NV9000 Web Suite

Browser Application for Viewing NV9000 Data

User's Guide

UG0074-00

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Miranda

A BELDEN BRAND

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All of the equipment described in this manual has been designed to conform with the required safety and emissions standards of the European Community. Products tested and verified to meet these standards are marked as required by law with the CE mark.

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This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions appear throughout the manual where they apply. Please read and follow this important information, especially those instructions related to the risk of electric shock or injury to persons.

> WARNING
>
> Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any service other than that contained in the operating instructions unless you are qualified to do so.

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Symbols and Their Meanings

The lightning flash with arrowhead symbol within an equilateral triangle alerts the user to the presence of dangerous voltages within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle alerts the user to the presence of important operating and maintenance/service instructions.

The Ground symbol represents a protective grounding terminal. Such a terminal must be connected to earth ground prior to making any other connections to the equipment.

The fuse symbol indicates that the fuse referenced in the text must be replaced with one having the ratings indicated.

The presence of this symbol in or on Miranda equipment means that it has been designed, tested and certified as complying with applicable Underwriter's Laboratory (USA) regulations and recommendations.

The presence of this symbol in or on Miranda equipment means that it has been designed, tested and certified as essentially complying with all applicable European Union (CE) regulations and recommendations.

General Warnings

A warning indicates a possible hazard to personnel which may cause injury or death. Observe the following general warnings when using or working on this equipment:

- Heed all warnings on the unit and in the operating instructions.
- Do not use this equipment in or near water.
- This equipment is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting the equipment inputs or outputs.
- Route power cords and other cables so they are not likely to be damaged.
- Disconnect power before cleaning the equipment. Do not use liquid or aerosol cleaners; use only a damp cloth.
- Dangerous voltages may exist at several points in this equipment. To avoid injury, do not touch exposed connections and components while power is on.

- Do not wear rings or wristwatches when troubleshooting high current circuits such as the power supplies.
- To avoid fire hazard, use only the specified fuse(s) with the correct type number, voltage and current ratings as referenced in the appropriate locations in the service instructions or on the equipment. Always refer fuse replacements to qualified service personnel.
- To avoid explosion, do not operate this equipment in an explosive atmosphere.
- Have qualified service personnel perform safety checks after any service.

General Cautions

A caution indicates a possible hazard to equipment that could result in equipment damage. Observe the following cautions when operating or working on this equipment:

- When installing this equipment, do not attach the power cord to building surfaces.
- To prevent damage to equipment when replacing fuses, locate and correct the problem that caused the fuse to blow before re-applying power.
- Use only the specified replacement parts.
- Follow static precautions at all times when handling this equipment.
- This product should only be powered as described in the manual. To prevent equipment damage, select the proper line voltage on the power supply(ies) as described in the installation documentation.
- To prevent damage to the equipment, read the instructions in the equipment manual for proper input voltage range selection.
- Some products include a backup battery. There is a risk of explosion if the battery is replaced by a battery of an incorrect type. Dispose of batteries according to instructions.
- Products that have (1) no on/off switch and (2) use an external power supply must be installed in proximity to a main power output that is easily accessible.

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1 Introduction

Chapter 1 provides a brief introduction to the NV9000 Web Suite.

Topics

Summary *1*
Getting Started *3*

Summary

The NV9000 Web Suite is a browser application that presents views of NV9000 control system data. The NV9000 Web Suite (or, the Web Suite, for short) has one or more tabbed pages that show:

- DHP data.
- Tieline data.
- Crosspoint data — arranged to show destinations' primary levels.
- Crosspoint data — arranged to show multiple levels for each destination.
- Crosspoint data — arranged to show the crosspoint matrix, with breakaway and level mapping, and locks and protects. The page also allows users to perform takes (with breakaway and level mapping), and locks and protects.

An additional tab exists for customizing the Web Suite itself. This is the 'Options' tab.

A Web Suite user (who has administrative privilege) can create additional tabs for different views of NV9000 data. Additional tabs are (modified) instances of the basic 5 types shown above.

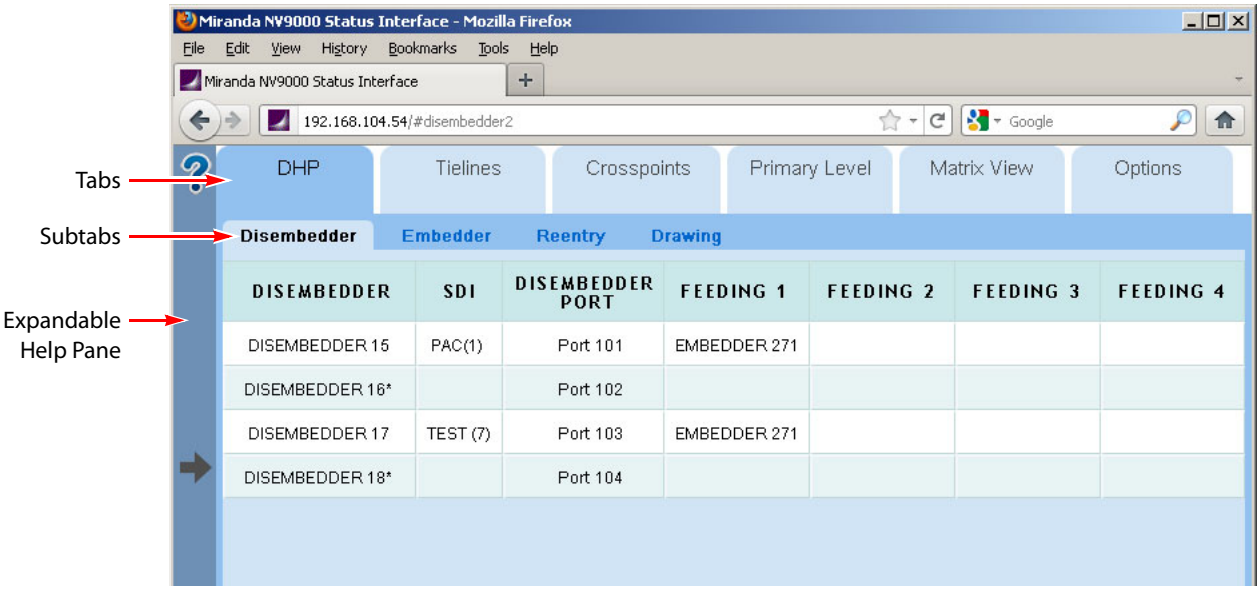
The Web Suite runs on your PC desktop. It can be accessed through browsers that support HTML 5.0.

▲ Do ***not*** install the Web Suite on an NV9000 family system controller. Customers should never install additional software on any system controller.

We recommend Firefox and Chrome. Internet Explorer 10 (and later) supports HTML 5.0. The Web Suite is also designed to operate well on hand-held devices such as iPads, ViewSonic tablets, Motorola Zoom tablets and others. (If your browser does not support HTML 5, the Web Suite will tell you.)

▲ DHP — a service running in an NV9000 system controller — can communicate with only one instance of the Web Suite at a time. See Appendix A.

The Web Suite is divided into tabbed sections. Each tabbed section has subtabs and pages that display when you click the subtabs:



- The Web Suite does not, and cannot, communicate with an NV9000 system controller that is in stand-by mode.
- Although the Web Suite provides status for the entire NV9000 system, it can provide status for only one router that uses DHP. The NV9000 system must have only one DHP service running.

Tabbed Sections

The upper row of tabs selects a topic within the Web Suite. Presently there are 6 section types in the upper row:

- DHP Management

  For DHP, there are 4 subtabs:

  DHP Disembedder DHP Embedder DHP Reentry DHP Drawing

  There are no management functions in this topic. The DHP pages are simply status pages.

  See Chapter 3, DHP Tab, on page 59, for details.

- Tieline Management

  For tielines, there are 3 subtabs:

  Tieline Uses Tieline Destinations Tieline Drawing

  There are no management functions in this topic. The tieline pages are simply status pages.

  See Chapter 4, Tielines Tab, on page 73, for details.

- Multi-Level View

  The multi-level view displays NV9000 destinations in a table — one destination per row. The columns of the table are the virtual levels (in the NV9000) you have selected. If the destination has a source routed to it on that level, the name of the source appears in that column for that destination.

  See Chapter 5, Multi-Level Tab, on page 85, for details.

- Primary Level View

  The primary level view displays NV9000 destination/source pairs in a table. The source of the pair is the one providing the signal on the destination's primary level.

  (Users can specify the number of pairs to be displayed in each row.)

  See Chapter 6, Primary Level Tab, on page 89, for details.

- Matrix View

  The matrix view shows the NV9000's sources and destinations as a 2-dimensional matrix, where sources are columns of the matrix and destinations are rows in the matrix. Each matrix element appears as a button that you can press to perform a take.

  The page also has a listing of virtual levels (at the top). The matrix shows "crosspoint" connections on the levels that are selected in this region of the page.

  Users may view the matrix and may actually perform takes, locks, protects, breakaways, or level mapping using the controls present on the page.

  See Chapter 7, Matrix View, on page 93, for details.

- Options

  The options tab allows you to configure the Web Suite itself and to see status regarding the Web Suite itself.

  See Chapter 2, Options Tab, on page 17, for details.

Users can usually add tabbed pages of these types except another 'Options' tab.

Getting Started

Installation

The NV9000 Web Suite can be installed on PCs (under Windows XP or Windows 7). Persons who Install the Web Suite should read the notice given in Appendix A.

The installation procedure is brief. Follow these steps:

1. Obtain the Web Suite installer and place it on a USB device.
2. Login to the PC[1] on which you are going to install the Web Suite.
3. Insert the USB device in a USB slot on the PC.
4. Locate the web suite installer in the file structure of the USB device. Double-click it.

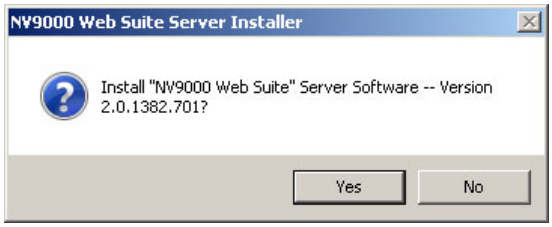
   (The name of the installer is `nv9000-web-suite-installer-2.0.1382.701.exe` or something similar.)

1. Use a PC. The Web Suite should never be installed on an NV9000 family system controller.

5 Windows presents a security warning:

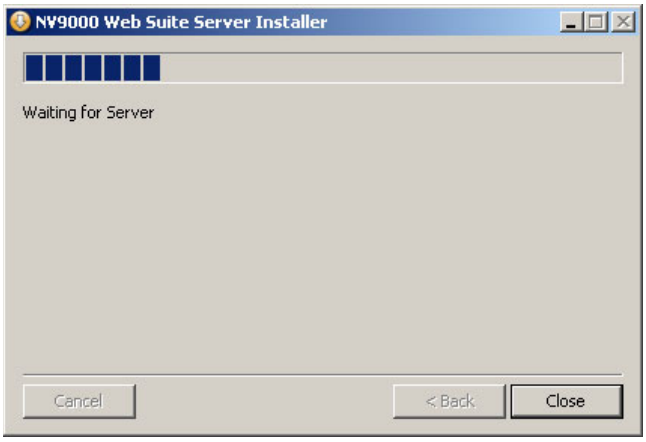
Click 'Run' to proceed.

6 The installation process asks your permission to install the Web Suite:



Click 'Yes' to proceed.

7 The installation process displays a progress indication:



The installation takes only a few seconds.

8 When the installation is complete, it tells you:

Managing the Service

The Web Suite is a *service,* not an application. As a service, it can be started, or stopped. By default, it starts automatically when the PC starts up.

After you install the Web Suite, make sure that its status is either stopped, started, or automatic, as appropriate for the PC:

- If the service is to provide DHP status among several PCs, the service for only one PC should 'started', For all other PCs that access the same system controller, the service should be stopped.
- If the system controller does not use DHP, the service can be started or automatic on any number of PCs.

Multiple PC users who monitor DHP can share a single instance of the Web Suite service.

See Appendix A.

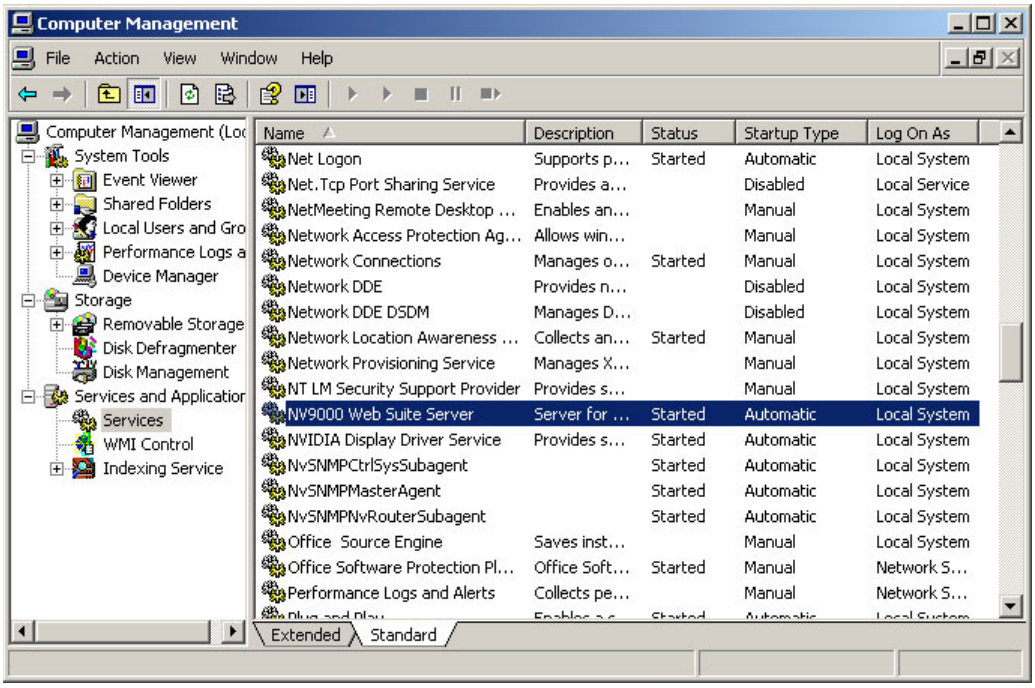
Changing the State of the Web Suite Service

▲ If the service is already in the proper state, leave it alone.

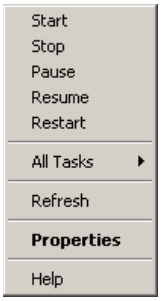
To change the state of the service, follow these steps:

1 Right click the 'My Computer' icon, on the desktop of your PC, or the 'NVConfig' icon, on the system controller. Choose 'Manage' from the context menu that appears.

2 Choose 'Services' from the tree at the left. Then find 'NV9000 Web Suite Server' among the services:



3 Right-click the highlighted line. A context menu appears:



Choose the appropriate command for the PC or system controller: start, stop, or properties. (Commands that have no effect are greyed out.)

The start command starts a stopped service. (A stopped service shows no text in the status column.)

The stop command stops a running service (which shows 'Started' in the status column).

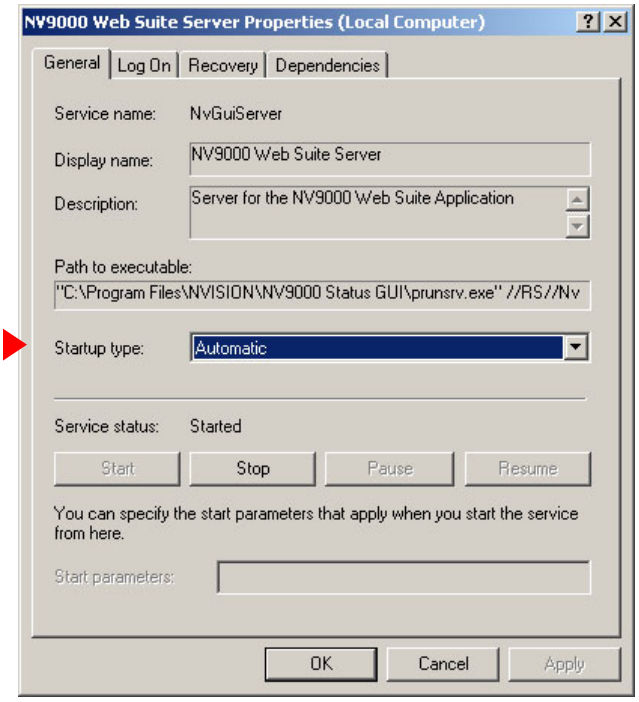
4 Ensure that the Web Suite's 'Startup Type' is correct.

For PCs that reference system controllers that provide DHP, the 'Startup Type' should be 'Manual'.

For system controllers, the 'Startup Type' column must show 'Automatic'.

For PCs that do ***not*** reference system controllers that provide DHP, the 'Startup Type' should be 'Automatic' for the convenience of the PC user who might restart that PC.

a Right-click the service and choose 'Properties' from the context menu:



b Choose either 'Automatic' or 'Manual' from 'Startup Type' field, as required.

Accessing the NV9000 Web Suite

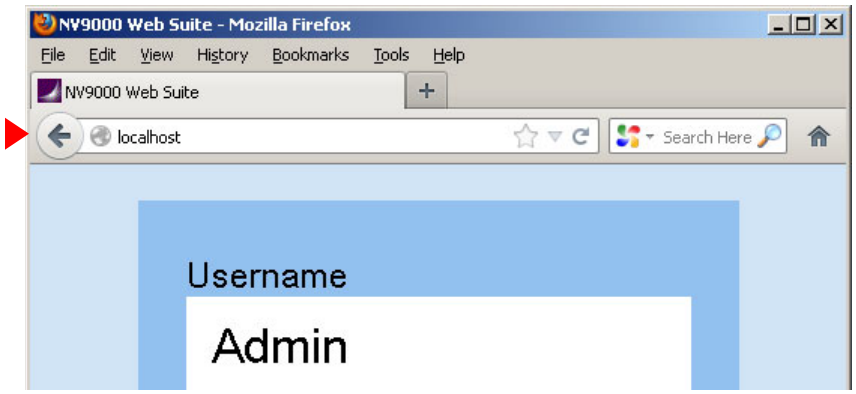
The service functions in a browser on your PC.

Using your PC's Service

Follow these steps:

1 Launch your browser (i.e., Firefox, Chrome, Internet Explorer 10).

2 Type "localhost" in the URL field of the browser:



You can also type the IP address of your PC or the IP address of another PC on which the Web Suite has been installed. The term "localhost" is a synonym for the IP address of your own PC. In any case, specify the IP address of the PC on which the Web Suite is running.

The service should execute and display the login page of the Web Suite.

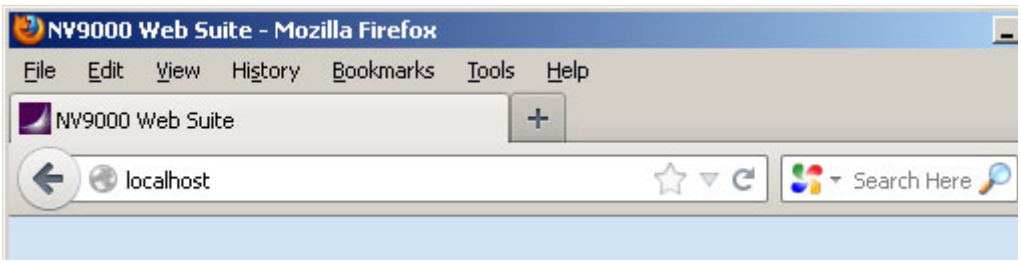
After you log in, there is one more step before the system controller's data become accessible. That will be to type the NV9000's IP address into a configuration page. See Choosing a System Controller on page 10.

Logging In

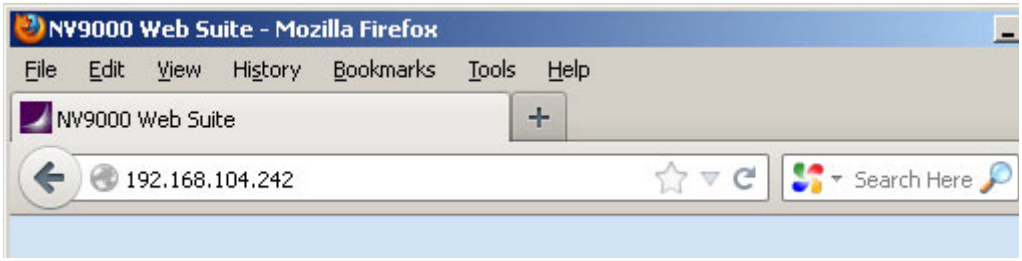
Initially, the Web Suite is empty — having no configurations and identifying no users — and the first task for administrators is to create a list of users and define at least one Web Suite configuration. (There is a default configuration.) After that task is done, the users you have named can use the Web Suite with relative ease.

1 Ensure that the PC on which the Web Suite is installed has access to the Ethernet network of the router control system you want to monitor.

2 Launch your browser and either enter "localhost" as the URL . . .



. . . or enter the IP address of a PC that is running the Web Suite service as the URL.

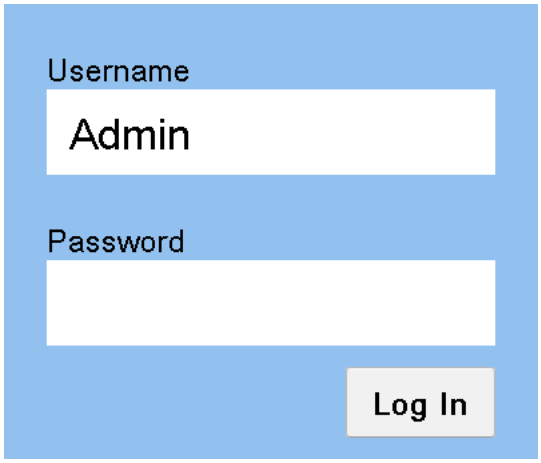


"Localhost" references your own PC. You could also enter your PC's IP address, if you know it.

If you enter the IP address of someone else's PC, you will be using the instance of the Web Suite running on that PC.

▲ Only one instance of the web suite may access DHP data at one time. See Appendix A.

3 In any case, given a valid IP address, the Web Suite presents a login dialog.



Log in using

Username = Admin
Password = nvision

"Admin" is a special user identity that exists only for the purpose of creating configurations and adding users to the Web Suite's list of users. (This identity always has admin privileges, but cannot view any of the Web Suite's status pages.)

4 First identify the system controller you want to monitor with the Web Suite.

See Choosing a System Controller, following.

5 Create at least one Web Suite "configuration."

See Creating a Configuration, following.

6 Add at least one user (to the initially empty list of users). Include yourself in this list and give yourself admin privilege.

See Adding a User on page 12.

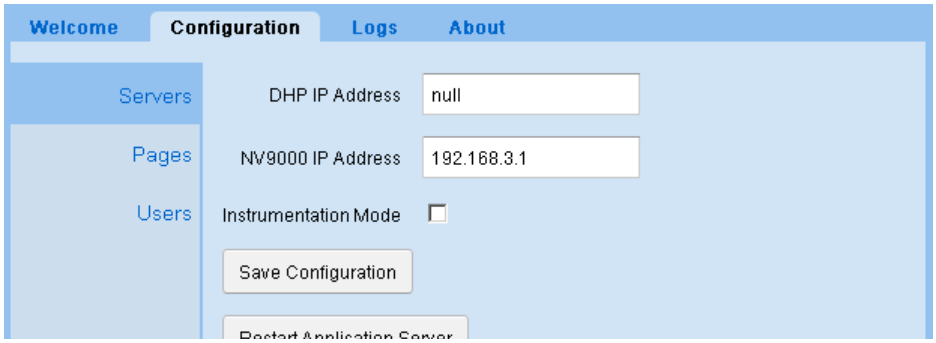
7 After you create a configuration and add one or more users, log out and log in as one of the users you added to the list of users.

You cannot view the Web Suite status pages while you are logged in as 'Admin'. You can continue to create configurations and add or delete users when you are logged in as a user having admin privilege.

Choosing a System Controller

You must first identify the system controller you want to monitor with the Web Suite.

After you have logged in as 'Admin', click the 'Configuration' tab. Then click the word 'Servers':



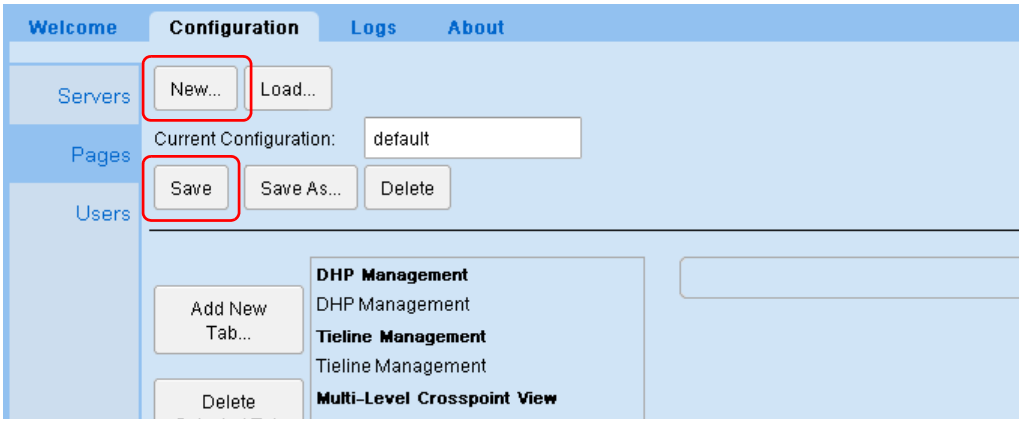
Type the IP address of the system controller or the virtual IP address of a redundant pair of system controllers in the 'NV9000 IP Address' field. (Whether your system controller is an NV960 or an NV920, its IP address goes here.)

Next, if the system controller controls a router that uses DHP, type the same IP address in the DHP IP address field. Otherwise, type "null" in that field.

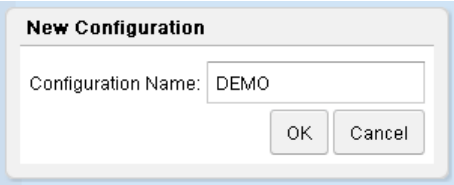
Last, click 'Save Configuration'. Saving the configuration can take several minutes. If the save takes more than a few minutes, restart your browser and reacquire the Web Suite.

Creating a Configuration

1 Choose the 'Configuration' tab and select 'Pages'



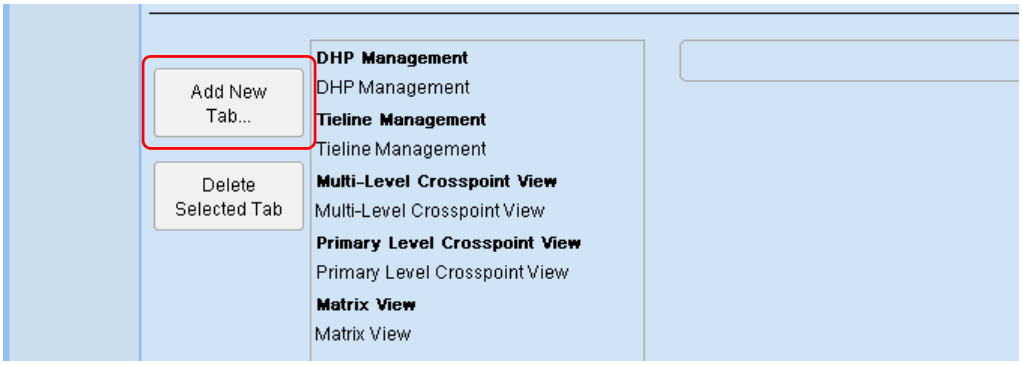
2 Click the 'New . . .' button. A 'New Configuration' dialog appears:



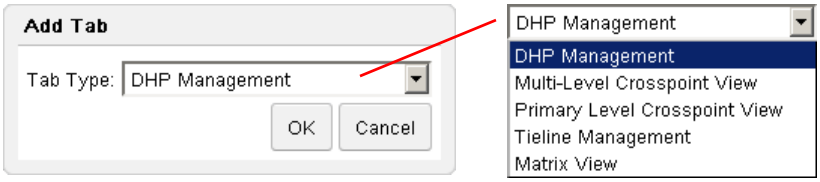
3 Enter a configuration name. Click 'OK'.

4 At this point, there is a new configuration. The configuration is empty. It defines no tabbed pages.

5 You can add tabbed pages, of 5 types, to this configuration and you can add as many of each type as you want. To add a tabbed page, click 'Add New Tab . . .' in the middle of the page:



A dialog appears in which you can select a tab type:



Choose a tab type and click 'OK'.

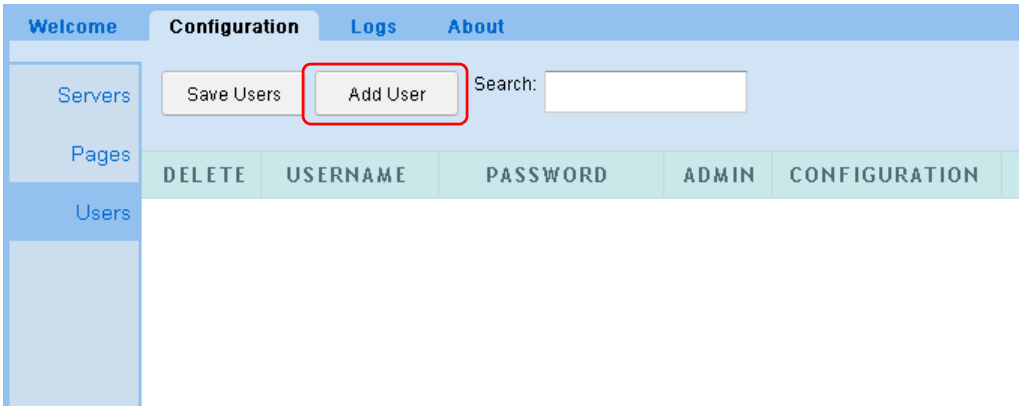
The new tab and any others you create appear in a list in the order you create them. (If you make a mistake, click on the tab's list entry and then click the 'Delete Tab' button.

6 You could edit the configuration you created, but it is not essential to do so at this time. If you wish to do so, refer to Configuration Pages on page 19 for more information.

