



Monitoring Voice Network Health

These topics describe how to use the fault event browsers within the VHM folder to monitor the health of your voice network:

- [Using the Real-Time Dashboard, page 2-1](#)
- [Using the Monitoring Console, page 2-14](#)

Using the Real-Time Dashboard

The Real-Time Dashboard provides an overall picture of voice network health. The Summary View displays managed voice device groups and the number of devices in the groups with faults in each fault category. Starting from the Summary View, you can open more detailed views:

- **Status View**—Displays the status of managed devices in the selected voice device group. From this view you can open a more detailed view of a particular device, called the Device Detail View.
- **Device Detail View**—Displays relevant details for a particular managed device.



Note

Unmanaged devices do not appear in the Real-Time Dashboard.

Both the Summary View and the Status View use System Status indicators to display VHM system health. The status indicator is green if all the processes in the VHM system are communicating with each other correctly. The status

indicator is red if one or more processes in the VHM system lose contact with the ESS Bus (CMF Event bus) or the VHM server. When you move the mouse over the System Status indicator, system status information is displayed as a tooltip.

The DFM System Status Indicator shows the DFM server's connectivity with VHM backend processes.

While you are browsing the status of voice devices on the Real-Time Dashboard, you can quickly open an Administration Console (if you have administrative privileges), a Monitoring Console, or other Cisco applications, to provide:

- More data, such as alarms that have been logged—for example, you can view alarms on the Monitoring Console.
- The ability to take an action based on what you have already seen—for example, you can send email about an alarm from the Monitoring Console.

See the [“Starting Additional Consoles and Views from the Summary View”](#) section on page 2-8 and the [“Starting Additional Consoles and Views from the Status View”](#) section on page 2-12 for more information.

Managing Data in the Real-Time Dashboard

To help you organize and search the information in the views that the Real-Time Dashboard offers, you can sort the information in any order. You can also use the Find capability to look for a particular device group or device.









For more information, see the following topics:

- [Real-Time Dashboard Buttons, page 2-3](#)
- [Sorting the Data in a View, page 2-4](#)
- [Searching for a Device or a Device Group, page 2-4](#)

Real-Time Dashboard Buttons

In the VHM Real-Time Dashboard, certain file menu commands can be performed through a toolbar button. They are summarized in the Real-Time Dashboard Toolbar Buttons table.

Table 2-1 Real-Time Dashboard Toolbar Buttons

Button	Description
	Search for a device or device group
	Print summary information
	Display legend
	Display Monitoring Console
	Display Status View
	Display Device Detail View
	Display CiscoView
	Expand/Collapse ICS 7750

Sorting the Data in a View

The Real-Time Dashboard views present information in a tabular format. You can sort the information by any column or by the contents of the entire table, in ascending or descending order. In the Status View, you can also sort by severity level or device type.

To sort the data in the Summary View or Status View in the Real-Time Dashboard:

- To sort by column, select any column header. You can toggle the sort order between ascending and descending by selecting the column header again.
- To sort the entire table, select **View > Sort Table** and select either the Ascending or Descending radio button.
- To sort by device type or severity level, in the Status View, select **View > Sort Table**. Select either the Ascending or Descending radio button and select either the Device Type or Severity Level radio button.

Searching for a Device or a Device Group

The Real-Time Dashboard–Summary View displays a table of voice device groups, while the Status View displays a table of devices within a selected voice device group. You can search either table for specific entries.

To find a particular device or device group:

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- Step 1** To search for a specific group from a list of voice device groups, or for a device from a list of devices, select **Edit > Find** or click the search button.
- Step 2** Enter the device name or device group name in the search field. (Substring matching is also available.)
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Sharing Data from the Real-Time Dashboard

A user in a Network Admin or Network Operator role can export data from Real-Time Dashboard views. Users in any role can print information from the views.

To export data:

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- Step 1** Select **File > Export**.
- Step 2** In the Export dialog box, select the location where you want to save the file. Doing so creates a file with data from the view that is currently displayed.
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To print data:

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- Step 1** Select **File > Print** or click the Print Summary Info button.
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Accessing Help

Selecting the Help button provides the following options in addition to online help:

- Using Voice Health Monitor—Displays the *Voice Health Monitor User Guide*.
- Legend—Explains the color schemes and device icons. You can also click the Display Legend button on the toolbar to access this information.
- About—Displays product information such as version, copyright, and date.

