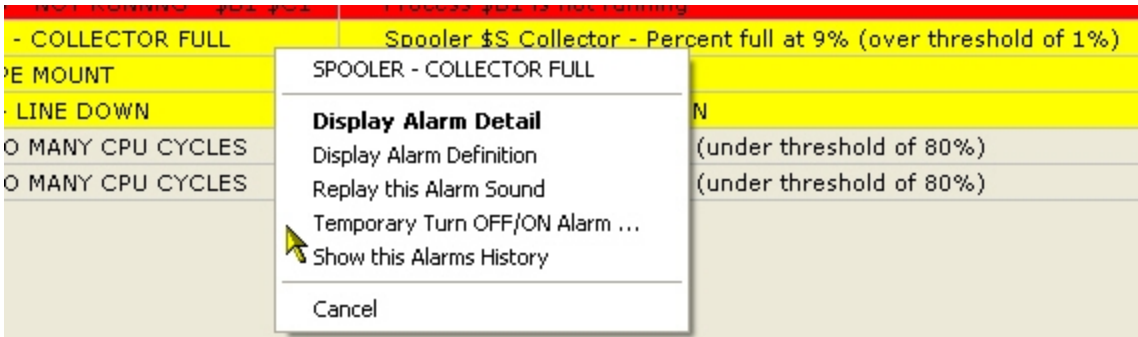
The **Legend** button displays a description of the colors used on screen. The primary alarm colors used are normal, yellow, red and purple (or really red) in order of least to greatest concern. Purple alarms are reserved for internal MOMI use to alert the user that an alarm configuration error was detected.



Right-clicking over the Alarm Info provides a jump, if one is available, to a MOMI screen that applies to the Alarm. In the image below, jump for a Spooler Collector percent full is to the screen Subsystems / Spool / Collector.



Right-clicking over the Alarm Name to display a list of options.



Jumping to the [Alarm Definition](#) screen allows the user to quickly access the threshold for an alarm.

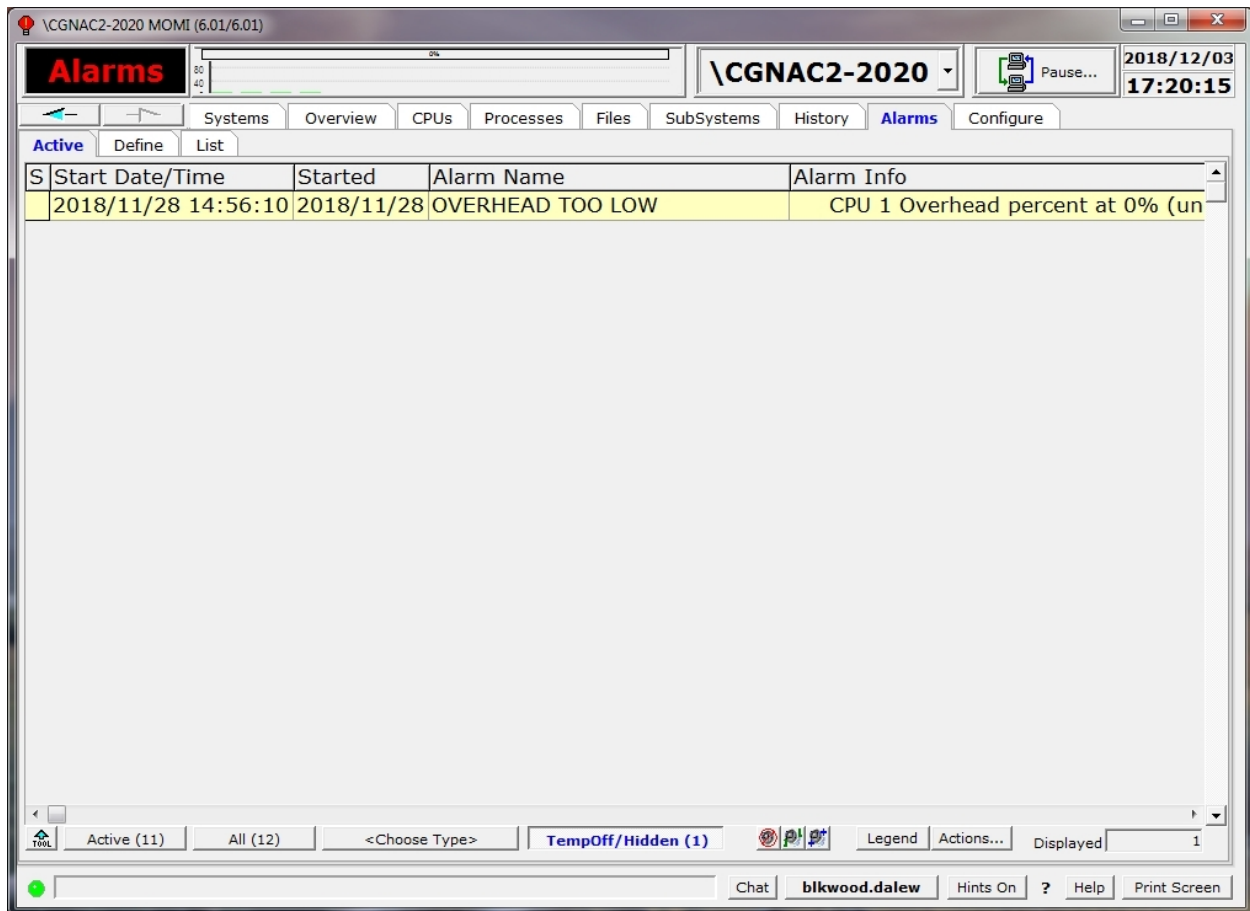
Jumping to **Show this Alarms History** (i.e. LogFile) screen displays creates a temporary filter on this screen to show only the items associated with the selected alarm. LogFile records are only generated if the action is configured to do so.

Temporary Turn OFF/ON Alarm allows a secured user the ability remove an active alarm from the screen. This feature provides an ability to remove an alarm when it cannot be resolved for a period of time.

The screenshot shows a dialog box titled "Temporarily Turn OFF/ON Alarm" with a close button (X) in the top right corner. The dialog is divided into several sections:

- Alarm:** A text field containing "OVERHEAD TOO LOW".
- Set how long Alarm will be turned OFF:** This section contains two radio buttons. The first is selected and is labeled "Turn Alarm OFF for" followed by a spinner box set to "1" and the word "hours". The second radio button is labeled "or Specify Alarm RESUME date/time".
- Specify Alarm RESUME date/time:** This section is only visible if the second radio button is selected. It contains a "Now" button, a date spinner box set to "2018/12/03", and a time spinner box set to "18:16:43".
- Turning off this Alarm affects:** This section contains two radio buttons. The first is selected and is labeled "This Alarm instance only". The second is labeled "All instances based on this Alarm".
- Notes:** A large text area for entering notes.
- Buttons:** At the bottom, there are two buttons: "Temporarily turn OFF Alarm" and "Close".

By default the screen display only active alarms. Temporarily turned off alarms or otherwise hidden alarms may also be displayed along with all alarms. The screen below displays Temporarily turned off alarms.



Pressing the **Actions...** button allows a secured user the ability suspend or resume all alarm processing. Any active alarm is removed if processing is suspended. This feature is used, for example, to prevent alarm processing during a maintenance window. This function may be used in conjunction with the CONFMOMI keyword [ALARM-SUSPEND-DELAY](#) that suspends alarm processing at the start up of MOMI.

Suspend/Resume ALL Alarm processing

X

Alarms are NOT suspended

Set how long Alarm processing will be SUSPENDED

☒ Suspend Alarms for

1

hours

or Specify Alarm RESUME date/time

☐ Now

2018/12/03

18:21:30

or ☐ Suspend Alarms PERMANENTLY

or ☐ RESUME All Alarm processing NOW

Notes

Temporarily Suspend ALL Alarms

Close

☐

Define

Define / Alarm

The screenshot shows the 'Define Alarm Entity' window in the MOMI software. The window title is '\\BWS1-2004 MOMI (Client version 5.87)'. The top bar displays the BlackWood Systems, Inc. logo, the MOMI® logo, the server name '\\BWS1-2004', and the date/time '2017/10/20 15:42:17'. The main menu includes 'Systems', 'Overview', 'CPUs', 'Processes', 'Files', '*SubSystems', 'History', 'Alarms', and 'Configure'. The 'Alarms' tab is active, showing 'Active', 'Define', and 'List' sub-tabs. The 'Define Alarm Entity' form is displayed. It includes a 'Disable this Alarm' checkbox, an 'Alarm Name' dropdown set to 'PROCESS NOT RUNNING - \$FRED', a 'Description' text box with 'critical process not running', and a tree view for 'Entity Type' and 'Entity Sub Type'. The 'Entity Sub Type' list includes 'Process' (selected), 'Spooler', 'System', 'Tape', 'TCP/IP', 'TMF', and 'Volume'. The 'Process' sub-type list includes 'Busy percent', 'CPU assignment', 'CPU Bound', 'Debug/Inspect', 'I/O Stuck in %004 (seconds)', 'Looping', 'Memory leak', 'Memory used (megabytes)', 'Messages received (per second)', 'Messages sent (per second)', 'Process creation requests (per second)', 'Queue length \$RECEIVE (n.nn)', 'Ready Time Only percent', 'Ready Time percent', 'Running too long (CPU cycles)', 'Running too long (wall clock)', 'State running/stopped', and 'Suspended'. The 'Settings 1' tab is active, showing 'Event' (Entity is Stopped (DOWN)) and 'Delay Alarm' (Do NOT Delay Alarm). At the bottom, there are fields for 'Times' (<ALWAYS>), 'Action' (<SCREEN-RED>), 'Entity Name' (\$FRED), and buttons for 'Use as Template', 'Display', 'Save New', 'Change', 'Delete', and 'Clear Screen'.

The Define / Alarm screen allows the creation and maintenance of alarms and the trigger threshold(s).

The field **Disable this Alarm** provides the ability to turn-off or prevent the processing of the record without deleting it.

The field **Alarm Name** is used to give the alarm a unique identification. This name appears on the [Active](#) Alarm screen and should provide a general idea of what the alarm represents. Existing alarms are selected in the drop-down box.

The **Alarm Name** field may contain the characters [] to enclose text that will not display on the [Active](#) Alarm screen. This may be used to cause the Alarm Name to appear more generic if needed. Examples:

Alarm Name
Alarm

What displays on Active

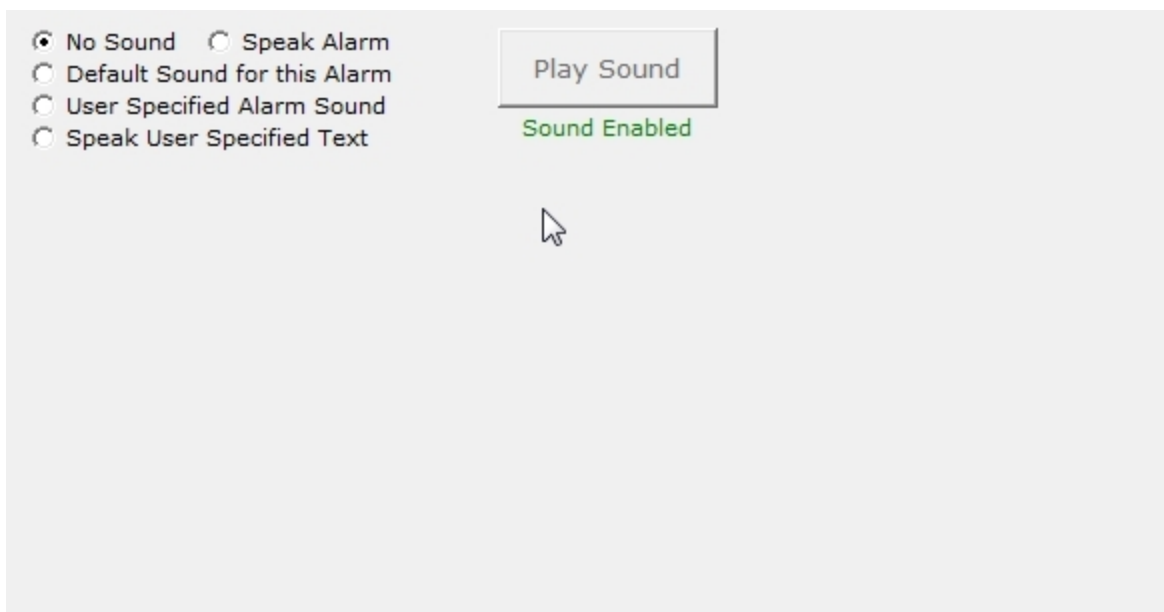
PROCESS - NOT RUNNING \$FRED
\$FRED
PROCESS - NOT RUNNING [\$FRED]

PROCESS - NOT RUNNING
PROCESS - NOT RUNNING

The **Description** field provides free form text to explain the nature of the definition.

The **Entity Type** column provides a list of general categories available. A selection in this column determines the contents of the **Entity Sub Type** column.

The **Entity Sub Type** column is a list of the alarm-able items under an Entity. A selection in this column determines the contents of events just to the right. Events are specific to each Sub Type. Place the mouse over events for additional information.



Sounds may be associated with an active Alarm. The available options are 1) speak the alarm, 2) a default or preselected message, 3) a user specified sound or 4) speak a user specified text string.

The [Times](#) drop-down box selects the monitor times for the alarm. The default of <ALWAYS> means monitoring is continuous.

The **Action** drop-down box selects what should occur in the event an alarm occurs. The default of <SCREEN-RED> means the Alarm appears on the [Active](#) screen colored red.

The **Entity Name** field is used to enter CPU numbers, file and process names.

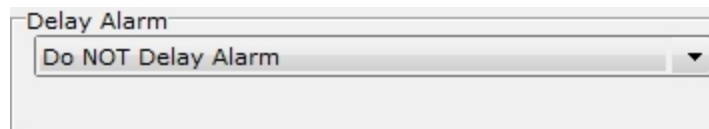
Creating an Alarm or a Change of an existing alarm causes all current Alarms (if any) to clear for that alarm entry.

Detailed Information

Alarm attributes

Delay Alarm

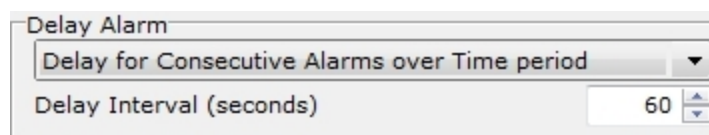
The **Delay Alarm** attribute determines if an alarm is displayed immediately or delayed by a period of time with a certain condition.



A screenshot of a configuration window titled "Delay Alarm". It contains a dropdown menu with the option "Do NOT Delay Alarm" selected.

Do NOT Delay Alarm

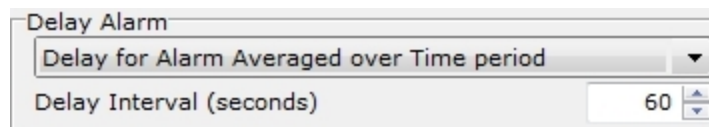
Alarm is triggered immediately.



A screenshot of a configuration window titled "Delay Alarm". It contains a dropdown menu with the option "Delay for Consecutive Alarms over Time period" selected. Below the dropdown, there is a label "Delay Interval (seconds)" and a numeric input field with the value "60".

Delay for Consecutive Alarms over Time period

When the alarm criteria is reached, it must continue in that state for the Delay Interval before MOMI will trigger the alarm. Any drop outside the criteria resets the alarm computation or clears an existing alarm (if the thresholds were previously met).



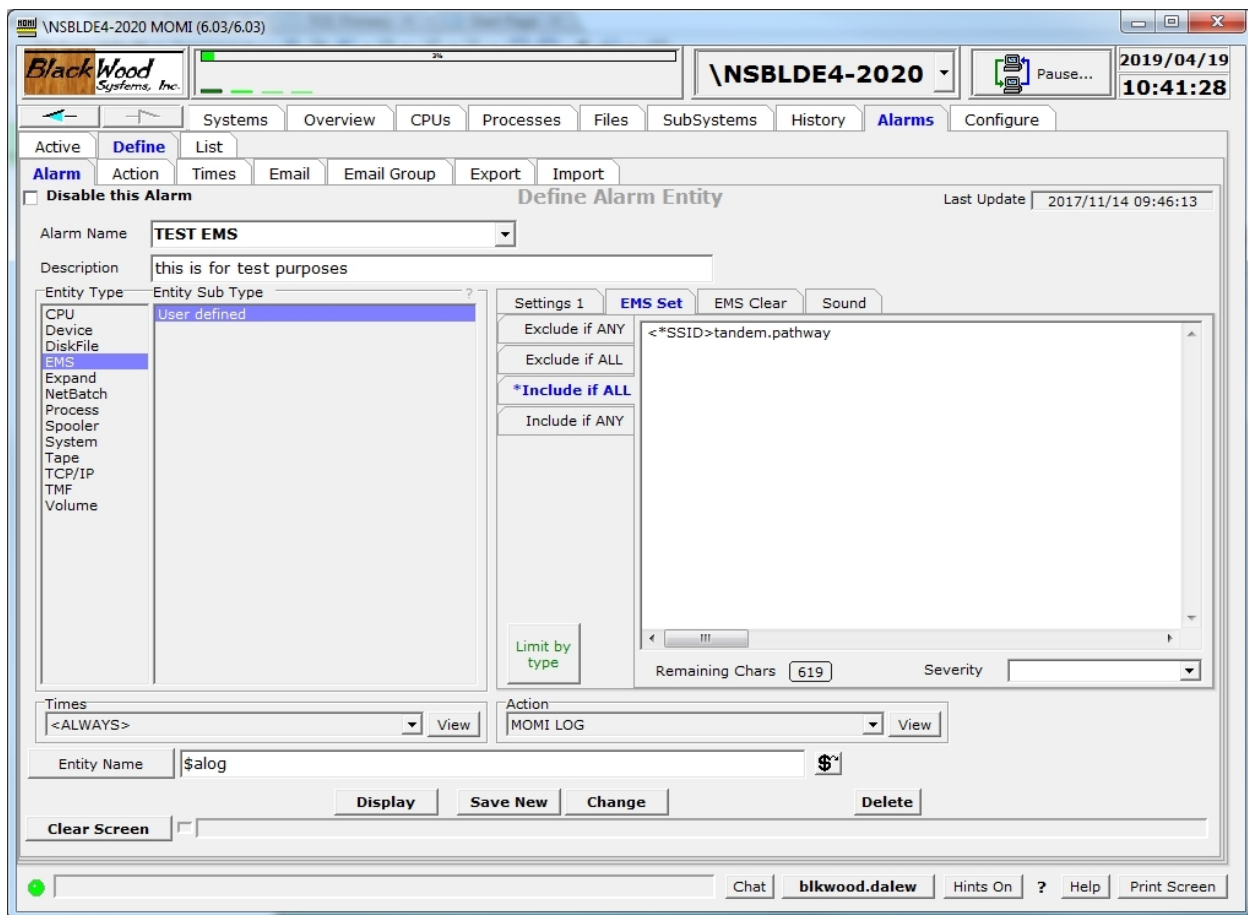
A screenshot of a configuration window titled "Delay Alarm". It contains a dropdown menu with the option "Delay for Alarm Averaged over Time period" selected. Below the dropdown, there is a label "Delay Interval (seconds)" and a numeric input field with the value "60".

Delay for Alarm Averaged over Time period

When the alarm criteria is reached, it must average in that state for the Delay Interval before MOMI will trigger the alarm. Any drop outside the "averaged" criteria resets the alarm computation or clears an existing alarm.

EMS - User Defined

(updated for server version 5.24 or later)



The alarm EMS / User defined provides a method to generate an alarm based on the content of an EMS message. The EMS message may be located in \$0 or in another EMS collector that MOMI can access.

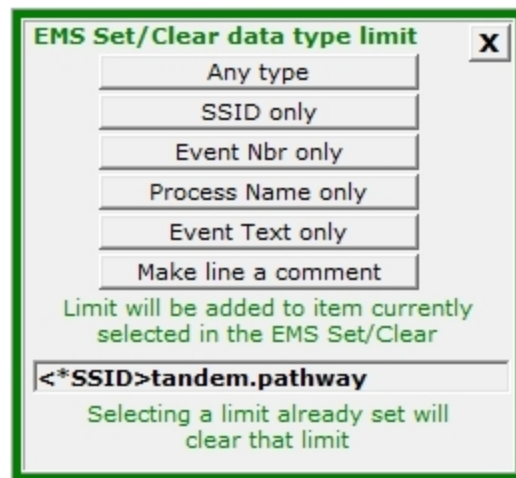
The alarm is triggered, and potentially cleared, by defining a series of logical conditions. The criteria for the logical conditions are entered into the text area next to the selections of "Include if ANY", "Include if ALL", "Exclude if ANY" and "Exclude if ALL". Each selection has its own text area where zero or more lines of text are entered. A line of text is evaluated in its entirety. For example, "Fred Smith" is considered as one single entry whereas one line of "Fred" and a second line of "Smith" means that these words may appear anywhere within the EMS message (i.e. don't have to be together). The text comparison is not case sensitive.

If criteria for "include" is successful, while considering "excludes", then the alarm is triggered, or potentially cleared. Here is the general order of how entered text (i.e. criteria) is evaluated:

- **Exclude if ANY** means that if any single line of text matches, no alarm is generated.
- **Exclude if ALL** means that if ALL lines of text matches, no alarm is generated.
- **Include if ALL** means that if all lines of text matches, the alarm is generated.
- **Include if ANY** means that if any single line of text matches, the alarm is generated.

Note that Excludes are evaluated first. Any "logical match" of the excludes means that no alarm is generated. Once Excludes are evaluated, then Includes are examined. It is necessary to successfully match an Include in order to generate an alarm.

The **EMS Set** tab fields are used to determine if an alarm is generated. The **EMS Clear** fields, which are optional, are used to determine if an alarm triggered by EMS Set should be automatically cleared.



Data entered within **EMS Set** and **EMS Clear** by default is matched with virtually the entire ASCII text of the EMS message. To limit the search, push the **Limit By type** button and select the portion of the message to search. A *tag* is displayed in the text line indicating the portion of the message to search and text immediately follows.

EMS messages with an SSID of BWS, which is the SSID used by MOMI, are ignored. This prevents a potential "looping" situation where an Alarm triggered by an EMS message, causes an EMS message that triggers an alarm, that causes an EMS message that triggers an alarm, and so on...

Define / Action

The screenshot shows the 'Define Alarm Action' window in the CGNAC2-2020 MOMI software. The window title is '\CGNAC2-2020 MOMI (6.02/6.01)'. The top menu bar includes 'Systems', 'Overview', 'CPUs', 'Processes', 'Files', 'SubSystems', 'History', 'Alarms', and 'Configure'. The 'Alarms' menu is open, showing 'Active', 'Define', and 'List'. The 'Define' menu is further open, showing 'Alarm', 'Action', 'Times', 'Email', 'Email Group', 'Export', and 'Import'. The 'Action' option is selected, leading to the 'Define Alarm Action' dialog. This dialog has a 'Disable this Action' checkbox (unchecked) and a 'Last Update' field. The 'Action Name' is set to 'SCREEN RED - LOG' and the 'Description' is 'send to screen in red and to MOMI log. EMS and EMAIL.'. Under 'Alarm Action to perform', there are four checked options: 'Send to Screen' (with a dropdown set to 'Informational Alarm'), 'Send to LOG' (with a dropdown set to 'Normal Message'), 'Send to EMS' (with a dropdown set to 'DALE'), and 'Send to EMAIL' (with a dropdown set to 'DALE'). There are also checkboxes for 'Send Changes' and 'Send EMAIL when Alarm is Cleared'. At the bottom of the dialog are buttons for 'Display', 'Save New', 'Change', and 'Delete'. A 'Clear Screen' button is also present. The bottom status bar shows 'Chat', 'Not Logged On', 'Hints On', '?', 'Help', and 'Print Screen'.

The Define / Action screen allows the creation and maintenance of what happens when an alarm is triggered.

An Action is a set of notifications that occur when the alarm is triggered. The notification consists of any or all of the following:

- display on the [Active Alarm](#) screen
- generate an event to the MOMI LogFile
- generate an EMS message
- generate an [Email](#)

The field **Disable this Action** provides the ability to prevent the processing of the record without deleting it. However, a disabled Action still results in the default of Send to Screen as red.

A color is associated with Send to Screen and Send to LOG. Red is considered the most severe and Screen the least. An incrementing alarm starts with on screen, changes to yellow and finally to red based on the Escalation Interval.

Alarm Action to perform

☒ Send to Screen
☐ Send to LOG
☐ Send to EMS
☐ Send to EMAIL

Severity Escalation Interval in minutes: 60

Incrementing Alarm
Screen Alarm
Yellow Alarm
Red Alarm
Incrementing Alarm

The MOMI LOG is an event file maintained by MOMI. It is accessed on the screen LogFile. Send Changes indicates that any change in the Alarm messages is logged. By default, only the first and last (or clear) are logged.

Alarm Action to perform

☐ Send to Screen
☒ Send to LOG
☐ Send to EMS
☐ Send to EMAIL

☐ Send Changes

Severity Escalation Interval in minutes: 60

Incrementing Alarm
Screen Alarm
Yellow Alarm
Red Alarm
Incrementing Alarm

An EMS message has the attributes of Action, Emphasis and Normal. EMS messages are access on the screen [EMS Msgs](#). Send Changes indicates that any change in the Alarm messages is logged. By default, only the first and last (or clear) are logged.

Alarm Action to perform

☐ Send to Screen
☐ Send to LOG
☒ Send to EMS
☐ Send to EMAIL

☐ Send Changes

Action Message
Normal Message
Emphasis Message
Action Message

Email may be sent to either an individual address or a group. By default, only the first Alarm message is sent. The option "Send EMAIL when Alarm is Cleared" cause the Alarm clear to also be sent.

Alarm Action to perform

☐ Send to Screen

☐ Send to LOG

☐ Send to EMS

☒ Send to EMAIL

<NONE> View ☐ Send EMAIL when Alarm is Cleared

*GRP-EVERYBODY

<NONE>

DALE WOOD

STEVE BLACK

Define / Times

\CGNAC2-2020 MOMI (6.02/6.01)

BlackWood Systems, Inc.

\CGNAC2-2020

2018/12/28 14:27:46

Systems Overview CPUs Processes Files SubSystems History Alarms Configure

Active Define List

Alarm Action Times Email Email Group Export Import

☐ Disable this Monitor Time Define Alarm Monitor Times Last Update 2018/12/28 14:27:24

Times Name PRODUCTION HOURS

Description 8 to 5 monday through friday

Left-click - select time Right-click - clear time

Sel/Clear All	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Monday																									
Tuesday																									
Wednesday																									
Thursday																									
Friday																									
Saturday																									
Sunday																									

Clear All Times Select All Times Display Save New Change Delete

Clear Screen ☐

Chat Not Logged On Hints On ? Help Print Screen

The Define / Times screen allows the creation and maintenance records used to determine periods of time.

Records defined here do not in-and-of themselves perform any action. But rather are referenced in other definitions, such as in [Alarm](#) and [Email](#).

The field **Disable this Monitor Time** provides the ability to prevent the processing of the record without deleting it. However, a disabled Monitor Time still results in the default of monitored all the time.

A Monitor Times record provides 1/2 hour increments Monday through Sunday.

Place the mouse over a desired time period and press the left mouse button. Holding the button down and moving the mouse allows setting of multiple cells. Using the right mouse button clears cells. All cells may be set or cleared by clicking on the Clear All Times or Select All Times buttons.

Define / Email

The screenshot shows the 'Define Alarm Email Location' window within the 'CGNAC2-2020 MOMI (6.02/6.01)' application. The window has a title bar with standard Windows controls. Below the title bar is a logo for 'Black Wood Systems, Inc.' and a progress bar. The main menu bar includes 'Systems', 'Overview', 'CPUs', 'Processes', 'Files', 'SubSystems', 'History', 'Alarms', and 'Configure'. The 'Alarms' menu is currently selected, showing sub-menus for 'Active', 'Define', and 'List'. The 'Define' sub-menu is further expanded, showing 'Alarm', 'Action', 'Times', 'Email', 'Email Group', 'Export', and 'Import'. The 'Email' sub-menu is selected, displaying the 'Define Alarm Email Location' form. The form includes a 'Disable this Email Location' checkbox, an 'Email Name' dropdown menu (currently showing 'ALARM-DALE1'), a 'Description' text field (containing 'dale's test alarm'), an 'Email Address' text field (containing 'alarm-dale1@blackwood-systems.com'), and a 'Monitor Times Name' dropdown menu (currently showing '<ALWAYS>'). There is a 'View' button next to the 'Monitor Times Name' dropdown and a 'Send Extra Detail' checkbox. At the bottom of the form are buttons for 'Test', 'Display', 'Save New', 'Change', and 'Delete'. A 'Clear Screen' button is located at the bottom left. The status bar at the bottom of the window shows 'Chat', 'Not Logged On', 'Hints On', '?', 'Help', and 'Print Screen'.

The Define / Email screen allows the creation and maintenance of Email records.

Records defined here do not in-and-of themselves perform any action. But rather are referenced in other definitions.

The field **Disable this Email Location** when checked prevents sending of an email to the precipitant.

The field **Send Extra Detail** causes the inclusion of additional information, if available, within the email for this particular entry.

The field **Monitor Times Name** may be specified to place a time limitation on emails.

The **Test button** generates a test email. This helps insure that the information entered is correct and that MOMI is configured properly.

In order to generate email, it is necessary to define several keywords in the CONFMOMI file. See [Alarm Overview](#) for more information.

