Server Status Dashboard

The Cisco Prime Network Registrar server status dashboard in the web user interface (web UI) presents a graphical view of the system status, using graphs, charts, and tables, to help in tracking and diagnosis. These dashboard elements are designed to convey system information in an organized and consolidated way, and include:

- Significant protocol server and other metrics
- Alarms and alerts
- Database inventories
- Server health trends

The dashboard is best used in a troubleshooting desk context, where the system displaying the dashboard is dedicated for that purpose and might be distinct from the systems running the protocol servers. The dashboard system should point its browser to the system running the protocol servers.

You should interpret dashboard indicators in terms of deviations from your expected normal usage pattern. If you notice unusual spikes or drops in activity, there could be communication failures or power outages on the network that you need to investigate.

- Opening the Dashboard, on page 1
- Display Types, on page 2
- Customizing the Display, on page 6
- Selecting Dashboard Elements to Include, on page 8
- Host Metrics, on page 10

Opening the Dashboard

The Dashboard feature is available on the regional cluster also. It provides System Metrics chart by default. It allows you to display the server specific (DHCP, DNS, and CDNS) charts for various clusters. This can be configured in the Chart Selections page.

To open the dashboard in the web UI, from the **Operate** menu, choose **Dashboard**.

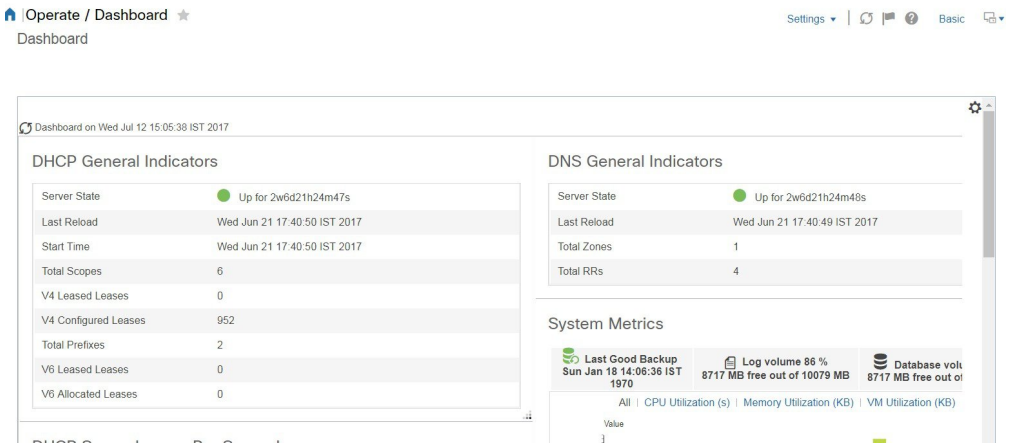
Display Types

Provided you have DHCP and DNS privileges through administrator roles assigned to you, the preset display of the dashboard consists of the following tables (See the table below for an example):

- **System Metrics**—See System Metrics, on page 10.
- **DHCP General Indicators**—See the *"DHCP General Indicators" section in Cisco Prime Network Registrar 11.2 DHCP User Guide*.
- **DNS General Indicators**—See the *"DNS General Indicators" section in Cisco Prime Network Registrar 11.2 Authoritative and Caching DNS User Guide*.

Tip These are just the preset selections. See Selecting Dashboard Elements to Include, on page 8 for other dashboard elements you can select. The dashboard retains your selections from session to session.

Figure 1: Preset Dashboard Elements



Each dashboard element initially appears as a table or a specific panel chart, depending on the element:

- **Table**—See Tables, on page 3.
- **Line chart**—See Line Charts, on page 4.
- **Area chart**—See Area Charts, on page 5.

General Status Indicators

Note the green indicator in the Server State description in the above image. This indicates that the server sourcing the information is functioning normally. A yellow indicator indicates that server operation is less than optimum. A red indicator indicates that the server is down. These indicators are the same as for the server health on the Manage Servers page in the regular web UI.

Graphic Indicators for Levels of Alert

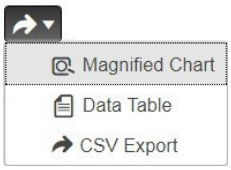
Graphed lines and stacked areas in the charts follow a standard color and visual coding so that you can immediately determine key diagnostic indicators at a glance. The charts use the following color and textural indicators:

- **High alerts or warnings**—Lines or areas in red, with a hatched texture.
- **All other indicators**—Lines or areas in various other colors distinguish the data elements. The charts do not use green or yellow.