7 Finally, click the 'Save'button.

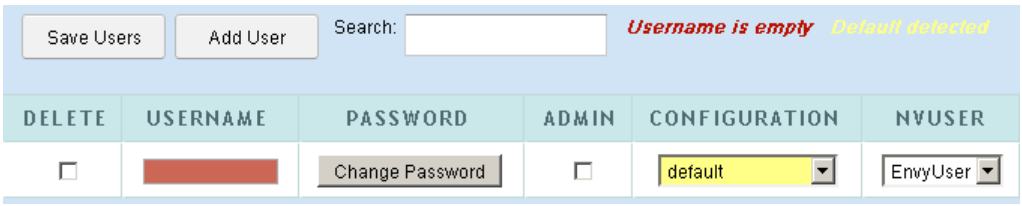
Adding a User

1 Choose the 'Configuration' tab and select 'Users':

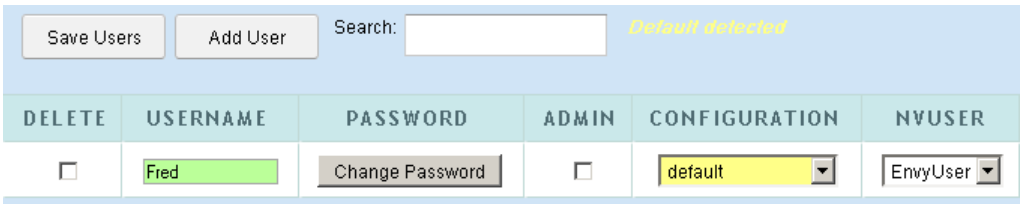


The large white area is empty at first. As you add users, it is filled with rows of data for the users you have defined.

2 Click the 'Add New User.' button. A new row appears in the table:

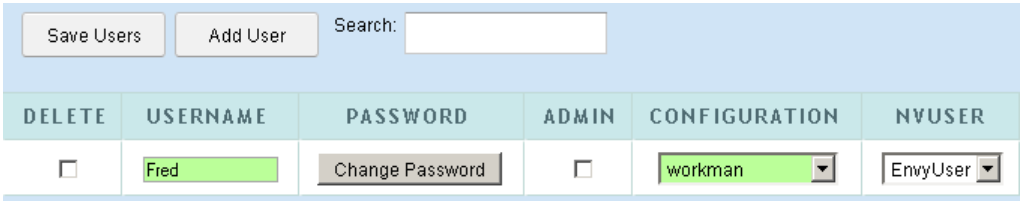


The 'Username' field is filled with red and a message appears at the top right: "Username is empty." This message is a prompt for you to click in the 'Username' field and enter a user name. When you do (and follow the entry by pressing ‹enter› or ‹tab›) the field turns green and the prompt disappears:

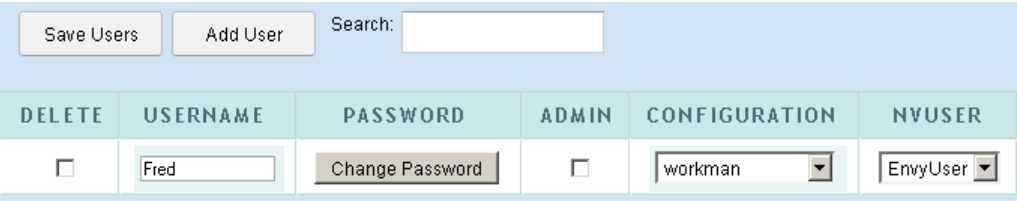


The 'Configuration' field for this user is set to the default and the field is therefore yellow. You should choose a configuration other than the default, but you are not required to do so. This field can be changed at any time.

if you do change the configuration field, the field turns green as the 'Username' field did:



3 Finally, click 'Save Users'. After a confirmation dialog, the new user data are accepted, and the display refreshes:



When multiple users are identified, the rows are ordered by user name.

4 You can also designate whether users have admin privilege in check boxes of the 'Admin' column.

Changing a Password

By default, when you add new users, they will require no password to log in.

If you want to require a password from a user, click the 'Change Password' button for that user. A dialog appears:

Enter the password, repeat it, then click OK. Click cancel if you do not want to enter a password.

▲ You cannot recover this password if you forget it. But you can always enter a new password (if you can log in with admin privilege).

User IDs

NV9000-SE Utilities allows persons configuring the router control system to define user IDs. User IDs are normally associated with control panels.

In NV9000-SE Utilities, user IDs are alphanumeric strings that usually form readable names.

The Web Suite allows you to associate any user name defined in the NV9000 router control system with a user in the list. There are drop-down lists in the NVUSER column from which you can choose a user name. The NV9000 user name and its database ID are subsequently used to indicate which user has issued a lock or a protect on destinations in the router control system.

▲ It is advisable to have all NV9000 user names defined (in NV9000-SE Utilities) and assigned (in the Web Suite) at the earliest opportunity. Users who perform locks and protects under one NV9000 user name cannot release those locks and protects if they change to a different NV9000 user name.

Saving the User List

If you made a mistake before you save, you can discard the mistake by clicking your browser's refresh button. Doing so reloads the saved user list from the NV9000 database. (The Web Suite will warn you about losing the changes you made.)

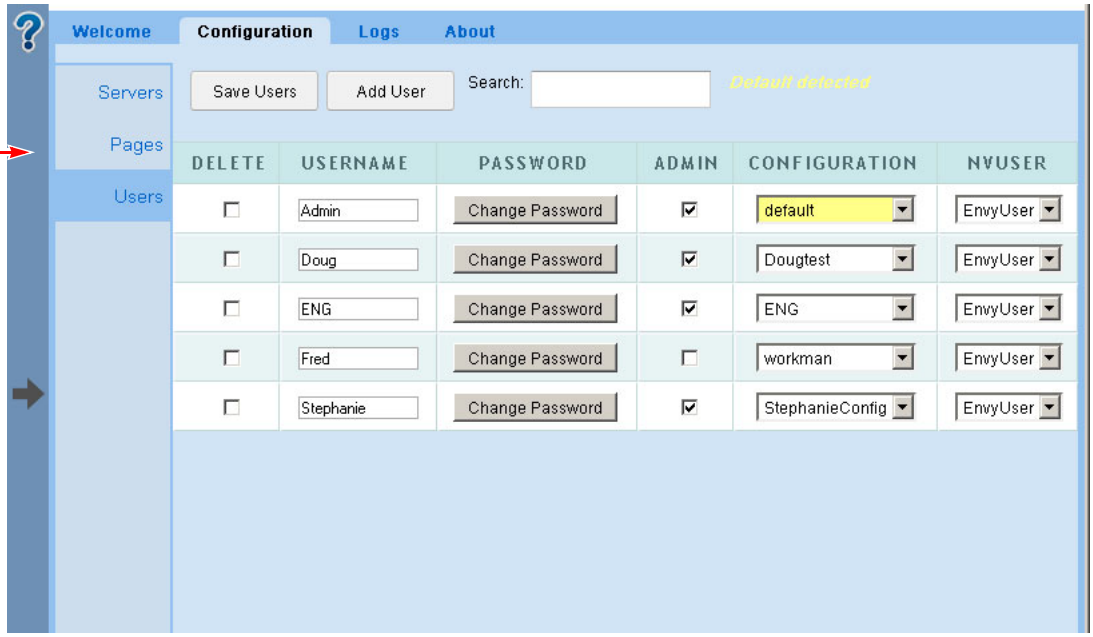
Logging Out

Log out (as Admin) and log in using your own user name and password.

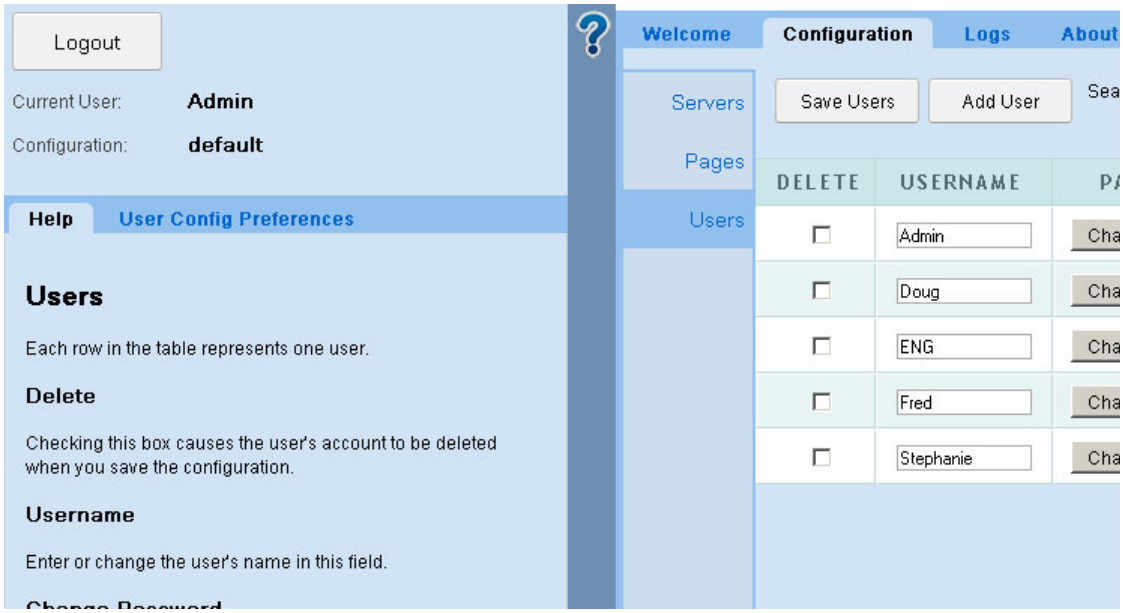
Use the expandable help pane (described next) to log out.

Help Pane

At the left side of the Web Suite window is a blue bar with a large question mark at the top and an arrow in the middle:



Click on this blue bar to expand the collapsed "sidebar" pane:



The blue bar slides to the right (when you open the pane).

If you click the bar again, it slides to the left to close the pane.

The pane presents some information about the Web Suite, principally, the user name and configuration you are currently using.

The pane also offers some help regarding the particular page in which you are working.

The pane also allows you to set certain preferences for the page in which you are working. The preferences differ according to the page. This document describes the preferences in the sections that describe that pages.

Logging Out

Click the 'Logout' button to log out. After you log out, the Web Suite immediately displays the login dialog (shown on page 9).

Usage Notes

Creating Tabbed Pages

Users with admin privilege can create new tabbed pages and modify the display options of existing pages. Refer to the 'Pages' Page on page 23 for information. The 'Pages' page can be found under the 'Options > Configuration' subtab.

Display Lists

In the multi-level configuration page, the primary level configuration page, and some of the other configuration pages, you can select a set of levels and a set of destinations and sources for display. You can use standard click, shift-click, and control-click methods to select levels or destinations in the configuration pages.

In addition, you can place the levels and destinations in lists in any arbitrary order by using the 'Move Up' and 'Move Down' buttons in those configuration pages. The move buttons affect whatever list entries you have selected.

(See Editing a Multi-Level Crosspoint Tab on page 36 and Editing a Primary Level Tab on page 41.)

Similarly, you can define a list of tielines for which to display status in a tielines page. See Editing a Tieline Tab on page 33.

Similarly, you can define a list of disembedders and a list of embedders for which to display status in a DHP page. See Editing a DHP Tab on page 28.

Ordering

In the configuration pages, it is possible to specify the ordering of entries in a displayed table. The fields for the specification of displayed lists have 'Move Up' and 'Move Down' buttons that you can use to reposition selected items within a list.

Further, users can click the header of a column in a displayed table to cause the reordering of the table according to the entries in that column. Users may click the header once to get ascending order; they may click the column again to get descending order.

Navigation

You can lose recently entered configuration data if you switch pages (without saving). *The Web Suite will warn you if you leave a page without saving data.* However, if you use the 'back' and 'forward' buttons of your browser, you can jump from page to page without losing data.

- (In most browsers) pressing backspace on you keyboard has the same effect as switching pages. Be careful not to press backspace accidentally!

Takes

When a control panel operator performs a take, and the destination affected by the take is displayed in your Web Suite window, the background of the table row or table cells for the destination turns green momentarily and then fades back to white over a period of a few seconds.

Note that this phenomenon occurs only in the multi-level and primary level views.

Locks and Protects

In the multi-level' and primary level pages, the table entries for destinations that are locked are colored red. The table entries for destinations that are protected are colored yellow.

In the matrix view, the matrix buttons (round-corner squares) are colored red for locked destinations and are colored yellow for protected destinations.

Long Dashes in Tables

For systems with routers that are offline, many table entries that would normally appear with source names (or other data) are void of data and have a long dash in the field.

Multi-level pages also show long dashes for levels that do not apply to the destinations listed on the page.

There is no way to distinguish a source that does not apply from a source that exists in a router that is offline. The best way to interpret the long dash is that it means "there is no applicable source name."

The same can be said about the string "--------" (8 dashes) in source name fields. This also means "there is no applicable source name." (The 8-dash string is generated by the system controller.)

2 Options Tab

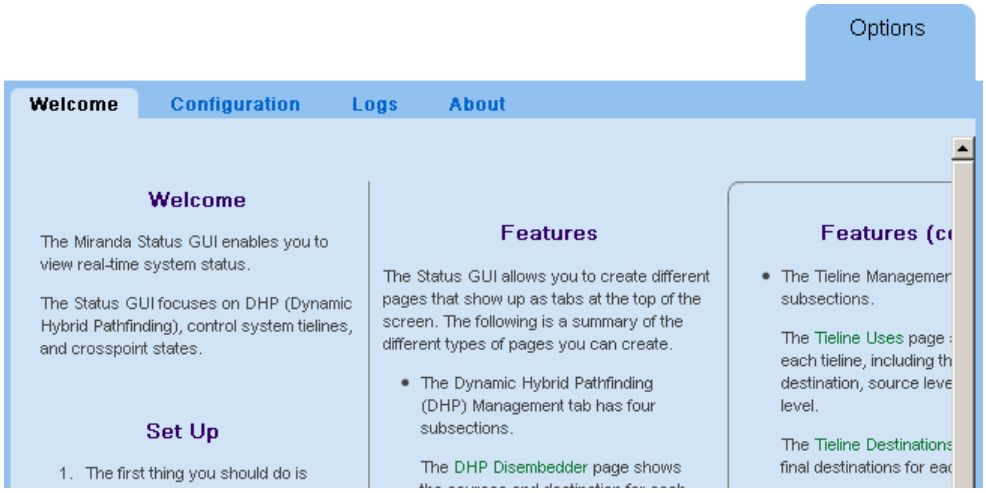
Chapter 2 provides information and instructions regarding the Web Suite's 'Options' tab.

Topics

Subtabs *17*
Configuration Pages *19*
Log Pages *55*

Subtabs

The 'Options' tab has 4 subtabs.



These are the subtabs and their pages:

- Welcome
- Configuration
- Logs
- About

Welcome

The 'Welcome' page offers brief setup instructions and brief descriptions of the various Web Suite pages.

Configuration

The 'Configuration' page allows you to create new views of NV9000 data and to customize existing views. You can create and save different Web Suite configurations.

(You must be logged in as a user with "admin" privilege to modify the Web Suite. Alternatively, you can log in as 'Admin'.)

Three Kinds of Configuration

There are 3 kinds of configuration in the 'Configuration' tab:

- Configuration of the NV9000 Web Suite (i.e., the "server").

  Changes made to your Web Suite configuration are made in the Servers Page of the 'Configuration' subtab.

  Saving changes to this type of configuration causes the NV9000 Web Suite (the "server") to restart. The restart can take several minutes.

  The "server" that is running in your browser is the one you selected in your browser. That is, it is either the service running on your PC or it is the service running on someone else's PC. (See Accessing the NV9000 Web Suite on page 8.)

- Adding and removing users.

  These configurations are created and modified in the Users Page of the 'Configuration' subtab.

  Changes to these configurations do ***not*** cause the Web Suite service to restart.

- Configuration of the Web Suite pages.

  These configurations are created and modified in the 'Pages' Page of the 'Configuration' subtab. These configurations affect the display of DHP data, tieline data, and crosspoint data. You can create many (tabbed) pages in which to view NV9000 data and there are configuration parameters for each page you create. Changes to these configurations do ***not*** cause the Web Suite service to restart.

  Every user is assigned one configuration, even if it is only the default configuration, in the Users Page of the 'Configuration' subtab. (A user with admin privilege can choose his or her own Web Suite configuration and modify the configuration as needed.)

  Changes to the data page configurations affect the display of data pages for the user in whose name you are logged in. (Generally, the page configurations are your own, but it is possible for you to be working on someone else's behalf.)

Logs

The 'Logs' subtab has 4 pages. The last page — 'Data Store' — are available only when the Web Suite is in instrumentation mode:

- Server Log

  The 'Server Log' page presents event history for the Web Suite server.

  See Server Log Page on page 56.

- Client Log

  The 'Client Log' page presents event history for the NV9000 Web Suite client.

  See Client Log Page on page 56.

- System Status

  The 'System Status' page presents statistics about the Web Suite.

  See System Status on page 55.

- Data Store

  The 'Data Store' page shows the values for data within the Web Suite.

  See Data Store Page on page 58.

About

The 'About' page presents contact information, Miranda's website address, legal notices, and the current revision number of the Web Suite.

The data presented reference the service you have selected in your browser, that is the service running on your PC.

Configuration Pages

The 'Configuration' subtab is the most important subtab of the 'Options' tab.

If you have "admin" privilege, you can add and delete Web Suite configurations, add and delete user IDs, and create new and alternate views (i.e., new tabs) of NV9000 data.

The 'Configuration' subtab has 3 pages:

- Servers

  Use this page to set up the Web Suite service you are using.

- Pages

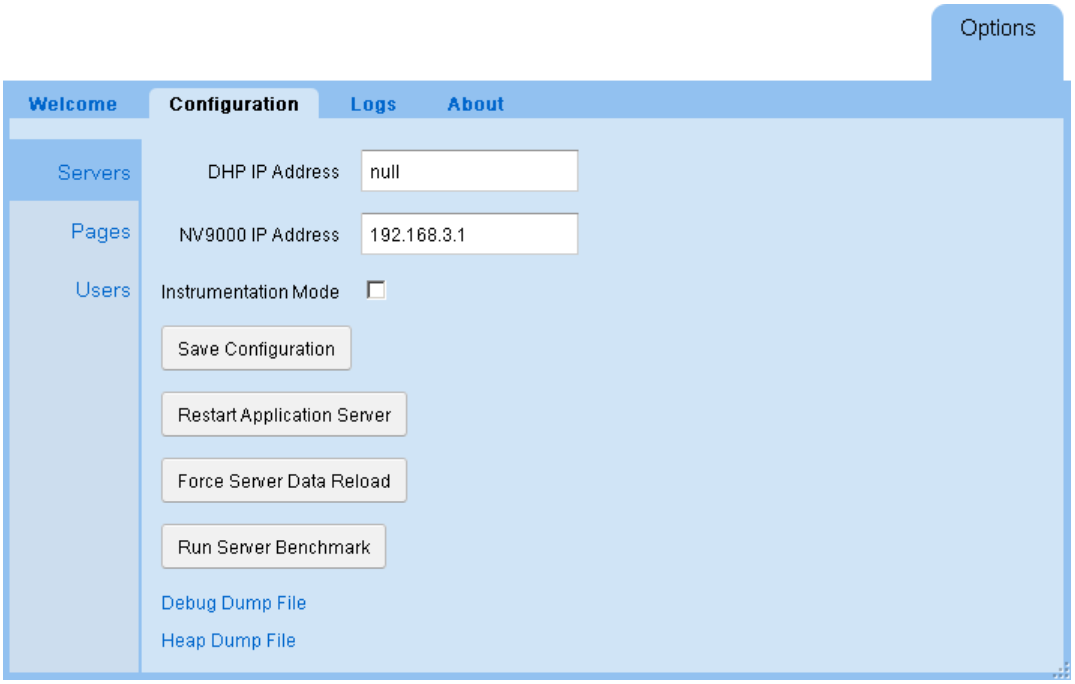
  Use this page to create new configurations, create new tabs, and to modify the views of new and existing tabs.

- Users

  Use this page to add and delete user IDs, or to change users' passwords, and to assign configurations to users.

Servers Page

The 'Servers' page lets you modify the configuration of the Web Suite service you have selected:



Use caution if you modify any of the entries in this page.

Modifications to any of these fields do not take effect until you click the 'Save Configuration' button and the Web Suite service subsequently restarts.

If you make a modification to any field, it turns green or has a green outline until you have saved the Web Suite configuration.

Note: saving the server's (i.e., the Web Suite's) state causes the server to restart. That might take several minutes.

Descriptions of the fields, buttons, and other items in this page follow.

- If you click the large blue bar at the left of the page (not shown here), the help pane expands to reveal short help messages regarding the options in this page.

NV9000 IP Address

This is the IP address of the system controller (NV960 or NV920) to which you are connected or the virtual IP address of a redundant pair of system controllers.

DHP IP Address

If your system controller supports a router that uses DHP, place the system controller's IP address in this field too. If your system controller does not support DHP, enter "null" in this field.

- Reminder: DHP allows only one Web Suite connection to be started at any time.

Instrumentation Mode

Place a check mark in this check box if you wish to place the Web Suite in "instrumentation" mode.

When the Web Suite is in instrumentation mode, all 4 of the pages of the 'Logs' subtab under the 'Options' tab are enabled. When instrumentation mode is off, only 3 logging pages are available. Instrumentation mode also enables more detailed logging.

Save Configuration Button

Click this button to save the Web Suite setup to your PC.

When you save, the Web Suite restarts and your browser refreshes. A restart can take several minutes.

Restart Application Server Button

Click this button to restart the Web Suite service you have selected. A restart can take several minutes.

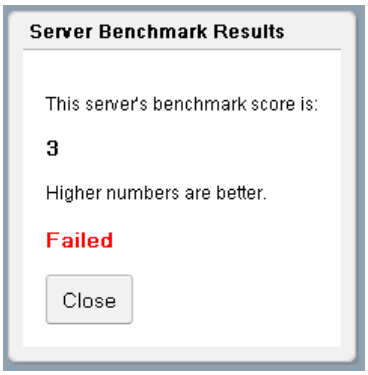
The service being restarted will be unavailable to you (or to others) during this time.

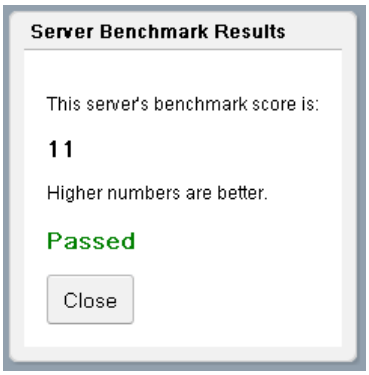
Force Server Data Reload Button

The data affected by this button are what the Web Suite displays. This button tells the server to reload all the data it collects from all sources.

Run Server Benchmark

Click this button to get a report about the performance of your Web Suite server. The report has this format:





Debug Dump Files

At the bottom of the servers page are 2 options:

- Debug dump file
- Heap dump file

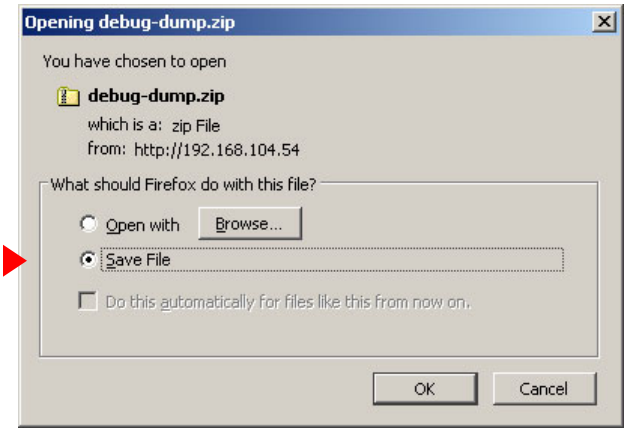
Click either option to save a dump file. The debug dump file has the extension .nvdat. The heap dump file is a .zip file.

Save these file only if you in a debug situation and in communication with a Miranda technician. You will be asked to send these files to Miranda. The data in these files are not readable. We recommend that you do not attempt to open these files after you have saved them.

The method for saving dump files varies according to the browser you are using.

Firefox Behavior

If you are using Firefox, this is the dialog that appears when you click 'Debug Dump File' or 'Heap Dump File':



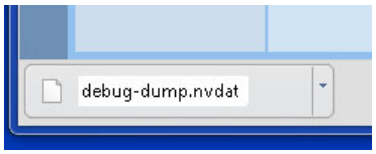
To save the debug information to a file, choose 'Save File'. Then, in the navigation dialog that follows, select a location and a name for the file.

▲ Do not choose 'Open with'.

Chrome Behavior

When you click 'Debug Dump File' or 'Heap Dump File', Chrome saves the file in a specific folder. Under Windows, the default folder is `C:\users\<username>\downloads`. Under the Mac OS, the default folder is `<diskname>/<username>/downloads`.

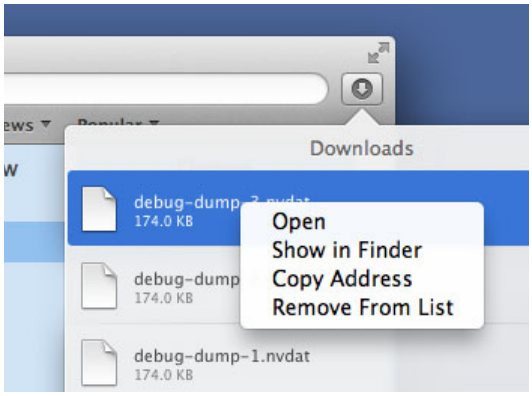
The indication that Chrome has saved the file is that it displays the file name in the lower left corner of its window:



Safari Behavior

When you click 'Debug Dump File' or 'Heap Dump File', Safari saves the file in a specific folder. The default folder is `<diskname>/<username>/downloads`.

The indication that Safari has saved the file is that it briefly displays an animation that targets its download button. If you click the download button, you will see a list of downloaded files, the dump file being among the most recent. Right-click the dump file to get a context menu:

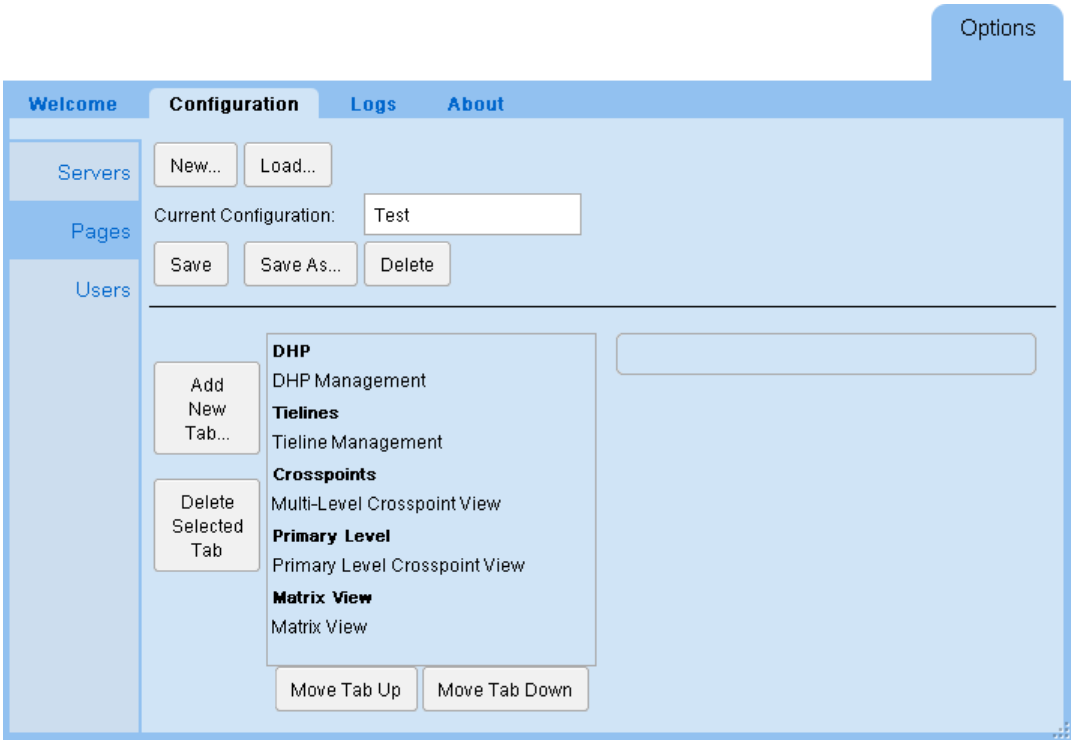


Click 'Show in Finder' in the context menu to locate the file. The OS will display a window giving the file's location.

'Pages' Page

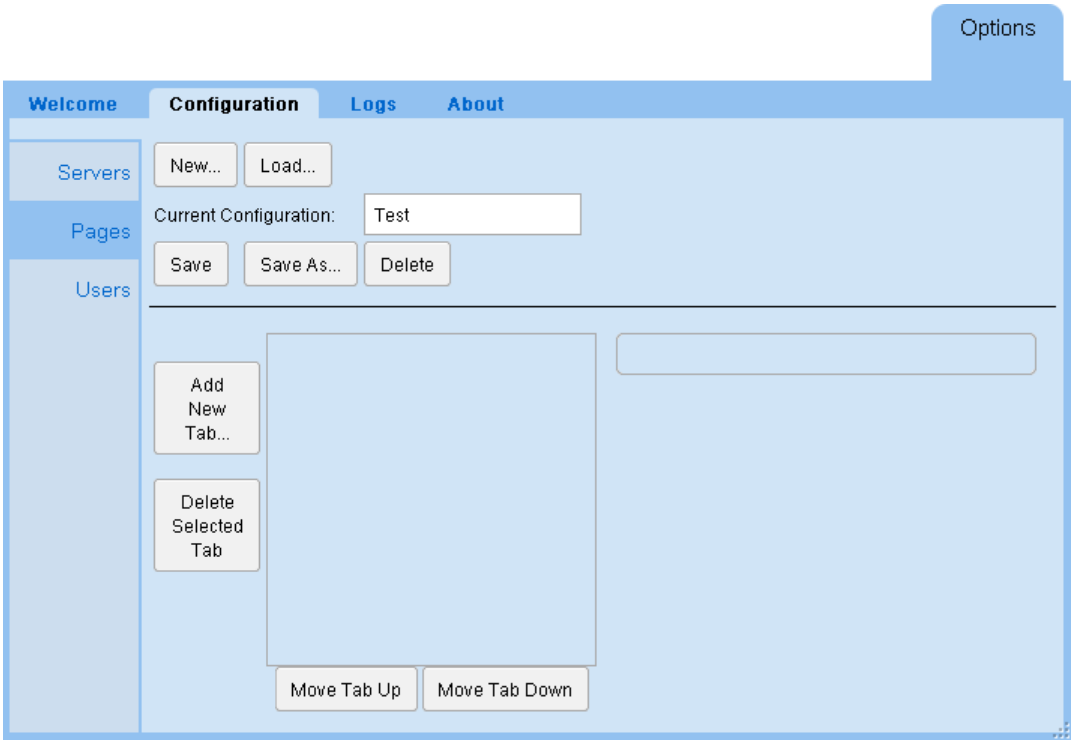
The 'Pages' page allows you (1) to create new configurations and (2) to create or modify different tabbed pages in a selected configuration. The tabbed pages show differing views of NV9000 data. (You need admin privilege to create configurations or additional tabbed pages.)

