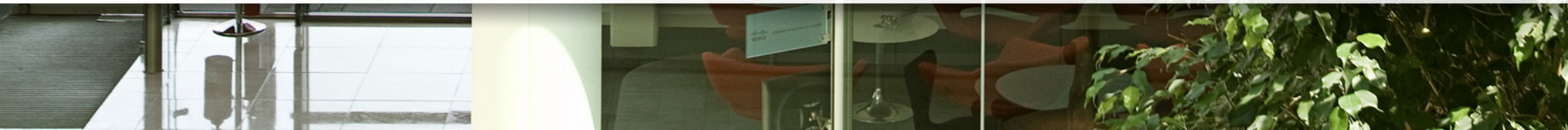
ScienceLogic EM7 Network Management Guide

SMART BUSINESS ARCHITECTURE

February 2013 Series



Preface

Who Should Read This Guide

This Cisco® Smart Business Architecture (SBA) guide is for people who fill a variety of roles:

- Systems engineers who need standard procedures for implementing solutions
- Project managers who create statements of work for Cisco SBA implementations
- Sales partners who sell new technology or who create implementation documentation
- Trainers who need material for classroom instruction or on-the-job training

In general, you can also use Cisco SBA guides to improve consistency among engineers and deployments, as well as to improve scoping and costing of deployment jobs.

Release Series

Cisco strives to update and enhance SBA guides on a regular basis. As we develop a series of SBA guides, we test them together, as a complete system. To ensure the mutual compatibility of designs in Cisco SBA guides, you should use guides that belong to the same series.

The Release Notes for a series provides a summary of additions and changes made in the series.

All Cisco SBA guides include the series name on the cover and at the bottom left of each page. We name the series for the month and year that we release them, as follows:

month year Series

For example, the series of guides that we released in February 2013 is the "February Series".

You can find the most recent series of SBA guides at the following sites:

Customer access: http://www.cisco.com/go/sba

Partner access: http://www.cisco.com/go/sbachannel

How to Read Commands

Many Cisco SBA guides provide specific details about how to configure Cisco network devices that run Cisco IOS, Cisco NX-OS, or other operating systems that you configure at a command-line interface (CLI). This section describes the conventions used to specify commands that you must enter.

Commands to enter at a CLI appear as follows:

```
configure terminal
```

Commands that specify a value for a variable appear as follows:

```
ntp server 10.10.48.17
```

Commands with variables that you must define appear as follows:

```
class-map [highest class name]
```

Commands shown in an interactive example, such as a script or when the command prompt is included, appear as follows:

```
Router# enable
```

Long commands that line wrap are underlined. Enter them as one command:

```
wrr-queue random-detect max-threshold 1 100 100 100 100 100
100 100 100
```

Noteworthy parts of system output or device configuration files appear highlighted, as follows:

```
interface Vlan64
  ip address 10.5.204.5 255.255.255.0
```

Comments and Questions

If you would like to comment on a guide or ask questions, please use the SBA feedback form.

If you would like to be notified when new comments are posted, an RSS feed is available from the SBA customer and partner pages.

Table of Contents

What's In This SBA Guide

Cisco SBA Borderless Networks

Cisco SBA helps you design and quickly deploy a full-service business network. A Cisco SBA deployment is prescriptive, out-of-the-box, scalable, and flexible.

Cisco SBA incorporates LAN, WAN, wireless, security, data center, application optimization, and unified communication technologies—tested together as a complete system. This component-level approach simplifies system integration of multiple technologies, allowing you to select solutions that solve your organization's problems—without worrying about the technical complexity.

Cisco SBA Borderless Networks is a comprehensive network design targeted at organizations with up to 10,000 connected users. The SBA Borderless Network architecture incorporates wired and wireless local area network (LAN) access, wide-area network (WAN) connectivity, WAN application optimization, and Internet edge security infrastructure.

Route to Success

To ensure your success when implementing the designs in this guide, you should first read any guides that this guide depends upon—shown to the left of this guide on the route below. As you read this guide, specific prerequisites are cited where they are applicable.

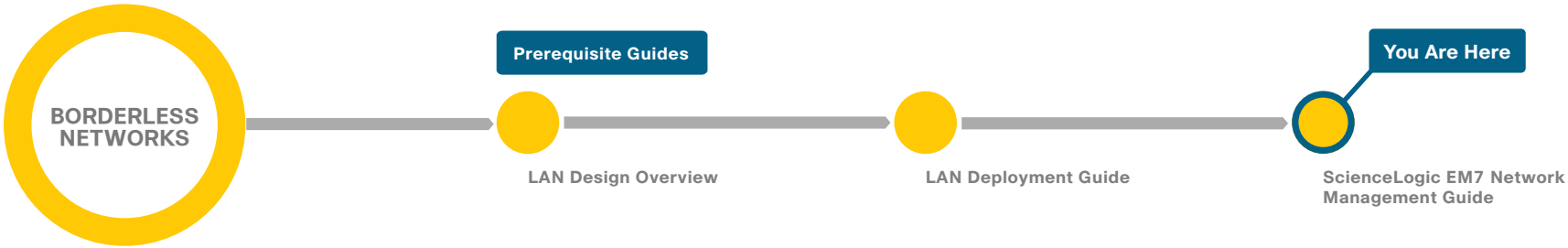
About This Guide

This *ecosystem partner guide* presents solutions, products, or services—provided by a Cisco SBA ecosystem partner—that are compatible with and complementary to SBA.

You can find the most recent series of Cisco SBA guides at the following sites:

Customer access: http://www.cisco.com/go/sba

Partner access: http://www.cisco.com/go/sbachannel



Introduction

Network management systems allow you to automate operational tasks and monitor network health, giving you the visibility you need to quickly troubleshoot issues.

Cisco offers a number of options to provide network management capabilities. This guide describes ScienceLogic EM7, a highly scalable, easy-to-use network management solution for the Cisco data center. ScienceLogic EM7 is available as a physical or virtual appliance.

Figure 1 - ScienceLogic EM7—InfoWorld Tech of the Year

Business Overview

The demands on the network and the people who manage them have never been greater. From voice and video to server virtualization and cloud computing, data center networks have undergone tremendous change over the last few years as adoption of new technologies has required new, detailed, and comprehensive management to optimize quality of service.

It is not a small task to deploy the configuration modules outlined in the *LAN Deployment Guide* in an efficient manner, while maintaining the availability and performance of the network infrastructure when everything is constantly changing. You need the right tools.

The technologies may be new but the challenges are still the same. As you add new infrastructure and applications to the network, you are usually adding new management tools to your ever-growing toolset. Beyond the costs for maintenance, training, and deployment associated with each new tool, these point solutions also cost your team when it comes to efficiency. Point solutions were never designed to work together, so when it comes to troubleshooting all of the components that can make up service delivery, the tools can actually slow you down instead of making your job easier.

And don't forget your core network infrastructure. Video is just one example of an application that can exponentially increase the demands on your network. More stress and strain on your infrastructure requires smarter management to:

- Proactively monitor health and performance.
- Ensure that you know about problems and can resolve them before they impact your users.
- Automate where possible. Solutions should help you spend less time on fire drills, even with the increased demands on the network.

Technology Overview

Winner of InfoWorld's Technology of the Year award and described by the InfoWorld Test Center as the "Best Network Monitoring System on Earth," ScienceLogic EM7 is a single solution for Cisco data centers and provides integrated fault and performance management, ticketing and service-desk functions, and asset management and capacity planning. It is a comprehensive suite of monitoring solutions in a single, easy-to-deploy, and cost-effective solution. All functionality is delivered in an easy-to-use physical or virtual appliance model that supports automated workflow of daily IT operations.

ScienceLogic EM7 is available in a highly scalable, distributed architecture ideally suited for the Cisco data center. It supports application growth on the network, availability and business continuance requirements, and optimization of the investment in server resources via technologies such as virtualization. Unlike traditional network management solutions, ScienceLogic EM7 supports a device-based licensing model that simplifies planning for growth and does not require additional licenses to add more users or customers in a multi-tenant environment. ScienceLogic EM7 Smart Discovery of traditional and virtualized infrastructure and applications dynamically maps and updates the monitored environments as your network operations grow.

ScienceLogic EM7 Benefits

The three primary benefits of ScienceLogic EM7 are:

- Ease of use—As a physical or virtual appliance, EM7 starts working out of the box.
- Customization—You can easily customize EM7 with your own monitoring policies.
- Scalability—EM7's single monitoring solution is designed to easily extend to new Cisco devices, services, and technologies as your data center operations grow.

The award-winning ScienceLogic EM7 product provides both comprehensive and simplified management across the spectrum of Cisco network gear and services. It is preconfigured with a centralized data repository, integrated management applications, default settings based on best practices co-developed with Cisco, reports, and automated alerts for a wide range of devices and systems. Designed to be installed and operational within a few hours, EM7 is a complete solution for day-2 management, and is designed to work out of the box.

Typically, ScienceLogic EM7 replaces from three to five existing management solutions, delivering immediate return on investment (ROI) and lowering total cost of ownership. This comprehensive solution simplifies and consolidates the tools needed to get the job done and provides a "single pane of glass" view of all of your Cisco network gear and applications.

Notes

Figure 2 - ScienceLogic EM7 features

Application & Service Level

Real-time and trended availability and performance data in customizable service views that show SLA compliance at a glance

System

High-level and detailed reporting of key system metrics for all operating systems; device summary views provide at-a-glance view of system performance, availability, tickets, and events

Network

Detailed analysis and reporting to maximize availability and optimize performance of converging network infrastructure, including VoIP; supports dual-stack IPv4/IPv6 networks

Cloud

Chargeback, multi-tenant views, web services monitoring, automation, and integration with self-service portals — just a few of the features that make ScienceLogic ideal for monitoring public, private, and hybrid clouds

Simplify data center and cloud management in a single solution — **for your IT operations today, tomorrow, and beyond**

Asset

Auto-populated asset and software inventory to manage asset lifecycles; automated hardware and config change detection to support IT troubleshooting

Service Desk

Automated ticketing workflow and tools to document and accelerate the problem resolution process and to build business-specific change management processes right into operations

Fault & Event

Customizable alert notification, escalation, and automated remediation for proactive management; open development platform for integration with third-party tools

Virtualization

Performance and availability of virtual infrastructure combined with physical infrastructure monitoring for the complete dynamic IT operations picture — all in a single tool