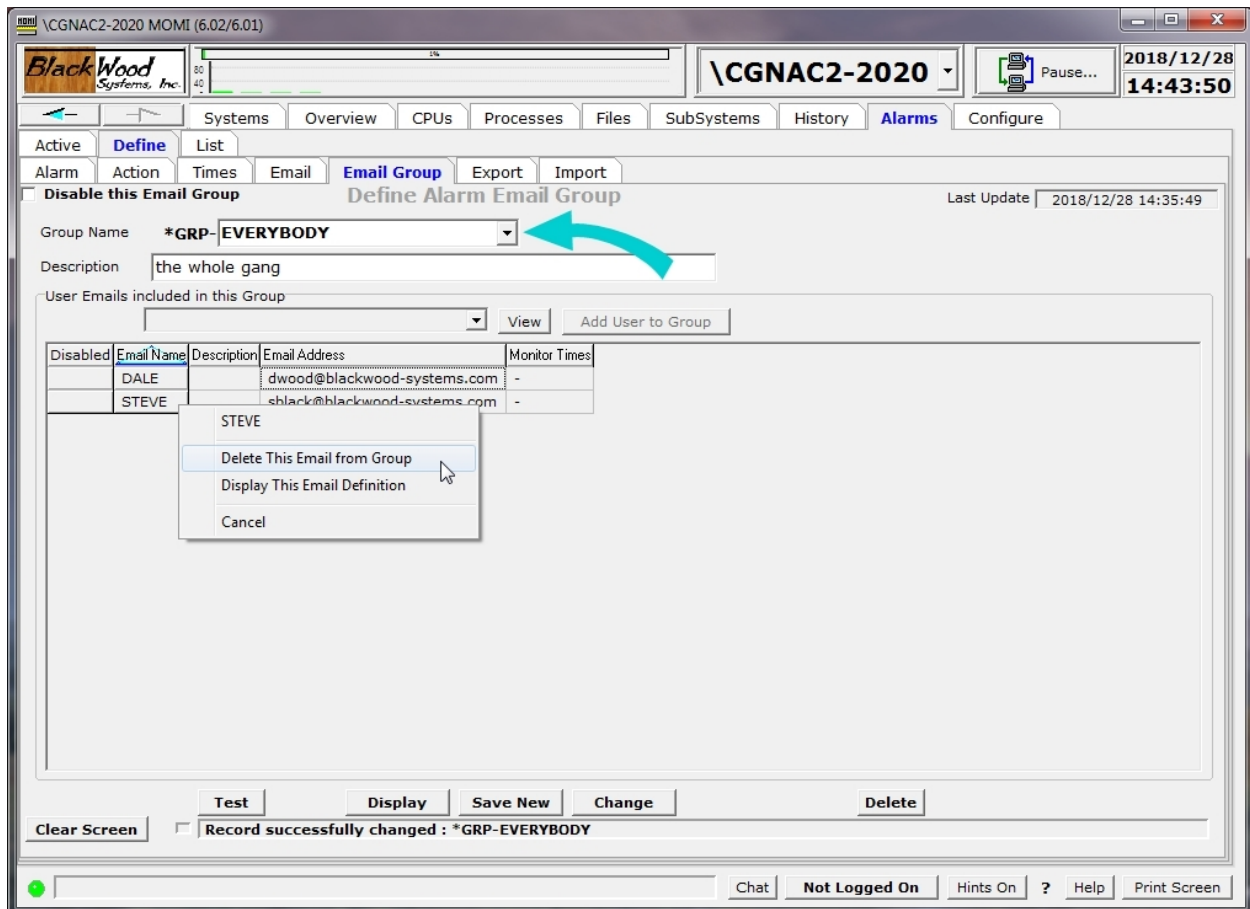
Define / Email Group

The screenshot shows the 'Define Alarm Email Group' window in the CGNAC2-2020 MOMI application. The window has a title bar with the text '\CGNAC2-2020 MOMI (6.02/6.01)'. The main area is divided into several sections. At the top, there is a 'BlackWood Systems, Inc.' logo and a status bar showing the date '2018/12/28' and time '14:36:00'. Below the logo, there is a navigation bar with tabs for 'Systems', 'Overview', 'CPUs', 'Processes', 'Files', 'SubSystems', 'History', 'Alarms', and 'Configure'. The 'Alarms' tab is selected. Under the 'Alarms' tab, there are sub-tabs for 'Active', 'Define', 'List', 'Alarm', 'Action', 'Times', 'Email', 'Email Group', 'Export', and 'Import'. The 'Email Group' sub-tab is selected. The main content area is titled 'Define Alarm Email Group' and contains a checkbox labeled 'Disable this Email Group'. Below this, there is a 'Group Name' field with a dropdown menu showing '*GRP-EVERYBODY'. There is also a 'Description' field with the text 'the whole gang'. Below the description, there is a 'User Emails included in this Group' section with a dropdown menu showing 'STEVE'. To the right of this dropdown are 'View' and 'Add User to Group' buttons. Below this section is a table with columns 'Disabled', 'Email Name', 'Description', 'Email Address', and 'Monitor Times'. The table contains one row with the following data: 'DALE', 'dwood@blackwood-systems.com', and '-'. At the bottom of the window, there is a 'Test' button, a 'Display' button, a 'Save New' button, a 'Change' button, and a 'Delete' button. There is also a 'Clear Screen' button and a checkbox labeled 'Record successfully changed : *GRP-EVERYBODY'. The bottom status bar shows 'Chat', 'Not Logged On', 'Hints On', '?', 'Help', and 'Print Screen'.

Disabled	Email Name	Description	Email Address	Monitor Times
	DALE		dwood@blackwood-systems.com	-

The Define / Email Group screen allows the creation and maintenance of Email group records. A group record is a reference to one name that represents one or more previously created [Email](#) definitions.

To create a new group, enter a **Group Name** (the *GRP- prefix is fixed), **Description** and then using the drop down box as shown above select an Email and press **Add User to Group**. Repeat the last step for each email needed in this group. Press **Save New** when complete.



To change an existing group, select an existing group in the **Group Name** drop down then right click on the entry in the **Email Name** column and select the delete option. Press **Change** when complete.

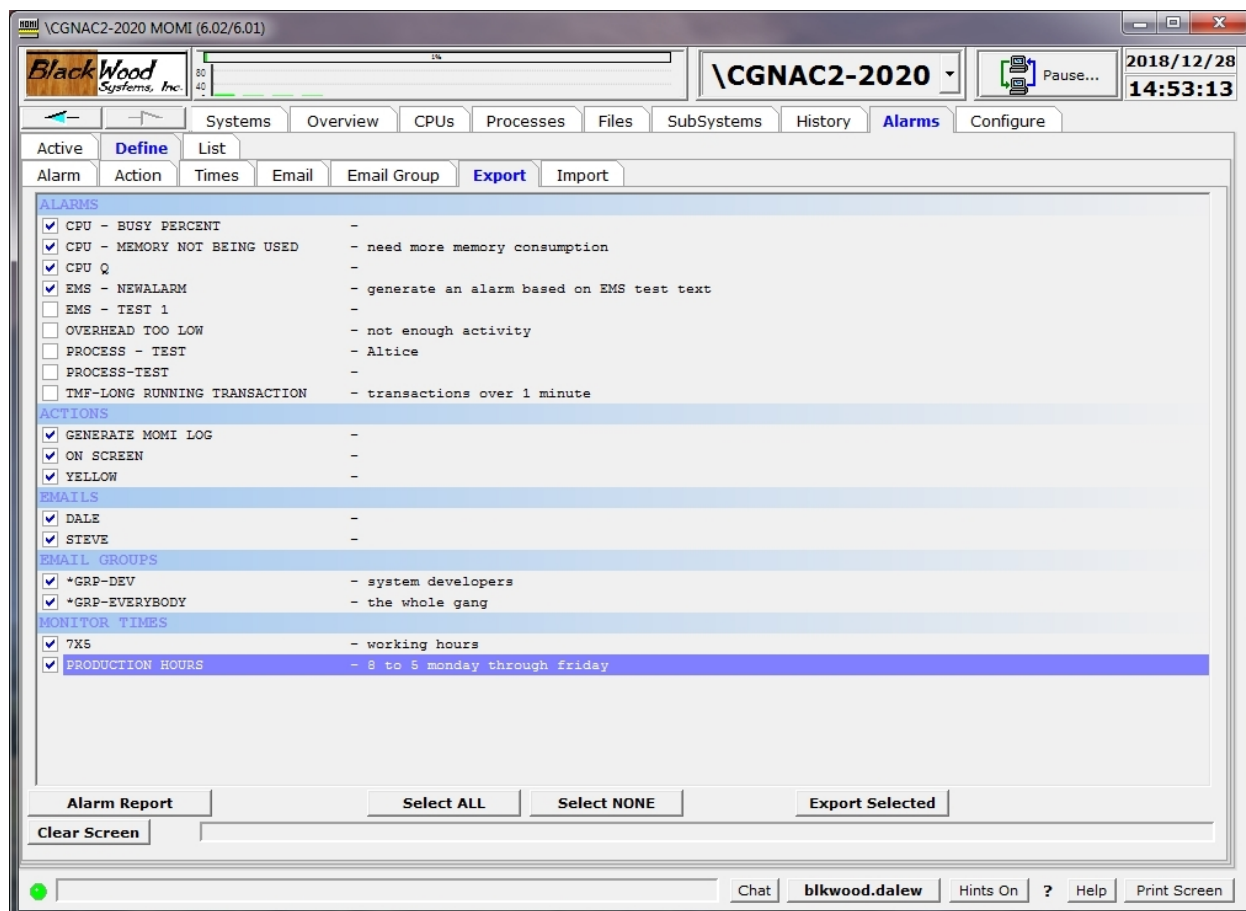
Records defined here do not in-and-of themselves perform any action. But rather are referenced in other definitions.

The field **Disable this Email Group** provides the ability to prevent the processing of the record without deleting it.

The **Test** button generates a test email using the settings defined for Alarm Email.

In order to use email, it is necessary to set several keywords in the CONFMOMI file. See the [Alarm Overview](#) page for more information.

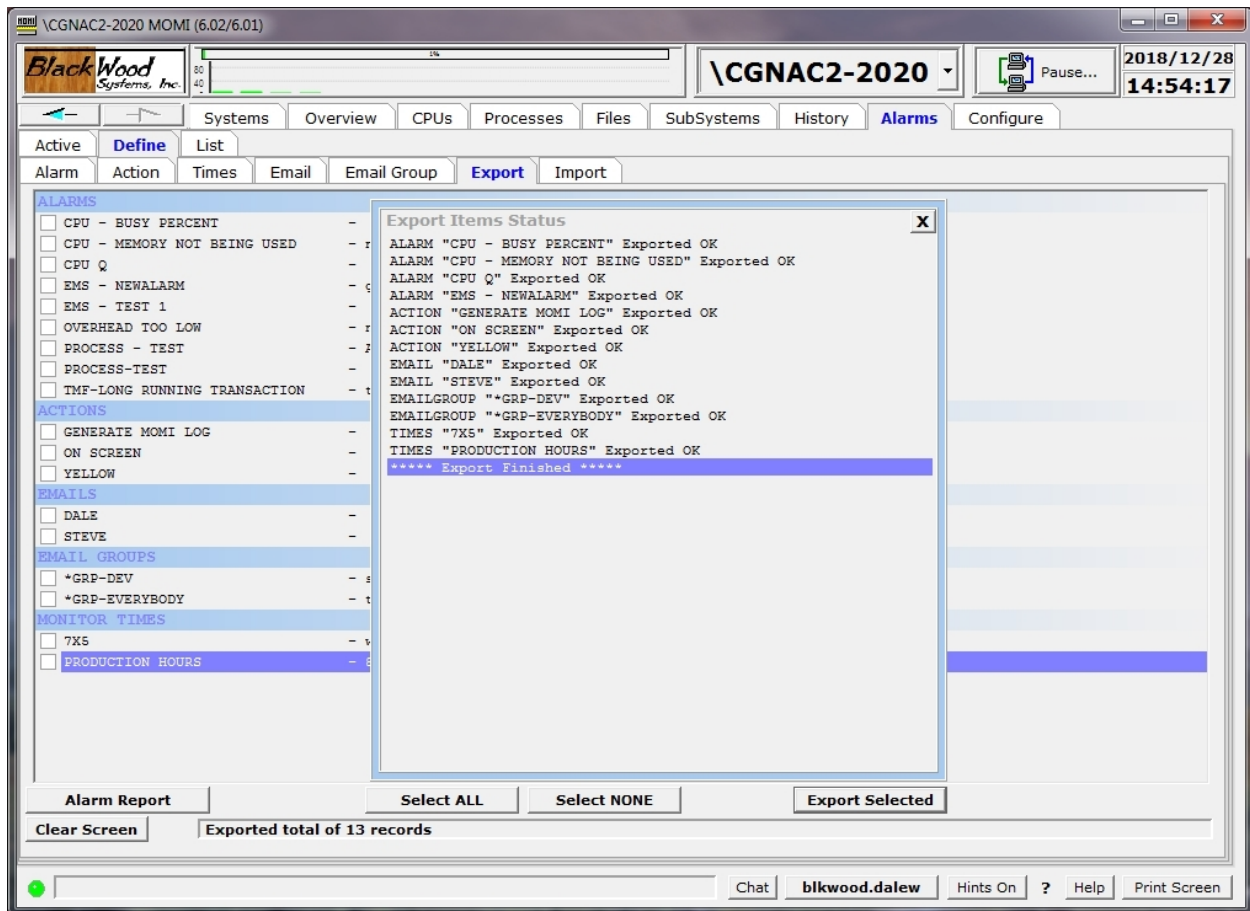
Define / Export



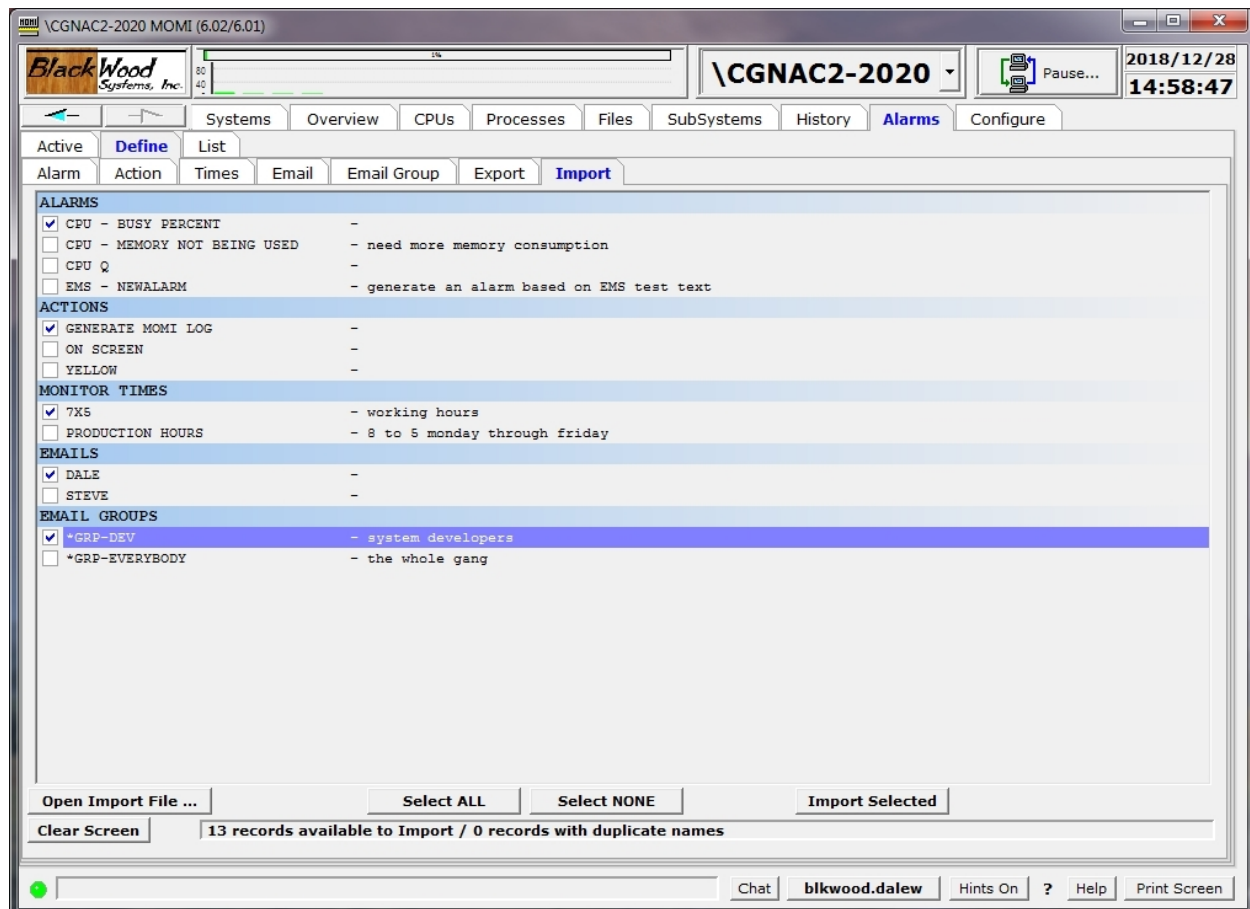
The Define / Export screen provides a means to transfer to a text file Alarm and supporting definitions. The screen [Import](#) is used to bring the information back into the system, usually to a different MOMI environment.

Check the desired items to export and press Export Selected button. Items selected for Export will automatically contain any dependencies.

A pop-up window displays the result of the export operation.



Define / Import

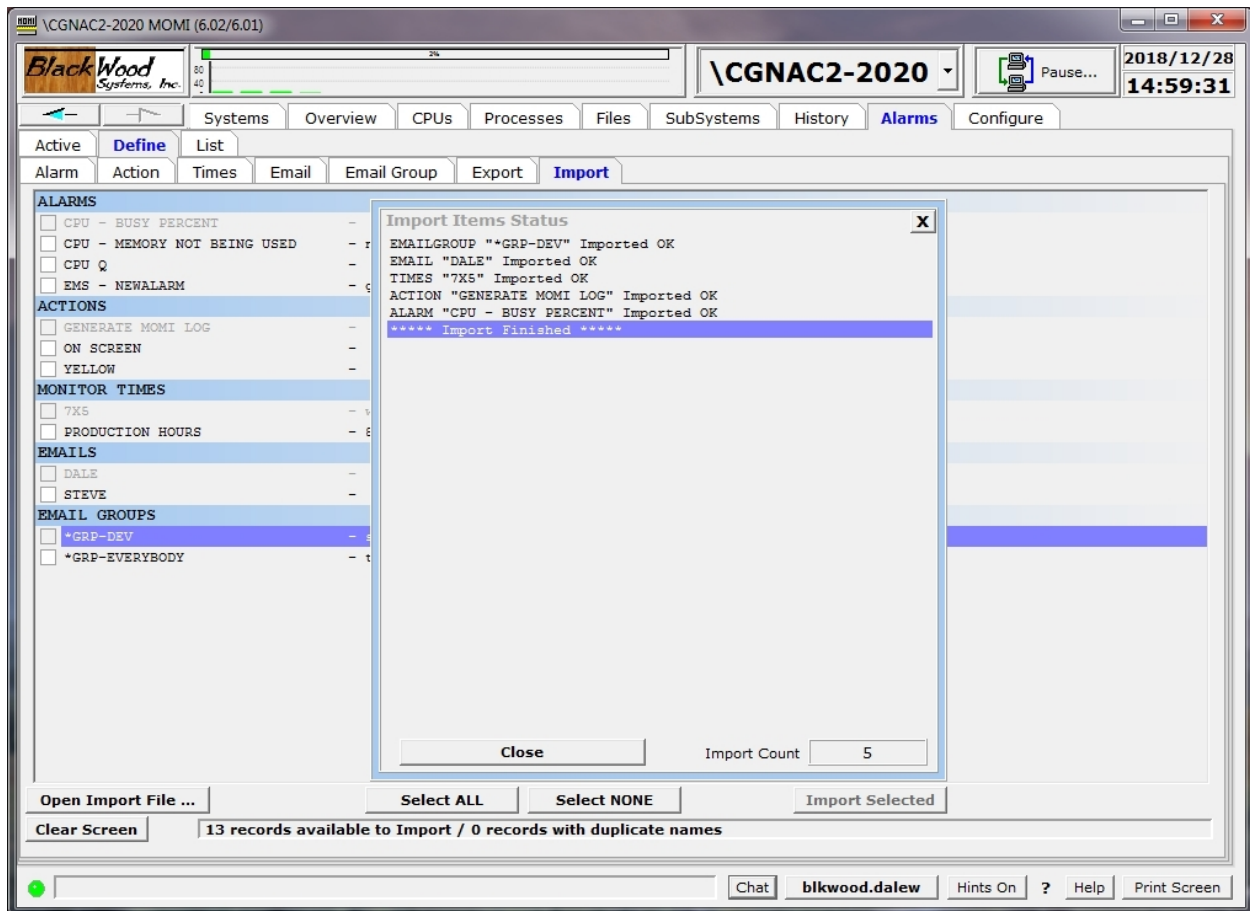


The Define / Import screen provides a means to transfer from a text file Alarm and supporting definitions.

The import operation involves two phases. The first phase is to read and import file and the second is to perform the actual import operation.

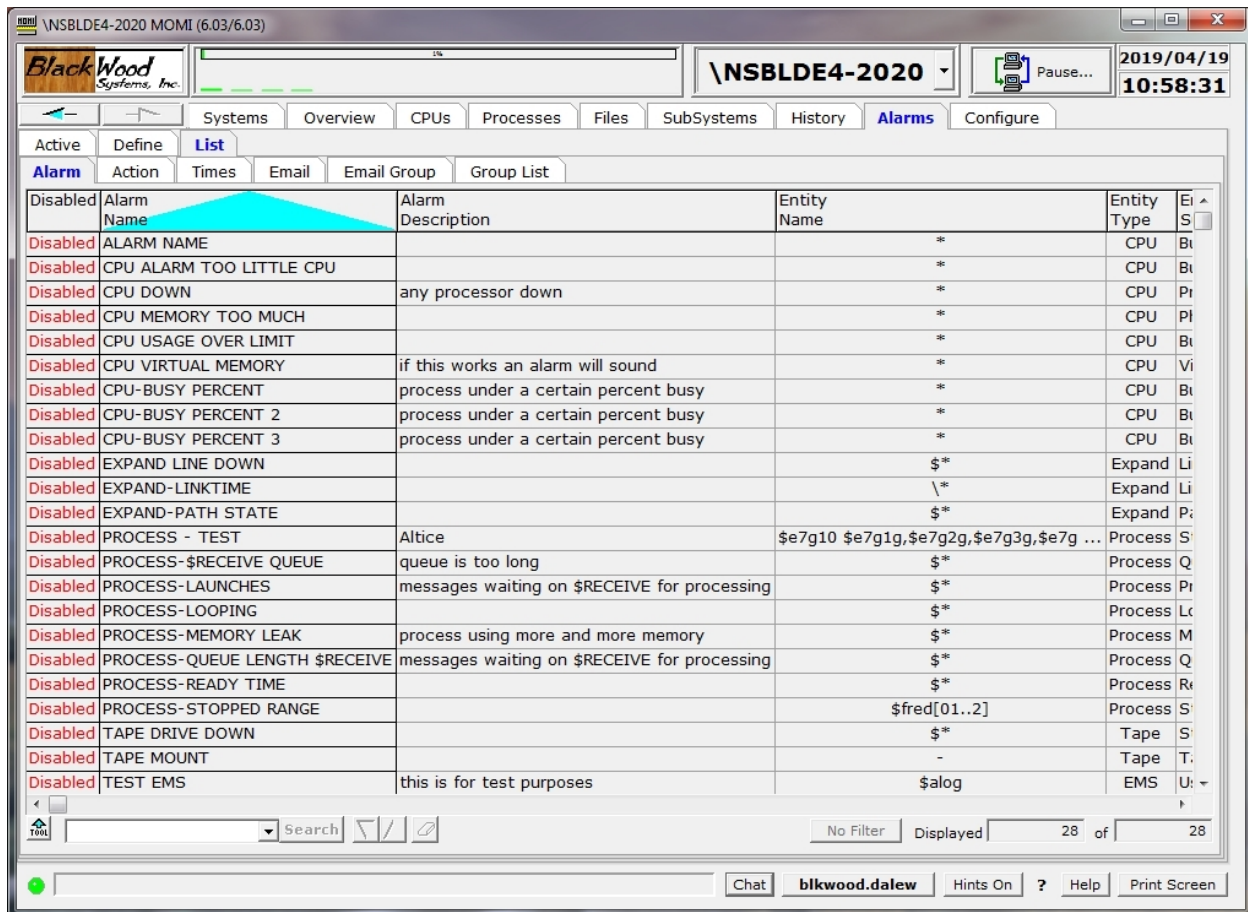
Press the button Open Import File and selected the desired text file. The entries are read and displayed. Check the desired items to Import and press Import Selected button to complete the import operation. Lines that are not enabled (i.e. grayed out) already exist and cannot be imported.

A pop-up window displays the result of the import operation.



List

List / Alarm

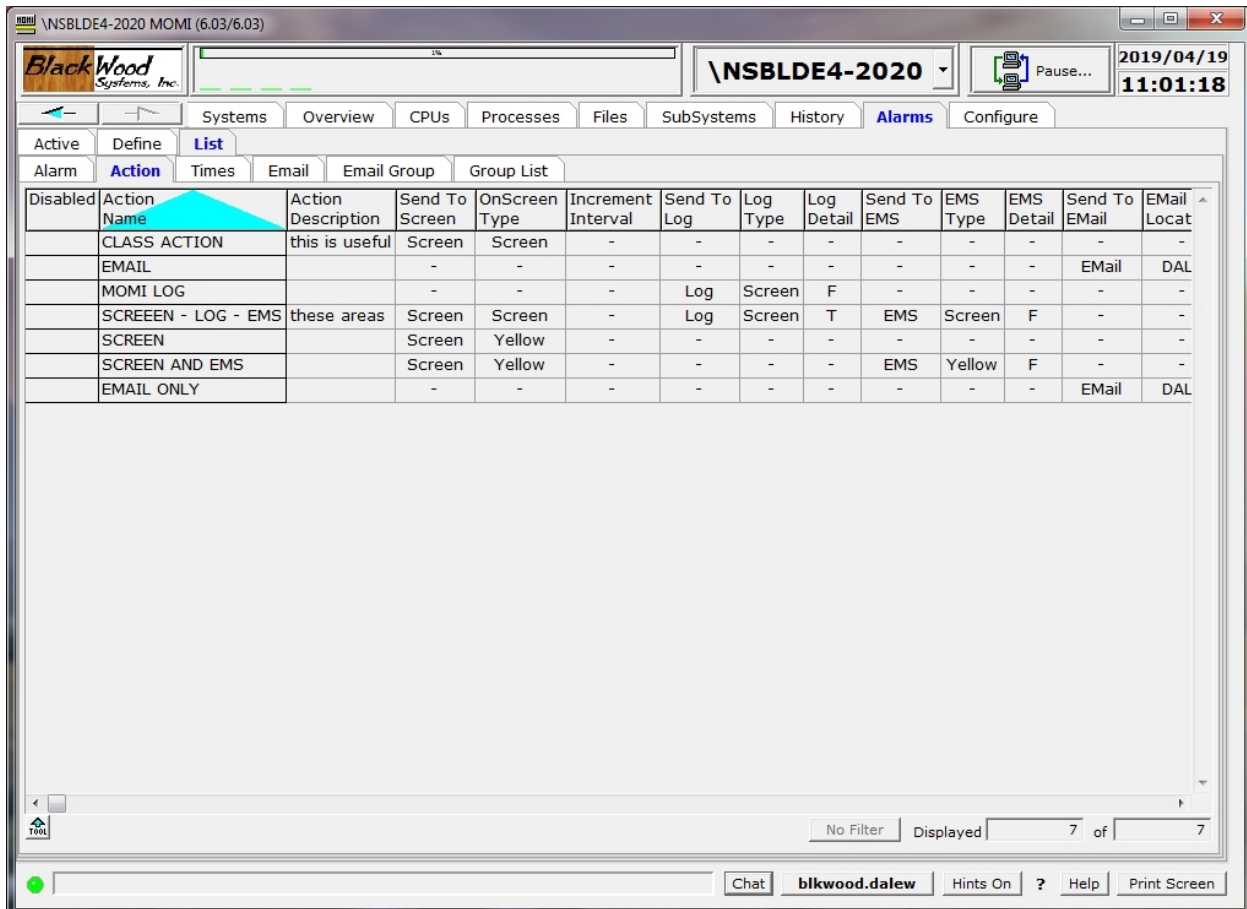


Disabled	Alarm Name	Alarm Description	Entity Name	Entity Type	El
Disabled	ALARM NAME		*	CPU	Bi
Disabled	CPU ALARM TOO LITTLE CPU		*	CPU	Bi
Disabled	CPU DOWN	any processor down	*	CPU	Pr
Disabled	CPU MEMORY TOO MUCH		*	CPU	Pl
Disabled	CPU USAGE OVER LIMIT		*	CPU	Bi
Disabled	CPU VIRTUAL MEMORY	if this works an alarm will sound	*	CPU	Vi
Disabled	CPU-BUSY PERCENT	process under a certain percent busy	*	CPU	Bi
Disabled	CPU-BUSY PERCENT 2	process under a certain percent busy	*	CPU	Bi
Disabled	CPU-BUSY PERCENT 3	process under a certain percent busy	*	CPU	Bi
Disabled	EXPAND LINE DOWN		\$*	Expand	Li
Disabled	EXPAND-LINKTIME		*	Expand	Li
Disabled	EXPAND-PATH STATE		\$*	Expand	Pr
Disabled	PROCESS - TEST	Altice	\$e7g10 \$e7g1g,\$e7g2g,\$e7g3g,\$e7g ...	Process	S
Disabled	PROCESS-\$RECEIVE QUEUE	queue is too long	\$*	Process	Q
Disabled	PROCESS-LAUNCHES	messages waiting on \$RECEIVE for processing	\$*	Process	Pr
Disabled	PROCESS-LOOPING		\$*	Process	Lo
Disabled	PROCESS-MEMORY LEAK	process using more and more memory	\$*	Process	M
Disabled	PROCESS-QUEUE LENGTH \$RECEIVE	messages waiting on \$RECEIVE for processing	\$*	Process	Q
Disabled	PROCESS-READY TIME		\$*	Process	Re
Disabled	PROCESS-STOPPED RANGE		\$fred[01..2]	Process	S
Disabled	TAPE DRIVE DOWN		\$*	Tape	S
Disabled	TAPE MOUNT		-	Tape	T
Disabled	TEST EMS	this is for test purposes	\$alog	EMS	U

The List / Alarm screen displays a tabular summary of currently defined records.

A left-click jumps to the Define screen for an Alarm. Several right-click options are available to jump to the Define / Alarm screen, Monitor Times and Action screens. Also, a record may be disabled (which effectively turns it off but does not delete it).

List / Action



BlackWood Systems, Inc. \NSBLDE4-2020 MOMI (6.03/6.03) 2019/04/19 11:01:18

Systems Overview CPUs Processes Files SubSystems History Alarms Configure

Active Define **List**

Alarm **Action** Times Email Email Group Group List

Disabled	Action Name	Action Description	Send To Screen	OnScreen Type	Increment Interval	Send To Log	Log Type	Log Detail	Send To EMS	EMS Type	EMS Detail	Send To Email	Email Locat
	CLASS ACTION	this is useful	Screen	Screen	-	-	-	-	-	-	-	-	-
	EMAIL		-	-	-	-	-	-	-	-	-	Email	DAL
	MOMI LOG		-	-	-	Log	Screen	F	-	-	-	-	-
	SCREEN - LOG - EMS	these areas	Screen	Screen	-	Log	Screen	T	EMS	Screen	F	-	-
	SCREEN		Screen	Yellow	-	-	-	-	-	-	-	-	-
	SCREEN AND EMS		Screen	Yellow	-	-	-	-	EMS	Yellow	F	-	-
	EMAIL ONLY		-	-	-	-	-	-	-	-	-	Email	DAL

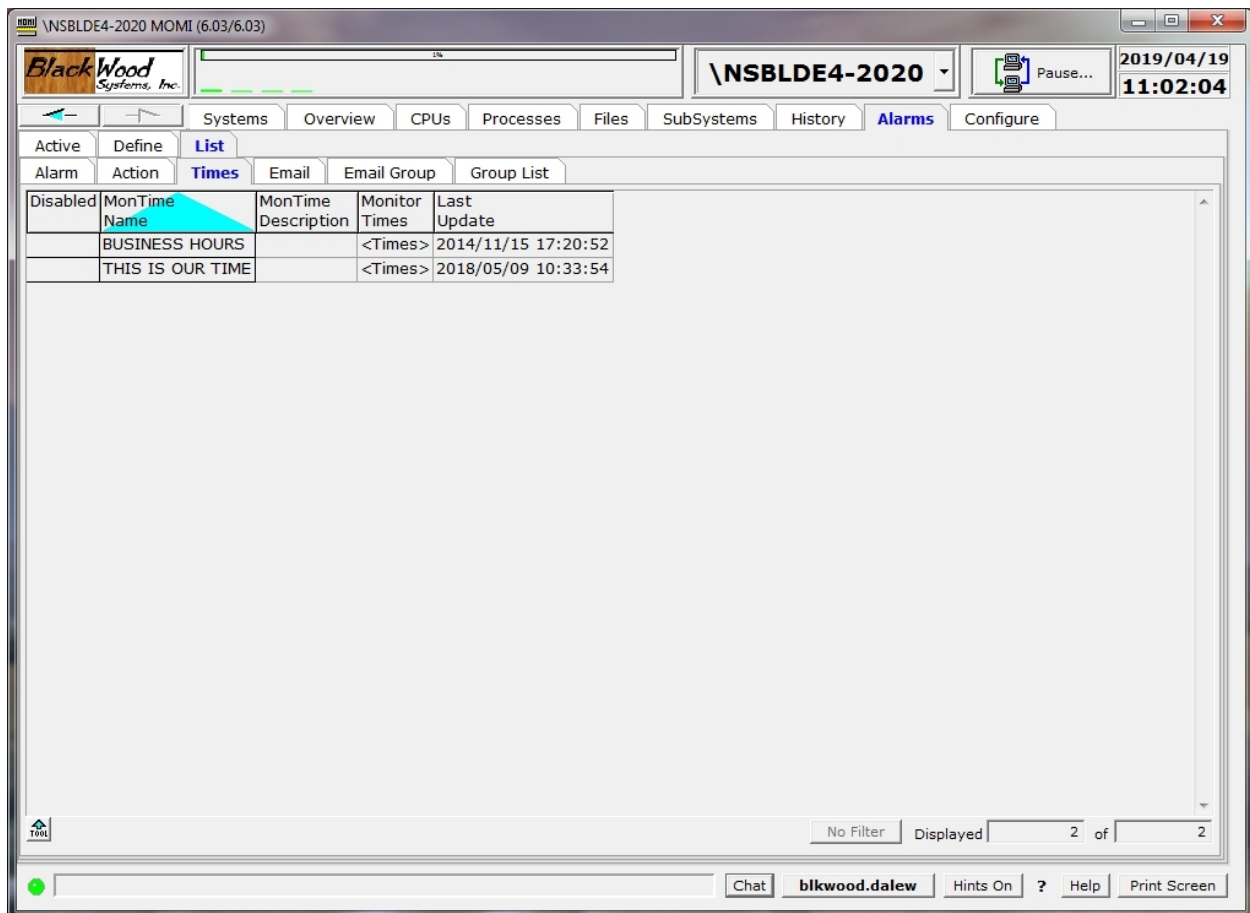
No Filter Displayed 7 of 7

Chat blkwood.dalew Hints On ? Help Print Screen

The List / Action screen displays a tabular summary of currently defined records.