The page for the default Web Suite configuration has 5 tabs defined.



The 5 bold headings identify the 5 different page configurations in the default configuration. When you click one of the headings, the configuration options for tab that appear in the page.

The page for *new* configurations, however, is empty (i.e, it defines no tabbed pages):



The 'Add Tab . . .' button creates tabbed pages. The 'Delete Tab' button removes tabbed pages that you have created.

Managing Configurations

These are the 5 configurations buttons at the top of the 'Pages' configuration page:

- New

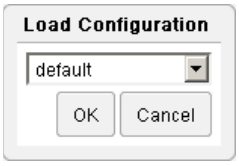
  Click this button to create a new Web Suite configuration. A dialog appears in which to specify the configuration name:

  Enter a name and click 'OK'.

  The new configuration cannot be used until you save it. After saving it, you can load it for editing or assign it to users. You can edit the configuration at any time and you can delete the configuration at any time.

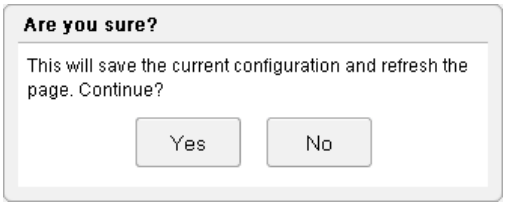
- Load . . .

  Click this button to load an existing Web Suite configuration. A dialog appears in which to specify the configuration name:



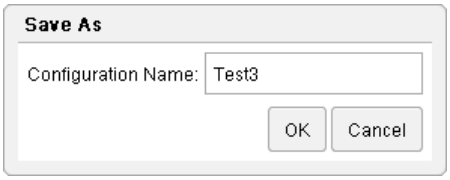
- Save

  Click this button to save the Web Suite configuration you have been editing. A dialog appears in which you must confirm that you wish to save the configuration:



- Save as . . .

  Click this button to save an existing Web Suite configuration as another configuration. You can also use this button to save a new configuration. A dialog appears in which to specify the new configuration name:



  Click 'OK'. Then respond affirmatively to the confirmation message.

- Delete

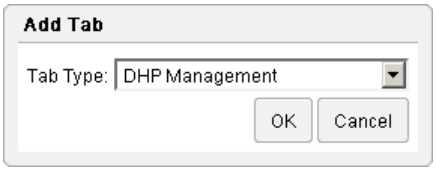
  Click this button to delete the configuration that you have loaded. Then respond affirmatively to this confirmation message:

  (If the configuration is presently assigned to a user, you will not be allowed to delete it. The message is "Error: configuration is assigned to a user — cannot delete.")

Adding Tabbed Pages

You can create additional tabbed pages and delete any that you have created.

Click 'Add Tab . . .' to create a tabbed page. A dialog appears in which you can name the page:



Choose one of the 5 tab types in the drop-down menu. These are

- DHP Management
- Tieline Management
- Multi-Level Crosspoint View
- Primary Level Crosspoint View
- Matrix View

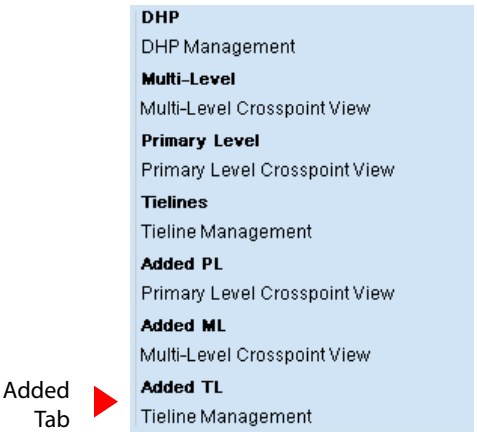
When you choose a tab type, the new tab appears at the bottom of the page list. Added (or modified) tabs are highlighted in green. Selected tabs are highlighted in blue. Click the new tab to change its name and edit its parameters:

Added Tab

You can click the 'Save' button, at the top of the screen, at any time to save the changes you have made. (Respond affirmatively to the confirmation message that appears when you save.)

(You could also click 'Save as . . .')

After you save, the newly added tab appears in the list of tabs normally, with its new name:



Ordering Tabbed Pages

You can cause the tabs to appear in your Web Suite window in any order you like.

To position a tabbed page in the ordering, click the name of the page in the list of pages. Then click the 'Move Up' or 'Move Down' button one or more times so that it is in the desired place (or near to the desired place).

▲ These are the 'Move Up' and 'Move Down' buttons directly below the tabbed page list. There are other 'Move Up' and 'Move Down' buttons elsewhere on the page. Those are for re-ordering the lists you have defined for a page.

Repeat this process for other pages until all the pages in the list are in the desired order.

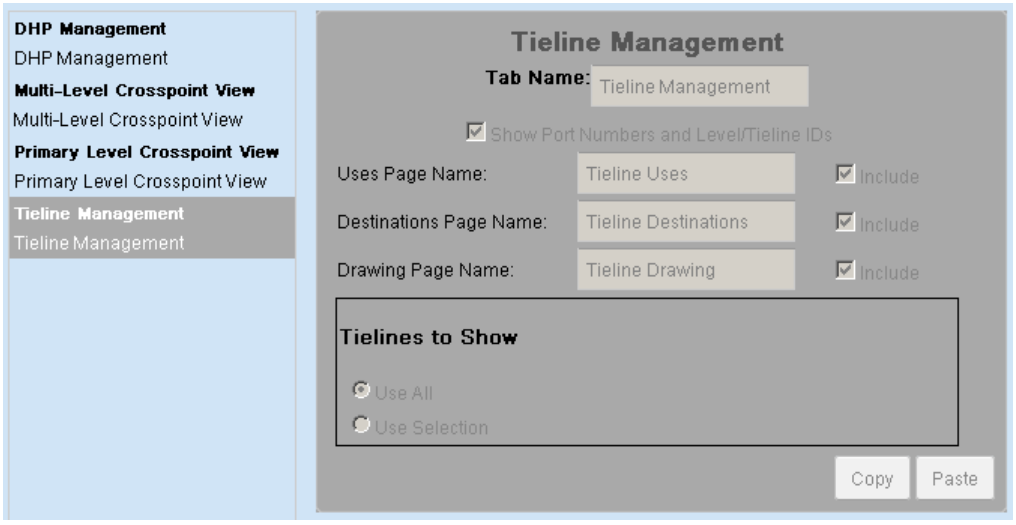
The ordering takes effect the next time you click 'Save' (or 'Save As . . .).

Deleting Tabbed Pages

Select the tab you want to delete in the list of tabs at the left.

Click the 'Delete Tab' button.

The tab and its parameter fields become highlighted in gray:



Click the 'Save' button to complete the deletion. The configuration is redisplayed, now without the tabs that were deleted.
If you change your mind about deleting a tab, there is no direct way to unselect tabs marked for deletion. To cause the tab(s) to become unselected, switch momentarily to another page of the Web Suite and return to the 'Page' page. The tabs will appear normally—unselected.

Editing a DHP Tab

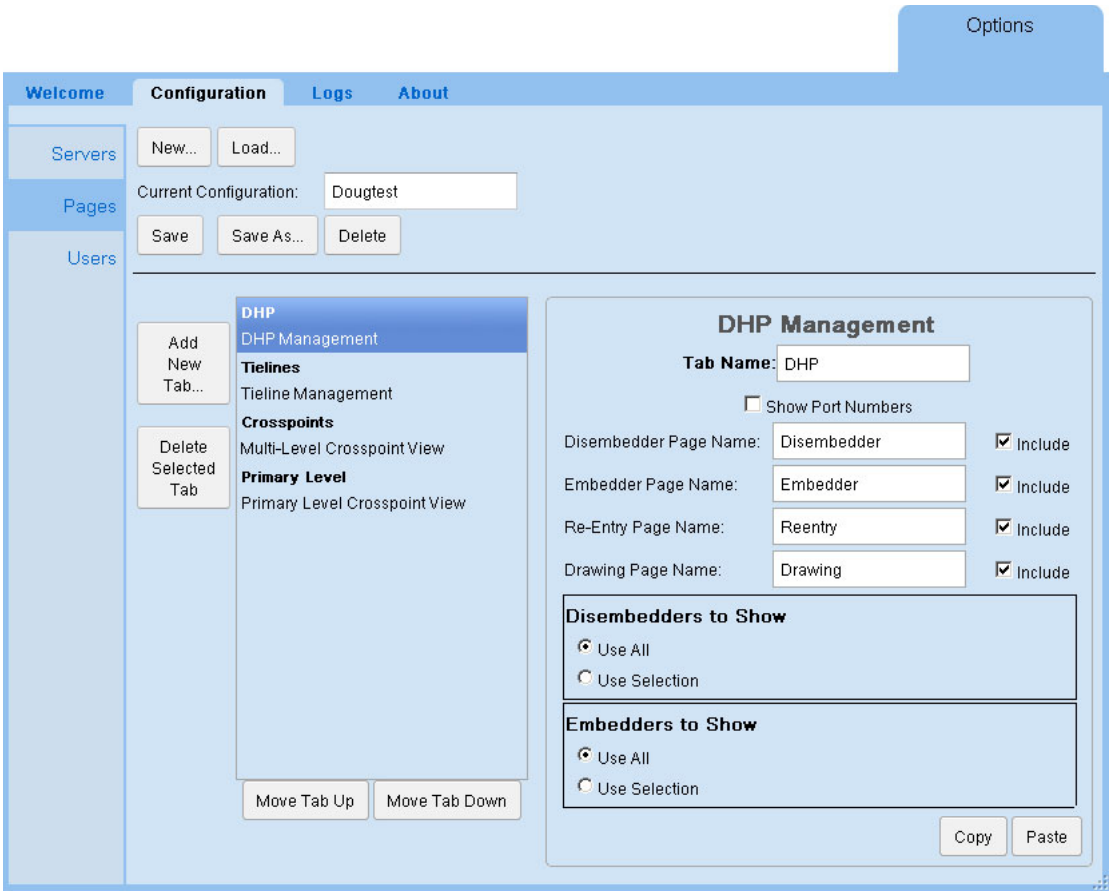
You can control the appearance and content of a DHP tab by editing its parameters in the 'Pages' configuration page.

A DHP tab has up to 4 sub tabs:

Disembedder Embedder Reentry Drawing

You can also control the appearance of any of these subtabs by indicating your preferences on the sidebar of a particular DHP subtab when the subtab is displayed. (Click the blue bar at the left of the Web Suite window to reveal the sidebar.)

Click on a DHP tab in the list of tabs at the left of the 'Pages' configuration page. The DHP tab entry becomes highlighted and the DHP tab configuration fields of the page appear:



Use the check boxes at the right to enable or disable the display of any of the four DHP subtabs.

Specify the names (or titles) of the subtabs in the fields just to the left of the check boxes. You can specify the title of the DHP tab as well.

Check the 'Show Port Numbers' check box if you want the DHP subtabs to display port numbers in addition to port names.

▲ You can click the 'Save' button at any time to retain your changes.

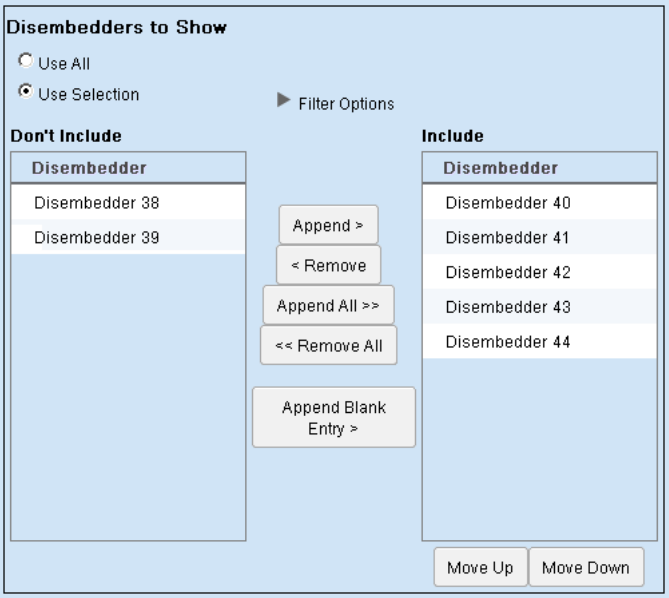
Disembedders to Show

Below the fields for the names of the DHP subtabs is a region in which you can specify for which of DHP's disembedders the Web Suite displays status. In this section are two radio buttons:

- Use All
- Use Selection

The default choice is 'Use All' as shown in the preceding illustration. In this case, the Web Suite provides status for all disembedders and embedders that are defined in the NV9000 system at the time the page is displayed.

Choose 'Use Selection' in the 'Disembedders to Show' region if you want to specify which disembedders the DHP subtabs are to report. The 'Disembedders to Show' region expands to allow you to form the disembedder selection:



The 'Use Selection' fields include filtering options. See Filter Options for Disembedders, following.

The items on the left — under "Don't Include" — are the disembedders that do ***not*** appear in the DHP subtabs.

The items on the right — under "Include" — are the disembedders that ***do*** appear in the DHP subtabs.

To move disembedders from the "Don't Include" list to the "Include" list, select one or more entries in the "Don't Include" list and click the 'Append >' button or click 'Append All >>'.

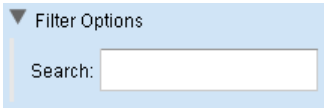
To move disembedders from the "Include" list to the "Don't Include" list, select one or more entries in the "Include" list and click the '< Remove' button or click '<< Remove All'.

Click 'Append Blank Entry' if you want to create a blank line that functions as a separator in your 'Include' list. The separator can help you organize the list. The separator also creates a blank row in the table that is displayed in the page (or pages) of the tab you are editing.

Use the 'Move Up' and 'Move Down' buttons under the "Include" list to reorder the disembedders. Select one or more disembedders in the "Include" list and click 'Move Up' or 'Move 'Down' as appropriate to create the ordering you want.

Filter Options for Disembedders

Click the triangle for the 'Filter Options' to expose the filter options:



There is one option: a 'Search' field. If you specify some text in the 'Search' field, the filter use a substring matching method: if the substring you enter as the filter appears in the disembedder name or its ID, the disembedder can be in the lists.

The filter ignores the search field if it is blank.

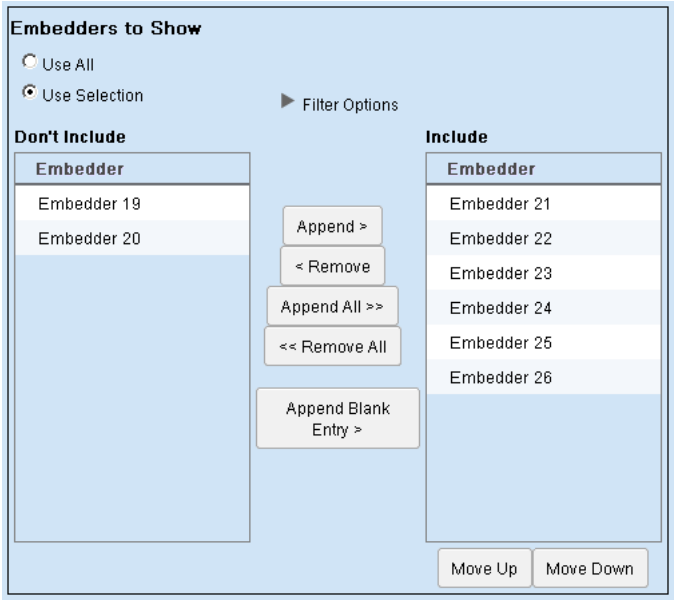
Embedders to Show

Below the fields for the names of the DHP subtabs is a region in which you can specify for which of DHP's embedders the Web Suite displays status. In this section are two radio buttons:

- Use All
- Use Selection

The default choice is 'Use All' as shown in the illustration above. In this case, the Web Suite provides status for all embedders that are defined in the NV9000 system at the time of the status report.

Choose 'Use Selection' in the 'Embedders to Show' region if you want to specify which embedders the DHP subtabs are to report. The 'Embedders to Show' region expands to allow you to form the embedder selection:



The 'Use Selection' fields include filtering options. See Filter Options for Embedders, following.

The items on the left — under "Don't Include" — are the embedders that do ***not*** appear in the DHP subtabs. The items on the right — under "Include" — are the embedders that ***do*** appear in the DHP subtabs.

To move embedders from the "Don't Include" list to the "Include" list, select one or more entries in the "Don't Include" list and click the 'Append >' button or click 'Append All >>'.

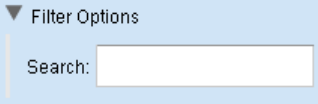
To move embedders from the "Include" list to the "Don't Include" list, select one or more entries in the "Include" list and click the '< Remove' button or click '<< Remove All'.

Click 'Append Blank Entry' if you want to create a blank line that functions as a separator in your 'Include' list. The separator can help you organize the list. The separator also creates a blank row in the table that is displayed in the page (or pages) of the tab you are editing.

Use the 'Move Up' and 'Move Down' buttons under the "Include" list to reorder the embedders. Select one or more embedders in the "Include" list and click 'Move Up' or 'Move 'Down' as appropriate to create the ordering you want.

Filter Options for Embedders

Click the triangle for the 'Filter Options' to expose the options:



There is one option: a 'Search' field. If you specify some text in the 'Search' field, the filter use a substring matching method: if the substring you enter as the filter appears in the embedder name or its ID, the embedder can be in the lists.

The filter ignores the search field if it is blank.

Copy and Paste Buttons

The 'Copy' and 'Paste' buttons allow you to transfer page configuration data from one tab to another tab.

It is ***not*** possible to copy the lists from the Web Suite to another application such as Notepad or Excel.

- Data for the configuration of DHP pages are not applicable in any other Web Suite page. Although you can "copy" DHP data, the 'Paste' button remains disabled in all other pages.

Editing a Tieline Tab

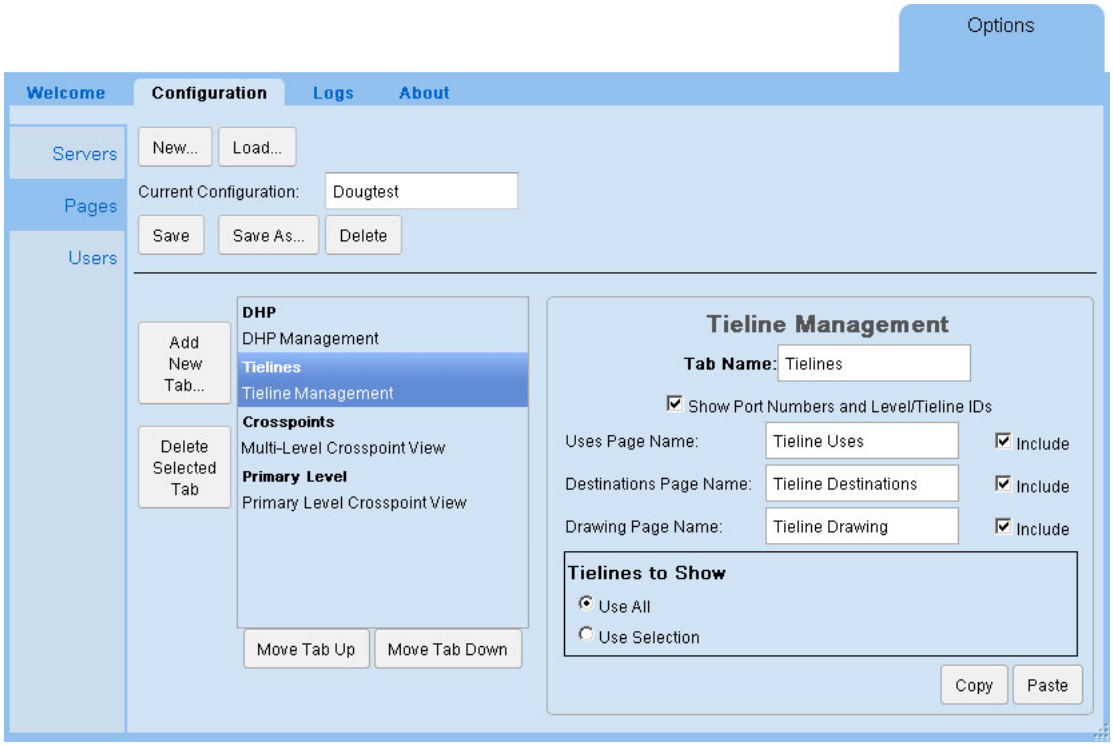
You can control the appearance and content of a tieline tab by editing its parameters in the 'Pages' configuration page.

A tieline tab has up to 3 sub tabs:

Tieline Uses Tieline Destinations Tieline Drawings

You can also control the appearance of any of these subtabs by indicating your preferences on the sidebar of a particular tieline subtab when the subtab is selected. (Click the blue bar at the left of the Web Suite window to reveal the sidebar.)

Click on a tieline tab in the list of tabs at the left of the 'Pages' configuration page. The tieline tab entry becomes highlighted and the tieline tab configuration fields of the page appear:



Use the check boxes to enable or disable the display of any of the three tieline subtabs.

Specify the names (or titles) of the subtabs in the fields just to the left of the check boxes. You can specify the name of the tieline tab as well.

Check the 'Show Port Numbers and Level/Tieline IDs' check box if you want the subtabs to display port numbers in addition to port names and level IDs and tieline IDs.

▲ You can click the 'Save' button at any time to retain your changes.

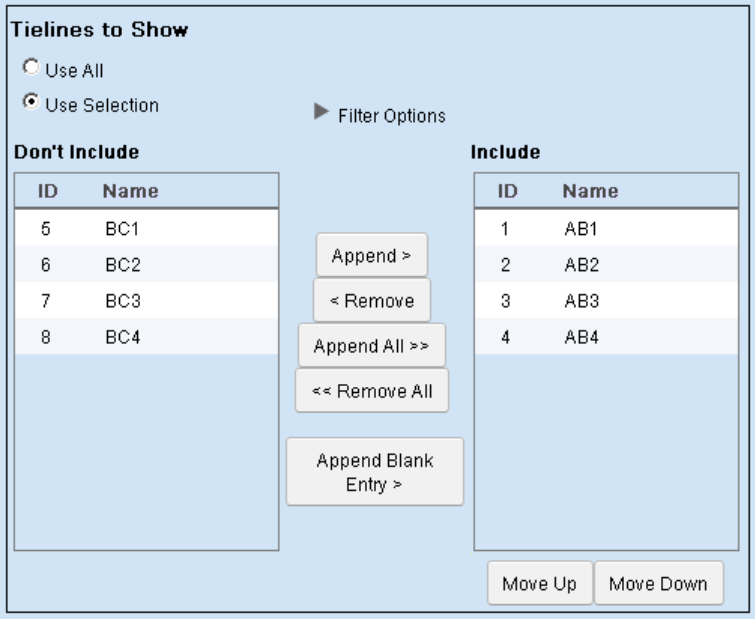
Tielines to Show

Below the fields for the names of the tieline subtabs is a region in which you can specify for which tielines the NV9000 Web Suite displays status. In this section are two radio buttons:

- Use All
- Use Selection

The default choice is 'Use All' as shown in the illustration above. In this case, the Web Suite provides status for all tielines that are defined in the NV9000 system at the time the page is displayed.

Choose 'Use Selection' in the 'Tielines to Show' region if you want to specify which tielines the tielines tab is to report. The 'Tielines to Show' region expands to allow you to form the tieline selection:



The 'Use Selection' fields include filtering options. See Filter Options for Tielines, following.

The items on the left — under "Don't Include" — are the tielines that do ***not*** appear in the tielines tab.

The items on the right — under "Include" — are the tielines that ***do*** appear in the tielines tab.

To move tielines from the "Don't Include" list to the "Include" list, select one or more entries in the "Don't Include" list and click the 'Append >' button or click 'Append All >>'.

To move tielines from the "Include" list to the "Don't Include" list, select one or more entries in the "Include" list and click the '< Remove' button or click '<< Remove All'.

Click 'Append Blank Entry' if you want to create a blank line that functions as a separator in your 'Include' list. The separator can help you organize the list. The separator also creates a blank row in the table that is displayed in the page (or pages) of the tab you are editing.

Use the 'Move Up' and 'Move Down' buttons under the "Include" list to reorder the tielines. Select one or more tielines in the "Include" list and click 'Move Up' or 'Move 'Down' as appropriate to create the ordering you want.

Filter Options for Tielines

Click the triangle for the 'Filter Options' to expose the options:

The filter has 2 parts: a tieline is included in the lists if it meets both criteria.

If you specify some text in the 'Search' field, the filter use a substring matching method: if the substring you enter as the filter appears in the tieline name or its ID, the tieline can be in the lists.

If you choose a tieline group in the 'Tieline Group' drop-down list, the list is restricted to those tielines that belong to the specified group.

The filter ignores the search field if it is blank. It ignores the group criterion if you choose 'Display All'.

- Note that your system might not have tieline groups. In that case, 'Display All' is the only option in the drop-down list.

Copy and Paste Buttons

The 'Copy' and 'Paste' buttons allow you to transfer page configuration data from one tab to another tab.

It is ***not*** possible to copy the lists from the Web Suite to another application such as Notepad or Excel.

- Data for the configuration of tieline pages are not applicable in any other Web Suite page. Although you can "copy" tieline data, the 'Paste' button remains disabled in all other pages.

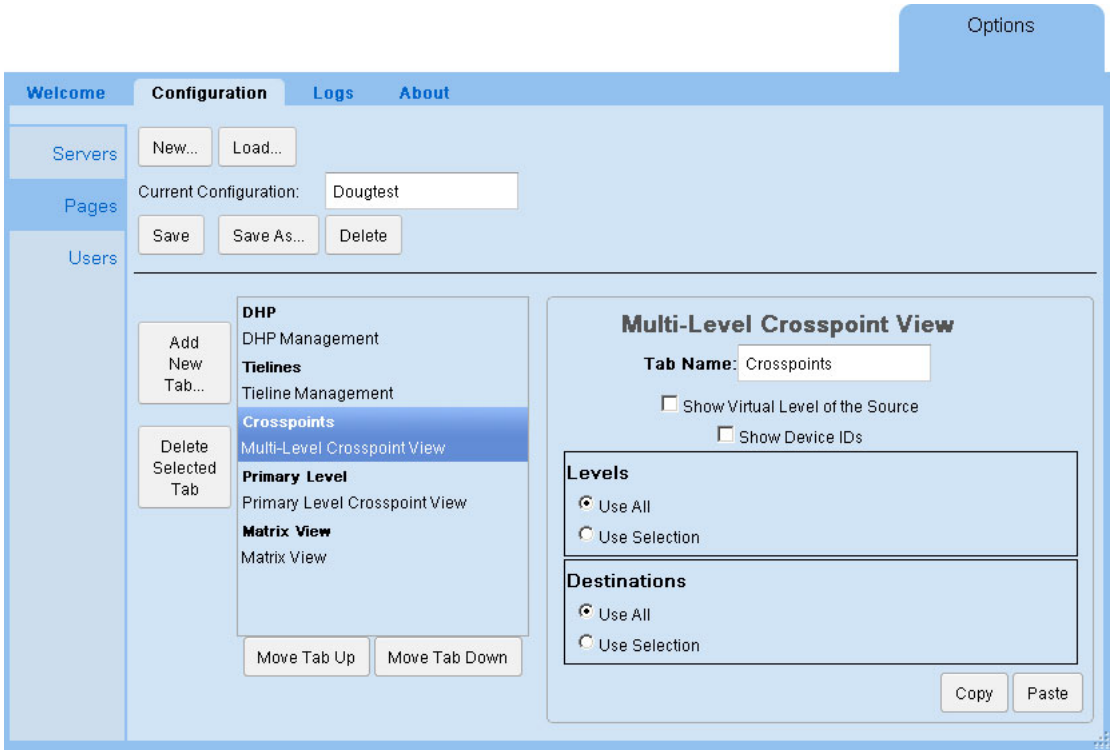
Editing a Multi-Level Crosspoint Tab

You can control the appearance and content of a multi-level crosspoint tab by editing its parameters in the 'Pages' configuration page.

A multi-level crosspoint tab has no subtabs.

You can also control the appearance of the tab by indicating your preferences on the sidebar of when the tab is selected. (Click the blue bar at the left of the Web Suite window to reveal the sidebar.)

To edit a multi-level crosspoint tab, click on a multi-level crosspoint tab in the list of tabs at the left of the 'Pages' configuration page. The multi-level crosspoint tab entry becomes highlighted and the multi-level configuration fields of the page appear:



You can specify the name (or title) of the multi-level crosspoint tab.

There are several editing options. There are two check boxes that control how sources are displayed. There are 4 radio buttons in two regions.

The first region is for the levels that this particular multi-level page displays. The multi-level page can display data either for all levels or for selected levels. (There is a table *column* for each level displayed.) If you choose 'Use Selection', the region expands to allow you to form the level selection. See Level Selection, following.

The second region is for the destinations to be displayed. The page can display data for all destinations or for selected destinations. (There is a table *row* for each destination displayed.) If you choose 'Use Selection' in this region, the region expands to allow you to form the destination selection. See Destination Selection, following.

▲ You can click the 'Save' button at any time to retain your changes.

Source Options

There are two check boxes that control how sources are displayed:

- Show Virtual Level of the Source.
- Show Device IDs.

These options are unchecked by default.

The rows of the table in a multi-level display represent destinations. The columns of the table represent the *destinations'* virtual levels.

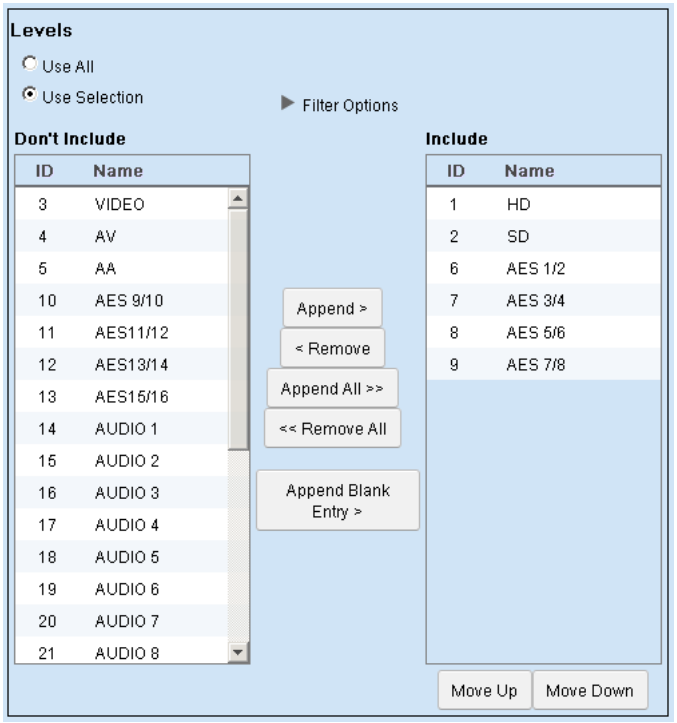
The 'Show Virtual Level of the Source' check box causes the name of the virtual level of the source to appear in (non-null) table entries. This is useful for breakaway situations.