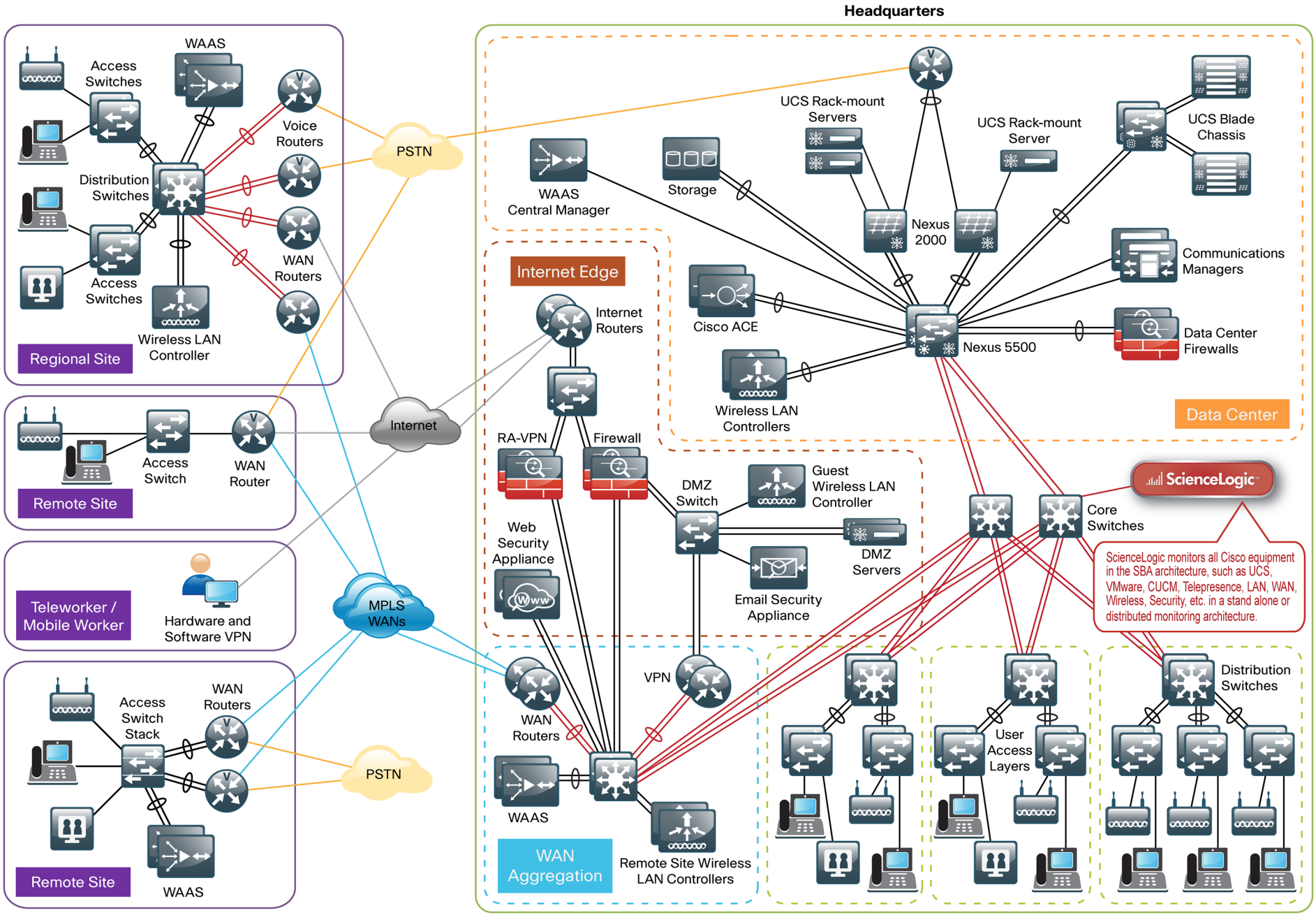
Key Features

The following are key features of ScienceLogic EM7, which include Dynamic Discovery, a centralized data repository, and extensive visualization options, including views, reports, and dashboards.

- Dynamic Discovery—Next-generation automatic discovery provides intelligent automation by matching known agents, devices, applications, and systems with best-practice monitoring rules, thresholds, events, and alerts. ScienceLogic EM7 is shipped with Dynamic Applications monitoring templates (data collection via Simple Network Management Protocol [SNMP], SQL queries, XML, and Simple Object Access Protocol [SOAP]) for Cisco products and devices. Or you can create your own custom monitoring templates that are automatically applied in the Dynamic Discovery process.
- Centralized data repository—ScienceLogic EM7 includes an embedded, performance-tuned database, providing a single IT-operations management data store that is preloaded, pretested, and preconfigured for optimal performance in the appliance, and with all pre-integrated management applications. Acting as an operational configuration-management database (CMDB), the centralized data repository stores fault and performance data, configuration data, asset information, and more, providing built-in data integration for better troubleshooting and reporting across the infrastructure. The data store is self-managed and self-healing; EM7 does not require additional database administrator (DBA) resources to operate.
- Views, reports, and executive dashboards—A customizable, web-based portal gives you access to ScienceLogic EM7 anytime, anywhere. You can customize views and access for a company, a department, or even a user, making it easier to create executive dashboards that show application or IT process performance at a glance. In addition to detailed infrastructure component views, EM7 provides the capability for users to build services views that put individual component availability and performance into context for operations and the business. EM7 also includes hundreds of preset reports, along with tools that make it simple to create more reports of your own. For further analysis, many reports can be downloaded as Adobe PDF files or as Microsoft Excel files.

Notes

Figure 3 - ScienceLogic EM7 in the Cisco SBA data center



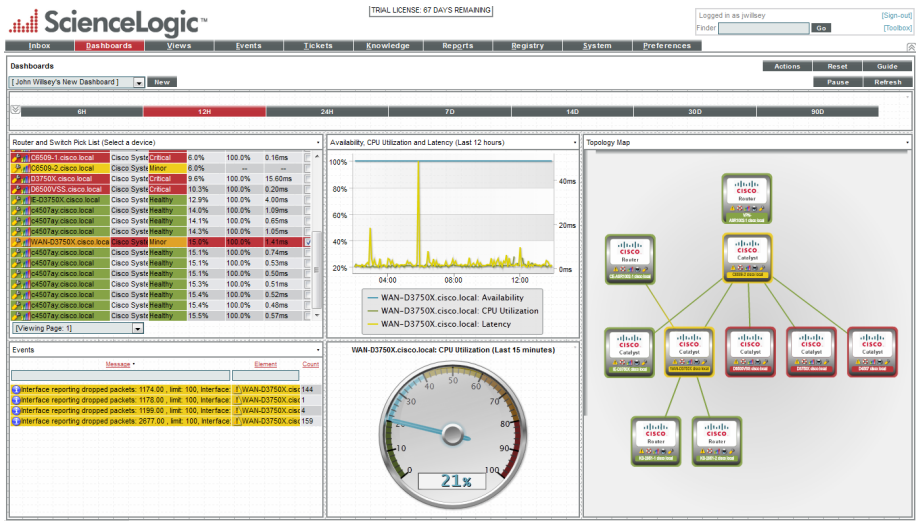
Deployment Details

ScienceLogic EM7 is designed for quick and easy setup. Appliances include an operating system, EM7 management applications, a firewall, and a database—all preinstalled, preconfigured, and pretested.

You deploy ScienceLogic EM7 in three phases, which are typically completed in two days: day 0 (set up the system and configure devices and systems), day 1 (baseline and begin to monitor the network), and day 2+ (optimize and maintain network health). Day 2 activities can be completed anytime, but ScienceLogic and Cisco recommend that you begin to complete them immediately after the day 1 activities. Following is a summary of the setup and deployment processes:

- Day 0—Set up the Network Management System and configure network devices and systems for monitoring.
  - This section walks you through procedures for installing the EM7 appliance, configuring the initial settings of your network environment in EM7, and discovery of your environment. It then describes the initial setup of the EM7 network management system, which should take less than an hour, and describes how to use the system to assess and manage the device configurations of your Cisco SBA network deployment.
  - Cisco recommends that you perform the steps in this section immediately following the activities described in the *Cisco SBA—Borderless Networks LAN Deployment Guide*, *Cisco SBA—Data Center Deployment Guide*, and *Cisco SBA—Data Center Unified Computing System Deployment Guide*. Completing the steps in this order allows you to use EM7 to provide asset management, performance monitoring, event management, ticketing, and process workflow automation across all hardware, systems, and key applications within your Cisco SBA deployment.
- Day 1—Baseline the network and begin monitoring.
  - This section guides you through the steps necessary to baseline the network and start monitoring. Perform this section immediately following the deployment of all required modules so that you can back up your configurations and gain visibility into any problems affecting network performance.
- Day 2+—Optimize and maintain the health of the network.
  - This section guides you through the steps necessary to optimize and maintain the health of your network.
  - The activities in this section can be performed at any time, but Cisco and ScienceLogic recommend that you complete them immediately after the tasks in the day 1 section. This sequence allows you to determine if there are opportunities for performance optimization and if there are any capacity issues that need to be resolved.

Figure 4 - Example of a fully deployed ScienceLogic EM7 performance dashboard



Process

Installing and Configuring ScienceLogic EM7—Day 0

1. Install ScienceLogic EM7
2. License ScienceLogic EM7
3. Discover your network

The installation and configuration of ScienceLogic EM7 should take less than an hour if you follow the steps outlined in the procedures below.

Before you begin the setup, make sure your virtual machine (VM) or hardware meets all of the ScienceLogic hardware and software requirements.

Tech Tip

ScienceLogic's hardware specifications enable monitoring of 1000 devices on a single VM appliance. Monitoring fewer devices requires less CPU and memory. You can use as few as two CPU cores and 4 GB of RAM for small production or lab environments.

During the installation and configuration of ScienceLogic EM7, the system prompts you for the following information, which you should keep for future reference:

- Admin username
- Admin password
- Community string or strings

Procedure 1 Install ScienceLogic EM7

Step 1: Obtain a ScienceLogic EM7 ISO from ScienceLogic by sending an email to the following address: sales@sciencelogic.com

Step 2: Boot the appliance from the ISO or from a DVD burned from the ISO.

Step 3: On the installation menu that appears, type **ao**, and then press **Enter**. This initiates the All-in-One Appliance installation, which automatically formats the drive, installs the 64-bit CentOS, installs EM7, and reboots the system to the login prompt.

Step 4: Log in by entering **em7admin** as the username and password. You are immediately asked for a new password. You can change this password after initial installation, or reuse the default password when prompted.

Step 5: Follow the steps in the configuration wizard. This assigns the appropriate TCP-IP configuration to the system to match your network.

Procedure 2 License ScienceLogic EM7

Step 1: In a browser window, enter the following, which connects you to the ScienceLogic EM7 management console:
https://[EM7 IP address]:7700

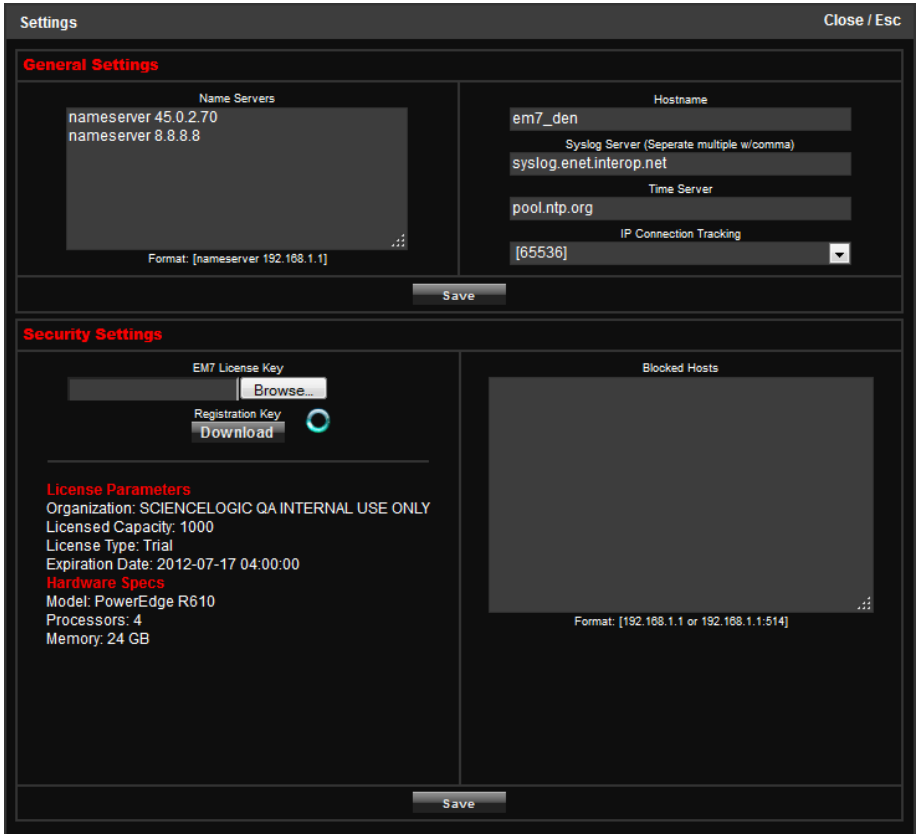
Step 2: When prompted, enter the username and password that you entered in the previous procedure.