A left-click jumps to the Define screen for an Action. A right-click is available to disable a record (which effectively turns it off but does not delete it).

List / Times



The List / Times screen displays a tabular summary of currently defined records.

A left-click jumps to the Define screen for an Times. A right-click is available to disable a record (which effectively turns it off but does not delete it).

List / Email

Disabled	Email Name	Email Description	XD	Email Address	Member of Groups	Monitor Times	Last Update
	DALE			dwood@blackwood-systems.com	*GRP-TEST	-	2015/06/17 14:51:18
	DALE'S CELL PHONE	dale's cell phone		6027408766@tmomail.net	*GRP-TEST	-	2016/10/10 12:33:46
	JUNK			junk@blackwood-systems.com	*GRP-TEST	-	2018/05/09 10:43:28

The List / Email screen displays a tabular summary of addresses defined.

A left-click on the Email Name jumps to the Define screen. Click on the [+] to display groups this email is a member.

A right-click is available to disable a record (which effectively turns it off but does not delete it).

List / Email Group

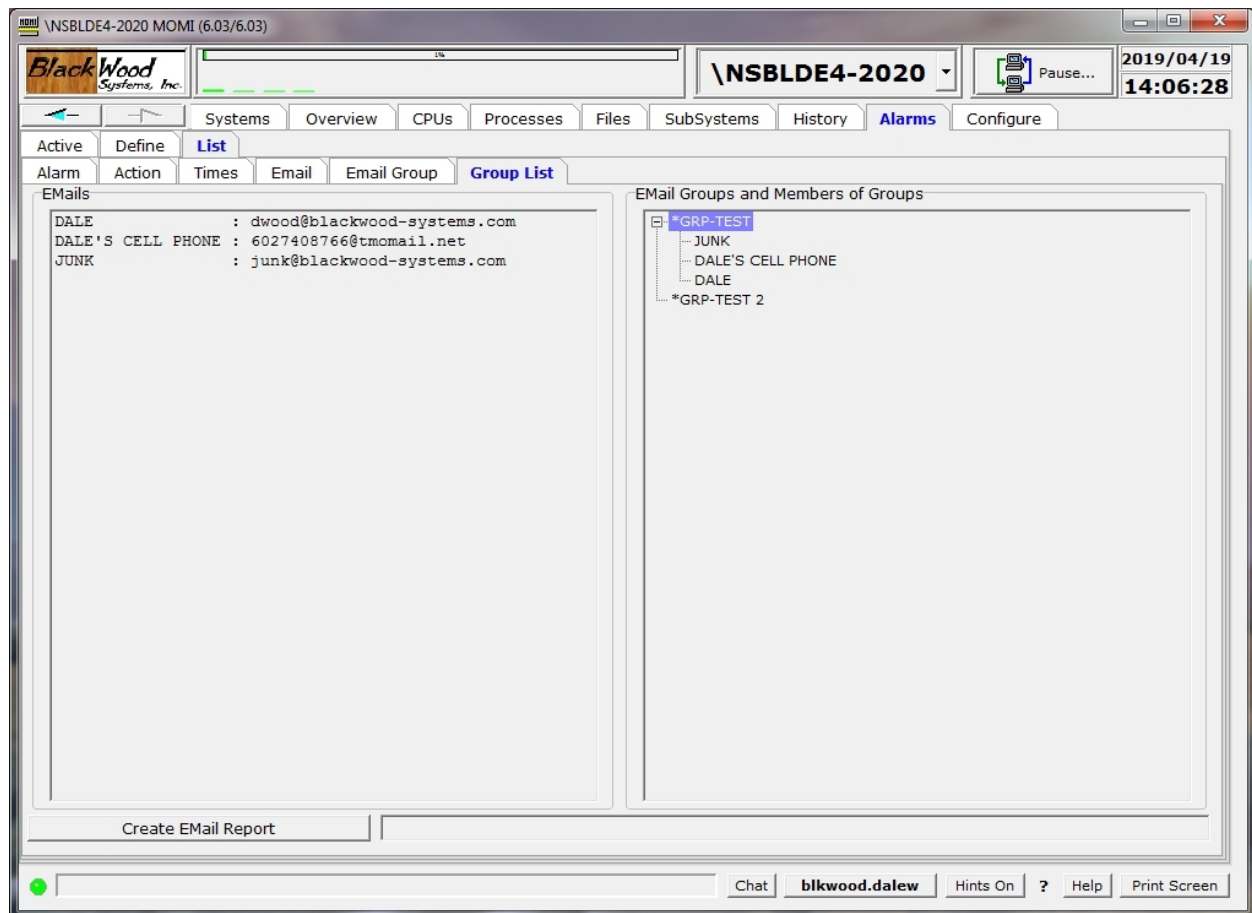
Disabled	Group Name	Group Description	Members of Group	Last Update
	*GRP-TEST		[-] <Users> JUNK DALE'S CELL PHONE DALE	2019/03/22 12:48:40
	*GRP-TEST 2	another group used for testing purposes	[-] <Users> No Records Found	2019/04/19 11:05:09

The List / Email Group screen displays a tabular summary of currently defined records.

A left-click on the Group Name jumps to the Define screen for an Email Group. Click on the [+] to display members of the group.

A right-click is available to disable a record (which effectively turns it off but does not delete it).

List / Group List



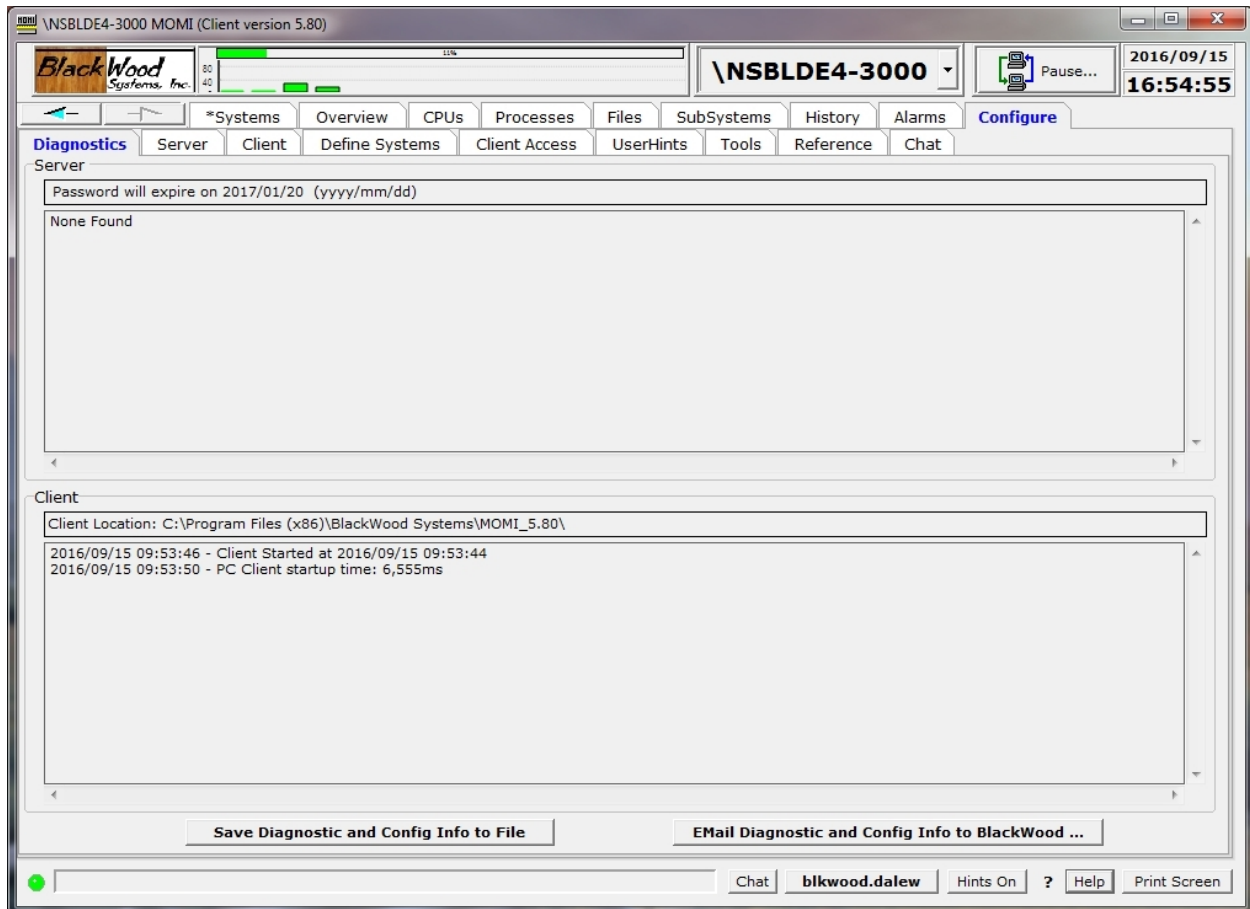
The List / Group List screen displays all individual emails and groups of emails plus allows drag and drop operations to add or remove members.

To add an individual email to a group drag from the left side of the screen to the right and drop on a group or a member of a group. To remove a individual email from a group drag from the right to the left side of the screen and drop over any position on the left.

Groups are initially created on the screen [Define / Email Group](#).

Configure

Configure / Diagnostics



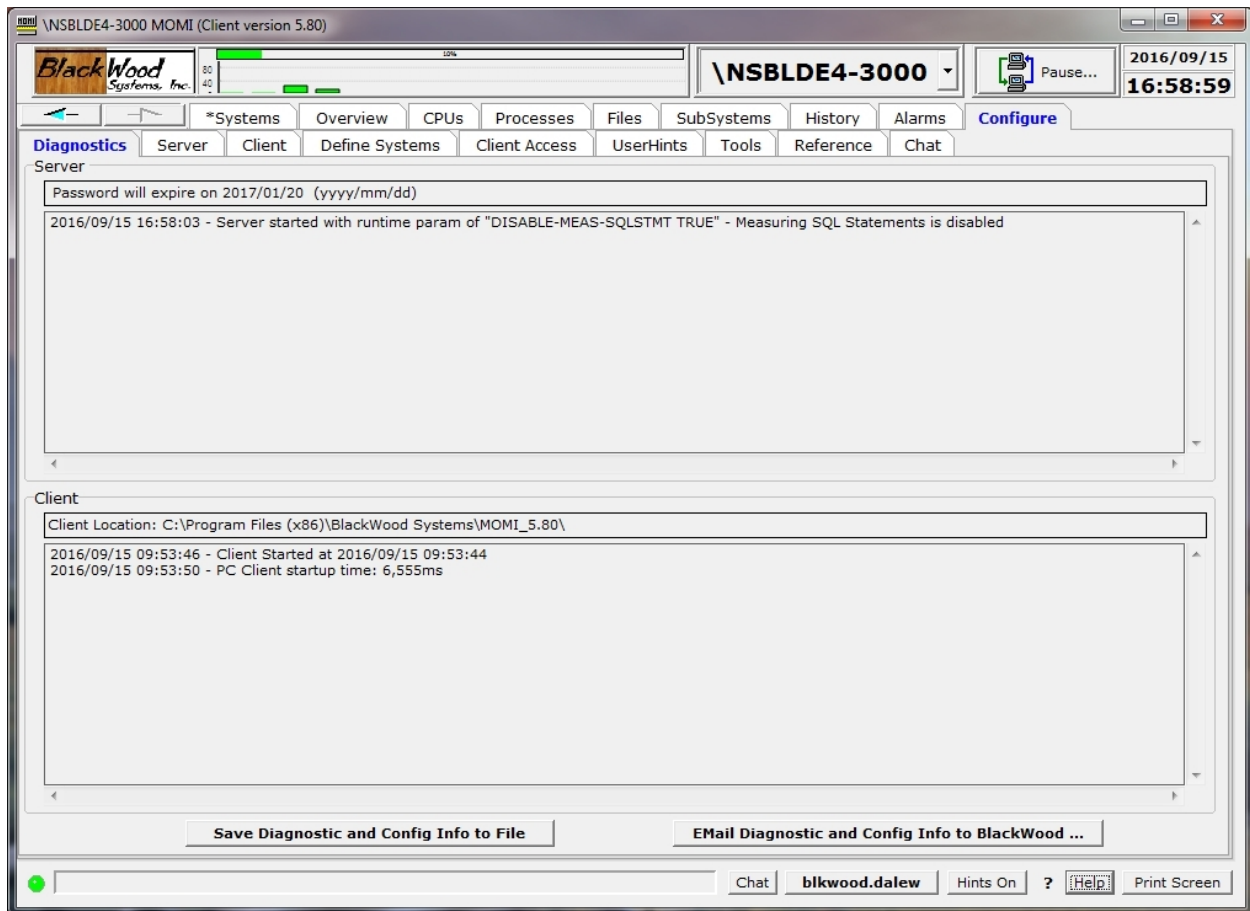
The Configure / Diagnostics screen presents the status of the client and server from a diagnostic point of view to help determine the cause of operational issues with the MOMI PC Client and MOMI server.

The top portion of the screen displays the Server status and the lower portion displays the client status. Server status includes the state of the MOMI Server password and general high level server information. Client status includes items such as Speech status or emulator not available.

The button labeled **Save Diagnostic and Config Info to File** allows the creation of an ASCII text file that contains Server, Client and Client PC configuration and status information helpful to BlackWood Systems in problem resolution and configuration assistance.

The button labeled **Email Diagnostic and Config Info to BlackWood** launches a [utility](#) to directly transmit a message with configuration information to BlackWood Systems.

The image below show an example of where the BWMOMI server was started with [DISABLE-MEAS-SQLSTMT](#) set to true.



Server

Server / Server Info

The screenshot shows the 'Server Info' window of the BWS1-2004 MOMI software. The window has a title bar with the text '\BWS1-2004 MOMI (Client version 5.32)'. Below the title bar is a navigation bar with tabs: Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. The 'Alarms' tab is currently selected. Below the navigation bar is a sub-navigation bar with tabs: Diagnostics, Server, Client, Define Systems, Client Access, UserHints, Tools, Reference, and Chat. The 'Server' tab is currently selected. The main content area is divided into several sections:

- Alarms**: A section at the top left with a red 'Alarms' label and a progress bar showing 3%.
- Versions / Info**: A section containing fields for Client version (5.32), Client Buffer (21.39), Server Buffer (21.39), Server version (5.31), and Server Threads (In Use: 3, Max Used: 6, Available: 8). It also shows a password expiration date: 'Password will expire on 2014/01/16 (yyyy/mm/dd)'.
- System**: A section containing fields for System Name (\BWS1), Serial # (W40344), OS Version (G06.32.01), Measure (G12), Description (BlackWood S72000), MOMI Process (\$MOMI4), UserID (100,109), Login Name (NET.DW), Security User (NET.DW), Encryption set (0 None), Encryption in use (0), and Server Password (B12C53CE1169435544564D5FD826531D5B0A003D1B0F100402E84BCF8C0F47CF8D5C35260F164C).
- BWMOMI Info**: A section containing fields for File Name (\$DATA1.MOMI4.BWMOMI) and Security (NCNC).
- BWSSG Info**: A section containing fields for File Name (\$DATA1.MOMI4.BWSSG), Security (NCNN), ProgID'ed (T), Present (T), and Owner ID (255,1).

At the bottom of the window, there are buttons for 'Print', 'Update', and a status bar showing 'data collected 2013/04/02 09:39:52'. There are also buttons for 'Chat', 'net.dw', 'Hints On', 'Help', and 'Print Screen'.

The Server / Server Info screen presents a variety of version, password status and configuration information from the server perspective. The window has a scrollable area to view all of the information (see below a sample image)

Place the mouse over the fields to obtain additional information. If the value is configurable, the tool-tip displays the CONFMOMI keyword.

Versions / Info displays various version information about the client, server and the message structures. The Server Threads fields shows how many TCP/IP connections (i.e. threads) are current, high-water and available between clients and the server. One client generally requires two threads.

System displays general information about the NonStop System environment and the MOMI password. See the Security sections [General considerations](#) and [Client Access](#) for additional information on MOMI security.

Priorities displays the configured for the main MOMI process and the various servers used by MOMI. See [Process Priority considerations](#) for additional information on how MOMI uses priorities to manage the workload.

Values Set displays the Interval in which MOMI gathers basic System information, various timeout parameters and limits for CPU consumption.

Values Returned displays internal errors and values reported by MOMI and/or MOMI servers.

Flags displays settings of flags used to alter the operation of MOMI. Some flags are for internal development and diagnostic purposes.

Expand displays timer values associated with MOMI collecting Expand information.

Measure displays timer values associated with the collection of MEASURE information for screens such as [Files / Disk Entity](#).

Alarm displays information associated with resources available an configuration associate with Alarms for MOMI. See [Alarm Overview](#) for additional information.

[SMTP TCP/IP Name](#) is the process used by MOMI for conversing with the SMTP server. This TCP/IP process definition is separate from the normal TCP/IP processes used by the MOMI server for listening for inbound connections from the MOMI PC Client. Defines the TCP/IP process name that the MOMI uses to access the SMTP server which MOMI uses to send EMAIL. SMTP is outbound email.

[SMTP Server Address](#) defines the name or IP address of the SMTP server which MOMI uses to send EMAIL. This is the server MOMI uses to send outbound email. Note that the NonStop System must have the resolver active if a DNS-Name is used.

[Domain Name](#) defines the users domain name which MOMI uses in alarm email. Specifying this keyword activates in the SMTP (i.e. outbound email) protocol the HELO protocol. Some outbound email servers may require the

usage of this parameter in conjunction with SPAM detection.

[EMail Address From](#) defines the return email address which MOMI used in alarm email. This email address should be valid monitored address so that problems in sending email or replies from users receiving email are seen.

[Email Subject](#) has three possibilities:

1. If the CONFMOMI keyword is not present, the subject reads:
MOMI Alarm
2. Use the CONFMOMI keyword and specify the desired subject line
3. Use the CONFMOMI keyword but and specify an empty double quote (i.e. ""). This causes the first line of the alarm message to appear as the subject (in other words the "fixed subject" is eliminated).

[ALARMS-MAXIMUM-PER-DEFINITION](#) defines the maximum number of alarms that may be generated from a single alarm definition.

[ALARM-EMS-EVENT-NBR](#) defines the message number used for the EMS events generated for alarm purposes.

[ALARM-SMTP-SERVER-TIMEOUT](#) determines the maximum amount of time to wait for I/O operations to the external SMTP server.

[ALARM-BREAKPOINTS-MAXIMUM](#) determines how many CPU breakpoints, a resource for debugging / Inspect purposes, are available with the NonStop processors. Older systems had a fixed limit. This value is used in conjunction with the MOMI alarm CPU / Breakpoints.

TCP/IP shows the TCP/IP process name, port and IP address that the MOMI server is 'listening' on. See the CONFMOMI keyword [TCPIP-LISTEN](#) for additional information.

Spooler / SpoolerPlus shows the object file names which are considered Spooler supervisors. Spooler subsystems cannot programmatically identify themselves. MOMI uses these entries to identify supervisors by object file name. See the CONFMOMI keywords [FNAME-SPOOLER-n](#) and [FNAME-SPOOLER-PLUS-n](#) for additional information.

I/O Stuck Checking shows the object file names which are excluded from the I/O stuck logic. See the CONFMOMI keyword [IO-STUCK-EXCLUDE-n](#) for additional information.

SNTP displays configuration for Simple Network Time Protocol or the ability for MOMI to maintain the time on the System. See [Adjust System time via SNTP](#) for additional information.

The **MOMI Default Work Location** section shows the \$vol.subvol where MOMI work files are created. See the CONFMOMI keyword [DEFAULT-WORK-LOCATION](#) for additional information.

VHS Default Location shows the \$vol.subvol where MOMI will initially take a user when selecting a location for displaying VHS Log files. See the CONFMOMI keyword [SELECTION-DEFAULT-VHS](#) for additional information.

Alternate PATHTCP2 Location shows the file name used as an additional object for identifying a Pathway TCP process. See the CONFMOMI keyword [PATHWAY-TCP](#) for additional information.

BWSSG Info displays the File Name and various attributes for the Super Group helper. This file is a copy of the BWMOMI program created by the administrator of the MOMI software during [installation](#). This object is used unless MOMI is started under the Super.Super User ID. See the [General considerations](#) of Security for additional information.

History shows history files defined and their percentage full. MOMI automatically deletes the oldest data from the file to allow inserting new history data. Running a history file at 100% full does not cause errors. See [Enabling History](#) for additional information.

The extents for a history file may be altered by right-clicking on a value in the Max Ext. (Maximum Extents) column.

History					
History Database FileName	History Window Size	Ext. Alloc	Max Ext.	Newest Data	Oldest Data
\$swap1.momi2002.hst01db	30 Second interval	1			
\$pcs1.momi2002.hst02db	2 Minute interval	121	201	2005/06/28 10:32:00	2005/04/29 10:32:00
\$swap1.momi2002.hst03db	1 Hour interval	15	25	2005/06/28 09:00:00	2005/04/19 11:00:00
\$pcs1.momi2002.hst04db	1 Day interval	30	60	2005/06/27 00:00:00	2003/11/07 00:00:00

Versions / Info

Client	5.32	Client Buffer	21.39	Server Buffer	21.39	Server	5.31	Server Threads	In Use 2	Max Used 6	Available 8
Password will expire on 2014/01/16 (yyyy/mm/dd)											

System

System Name	\BWS1	Serial #	W40344	OS Version	G06.32.01	Measure	G12
Description	BlackWood S72000			Expand Network			
MOMI Process	\$MOMI4	UserID	100,109	Start Time	2013/03/22 17:02:47		
Login Name	NET.DW			Security User	NET.DW		
Encryption set	0	None				Encryption in use	0
Server Password	B12C53CE1169435544564D5FD826531D5B0A003D1B0F100402E84BCF8C0F47CF8D5C35260F164C						

BWMOMI Info

File Name	\$DATA1.MOMI4.BWMOMI
Security	NCNC

BWSSG Info

File Name	\$DATA1.MOMI4.BWSSG		
Security	NCNN	ProgID'ed	T
Present	T	Owner ID	255,1

CNF01DB Location

File Name	\$DATA1.MOMI4.CNF01DB
-----------	-----------------------

LOG01DB Location

File Name	\$DATA1.MOMI4.LOG01DB
-----------	-----------------------

MOMI Work Location

Vol.SubVol	\$DATA1.MOMI4
------------	---------------

VHS Default Location

Vol.SubVol	\$DATA1.VHSLOG
------------	----------------

Alternate PATHTCP2 Location

File Name	\$DATA1.DALE.PATHTCP2
-----------	-----------------------

Priorities

MOMI Start	160	MOMI Current	160	Collector Master	159	Expand	157
		Process Action	158	EMS	91	Batch	90
Alarm EMS	92	Alarm File	93	Alarm Database	156	Logging	94
HST01DB	95	HSTxxDB read	85	HSTxxDB delete	80	HSTxxDB consolidate	80

Values Set

Interval	5.00	CPU Limit	none	SPI I/O Timeout	5.00
TCP/IP Limit	none	CPU Limit History Consolidation	4	CPU Collector NoReport Timeout	15.00
TCP/IP Timeout	60.00	CPU Limit Alarm Detection	5	SQLSTMT wildcard	space
OSS API version	2	CPU Limit EMS	none	Max Count Context Allowed	30

Values Returned

				----- XMEM Pool Sizes -----		
Last SubType 30 Error	0	Error Count	0	18,565,184	50,000,072	3,323
				In Use	Maximum	Blocks

Flags

History Active	T	Disable Logons	F	Client Accel	T	G06.26 or later					T
Alarms Active	T	Disable SQL Statement	F	Collect All Process	F	H06.04 or later					F
		Disable SQL Process	F	Disable TMF Report	F	H06.09 or later					F
		Disable OSS CPU	F	Disable ListLocks	F	H06.14 or later					F
Super.Super	F	Disable OSS NameServer	F	Client Initial Msg	F	----- Debug1/5 -----					
Super.Group	F	Disable MeasCounter Wrt	F	Logon View Job	T	F	F	T	F	F	

Expand

Expand I/O Delay	0.50
Expand Update Interval	60.00
Expand Update Interval Error	30.00

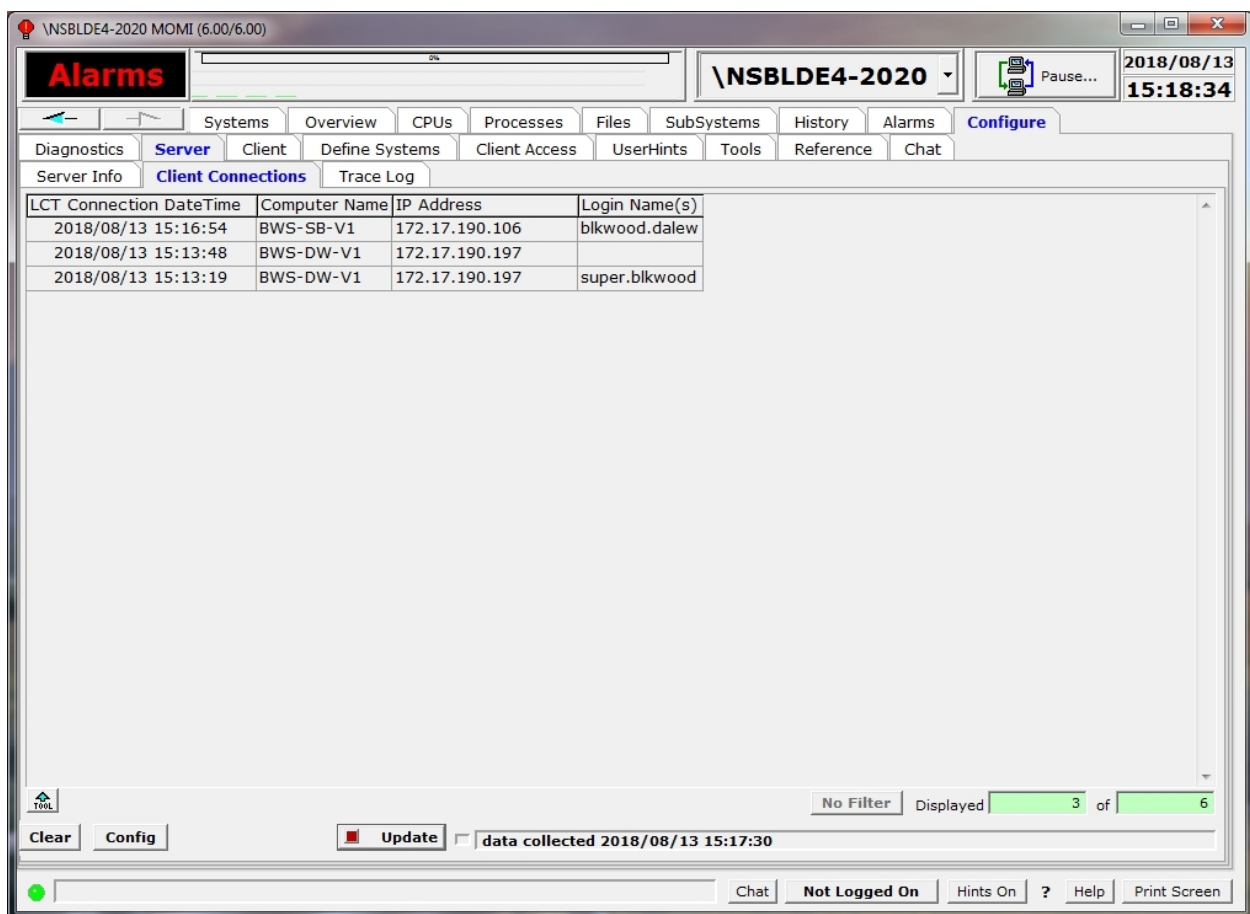
Measure

Starting Interval	10
Increment Interval	15
Maximum Interval	30

Alarm

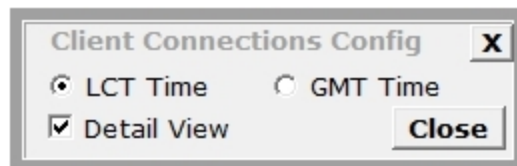
SMTD TCP/IP Name	tcpip1
------------------	--------

Server / Client Connections



The Server / Client Connections screen display the current connections to the MOMI server.

The information displayed shows the time the client connected, the Windows computer name, IP address of the client and Login Names. The default view shows one line for each client currently connected.



Pushing the **Config** button displays a pop-up to allow the selection of client connection time in either **LCT** or **GMT** and if the **Detail View** is displayed.

\\NSBLDE4-2020 MOMI (6.00/6.00)

Alarms 0% \\NSBLDE4-2020 Pause... 2018/08/13 15:18:46

Systems Overview CPUs Processes Files SubSystems History Alarms **Configure**

Diagnostics **Server** Client Define Systems Client Access UserHints Tools Reference Chat

Server Info **Client Connections** Trace Log

LCT Connection DateTime	Computer Name	IP Address	Login Name(s)	Type
2018/08/13 15:16:54	BWS-SB-V1	172.17.190.106		Probe
2018/08/13 15:14:52	BWS-SB-V1	172.17.190.106	blkwood.dalew	Main
2018/08/13 15:13:48	BWS-DW-V1	172.17.190.197		Main
2018/08/13 15:13:19	BWS-DW-V1	172.17.190.197	super.blkwood	Main
2018/08/13 15:13:48	BWS-DW-V1	172.17.190.197		Probe
2018/08/13 15:17:17	BWS-DW-V1	172.17.190.197		Probe

TOOL

No Filter Displayed 6 of 6

Clear Config ☒ Update ☐ data collected 2018/08/13 15:18:42

Chat **Not Logged On** Hints On ? Help Print Screen

The MOMI PC Client established multiple socket connections to the MOMI server, depending on the screens or functions enabled. The detailed view displays all of these connections and their type.