The 'Show Device IDs' check box causes the NV9000 device ID to appear in the (non-null) table entries. Device IDs are useful if the NV9000 configuration has duplicate source names. Device IDs cannot ever be duplicated.

Level Selection

Choose 'Use All' in the 'Levels' region if you want the multi-level display to report sources for all NV9000 virtual levels, regardless of what those levels are. The NV9000 configuration could change, adding or deleting virtual levels, and your multi-level page will adjust.

Choose 'Use Selection' in the 'Levels' region if you want to specify which levels the table is to report. The 'Levels' region expands to allow you to form the level selection:



The 'Use Selection' fields include filtering options. See Filter Options for Levels, following.

The items on the left — under "Don't Include" — are the virtual levels that do ***not*** appear in the multi-level page.

The items on the right — under "Include" — are the virtual levels that ***do*** appear in the multi-level page.

To move levels from the "Don't Include" list to the "Include" list, select one or more entries in the "Don't Include" list and click the 'Append >' button or click 'Append All >>'.

To move levels from the "Include" list to the "Don't Include" list, select one or more entries in the "Include" list and click the '< Remove' button or click '<< Remove All'.

Click 'Append Blank Entry' if you want to create a blank line that functions as a separator in your 'Include' list. The separator can help you organize the list. The separator also creates a blank row in the table that is displayed in the page (or pages) of the tab you are editing.

Use the 'Move Up' and 'Move Down' buttons under the "Include" list to reorder the virtual levels (i.e., the table *columns*). Select one or more levels in the "Include" list and click 'Move Up' or 'Move 'Down' as appropriate to create the ordering you want.

Filter Options for Levels

Click the triangle for the 'Filter Options' to expose the options:

The filter has 2 parts: a level is included in the lists if it meets both criteria.

If you specify some text in the 'Search' field, the filter use a substring matching method: if the substring you enter as the filter appears in the level name or its ID, the level can be in the lists.

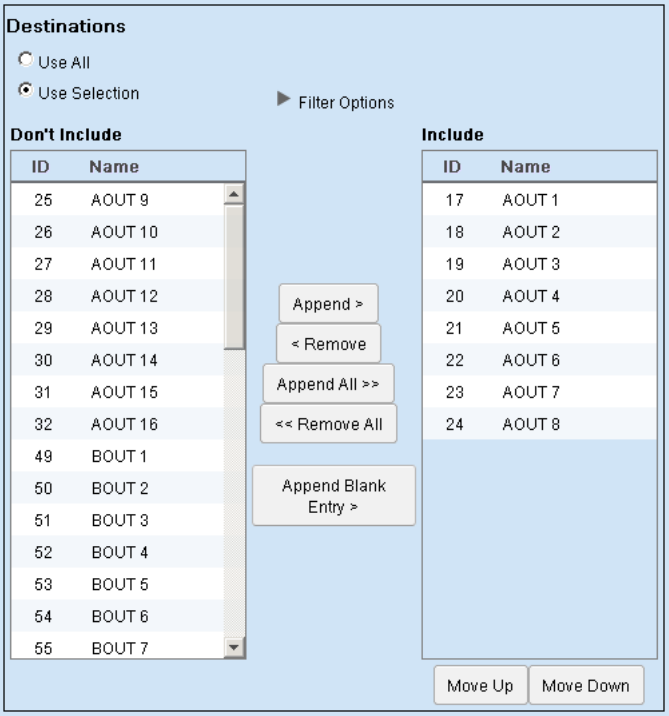
If you choose a level set in the 'Level Set' drop-down list, the list is restricted to those levels that belong to the level set.

The filter ignores the search field if it is blank. It ignores the level set criterion if you choose 'Display All'.

Destination Selection

Choose 'Use All' in the 'Destinations' region if you want the multi-level display to report all NV9000 destinations, regardless of what those destinations are. The NV9000 configuration could change, adding or deleting destinations, and your multi-level page will adjust.

Choose 'Use Selection' in the 'Destinations' region if you want to specify which destinations the table is to report. The 'Destinations' region expands to allow you to form the destination selection:



The 'Use Selection' fields include filtering options. See Filter Options for Destinations, following.

The items on the left — under "Don't Include" — are the destinations that do ***not*** appear in the multi-level page.

The items on the right — under "Include" — are the destinations that ***do*** appear in the multi-level page.

To move destinations from the "Don't Include" list to the "Include" list, select one or more entries in the "Don't Include" list and click the 'Append >' button or click 'Append All >>'.

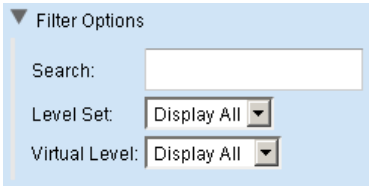
To move destinations from the "Include" list to the "Don't Include" list, select one or more entries in the "Include" list and click the '< Remove' button or click '<< Remove All'.

Click 'Append Blank Entry' if you want to create a blank line that functions as a separator in your 'Include' list. The separator can help you organize the list. The separator also creates a blank row in the table that is displayed in the page (or pages) of the tab you are editing.

Use the 'Move Up' and 'Move Down' buttons under the "Include" list to reorder the destinations (i.e., the table *rows*). Select one or more destinations in the "Include" list and click 'Move Up' or 'Move 'Down' as appropriate to create the ordering you want.

Filter Options for Destinations

Click the triangle for the 'Filter Options' to expose the options:



The filter has 3 parts: a destination is included in the lists if it meets all 3 criteria.

If you specify some text in the 'Search' field, the filter use a substring matching method: if the substring you enter as the filter appears in the destination name or its ID, the destination can be in the lists.

If you choose a level set in the 'Level Set' drop-down list, the list is restricted to those destination devices that are associated with the level set.

If you choose a virtual level in the 'Virtual Level' drop-down list, the list is restricted to those destination devices that include the virtual level in their level set.

The filter ignores the search field if it is blank. It ignores the level set criterion if you choose 'Display All'. It ignores the virtual level criterion if you choose 'Display All' for that.

Copy and Paste Buttons

The 'Copy' and 'Paste' buttons allow you to transfer page configuration data from one tab to another tab.

When you click 'Copy', all configuration data for that page — all option flags, all 'Don't Include' lists, all 'Include' lists — are captured in a private buffer ready for pasting elsewhere.

When you click 'Paste', presumably in another page, all applicable data are transferred from the private buffer to the fields of the page. Data in the buffer that do not apply to the page are not transferred.

Data that were present in the fields that are affected by the 'Paste' operation are overwritten. Fields not applicable to the 'Paste' are not affected.

It is ***not*** possible to copy the lists from the Web Suite to another application such as Notepad or Excel.

- Data for the configuration of multi-level pages are not applicable in DHP or tieline pages. Although you use the 'Copy' button, the 'Paste' button remains disabled in those pages. Portions of the data from multi-level pages are applicable to primary level pages and matrix views. These data can be copied.

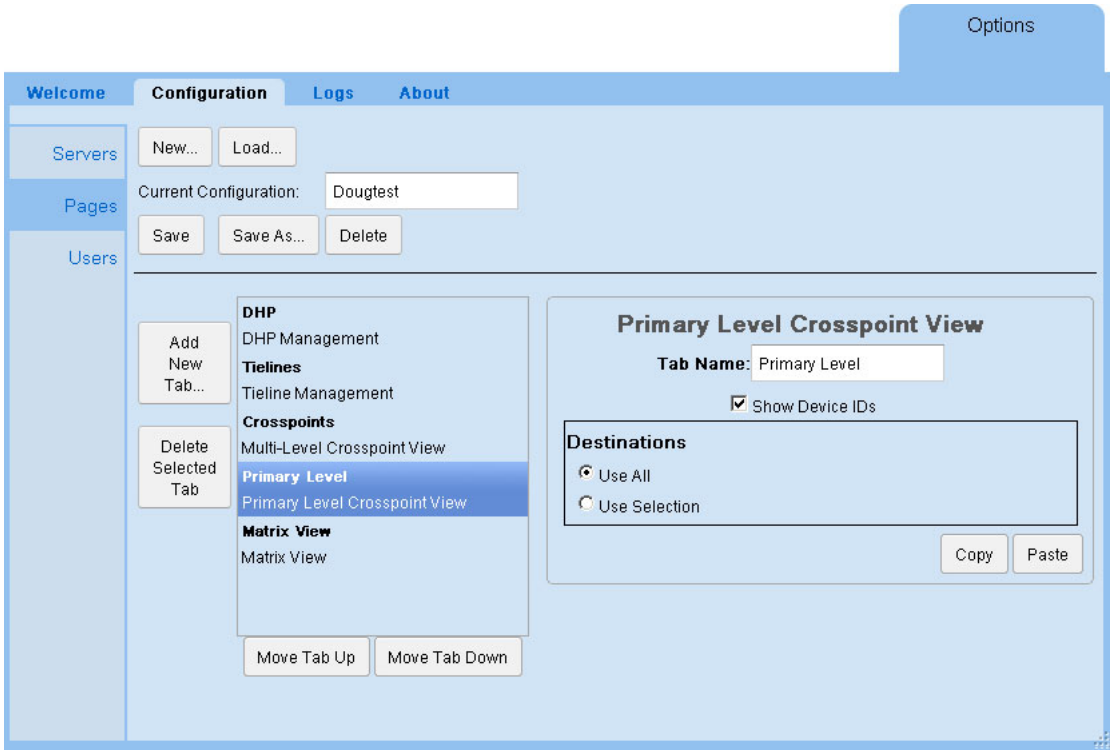
Editing a Primary Level Tab

You can control the appearance and content of a primary level crosspoint tab by editing its parameters in the 'Pages' configuration page.

A primary level crosspoint tab has no subtabs.

You can also control the appearance of the tab by indicating your preferences on the sidebar of when the tab is selected. (Click the blue bar at the left of the Web Suite window to reveal the sidebar.)

To edit a primary level crosspoint tab, click on a primary level tab in the list of tabs at the left of the 'Pages' configuration page. The primary level tab entry becomes highlighted and the primary level tab configuration fields of the page appear:



You can specify the name (or title) of the primary level tab.

- The primary level page displays destination/source pairs. The source paired with the destination is the source routed to the destination on the destination's *primary level*.
- The number of destination/source pairs displayed in the primary level tab can be specified in the preferences for that tab.

There are several editing options.

Checking the 'Show Device IDs' check box causes the NV9000 device ID to appear in the (non-null) table entries. Device IDs are useful if the NV9000 configuration has duplicate source names. Device IDs are never duplicated.

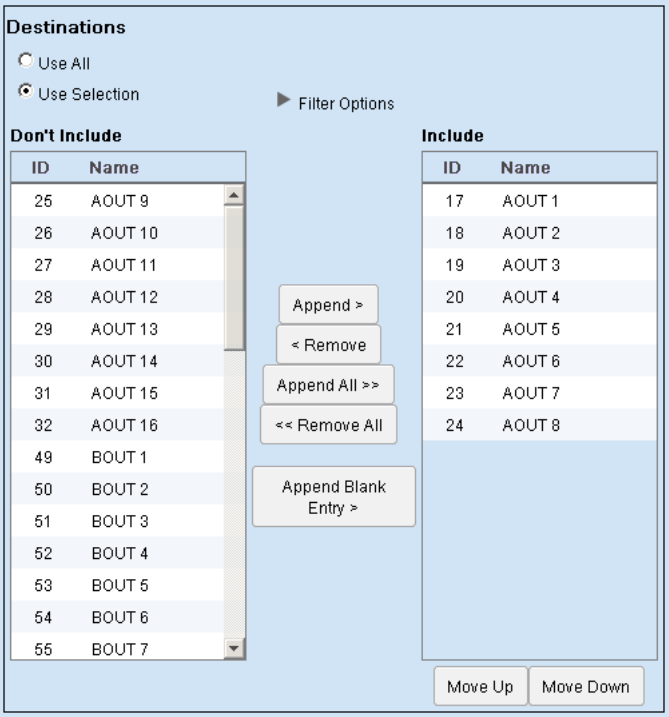
The 'Destinations' region is for the destinations to be displayed. The page can display data for all destinations or for selected destinations. If you choose 'Use Selection', the region expands to allow you to form the destination selection. See Destination Selection, following.

- You can click the 'Save' button at any time to retain your changes.

Destination Selection

Choose 'Use All' in the 'Destinations' region if you want the primary level display to report all NV9000 destinations, regardless of what those destinations are. The NV9000 configuration could change, adding or deleting destinations, and your primary level page will adjust.

Choose 'Use Selection' in the 'Destinations' region if you want specify which destinations the table is to report. The 'Destinations' region expands to allow you to form the destination selection:



The 'Use Selection' fields include filtering options. See Filter Options for Destinations, following.

The items on the left — under "Don't Include" — are the destinations that do ***not*** appear in the multi-level page.

The items on the right — under "Include" — are the destinations that ***do*** appear in the multi-level page.

To move destinations from the "Don't Include" list to the "Include" list, select one or more entries in the "Don't Include" list and click the 'Append >' button or click 'Append All >>'.

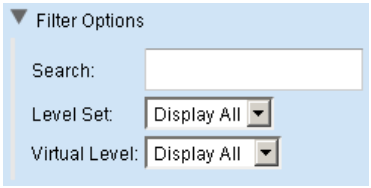
To move destinations from the "Include" list to the "Don't Include" list, select one or more entries in the "Include" list and click the '< Remove' button or click '<< Remove All'.

Click 'Append Blank Entry' if you want to create a blank line that functions as a separator in your 'Include' list. The separator can help you organize the list. The separator also creates a blank row in the table that is displayed in the page (or pages) of the tab you are editing.

Use the 'Move Up' and 'Move Down' buttons under the "Include" list to reorder the destinations (i.e., the table *rows*). Select one or more destinations in the "Include" list and click 'Move Up' or 'Move 'Down' as appropriate to create the ordering you want.

Filter Options for Destinations

Click the triangle for the 'Filter Options' to expose the options:



The filter has 3 parts: a destination is included in the lists if it meets all 3 criteria.

If you specify some text in the 'Search' field, the filter use a substring matching method: if the substring you enter as the filter appears in the destination name or its ID, the destination can be in the lists.

If you choose a level set in the 'Level Set' drop-down list, the list is restricted to those destination devices that are associated with the level set.

If you choose a virtual level in the 'Virtual Level' drop-down list, the list is restricted to those destination devices that include the virtual level in their level set.

The filter ignores the search field if it is blank. It ignores the level set criterion if you choose 'Display All'. It ignores the virtual level criterion if you choose 'Display All' for that.

Copy and Paste Buttons

The 'Copy' and 'Paste' buttons allow you to transfer page configuration data from one tab to another tab.

When you click 'Copy', all configuration data for that page — all option flags, all 'Don't Include' lists, all 'Include' lists — are captured in a private buffer ready for pasting elsewhere.

When you click 'Paste', presumably in another page, all applicable data are transferred from the private buffer to the fields of the page. Data in the buffer that do not apply to the page are not transferred.

Data that were present in the fields that are affected by the 'Paste' operation are overwritten. Fields not applicable to the 'Paste' are not affected.

It is ***not*** possible to copy the lists from the Web Suite to another application such as Notepad or Excel.

- Data for the configuration of primary level pages are not applicable in DHP or tieline pages. Although you use the 'Copy' button, the 'Paste' button remains disabled in those pages. Portions of the data from primary level pages are applicable to multi-level pages and matrix views. These data can be copied.

Editing a Matrix View Tab

You can control the appearance and content of a matrix view tab by editing its parameters in the 'Pages' configuration page.

The matrix view presents a two-dimensional grid. The horizontal axis represents sources in the router control system. The vertical axis represents destinations. If your router control system has M sources and N destinations, then the view shows an M × N grid.

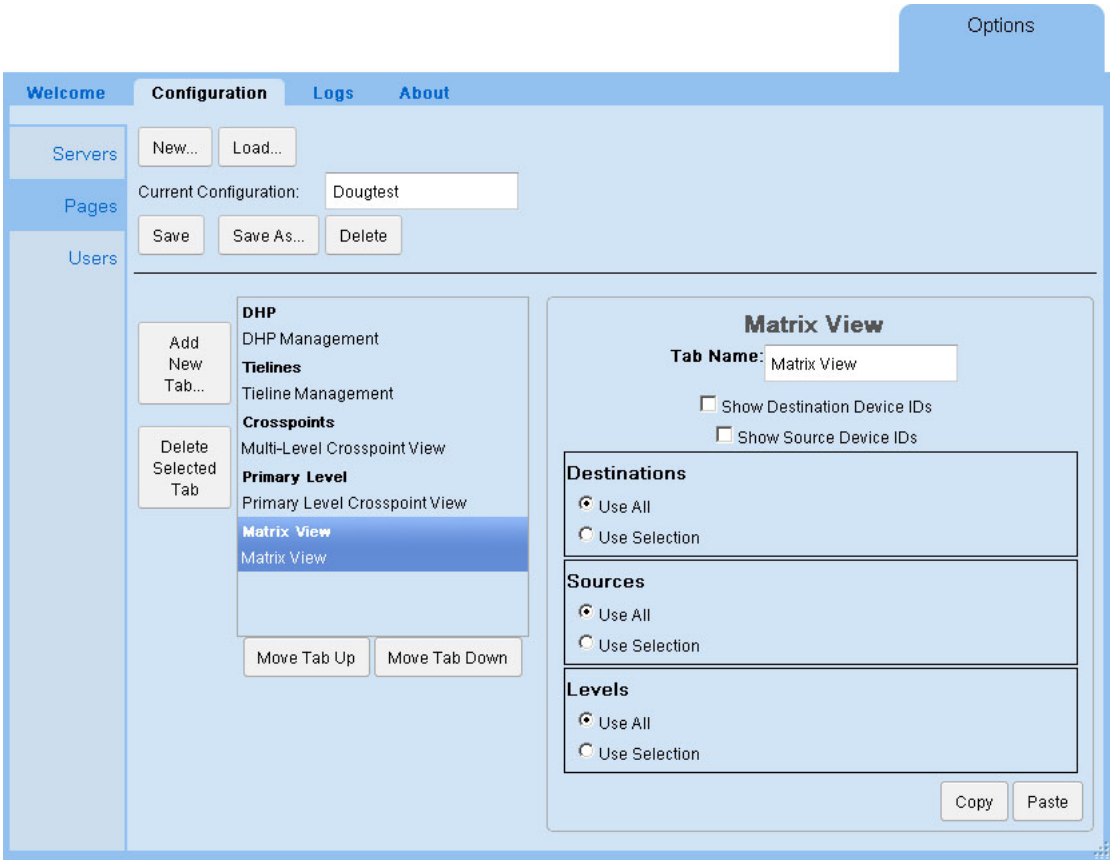
The square button at each point in the grid represents a crosspoint in a conceptual matrix. Clicking a square button performs a take at that crosspoint on the levels you have selected.

- The matrix is not the physical crosspoint matrix of any particular router.
- A third axis of the grid represents levels. Although you can't see the third axis, the buttons show the effect of the third axis. The buttons at each point in the grid show the logical OR of takes on the levels you have selected for viewing. That is, a button is highlighted if there is a take on any of the levels at that (cross)point.

A matrix view has no subtabs. But unlike other tabbed pages, it is interactive: you can perform takes, locks, and protects, set up breakaway and level mapping for takes, and release locks and protects.

You can also control the appearance of the tab by indicating your preferences in the sidebar when the tab is selected. (Click the blue bar at the left of the Web Suite window to reveal the sidebar.)

To edit a matrix view, click on a matrix view tab in the list of tabs at the left of the 'Pages' configuration page. The matrix view tab entry becomes highlighted and the matrix view tab configuration fields of the page appear:



You can specify the name (or title) of the matrix view.

There are several editing options. There are two check boxes that control how sources and destinations are displayed. There are 6 radio buttons in 3 regions.

The first region is for the destinations to be displayed in the matrix. The page can display information either for *all* destinations or for selected destinations. (The matrix view provides a table

row for each destination of the matrix.) If you choose 'Use Selection' in this region, the region expands to allow you to form the destination selection. See Destination Selection, following.

The second region is for the sources to be displayed in the matrix. The page can display information for *all* sources or for selected sources. (The matrix view provides a table *column* for each source of the matrix.) If you choose 'Use Selection' in this region, the region expands to allow you to form the source selection. See Source Selection, following.

The third region is for the levels that this matrix view can display. The matrix view can display information for *all* levels or for selected levels. If you choose 'Use Selection' in this region, the region expands to allow you to form the level selection. See Level Selection, following.

(Level buttons appear in a section at the top of the matrix view page that the user can enable or disable. When the section is enabled, the buttons in that section select or deselect levels. The configuration page lets you determine the levels that the user is allowed to select.)

▲ You can click the 'Save' button at any time to retain your changes.

Options

There are two check boxes that control how sources and destinations are displayed:

- Show Destination Device IDs.
- Show Source Device IDs.

These options are unchecked by default.

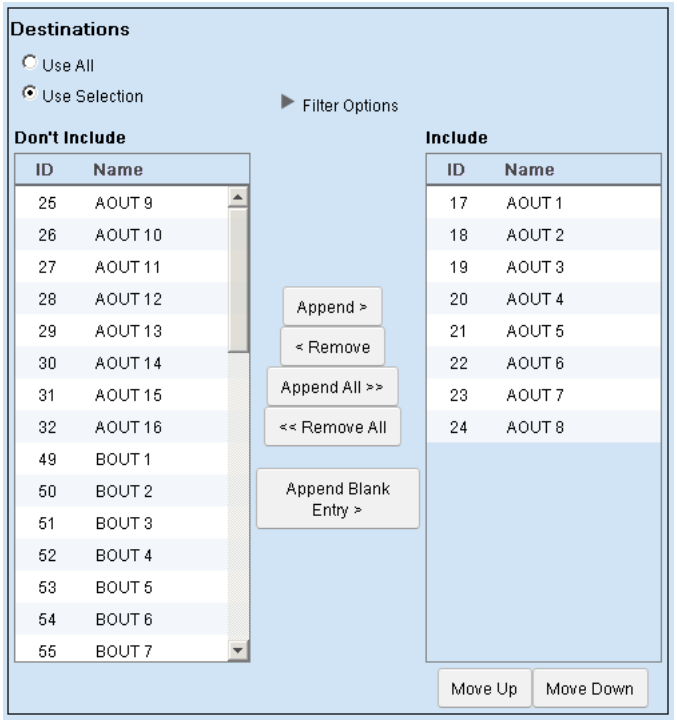
If you place a check in the 'Show Destination Device IDs' check box, destination device IDs are displayed where destination names are displayed. Otherwise only the names are displayed.

If you place a check in the 'Show Source Device IDs' check box, source device IDs are displayed where source names are displayed. Otherwise only the names are displayed.

Destination Selection

Choose 'Use All' in the 'Destinations' region if you want the matrix view to use *all* NV9000 destinations, regardless of what those destinations are. The NV9000 configuration could change from time to time, adding or removing destinations, and your matrix view will adjust.

Choose 'Use Selection' in the 'Destinations' region if you want to specify which destinations the are used in the matrix. The 'Destinations' region expands to allow you to form the destination selection:



The 'Use Selection' fields include filtering options. See Filter Options for Destinations, following.

The items on the left — under "Don't Include" — are the destinations that are ***not*** used in the matrix view.

The items on the right — under "Include" — are the destinations that ***are*** used in the matrix view.

The *filter options* control what destinations you can see (or select) in either list of destinations. The filters do not affect which destinations are actually present in the lists. If you do not use the filters, all destinations in the list are displayed. See Filter Options for Destinations, following.

To move destinations from the "Don't Include" list to the "Include" list, select one or more entries in the "Don't Include" list and click the 'Append >' button. (Or click 'Append All >>'.)

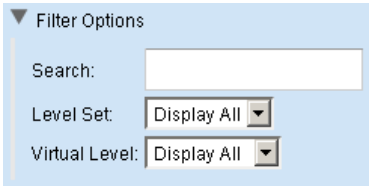
To move destinations from the "Include" list to the "Don't Include" list, select one or more entries in the "Include" list and click the '< Remove' button. (Or click '<< Remove All'.)

Click 'Append Blank Entry' if you want to create a blank line that functions as a separator in your 'Include' list. The separator can help you organize the list. The separator also creates a blank row in the table that is displayed in the page (or pages) of the tab you are editing.

Use the 'Move Up' and 'Move Down' buttons under the "Include" list to reorder the destinations (i.e., the table *rows*). Select one or more destinations in the "Include" list and click 'Move Up' or 'Move 'Down' as appropriate to create the ordering you want.

Filter Options for Destinations

Click the dark triangle for the 'Filter Options' to expose the filter options:



The filter has 3 parts: a destination is included in the lists if it meets all 3 criteria.

If you specify some text in the 'Search' field, the filter use a substring matching method: if the substring you enter as the filter appears in the destination name or its ID, the destination can be in the lists.

If you choose a level set in the 'Level Set' drop-down list, the list is restricted to those destinations that belong to the specified level set.

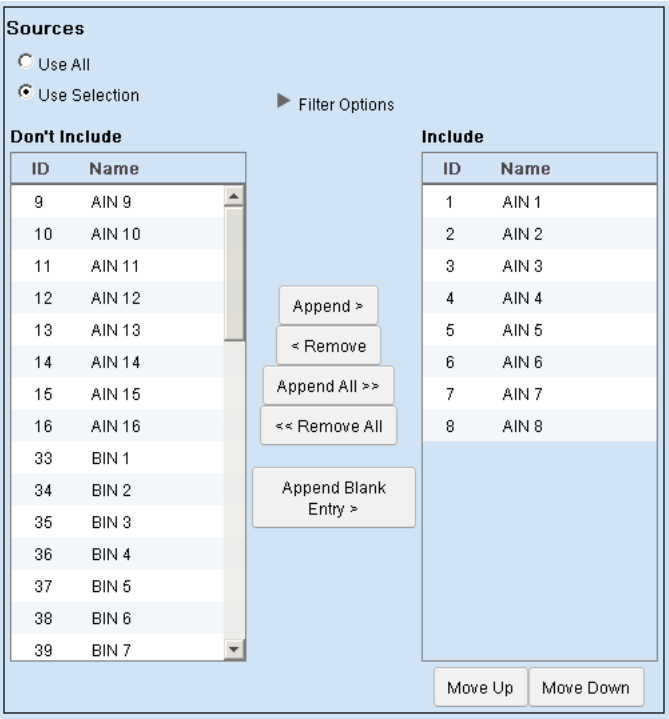
If you choose a level in the 'Virtual Level' drop-down list, the list is restricted to those destinations that include the level specified.

The filter ignores the search field if it is blank. It ignores the level set criterion if you choose 'Display All'. It ignores the level criterion if you choose 'Display All' for that.

Source Selection

Choose 'Use All' in the 'Sources' region if you want the matrix view to use *all* NV9000 sources, regardless of what those sources are. The NV9000 configuration could change from time to time, adding or removing sources, and your matrix view will adjust.

Choose 'Use Selection' in the 'Sources' region if you want to specify which sources the are used in the matrix. The 'Sources' region expands to allow you to form the source selection:



The items on the left — under "Don't Include" — are the sources that are ***not*** used in the matrix view.

The items on the right — under "Include" — are the sources that ***are*** used in the matrix view.

The *filter options* control what sources you can see (or select) in either list of sources. The filters do not affect which sources are actually present in the lists. If you do not use the filters, all sources in the list are displayed. See Filter Options for Sources, following.

To move sources from the "Don't Include" list to the "Include" list, select one or more entries in the "Don't Include" list and click the 'Append >' button or click 'Append All >>'.

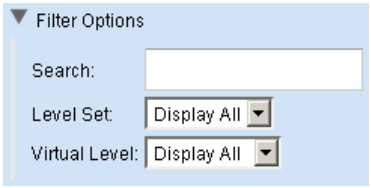
To move sources from the "Include" list to the "Don't Include" list, select one or more entries in the "Include" list and click the '< Remove' button or click '<< Remove All'.

Click 'Append Blank Entry' if you want to create a blank line that functions as a separator in your 'Include' list. The separator can help you organize the list. The separator also creates a blank row in the table that is displayed in the page (or pages) of the tab you are editing.

Use the 'Move Up' and 'Move Down' buttons under the "Include" list to reorder the sources (i.e., the table *columns*). Select one or more sources in the "Include" list and click 'Move Up' or 'Move 'Down' as appropriate to create the ordering you want.

Filter Options for Sources

Click the dark triangle for the 'Filter Options' to expose the filter options:



The filter has 3 parts: a source is included in the lists if it meets all 3 criteria.

If you specify some text in the 'Search' field, the filter use a substring matching method: if the substring you enter as the filter appears in the source name or its ID, the source can be in the lists.

If you choose a level set in the 'Level Set' drop-down list, the list is restricted to those sources that belong to the specified level set.

If you choose a level in the 'Virtual Level' drop-down list, the list is restricted to those sources that include the level specified.

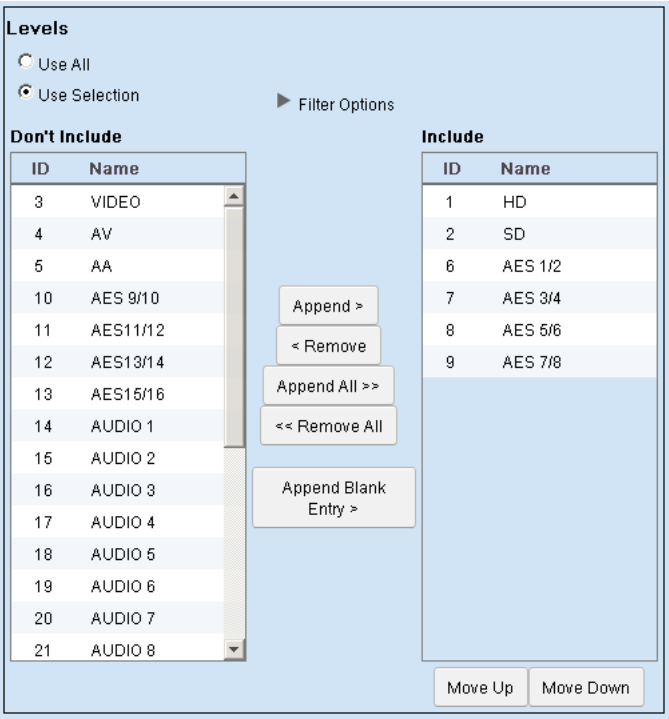
The filter ignores the search field if it is blank. It ignores the level set criterion if you choose 'Display All'. It ignores the level criterion if you choose 'Display All' for that.