Step 3: On the Security Settings page, click the **Settings** icon, and then download your registration key. To generate your license key, send an email with this registration key to the ScienceLogic sales representative who provided you with the ISO.

Step 4: After you have received a license file, import your EM7 license key by clicking **Browse**, and then selecting your license file.

Step 5: Click **Save**.

Figure 5 - Licensing settings



Step 6: If applicable to your environment, complete the Syslog and Time Server fields, and then click **Save**. The system is now ready for use.

Procedure 3 Discover your network

Step 1: In a browser window, enter the following, which connects you to the ScienceLogic EM7 web console:
http://[EM7 IP address]

Step 2: When prompted, enter the username and password that you used previously.

Step 3: Review and accept the license agreement.

Step 4: On the System tab, in the Navbar, click **Credentials**.

Step 5: On the Create tab, click **SNMP Credential**. Note that a SNMP credential with the community string of "public" has already been created in the system by default.

Step 6: Assign a credential name, enter your SNMP version (typically SNMP v2), enter your SNMP RO community string (and security details if you are using SNMPv3), and then click **Save**.

Step 7: On the System tab, in the Navbar, click **Discovery**.

Step 8: On the Create tab, enter an IP range or subnet to be discovered, and then select your SNMP credential.

Step 9: If you want to discover pingable devices, click **Discover Non-SNMP**, click **Save**, and then close the window.

Step 10: Click the lightning bolt icon. A window appears and is updated as discovery progresses.

Tech Tip

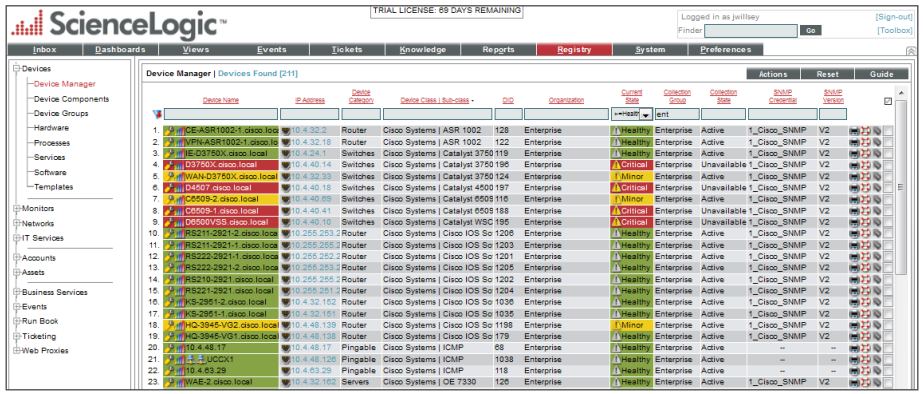
You can schedule discoveries by using the calendar icon.

Step 11: If you want to view your discovered network devices, click the **Registry** tab. After 10–30 minutes, Performance and Dashboard graphs are populated.

Tech Tip

Polling occurs every 5–15 minutes.

Figure 6 - Device inventory registry



Process

Baselining and Monitoring the Network—Day 1

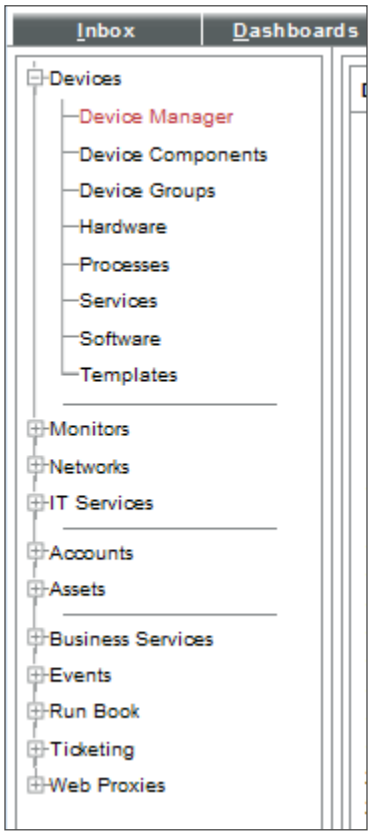
1. Review the registry (inventory)
2. View events and create custom events
3. Generate reports

You can use the Guide button in the ScienceLogic EM7 interface to see details of many areas of the product. To help you get up and running quickly, the procedures in this section describe a few key areas of the product. All areas of the product should be working at this stage without any additional configuration.

Procedure 1 Review the registry (inventory)

Step 1: On the Registry tab, in the Navbar, review your network inventory (called the registry in ScienceLogic EM7).

Figure 7 - Navbar

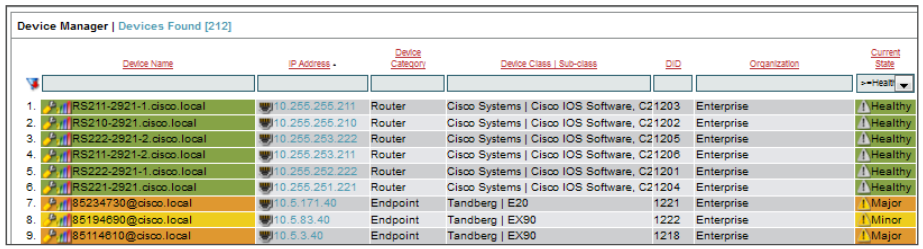


The Device Manager on the Registry tab is an inventory listing of the devices in ScienceLogic EM7. The devices are color-coded by their current event notification state. This tab is probably the page that system administrators will access most frequently.

The information is organized in a tabular view. You can sort each column by clicking the header, and each column has a search field that is a live filter for any criteria typed into the field. The search field works like the Google search field, where matches are presented as you type. You can enter multiple filters so that you can organize the inventory any way you wish.

The Navbar, located on the left side of the ScienceLogic EM7 window, is visible throughout the user interface. The Navbar is context-sensitive and displays items based on which tab is selected. You can find all of the inventory and information that the administrators enter on the Registry tab.

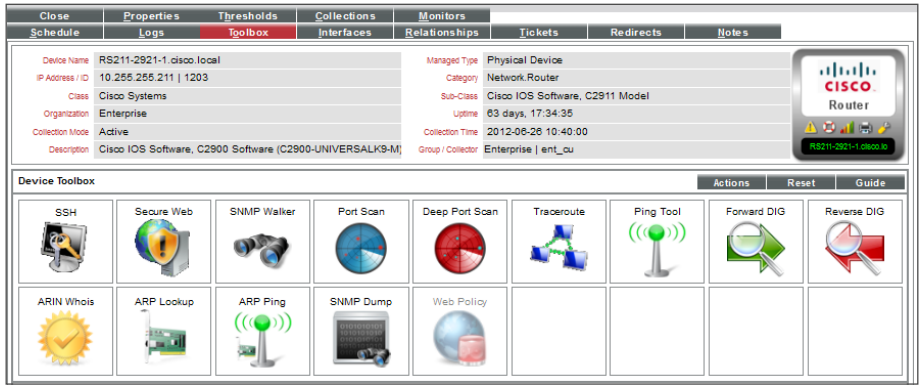
Figure 8 - Inventory registry



Next to the name of each monitored device, you can click icons that take you to important device information:

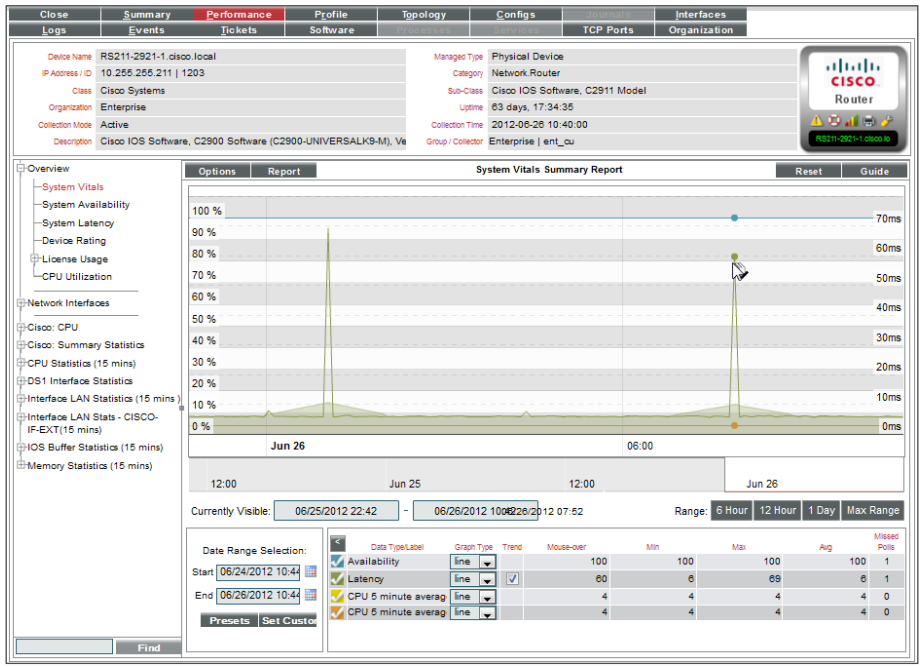
- The wrench icon takes you to Device Properties, which includes the configuration details of the selected device, including its monitoring configuration and multiple tabs that contain additional configuration details and utilities, such as the toolbox.

Figure 9 - Device Toolbox menu



- The bar graph icon takes you to the performance summary window, which shows overall health vitals and device status. The performance summary also includes several tabs providing detailed performance metrics, device configuration details, interfaces, logs, tickets, installed software, running processes and services, and open TCP ports.

Figure 10 - Performance details



- The caution icon opens a window of all active events for the selected device.
- The printer icon opens a window with quick reports that can be generated for the selected device.
- The life ring icon lets you create a new ticket for the device.
- The asset tag lets you access the asset information for each device as part of the included asset management database. The asset records are not available until the system has been running for several hours.

Procedure 2 View events and create custom events

One of the easiest ways to monitor the health of your network is to look at events. This is commonly referred to as *management by exception*. Events are messages that are triggered when specific conditions are met. For example, an event can signal that a server has gone down, a device is exceeding CPU or disk-space thresholds, or communication with a device has failed. An event can also simply display the status of a managed element. ScienceLogic EM7 generates log messages from incoming trap and

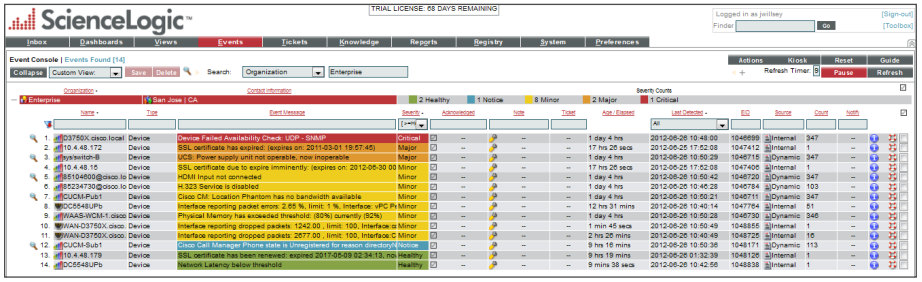
syslog data, and when EM7 executes user-defined policies. EM7 then uses these log messages to generate events. EM7 examines each log message and compares it to each event definition. If a log message matches an event's definition, EM7 generates an event instance and displays the event on the Event Console page.