Magnifying and Converting Charts

You can magnify a chart in a separate window by clicking the **Chart Link** icon at the bottom of the panel chart and then by clicking the **Magnified Chart** option (see the image below). In magnified chart view, you can choose an alternative chart type from the one that comes up initially (see Other Chart Types, on page 6).

Figure 2: Magnifying Charts



Note Automatic refresh is turned off for magnified charts. To get the most recent data, click the **Refresh** icon next to the word Dashboard at the top left of the page.

To convert a chart to a table, see the *Displaying Charts as Tables* section. You cannot convert tables to a graphic chart format.

Legends

Each chart includes a color-coded legend by default.

Tables

Dashboard elements rendered as tables have data displayed in rows and columns. The following dashboard elements are preset to consist of (or include) tables:

- DHCP DNS Updates
- DHCP Address Current Utilization
- DHCP General Indicators
- DNS General Indicators
- Caching DNS General Indicators

Note If you view a table in Expert mode, additional data might appear.

Line Charts

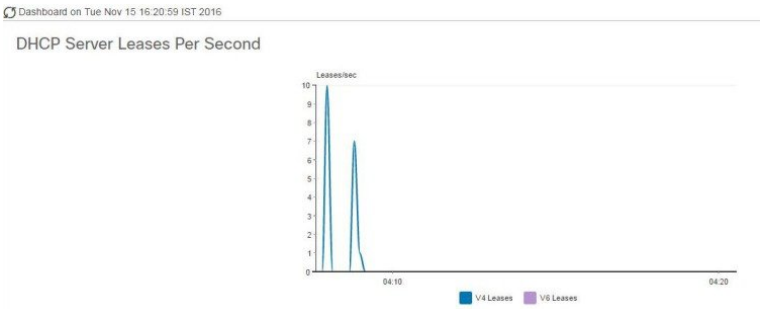
Dashboard elements rendered as line charts can include one or more lines plotted against the x and y axes. The three types of line charts are described in the following table.

Table 1: Line Chart Types

Type of Line Chart	Description	Dashboard Elements Rendered
Raw data line chart	Lines plotted against raw data.	• Java Virtual Machine (JVM) Memory Utilization (Expert mode only) • DHCP Buffer Capacity • DHCP Failover Status (two charts) • DNS Network Errors • DNS Related Servers Errors
Delta line chart	Lines plotted against the difference between two sequential raw data.	• DNS Inbound Zone Transfers • DNS Outbound Zone Transfers
Rate line chart	Lines plotted against the difference between two sequential raw data divided by the sample time between them.	• DHCP Server Request Activity (see the image below) • DHCP Server Response Activity • DHCP Response Latency • DNS Query Responses • DNS Forwarding Errors

Tip To get the raw data for a chart that shows delta or rate data, enter Expert mode, go to the required chart, click the **Chart Link** icon at the bottom of the panel chart, and then click **Data Table** . The Raw Data table is below the Chart Data table.

Figure 3: Line Chart Example



Area Charts

Dashboard elements rendered as area charts have multiple related metrics plotted as trend charts, but stacked one on top of the other, so that the highest point represents a cumulative value. The values are independently shaded in contrasting colors. (See the image below for an example of the DHCP Server Request Activity chart shown in Figure 3: Line Chart Example, on page 5 rendered as an area chart.)

Figure 4: Area Chart Example

They are stacked in the order listed in the legend, the left-most legend item at the bottom of the stack and the right-most legend item at the top of the stack. The dashboard elements that are pre-set to area chart are:

- DHCP Buffer Capacity
- DHCP Failover Status
- DHCP Response Latency
- DHCP Server Leases Per Second
- DHCP Server Request Activity
- DHCP Server Response Activity
- DNS Inbound Zone Transfers
- DNS Network Errors
- DNS Outbound Zone Transfers

- DNS Queries Per Second
- DNS Related Server Errors

Other Chart Types

The other chart types available for you to choose are:

- **Line**—One of the line charts described in Line Charts, on page 4.
- **Area**—Charts described in the Area Charts, on page 5.
- **Column**—Displays vertical bars going across the chart horizontally, with the values axis being displayed on the left side of the chart.
- **Scatter**—A scatter plot is a type of plot or mathematical diagram using Cartesian coordinates to display values for typically two variables for a set of data.

Tip Each chart type shows the data in distinct ways and in different interpretations. You can decide which type best suits your needs.

Getting Help for the Dashboard Elements

You can open a help window for each dashboard element by clicking the help icon on the table/chart window.