Level Selection

Choose 'Use All' in the 'Levels' region if you want the matrix view to allow the use of *all* NV9000 levels.

- The long list of levels that is normally available is the "universal set" of all "virtual" levels ever used by NVISION series routers and includes levels that are probably not defined in your router control system. This list is defined in the virtual levels table of NV9000-SE Utilities. You can trim the list in NV9000-SE Utilities if you find it cumbersome.

Choose 'Use Selection' in the 'Levels' region if you want to specify which levels are available to the user. The 'Levels' region expands to allow you to form the level selection:



The items on the left — under "Don't Include" — are the levels that are ***not*** available in the matrix view.

The items on the right — under "Include" — are the levels that ***are*** available in the matrix view.

The *filter options* control what levels you can see (or select) in either list of levels. The filters do not affect which levels are actually present in the lists. If you do not use the filters, all levels in the list are displayed. See Filter Options for Levels, following.

To move levels from the "Don't Include" list to the "Include" list, select one or more entries in the "Don't Include" list and click the 'Append >' button or click 'Append All >>'.

To move levels from the "Include" list to the "Don't Include" list, select one or more entries in the "Include" list and click the '< Remove' button or click '<< Remove All'.

Click 'Append Blank Entry' if you want to create a blank line that functions as a separator in your 'Include' list. The separator can help you organize the list. The separator also creates a blank row in the table that is displayed in the page (or pages) of the tab you are editing.

Use the 'Move Up' and 'Move Down' buttons under the "Include" list to reorder the levels. Select one or more levels in the "Include" list and click 'Move Up' or 'Move 'Down' as appropriate to create the ordering you want.

Filter Options for Levels

Click the dark triangle for the 'Filter Options' to expose the filter options:

The filter has 2 parts: a level is included in the lists if it meets both criteria.

If you specify some text in the 'Search' field, the filter use a substring matching method: if the substring you enter as the filter appears in the level name or its ID, the level can be in the lists.

If you choose a level set in the 'Level Set' drop-down list, the list is restricted to those levels that belong to the specified level set.

The filter ignores the search field if it is blank. It ignores the level set criterion if you choose 'Display All'.

Copy and Paste Buttons

The 'Copy' and 'Paste' buttons allow you to transfer page configuration data from one tab to another tab.

When you click 'Copy', all configuration data for that page — all option flags, all 'Don't Include' lists, all 'Include' lists — are captured in a private buffer ready for pasting elsewhere.

When you click 'Paste', presumably in another page, all applicable data are transferred from the private buffer to the fields of the page. Data in the buffer that do not apply to the page are not transferred.

Data that were present in the fields that are affected by the 'Paste' operation are overwritten. Fields not applicable to the 'Paste' are not affected.

It is ***not*** possible to copy the lists from the Web Suite to another application such as Notepad or Excel.

- Data for the configuration of matrix view pages are not applicable in DHP or tieline pages. Although you use the 'Copy' button, the 'Paste' button remains disabled in those pages. Portions of the data from matrix view pages are applicable to multi-level pages and primary level pages. These data can be copied.

Users Page

The 'Users' page lists all the users authorized to use the Web Suite. (Note that if you are using the Web Suite, you are logged in as a user.)

Associated with each user is a password (which is optional), a flag indicating whether the user has admin privilege, a Web Suite configuration, and an NV9000 user name (from the NV9000 system).

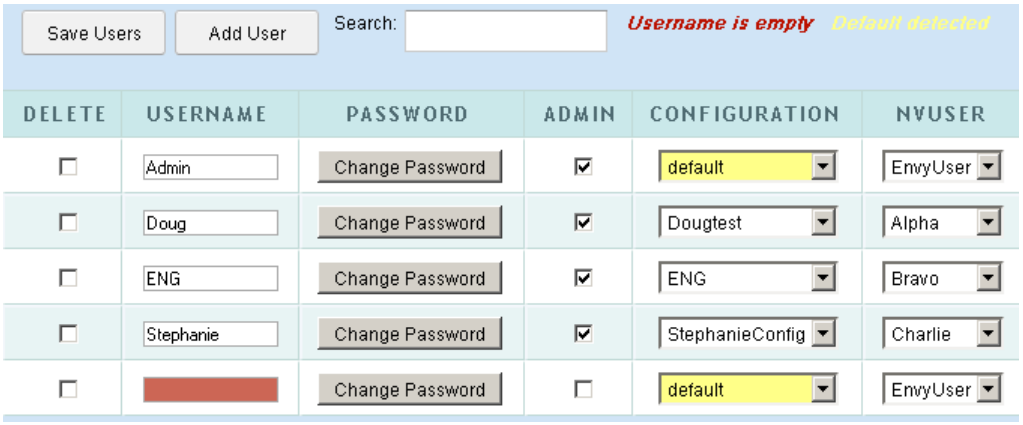
The page does not actually list passwords. If you want to change a password, you can click the 'Change Password' button for a user. A dialog appears in which you can enter the password.

After you close the dialog, you must remember the password you entered. It is not recoverable if you forget it.

If a user has the “default” configuration, the configuration entry is colored yellow.

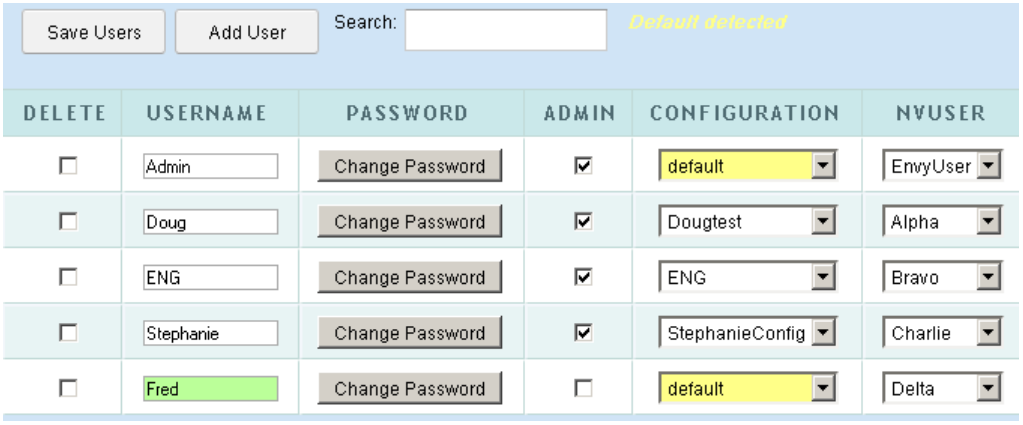
Adding a User to the List

Click the ‘Add New User’ button. A new row appears in the table:



The ‘Username’ field is filled with red and a message appears at the top right: “Username is empty.”

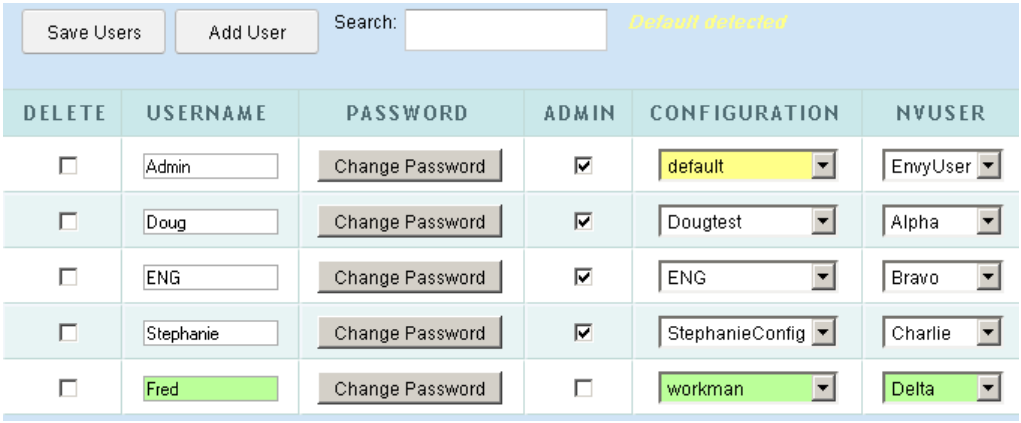
This message is a prompt for you to click in the ‘Username’ field and enter a user name. When you do (and follow the entry by pressing ‹enter› or ‹tab›) the field turns green and the prompt disappears:



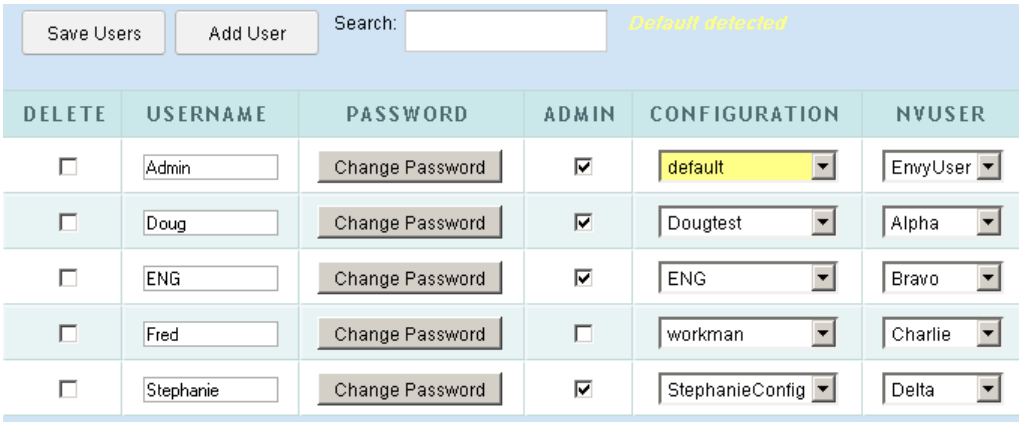
The new user has been assigned the default configuration, which is highlighted in yellow. You can assign a different configuration to the user by selecting a configuration name from the drop-down list in the user’s ‘Configuration’ field.

You can also assign the user an NV9000 user name in the ‘NVuser’ field.

The chosen configuration is highlighted in green:



Click 'Save Users' to accept any new users you have added. The list refreshes and displays the users in alphabetical order:



Changing a User's Password

By default, new users are added with no password required. If you want to assign a password to a user, click the 'Change Password' button for that user. A dialog appears in which you can enter the new password:

Enter a password, confirm it, and click 'OK'.

Make a note of the password, or remember it, because you cannot recover the password if you forget it. (You can always assign a new password however.)

Admin Privilege

Check the 'Admin' check box for a user to give that user administrative privilege.

Administrative privilege means that the user can add and remove users, change passwords, and create and modify Web Suite configurations.

Users without administrative privilege can use the status pages of the configuration they have been assigned. They cannot redefine their configurations.

User IDs

NV9000-SE Utilities allows persons configuring the router control system to define user IDs. User IDs are normally associated with control panels.

In NV9000-SE Utilities, user IDs are alphanumeric strings that usually form readable names.

The Web Suite allows you to associate any user name defined in the NV9000 router control system with a user in the list. There are drop-down lists in the NVUSER column from which you can choose a user name. The NV9000 user name and its database ID are subsequently used to indicate which user has issued a lock or a protect on destinations in the router control system.

- It is advisable to have all NV9000 user names defined (in NV9000-SE Utilities) and assigned (in the Web Suite) at the earliest opportunity. Users who perform locks and protects under one NV9000 user name cannot release those locks and protects if they change to a different NV9000 user name.

Saving the User List

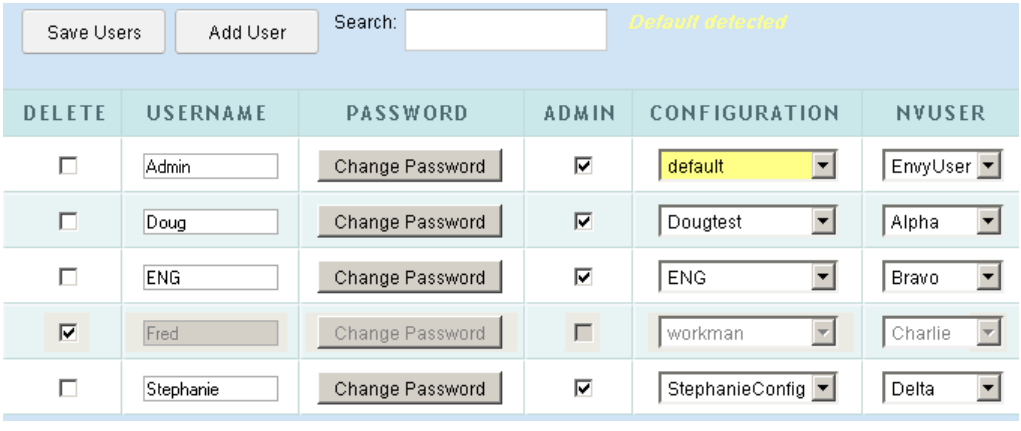
Click 'Save Users' to save the list and click 'Yes' in the confirmation dialog that appears.

If you made a data entry mistake before you save, you can discard the mistake(s) by using your browser's refresh button to refresh the 'Users' page. Doing so reloads the saved user list from the NV9000 database. (You will be warned if you about to lose unsaved data.)

Removing a User from the List

- You cannot remove a new user from the list until you have saved the user list. New users and new data are characterized by green-highlighted fields in the list.

To remove a user or users from the list, place a check mark in the 'Delete' check box for the user(s). The row(s) for those users(s) are greyed out:



Then click 'Save Users' and click 'Yes' in the confirmation dialog that appears. The Web Suite displays the updated user list

Log Pages

The Logs subtab provides 3 or 4 status pages — 4 when instrumentation mode is enabled:

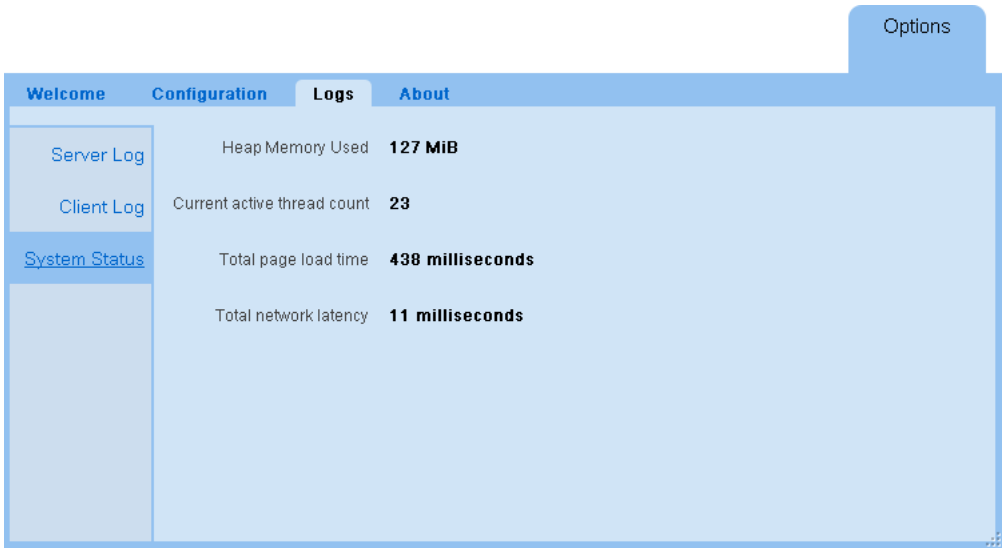
Disabled	Enabled
Server Log	Server Log
Client Log	Client Log
System Status	System Status
	Data Store

The 'Data Store' are for Miranda engineers and technicians only.

▲ Instrumentation mode is a checkbox option under the 'Servers' page under the 'Configuration' subtab.

System Status

The 'System Status' page presents statistics and data about the Web Suite:

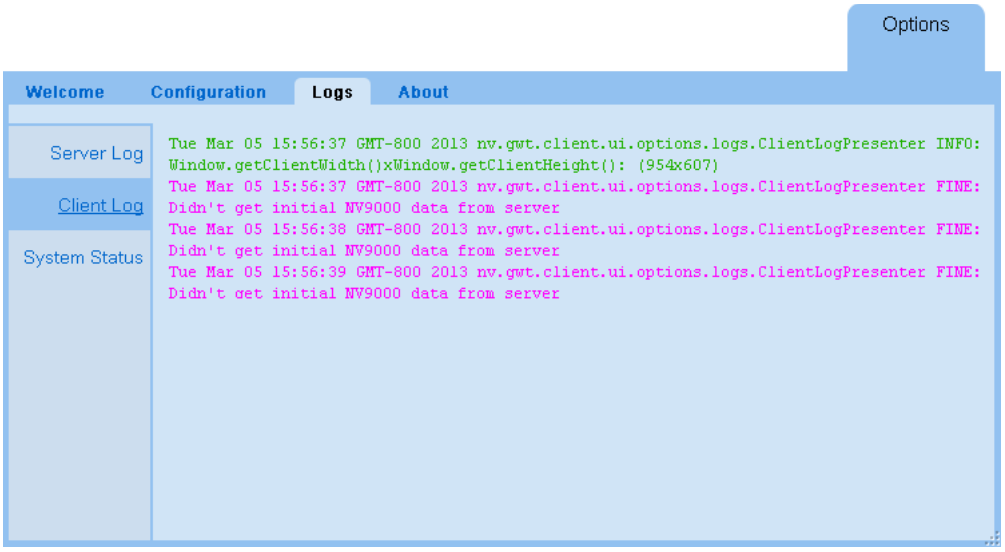


These are the statistics:

- Heap memory used by the NV9000 Web Suite, in mebibytes. (A *mebibyte* is 2^{20} bytes.)
- Current active thread count.
- Total page load time (in milliseconds).
- Total network latency (in milliseconds).

Client Log Page

This is the 'Client Log' page:



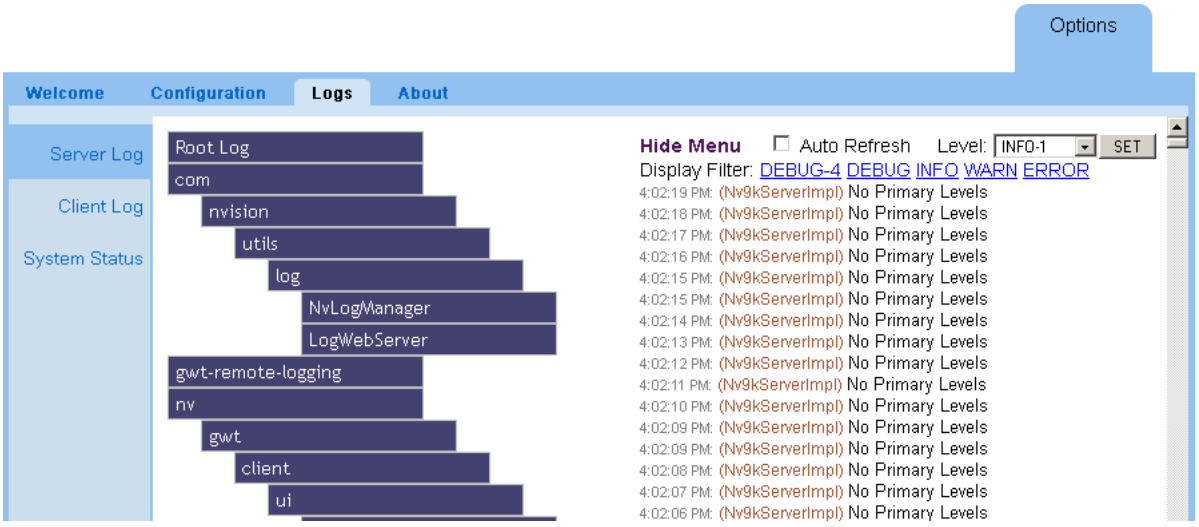
This page usually contains a great amount of event history regarding the Web Suite client.

Green text is used for debugging or informative messages.

Red text is used for warnings or error messages.

Server Log Page

This is the 'Server Log' page:

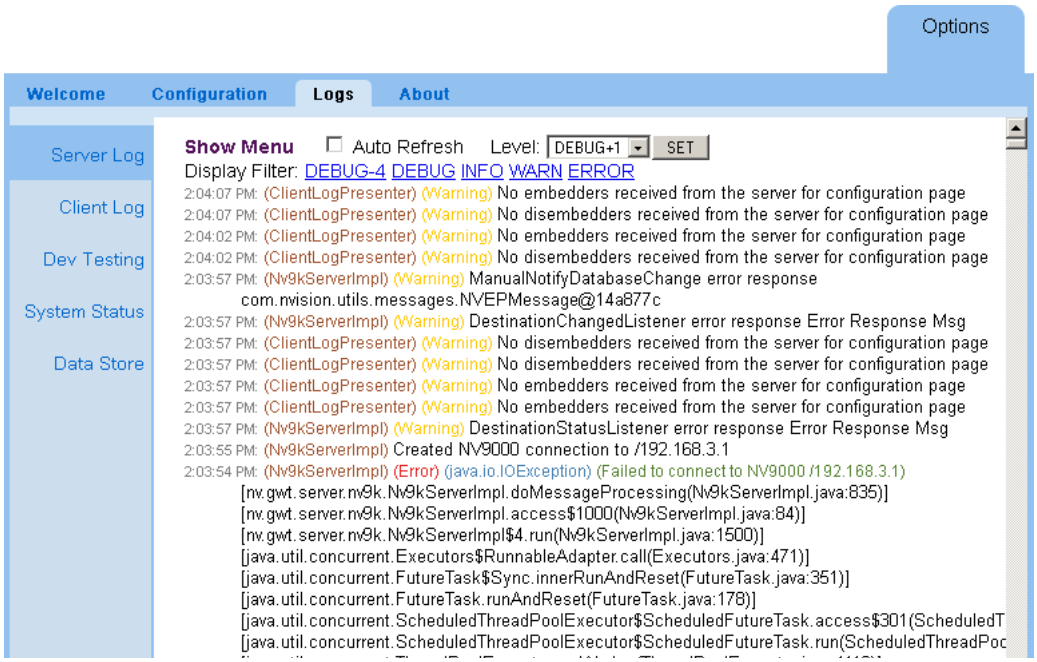


This page usually contains a great amount of event history regarding the NV9000 Web Suite server.

You might have to use this information to diagnose a system failure or a network problem.

Hide Menu

You can hide the menu by clicking the text 'Hide Menu'. This is the page without the menu:

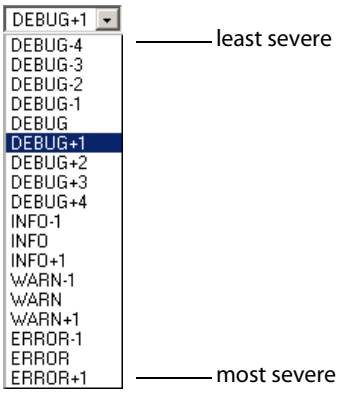


(The text changes to 'Show Menu'.)

Place a check mark in the 'Auto Refresh' check box if you want the page to refresh its display at every reported event. If the check box is not checked, the NV9000 Web Suite refreshes the page every time you switch to the page (or click your browser's refresh icon).

Reporting Level

You can choose the level of reporting in this log. (Other users can choose a different reporting level.) To choose a reporting level, select a level from the drop-down list:



The levels are listed in order of severity.

You can also choose one of the 5 display filters directly:

DEBUG-4 DEBUG INFO WARN ERROR

in the text below the level drop-down menu.

Data Store Page

Do not use this page. It is for Web Suite developers.

3 DHP Tab

Chapter 3 provides information and instructions regarding the Web Suite's DHP tab.

Topics

Summary *59*
Disembedder Page *61*
Embedder Page *63*
Reentry Page *65*
Drawing Page *67*

Summary

When you click on the DHP tab, the DHP subtabs and their pages appear. By default, there are 4 pages:

Disembedder	Embedder
Reentry	Drawing

However, you can configure the DHP tab to have a subset of these pages. Use the 'Options' tab and its 'Configuration > Pages' page to do so.

The four DHP pages show information about the current state of the DHP core of a single NV8500 series router (NV8140, NV8144, NV8280, NV8576, or NV8576-Plus).

- DHP is any option that applies only to an NV8500 series router. Your system might not have DHP.

Three of its pages present tables of DHP core data. The fourth page presents the data as a drawing. The table data present all the signal detail of the DHP core. The drawing page is a diagrammatic view of the current core.

The following sections describe the pages.

The examples shown in this section refer to a demonstration NV9000 system. The configuration data for that system are listed in the Sample NV9000 Configuration on page 70.

- ***Caution:*** the DHP pages are *status* pages. You cannot control the DHP service, or stop it, or restart it, from the NV9000 Web Suite.
- Because of the way DHP is defined, it can communicate with ***only one*** DHP client. The client can be a PC running the NV9000 Web Suite or it can be an instance of DHP-D.[1]

  If DHP-D is running, no PC client will obtain correct DHP information and any PC applications attempting to do so might display incorrect data. Further, PC clients are services that run in the background on your PCs whether the user has a web browser open or not. Only one such service may be started at a given time and DHP-D cannot also be running. Otherwise, the DHP tab of the Web Suite will not function correctly or will not function at all.

1. DHP-D is Miranda diagnostic software.

Configuration Options

The 4 DHP pages can be individually enabled or disabled. The 4 DHP pages can be configured:

- To show all or selected disembedders. For selected disembedders, a name/ID filter can apply.
- To show all or selected embedders. For selected embedders, a name/ID filter can apply.
- To show port numbers next to port names.

For information about configuring DHP pages, see Editing a DHP Tab on page 28.

Example

Figure 3-1 shows an DHP routing example for the 4 tabbed pages described in the following sections:

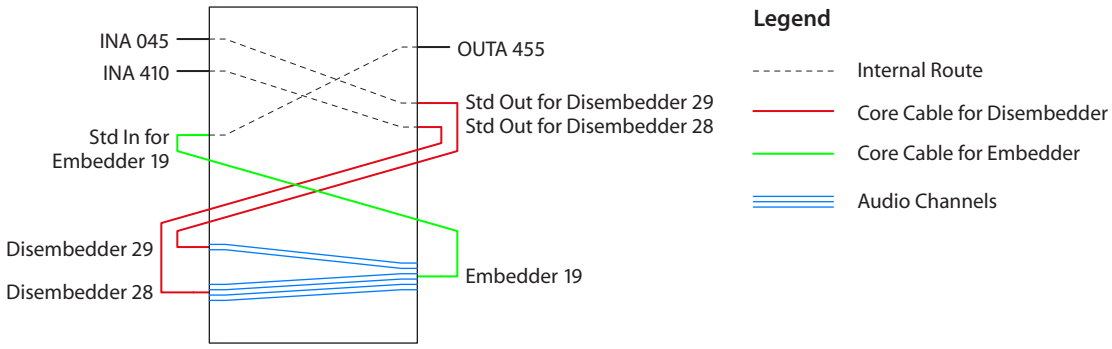
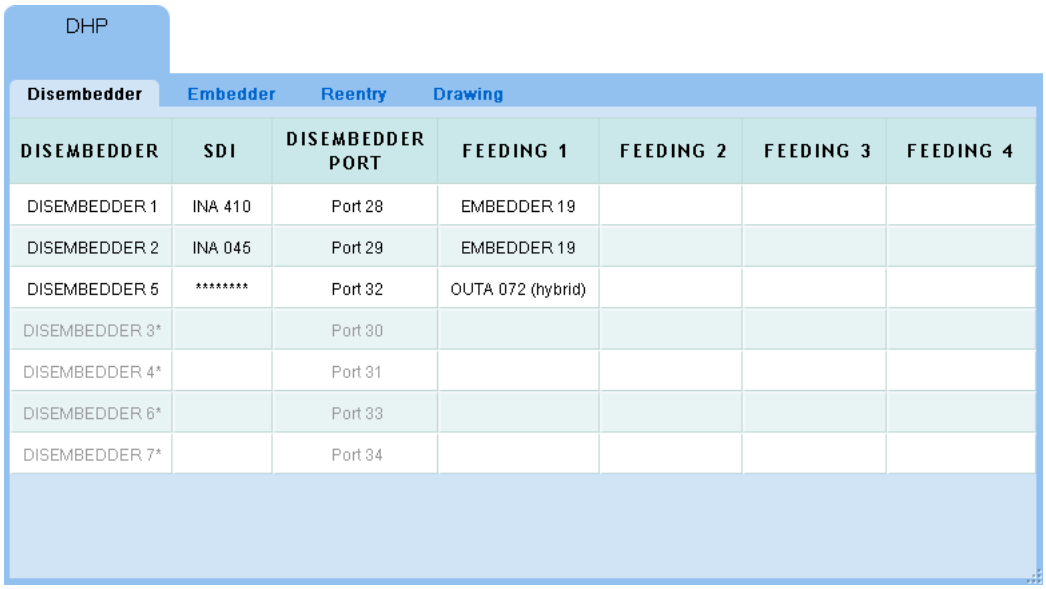


Fig. 3-1: Sample DHP Route

Standard source INA 410 is taken to standard destination OUTA 455 on all levels but two. The remaining two levels (levels 3 and 4) are take from standard source INA 045. Except for the breakaway involved, DHP would not be required. Because a breakaway occurred, the DHP software routed INA 410 through DHP disembedder port 28 and INA 045 through DHP disembedder port 29. The audio from these two ports are recombined in DHP embedder port 19 and forwarded, with the original video from INA 410 to standard output OUTA 455.

Disembedder Page

The 'Disembedder' page shows details of the DHP core's *disembedders:*



DISEMBEDDER	SDI	DISEMBEDDER PORT	FEEDING 1	FEEDING 2	FEEDING 3	FEEDING 4
DISEMBEDDER 1	INA 410	Port 28	EMBEDDER 19			
DISEMBEDDER 2	INA 045	Port 29	EMBEDDER 19			
DISEMBEDDER 5	********	Port 32	OUTA 072 (hybrid)			
DISEMBEDDER 3*		Port 30				
DISEMBEDDER 4*		Port 31				
DISEMBEDDER 6*		Port 33				
DISEMBEDDER 7*		Port 34				

Fig. 3-2: Disembedder Page

The page displays a table of all the disembedder ports in the DHP core, one row for each port. The disembedder ports are identified in column 1. If a disembedder is not in use, its table row is empty (except for the label in column 1 and port number in column 3).