ScienceLogic EM7 includes predefined events for over 1000 of the most commonly encountered conditions on the most common platforms, ranging from notification messages about configuration changes to major and critical operational alarms.

Step 1: Click the **Events** tab.

- If you want to view events, at the top of the console, use the filters to define the events you want to see.
- If you want to edit preset events or define new event policies, on the Registry tab, in the Navbar, go to **Events** > **Event Manager** > **Create**.

Figure 11 - Event management



Procedure 3 Generate reports

The Reports tab can be used to generate instant, weekly, or monthly management reports, enabling you to present data collected by ScienceLogic EM7 in many different analysis formats.

Step 1: On the Reports tab, in the Navbar, select the type of report you want to create. The most popular reports are the Quick Reports and Leaderboards.

- **Quick Reports**—After you select a Quick Report, a selection screen appears so that you can choose the data of interest. Reports can be generated in several formats. A sample network usage report is shown in Figure 12.

Figure 12 - Sample report output

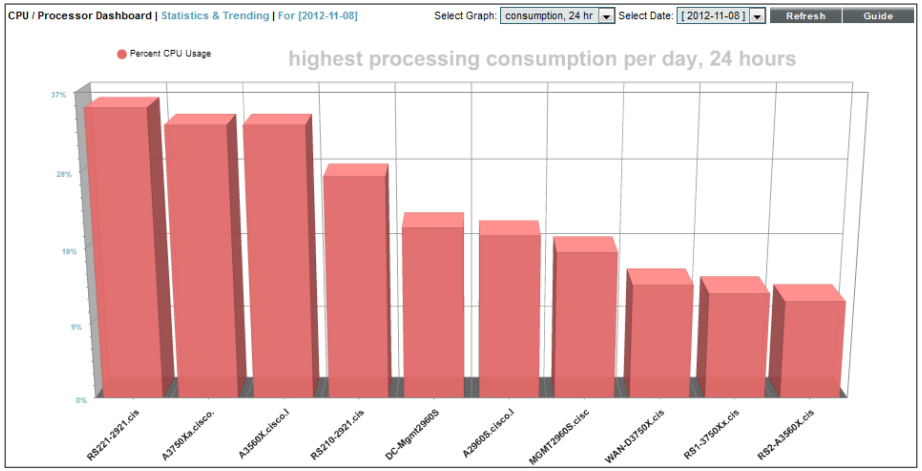
ScienceLogic™

Rank	Organization	Device	Interface Name	Network Bytes (Outbound)
1	Enterprise [1]	DC5548UPb [87]	Ethernet103/1/29	63.80 GB
2	Enterprise [1]	DC5548UPa [70]	Ethernet103/1/10	14.86 GB
3	Enterprise [1]	WAN-D3750X.cisco.local [124]	Gi1/0/12	8.71 GB
4	Enterprise [1]	DC5548UPa [69]	fc1/28	6.03 GB
5	Enterprise [1]	DC5548UPb [67]	fc1/28	5.79 GB
6	Enterprise [1]	DC5548UPa [86]	Ethernet104/1/25	4.85 GB
7	Enterprise [1]	CE-ASR1002-1.cisco.local [128]	Gi0/0/0	4.69 GB
8	Enterprise [1]	D6500VSS.cisco.local [195]	EO0/2	4.30 GB
9	Enterprise [1]	METRO-ASR1001-1.cisco.local [123]	Gi0/0/0	2.51 GB
10	Enterprise [1]	N7010-1.cisco.local [188]	mgmt0	2.35 GB
11	Enterprise [1]	WAE-2.cisco.local [126]	GigabitEthernet 1/0	2.16 GB
12	Enterprise [1]	N7010-2.cisco.local [116]	mgmt0	2.08 GB
13	Enterprise [1]	DC-Mgmt2960S.cisco.local [120]	Gi1/0/12	1.32 GB
14	Enterprise [1]	VPN-ASR1002-1.cisco.local [122]	Gi0/0/0	1.27 GB
15	Enterprise [1]	RS211-2921-1.cisco.local [1203]	T1 0/0/0	868.51 MB
16	Enterprise [1]	IE-D3750X.cisco.local [119]	Gi1/0/12	488.81 MB

- **Leaderboard Reports**—Leaderboards are Top-N style analysis of popular system and network resources. These include assets, bandwidth, CPU, devices, file systems, memory, availability, tickets, and web statistics.

  After you choose a Leaderboard, you can use the Select Graph list for different analyses of the data you chose.

Figure 13 - Leaderboard Report



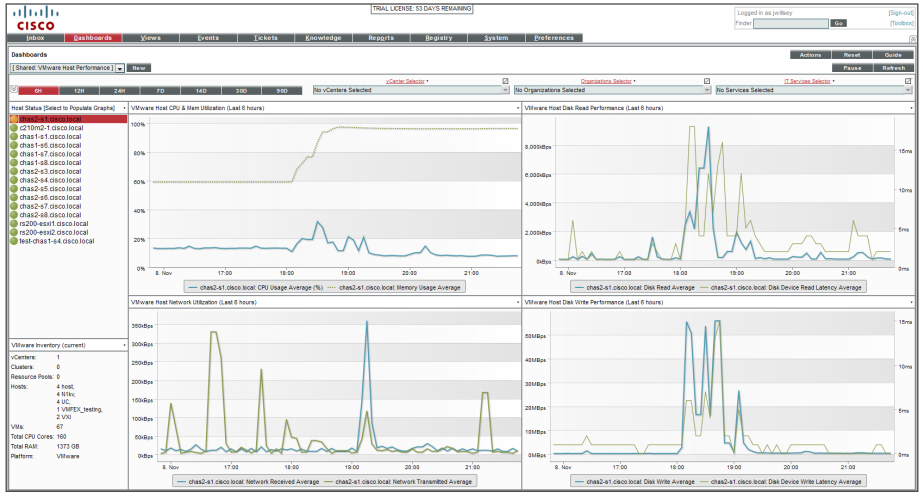
Process

Working with Dashboards

1. Build your own custom dashboard
2. Create a topology map
3. Add the dynamic map to your dashboard

Dashboards are one of the best visual ways to present and visualize performance data collected by ScienceLogic EM7. Out-of-the-box dashboards can either be used as-is, or custom dashboards can be created to convey the particular information need for any given audience.

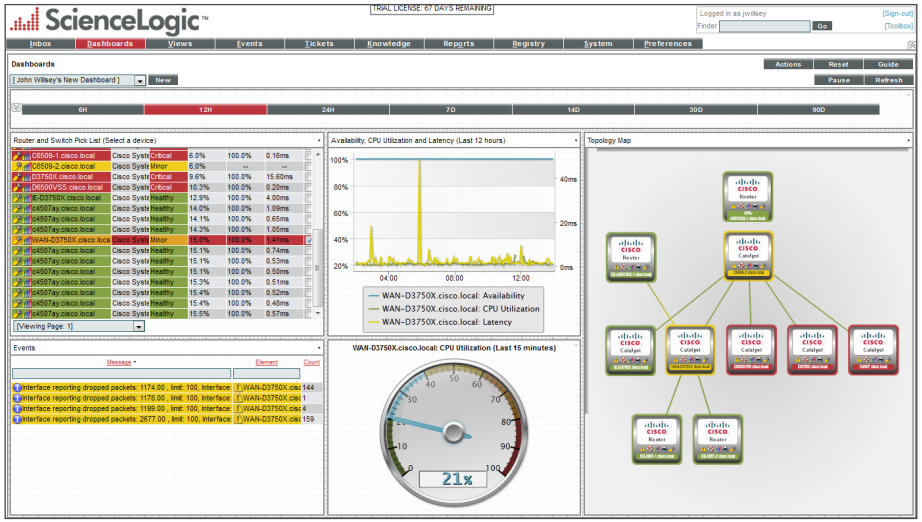
Figure 14 - Out-of-the-box interactive dashboard for VMware ESX Host Analysis running on a Cisco UCS platform



Procedure 1 Build your own custom dashboard

Virtually any dashboard display can be created by dragging and dropping data you would like to have displayed and specifying how the data should look. ScienceLogic EM7's flexibility enables each user to have personalized dashboards that provide data that is most important to that user.

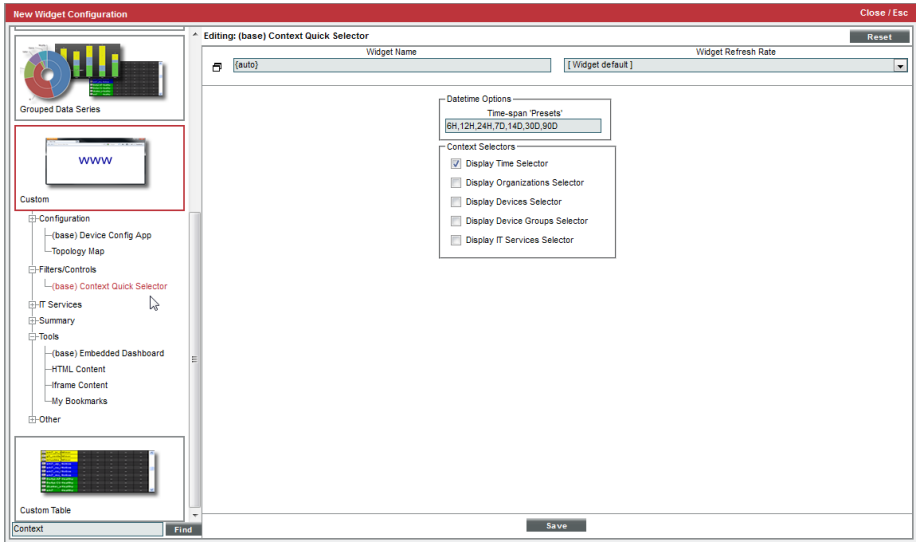
Figure 15 - Sample customized dashboard



Step 1: On the Dashboards tab, click **New**. This displays a blank dashboard with a background grid.

Step 2: Create your first widget by dragging and dropping a box, of desired size, into the upper-left corner of the page. The Widget Configuration menu opens.

Figure 16 - Widget Configuration menu



Step 3: Choose **(base) Context quick Selector** for the widget type, clear all of the options except **Display Time Selector**, and then click **Save**.

Step 4: Resize across the top of the page. Your time navigation selector is now complete.

Tech Tip

Navigation can be done in a few ways. You can browse by category, and then click the large icon to display the available choices, or type the name of the widget in the search field in the bottom left corner. In this case, typing **context** lists the contextual-based navigation widget.

Next, you add a list of switches to the upper, left side of the dashboard.