Using the Summary View

The Real-Time Dashboard–Summary View presents the overall status of the voice network. It is updated in real time; if a device status is changed (from managed to unmanaged or vice versa) the Real-Time Dashboard–Summary View will update automatically.

[Table 2-2](#) lists all the elements available within the Real-Time Dashboard–Summary View window.

Table 2-2 Real-Time Dashboard–Summary View Elements

Element	Description
Voice Device Group	See Table 2-3 on page 2-7 .
Number of Devices	The number of devices in the voice device group.
Critical	The number of devices that have <i>Critical</i> as their highest fault level.
Warning	The number of devices that have <i>Warning</i> as their highest fault level. If a device displays both <i>Warning</i> and <i>Critical</i> faults, the device will display a fault level of <i>Critical</i> .
Indeterminate	The number of devices that have a fault level of <i>Indeterminate</i> .

For more information about the Summary View, please see the following topics:

- [Grouping Devices: Voice Device Groups, page 2-7](#)
- [Starting Additional Consoles and Views from the Summary View, page 2-8](#)

Grouping Devices: Voice Device Groups

Table 2-3 lists the voice device groups used throughout VHM.

Table 2-3 Voice Device Groups

Group	Description
VC (voice clusters)	Consists of all the members of a CallManager voice cluster and the voice gateways that are registered with any of the CallManagers. In the Summary View each cluster is summarized into one row.
VoiceServices	Voice-enabled PCs running workflow applications. There is only one workflow application entry.
InlinePowerSwitches	Catalyst switches that supply power to phones connected on Ethernet. There is only one Inline Power Switch entry. In the Summary View, all InlinePowerSwitches are summarized in one row.

Table 2-3 Voice Device Groups (continued)

Group	Description
VoiceGateways	<p>In the Summary View, all VoiceGateways are summarized in one row. These include:</p> <ul style="list-style-type: none"> • Catalyst switches with: <ul style="list-style-type: none"> – Voice T1/E1 – Transcoder – Conference bridge – Media termination points (MTPs) – Voice FXS • IOS routers with: <ul style="list-style-type: none"> – FXS – FXO – T1 PRI/E1 PRI

Starting Additional Consoles and Views from the Summary View

Select any of the following options from the Tools menu, or right-click any row in the Summary View and select among these options:

- Administration Console—Change administrative options. You must be logged on to CiscoWorks2000 in a Network Admin or Network Operator role to open this console.
- Monitoring Console—View and take action on alarms: send a page or mail, or start a script. You can also open a Monitoring Console by clicking the Display Monitoring Console button.

- Real-Time Dashboard–Status View—Open a Status View for a voice device group listing each device in the group and its status. You can also open a status view by clicking the Display Status View button.

**Note**

Opening a Monitoring Console from the Real-Time Dashboard displays one alarm log that includes both VHM and DFM alarms. To display two alarm logs (one for VHM and another for VHM and DFM combined), start the Monitoring Console from the CiscoWorks2000 desktop.

Using the Status View

From the Summary View, you can get more information about a particular voice device group by starting a Status View. The Status View lists details for all devices in a selected voice device group. It is updated in real time; if a device status is changed (from managed to unmanaged or vice versa) the Status View will update automatically.

To view the status of a voice device group:

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- Step 1** Perform one of the following steps from the Real-Time Dashboard–Summary View window:
- Double-click any row that includes the voice device group of interest to you.
 - Right-click any row that includes the voice device group of interest to you and select Status View from the newly displayed menu.
 - Select a voice device group and click the Display Status View button.

The Real-Time Dashboard–Status View is displayed. You can start additional status view windows for other voice device groups in the same way.

- Step 2** From a Status View window, view another voice device group by selecting one from the drop-down list box.
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Examining Fault Categories

The Real-Time Dashboard–Status View window groups faults into six categories. [Table 2-4](#) lists each fault category and describes what a fault in each category means.