Fields for unused disembedders are greyed out.

Entries in the column labeled 'SDI' show the name of the standard input port connected to the disembedder port. It represents the video signal. If there is no name or the name cannot be determined the entry shows "********".

An entry in the column labeled 'Disembedder Port' identifies the standard output that is connected to (i.e., feeds) the disembedder. *That output port is part of the DHP core.*

The entries in the columns labeled 'Feeding 1', 'Feeding 2', and so on, show either embedders or output ports that are fed by the disembedder port. The table can have from 0 to 10 "Feeding" columns.

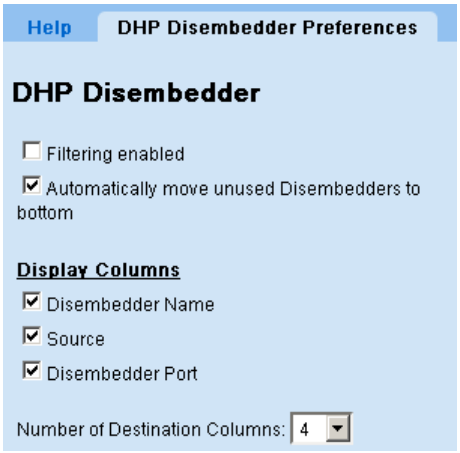
Table Ordering

By clicking the header of any table column you can cause the table to be reordered according the entries in that column. Click the header once and the table is put in ascending order for that column. Click the header again to put the table in descending order of that column. An arrow (up or down) appears in the column header to indicate that the table is ordered according to that column.

To revert to the default table ordering, click the page refresh icon of your browser.

Preferences

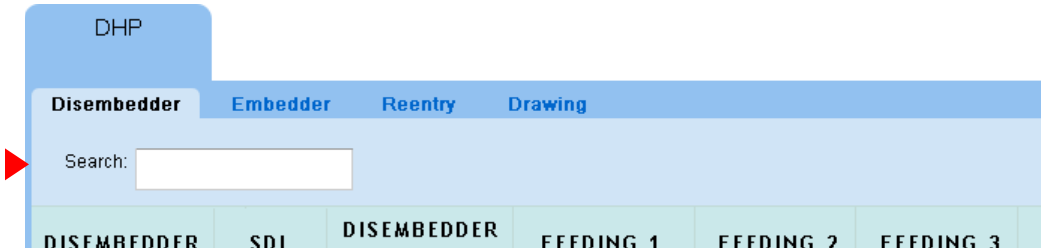
The 'Disembedder' page has several user-selectable preferences, available in the sidebar:



These are the preferences:

- Filtering enabled

  Checking this option places a search filter on the 'Disembedder' page:



  You can place text in this field to limit the number of rows that are displayed. Only those rows in which the search text appears — in any column — are displayed.

- Automatically move unused disembedders to bottom

  It might be more convenient for you to display all the disembedders that are in use in the upper rows of the table. That way, you can minimize scrolling and confusion as you navigate to view different disembedders that are in use.

- Display columns

  These 4 items let you select exactly what is displayed for each disembedder. The 3 check boxes refer to the first 3 columns of the table.

  The number of destination columns (i.e., 'Feeding' columns) defaults to 8 but you can increase or decrease the number of these columns. It makes sense to decrease the number of the 'Feeding' columns because they often contain no information.

Embedder Page

The 'Embedder' page shows details of the DHP core's *embedders.* The page displays a table of all the embedder ports in the DHP core, one row for each port. The embedder ports are identified in column 1. If an embedder is not in use, its table row is empty (except for column 1).

This view shows the left side of the page:

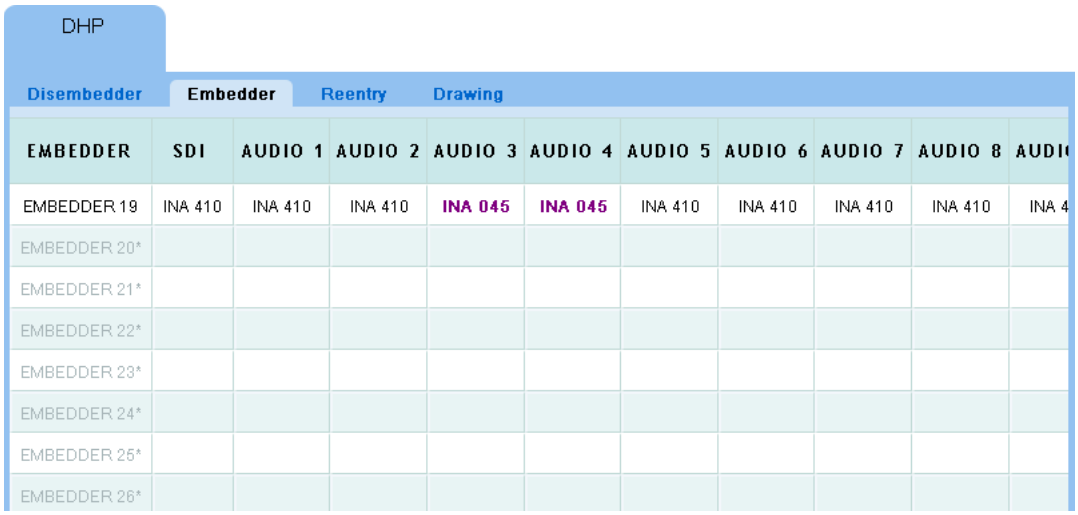


Fig. 3-3: Embedder Page, Left Portion

Unused embedders are greyed out. Here, only one embedder is in use.

Entries in the column labeled 'SDI' show the name of the standard input port connected to the disembedder port that feeds the video to the embedder port.

The entries in the columns labeled 'Audio 1', 'Audio 2', and so on, show the audio channels that are fed to the embedder port. The audio signals can come from any disembedder in the DHP core, from a MADI card, or from any hybrid card not in the DHP core.

The audio channels are identified by their associated video port names. Bold purple text indicates that the audio channel is either a breakaway channel or the result of level mapping.

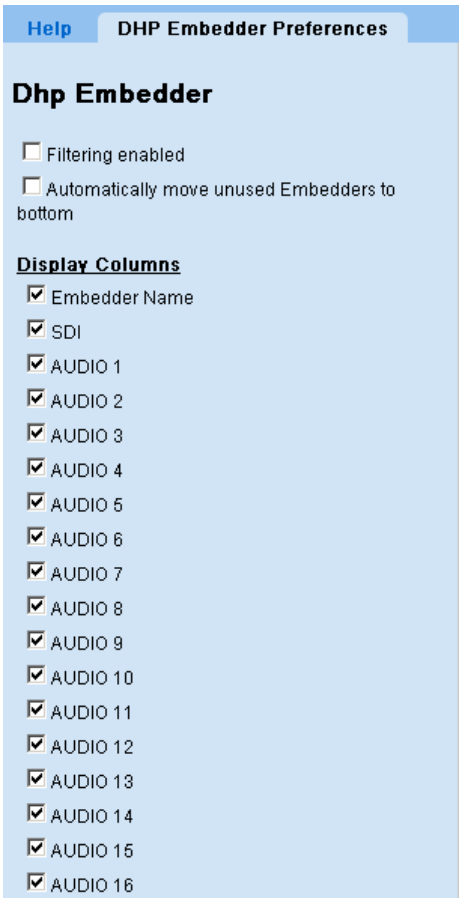
Table Ordering

By clicking the header of any table column you can cause the table to be reordered according the entries in that column. Click the header once and the table is put in ascending order for that column. Click the header again to put the table in descending order of that column. An arrow (up or down) appears in the column header to indicate that the table is ordered according to that column.

To revert to the default table ordering, click the page refresh icon of your browser.

Preferences

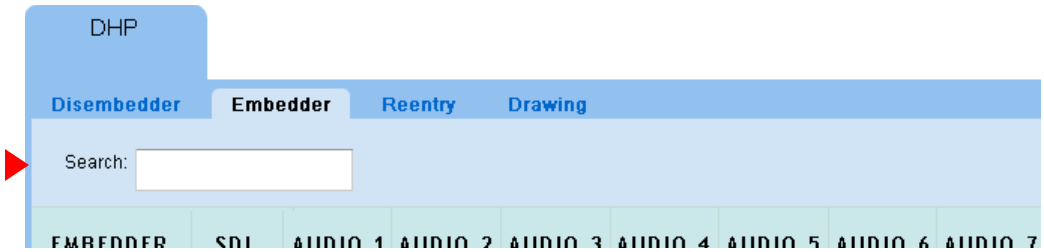
The 'Embedder' page has several user-selectable preferences, available in the sidebar:



These are the preferences:

- Filtering enabled

  Checking this option places a search filter on the 'Embedder' page:

  You can place text in this field to limit the number of rows that are displayed. Only those rows in which the search text appears — in any column — are displayed.

- Automatically move unused embedders to bottom

  It might be more convenient for you to display all the embedders that are in use in the upper rows of the table. That way, you can minimize scrolling and confusion as you navigate to view different embedders that are in use.

- Display columns

  These 18 items let you select exactly what is displayed for each embedder. The check boxes refer to the columns of the table.

  The default shows all 16 embedded audio channels. Some systems might have fewer embedded channels. Disabling the display of unused channels can make it easier to use the embedder page.

Reentry Page

The 'Reentry' page shows which standard video input and standard video outputs are connected to each embedder port:

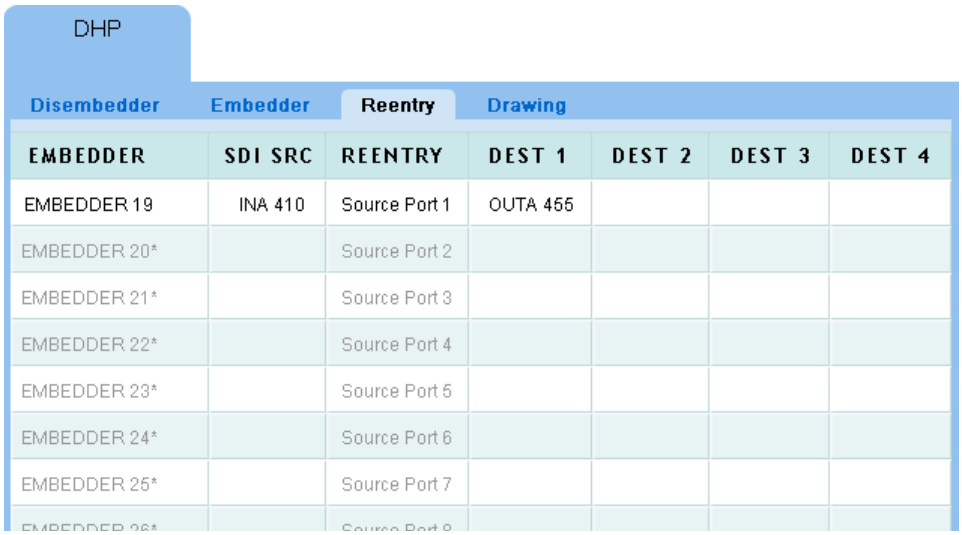


Fig. 3-4: DHP Reentry Page

The page displays a table of all the embedder ports in the DHP core, one row for each port. The embedder ports are identified in column 1. If an embedder is not in use, its table row is empty (except for column 1 and column 3).

The 'Reentry' column of this page identifies the standard input port that is connected to the embedder output port. *That input port is part of the DHP core.*

The 'Dest' columns identify the standard outputs fed by the embedder — through the standard input port.

The 'SDI SRC' column identifies the video-level input to the embedder.

Unused embedders are greyed out. In the illustration, only one embedder is in use.

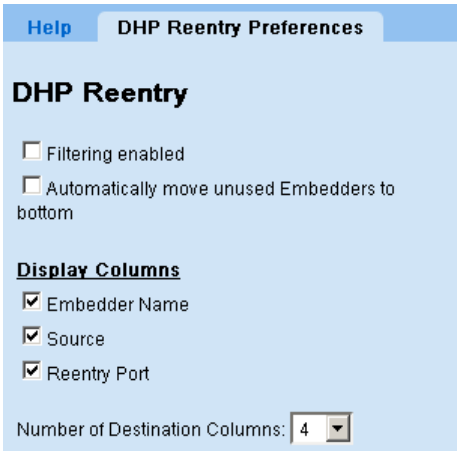
Table Ordering

By clicking the header of any table column you can cause the table to be reordered according the entries in that column. Click the header once and the table is put in ascending order for that column. Click the header again to put the table in descending order of that column. An arrow (up or down) appears in the column header to indicate that the table is ordered according to that column.

To revert to the default table ordering, click the page refresh icon of your browser.

Preferences

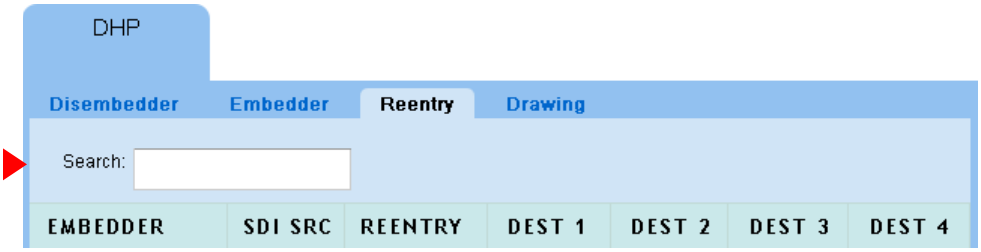
The 'Reentry' page has several user-selectable preferences, available in the sidebar:



These are the preferences:

- Filtering enabled

  Checking this option places a search filter on the 'Reentry' page:

  You can place text in this field to limit the number of rows that are displayed. Only those rows in which the search text appears — in any column — are displayed.

- Automatically move unused embedders to bottom

  It might be more convenient for you to display all the embedders that are in use in the upper rows of the table. That way, you can minimize scrolling and confusion as you navigate to view different embedders that are in use.

- Display columns

  These 4 items let you select exactly what is displayed for each embedder. The 3 check boxes refer to the first 3 columns of the table.

  The number of destination columns defaults to 8 but you can increase or decrease the number of these columns. It makes sense to reduce the number of the 'Dest' columns because they often contain no information.

Drawing Page

The 'DHP Drawing' page gives you a graphic or "schematic" view of the DHP core. This is a sample:

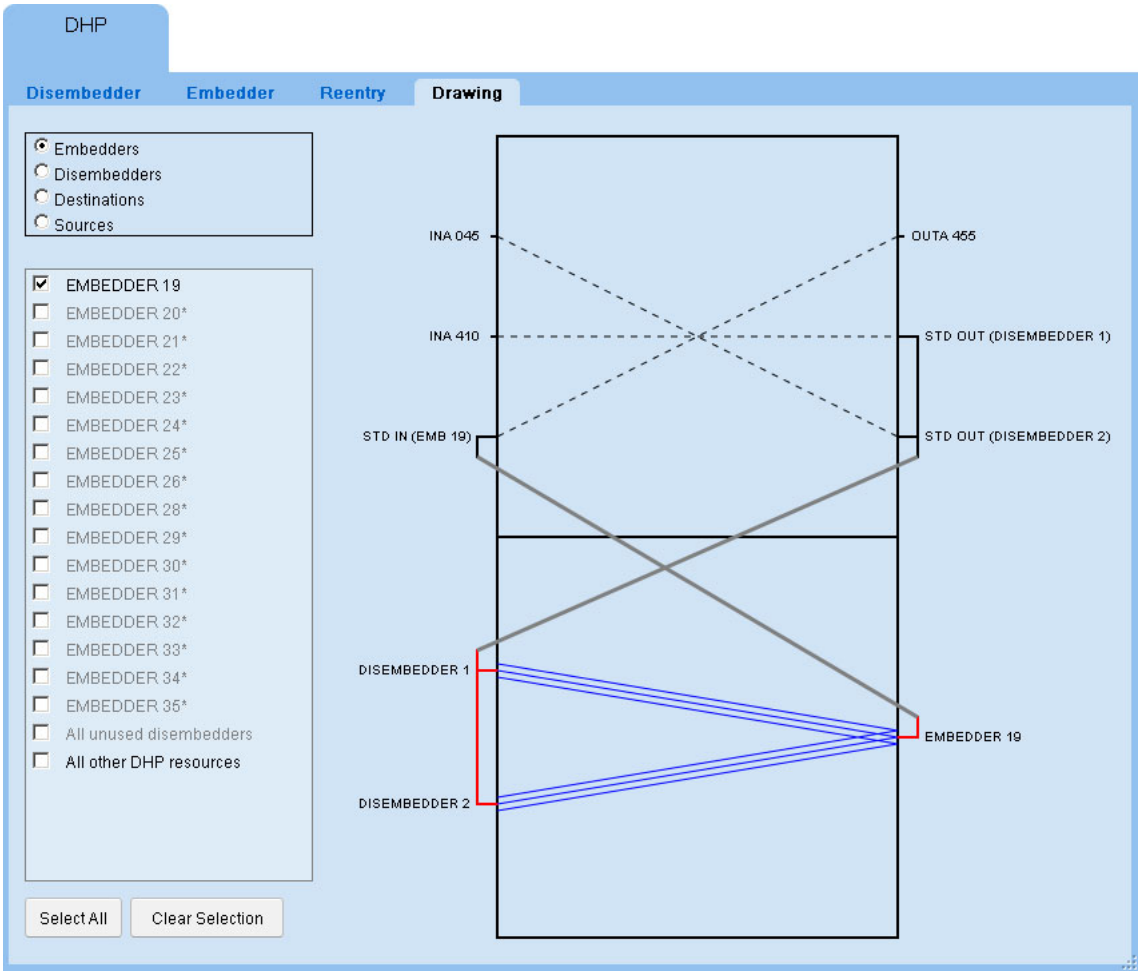


Fig. 3-5: Drawing Page

This sample shows the DHP route of the example used throughout this chapter. To reiterate:

> Standard source INA 410 is taken to standard destination OUTA 455 on all levels but two. The remaining two levels (levels 3 and 4) are take from standard source INA 045. Except for the breakaway involved, DHP would not be required. Because a breakaway occurred, the DHP software routed INA 410 through DHP disembedder port 28 and INA 045 through DHP disembedder port 29. The audio from these two ports are recombined in DHP embedder port 19 and forwarded, with the original video from INA 410 to standard output OUTA 455.

Central to the page is a rectangle representing the router connected to the system controller's DHP service.

The top half of the rectangle represents *standard* input and output ports, some of which are part of the DHP core. (The ports belonging to the core are labeled with their associated disembedder or embedder port. See the Sample NV9000 Configuration on page 70.

The bottom half of the rectangle represents *hybrid* inputs and outputs, some of which ***might not*** be part of the DHP core. Hybrid I/O includes disembedder ports, embedder ports, and MADI input or output connections.

Signal Paths

Dashed lines represent standard inputs and outputs connected to the core. For instance, in the illustration, INA 045 is a standard input and OUTA 455 is a standard output. See the Sample NV9000 Configuration on page 70.

Solid lines represent paths within the DHP core. Single black lines represent video with or without embedded audio. Blue 3-line groups represent audio disembedding and re-embedding. The 3-line groups represent any number of audio channels (from 1 to 16), not just 3.

Short red lines represent connections to the disembedders and embedders of the core.

Usage

At the left side of the page are two regions:

- Radio buttons.

  The 4 radio buttons allow you to select what appears in the check boxes in the second region. For instance, if you select the 'Embedders' radio button, a list of the embedders appears in the second region.

- Check boxes.

  When you check a box in this region, the drawing shows all DHP elements that relate to what you have checked. For example, Figure 3-5, on page 67, has embedder 19 checked. The drawing shows the disembedders, standard inputs, and standard outputs that connect to embedder 19.

  Depending on which radio button you chose, the check box list will include special check boxes: 'All unused disembedders', 'All unused embedders', or 'All other DHP resources'. Checking one of these boxes will result in the display of the named items.

Also at the left side of the page are two buttons:

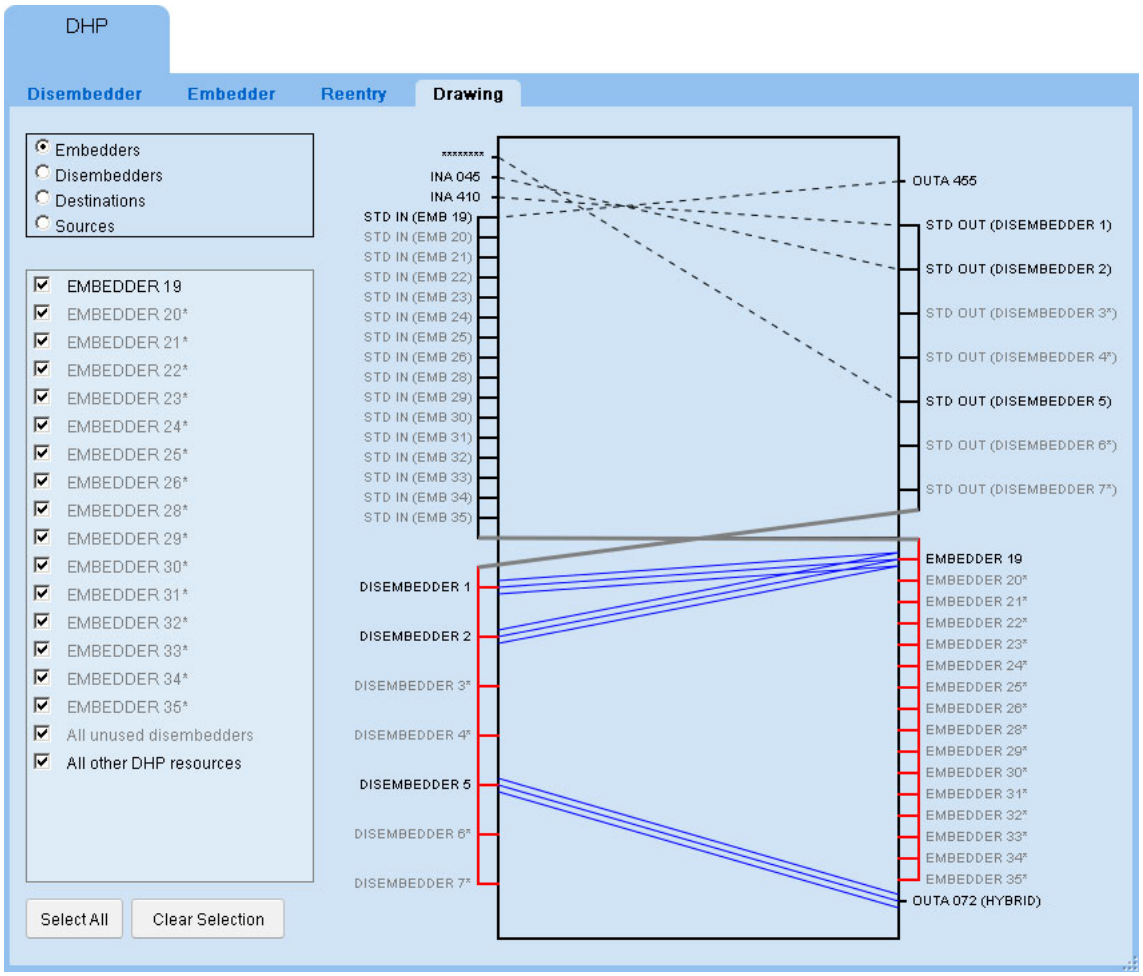
- Select All.

  This is a shortcut that checks all the check boxes in the list and causes the drawing to show all the items corresponding to all the check boxes.

- Clear Selection.

  This shortcut clears all the check boxes in the list. The result is that the drawing shows nothing (except the rectangle representing the router).

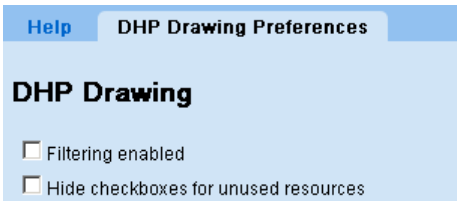
When you select many or all items in the check box list, the drawing shows many connections:



This kind of view obscures individual connection details. We recommend that you view one or two core connections at a time.

Preferences

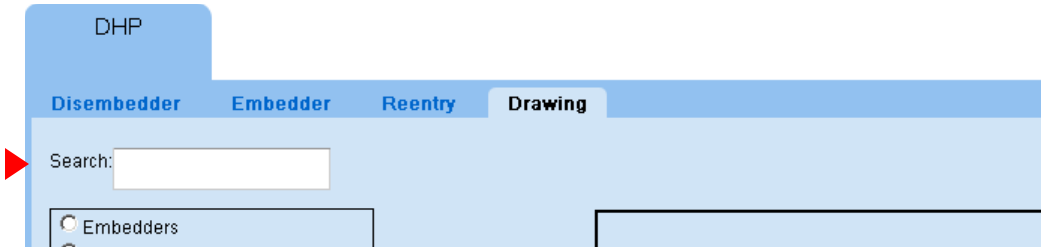
The 'Drawing' page has several user-selectable preferences, available in the sidebar:



These are the preferences:

- Filtering enabled

  Checking this option places a search filter on the 'Drawing' page:



  You can place text in this field to limit the number of items that are displayed. Only those items in which the search text appears are displayed.

- Hide check boxes for unused resources.

  It might be more convenient for you if your drawing page does not have check boxes to show unused disembedders, embedders, and so on.

Sample NV9000 Configuration

These are the data of the NV9000 configuration from which the DHP example was taken.

Non-Core Ports

These are the ports — *not in the DHP core* — that are used in the examples. These were configured in NV9000-SE Utilities.

Input

These are all standard inputs, each having video and 16 audio channels.

Device	HD Port	Audio Ports
INA 37 through INA 576	37 through 576	577–592 through 9201–9216

There are also MADI ports 1–64 from input card 1.

Output

These are all standard outputs, each having video and 16 audio channels\.

Device	HD Port	Audio Ports
OUTA 37 through OUTA 576	37 through 576	577–592 through 9201–9216

There are also MADI ports 1–64 on output card 1.

DHP Core Ports

These are the ports of the DHP core, as configured in the `HybridPorts_xxxx` file (one of the two DHP configuration files).

Re-embedders tied to Standard Inputs

Embedder Port	Standard Input Port
19	1
20	2
21	3
22	4
23	5
24	6
25	7
26	8
28	10
29	11
30	12
31	13
32	14
33	15
34	16
35	17

(These embedder outputs are all on output card 2. Note that the ports that would be numbered 27 and 36 do not exist.)

Disembedders tied to Standard Outputs

Disembedder Port	Standard Output Port
28	1
29	2
30	3
31	4
32	5
33	6
34	7

4 Tielines Tab

Chapter 4 provides information and instructions regarding the Web Suite's 'Tielines' tab.

Topics

Summary *73*
Background Information *74*
Tieline Uses Page *76*
Tieline Destinations Page *80*
Tieline Drawing Page *83*

Summary

When you click on the tielines tab, the tieline subtabs and their pages appear. By default, there are 3 pages:

Tieline Uses Tieline Destinations Tieline Drawing

However, you can configure the tieline tab to have a subset of these pages. Use the 'Options' tab and its 'Configuration > Pages' page to do so.

The three tieline pages show information about the current state of tielines in the entire NV9000 system controlled by the system controller you are monitoring with the Web Suite. The system can include several routers.

Two tieline pages present tables of tieline data. The third page presents the data as a drawing. The drawing page is a "schematic" view of the routers and tielines.

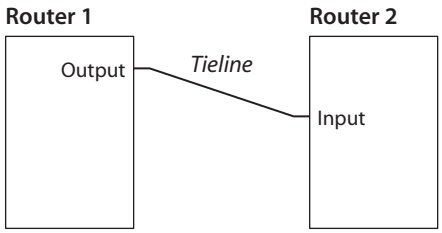
The following sections describe the pages.

The examples shown in this section refer to a demonstration NV9000 system. The configuration data for that system are listed in Sample NV9000 Data on page 75.

▲ Note: tielines are a purchase option of NV9000 systems. Your system might not actually support tielines. If it does not, the Web Suite will not show any tieline data.

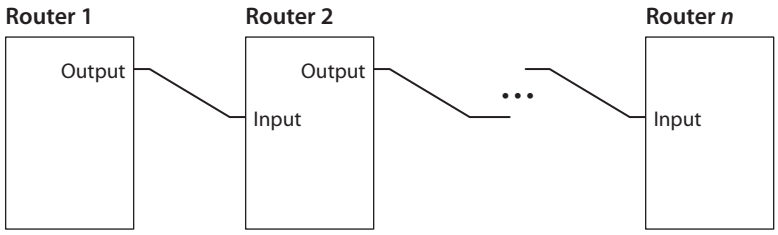
Background Information

A tieline (or a "simple" tieline) is defined as a connection from an output of an *upstream* router to the input of a *downstream* router:



Sources and destinations that are connected using tielines and that comprise multiple levels (perhaps on different routers) must have a tieline connection on each of the applicable levels.

A multi-hop tieline is a set of simple tielines between multiple routers, perhaps at remote geographical locations.



A tieline route is one taken from a source on an upstream router to a destination on a downstream router.

The NV9000 system uses tielines as a pool of resources. When the NV9000 needs to use a tieline to perform a route, it determines all the tielines necessary to make the route. If the pool of tielines is depleted, of course, it cannot make the route.

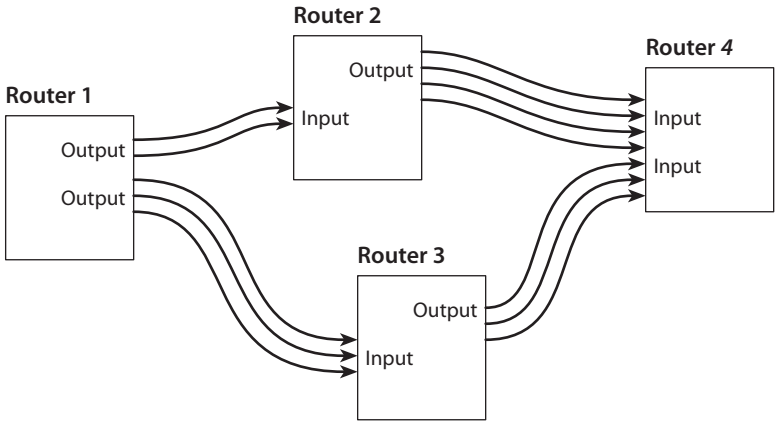


Fig. 4-1: Pooled Tielines

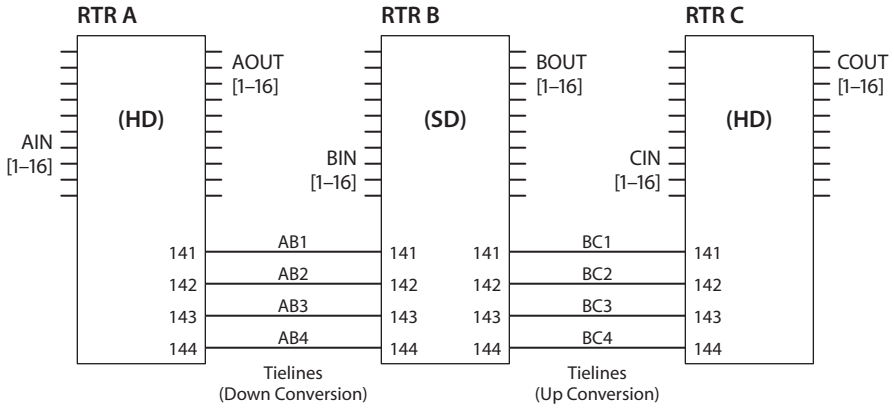
In Figure 4-1, there are no tieline paths from router 2 to router 3. If the NV9000 system cannot find a tieline path for a route, it cannot make the route.