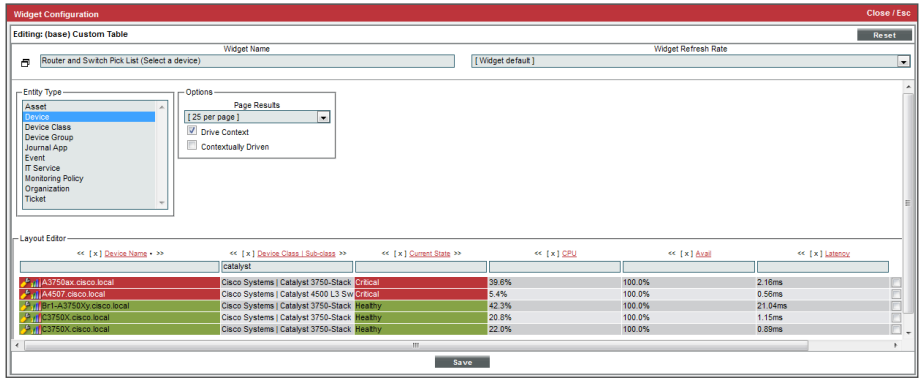
Step 5: Drag and drop a box onto the left side of the page. This creates a new widget.

Step 6: Choose **(base) Custom Table** for the widget type.

Step 7: Give the new widget a name (example: Router and Switch Pick List (Select a device)).

Step 8: For options, select **Devices** > **Drive Context**, and then, in the Device Class field header, type **catalyst**. You can pick and choose the columns you like. When you click a column by which to sort, a small up or down diamond appears to the right of the column name.

Figure 17 - Contextual table widget



Next, you add a contextual-based list of events based on switch selection.

Step 9: Drag and drop a box onto the left side of the page. This creates a new widget.

Step 10: Choose **(base) Custom Table** for the widget type.

Step 11: Give the new widget a name (example: Events).

Step 12: For options, select **Events** > **Contextually Driven**. You can pick and choose the columns you like.

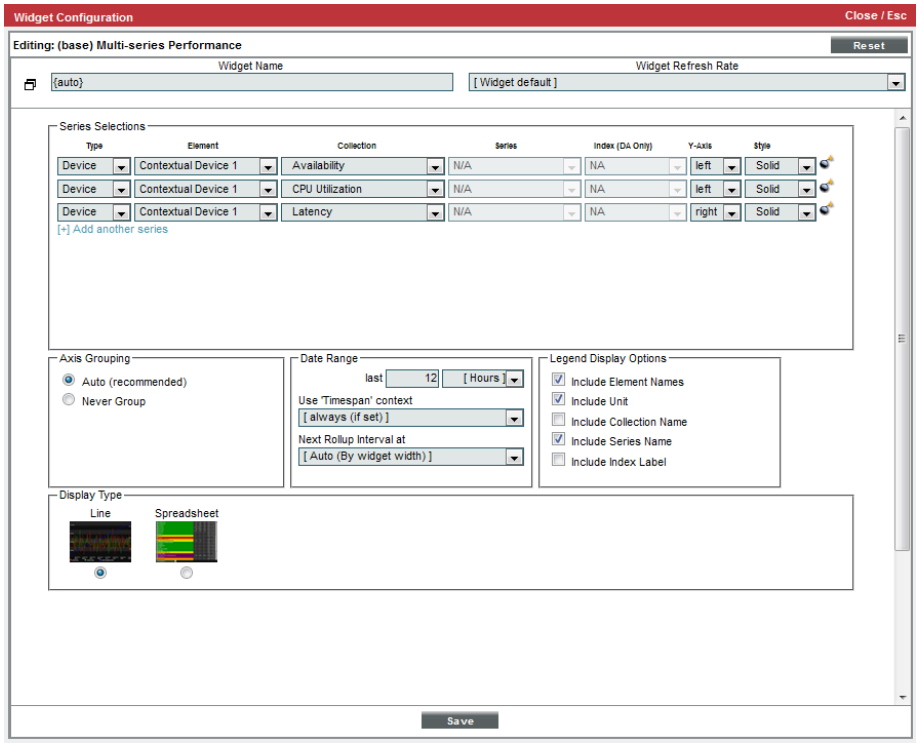
Next, you can add a Time series performance graph for availability latency and CPU.

Step 13: Drag and drop a box onto the left side of the page. This creates a new widget.

Step 14: Choose **(base) Multi-series Performance** for the widget type.

Step 15: Under Series Selections, choose the settings that match the settings in the figure below and then click **Save**.

Figure 18 - Multi-series performance settings



Next, you can create a Dial Gauge to view the most recent CPU measurement.

Step 16: Drag and drop a box onto the bottom center of the page. This creates a new widget.

Step 17: Choose **(base) Gauge/Meter** for the widget type and then, under Datapoint Source, enter the following settings:

- Type—**Device**
- Element—**Contextual Device 1**
- Collection—**CPU Utilization**
- Data Range—**last 15 minutes**

Step 18: Click **Save**.

Tech Tip

The background colors can be changed to visually illustrate severity by adjusting the colored sliders in the widget configuration.

Next, you build a topology map, and then add it to the dashboard.

Procedure 2 Create a topology map

Step 1: Navigate to **Registry** > **Navbar** > **Devices** > **Device Groups**, and then click **Create**.

Step 2: For the device group name, enter **Routers and Switches**.

Step 3: For Child Visibility, select Yes.

Step 4: Choose all entries under visibility by pressing Shift + click.

Step 5: Under the Sharing Key, choose **Shared with users in your organization**, and under the Permissions Key, choose **Grant All**.

Next, you create a Dynamic Group.

Step 6: Under Dynamics Rules, click Add. The Rule Editor window opens.

Step 7: In the **Active Selectors** list, choose **Device Category**, **Network.Router**, and **Network.Switches**, click **OK**, and then click Save. You have now defined a dynamic custom group that is visible as a map.

Tech Tip

Dynamic Groups is a rules-based system to perform group membership. Many other options are available, such as by device name, or Expression match. Note, as you select items, you get a live preview of the devices that match your search criteria.

Step 8: You can see your map by navigating to the Views tab, and then, in the Navbar on the left, clicking **Shared Customized Maps** and finding the map named after your custom group.

Tech Tip

Topology links update every four hours.

Procedure 3 Add the dynamic map to your dashboard

Step 1: On the Dashboard tab, in the dashboard pull down menu, choose the dashboard you created.

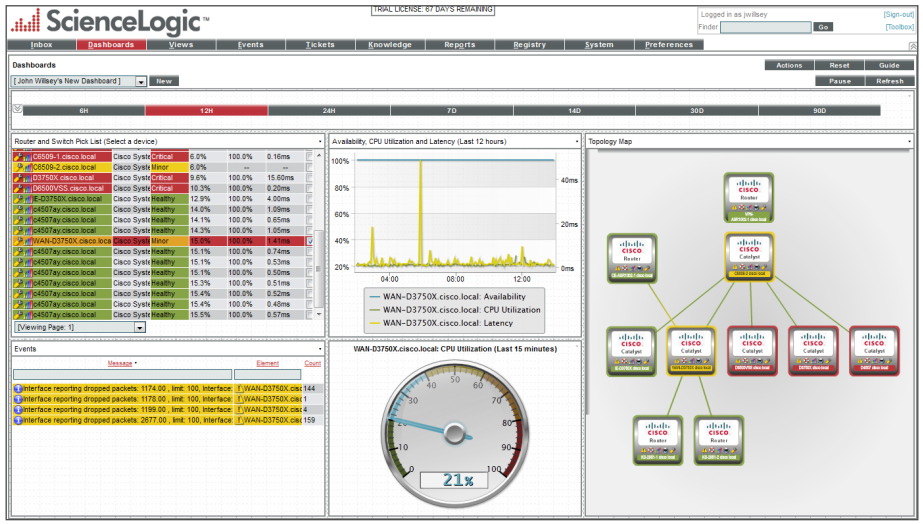
Step 2: Drag and drop a box onto the right side of the dashboard. This creates a new widget that fills the right side of the unused dashboard area.

Step 3: Choose Topology Map for the widget type.

Step 4: Choose **Custom Group** for the map type, enter Routers and Switches for the map title, and then click Save. This produces a topology map of your routers and switches within a dashboard view.

Step 5: You should now have a dashboard that resembles the dashboard in the following figure.

Figure 19 - Customized dashboard



Process

Monitoring a Cisco UCS Environment (Optional)

1. Discover the Cisco UCS environment
2. Discover the Cisco UCS Manager

If you have a Cisco UCS environment to monitor in addition to your network equipment, follow the procedures below; otherwise, please proceed to the next process.

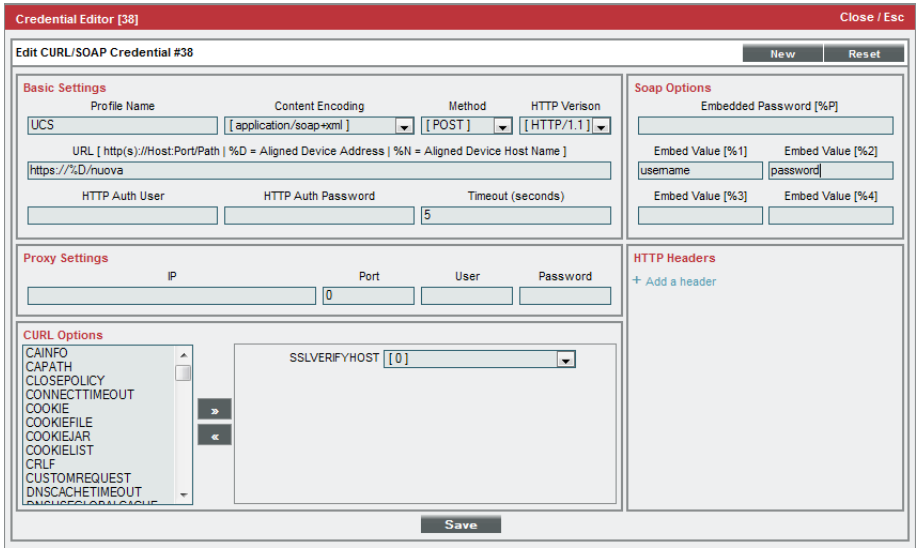
Procedure 1 Discover the Cisco UCS environment

Before you proceed, ensure that the Cisco UCS Manager and Cisco UCS hardware have been set up and deployed based on the guidelines in the *Cisco SBA—Data Center Unified Computing System Deployment Guide*.

Step 1: On the System tab, in the Navbar, click **Credentials**.

Step 2: Click the wrench Icon next to the credential named **UCS**. This opens the UCS SOAP/XML Host template Credential.

Figure 20 - Credential Editor



Step 3: Under Curl Options, choose **SSLVERIFYHOST**, and then choose a value of **0**.

Step 4: In the **Embed Value [%1]** box, enter the username, and in the **Embed Value [%2]** box, enter the password for a valid user or administrative account.

Step 5: Click **Save**.