Server / Trace Log

The screenshot displays the 'Trace Log' window of the NSBLDE4-2020 MOMI (6.00/6.00) application. The window has a title bar with the application name and version. Below the title bar is a menu bar with options like 'Systems', 'Overview', 'CPUs', 'Processes', 'Files', 'SubSystems', 'History', 'Alarms', and 'Configure'. The 'Alarms' tab is selected, and the 'Trace Log' sub-tab is active. The log shows a list of system events with columns for time, process name, direction, status, and ID. The log entries are as follows:

Time	Process Name	Direction	Status	ID
15:45:13.571000	[top_process_info2]	Recv>	022414000044000381000400	F 02 T 012-1
15:45:13.602000	[tmf_system]	Recv>	000640000044000208000400	F 02 T 013-1
15:45:13.625000	[cpu_entity]	Recv>	009124000044000202000400	F 02 T 014-1
15:45:13.650000	[tmf_cpu]	Recv>	000520000044000209000400	F 02 T 015-1
15:45:13.660000	[osscpu]	Send>	000442000044000330000400	F 02 T 016-1
15:45:13.683000	[cpu_entity]	Send>	000442000044000202000400	F 02 T 014-1
15:45:13.705000	[tmf_cpu]	Send>	000442000044000209000400	F 02 T 015-1
15:45:13.741000	[osscpu]	Recv>	011026000044000330000400	F 02 T 016-1
15:45:13.768000	[cpu_entity]	Recv>	009124000044000202000400	F 02 T 014-1
15:45:13.792000	[tmf_cpu]	Recv>	000520000044000209000400	F 02 T 015-1
15:45:13.818000	[osscpu]	Recv>	011026000044000330000400	F 02 T 016-1
15:45:13.826000	[osscpu]	Send>	000442000044000330000400	F 02 T 016-1
15:45:13.849000	[cpu_entity]	Send>	000442000044000202000400	F 02 T 014-1
15:45:13.872000	[tmf_cpu]	Send>	000442000044000209000400	F 02 T 015-1
15:45:13.908000	[cpu_entity]	Recv>	009124000044000202000400	F 02 T 014-1
15:45:13.933000	[tmf_cpu]	Recv>	000520000044000209000400	F 02 T 015-1
15:45:13.958000	[osscpu]	Recv>	011026000044000330000400	F 02 T 016-1
15:45:13.984000	[cpu_entity]	Recv>	009124000044000202000400	F 02 T 014-1
15:45:14.011000	[tmf_cpu]	Recv>	000520000044000209000400	F 02 T 015-1
15:45:14.021000	[osscpu]	Send>	000442000044000330000400	F 02 T 016-1
15:45:14.046000	[ossns]	Send>	000400000044000328000400	F 02 F 017-1
15:45:14.070000	[system_info_dyn]	Send>	000440000044000207000400	F 02 T 011-1
15:45:14.112000	[osscpu]	Recv>	011026000044000330000400	F 02 T 016-1
15:45:14.141000	[ossns]	Recv>	001970000044000328000400	F 00 T 017-1

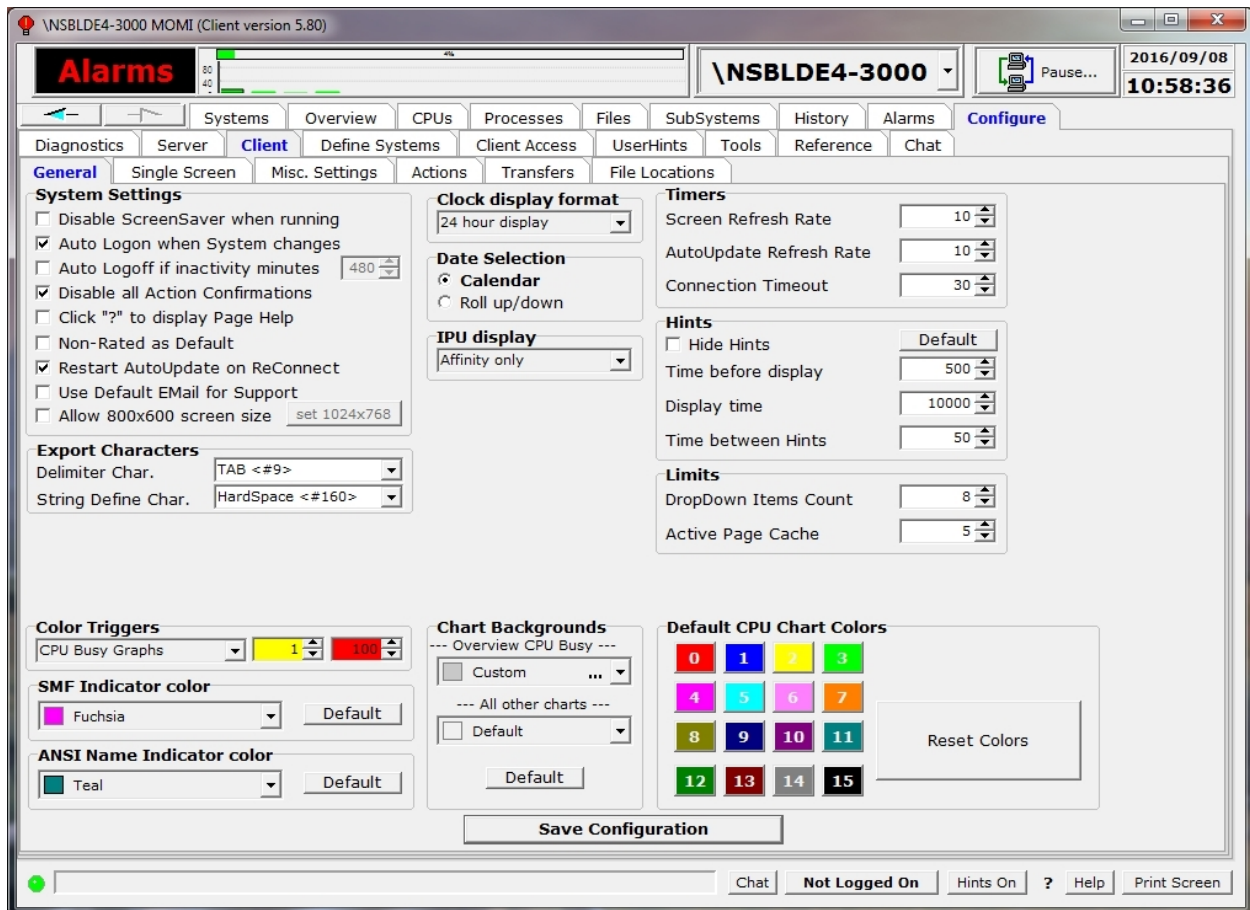
The window also includes a 'Clear' button, a 'Config' button, and a 'Pause Display' button. The status bar at the bottom shows 'Chat', 'Not Logged On', 'Hints On', '?', 'Help', and 'Print Screen'.

The Trace Log screen shows the I/O activity between the Client and server(s).

The screen is provided primarily for internal development purposes, but may be referenced during problem resolution. User ID and password information is separately and always encrypted and not viewable.

Client

Client / General



The Client / General screen shows the current state of attributes in the Client. Settings on this page generally affect screens throughout the entire Client.

Click the check box or make the selection to alter the current state of an item. Place the mouse over an item to see a tool-tip for additional information about that setting.

After making any change, press **Save Configuration** to cause the settings to be stored in the MOMI.INI file.

System Settings alters global aspects of the program such as if the Windows screen saver should be deactivated while MOMI is running, disabling of various action confirmation messages or if AutoUpdate found on various screens should be re-enabled if the client connection to the server is severed and reconnected.

Settings notes

Auto Logoff if inactivity minutes

- grayed out (unavailable) if over-ridden by [Client Access](#)
- does not function if an Internal [emulator](#) is active

Export Characters determines the character used to delimit fields when MOMI data is exported. The defaults of TAB and HardSpace work with Excel and Access.

Date Selection determines how dates are entered within Windows. The default of Calendar provides a pop-up selector calendar by month to directly click on a date within a month. The alternate selector of Roll up/down provides up/down arrows to increment or decrement the currently selected Year/month/day.

Chart Background determines the color of the furthest away (i.e. the area behind everything else) for all charts except Overview.

Timers determines general update and timeout rates. Screen Refresh Rate determines how frequently screens request data where they are automatically loaded with data. Note that some screens are completely manual in operation and others display data as made available from the MOMI server. AutoUpdate Refresh rate determines the frequency when an AutoUpdate option is present on the screen. Connection Timeout determines the maximum amount of time the client waits for data from the server. If this amount is exceeded the connection is dropped and reestablished.

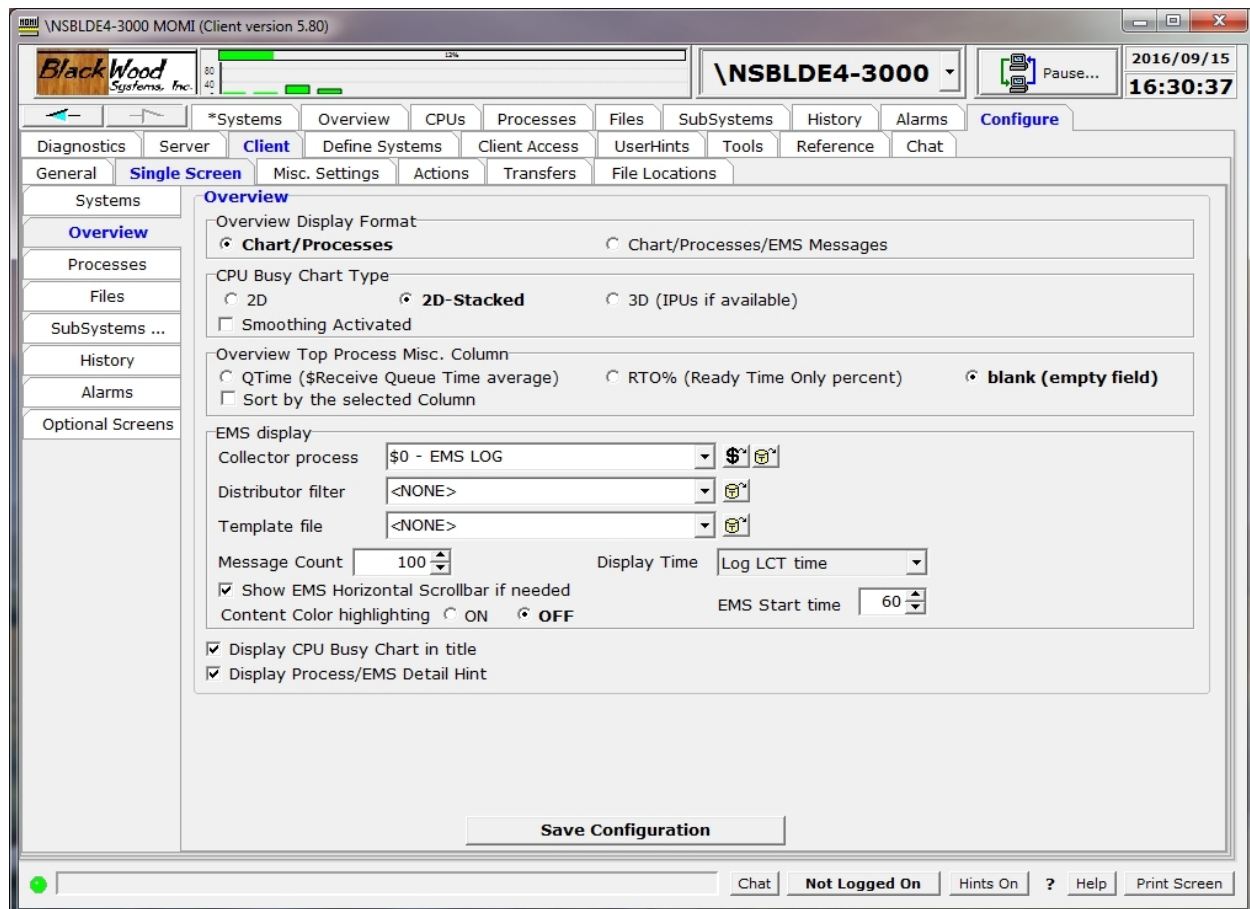
Limits determines the number of previous entries to display when a Windows drop-down box is available.

Hints determines how often and for how long pop-up tool tips are displayed when the mouse hovers over a field that provides additional information.

Color Triggers determines Red and Yellow thresholds for graphs such as CPU busy, CPU Queue and File Full. These triggers just affect graphs at the client level that specifically display this particular information.

The **Default CPU Chart Colors** area allows the selection of colors for charts referencing CPUs. Click on the CPU number to bring up a drop-down box of predefined color selections. Select Custom to display a window that allows the creation of a color.

Client / Single Screen

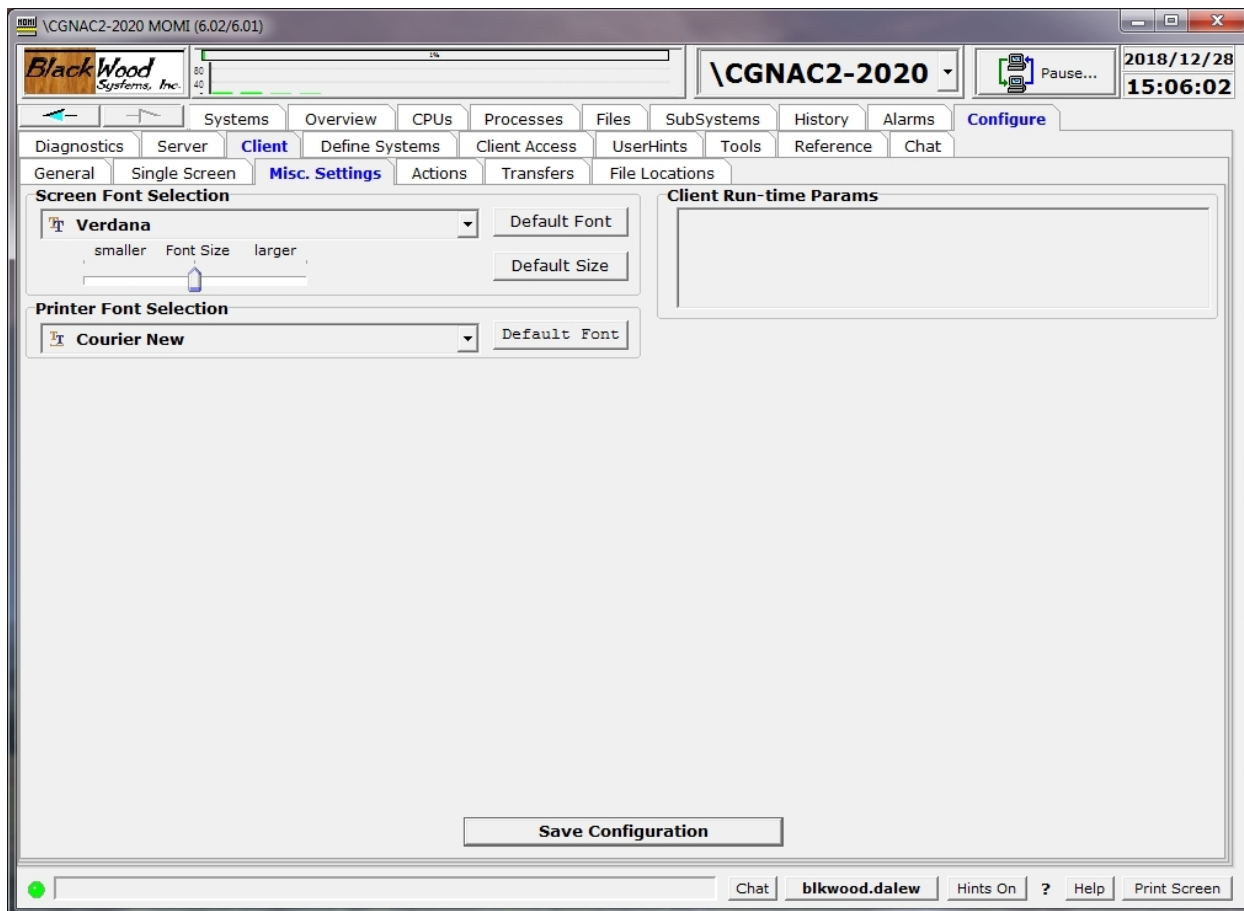


The Client / Single Screen shows the current state of attributes that are generally specific to a particular screen within MOMI or enable a screen displayed.

Click the sub-categories on the left hand side of the window to display available options. Place the mouse over an item to see a tool-tip for additional information about a particular setting.

After making any change(s), press **Save Configuration** to cause the settings to be stored in the MOMI.INI file.

Client / Misc. Settings



The Client / Misc. Settings screen shows 'other' types of attributes that affect the appearance or operation of the Client.

Click the check box or make the selection to alter the current state of an item. Place the mouse over an item to see a tool-tip for additional information about that setting.

After making any change, press **Save Configuration** to cause the settings to be stored in the MOMI.INI file.

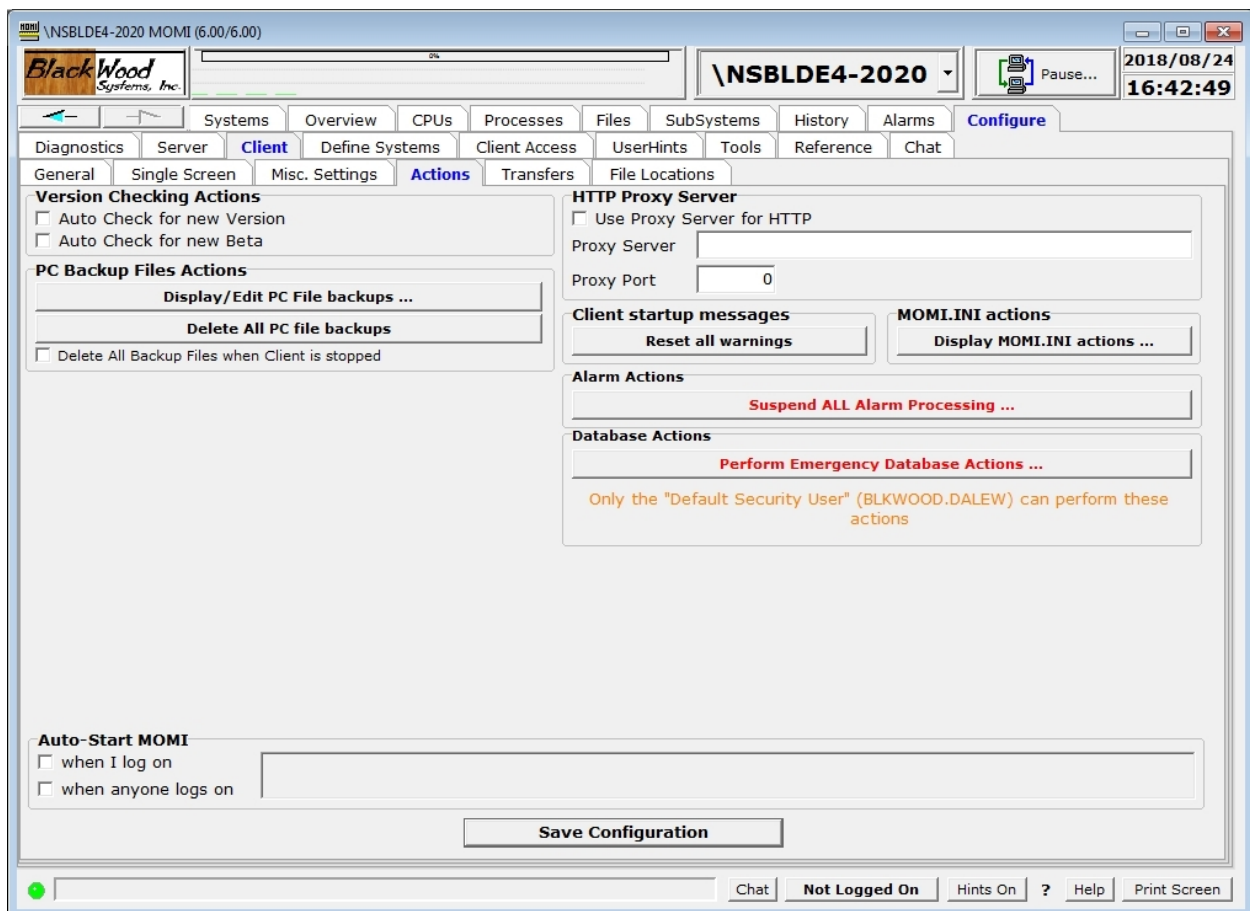
The **Screen Font Selection** area has a slider used to slightly adjust the font size. This adjustment is provided in the event the selected font does not quite 'fit' labels or fields in the Client. Some fonts will not fit in all areas of the MOMI PC Client (i.e. not all fonts will 'work'). The Default Font and Default Size buttons allow a return to the original settings.

The **Printer Font Selection** determines the font used for printing operations where a local choice is not available. Grids where a Tool button is available, has a local font selection.

The **Client Run-time Params** area displays any parameters given to the client at start-up.

Client / Actions

(updated client version 5.36 or later)

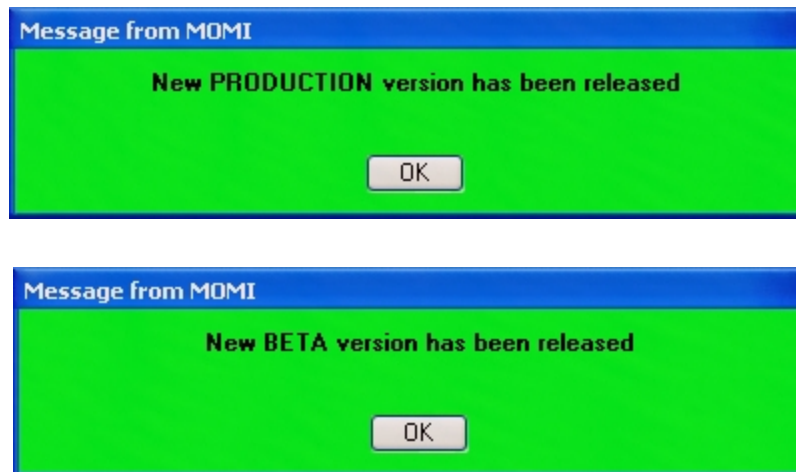


The Client / Actions screen allows for special functions, Export / Import of the MOMI.INI file and automatic starting of the MOMI PC Client at Windows logon.

Click the check box or make the selection to alter the current state of an item. Place the mouse over an item to see a tool-tip for additional information about that setting.

After making any change, press **Save Configuration** to cause the settings to be stored in the MOMI.INI file.

The **Version Checking Actions** section cause the client to periodically query the Black-Wood Systems web site to determine if new software is available. If so, a small pop-up window will display. The window will continue to display at set intervals for that client session until the OK button is pressed.

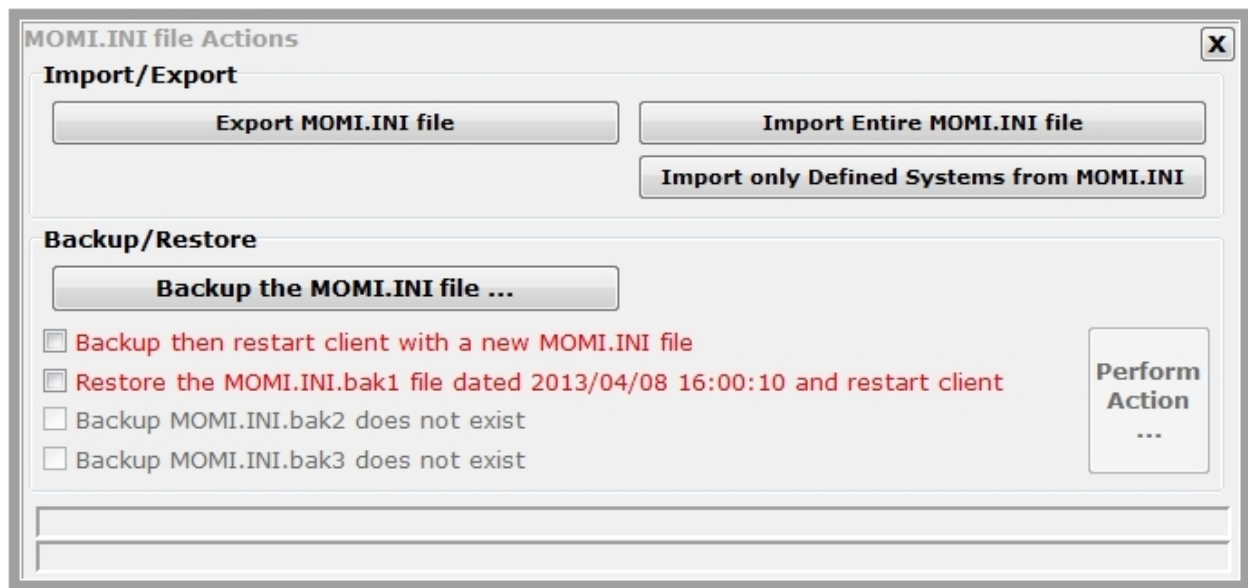


The **PC Backup Files Actions** section displays backup files created by the MOMI PC Client and allows them to be either manually deleted or automatically deleted when the client exits. MOMI creates backups of files that are edited on the PC that originated from the NonStop System.

The **HTTP Proxy Server** section enables proxy server logic to redirect all of MOMI's HTTP (i.e. web) traffic to the indicated proxy server.

The **Client startup messages** section provides a button that when pushed resets pop-up message windows that are usually displayed only once. These type of messages are informational in nature but this capability allows the user to see them again.

MOMI.INI actions section provides a button to press that displays a pop-up window that provides the ability to transfer MOMI PC Client settings from/to a disk file. The MOMI.INI file contains the configuration settings for the PC MOMI Client.



The **Import/Export** section provides buttons to transfer the entire MOMI.INI file to a user specified disk file or from a user specified disk file. Pressing the buttons in this section displays a pop-up window to select the file location.

The **Backup/Restore** section provides the ability to create a copy of the current MOMI.INI and optionally restart the client with an empty MOMI.INI file (i.e. effectively start the client over from scratch). This feature would typically be used if a corrupt MOMI.INI file is suspected. Also, you may restore a previously saved MOMI.INI file. The MOMI PC Client will automatically stop and restart if an action is selected.

The **Alarm Actions** section provides a button that when pressed displays a pop-up window to allow the suspension, modification or resumption of Alarm processing. Text entered in the notes section is added to MOMI log messages. Alarms may be suspended at MOMI start-up via the CONFMOMI keyword [ALARM-SUSPEND-DELAY](#) .

Suspend/Resume ALL Alarm processing [X]

Alarms are NOT suspended

Set how long Alarm processing will be SUSPENDED

☒ **Suspend Alarms** 1 hours

or ☐ **Specify Alarm RESUME date/time**

☐ **Now** 2012/06/01 18:08:51

or ☐ **Suspend Alarms PERMANENTLY**

or ☐ **RESUME All Alarm processing NOW**

Notes

Temporarily Suspend ALL Alarms **Close**

The **Database Emergency Actions** section provides for special situations where only a portion of MOMI's configuration located on the NonStop System needs to be removed. Once performed, this action cannot be 'undone'. Only the user that started MOMI may execute these functions.

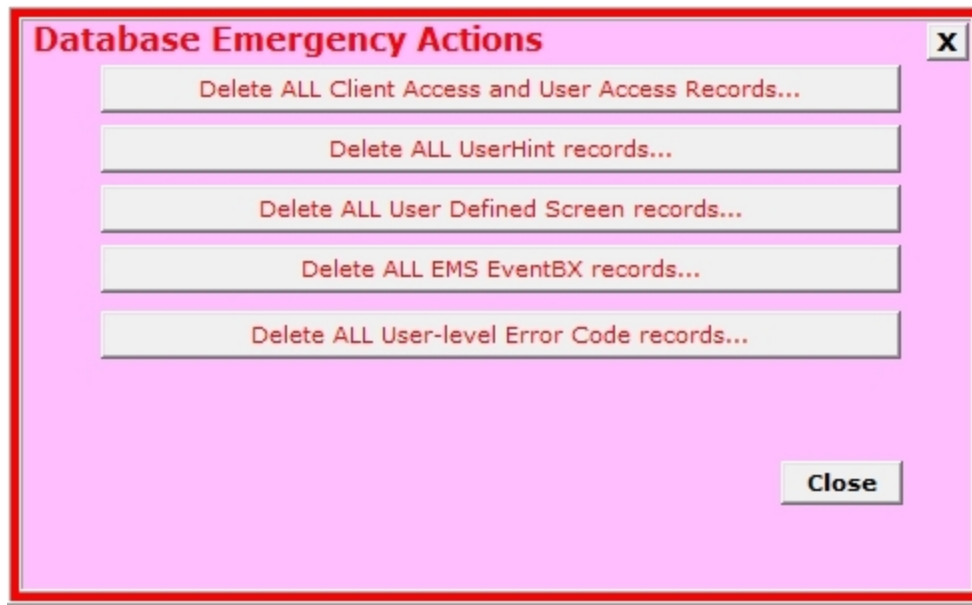
Delete ALL Client Access and User Access Records... removes all client access definitions entered under **Configure / Client Access**. Default information is restored after existing information is removed.

Delete ALL UserHint records... removes all user defined hints entered in **Configure / UserHints**.

Delete ALL User Defined Screen records... removes all screens defined in **SubSystems / User Defined**.

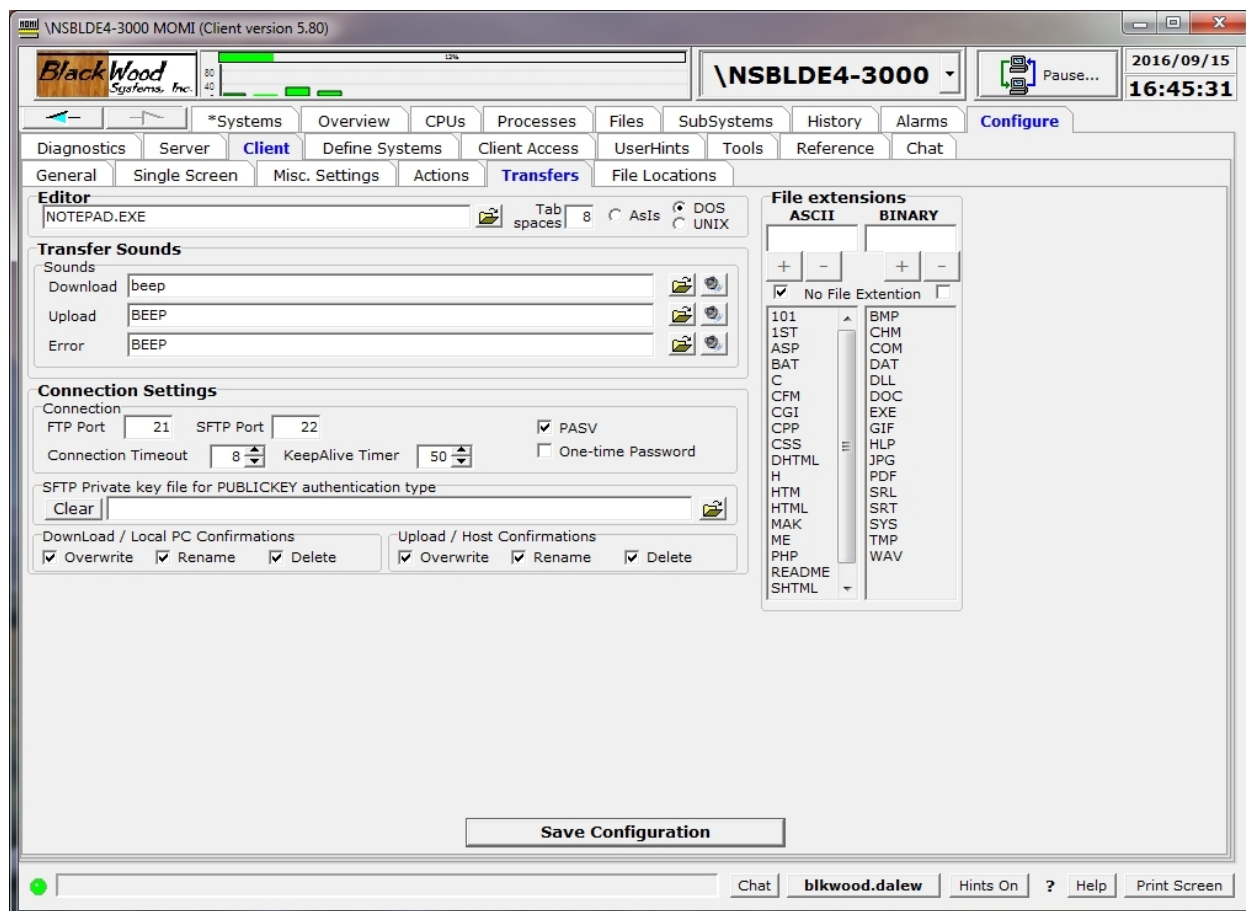
Delete ALL EventBX records... removes all entries located under **Sub-systems / Logs / EMS EventBX**.