The tieline pages of the Web Suite show (1) the routes used by the tielines in your system and (2) the tielines that remain unused. (The latter are shown greyed out.)

The demonstration system used in the examples in this chapter has a small set of tielines that allow multi-hop routes.

Sample NV9000 Data

The (simple) demonstration setup for tielines has 3 routers, A, B, and C.



The routers are identical in size, each having 16 general inputs and outputs, except that router B routes SD, not HD. Tielines that perform up- and down-conversion are required between A and B and between B and C.

Thus, between A and B, there are 4 tielines, AB1 through AB4. Between B and C, there are 4 tielines, BC1 through BC4.

A route from router A to router C (through router B) is a 2-hop route.

The tielines form pool of resources from which the router control system can draw when it wants to perform routers from A to B, from B to C, or from A to C.

(Routes from C to A, B to A, and C to B are not defined in this demonstration system.)

Sample Tieline Routes

Using the sample system, three tieline routes were made, one from A to C, one from A to B, and one from B to C:

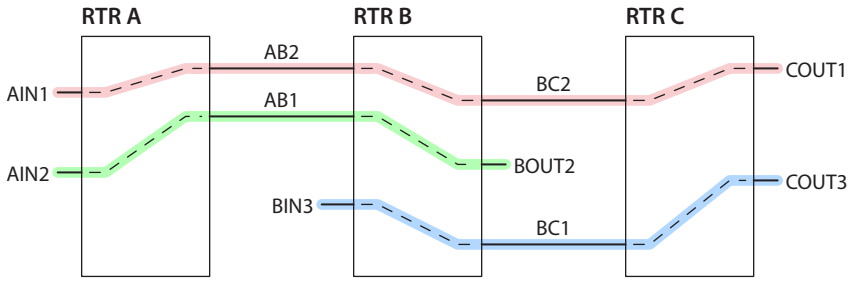


Fig. 4-2: Sample Tieline Routes

The route from AIN1 to COUT1 is considered "multi-hop."

These routes are depicted in the following sections.

Tieline Uses Page

The 'Tieline Uses' page shows simple tielines that are used for routes:

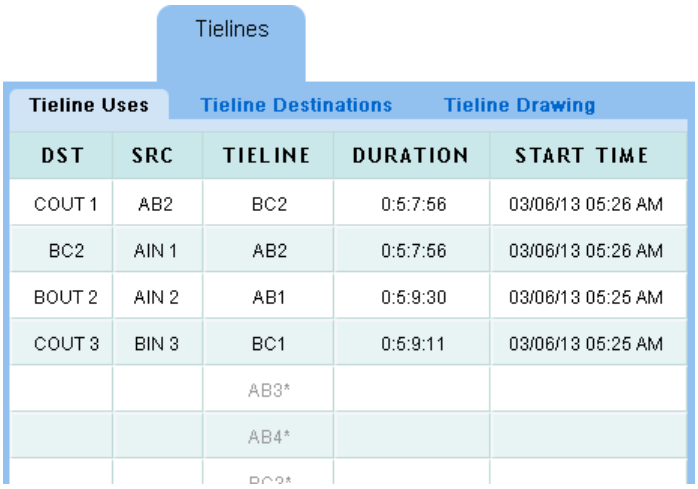


Fig. 4-3: Tieline Uses Page

Tielines that are not in use are greyed out.

The page shown in Figure 4-3 illustrates the three tielines of Figure 4-2.

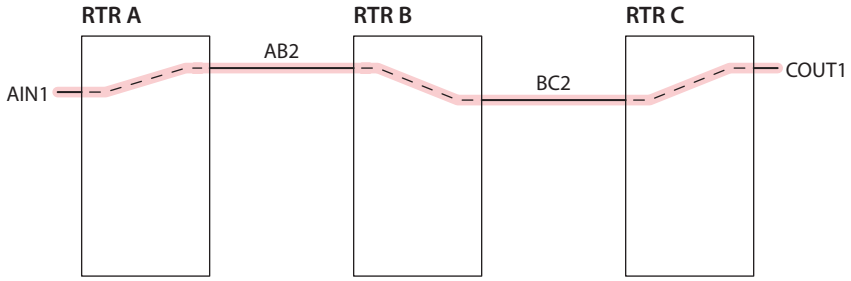
Table Ordering

By clicking the header of any table column you can cause the table to be reordered according the entries in that column. Click the header once and the table is put in ascending order for that column. Click the header again to put the table in descending order of that column. An arrow (up or down) appears in the column header to indicate that the table is ordered according to that column.

To revert to the default table ordering, click the page refresh icon of your browser.

Interpretation

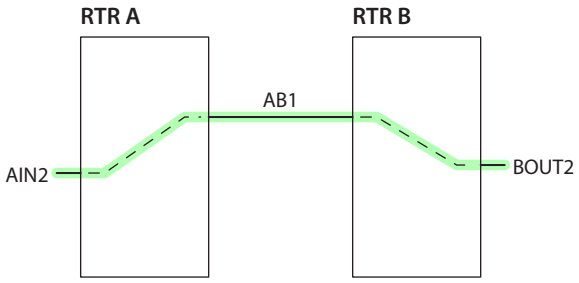
The first two rows of the table represent the multi-hop tieline from AIN1 to COUT1:



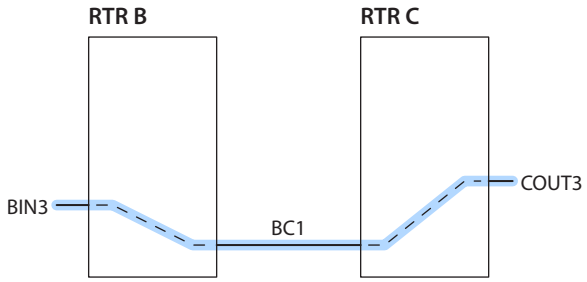
Each row is one hop.

In a multi-hop tieline, some of the sources and destinations are tieline ports, indicated by the names of the tielines. In the first row, for example, the source for the second hop is the tieline port AB2.

The third row represents a simple tieline route from AIN2 to BOUT2:



The fourth row represents a simple tieline route from BIN3 to COUT3:

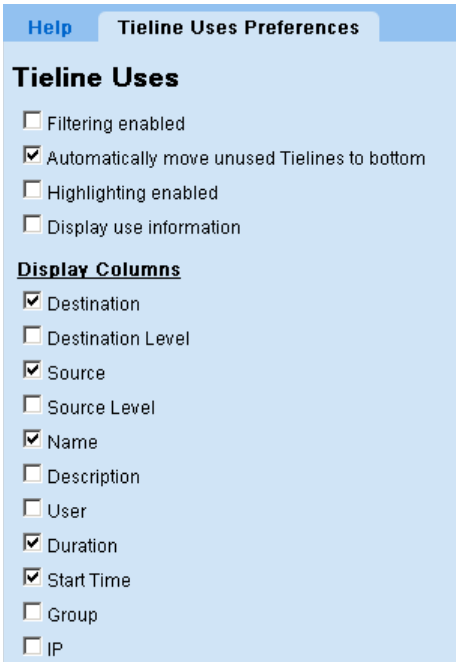


The other rows in the table represent tielines that are not used.

(The tieline drawing illustrated in Figure 4-5 also shows these routes.)

Preferences

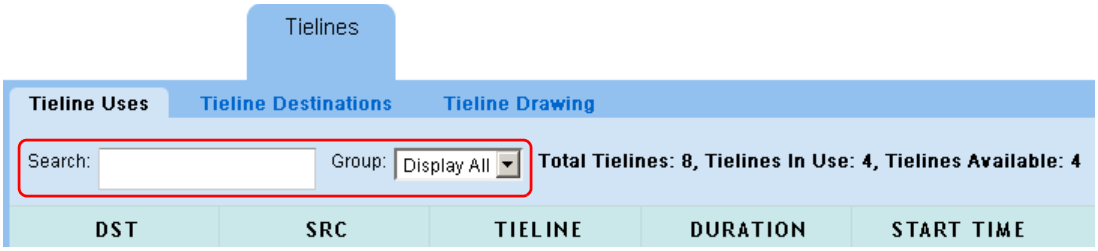
The 'Uses' page has several user-selectable preferences, available in the sidebar:



These are the preferences:

- Filtering enabled

  Checking this option places a name filter and a group filter on the 'Uses' page:



  You can place text in the 'Search' field to limit the number of rows that are displayed. Only those rows in which the search text appears — in any column — are displayed.

  You can select a tieline group in the 'Group' drop-down menu to restrict the tielines displayed only to those belonging to that group.

- Automatically move unused tielines to bottom

  It might be more convenient for you to display all the tielines that are in use in the upper rows of the table. That way, you can minimize scrolling and confusion as you navigate to view different tielines that are in use.

- Highlighting enabled

  Checking this option allows you to highlight table rows belonging to a tieline (in green, yellow, purple, or blue):

Clicked this row →

DST	SRC	TIELINE	DURATION	START TIME
BOUT 2 (2)	AIN 2 (2)	AB1 (1)		
BC2 (142)	AIN 1 (1)	AB2 (2)		
COUT 3 (3)	BIN 3 (3)	BC1 (5)		
COUT 1 (1)	AB2 (142)	BC2 (6)		

  This is particularly useful to show the rows of a multi-hop tieline, which might be difficult to locate without this aid.

  (In a multi-hop tieline, the row you click is the one that is highlighted green. Tieline hops upstream of that one are highlighted in yellow and tieline hops that are downstream of that one are highlighted in purple. Here is the same (multi-hop) tieline highlighted in yellow and green:

Clicked this row →

DST	SRC	TIELINE	DURATION	START TIME
BOUT 2 (2)	AIN 2 (2)	AB1 (1)		
BC2 (142)	AIN 1 (1)	AB2 (2)		
COUT 3 (3)	BIN 3 (3)	BC1 (5)		
COUT 1 (1)	AB2 (142)	BC2 (6)		

  If a tieline goes to multiple destinations, the additional destinations are highlighted in blue. (It is a blue-violet color and distinguishable from the blue tones of the Web Suite page.)

- Display use information

  Checking this option causes the page to display the number of tielines that are in use and the number that are available:

- Display columns

  These 11 check boxes let you select exactly what is displayed for each tieline row (or hop). Each check box corresponds to a column in the 'Tieline Uses' table. (Figure 4-3 shows just a few of these columns.)

  These are the meanings of the optional columns of the table:

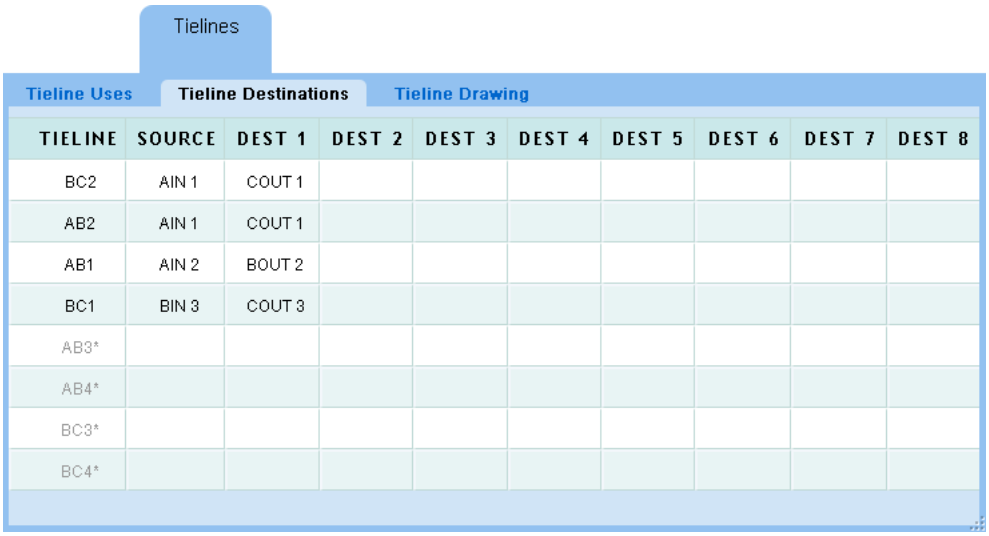
  - 'Dst' — the destination of this simple tieline.
  - 'Dst Level' — the physical level on which the tieline route is made, in the downstream router.
  - 'Source' — the source of this simple tieline.
  - 'Src Level' — the physical level on which the tieline route is made, in the upstream router.
  - 'Tieline' — the name of the tieline.
  - 'Description' — a description of the tieline that was defined at the time the tieline was defined in NV9000-SE Utilities.
  - 'User' — the user name assigned to the control panel at which the route was made.
  - 'Duration' — how long the tieline has been in effect, in days, hours, minutes, and seconds.
  - 'Start Time' — the start time and date of the route that used the tielines.
  - 'Group' — the tieline group to which the tieline belongs. (Your system might not have tieline groups, in which case you might leave this option unchecked.)
  - 'IP' — either 0.0.0.0 or the loopback address of the system controller.

Numbers in parentheses in the source and destination fields are input or output port numbers. (The presence of these numbers is a page configuration option.)

The numbers in parentheses in the tieline and physical level fields are the NV9000 database IDs for the entries in those fields. (The presence of these numbers is a page configuration option.)

Tieline Destinations Page

The 'Tieline Destinations' page shows tielines that are used for routes:



TIELINE	SOURCE	DEST 1	DEST 2	DEST 3	DEST 4	DEST 5	DEST 6	DEST 7	DEST 8
BC2	AIN 1	COUT 1							
AB2	AIN 1	COUT 1							
AB1	AIN 2	BOUT 2							
BC1	BIN 3	COUT 3							
AB3*									
AB4*									
BC3*									
BC4*									

Fig. 4-4: Tieline Destinations Page

Tielines that are not in use are greyed out.

The page shown in Figure 4-4 illustrates one 2-hop tieline (from AIN1 to COUT1) and two single-hop tielines (from AIN2 to BIN2 and from BIN3 to CIN3).

The 'Tieline Destinations' page shows the same tielines as the 'Tieline Uses' page.

Here, however, the page shows multiple destinations (if there are any) for each of the tielines. The tieline service in the NV9000 can connect one tieline source to multiple tieline destinations. This page shows those destinations.

If the tieline has more destinations than the number of 'Dest' columns in the table, then the additional destinations wrap around in the same row as the first set of destinations. (The height of the row increases.)

The page shows the originating source in the 'Source' column. In Figure 4-4, the rows for the "C" tielines show multi-hop routes. The page, in general, shows a mix of simple tieline routes and multi-hop routes.

Table Ordering

By clicking the header of any table column you can cause the table to be reordered according the entries in that column. Click the header once and the table is put in ascending order for that column. Click the header again to put the table in descending order of that column. An arrow (up or down) appears in the column header to indicate that the table is ordered according to that column.

To revert to the default table ordering, click the page refresh icon of your browser.

Interpretation

Figure 4-4 shows the tieline example of Figure 4-2.

The first two rows belong to the multi-hop tieline from AIN1 to COUT1.

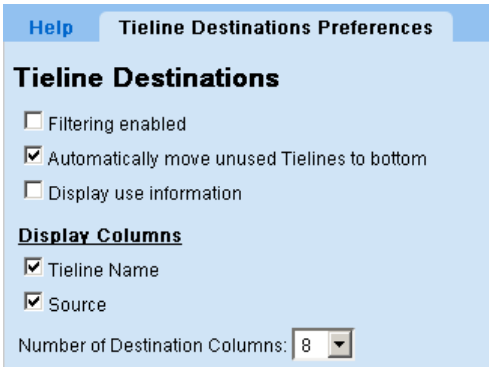
The third row shows the single-hop tieline from AIN2 to BOUT2.

The fourth row shows the single-hop tieline from BIN3 to COUT3.

The rows identify the most upstream source and the most downstream destination of the tieline route. Each row gives the name of a tieline "hop" for the route.

Preferences

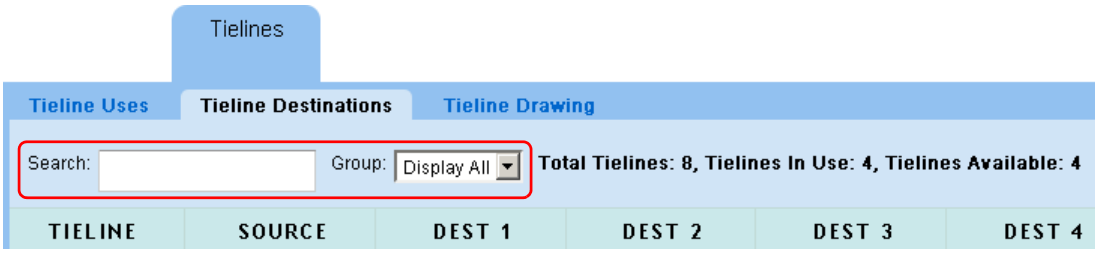
The 'Destinations' page has several user-selectable preferences, available in the sidebar:



These are the preferences:

- Filtering enabled

  Checking this option places a name filter and a group filter on the 'Uses' page:



  You can place text in the 'Search' field to limit the number of rows that are displayed. Only those rows in which the search text appears — in any column — are displayed.

  You can select a tieline group in the 'Group' drop-down menu to restrict the tielines displayed only to those belonging to that group.

- Automatically move unused tielines to bottom

  It might be more convenient for you to display all the tielines that are in use in the upper rows of the table. That way, you can minimize scrolling and confusion as you navigate to view different tielines that are in use.

- Display use information

  Checking this option causes the page to display the number of tielines that are in use and the number that are available:

- Display columns

  These 3 items let you select exactly what is displayed for each tieline. The 2 check boxes refer to the first 2 columns of the table.

  The number of destination columns defaults to 8 but you can increase or decrease the number of these columns. It makes sense to reduce the number of the 'Dest' columns because they often contain no information.

Numbers in parentheses in the source and destination fields are input or output port numbers. (The presence of these numbers is a page configuration option.)

The numbers in parentheses in the tieline field are the NV9000 database IDs for the entries in those fields. (The presence of these numbers is a page configuration option.)

Tieline Drawing Page

The 'Tieline Drawing' page presents a graphical view of tielines used for routes:

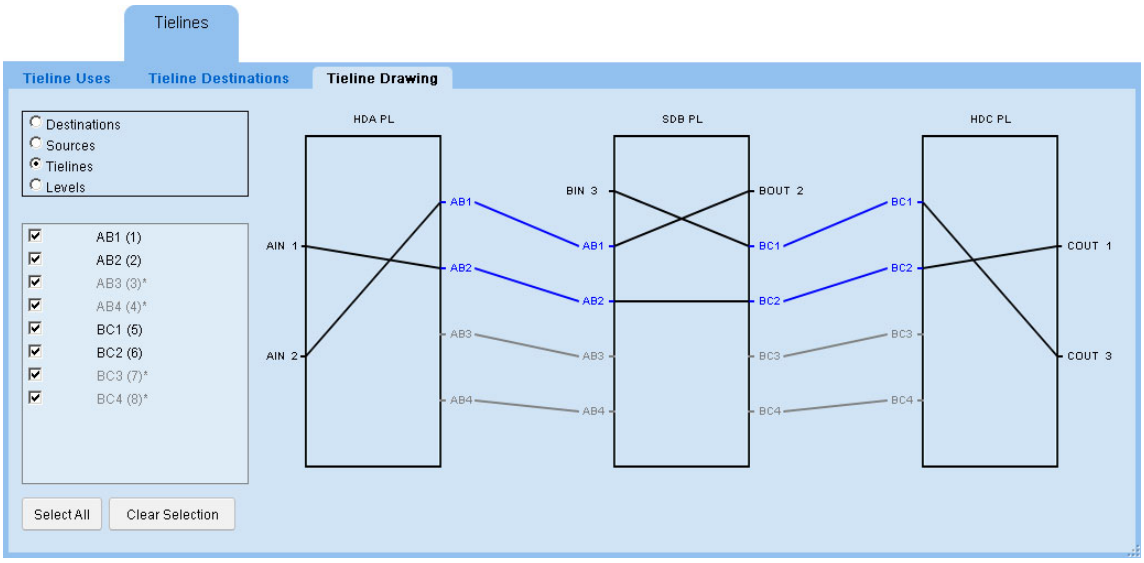


Fig. 4-5: Tieline Drawing Page

At the left side of the page are controls (radio buttons and check boxes) that let you select for display only the items you want to see.

The radio buttons select the category of items that you can choose in the section of check boxes below the radio buttons. If you click the 'Destinations' radio button, the check boxes correspond to destinations related to the tielines.

By checking and unchecking the items (such as destinations) in the check box list, you can control which tielines are shown in the drawing.

In Figure 4-5 above, the 'Tielines' radio button was chosen. Therefore, the names of tielines appear in the checkbox list. In this case, all check boxes are selected. The drawing includes unused tielines. (To include or exclude unused tielines is a a tieline preference that you can set. See Preferences, following)

There are two buttons below the check box list: 'Select All' and 'Clear Selection'. These are short-cuts that allow you to select all check boxes in the list or unselect all check boxes in the list.

Interpretation

Figure 4-5 shows a drawing representing the tieline example of Figure 4-2.

Each rectangle represents a physical level of a router. The rectangles are labeled with the level name (which is defined in NV9000-SE Utilities). In many cases, a router has a single physical level, so in those cases, the rectangle represents the router as well.

Dark lines that connect sources (at the left side of the rectangles) to destinations (at the right side of the rectangles) are tieline routes. Black lines are connections within the router; dark blue lines are connections between routers. The dark blue lines are the actual tielines.

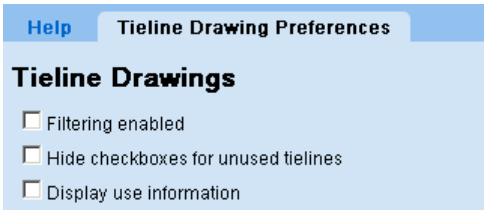
Light gray lines represent unused tielines.

In Figure 4-5, you can see the tielines of the example: one 2-hop tieline running from AIN1 to COUT1 and two single-hop tielines (AIN2 to BOUT2 and BIN3 to COUT3).

If the tieline configuration page enables it, the drawings page will show port numbers next to the port names in the drawing. See Editing a Tieline Tab on page 33.

Preferences

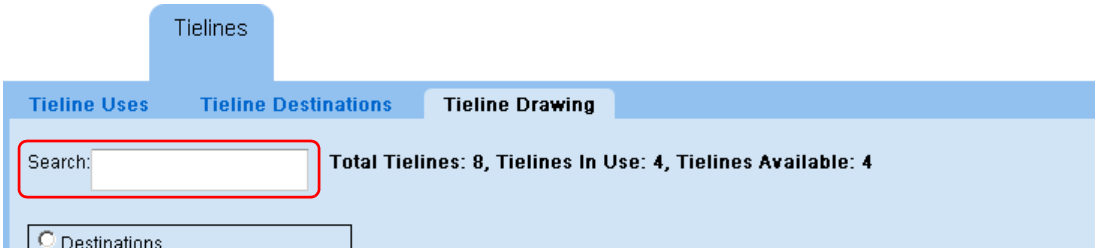
The 'Drawings' page has several user-selectable preferences, available in the sidebar:



These are the preferences:

- Filtering enabled

  Checking this option places a name filter on the 'Drawing' page:



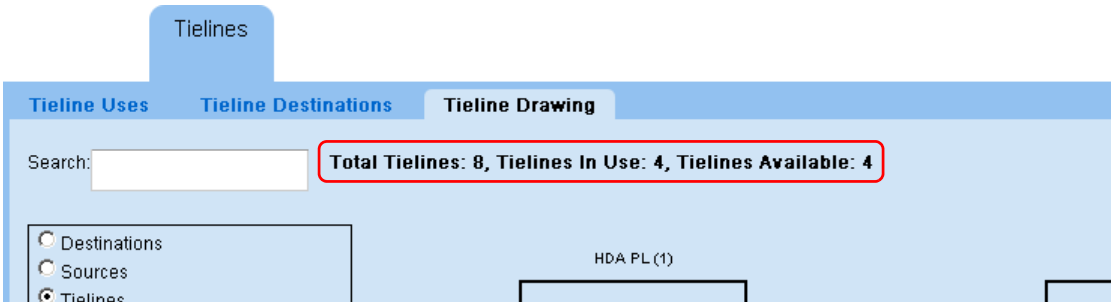
  You can place text in the 'Search' field to limit the number of items that are displayed. Only those items in which the search text appears are displayed.

- Hide check boxes for unused tielines

  If you wish to disregard unused tielines, checking this option will prevent their being displayed in the check box list or in the drawing.

- Display use information

  Checking this option causes the page to display the number of tielines that are in use and the number that are available:



5 Multi-Level Tab

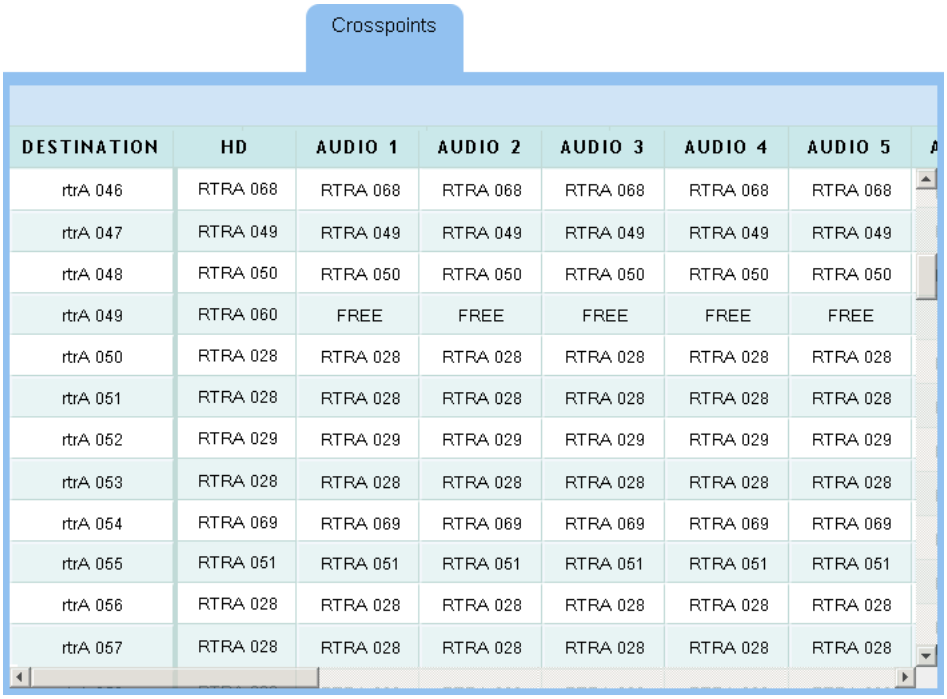
Chapter 5 provides information and instructions regarding the NV9000 Web Suite's 'Multi-Level' tab.

Topics

Summary *85*
Locks and Protects *87*

Summary

The 'Multi-Level' tab presents a list of destinations and for each destination, the sources that feed the destinations on one or more (virtual) levels.



DESTINATION	HD	AUDIO 1	AUDIO 2	AUDIO 3	AUDIO 4	AUDIO 5
rtrA 046	RTRA 068	RTRA 068	RTRA 068	RTRA 068	RTRA 068	RTRA 068
rtrA 047	RTRA 049	RTRA 049	RTRA 049	RTRA 049	RTRA 049	RTRA 049
rtrA 048	RTRA 050	RTRA 050	RTRA 050	RTRA 050	RTRA 050	RTRA 050
rtrA 049	RTRA 060	FREE	FREE	FREE	FREE	FREE
rtrA 050	RTRA 028	RTRA 028	RTRA 028	RTRA 028	RTRA 028	RTRA 028
rtrA 051	RTRA 028	RTRA 028	RTRA 028	RTRA 028	RTRA 028	RTRA 028
rtrA 052	RTRA 029	RTRA 029	RTRA 029	RTRA 029	RTRA 029	RTRA 029
rtrA 053	RTRA 028	RTRA 028	RTRA 028	RTRA 028	RTRA 028	RTRA 028
rtrA 054	RTRA 069	RTRA 069	RTRA 069	RTRA 069	RTRA 069	RTRA 069
rtrA 055	RTRA 051	RTRA 051	RTRA 051	RTRA 051	RTRA 051	RTRA 051
rtrA 056	RTRA 028	RTRA 028	RTRA 028	RTRA 028	RTRA 028	RTRA 028
rtrA 057	RTRA 028	RTRA 028	RTRA 028	RTRA 028	RTRA 028	RTRA 028

Thus, each field to the right of the destination column is a source on the level indicated by the column header. If there is no source on a particular level, the field displays a dash.

- Sources from a tieline are displayed in *italics*.

By default, the 'Multi-Level' page displays all destinations and all virtual levels defined in the system controller's configuration. The Web Suite's configuration page, however, lets you specify exactly which destinations and exactly which virtual levels are displayed in the list.

You can create more than one 'Multi-Level' tab. Several 'Multi-Level' tabs can display different views of different data.

See Editing a Multi-Level Crosspoint Tab on page 36 for information about creating new tabbed pages and specifying the levels that appear in the page.

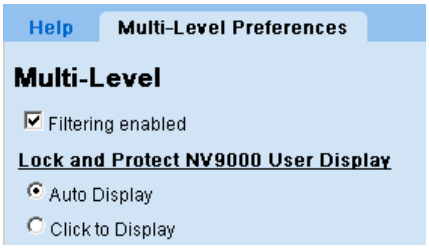
Table Ordering

By clicking the header of any table column you can cause the table to be reordered according the entries in that column. Click the header once and the table is put in ascending order for that column. Click the header again to put the table in descending order of that column. An arrow (up or down) appears in the column header to indicate that the table is ordered according to that column.

To revert to the default table ordering, click the page refresh icon of your browser.