Tech Tip

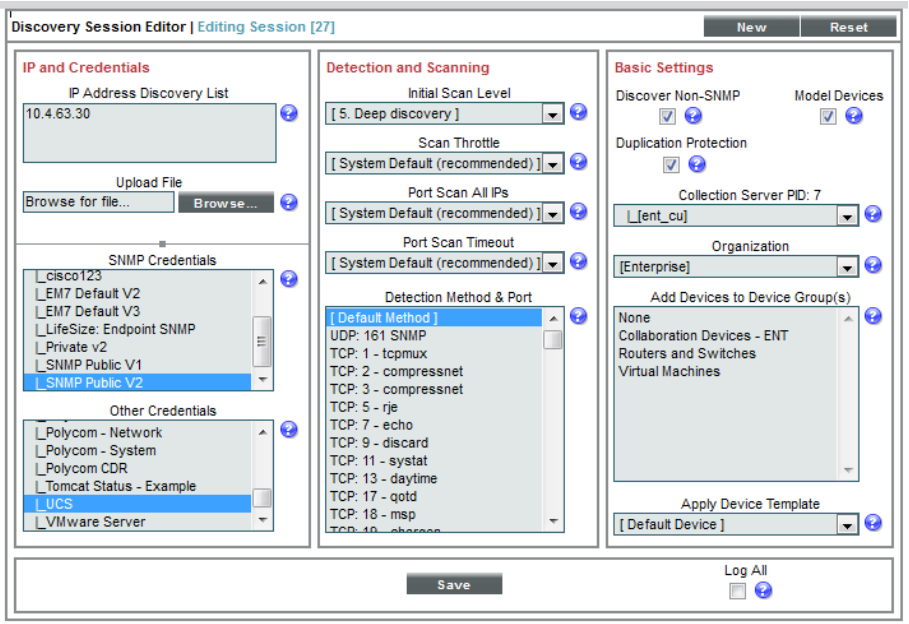
In order to ensure proper entry of username and password without typos, it is recommended that you enter your username and password into a text editor, and then connect to the Cisco UCS manager in a web browser. Copy/paste your username/password into the authentication dialog box. If successful, use copy/paste to put the same credentials into the ScienceLogic EM7 credential dialog box.

Procedure 2 Discover the Cisco UCS Manager

Step 1: On the System tab, in the Navbar, click **Discovery**.

Step 2: Click the **Create** tab. The Discovery Session Editor opens.

Figure 21 - Discovery Configuration



Step 3: Enter the following values in the Discovery Session Editor:

- IP Address Discovery List—IP address of Cisco UCS Manager
- SNMP Credentials—Select the applicable SNMP credential, if SNMP is enabled
- Other Credentials—Select the Cisco UCS credential that you created
- Initial Scan Level—**Deep discovery**
- Discover Non-SNMP—Selected

Step 4: Click **Save**. The discovery session you created appears at the top of the Discovery Control Panel page.

Step 5: Click the lightning bolt icon. A window appears and is updated as discovery progresses.

Tech Tip

Due to the complex nature of mapping out the Cisco UCS virtualized environment, discovery takes longer than a typical SNMP device. Allow ScienceLogic EM7 10-15 minutes to discover the UCS hierarchy.

Process

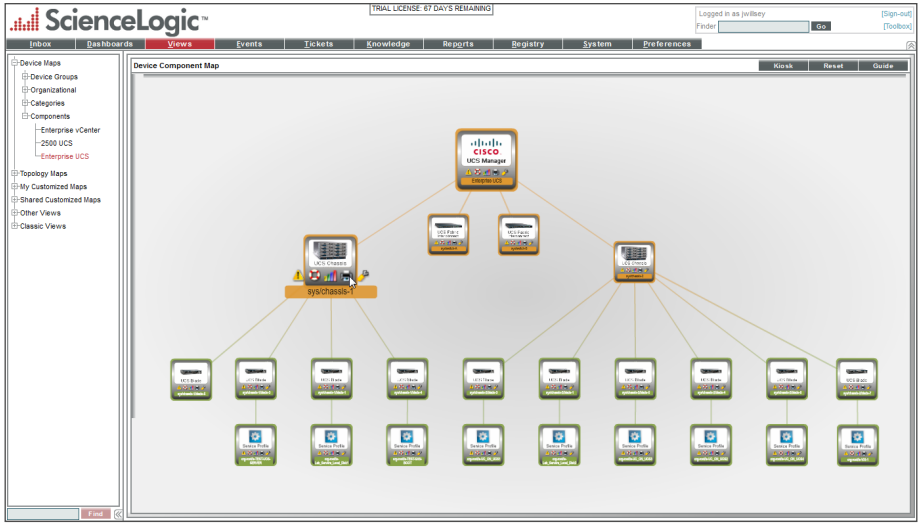
Viewing the Cisco UCS Component Devices

1. View the component map
2. View active Cisco UCS events

The Cisco UCS environment is visualized in ScienceLogic EM7 in two ways: First, as a visual map; and second as an interactive hierarchy similar to Windows explorer.

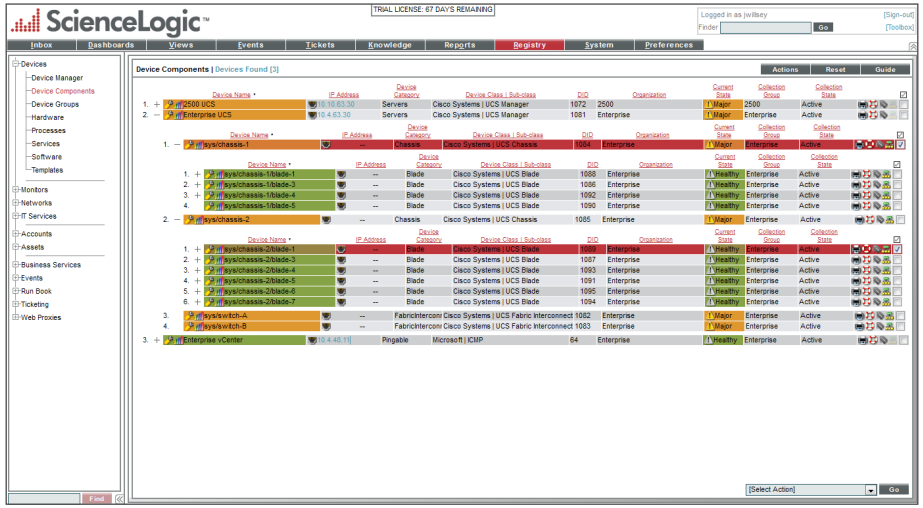
Procedure 1 View the component map

Figure 22 - Cisco UCS dynamic component map



Step 1: On the Views tab, in the Navbar, click **Components**, and then click **Cisco UCS Manager**. An interactive map view of your Cisco UCS environment is displayed.

Figure 23 - Cisco UCS hierarchical view

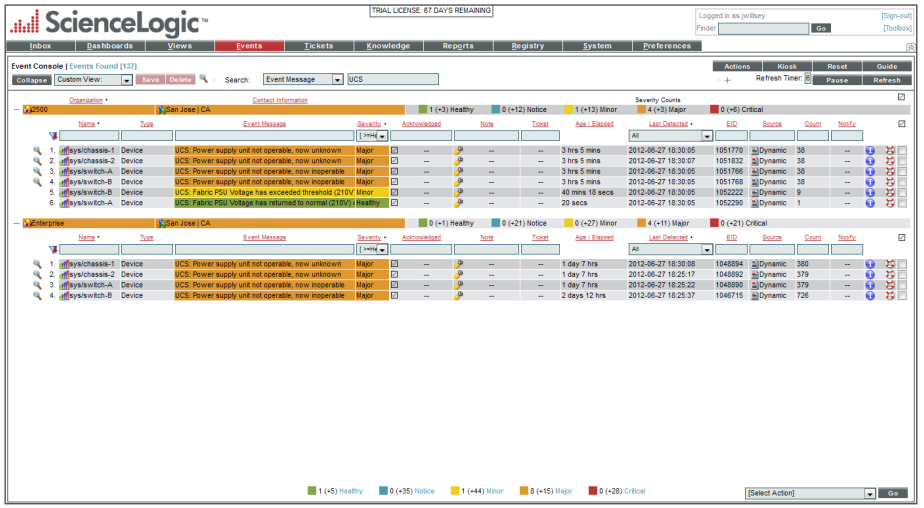


Procedure 2 View active Cisco UCS events

Included in ScienceLogic EM7 Cisco UCS monitoring are pre-built monitoring practices to help IT staff proactively monitor the C environment for any potential trouble. Event policies are included that generate notifications based on the severity of the observation made by EM7.

Step 1: Click the **Events** tab.

Figure 24 - EM7 active events screen with integrated fault management



Any measured performance or configuration issues detected by ScienceLogic EM7 are displayed on this screen and can optionally generate email notifications or open tickets and assign them to operations staff.

In the figure above, there are multiple issues with power supplies on multiple Cisco UCS chassis and switches.

Viewing Topology Maps of Additional Virtualized Technologies

In addition to Cisco UCS, topology maps can be automatically created using technologies such as those used in Virtual Block (vBlock) or FlexPod deployments, such as vSphere, NetApp or EMC SAN, as well as other technologies, such as Hyper-V or Xen.

Figure 25 - vCenter component map view

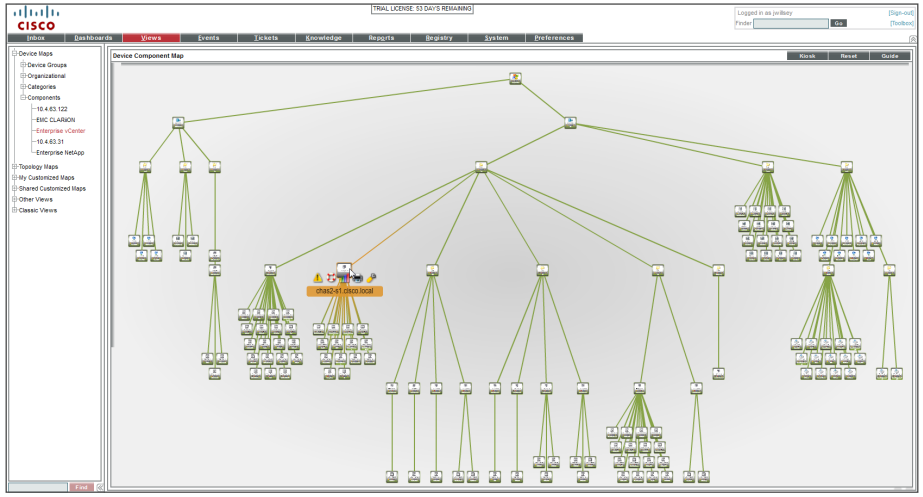


Figure 26 - EMC SAN component map view

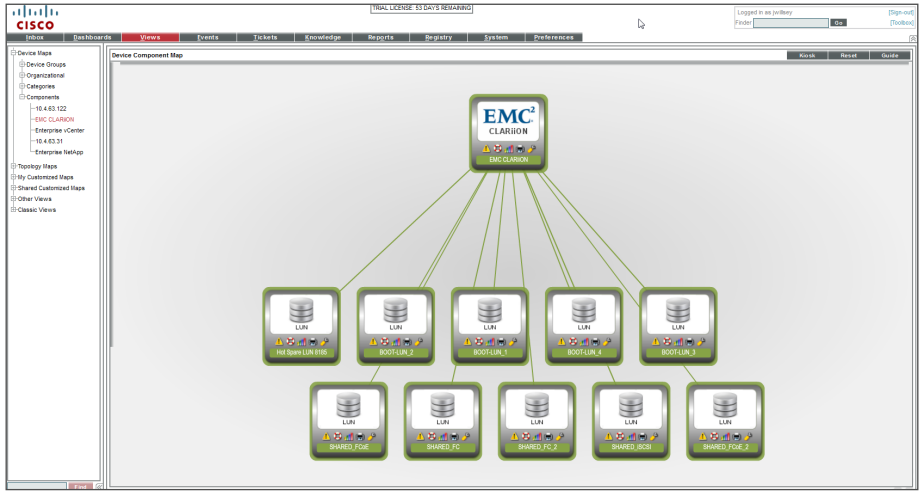
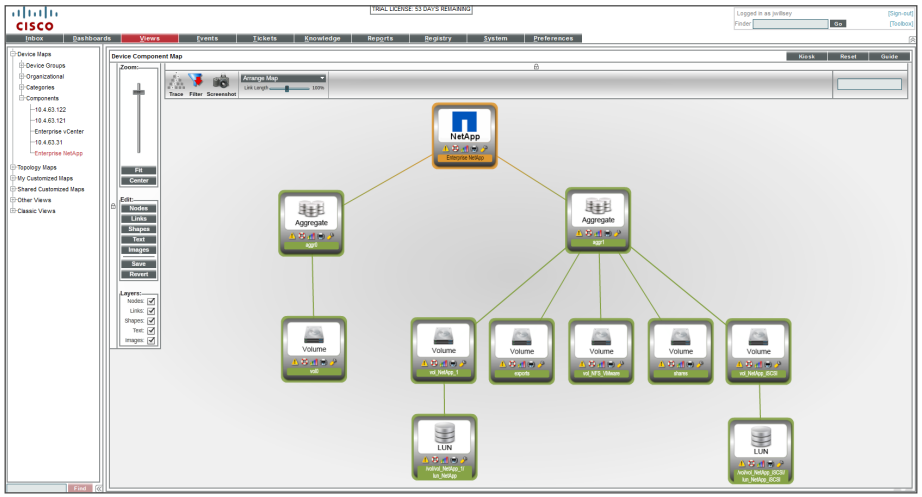


Figure 27 - NetApp SAN component map view



Process

Monitoring Collaboration Components (Optional)

1. Discover the VCS
2. Discover the MCUs
3. Discover the endpoints (C Series)
4. Discover the endpoints (CTS Series)
5. Discover the Cisco Unified Call Manager

If you have a Cisco Collaboration environment to monitor in addition to your network equipment, follow the procedures below; otherwise, please proceed to the next process.