Delete ALL User-level Error Code records... removes all entries located under **Configure / Reference / Errors/Codes**.



The **Auto-Start MOMI** section function allows the automatic start-up of the PC MOMI Client when a User logs on to Windows. Enabling "when I log on" allows the User to automatically start MOMI when logging in to Windows. Enabling "when anyone logs on" allows a PC system Administrator to cause MOMI to start when any user logs into the PC. Only one option in this section may be checked (otherwise two instances of the Client would automatically start).

Client / Transfers



The Client / Transfers screen displays various options used when files edited and moved.

Place the mouse over an item to see a tool-tip for additional information about that setting.

After making any change, press **Save Configuration** to cause the settings to be stored in the MOMI.INI file.

The **Editor** determines when a text file is brought to the PC for editing what program is launched and how the file is treated. How line termination is handled within the file is selected by the DOS Format and UNIX Format selector. DOS uses a CR/LF at the end of each line where UNIX uses a LF. The selection determines how MOMI will prepare the file for the editor, or in other words this selection determines how the file indicates a 'new line'.

Transfer Sounds chooses the sound played at various events.

Connection Settings chooses the FTP port and other transfer options. Usually, FTP transfers take place over port 21, but the Port field allows an alternate port to be chosen. Checking PASV alters the socket setup sequence and provides an alternate method that is desired when the FTP server is behind a firewall. The One-time Password option instructs MOMI to prompt for a new password at FTP connect. This is intended for environments that use devices that provide a new password key/pin at regular intervals. The "Confirmations" areas when checked prompt the user to confirm the actions of Overwriting and existing file, renaming a file and deleting a file.

The **ASCII File extensions** area list all file extensions considered as ASCII which may determine file transfer type and enables the 'edit' function. The **No File .Ext** check-box provides for files without an extension to be treated as ASCII. A file extension are the characters after the last period in the file name (i.e. last being from the far right of the file name).

Client / File Locations

The screenshot shows the 'File Locations' configuration window for BlackWood Systems MOMI. The window title is '\NSBLDE4-2020 MOMI (6.00/6.00)'. The main menu includes Systems, Overview, CPUs, Processes, Files, SubSystems, History, Alarms, and Configure. The 'Configure' menu is open, showing options like Diagnostics, Server, Client, Define Systems, Client Access, UserHints, Tools, Reference, and Chat. The 'Client' menu is selected, and the 'File Locations' sub-menu is active.

The 'File Locations' tab contains the following settings:

- Type of Help:** HTML5 (selected), HTML, Windows CHM, Help via Web(HTML5-p), User-Defined location. Path: D:\Data\dwood\Momi\working\Help\HTML5\MOMI_Help.htm
- MOMI.INI, CALENDAR.MOM, and CUSTERRORS.MOM File path:** C:\Users\dwood\AppData\Roaming\BlackWood Systems\MOMI\
- Default File Export path:** Desktop. Button: Set File Path
- MOMI.LOG Client Crash Log File:** Desktop. Button: Delete Log File
- File locations and Version:**

	File Location	Version
Momi Client	D:\Data\dwood\Momi\working\MOMI.EXE	6.0.0.780
Momi Email	D:\Data\dwood\Momi\working\Extras\MomiEmail\MomiEmail.exe	1.0.10.9
Momi SendMail	D:\Data\dwood\Momi\working\Extras\MomiEmail\SendMail.exe	1.0.1.0
IP Config	D:\Data\dwood\Momi\working\Extras\IPCalc\IPCalc.exe	1.3.3.56
Momi FTP	D:\Data\dwood\Momi\working\Tandem Install\MomiFTP.exe	2.0.11.64

At the bottom, there is a 'Save Configuration' button and a status bar with 'Chat', 'blkwood.dalew', 'Hints On', '?', 'Help', and 'Print Screen'.

The Client / File Locations screen shows the path or URL for various resources used by MOMI.

Place the mouse over an item to see a tool-tip for additional information about that setting.

After making any change, press **Save Configuration** to cause the settings to be stored in the MOMI.INI file.

Type of Help selects the format of the MOMI Help used when the Help button is pressed. A selection is grayed out if not available. All formats usually contain the same content, but provide different visual appearances and/or capabilities. Web accesses help via the Internet at the BlackWood Web site usually specific to the version of the MOMI PC client. User-Define specifies a fixed location for help.

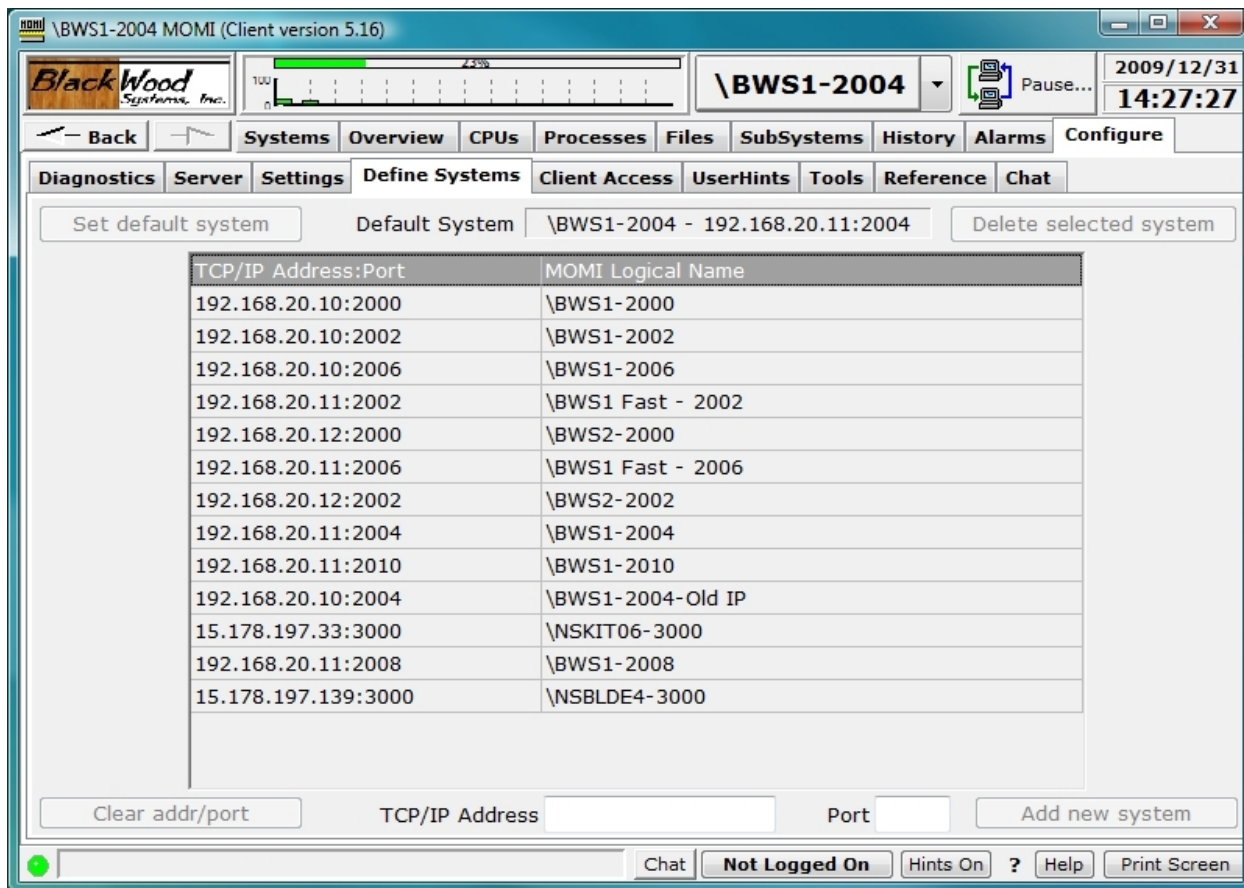
MOMI.INI, CALENDAR.MOM, and CUSTERRORS.MOM File path in use displays the location for these configuration files. The MOMI.INI file stores the primary configuration information for the MOMI PC Client.

Default File Export path is the default location where any export from the MOMI PC Client is located.

MOMI.LOG Client Crash Log File is the default location and name for the file automatically created should the client encounter a fatal error. This file should be included in any problem report.

File Locations and Version displays various MOMI and MOMI helper program locations and version.

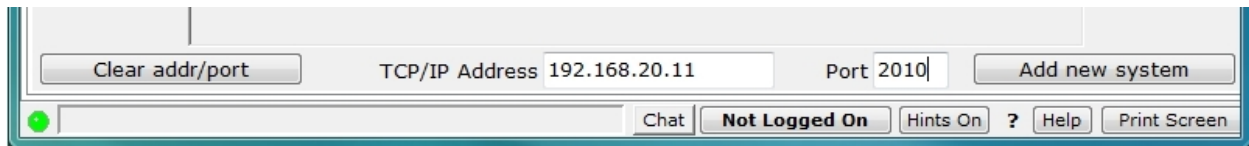
Define Systems



The Define Systems screen provides for the configuration and display of the MOMI servers available to the client. An entry, or connection, is composed of the TCP/IP address (or DNS name) and port of a 'listening' MOMI server. The MOMI server is configured to 'listen' for client connections using the CONFMOMI keyword [TCPIP-LISTEN](#).

Existing entries may be deleted by clicking on it (highlights the line) and pressing **Delete selected system**. The System currently in use by the client may not be deleted. The default entry, or entry automatically connected at client start up, is configured by clicking on an entry and pressing **Set default system**.

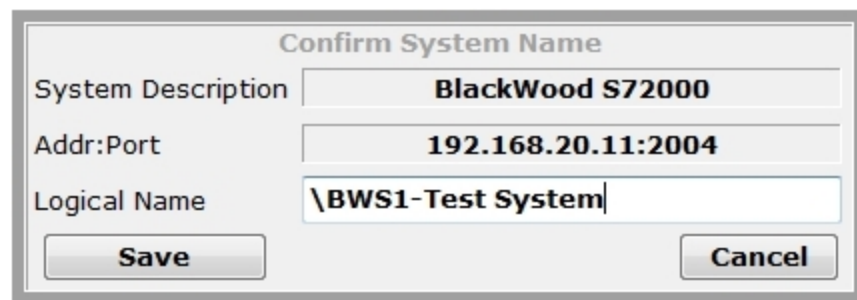
The first time the client is started this screen is automatically displayed. Enter the TCP/IP address (or DNS name) and port then press '**Add new system...**'. The Client attempts communication with that MOMI server process.



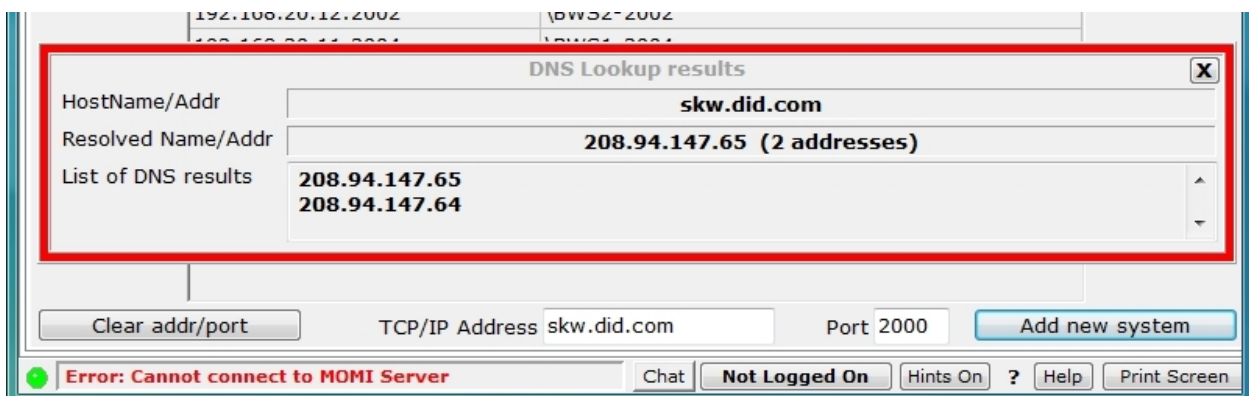
A "connecting" is displaying during the communications attempt.



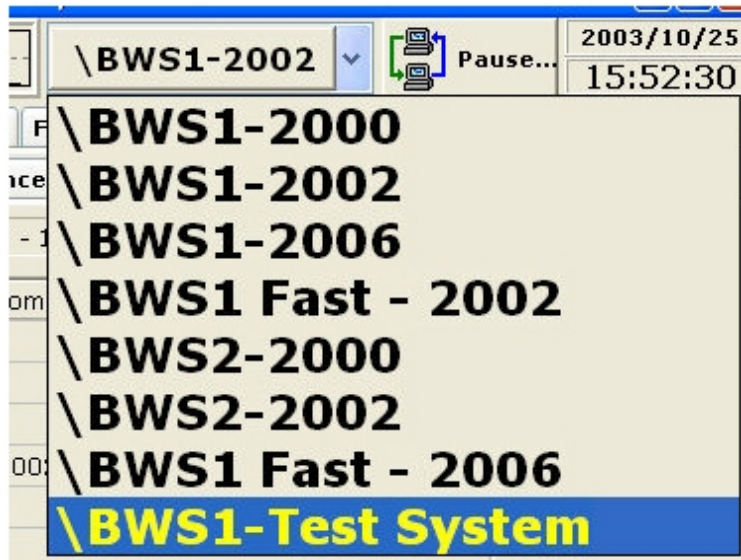
If communication is successful, a pop-up window displays to allow entry of descriptive text for this connection (below, the text *Test System* was added to the end of the NonStop System name that was automatically provided). Press **Save** to confirm and keep the entry.



If communications was unsuccessful, an error is displayed a pop-up window displays what address was used (if a DNS name was specified). See [Network Information / Troubleshooting](#) for additional information.



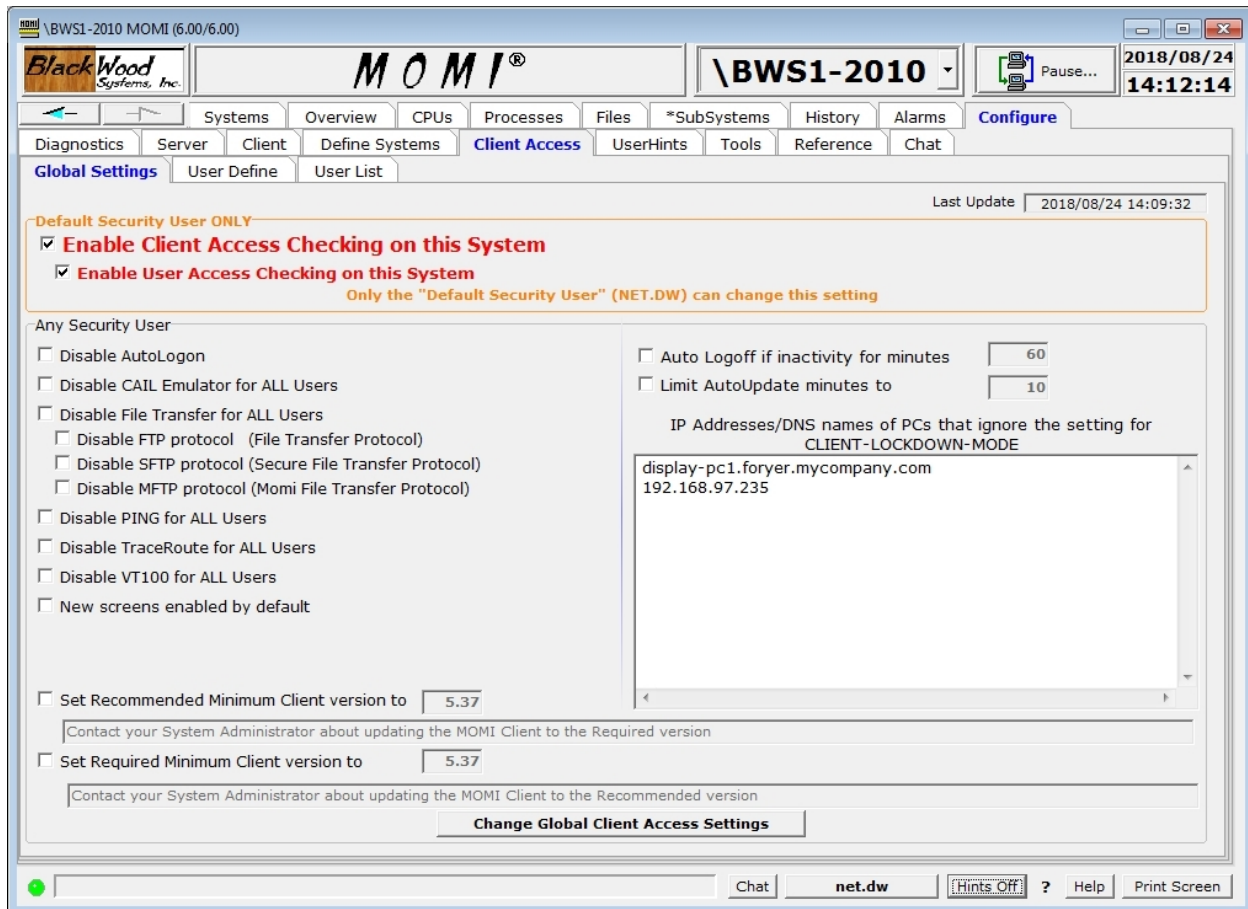
The first system defined causes the Client to connect to that entry and display data. Subsequent entries are made available on the drop down list at the top right of the screen.



Client Access

Client Access / Global Settings

see [Client Access](#)



The Client Access / Global Settings screen is used to manage Client Access and global limits. After making any change, press the **Change global Client Access Settings** button to save and activate any changes.

The [Default Security User](#) must be logged on to enable or disable Client Access. Any Security User may change the remaining settings.

Enable Client Access Checking on this System is the overall enable or disable of Client Access. Only the Default Security User may change this setting.

Enable User Access Checking on this System controls checking of specific users. If this item is enabled, all features of Client Access are in effect. If this item is not enabled, only the settings on this screen are effective.

Disable AutoLogon provides the ability to control if the Client issues a logon after changing systems if the user had already logged on in that session of MOMI. In shops where passwords may only be used one time, Disable AutoLogon should be checked.

Disable CAIL Emulator for ALL Users, Disable FTP | SFTP | MFTP for ALL Users, Disable PING for ALL Users, Disable TraceRoute for ALL Users and Disable VT100 for ALL Users provides the ability to control access to these tools.

New screens enabled by default, when checked, allows users to access MOMI PC Client screens added to a new software version without explicate authorization. If not checked, new MOMI screens must be authorized under the [User Define](#) tab.

Auto Logoff if inactivity for minutes enables the capability to cause the MOMI PC Client to automatically logoff from the NonStop System after the specified number of minutes occur and no activity occurs. Activity is defined as keys pressed in the client.

Limit AutoUpdate minutes to limits the amount of time screens directed by the user continue to update. Many MOMI screens provide data gathered for the benefit of all users and to perform other internal activity. However, screens that are specifically activated or gathering data as a result of user selection, such as the [Process Detail](#), are limited by this setting. Screens that have the AutoUpdate option are also affected by this setting.

Set Recommended Minimum version to causes the display of a "by-passable" warning when the MOMI PC Client version is below the specified value. A value higher than the version of the client attempting to make a change is automatically reduced.

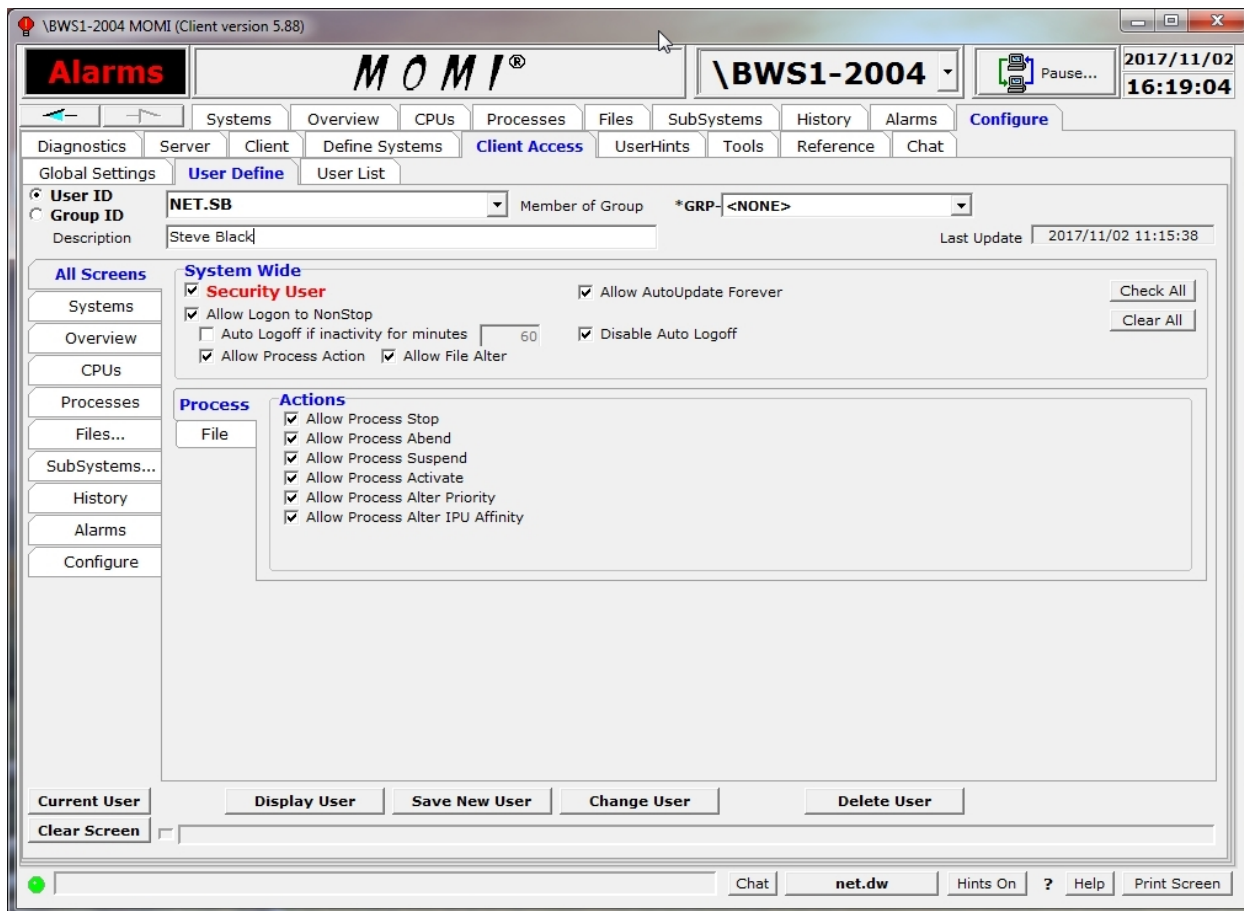
Set Required Minimum Client version to causes the display of an error messages and prevents further access if the MOMI PC Client version is below the specified value. A value higher than the version of the client attempting to make a change is automatically reduced (to prevent a lockout of all clients).

IP Addresses/DNS names of PCs that ignore the setting for CLIENT-LOCKDOWN-MODE

This area is used to define a list of IP Addresses and/or DNS names of PCs allowed to display data without logon. Typical usage would be for a PC used to display MOMI screens, for example Overview, in a lobby or other public display area where logon is not needed nor desired. Note that logon is still required to execute sensitive commands (such as stopping a process or deleting a file).

Client Access / User Define

see [Client Access](#)



The Client Access / Define screen is used to determine which screens and features within MOMI are available to individual users or groups of users.

In the lower left portion of the screen, click through the sub-categories on the left hand side of the screen to see what options are available for the currently selected User ID or Group ID. Change as needed. Place the mouse over an item to see a tool-tip for additional information about a particular setting.

Two types of ID's are used; a User ID and a Group ID. A User ID corresponds to a Guardian User or Safeguard Alias defined on the NonStop System. A Group ID is a MOMI specific entity used to assign specific settings to one or more User ID's.

No passwords are defined. All security validation is performed by the Nonstop Operating System.

Two special User ID's are provided (and automatically created) by MOMI :

- *NOT LOGGED ON* represents a MOMI PC Client that has not logged on. This defines the capabilities of the client when it initially connects to the server and until (or if) the user logs on.
- *USER NOT DEFINED* represents a logon to MOMI where the User ID has not been defined to Client Access. This "catch all" provides for a default level of configuration where the specific user ID is not known. This feature may be disabled by not checking **Allow Logon to Nonstop**.

To change an existing entry, first select if a User ID or Group ID is to be displayed in the upper left hand corner then select the existing entity in the drop-down box.

To add a new **User ID**, select **User ID**, enter the User ID or SafeGuard Alias, description and configure the various options.

To add a new **User ID** into a group, select **User ID**, enter the User ID or SafeGuard Alias, description and select the desired group in the drop-down box.

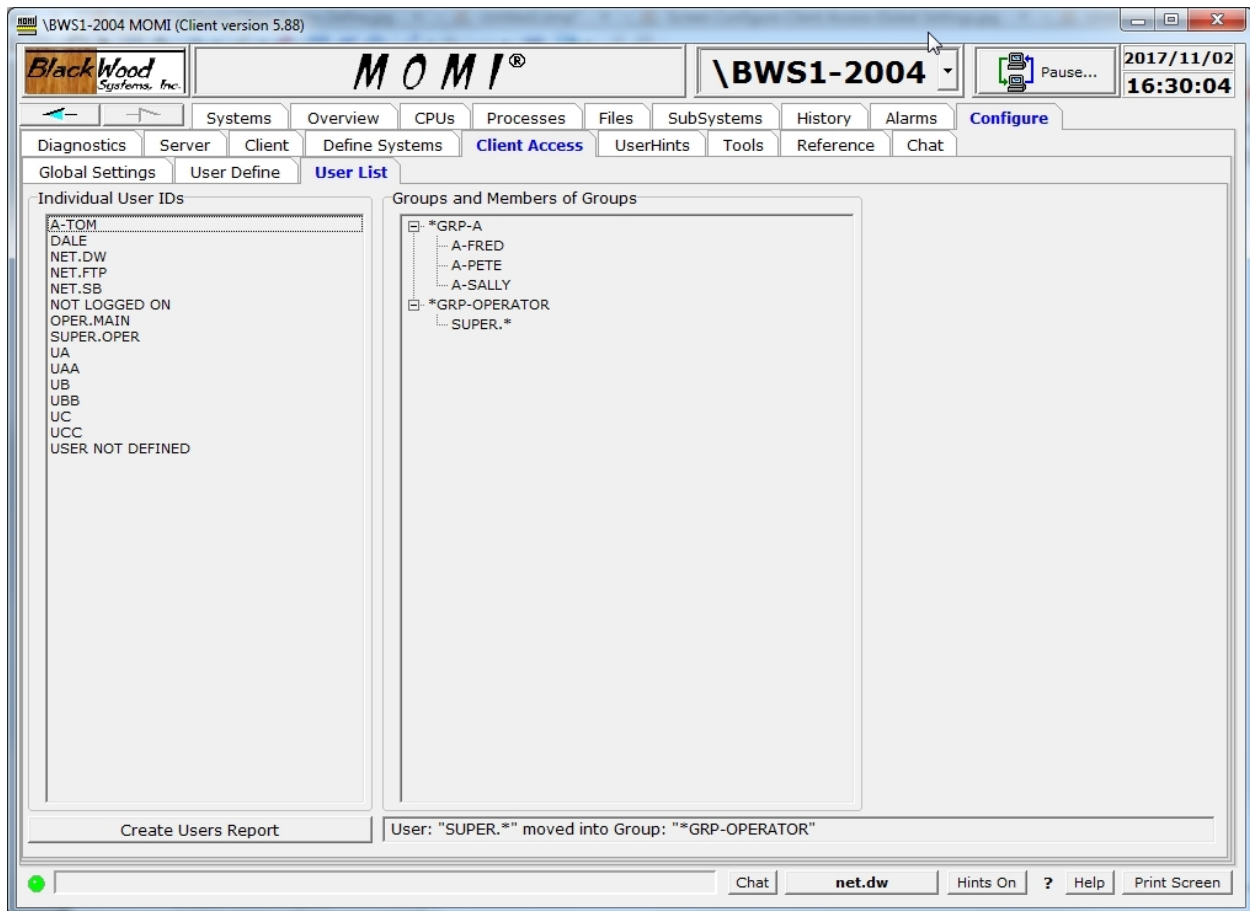
To add a new **Group ID**, enter the Group ID (an arbitrary name), description and configure the various options applicable to that group.

Individual users or Groups are given various permissions. The section System Wide area provides for general abilities such as allowing process actions or automatic Logoff. The tabbed area below selects what screens are available and other screen features.

A User ID or Group ID may be assigned as a Security User (in **RED** above). A User ID with the Security User attribute, have the same authority as the Default Security User except they may NOT change certain settings on the [Global Settings](#) screen such as disable of Client Access checking.