Table 2-4 Fault Categories

Fault Category	Description
Reachability	<p>Reflects whether or not DFM can reach the device. If DFM can reach the device, it checks the status of the SNMP agent on the device. If DFM can reach the agent, then the device is considered reachable. Reachability includes both IP and SNMP connectivity.</p> <p>Note When DFM and VHM run on separate machines, VHM may display a device that DFM cannot reach even when VHM can reach the device.</p>
Environment	<p>Reflects device parameters. The following environment parameters are monitored:</p> <ul style="list-style-type: none"> • Power Supply • Fan Status • Chassis Operating Temperature • Battery State • Temperature Sensor Status <p>Note Depending on the system class that the device belongs to, these parameters may vary.</p>
System	<p>Reflects those attributes of a device that impact the normal functioning of software on the device. The following system parameters are monitored:</p> <ul style="list-style-type: none"> • CPU Usage • Memory Free (physical and virtual) • Disk Utilization
Interfaces	<p>Reflects the status and connectivity of the interface cards (NIC cards, voice cards) on the device. Interfaces are monitored to determine whether the interface types are functional or nonfunctional.</p>

Table 2-4 *Fault Categories (continued)*

Fault Category	Description
Applications—Specific to Media Servers, ICS 7750, Primary SBC hosts, and Application SBC hosts only	<p>Reflects the conditions of the applications on the Media Servers. The following applications are monitored:</p> <ul style="list-style-type: none"> • CallManager • Synthetic transactions • Workflow Application • TFTP Server • Database Server
Gateway—Applies only to Media Servers that have CallManager running on them	Reflects whether gateways are registered with the CallManager.

Determining the Severity Level of a Fault

When a fault is detected in any category for a device, the cell for that device and that fault category changes color to reflect the severity level of the fault in that particular fault category. [Table 2-5](#) lists the colors for each severity level.

Table 2-5 *Color Code for Fault Severity Levels*

Severity Level	Color Code
Critical	Red
Warning	Orange
Normal	Green
Indeterminate	Grey
Not Applicable	White

Starting Additional Consoles and Views from the Status View

You can open the Administration Console, the Monitoring Console, and Inventory Collection Scheduling from either the Summary View or the Status View using the same methods described in the [“Starting Additional Consoles and Views from the Summary View”](#) section on page 2-8.

The Status View additionally provides a starting point for applications that can provide more details for a specific device:

- **Real-Time Dashboard–Device Detail View**—Opens a detailed view of the device. See the [“Using the Device Detail View”](#) section on page 2-13 for more information.
- **Display CiscoView**—Starts the CiscoView application for the selected device.
- **Expand/Collapse ICS 7750**—Applies only to the ICS 7750 device. If an ICS 7750 device is not detected, this button is dimmed. You can also expand or collapse an ICS 7750 by right-clicking a device and selecting either Expand (which displays the ICS 7750 device) or Collapse (which displays the ICS 7750 logical device only).
- **CallManager Administration**—Applies only to devices running the CallManager. Opens the CallManager Administration pages.
- **Workflow Administration**—Applies only to devices running a workflow application. Opens the Workflow Application Admin pages.



Note

CiscoView, CallManager, and Workflow applications are additional products that are not provided with VHM. These products can be started from the Status View if they are already available.

To start an application for a particular device from the Status View:

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- Step 1** Click a device to select it.
- Step 2** Perform one of the following steps:
- Click the button for the application you want to start.
 - Select the application from the Tools menu.
 - Right-click the device and select the application from the context-sensitive menu that is displayed as a result.
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Using the Device Detail View

For each device listed in the Status View, you can start a Device Detail View. The Device Detail View window provides the status reported for the device, as well as general device information. The status values in the Device Detail View window are updated only when you click the Refresh button.

To display the Device Detail View for a device:

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- Step 1** Perform one of the following steps:
- Double click on the device in the Status View window.
 - Right-click a device on the Status View window and select the Device Detail View option.
 - Select a device on the Status View window and click the Display Device Detail View button.
 - Select **Tools > Real Time Dashboard–Device Detail View**.
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Note

The Device Detail View is not real time; use the **Refresh** button to update the current device status.

The Device Detail View window displays one tab with status information for each applicable category for the device:

- Environment
- System
- Interface
- Application
- Device Information

The number of categories varies with each device. For example, for the ICS 7750, the Device Detail View window contains only two tabs: Environment and Device Information. Other than the power supply, the ICS 7750 device has no system level entities or interfaces and applications; therefore, other tabs are not displayed for this particular device.

Using the Monitoring Console

From the Monitoring Console, you can view alarm logs, obtain more information about alarms and the conditions that may be causing them, and take action in response to alarms. Some examples of voice-specific alarms that may appear in the alarm logs are:

- Voice application problems such as voice applications failing or not responding.
- Gateways losing connectivity with CallManager.
- Virtual memory usage on a media server reaching high levels.

Starting the Monitoring Console

To start a Monitoring Console:

Step 1 Use one of the following procedures:

- From the **Voice Health Monitor** drawer, select **Monitoring Console**.