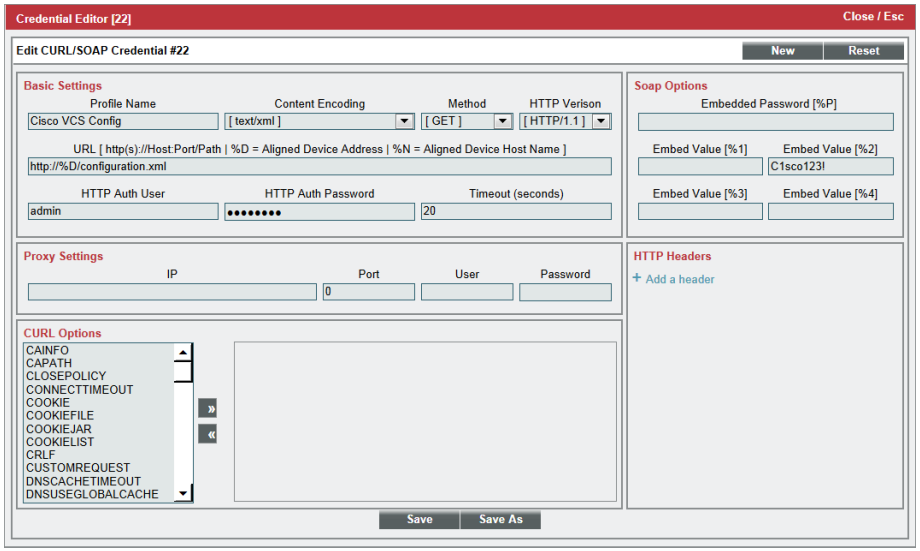
Procedure 1 Discover the VCS

Before you proceed, ensure that the Cisco VCS systems have been set up and deployed based on the guidelines in the *Cisco SBA—Room System Video Deployment Guide*.

Step 1: On the System tab, in the Navbar, click **Credentials**.

Step 2: In the list, choose **Cisco VCS Config**, and then click the tool bar. The Credential Editor opens.

Figure 28 - VCS device configuration



Step 3: Enter the following field values:

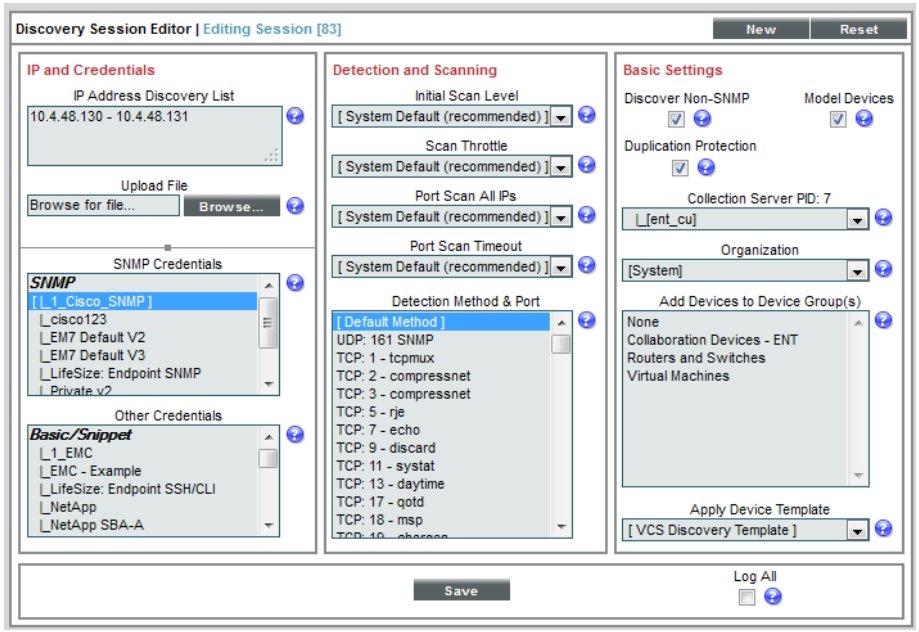
- HTTP Auth User—the user name of the VCS
- HTTP Auth Password—the password associated with the user

Step 4: Click **Save**.

Step 5: On the System tab, in the Navbar, click **Discovery**.

Step 6: Click the **Create** tab. The Discovery Session Editor opens.

Figure 29 - VCS Discovery Session Editor



Step 7: Enter the following values in the Discovery Session Editor:

- IP Address Discovery List—IP address of Cisco VCS
- SNMP Credentials—Select the applicable SNMP credential, if SNMP is enabled
- Discover Non-SNMP—Selected
- Apply Device Template -- **VCS Discovery Template**

Step 8: Click **Save**. The discovery session you created appears at the top of the Discovery Control Panel page.

Step 9: Click the lightning bolt icon. A window appears and is updated as discovery progresses.

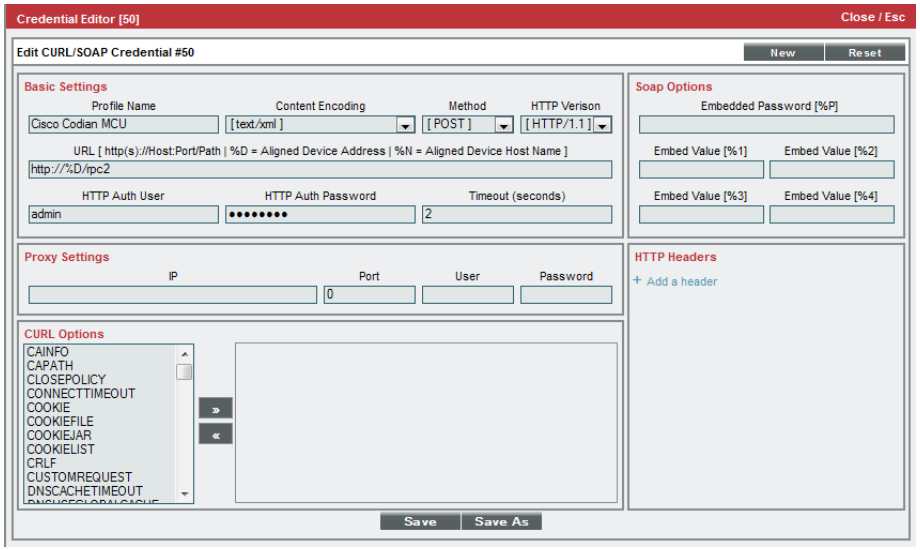
Procedure 2 Discover the MCUs

Before you proceed, ensure that the Cisco MCU systems have been set up and deployed based on the guidelines in the *Cisco SBA—Room System Video Deployment Guide*.

Step 1: On the System tab, in the Navbar, click **Credentials**.

Step 2: In the list, choose **Cisco Codian MCU**, and then click the tool bar. The MCU Credential Editor opens.

Figure 30 - MCU Credential Editor



Step 3: Enter the following field values:

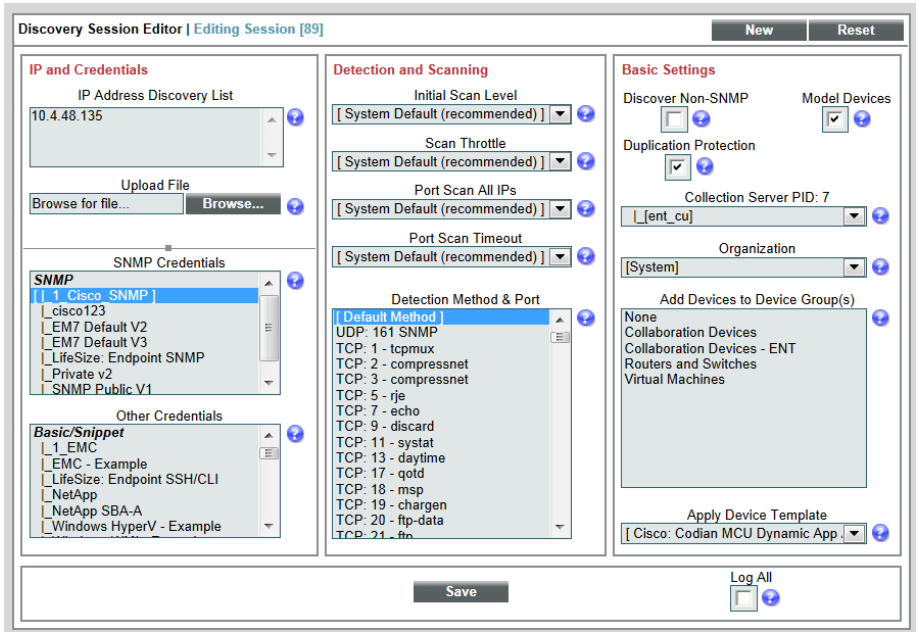
- HTTP Auth User—the user name of the MCU
- HTTP Auth Password—the password associated with the user

Step 4: Click **Save**.

Step 5: On the System tab, in the Navbar, click **Discovery**.

Step 6: Click the **Create** tab. The MCU Discovery Session Editor opens.

Figure 31 - MCU Discovery Session Editor



Step 7: Enter the following values in the Discovery Session Editor:

- IP Address Discovery List—IP address of Cisco Tandberg MCUs
- SNMP Credentials—Select the applicable SNMP credential, if SNMP is enabled
- Apply Device Template -- **Cisco Codian MCU Discovery Template**

Step 8: Click **Save**. The discovery session you created appears at the top of the Discovery Control Panel page.

Step 9: Click the lightning bolt icon. A window appears and is updated as discovery progresses.