Client Access / User List

see [Client Access](#)



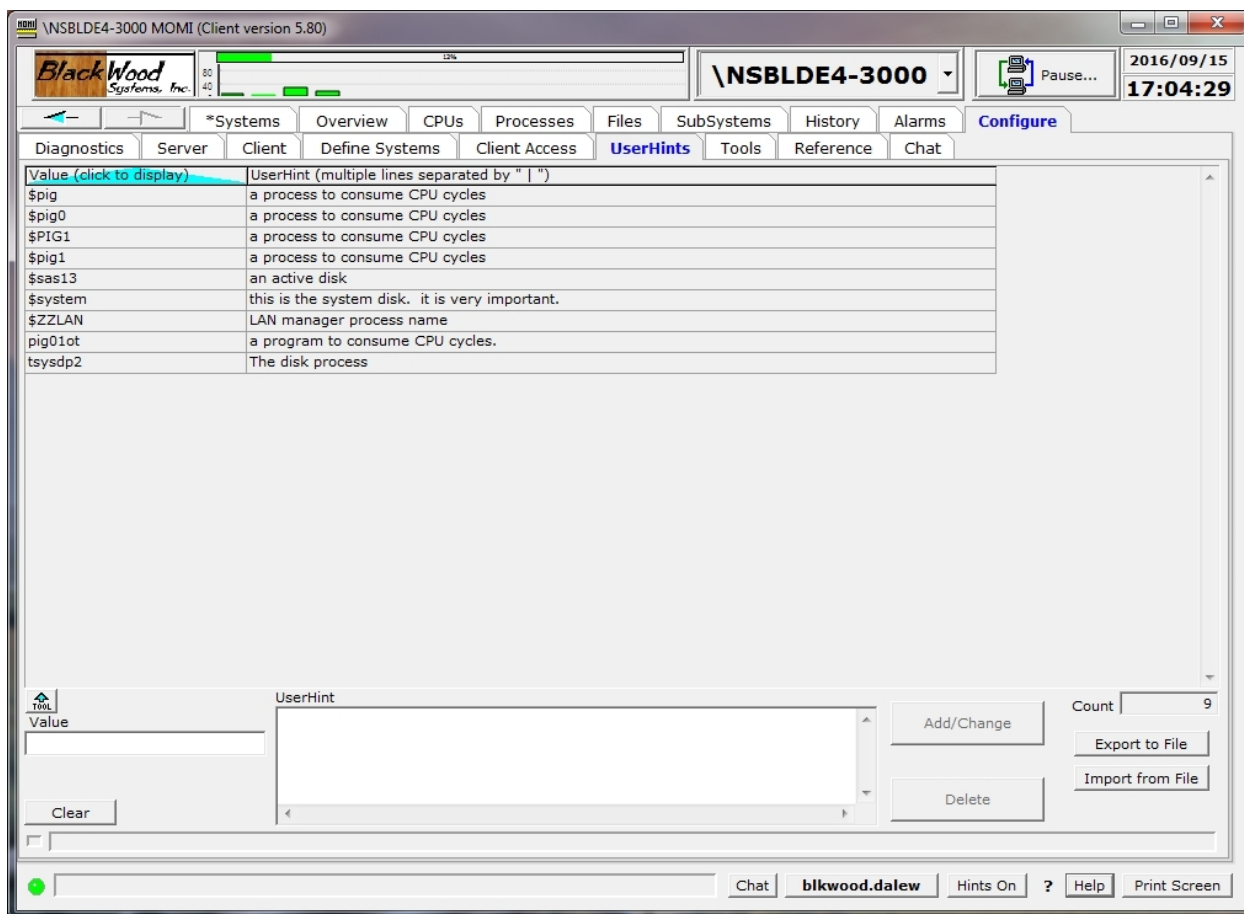
The Client Access / List screen displays the User and Group ID's established with MOMI. A report can be generated with the Create Users Report button.

Left-click on a User or Group ID to jump to [Define](#) screen. Click on the [+] to expand members of a group.

The screen also supports drag-and-drop to add or remove users within a Group. To add a user to a group, click and drag a User ID and drag it to (i.e. right over) a Group name. To remove a user from a group, click and drag a User ID under a Group and release it in anywhere in the Individual User IDs column.

Configure / UserHints

(updated client version 5.16 or later)



The UserHints screen presents hints defined by the customer and provides for maintenance activities (add/change/delete).

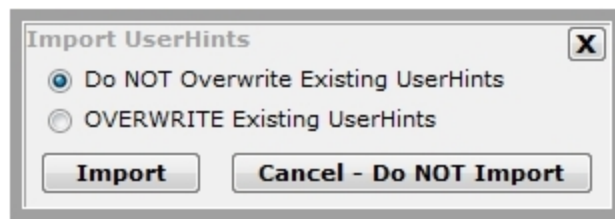
Throughout the MOMI PC Client Tool tips, or Hints, are provided 'all over the place'. This information is usually static based on that particular field. This screen allows the user to define a Value (i.e. text) that if it EXACTLY matches the current value displayed on the screen (in that particular cell or location) the supplied UserHint is added to the existing MOMI Tool Tip.

UserHints are displayed with a key value matches text within a field displayed on a MOMI screen. For example, the process name \$ZPNS is an OSS Name Server. Enter \$ZPNS in the Value field, the text "OSS Name Server" in the UserHint area then press **Add/Change**. When a field with a MOMI hint is displayed and matches \$ZPNS, the displayed hint will add "OSS Name Server" to the displayed hint.

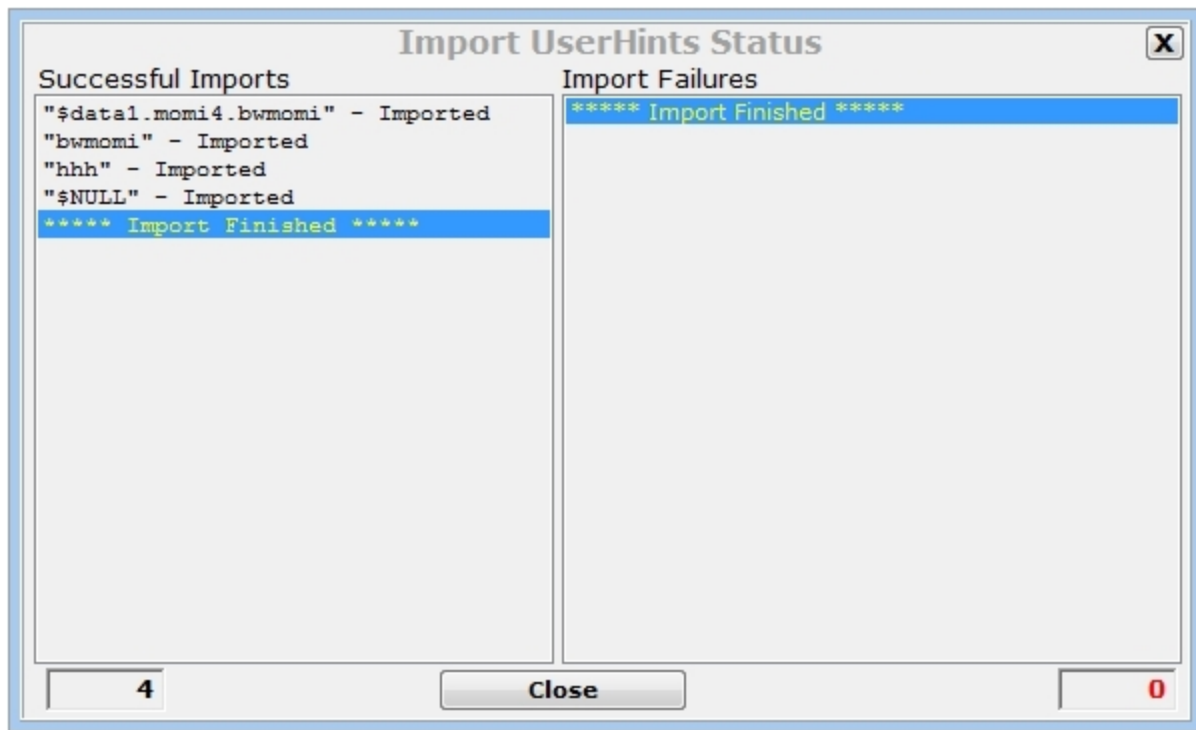
Existing hints may be removed by clicking on the hint and then pressing **Delete**.

UserHints may be exported from one system and imported into another. Press **Export to File** to create a UserHints file. Connect the MOMI PC Client to the desired system and then press **Import from File** to load the saved hints.

When Import is selected, the following window displays to determine if the imported hints replace existing. By default, existing UserHints are not replaced (i.e. not overwritten). Select OVERWRITE to cause existing hints to be replaced with a matching one in the Import file.



During the import process, the following resulting status screen is displayed:



The user may also create their own ASCII text file of Hints to import into MOMI. The file has the following format:

== comment line - ignored and not processed

<key>=<hint>

Where:

== - comment line, not processed

<key> - unique text to match, but not case sensitive

= - required separator

<hint> - text to display, optionally using
 to create a multi-line displayed tool tip

Examples:

== file of user hints - created by Pete Williams

== updated by John Doe

==

10,33=Audit.Mike

\$FRED=Fred Smith (IT - Software Developer)

\$SALLY=Sally Field
 QA Group
 Building 2
 Fourth
floor - Cube 1234

\$NCP=Network Control Process

Special functions

<key>=

delete key

DELETE-ALL-RECORDS

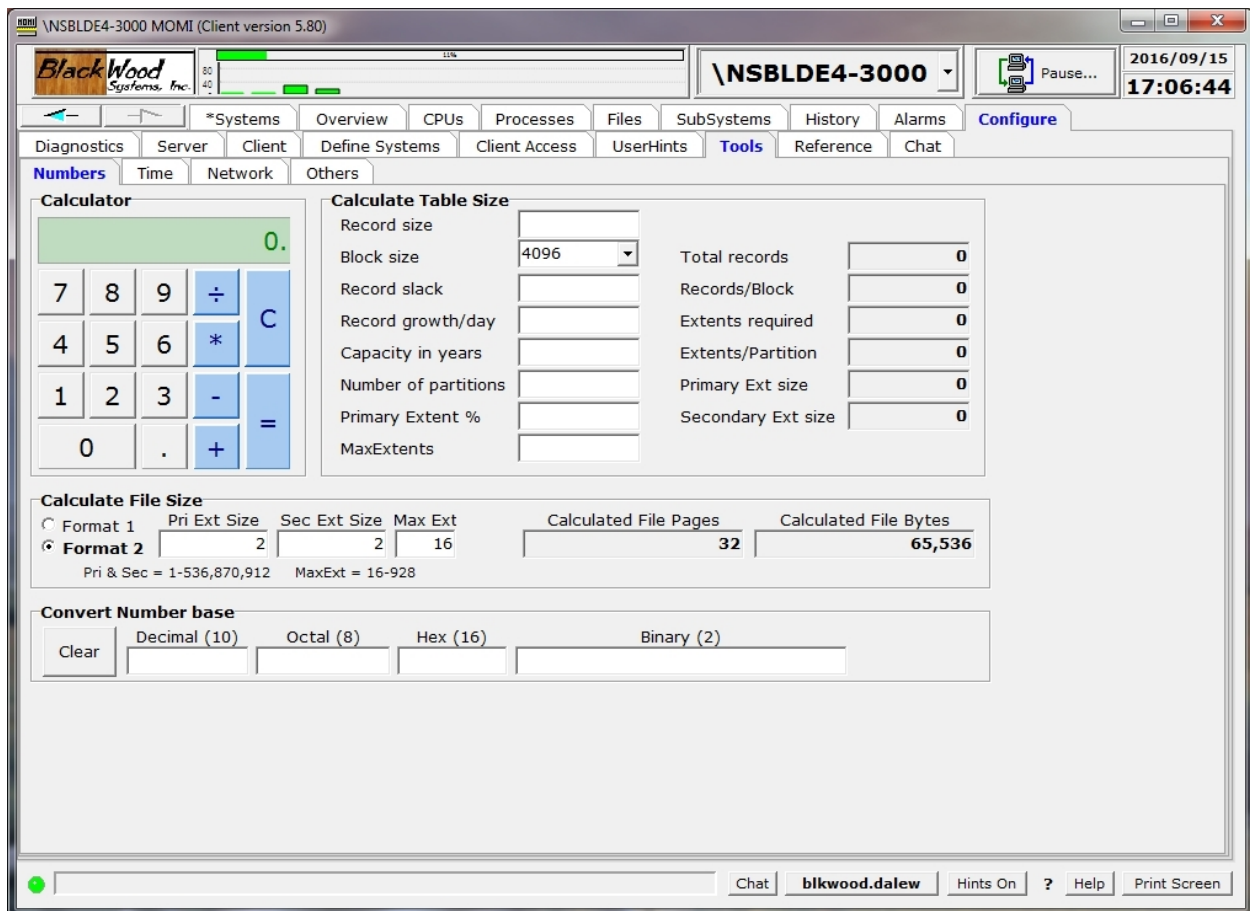
deletes all UserHints

The import file is processed sequentially.

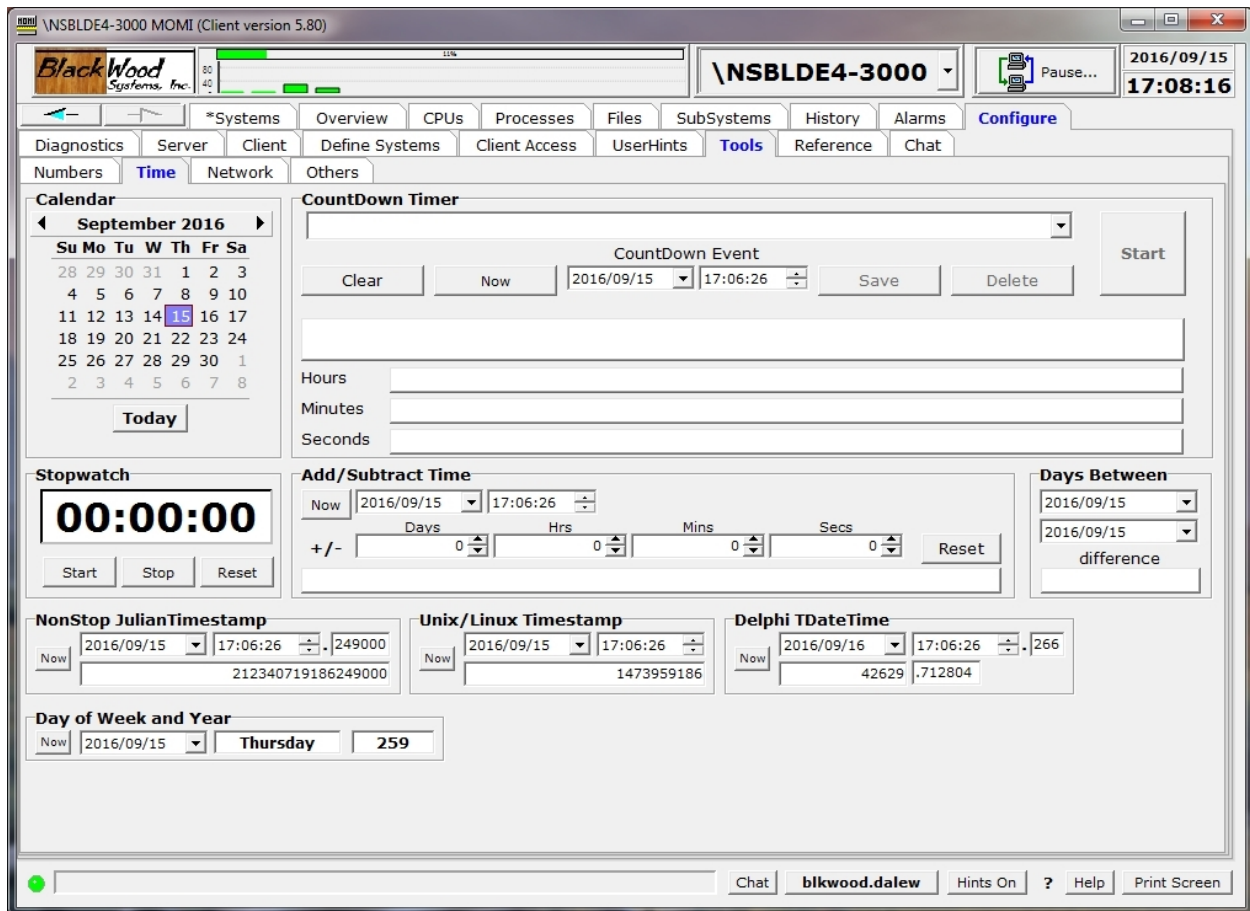
The Special functions to delete a key and DELETE-ALL-RECORDS are provided where automated maintenance activities may required removal of a few existing user hints or the complete replacement of the entire UserHints database.

The MOMI Export to File function uses a multi-line separator that appears as the | character. This is internally encoded as a <#160><|><#160> where #160 is the ASCII value of a hard-space character.

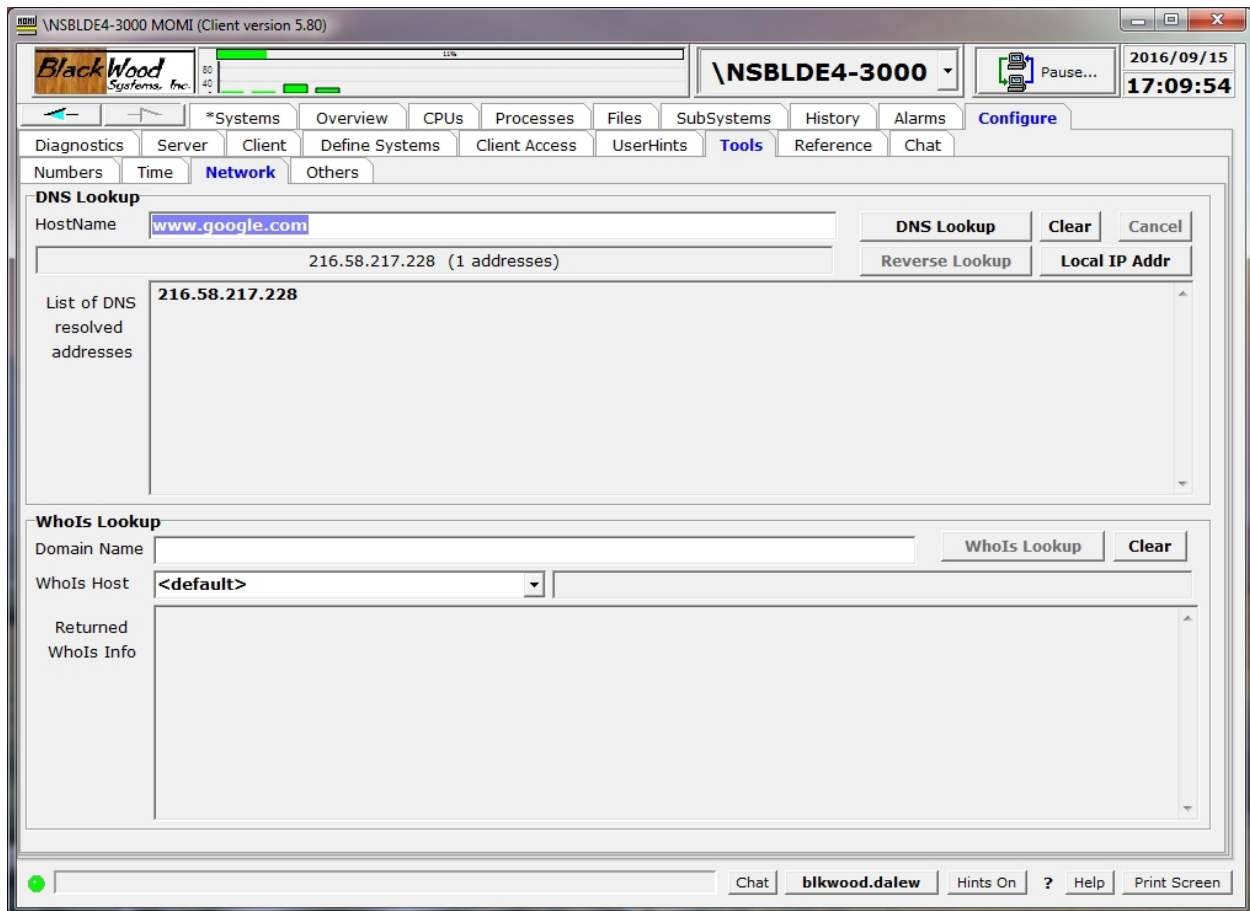
Tools



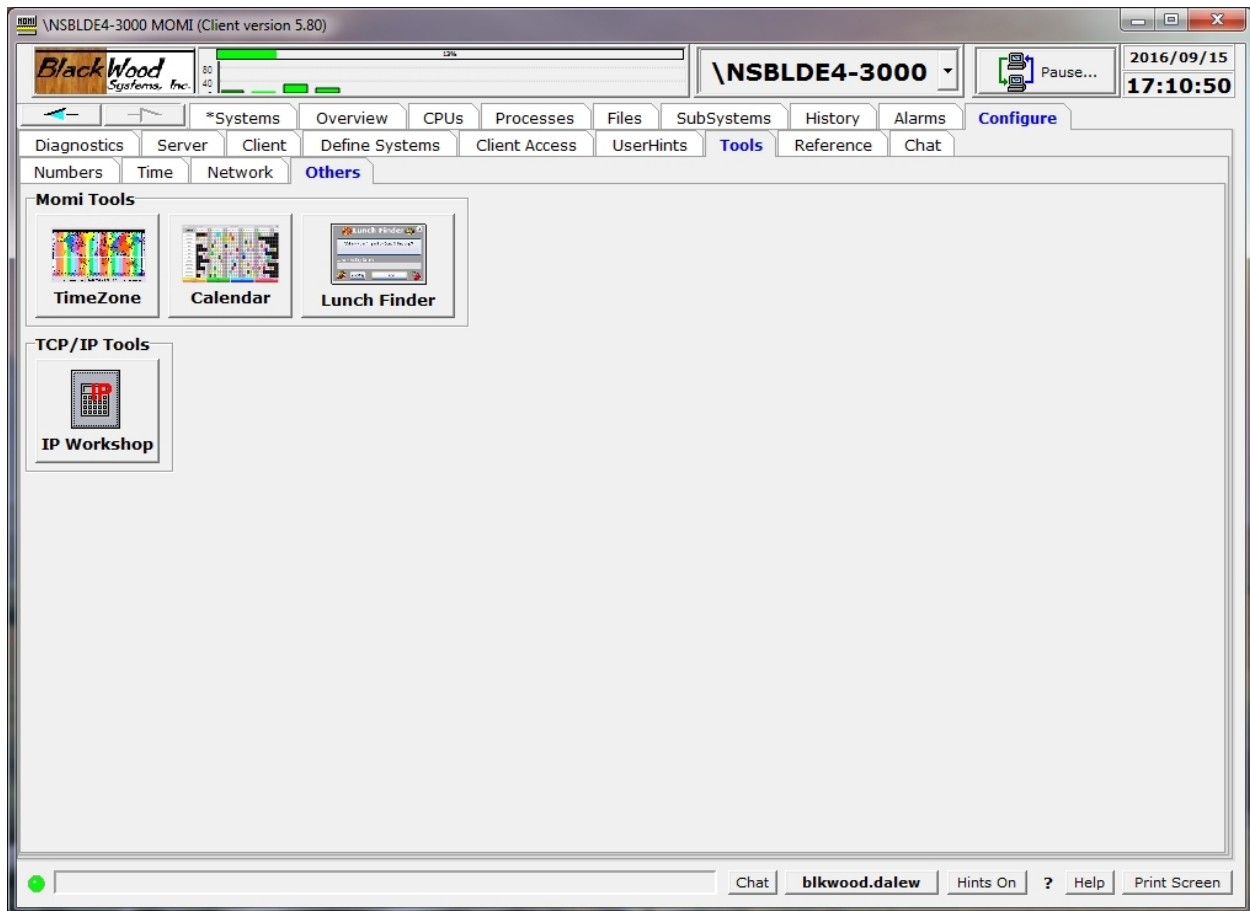
The Tools screens provides a variety of helpful utility functions such as a Calculator, Stopwatch, Count down timer, numeric base converter, DNS and Whois look-up.



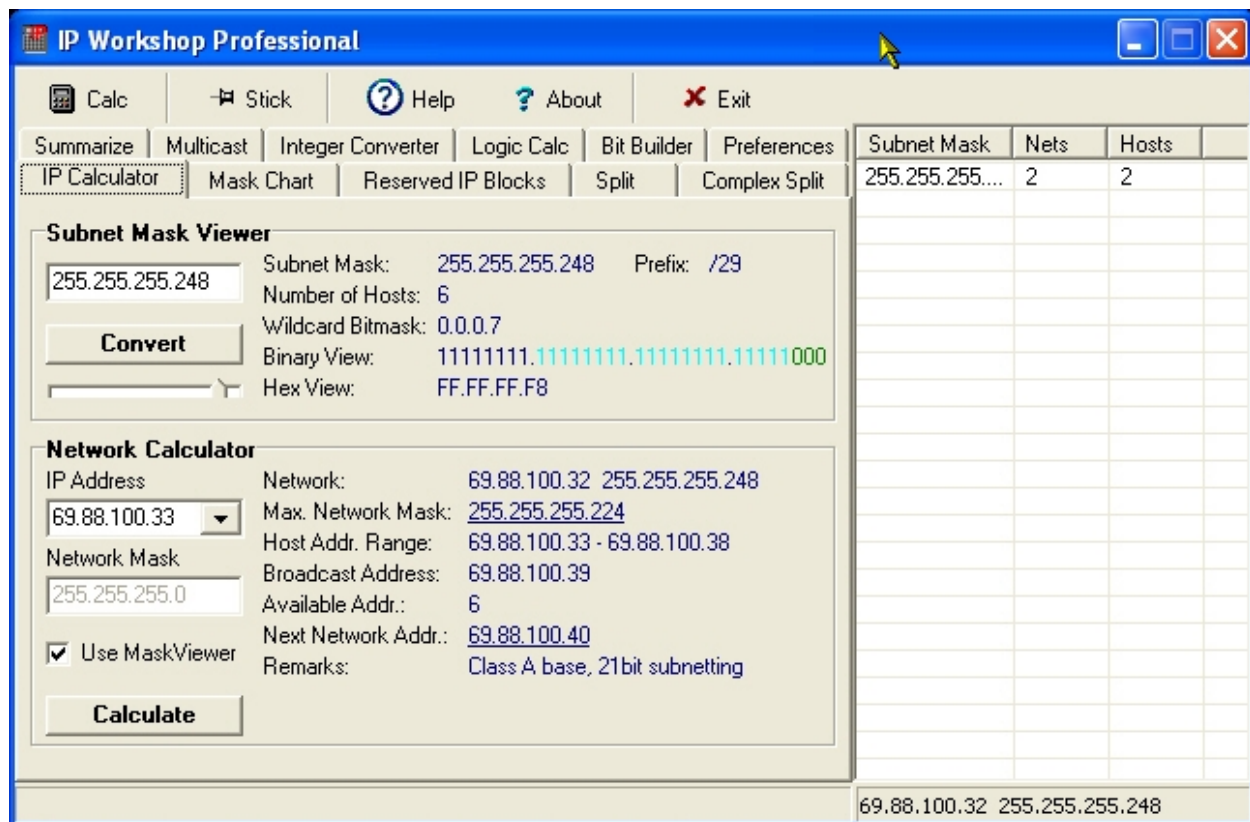
The **CountDown Timer** drop-down box allows storing of multiple events for later reference



The **DNS Lookup** function provides DNS name to IP address(es) and an IP address to name capabilities. The **WhoIs Lookup**



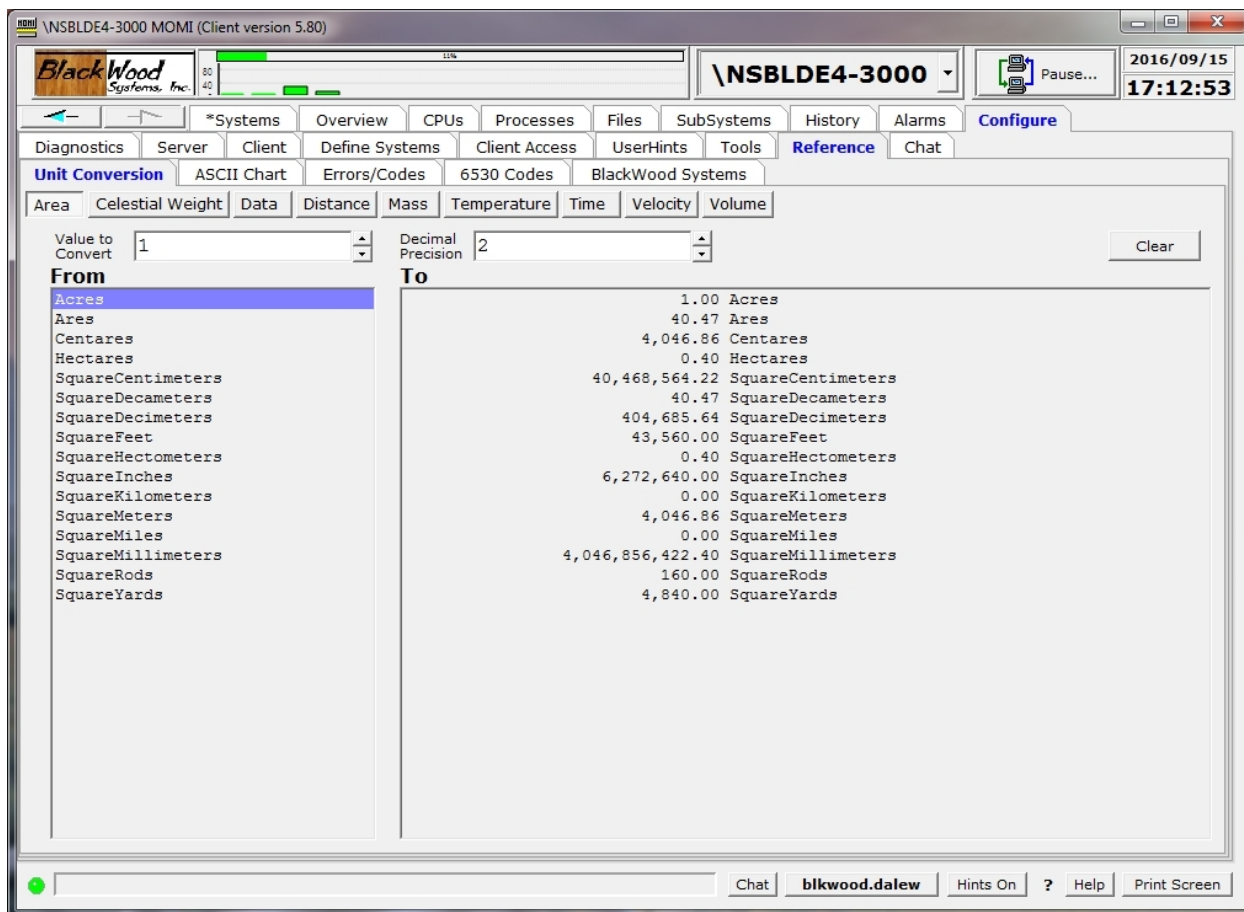
The **Others** screen provides access to various other tools.



The **IP Workshop Professional** TCP/IP Subnet calculator is provided courtesy of Peter Kostov and Peko Software. This tool supports a wide range of IPv4 address operations such as converting the classical subnet format into a CIDR, split up a Class B network into different sized subnets and obtain a quick summary of subnets.