Customizing the Display

To customize the dashboard display, you can:

- Refresh the data and set an automatic refresh interval.
- Expand a chart and render it in a different format.
- Convert a graphic chart to a table.
- Download data to comma-separated value (CSV) output.
- Display or hide chart legends.
- Configure server chart types.
- Reset to default display

Each chart supports:

- Resizing
- Drag and drop to new cell position
- Minimizing

- Closing

Each chart has a help icon with a description of the chart and a detailed help if you click the link (more...) at the bottom of the description.

Note The changes made to the dashboard/chart will persist only if you click **Save** in the Dashboard window.

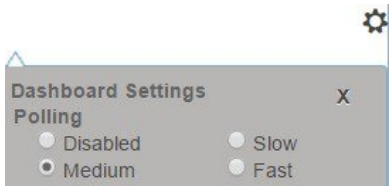
Refreshing Displays

Refresh each display so that it picks up the most recent polling by clicking the **Refresh** icon.

Setting the Polling Interval

You can set how often to poll for data. Click the **Dashboard Settings** icon in the upper-right corner of the dashboard display. There are four options to set the polling interval of the cached data, which polls the protocol servers for updates (See the image below).

Figure 5: Setting the Chart Polling Interval



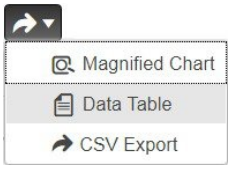
You can set the cached data polling (hence, automatic refresh) interval to:

- **Disabled**—Does not poll, therefore does not automatically refresh the data.
- **Slow**—Refreshes the data every 30 seconds.
- **Medium**—Refreshes the data every 20 seconds.
- **Fast** (the preset value)—Refreshes the data every 10 seconds.

Displaying Charts as Tables

Use the **Chart Link** icon at the bottom of the panel chart to view the chart link options (see the image below). You can choose to display a graphic chart as a table by clicking the **Data Table** option.

Figure 6: Specifying Chart Conversion to Table Format



Exporting to CSV Format

You can dump the chart data to a comma-separated value (CSV) file (such as a spreadsheet). In the Chart Link controls at the bottom of the panel charts (see the above image), click the **CSV Export** option. A Save As window appears, where you can specify the name and location of the CSV file.

Selecting Dashboard Elements to Include

You can decide how many dashboard elements you want to display on the page. At times, you might want to focus on one server activity only, such as for the DHCP server or the DNS server, and exclude all other metrics for the other servers. In this way, the dashboard becomes less crowded, the elements are larger and more readable. At other times, you might want an overview of all server activities, with a resulting smaller element display.

You can select the dashboard elements to display from the main Dashboard page by clicking the Dashboard Settings icon and then clicking **Chart Selections** in the Dashboard Settings dialog. Clicking the link opens the Chart Selection page (see Figure 7: Selecting Dashboard Elements, on page 9).

Configuring Server Chart Types

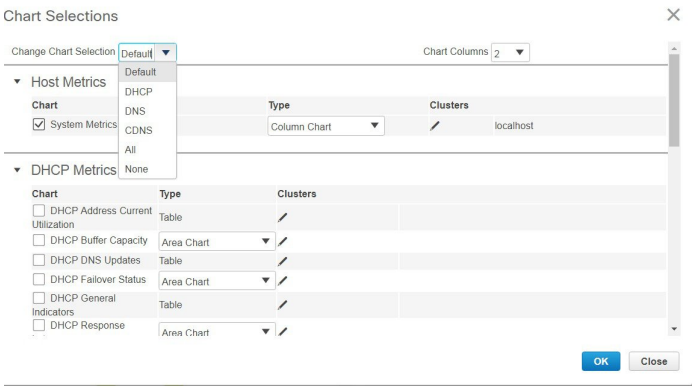
You can set the default chart types on the main dashboard view. You can customize the server charts in the dashboard to display only the specific chart types as default.

To set up default chart type, check the check box corresponding to the Metrics chart that you want to display and choose a chart type from the **Type** drop-down list. The default chart types are consistent and shared across different user sessions (see the image below).

Note You can see either the CDNS or DNS Metrics in the **Dashboard Settings** > **Chart Selection** page based on the service configured on the server.

Tip The order in which the dashboard elements appear in the Chart Selection list does not necessarily determine the order in which the elements will appear on the page. An algorithm that considers the available space determines the order and size in a grid layout. The layout might be different each time you submit the dashboard element selections. To change selections, check the check box next to the dashboard element that you want to display.

Figure 7: Selecting Dashboard Elements



The above image displays the Charts Selection table in the regional web UI. The **Clusters** column is available only in regional dashboard and it displays the list of local clusters configured. You can add the local cluster by clicking the Edit icon and then by selecting the local cluster name from the Local Cluster List dialog box.

To change selections, check the check box next to the dashboard element that you want to display.