This opens a Monitoring Console that by default:

- Displays two alarm logs: one with VHM alarms only and one with VHM and DFM alarms combined
 - Does not display an Inventory Browser
 - From any running Administration or Monitoring Console, select **File > New > Monitoring Console**. This opens a Monitoring Console that displays a single alarm log that includes both VHM and DFM alarms.
 - From any Summary View or Status View in the Real-Time Dashboard, select **Tools > Voice Fault Monitoring Console**. This opens a Monitoring Console that displays a single alarm log that includes both VHM and DFM alarms.
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When presented with an alarm log that includes both VHM and DFM alarms, you can identify the server that generated the alarm by examining the domain manager column. The domain manager will be either VHM or DFM.



Note

When you open a Monitoring Console using the toolbar button, the console includes an Inventory Browser display. If you open a Monitoring Console by selecting **Voice Health Monitor > Monitoring Console**, the console does not display the Inventory Browser.

The following related topics are described in the *Device Fault Manager User Guide*:

- Customizing and saving a console for later use
- Opening a remote console; that is, a console that was saved on another VHM server host

**Note**

For descriptions of all menu options and toolbar buttons in the Monitoring Console, refer to the *Device Fault Manager User Guide*.

The Monitoring Console gives users the ability to specify which notifications they want to receive on the alarm log display and to further filter those alarms interactively as they view them. See the [“Managing Events in the Monitoring Console” section on page 2-17](#) for more information.

Displaying Alarm Notifications

VHM generates notifications for two kinds of events:

- Symptoms—Indicate fault conditions.
- Compounds—Indicate one or more symptomatic events associated with a managed object.

Events are correlated to symptoms for analysis. Notifications are displayed in an Alarm Log whenever events occur, and on the Events Tab of the property sheet for the object where the event occurs. [Table 2-6](#) lists the types of notifications and how they are color-coded in the Alarm Log.

Table 2-6 Alarm Log Color Coding

Notification	Description	Displayed in Console
Compound Event	Represents one or more specific events	Purple
Symptomatic Event	An event that DFM uses as a symptom for root-cause analysis or for compound events	Orange or yellow
Inactive Cleared	State changes to inactive and notification turns transparent	White with blue text

Table 2-6 Alarm Log Color Coding (continued)

Notification	Description	Displayed in Console
Inactive Unsubscribed	State changes to inactive as a result of unsubscribing using a subscription profile	White with gray text
Selected	Clicking on the notification	Blue

Managing Events in the Monitoring Console

To use the Monitoring Console most effectively, you must be able to perform the following tasks:

- Apply filters to the alarm log—A user can further refine the list of displayed events by applying alarm log filters while viewing an alarm log.
- Take actions based on an alarm—A user can send email or a page or start a script for a particular alarm.

Instructions for setting up the system to perform these tasks, and instructions for the tasks themselves, are provided in the *Device Fault Manager User Guide*.

Changing Your Subscription Profile

A subscription profile is a saved list of events that have been subscribed to for notification. The events you subscribe to determine the notifications that are displayed in the Monitoring Console. By editing a profile, you can change the notifications that are reported. All users automatically subscribe to the default profile, which subscribes to all types of events (symptoms and compounds). If a user edits the profile, the profile is named according to the user's login and saved in the VHM repository (when you save the inventory). If a user has edited the profile, it is applied whenever the user opens a console.



Caution

Be careful when modifying a subscription profile, because changes can have a major effect on what is displayed by your consoles.



Note

You can also directly edit the VHM adapter configuration files to either use an existing subscription profile or establish specific classes, instances, and events you want the adapters to track. This information is provided in the *Device Fault Manager User Guide*.

You can subscribe to (and unsubscribe from) the events you want to be notified of by changing your individual subscription profile, as described in the *Device Fault Manager User Guide*.

Configuring the Monitoring Console to Remove Cleared Events

To configure the Monitoring Console to automatically remove events on unmanaged devices, you must create a filter.

To create a filter to automatically remove cleared events:

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- Step 1** Start the Monitoring Console. See the [“Starting the Monitoring Console” section on page 2-15](#).
 - Step 2** Select an event from the VHM pane of the Monitoring Console.
 - Step 3** Select **Log** from the menu bar.

- Step 4** Select **Filter** from the drop-down menu.
The Alarm Filter Criteria dialog box opens.
- Step 5** In the dialog box, under the General tab, select the Automatically remove cleared events check box.
- Step 6** Click OK.
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