Preferences

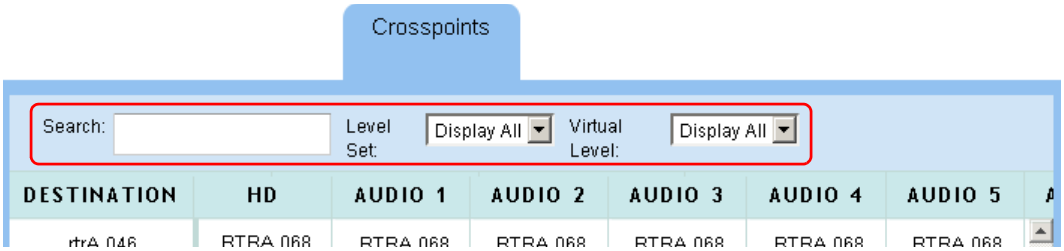
The 'Multi-Level' page has several user-selectable preferences, available in the sidebar:



These are the preferences:

- Filtering enabled

  Checking this option places a name filter, a level set filter, and a virtual level filter on the page:



  You can place text in the 'Search' field to limit the number of rows that are displayed. Only those rows in which the search text appears — in any column — are displayed.

  You can select a level set in the 'Level Set' drop-down menu to restrict the destinations displayed to only those belonging to that level set. (The sources displayed will correspondingly be limited to the same level set.)

  You can select a level in the 'Virtual Level' drop-down menu to restrict the destinations displayed to only those having that level.

- Lock and Protect NV9000 User Display

  There are two radio button options for the display of locks and protects in the 'Multi-Level' page:

  'Auto Display' causes a locked or protected field to show the NV9000 user name (and its database ID) of the user who locked or protected the destination automatically. (The NV9000 user name is defined in NV9000-SE Utilities and assigned in the Web Suite.)

  'Click to Display' causes a locked or protected field to show the NV9000 user name (and its database ID) of the user who locked or protected the destination only when you click the field. The field reverts to its normal content when you click the field again.

  Locked fields are always highlighted in red. Protected fields are always highlighted in yellow.

  - ▲ It is the destination that is locked or protected, on particular levels. The highlighting in the source fields in the page's table indicate on which levels.
  - ▲ Whether sources are locked or protected is not indicated on the 'Multi-Level' page.

Display Options

The multi-level page you are viewing might have been configured so that its table entries prefix a number (with a colon) to the source name. These numbers are device IDs for the destinations and sources.

The page also might have been configured so that its table entries show the source level name, in parentheses, for each source. (Note that the column names of the table are level names that apply to the *destinations*.)

Locks and Protects

Destinations that are locked are indicated by a red field in the columns representing the levels on which they are locked. Destinations that are protected are indicated by a yellow field in the column representing the levels on which they are protected:

If a level is not displayed on the page, no lock or protection can be indicated for that level.

There is a page preference (available in the sidebar) that lets you specify whether the NV9000 user name (and its database ID) of the user who performed the lock or protect is displayed automatically or just when you click a particular field in the table. See Preferences on page 86.

The number in parentheses is the database ID of the NV9000 user name.

6 Primary Level Tab

Chapter 6 provides information and instructions regarding the NV9000 Web Suite's 'Primary Level' tab.

Topics

Summary *89*
Locks and Protects *91*

Summary

The 'Primary Level' tab presents a list of destinations and for each destination, the source that feeds the destination on the destination's *primary* level:

Primary Level

DESTINATION	SOURCE	DESTINATION	SOURCE	DESTINATION	SOURCE	DESTINATION	SOURCE
AOUT 1	AIN 1	**AOUT 2**	AIN 2	**AOUT 3**	AIN 3	**AOUT 4**	AIN 4
AOUT 5	AIN 5	**AOUT 6**	AIN 6	**AOUT 7**	AIN 7	**AOUT 8**	AIN 8
AOUT 9	AIN 9	**AOUT 10**	AIN 10	**AOUT 11**	AIN 11	**AOUT 12**	AIN 12
AOUT 13	AIN 13	**AOUT 14**	AIN 14	**AOUT 15**	AIN 15	**AOUT 16**	AIN 16
BOUT 1	BIN 1	**BOUT 2**	*AIN 2*	**BOUT 3**	BIN 3	**BOUT 4**	BIN 4
BOUT 5	BIN 5	**BOUT 6**	BIN 6	**BOUT 7**	BIN 7	**BOUT 8**	BIN 8
BOUT 9	BIN 9	**BOUT 10**	BIN 10	**BOUT 11**	BIN 11	**BOUT 12**	BIN 12
BOUT 13	BIN 13	**BOUT 14**	BIN 14	**BOUT 15**	BIN 15	**BOUT 16**	BIN 16
COUT 1	*AIN 1*	**COUT 2**	CIN 2	**COUT 3**	*BIN 3*	**COUT 4**	CIN 4
COUT 5	CIN 5	**COUT 6**	CIN 6	**COUT 7**	CIN 7	**COUT 8**	CIN 8
COUT 9	CIN 9	**COUT 10**	CIN 10	**COUT 11**	CIN 11	**COUT 12**	CIN 12
COUT 13	CIN 13	**COUT 14**	CIN 14	**COUT 15**	CIN 15	**COUT 16**	CIN 16

This is a more compact view of the destinations than presented by the 'Multi-Level' page because (1) each line shows more than one destination and (2) less information is displayed for each destination.

The primary level for any destination is the first level defined for the device[1] in the NV9000 configuration. In typical cases, that level is a video level.

1. More accurately, the primary level is the first level defined for the level set to which the device belongs.

By default, the 'Primary Level' page displays all destinations defined in the system controller's configuration. The Web Suite's configuration page, however, lets you specify exactly which destinations are displayed in the list.

You can also specify the number of destination/source pairs to be displayed in each line (in the page preferences).

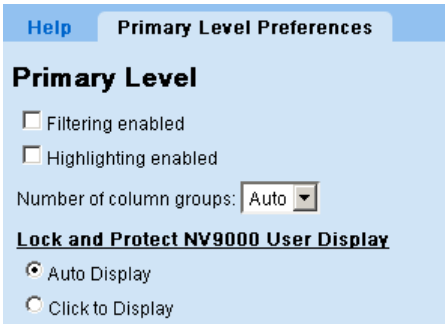
You can create more than one 'Primary Level' tab. Several 'Primary Level' tabs can display different views of different data.

- Sources from tielines are displayed in *italics*.
- Destinations with a breakaway or a level mapping are displayed with the primary source in underlined text.

See Editing a Primary Level Tab on page 41 for information about creating new tabbed pages.

Preferences

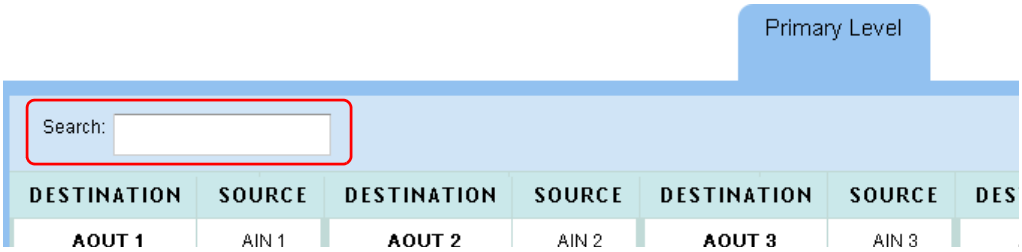
The 'Primary Level' page has several user-selectable preferences, available in the sidebar:



These are the preferences:

- Filtering enabled

  Checking this option places a name filter on the page:



  You can place text in the 'Search' field to limit the number of destination/source pairs that are displayed. Only those pairs in which the search text appears — in either the destination or the source — are displayed.

- Highlighting enabled

  This option allows you to highlight any particular destination/source pair by clicking a field. The fields are highlighted in a shade of purple.

- Number of column groups

  This option lets you specify the number of column pairs in the page. You can set this value to a number between 1 and 10 or you can specify 'Auto' to let the software determine the num-

ber of column pairs to display, according to the size of your browser window. (The default is 'Auto'.)

- Lock and Protect NV9000 User Display

  There are two radio button options for the display of locks and protects in the 'Primary Level' page:

  'Auto Display' causes a locked or protected field to show automatically the NV9000 user name (and its database ID) of the user who locked or protected the destination.

  'Click to display' causes a locked or protected field to show the NV9000 user name (and its database ID) of the user who locked or protected the destination only when you click the field. The field reverts to its normal content when you click the field again.

  Locked fields are always highlighted in red. Protected fields are always highlighted in yellow.

  ▲ The lock or protect highlighting is present only if the destination is locked on its primary level.

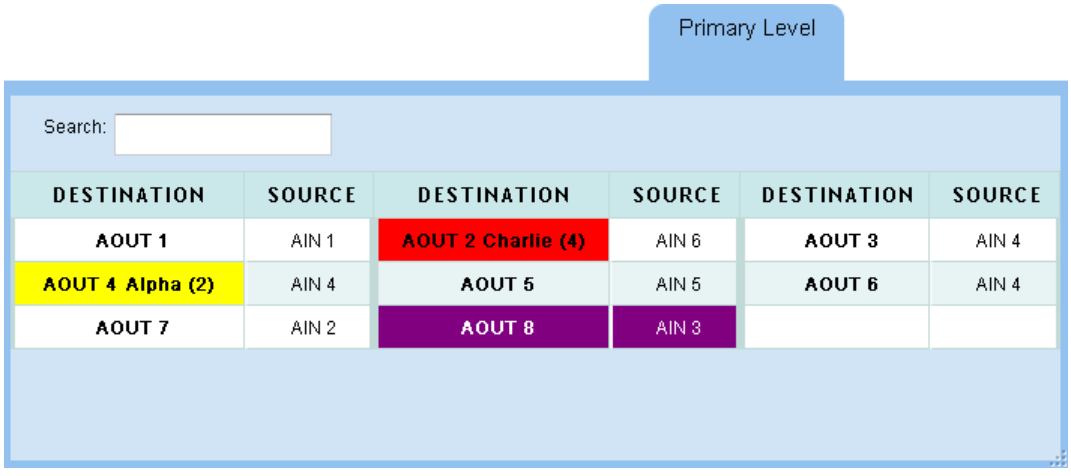
  ▲ Whether sources are locked or protected is not indicated on the 'Primary Level' page.

Display Options

The primary level page you are viewing might have been configured so that its table entries prefix a number (with a colon) to the source name. These numbers are device IDs for the destinations and sources.

Locks and Protects

Locked destinations are represented by a red field in the destination column. Protected destinations are represented by a yellow field in the destination column:



This illustration also shows a destination/source pair highlighted in purple.

There is a page preference (available in the sidebar) that lets you specify whether the NV9000 user name (and its database ID) of the user who performed the lock or protect is displayed automatically or just when you click a particular field in the table. See Preferences on page 90.

The number in parentheses is the database ID of the NV9000 user name.

Table Ordering

By clicking the header of any table column you can cause the table to be reordered according the entries in that column. Click the header once and the table is put in ascending order for that column. Click the header again to put the table in descending order of that column. An arrow (up or down) appears in the column header to indicate that the table is ordered according to that column.

To revert to the default table ordering, click the page refresh icon of your browser.

7 Matrix View

Chapter 7 provides information and instructions regarding the NV9000 Web Suite's 'Matrix View' tab.

Topics

Summary *93*

Summary

The 'Matrix View' tab presents a view of the sources and destinations of your router control system as a matrix. Rows in the matrix represent destinations; columns in the matrix represent sources. A third dimension to the matrix (not readily visible) represents levels. Those levels can be displayed at the top of the page, as an option. A crosspoint of the matrix appears as a colored round-corner square (which we are calling a "button").

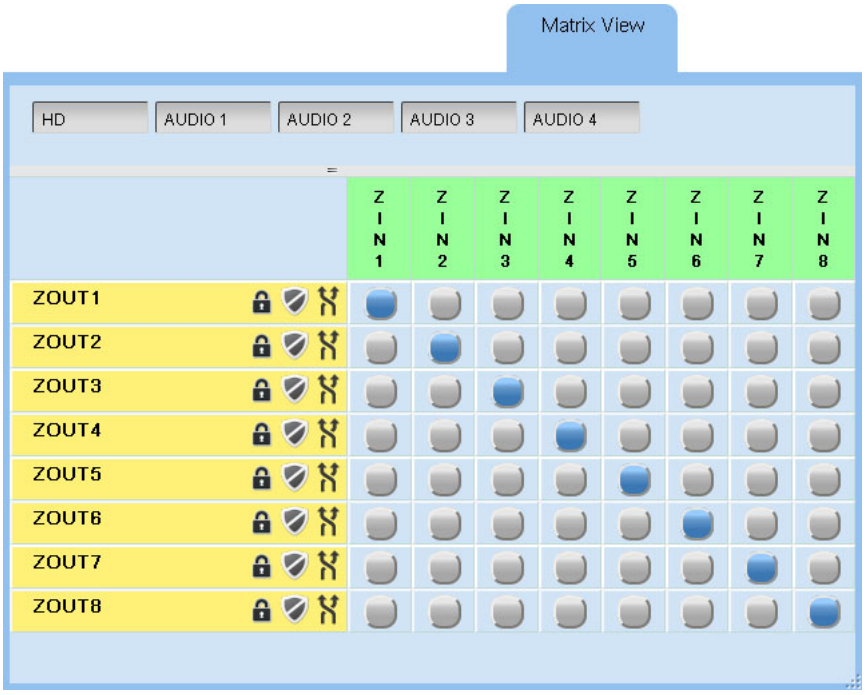


Fig. 7-1: Matrix View (Default Router State)

Unlike other pages in the Web Suite, the matrix view is *interactive,* allowing you to perform takes, breakaway, level mapping, and locks and protects.

The examples in this chapter show a simplified system that has 8 sources (ZIN*x*) and 8 destinations (ZOUT*x*). Each source and destination has 5 levels: HD and AUD IO1–AUDIO4.

Figure 7-1, on the previous page, shows that system in an initial state, which is a diagonal matrix. That is, ZIN1 is routed to ZOUT1, on all levels, and so on, through ZIN8 and ZOUT8.

Figure 7-2 shows the matrix after a few takes, locks, and protects:

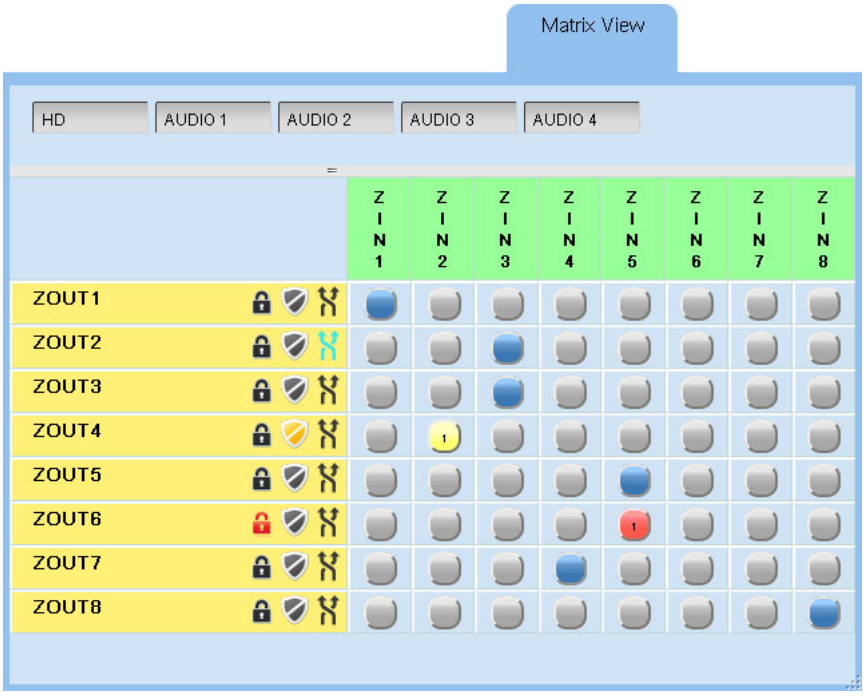


Fig. 7-2: Matrix View (Showing Locks, Protects, and Level-Mapping)

Level Display

An option among the page preferences causes the page to show buttons for the levels (that were selected for the page) at the top of the page. Each of these buttons is a toggle that selects or deselects a level for which to display crosspoint information. When the level is selected, the selection button is dark gray; when the level is not selected, it is light gray.

Each button in the matrix is highlighted if a route exists at that point for at least one of the levels selected for display.

- The level buttons do not control on which levels a take, a lock, or a protect is performed. They merely affect which levels are displayable. Use the breakaway feature to select levels for takes, locks, and protects.

Performing Simple Takes

To perform a simple take, just click the button in the row for the destination and the column for the source. (A breakaway or level mapping is slightly more complex. See Breakaway and Level Mapping on page 95.) The button turns blue — if the levels on which the take occurred are displayed.

Performing Simple Locks and Protects

To lock a destination, click the lock icon for the destination. The lock icon turns red and the highlighted button(s) for the destination also turn red.

To protect a destination, click the shield icon for the destination, as shown. The shield icon turns yellow and the highlighted button(s) for the destination also turn yellow.

The number within the square is the database ID of the NV9000 user name for the user who performed the lock or protect. The NV9000 user name is also displayed in the button when the buttons are medium or large size. (See Preferences on page 98.)

To release a lock or protect, simply click the lock or protect icon for the appropriate destination.

- To release a lock or protect, (1) you must be logged in as the person who made the lock or protect and (2) your current user name must be the one you had at the time you made the lock or protect. You cannot release a lock or protect made by someone else.
- There is no forced release in the Web Suite.

Breakaway and Level Mapping

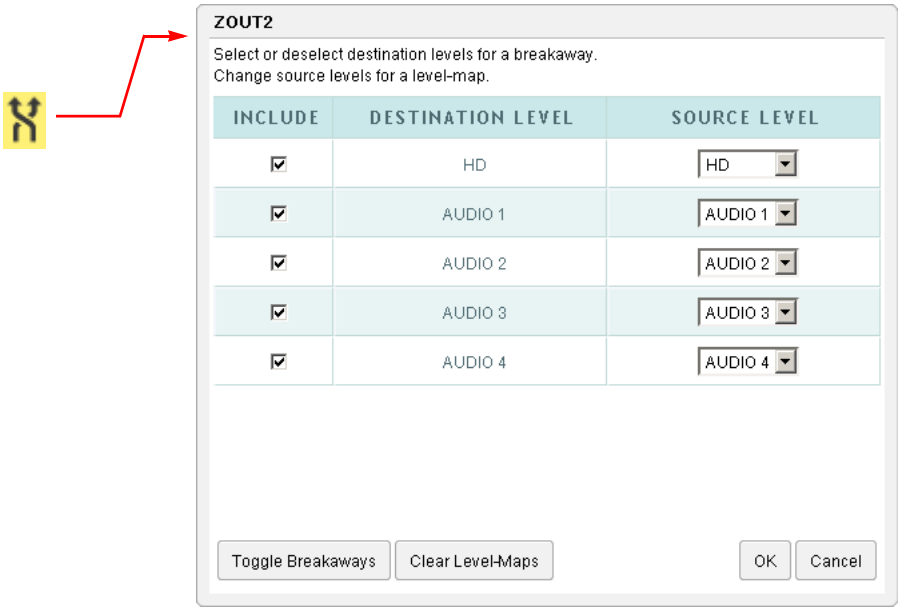
Breakaway and level mapping are slightly more complex than simple takes. They require a dialog in which to specify the details of the breakaway or level mapping.

Definitions

In the Web Suite, breakaway is where you *deselect* at least one level for the take. Otherwise, the take is all-level and is not treated as a breakaway.

In the Web Suite, level mapping is where at least one level of the source is routed to a different level in the destination.

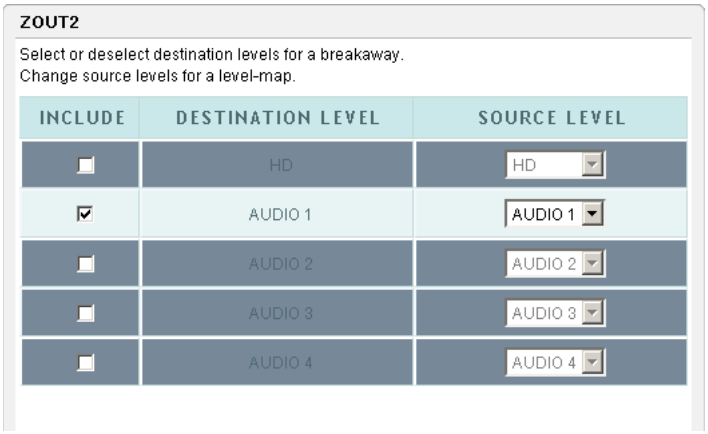
To open the breakaway/level-mapping dialog, click the double arrow icon for the destination to which you want to route. The dialog appears:



The dialog lists all the levels that were configured for the matrix view.

Breakaway

At the left of the dialog are check boxes. A check in the check box enables the level for a take, a lock (or unlock), or a protect (or unprotect). When a level is deselected for breakaway, the row representing that level is highlighted in gray:

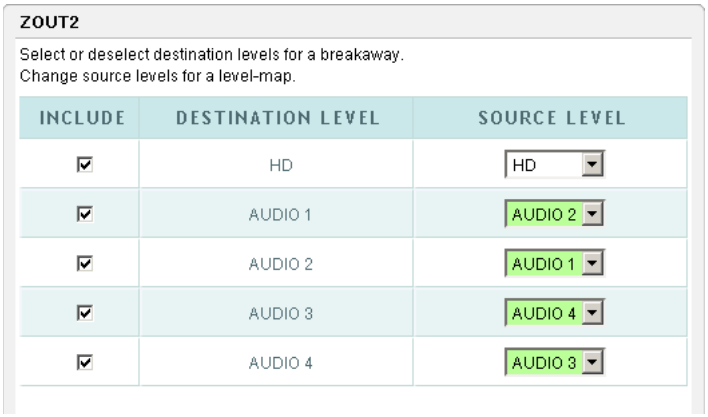


There is a 'Toggle Breakaway' button at the bottom left of the dialog:

Click this button to invert the selection of levels. Check boxes that were checked become unchecked and vice versa. Highlighted rows become unhighlighted and vice versa.

Level Mapping

At the right of the dialog are drop-down lists for each level. Each drop-down list contains all the configured levels as well. Selecting a different level in the drop-down list creates a level mapping, that is to say, a *non-identity mapping from the level space of the source device to the level space of the destination device*. Where the mapping shows a difference in level, the entry in the drop-down list turns green:



In this example, channels AUDIO1 and AUDIO2 are swapped and channels AUDIO3 and AUDIO4 are swapped.

If none of the drop-down menus are green, the mapping is the identity mapping, but for convenience, we say that there is no mapping.

There is a 'Clear Level-Maps' button at the bottom left of the dialog:

Click this button to restore the level mapping to no mapping (or really, the *identity* mapping).

Performing Breakaway or Level-Mapped Takes

First set up a breakaway or a level map or a combination of the two using the dialog.

Then perform a take by clicking the crosspoint button for the source and the destination.

The breakaway and level-map parameters persist until you change them or until you refresh the display.

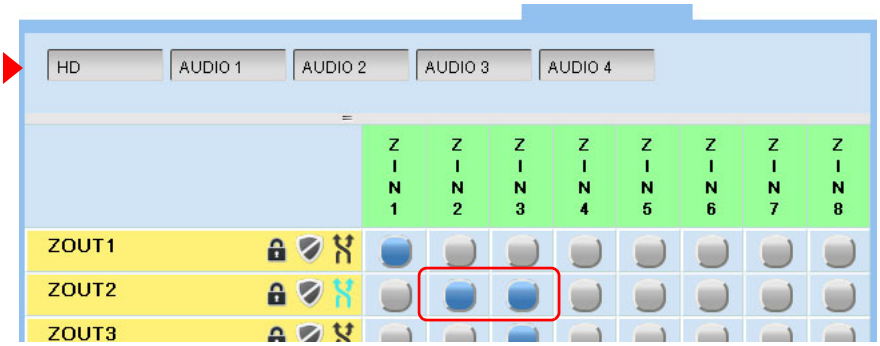
Display of Breakaway and Level-Mapping

If a destination has a breakaway or a level mapping, or both, its double arrow icon is aqua-blue (although it appears green because of the yellow background):

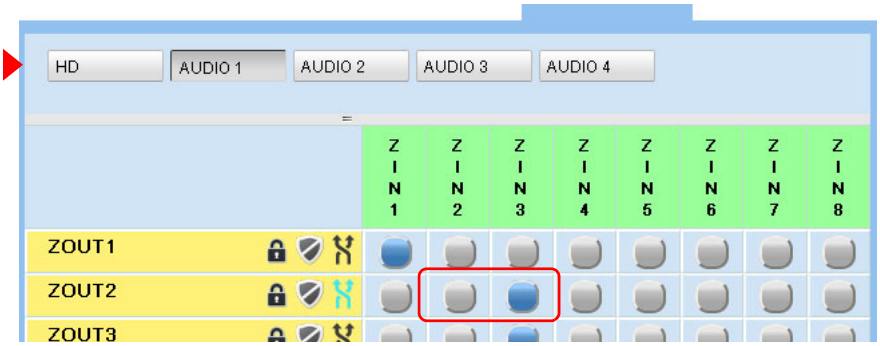
Reclicking the double arrow icon can tell you whether this destination has a breakaway or a level mapping or both.

As mentioned, the level buttons at the top of the page (when enabled as a page preference) can select which levels are represented in the display of the "crosspoints."

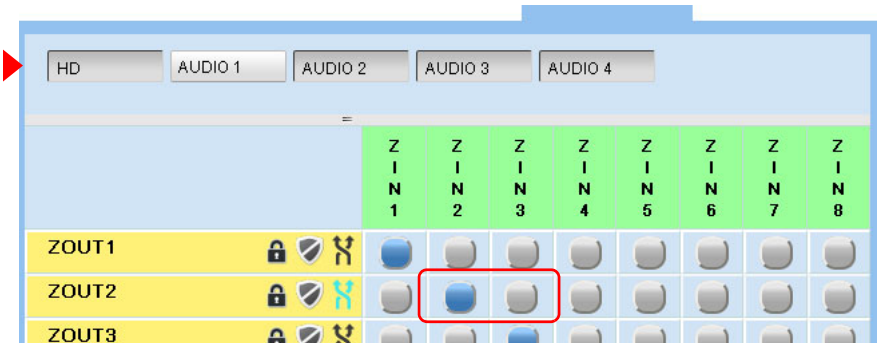
For instance, if you perform a breakaway take of AUDIO1 from ZIN3 to ZOUT2, leaving all else the same, and display all available levels, the display shows two highlighted buttons:



When you display only level AUDIO1, the display shows that it is from ZIN3 (for ZOUT2):

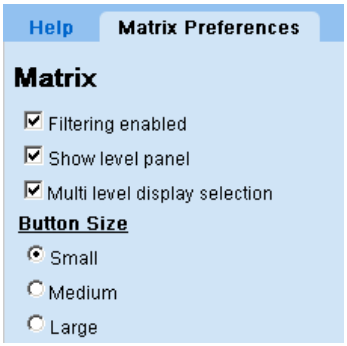


When you display levels other than AUDIO1, the display shows that they are from ZIN2:



Preferences

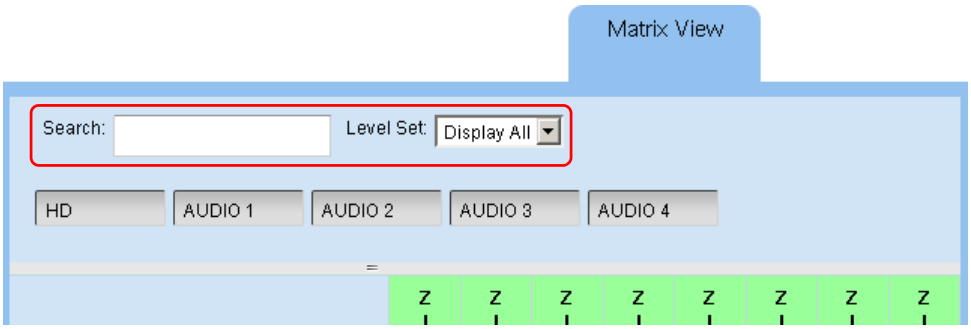
The 'Matrix View' page has several user-selectable preferences, available in the sidebar:



These are the preferences:

- Filtering enabled

  Checking this option places a name filter and a level set filter on the page:



  You can place text in the 'Search' field to limit the number of rows that are displayed. Only those destinations (rows) in which the search text appears are displayed.

  You can select a level set in the 'Level Set' drop-down menu to restrict the destinations displayed to only those belonging to that level set. (The sources displayed will correspondingly be limited to the same level set.)

- Show level panel

  This option enables the display of level buttons at the top of the page when the check box is checked. Level buttons select the levels that contribute to the display of the matrix.

If you do not check this option, the levels panel does not appear on the page and the matrix displays only primary level data.

▲ The level buttons do not select the levels on which takes, locks, and protects occur.

- Multi-level display selection

  If you check this option, you can select more than one level in the levels panel.

  If you uncheck this option, you can select *at most* one level in the levels panel.

- Button size

  Three radio buttons allow you to choose the size of the buttons displayed in the matrix: small, medium, or large.

  When the buttons are medium or large, and the destination is locked or protected on a visible level, they show the NV9000 user name of the user who locked or protected the destination as well as the database ID of the NV9000 user name. The small buttons show only the database ID.

Display Options

The matrix you are viewing might have been configured so that its table entries prefix a number (with a colon) to the source name or destination name. These numbers are device IDs for the destinations and sources.

See Editing a Matrix View Tab on page 43 for information about creating new tabbed pages and specifying the levels that appear in the page.

A Notes

Appendix A gives additional notes regarding the NV9000 Web Suite.

Topics

DHP Restriction *101*

DHP Restriction

DHP — a service running in an NV9000 system controller — can communicate with only one instance of the Web Suite at a time. Therefore, if multiple users are to access the NV9000 system and monitor DHP, those users must use the same instance of the Web Suite. (The multiple users would specify the IP address of the PC running the service as the URL in their browser.)

Because the Web Suite is a service, it is always in communication with the system controller, whether a user has a browser open or not. Therefore, when the system controller supports a router with DHP, all but one instance of the Web Suite must be stopped.

- Multiple accesses to DHP might include an instance of DHP-D[1] running somewhere. If DHP-D is running, no instance of the Web Suite can access DHP data.

The Web Suite's tieline and crosspoint views (including the matrix view) do ***not*** have this restriction because the restriction is only in the DHP implementation.

1. A Miranda diagnostic utility not generally available to customers.

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