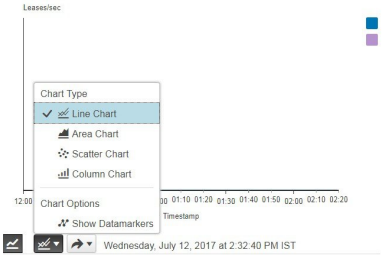
Specific group controls are available in the **Change Chart Selection** drop-down list, at the top of the page (see the image above). To:

- Uncheck all check boxes, choose **None**.
- Revert to the preset selections, choose **Default**. The preset dashboard elements for administrator roles supporting DHCP and DNS are:
  - Host Metrics: System Metrics
  - DHCP Metrics: General Indicators
  - DNS Metrics: General Indicators
- Select the DHCP metrics only, choose **DHCP** (see the *"DHCP Metrics" section in Cisco Prime Network Registrar 11.2 DHCP User Guide*).
- Select the DNS metrics only, choose **DNS** (see the *"Authoritative DNS Metrics" section in Cisco Prime Network Registrar 11.2 Authoritative and Caching DNS User Guide*).
- Select the DNS metrics only, choose **CDNS** (see the *"Caching DNS Metrics" section in Cisco Prime Network Registrar 11.2 Authoritative and Caching DNS User Guide*)
- Select all the dashboard elements, choose **All**.

Click **OK** at the bottom of the page to save your choices, or **Cancel** to cancel the changes.

You can change the chart type by clicking the **Chart Type** icon at the bottom of the panel chart and then by selecting the required chart type (see the image below). The different types of chart available are: Line Chart, Column Chart, Area Chart, and Scatter Chart.

Figure 8: Selecting the Chart Type



Host Metrics

Host metrics comprise two charts:

- **System Metrics**—See System Metrics, on page 10.
- **JVM Memory Utilization** (available in Expert mode only)—See JVM Memory Utilization, on page 11.

System Metrics

The System Metrics dashboard element shows the free space on the disk volumes where the Cisco Prime Network Registrar logs and database directories are located, the date and time of the last server backup, and CPU and memory usage for the various servers. System metrics are available if you choose **Host Metrics**: **System Metrics** in the Chart Selection list.

The resulting table shows:

- **Logs Volume**—Current free space out of the total space on the disk drive where the logs directory is located, with the equivalent percentage of free space.
- **Database Volume**—Current free space out of the total space on the disk drive where the data directory is located, with the equivalent percentage of free space.
- **Last Good Backup**—Date and time when the last successful shadow database backup occurred (or Not Done if it did not yet occur) since the server agent was last started.
- **CPU Utilization** (in seconds), **Memory Utilization** (in kilobytes), **VM Utilization** (in kilobytes), and Process ID (**PID**) for the:
  - Cisco Prime Network Registrar server agent
  - CCM server
  - DNS server
  - DHCP server
  - Web server
  - SNMP server
  - DNS caching server

How to Interpret the Data

The System Metrics data shows how full your disk volumes are getting based on the available free space for the Cisco Prime Network Registrar logs and data volumes. It also shows if you had a last successful backup of the data files and when that occurred. Finally, it shows how much of the available CPU and memory the Cisco Prime Network Registrar servers are using. The difference in the memory and VM utilization values is:

- **Memory Utilization**—Physical memory that a process uses, or roughly equivalent to the Resident Set Size (RSS) value in UNIX **ps** command output: the number of pages the process has in real memory minus administrative usage. This value includes only the pages that count toward text, data, or stack space, but not those demand-loaded in or swapped out.
- **VM Utilization**—Virtual memory that a process uses, or roughly equivalent to the SZ value in UNIX **ps** command output: the in-memory pages plus the page files and demand-zero pages, but not usually the memory-mapped files. This value is useful in diagnosing how large a process is and if it continues to grow.

Troubleshooting Based on the Results

If you notice the free disk space decreasing for the logs or data directory, you might want to consider increasing the disk capacity or look at the programs you are running concurrently with Cisco Prime Network Registrar.

JVM Memory Utilization

The Java Virtual Machine (JVM) Memory Utilization dashboard element is available only when you are in Expert mode. It is rendered as a line trend chart that traces the Unused Maximum, Free, and Used bytes of JVM memory. The chart is available if you choose **Host Metrics: JVM Memory Utilization** in the Chart Selection list when you are in Expert mode.

How to Interpret the Data

The JVM Memory Utilization data shows how much memory applies to running the dashboard in your browser. If you see the Used byte data spiking, dashboard elements might be using too much memory.

Troubleshooting Based on the Results

If you see spikes in Used memory data, check your browser settings or adjust the polling interval to poll for data less frequently.