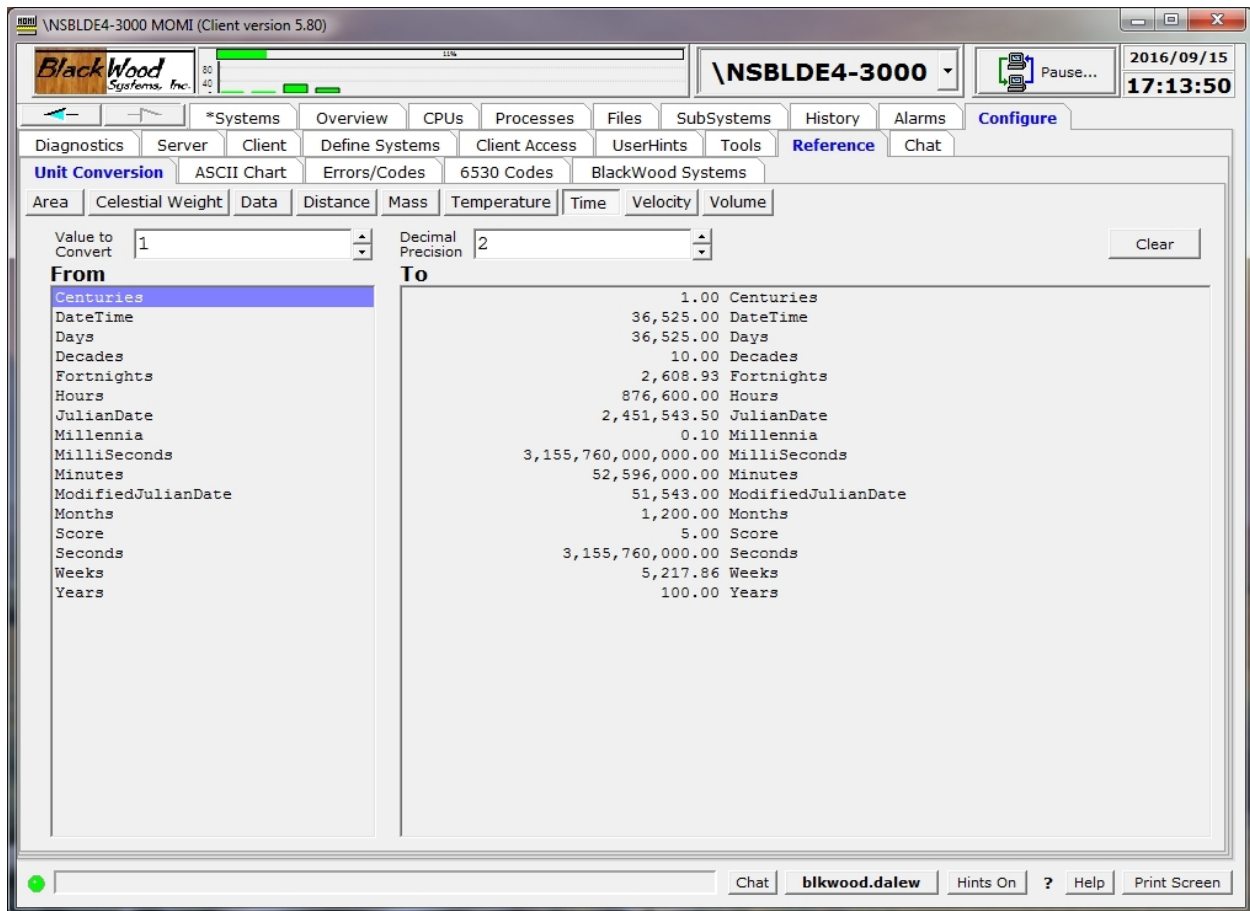
Reference

Reference



Remember the last time you needed to know how many Hectares there were in an Acre (0.40) ? The Reference section provides the answer to this question and many others. Unit Conversion, File System Error codes and the long lost 6530 Control Codes and Escape Sequence references are provided.

Unit Conversion works by selecting the types of units to be converted, entering the value and clicking on the 'From' units. In the example below under Time, 20 Fortnights is equivalent to 280 Days.



The ASCII to EBCDIC chart may be sorted in different ways by placing the mouse over the column heading and right-clicking. Place the mouse over the center two columns, ASCII Char and EBCDIC Char, for a tool-tip description.

BlackWood Systems, Inc. \NSBLDE4-3000 MOMI (Client version 5.80) 2016/09/15 17:14:53

Pause...

*Systems Overview CPUs Processes Files SubSystems History Alarms Configure

Diagnostics Server Client Define Systems Client Access UserHints Tools Reference Chat

Unit Conversion ASCII Chart Errors/Codes 6530 Codes BlackWood Systems

ASCII / EBCDIC Chart

ASCII Dec	ASCII Oct	ASCII Hex	ASCII Bin	ASCII Char	EBCDIC Char	EBCDIC Dec	EBCDIC Oct	EBCDIC Hex	EBCDIC Bin
0	000	00	0000 0000	NUL	NUL	0	000	00	0000 0000
1	001	01	0000 0001	SOH	SOH	1	001	01	0000 0001
2	002	02	0000 0010	STX	STX	2	002	02	0000 0010
3	003	03	0000 0011	ETX	ETX	3	003	03	0000 0011
4	004	04	0000 0100	EOT	EOT	55	067	37	0011 0111
5	005	05	0000 0101	ENQ	ENQ	45	055	2D	0010 1101
6	006	06	0000 0110	ACK	ACK	46	056	2E	0010 1110
7	007	07	0000 0111	BEL	BEL	47	057	2F	0010 1111
8	010	08	0000 1000	BS	BS	22	026	16	0001 0110
9	011	09	0000 1001	HT	HT	5	005	05	0000 0101
10	012	0A	0000 1010	LF	LF	37	045	25	0010 0101
11	013	0B	0000 1011	VT	VT	11	013	0B	0000 1011
12	014	0C	0000 1100	FF	FF	12	014	0C	0000 1100
13	015	0D	0000 1101	CR	CR	13	015	0D	0000 1101
14	016	0E	0000 1110	SO	SO	14	016	0E	0000 1110
15	017	0F	0000 1111	SI	SI	15	017	0F	0000 1111
16	020	10	0001 0000	DLE	DLE	16	020	10	0001 0000
17	021	11	0001 0001	DC1	DC1	17	021	11	0001 0001
18	022	12	0001 0010	DC2	DC2	18	022	12	0001 0010
19	023	13	0001 0011	DC3	TM	19	023	13	0001 0011
20	024	14	0001 0100	DC4	DC4	60	074	3C	0011 1100

Control Chars Punctuation Chars Numbers Upper Case Letters Lower Case Letters Extend Chars NOT USED

Chat blkwood.dalew Hints On ? Help Print Screen

The Errors / Codes screen provides brief description / translation of commonly used numbers including Defines, file system error codes, MEASURE, process creation, Pathcom, Pathmon, Pathsend, SPI and TCP/IP are available. User defined error codes are added by typing in the fields Error / Keyword, System and Error Text and then pressing Update / Add.

\BWS1-2004 MOMI (Client version 5.87)

BlackWood Systems, Inc. **MOMI®** **\BWS1-2004** **2017/10/23 13:47:06**

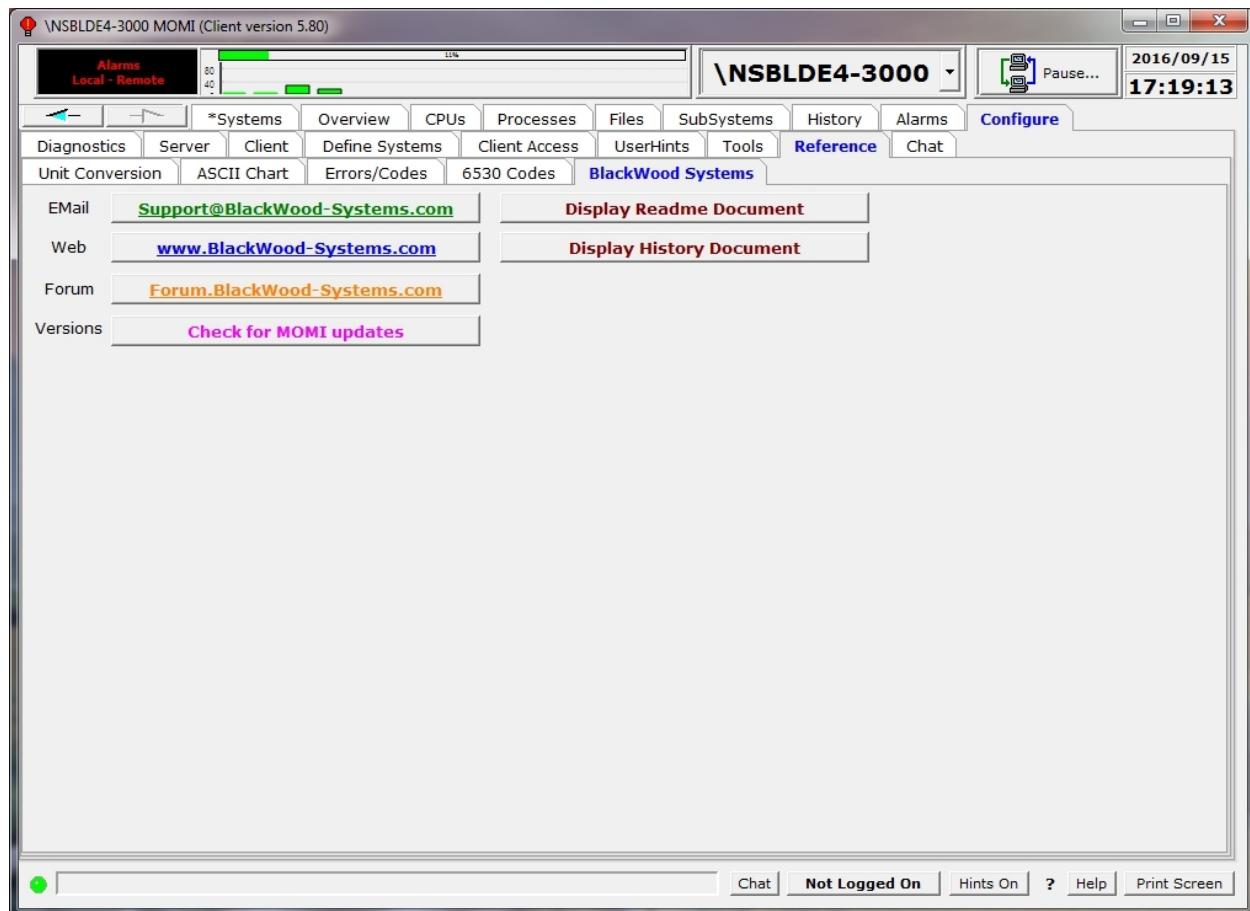
Systems Overview CPUs Processes Files SubSystems History Alarms **Configure**

Diagnostics Server Client Define Systems Client Access UserHints Tools **Reference** Chat

Unit Conversion ASCII Chart **Errors/Codes** 6530 Codes BlackWood Systems

S/U	Err/Key	System	Description
Sys	0	File System	[ENOERR] The operation completed successfully.
Sys	0	FTP	Indicates successful completion of the operation
Sys	0	WINDOWS	[ERROR_SUCCESS] The operation completed successfully
Sys	1	File System	A read procedure reached end-of-file or a write procedure reached end of tape.
Sys	1	FTP	indicates end-of-file condition
Sys	1	WINDOWS	[ERROR_INVALID_FUNCTION] Incorrect function
Sys	1	SSH	Invalid identification string of SSH-protocol
Sys	1	Momi Msg	[STD_REQUEST_V16] standard request (message version 16)
Sys	1	TCP/IPv6	Invalid File Name
Sys	1	NewProcess	Undefined external(s)
Sys	1	TCP Port	TCP Port Service Multiplexer (TCPMUX)
Sys	1	Process Create	A File system error was encountered on the program file
Sys	2	Momi Msg	[SYSTEM_INFO_V16] system information (message version 16)
Sys	2	FTP	A reference is made to a file which does not exist
Sys	2	SSH	Invalid or unsupported version
Sys	2	Process Create	Parameter error
Sys	2	TCP/IPv6	INTERNAL ERROR: Case value out of range
Sys	2	NewProcess	No PCB available
Sys	2	File System	The operation specified is not allowed on this type of file.
Sys	2	WINDOWS	[ERROR_FILE_NOT_FOUND] The system cannot find the file specified
Sys	3	NewProcess	File-System error on <program file>
Sys	3	TCP/IPv6	Missing Attribute
Sys	3	Process Create	Bounds violation
Sys	3	WINDOWS	[ERROR_PATH_NOT_FOUND] The system cannot find the path specified

BlackWood Systems

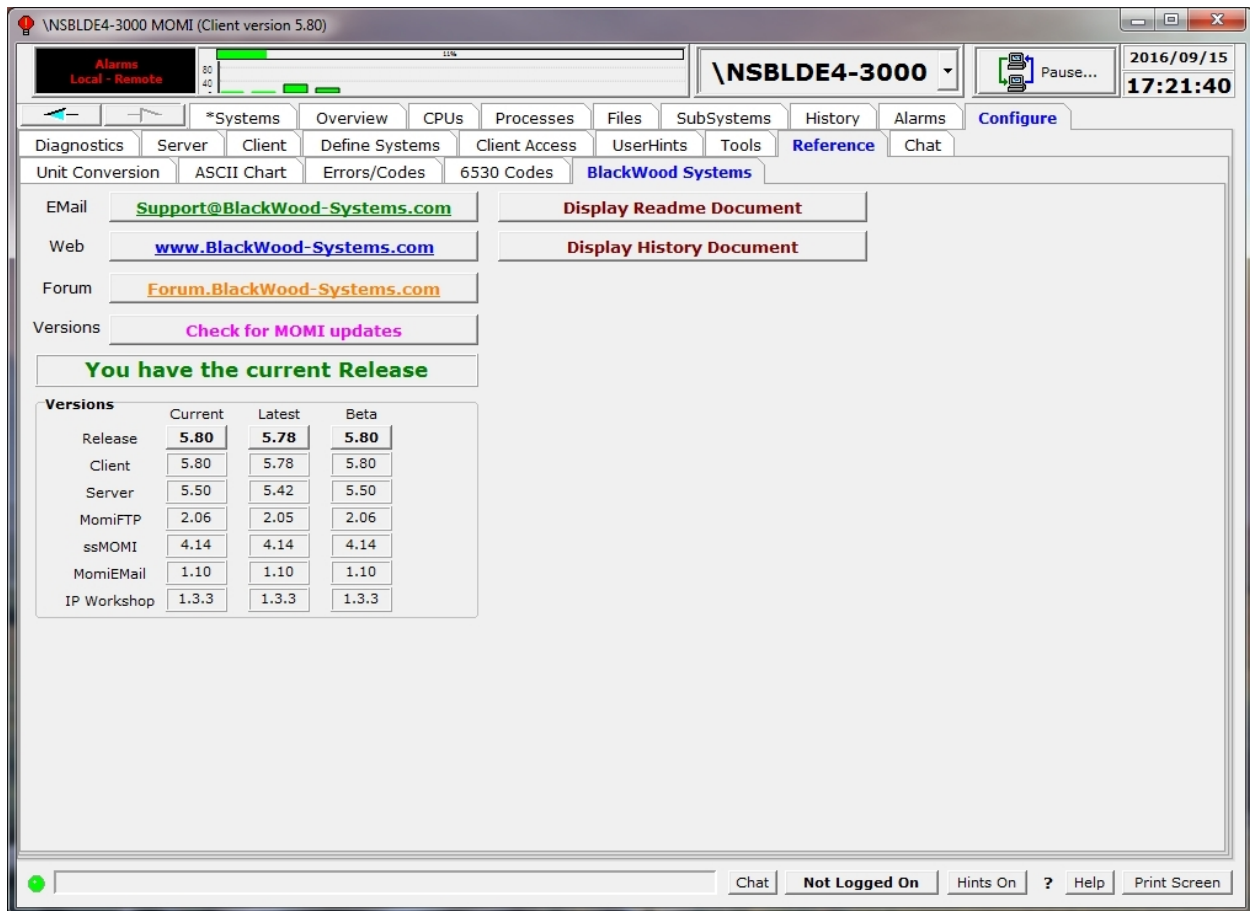


The Reference / BlackWood Systems screen provides short cuts to bring up the BlackWood System web site or Forum, generate an email to MOMI support , and check for MOMI software updates.

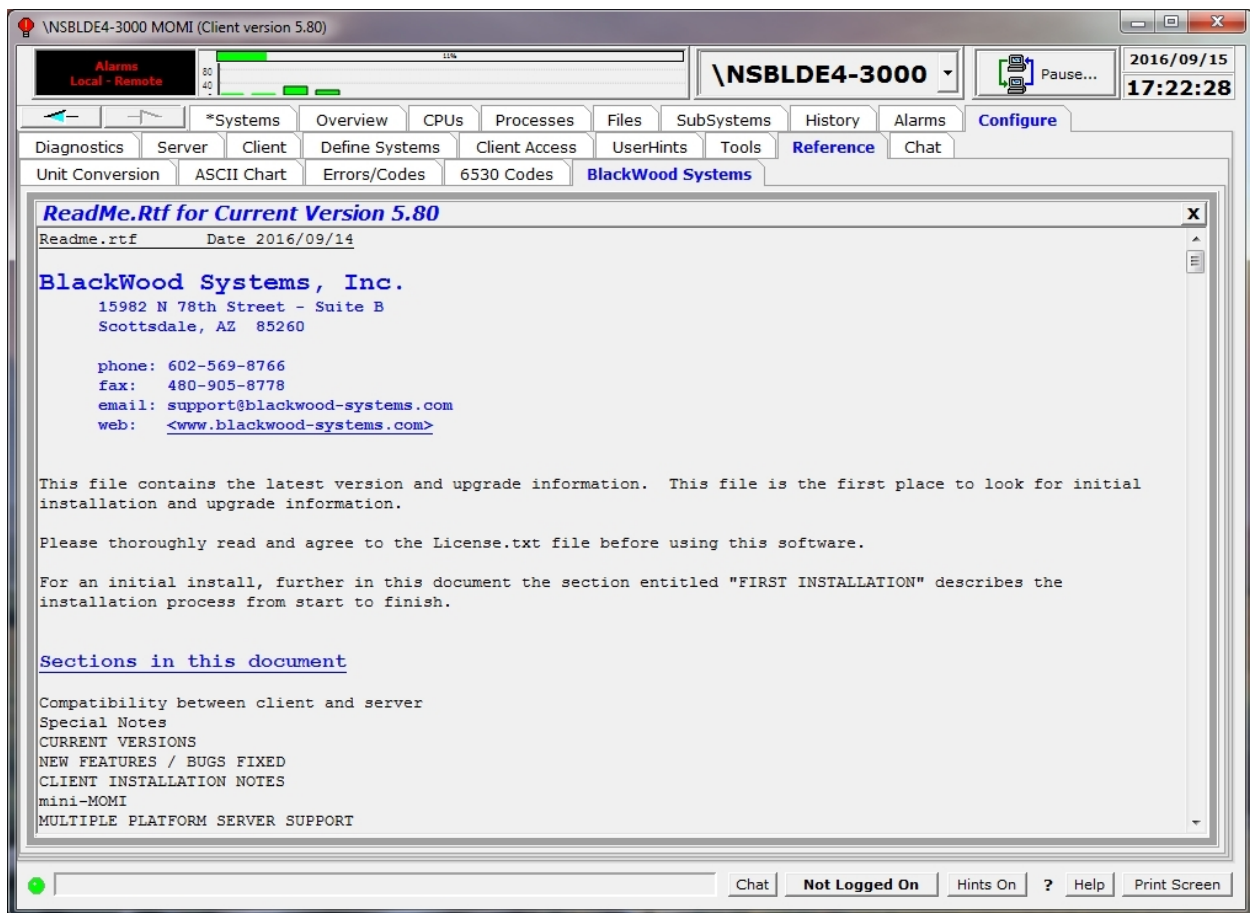
The Web and Forum functions will launch the Window PC browser to these web sites.

The Email function will cause the email client configured on the PC to launch a 'send email' window. To, Subject, System Serial Number and Client / Server version information are automatically loaded into the email.

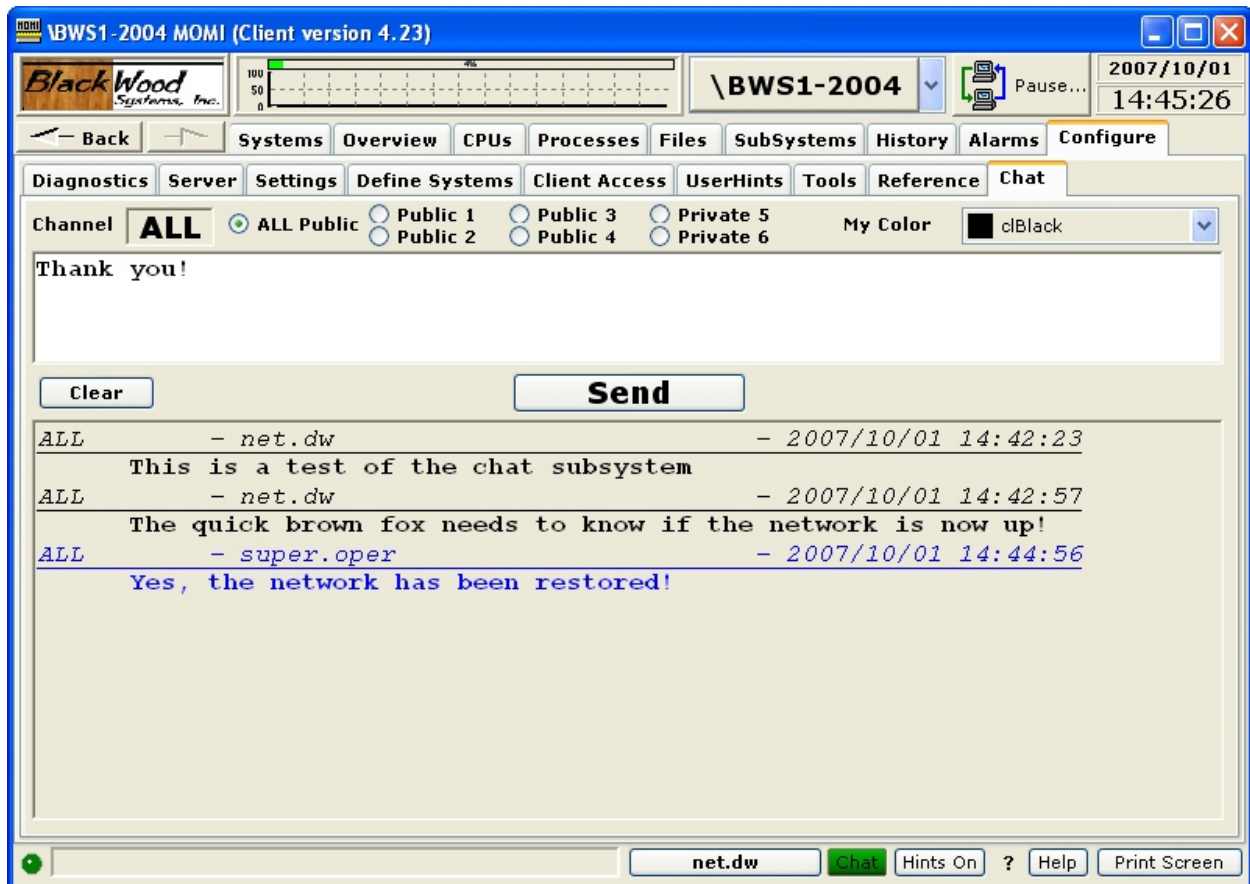
The Versions function accesses the BlackWood Systems web site to obtain version information. An area on the screen is populated with the currently installed version information, latest version available and Beta version (if available).



Pressing the buttons under **Current**, **Latest** and **Beta** accesses the BlackWood Systems web site and retrieves the corresponding ReadMe.txt file (right click to access the history file).



Chat



The Chat screen provides a simple means to communicate with other MOMI users.

Anyone may view Chat, unless restricted by [Client Access](#), but you must be logged on in order to participate. Chat is NOT a secured means of communication.

To use chat, logon, select a Channel, type in text and press Send.

Chat is grouped into channels. The default selection ALL, displays all chat over the public channels. The selection of any of the other channels, Public 1 - 4 or Private 5 & 6 displays only its traffic. The Chat selection at the bottom on the MOMI PC Client window displays green if any Chat has been entered in the last 5 minutes.

Additional Screens

Lunch Finder



This little gem is located by right-clicking the BlackWood Systems Emblem. It solves a major problem we have discovered for Tech Support people, "Where to have lunch today?" It's amazing how people who are able to make major decisions involving the 'care-and-feeding' of a multi-million dollar computer system are unable to decide where to eat ! This was the major reason for the development of MOMI but it is hidden behind all the Tech Support stuff to make management happy.



To use the lunch finder:

1. Press the **Config** button and enter available lunch locations (press **Load** for a preconfigured list)
2. Press **Save** to store the list (step 1 & 2 are only required for initial, new or updated locations)
3. Press **Where do I go for lunch today?**
4. Consider the location displayed - if unsure of the location, repeat step 3

5. Press **Close** and secure your workstation
6. Goto and eat lunch at indicated location
7. Return back to work

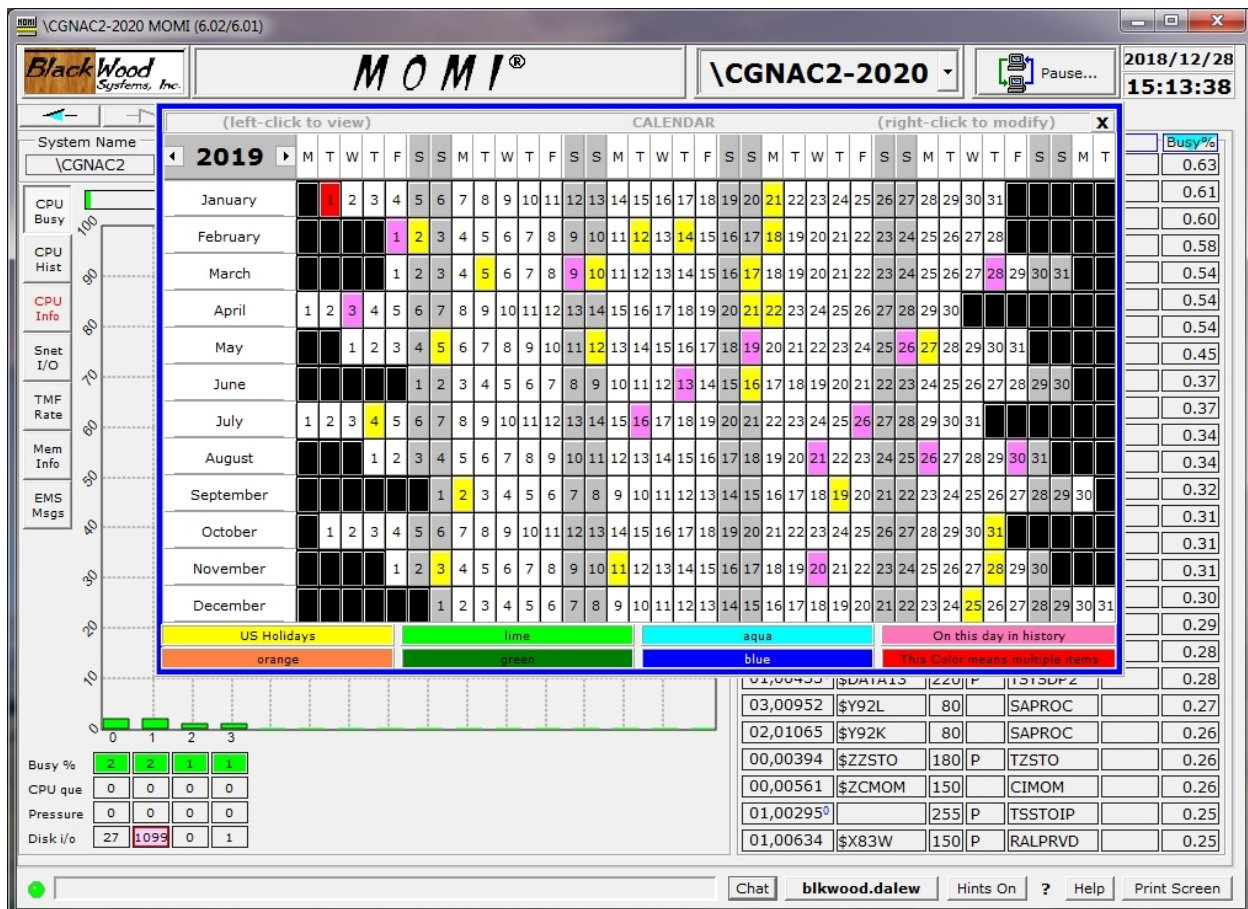
MOMI's lunch finder uses the latest in Human Biometrics to determine the optimum lunch for the User for that day. Some of the many factors it takes into account are:

- a) Key press impact strength (your need for nourishment)
- b) User Biorhythm cycle (your Emotional, Intellectual, and Physical needs)
- c) What lunch you've had the last week (reduce duplication and increase oral stimulation)
- d) Recent computer use (if you've been making a lot of mistakes lately indicating a lack of certain minerals)

After MOMI has taken all these factors into account it uses an advanced *Needs Requirement* formula and determines the correct lunch destination by picking one from your list at random.

The ROI (Return on Investment) of this tool alone will pay for MOMI within a few months when you figure Systems Management people can easily spend a half hour trying to decide where to eat. The resulting increase in productivity could be phenomenal !!!

Calendar



The Calendar is located by clicking the current date panel at the top of the screen and allows Users to set up dates on a calendar with a color coded display to indicate some information. For example: a User might define the color ORANGE as an indicator for a scheduled Maintenance window, or BLUE and AQUA as vacation days for the Tech Support personnel. The User can define 7 colors (YELLOW, ORANGE, LIME, GREEN, AQUA, BLUE and PINK) as anything they want. The RED color is reserved for any date with more than 1 color assigned to it.

Clicking on a day will display a pop-up with information saved about that day in history.

Calendar items for

2019/01/01

Tuesday

X

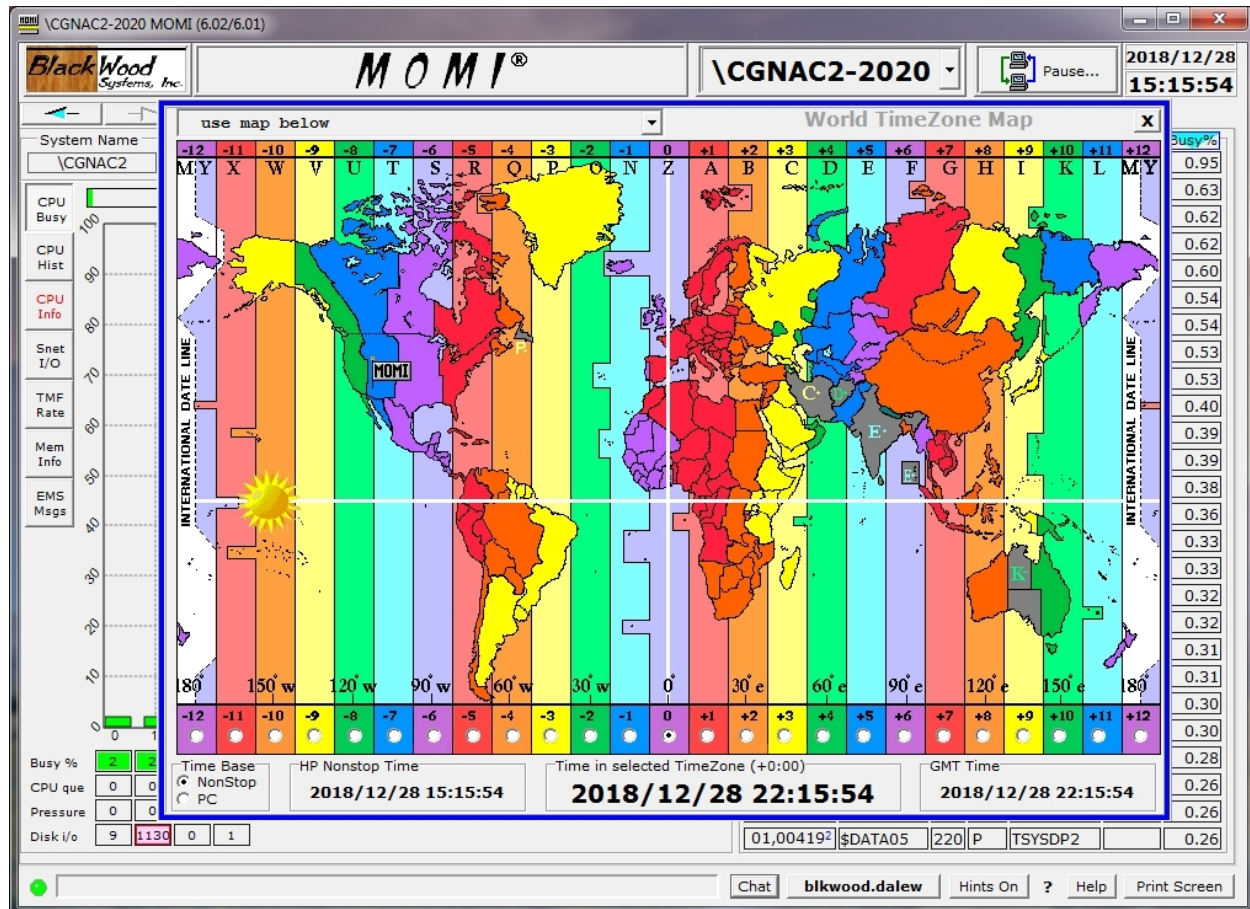
Calendar items for this day

New Year's Day	
2000 Largest collective hangover in human history	
2000 MOMI is 19 years old.	

Calendar color labels are saved in the MOMI.INI file and Calendar date items are saved in the CALENDAR.MOM database. MOMI is shipped with a basic database containing a couple years of US Holidays and some interesting *On this day in history* facts.

To exit this screen, click on the **X**.

World TimeZone Map



The TimeZone Map is located by clicking the time at the top right of the screen and allows Users to get basic time zone info around the world. It does NOT account for day-light savings time and is just a guide. Please don't consider it accurate, just fun! The file that loads the supplied default TimeZone list is TIMEZONE.MOM . You may make changes and add new time zones by editing this file using Notepad. Instructions on the format are found within in the file.

MOMI is shipped with a basic TIMEZONE.MOM database containing several hundred entries.

A User may select a time zone either by selecting an entry from the drop-down list or by clicking an offset from the GMT value near the bottom of the window.

The **Time in selected TimeZone** and **GMT Time** fields originates from either the NonStop currently selected, which is the time displayed in the upper right corner of the screen, or time from the PC. This selection is made in the **Time Base** field.

To exit this screen, click on the X below the date/time.

PC Quirks

This section describes various situations or "quirks" present on the PC:

[Client window re-size](#)

[System resources - Out of Memory](#)

[Print dialog box](#)

Client window re-size

The MOMI PC Client adjusts the size of most screen elements when its window size is changed to allow most aspects to remain in proportion.

This entire adjustment process may take, depending on how many screens are active and the microprocessor speed, 15-30 seconds.

System resources - "Out of Memory"

If a PC encounters an error indicating, to the effect, that insufficient memory is available, there are three general possibilities:

1. The Windows paging file, also referred to as virtual memory, is nearing capacity.
2. Physical memory is at capacity.
3. Windows internal control blocks are at capacity.

The Windows paging file is physical disk space used for swapping to and from main memory or the computers RAM. This disk space provides an extension of the physical memory, unfortunately at a much slower rate of access. Certain operations within MOMI, such as viewing a Spooler job or a disk file may require a great deal of virtual memory.

With the MOMI PC Client running, open the Windows Task Manager and select the **Performance** tab. The area labeled **PF Usage** shows the amount of paging file space in use and **Page File Usage History** shows a usage over the last few minutes of so. If the paging file is nearing capacity, have the PC administrator increase the amount of virtual memory available (i.e. the Windows paging file).

Virtual memory is great for temporary surges in memory requirements or to hold seldom used programs. However, in a true multi-tasking environment where many Windows programs are active or being actively used, virtual memory is no substitute for real physical memory in a PC. In the Windows Task Manager, with MOMI and all other "normally started" programs active look on the tab **Performance** in the section **Physical Memory (K)**. If the Available memory is zero or otherwise really low (perhaps below 100,000 or 100 Megabytes), the PC Administrator should consider adding more physical memory.

If items 1 and 2 are not the issue, another possibility is that Windows has exhausted space for internal control blocks. The default amount of space for Windows versions prior to XP are somewhat limited and unfortunately the counts available and in use are not easily obtained. If a PC encounters the message "Out of Memory" when running more than one copy of the MOMI PC Client simultaneously OR a single MOMI PC client is run with other PC programs such as Lotus Notes, running out of these control blocks is a strong possibility.

If a MOMI PC Client encounters a fatal error and crashes, a file named MOMI.LOG should appear on the desktop. Open this text file and check for the following text just a few lines down (text may vary but this is the general idea):

Not enough storage is available to complete this operation or
Not enough storage is available to process this command

If items 1 and 2 described above are not the issue, and these messages (or something close to it) are encountered, a change to the Windows registry should be considered to increase the Windows Desktop Heap. Please see [Configuration recommendations](#) for details.

Print dialog box

The printer dialog box, that displays when **Print Screen** is pressed, may disappear, but is really located behind the MOMI window.

Pressing ALT + TAB and select the dialog box will cause it to return to the foreground.

Information

Acknowledgments

CAIL emulator

The CAIL Emulator was provided courtesy of CAIL (www.cail.com) and is not a component of any purchased MOMI product. The Emulator is no longer provided and was removed from the MOMI installation package.

IP Workshop Professional

IP Workshop is provided courtesy of Peter Kostov (www.pkostov.com).

Export Information

MOMI is assigned the following classification for export purposes:

ECCN: 5D992

MOMI does not contain an open encryption capability. The embedded encryption capability is for the protection of passwords and internal data flow and considered Ancillary Cryptography.

General Limitations

Non-privileged operation

MOMI operates in a non-privileged mode and generally relies on information available via documented interfaces. This restriction means that certain information is not available. For example, viewing the screen [Processes / Process Detail](#) cannot show the last error that occurred on a file. The last error is not available via either a documented Guardian procedure call nor via MEASURE.

Processes in the future

In its default mode of operation, MOMI does not generally display processes that are created after the current system time. This unusual situation could arise if either 1) the system is being used to experiment with changes in the system time, or 2) by accident the system time was set ahead, some processes were started, and the system time was returned to normal.

A normal change in the system time, such as where the system time is gradually adjusting, is not what this issue is describing. If the system operator was to force the system time backward say a couple of hours, MOMI would not generally pick up processes created within that couple of hour period of time. Once the couple of hours has passed, then MOMI would begin reporting on the missing processes.

The CONFMOMI keyword [COLLECT-ALL-PROCESSES](#) is provided to change the default mode of operation.

Snapshot operation

CPU and Process overview is generally displayed as the difference between two points in time. A way to think about this is that MOMI is constantly taking a limited picture of the system and compares the difference between the previous picture and the current picture.

For example, viewing the screen [Main Overview](#) the top processes on the system are the result of taking a snapshot of the system and comparing the differences from another snapshot 10 seconds later (by default). If a process was running during the entire window of time, it will be picked up by the snapshot. If the process was not running the entire window of time, the process itself should not be captured but the CPU busy (or some other field of the CPU such as Overhead) would be captured. This does not mean

it will be displayed, unless it was busy enough to make the Top Processes on the system, but the snapshot captures the process.

Some screens, such as the screen [Processes / Process Entity](#), that directly invoke MEASURE and read its result do capture all process activity.

The intention of these snapshots is not to try to capture every single process activity on the system, but capture process activity that occurs long enough that its activity could be noticed or acted on.

MEASURE can capture every process start up and shutdown. MOMI snapshots cannot. MOMI can display short duration processes on the screen [Processes / Process Entity](#) by starting this screen with a process name of \$* and by sorting ascending on the Measure Window Size (last column scrolling the screen all the way to the right).

SubSystems / TCP/IP

MOMI is not able to retrieve detailed information on the screens in the **SubSystems / TCP/IP** when an IP CLIM is used. A documented interface is not available.

Where MOMI stores data

Generally speaking, MOMI data concerning the overall subsystem is stored on the NonStop System and user specific settings on the local PC.

MOMI Server

The MOMI server stores configuration data in the [CNF01DB](#) file and contains the following:

- Alarm definitions (including actions, times, email and email group)
- Client Access (all settings and users)
- EventBX
- User Hints

The file can be moved from one NonStop System to another. Stop \$MOMI prior to making a copy or moving in a new file.

The MOMI server stores history data in the [HSTnnDB](#) file(s) and generally contain the following entities:

- CPU
- DISC
- MSYSTEM
- OSS CPU
- OSS NS
- Process
- System

These files can be moved from one NonStop System to another. Stop \$MOMI prior to making a copy or moving in a new file.

Temporary MEASURE data files are located by default in the same subvolume as the BWMOMI executable. They may be directed to another location with the CONFMOMI keyword [DEFAULT-WORK-LOCATION](#).

MOMI PC Client

When a Client is started for the first time, it creates the MOMI.INI file with a default location:

Windows 7 / Windows 10 and later -

C:\Users\<User ID>\AppData\Roaming\BlackWood
Systems\MOMI\

Where <User ID> is the name used at logon to Windows. You must enable *Show hidden files, folders and drives* under Windows Folder Options to enable their display.

The MOMI.INI file contains all client specific settings for the Windows logged user such as: last screen size and position, color trigger levels, timers, fonts and other screen defaults. Generally, if the setting is located under the screens **Configure / Client & Define Systems** it is stored within the MOMI.INI file.

The file can be moved to another PC to transfer settings. Export and Import abilities are found on the screen [Configure / Client / Actions](#) .

Systems known to the MOMI PC Client on the screen [Configure / Define Systems](#) can be preloaded for new MOMI Client users via this [procedure](#).

Support

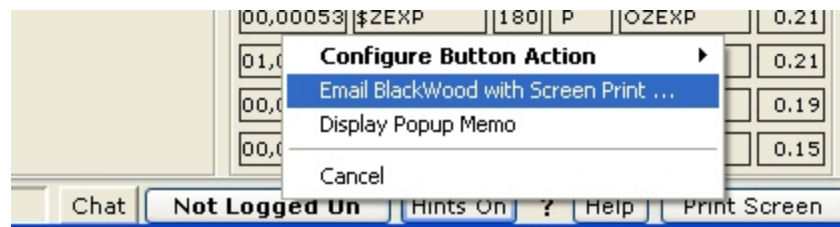
Reporting a problem

To report a problem, ask a question or provide other feed-back you can send an email to:

support@blackwood-systems.com

Additionally, MOMI has a built-in problem reporting capability. When launched, it automatically captures the current PC MOMI Client window (not the entire screen), constructs and will send a message directly to BlackWood. Included is the Diagnostic Text File that contains PC, MOMI PC Client and NonStop System configuration information. This file is in plain ASCII text (you can examine it) and helps us understand your environment and in resolving issues (also saves us from asking lots of basic questions such as what software releases are being used, how many processors, what type of PC O/S, etc). Screen captures are the JPG format. All of the gathered information can be reviewed prior to sending.

To use MOMI's built-in problem reporting software, on the screen in question (if applicable), right-click on the **Print Screen** button located in the lower right-hand corner of the MOMI window (this button is labeled **Clipboard** if a printer is not available) and select **Email BlackWood with Screen Print...**



This selection displays the window below and captures the current PC MOMI Client screen. Additional screens may also be attached to the same email by selecting another screen within the MOMI PC Client again right-click on the **Print Screen** button and select **Email BlackWood with Screen Print...** (up to 30 screens may be attached in one message). Once all desired screens are captured, fill in the **From** with your email address and optionally add **CC** email addresses. In the body of the message type in any descriptive information concerning the problem or question (please try to give us enough detail so we may reproduce the problem or understand the question within the context of your environment). Push **Send Email** to transmit the data.

EMail BlackWood Systems (version 1.08)

Config **From:** fred_smith@mycompany.com **BlackWood SMTP Server:80**

To: Support@BlackWood-Systems.com

Cc:

Subject: MOMI Support Question

Attachments **Diagnostic Text File** **Screen Print**

Paste

My System Serial Number is: W40344
My Client/Server Versions are: 5.32/5.31

I am having trouble getting this screen to work. The error I encountered is displayed. I entered a valid name and it broke.

Fred...|

Send Email

MOMI's problem reporting software uses the DNS addresses of momi-mail.blackwood-systems.com (backup is momi-mail-b.blackwood-systems.com) over port 80. If access via port 80 is blocked in your local network, pressing **Config** displays a window with the following selections:

1) Use the BlackWood Systems Server

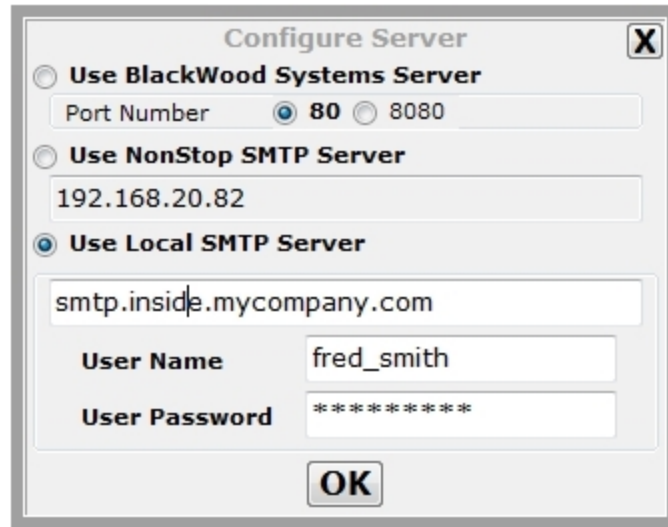
This selection is the default and sends directly to BlackWood. Port 80 is used by default and optionally port 8080. If one does not work try the other.

2) Use NonStop SMTP Server

An entry will be present is an SMTP server is define for MOMI on the NonStop ([ALARM-SMTP-SERVER-ADDR](#)).

3) Use Local SMTP Server

Manually enter an SMTP server DNS or IP-Address and optionally specify a User Name and Password (this User Name and Password provide secured access to the local SMTP server if required).



Any selection other than **Use BlackWood Systems Server** will communicate using standard SMTP protocol over port 25.

In the event a MOMI program abends on the Nonstop Server, please transfer in BINARY the ZZSAnnnn file(s) to our FTP site and then use MOMI's built-in problem reporting software or an email and let us know happened. Please include any information you may have pertaining to the occurrence.

Our FTP or SFTP site is accessed with the following information:

```
address      : ftp.blackwood-systems.com
user name    : momisave
password     : momisave          (both are the same and
lower case)
```

The logon will take you to a special area on our FTP site where this User ID has access to place (i.e. write) files. Please send us an email if you have any trouble accessing the FTP site.

If sending a SAVEABEND via email, the file **must** be compressed (either using PAK on the Nonstop Server or ZIP on the PC) then attach the resulting file. When compressing a file, please use a file extension to denote the type of compression (i.e. .zip for ZIP and .1729 for PAK).

- ➡ **Sending a SAVEABEND file directly attached to an EMAIL does not work and unfortunately is unusable.**

Comments and suggestions

We welcome your comments and suggestions. You can either use MOMI's built-in problem reporting software or send an email to:

Support@BlackWood-Systems.com

Please note that while suggestions are considered, they may or may not be included in a future release.

Network / Troubleshooting

Overview

Today's networks are increasingly complex and installing a new application may require interaction from several operational groups in order to insure success. This section describes how MOMI communicates between the PC Client and NonStop based MOMI server.

The MOMI PC Client uses native TCP/IP (i.e. no RSC or anything like that is used) and opens a TCP socket to the MOMI Server on the NonStop platform.

Common problem scenarios are described and discussed.

Basic Network Information

MOMI software communicates from the Windows MOMI PC client to the NonStop System based MOMI server over TCP level sockets. The MOMI server listens on an assigned TCP/IP stack, IP address and port for incoming connections from the MOMI PC client. Communication over an established socket is two-way or bi-directional. The MOMI PC Client may establish one or more socket connections to MOMI server or to other MOMI servers on other NonStop Systems. MOMI servers do not establish sockets to other MOMI servers. Generally, once a socket is established it remains connected.

MOMI uses 'plain Jane' TCP/IP native to Windows and to the NonStop System. No other communication software is required.

If a network firewall, protecting the NonStop server, is located in-between the PC Client and HP NonStop server it must be configured to allow an incoming connection to the TCP/IP address and port as specified for the listening MOMI server.

The TCP/IP stack, IP address and port used by the MOMI server is defined on the NonStop System in the edit format CONFMOMI file (located by default where MOMI is installed on the NonStop System) with the keyword [TCPIP-LISTEN](#).

Data encryption

MOMI network traffic always encrypts passwords. By default data is encrypted, except message headers. The level of data encryption may be altered with the CONFMOMI keyword [ENCRYPTION-ALGORITHM](#).

If everything goes right

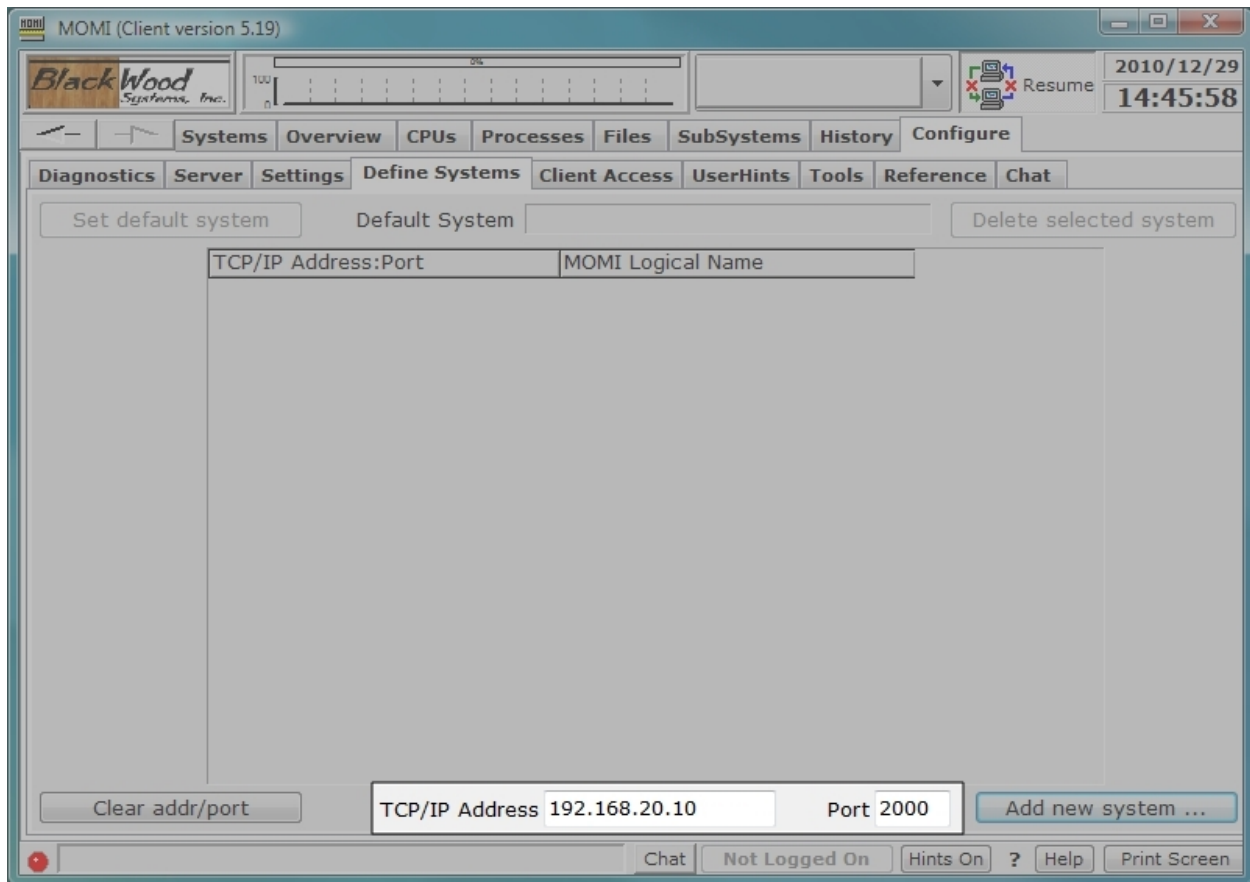
The MOMI server on the NonStop System is started first. This allows the server to initialize and prepare to receive incoming connections.

On the NonStop server, in the subvolume where MOMI is installed the edit format file CONFMOMI contains at least one of the following lines:

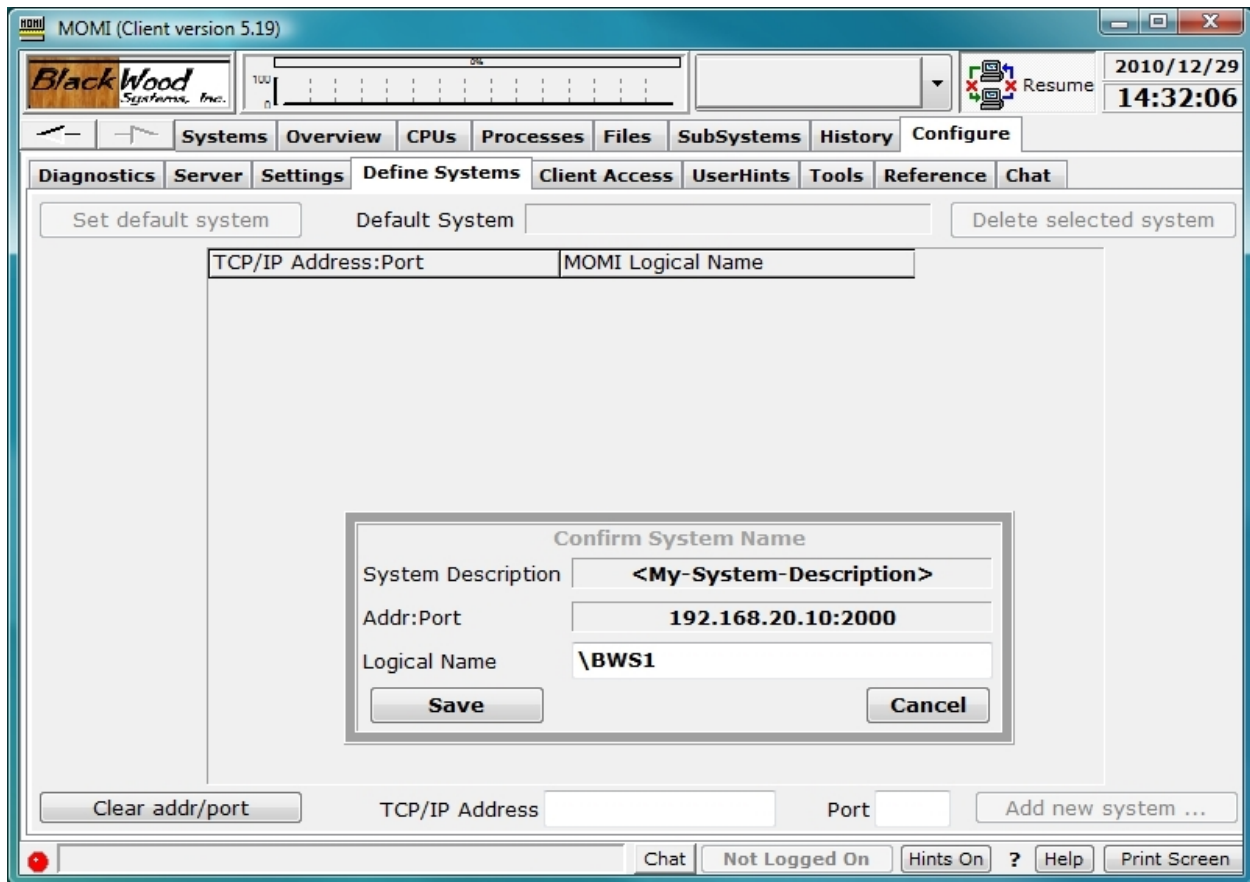
```
== TCP/IP process and port
== the MOMI server listens
TCPIP-LISTEN $ZTC0 * 2010
```

In this example, the line specifies that the MOMI server is listening on the TCP/IP process \$ZTC0, all IP addresses on port 2010.

Once the MOMI Server is running, give it a couple of minutes after starting, in the MOMI PC Client, assuming that \$ZTC0 has a TCP/IP address of 192.168.20.10, you would enter the following information (color highlighted) on the screen [Configure / Define Systems](#):



If communication is successfully established, the following displays:

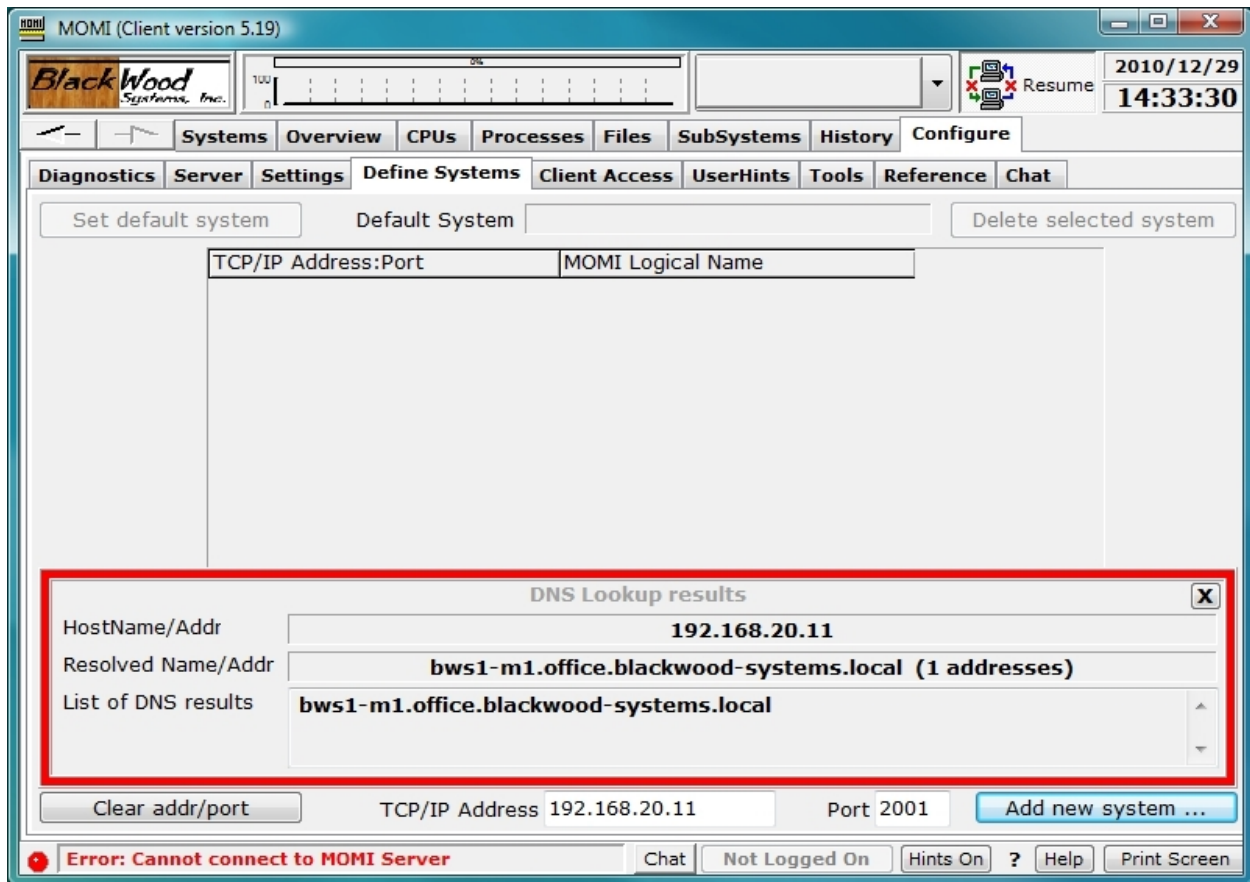


The pop-up window entitled "Confirm System Name" indicates communication was successfully established. If desired update the text field, showing the system name \\BWS1 above, and then push Save to complete the operation of defining a system to MOMI.

The first system successfully defined becomes the default system displayed on subsequent startups of the MOMI PC Client. The default system displayed may be changed on this screen.

Now, what can go wrong (i.e. troubleshooting)

If communication was not successful, the following displays:



*I pressed **Add new system...** and nothing happed*

It can take up to 30 seconds for a response if a timeout or retries occur. Normally, after pressing **Add new system...**, the response from the MOMI server is immediate.

*I pressed **Add new System...** and the MOMI PC Client locks up or terminates*

This indicates that AntiVirus and/or firewall software is blocking the TCP socket connect from the client to the server.

Check with your PC and/or network support groups and see what authorization is required to enable a new PC application. MOMI uses a TCP level socket over the port number you specify. You may need 1) the MOMI PC Client itself authorized to operate, and 2) the TCP level socket and port authorized.

The TCP/IP process name is not valid

Shortly after starting the MOMI server, check the EMS log on the NonStop System. If MOMI encounters any error accessing the TCP/IP process, messages are logged to EMS.

To determine if the TCP/IP process named entered in the CONFMOMI file (\$ZTC0 used in our example) is correct, from a TACL prompt enter the following command:

```
STATUS $ZTC0
```

If the process is found, several lines of data appear listing either TCPIP or TCP6SAM as the object file name (usually located in \$SYSTEM.SYSnn). If the process name is not found, TACL returns "Process does not exist". Check with your NonStop System administrator to determine the correct TCP/IP stack process name. Note that multiple stacks may exist on the system (i.e. you need the correct one and not any one).

The TCP/IP port is already in use

Shortly after starting the MOMI server, check the EMS log on the NonStop System. If MOMI encounters any errors accessing the TCP/IP socket (i.e. port), messages are logged to EMS.

To determine if a TCP port is free, start a SCF from a TACL prompt and enter the following command:

```
SCF status process $ZTC0
```

Examine the output and find a port in the LPort column not used (greater than 1024 and less than 32767)

The TCP/IP address entered in the client is not correct

Check with the system and/or network administrator to confirm the address (es) for the TCP/IP stack.

It is possible that your network re-maps addresses. Literally, the NonStop System address may not be directly accessible, but an alternate mapped address is referenced.

The TCP/IP address and port are both correct and not already in use but I still can't connect

- This may indicate a firewall and/or firewall software is in-between your MOMI PC Client and the NonStop Server. The firewall may be running on your PC and/or is a physical box on the network in-between your PC and the NonStop Server. You can try to PING from your PC to the NonStop Server by opening up a command prompt window and entering the following (using the example IP address above):

PING 192.168.20.10

Unfortunately, it is possible that the PING works but a MOMI connection fails. This indicates the ICMP (i.e. what a PING really is) function is allowed but MOMI data flow is not.

The best bet, assuming the required TCP/IP address and port information is valid and the MOMI server is started and successfully running on the NonStop System, is to speak with your network and/or PC administrators and determine what procedures are required to enable a new TCP/IP network application within your environment. It is very possible that both local PC and network authorization is required.

- In some environments, the old MOMI default port 2000 may be internally used by networking equipment. We have seen situations where the MOMI client successfully connects but data does not flow. In the CONFMOMI file alter the port to another value (select a free port on the NonStop side), restart the MOMI server (wait a bit) then try to reconnect in the client using the IP and new port. **Note that network firewall changes may also be required when the port is changed..**

What things may stop MOMI data flow?

Generally speaking, firewall and Anti-Virus port scanning software.

Network firewalls in-between corporate PC's and Servers are getting to be more common place. The extra level of security means that any new application must be enabled. Literally, firewalls prevent communication to non-approved network methods.

Anti-Virus port scanning software can be configured to examine all TCP/IP port traffic. The examination itself may interfere or the lack of understanding MOMI's communication protocol by the AntiVirus software can prevent or stop communication by erring on the side of caution.

In both cases, environments running protections of this type would have a defined procedure available (i.e. forms to fill out) to establish a new software product. Since Introducing new software applications such as MOMI is

probably not an everyday occurrence, don't be surprised if the required underlying tasks need to be dug out from a drawer and 'dusted off' :)

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