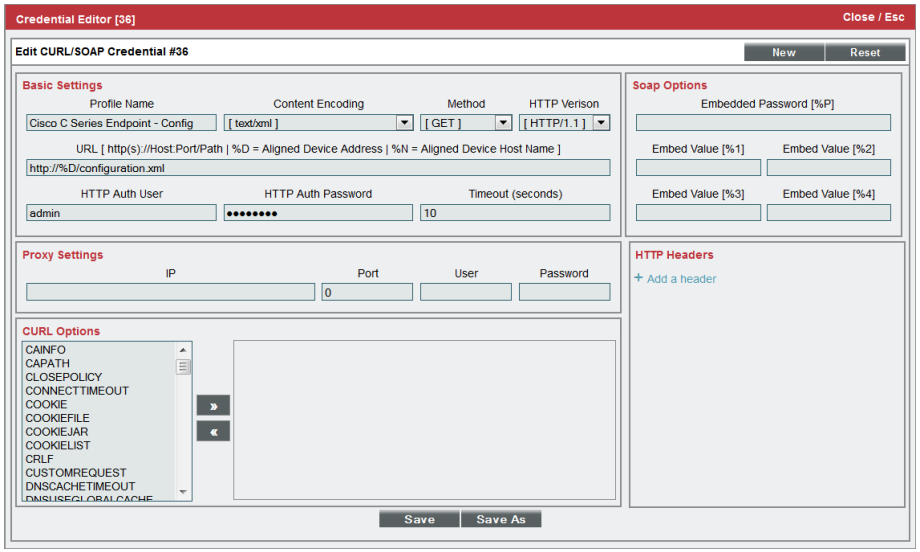
Procedure 3 Discover the endpoints (C Series)

Before you proceed, ensure that the Cisco endpoints have been set up and deployed based on the guidelines in the *Cisco SBA—Room System Video Deployment Guide*.

Step 1: On the System tab, in the Navbar, click **Credentials**.

Step 2: In the list, choose **Cisco C Series Endpoint - Config**, and then click the tool bar. The Credential Editor opens.

Figure 32 - Endpoint (C Series) SOAP Credential Editor—



Step 3: Enter the following field values:

- HTTP Auth User—the user name of the Endpoint
- HTTP Auth Password—the password associated with the user

Step 4: Click **Save**.

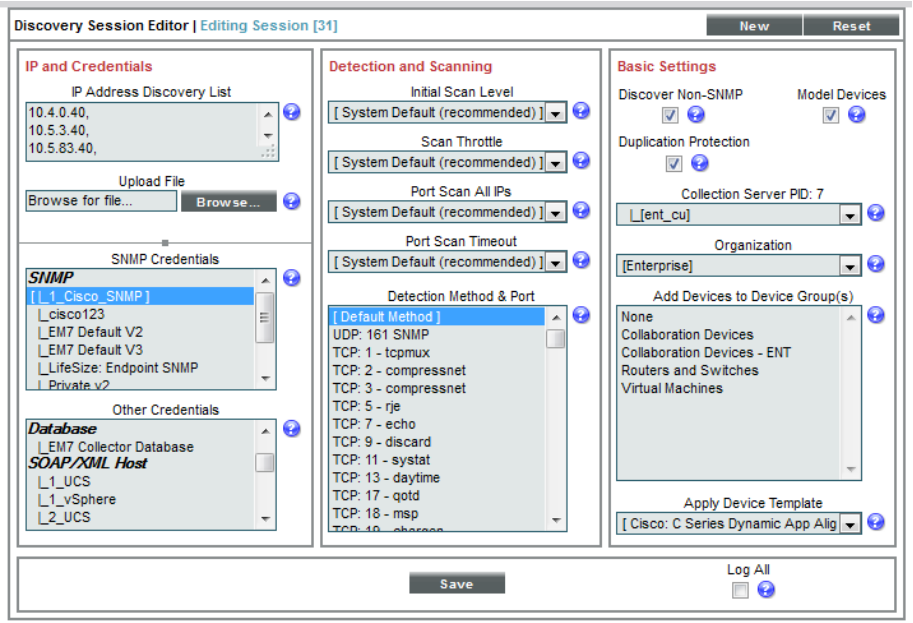
Step 5: Repeat Step 2 through Step 5 for the Cisco: C Series Endpoint - History and Cisco: C Series Endpoint - Status credentials.

Step 6: Click **Close/Esc**. The window closes.

Step 7: On the System tab, in the Navbar, click **Discovery**.

Step 8: Click the **Create** tab.

Figure 33 - Endpoint (C Series) Discovery Session Editor



Step 9: Enter the following values in the Discovery Session Editor:

- IP Address Discovery List—IP address of Cisco C Series Endpoints
- SNMP Credentials—Select the applicable SNMP credential, if SNMP is enabled
- Discover Non-SNMP—Selected
- Apply Device Template -- **Cisco C Series Endpoint Discovery Template**

Step 10: Click **Save**. The discovery session you created appears at the top of the Discovery Control Panel page.

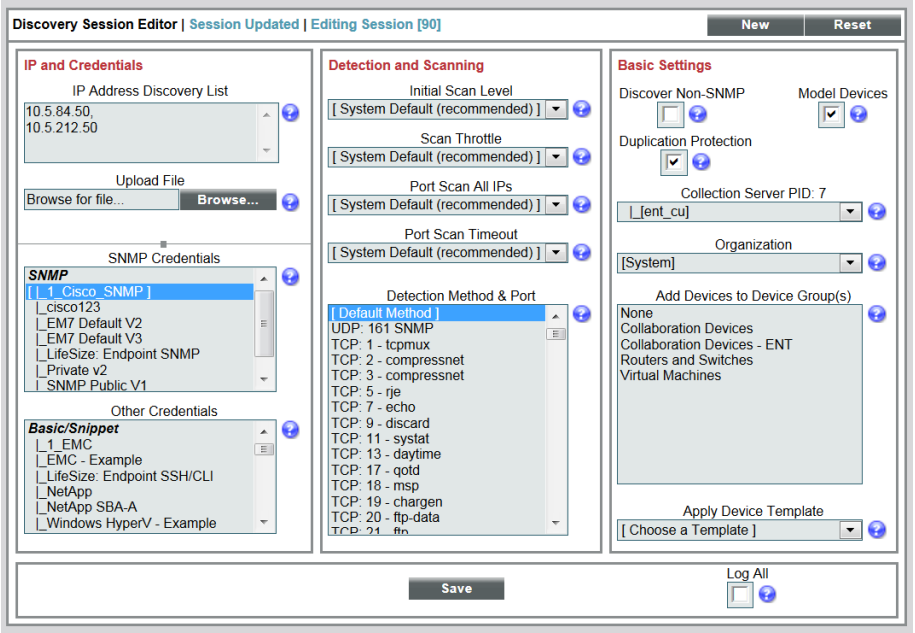
Step 11: Click the lightning bolt icon. A window appears and is updated as discovery progresses.

Procedure 4 Discover the endpoints (CTS Series)

Step 1: On the System tab, in the Navbar, click **Discovery**.

Step 2: Click the **Create** tab. The Discovery Session Editor opens.

Figure 34 - Endpoint (CTS Series) Discovery Session Editor



Step 3: Enter the following values in the Discovery Session Editor:

- IP Address Discovery List—IP address of Cisco CTS Series Endpoints
- SNMP Credentials—Select the applicable SNMP credential

Step 4: Click **Save**. The discovery session you created appears at the top of the Discovery Control Panel page.

Step 5: Click the lightning bolt icon. A window appears and is updated as discovery progresses.

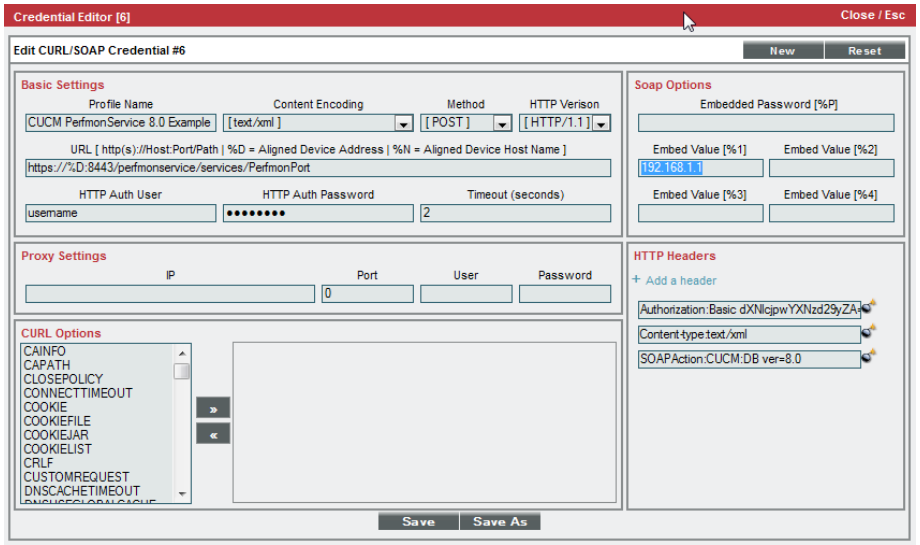
Procedure 5 Discover the Cisco Unified Call Manager

Before you proceed, ensure that the Cisco Unified Call Manager has been set up and deployed based on the guidelines in the *Cisco SBA—Telephony Using Cisco UCM Deployment Guide*.

Step 1: On the System tab, in the Navbar, click **Credentials**.

Step 2: In the list, choose the **CUCM Perfmonservice** credential, and then click the wrench icon. The Credential Editor opens.

Figure 35 - Cisco UCS Soap Credential Editor



Step 3: Enter the following field values:

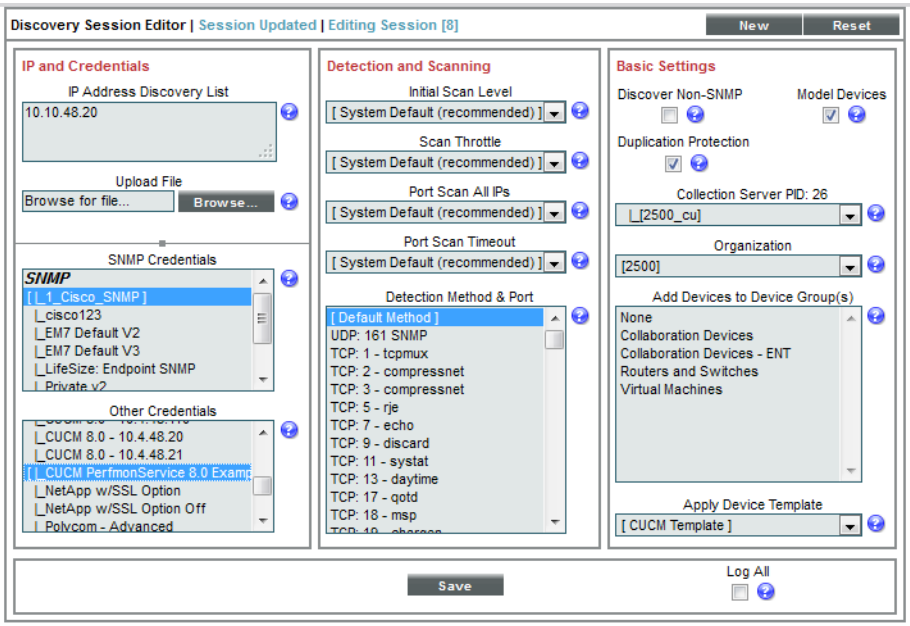
- HTTP Auth User—the user name
- HTTP Auth Password—the password associated with the user
- Embed Value [%$1]—this requires the IP address of Cisco CUCM

Step 4: Click **Save**.

Step 5: On the System tab, in the Navbar, click **Discovery**.

Step 6: Click the **Create** tab. The Discovery Session Editor opens.

Figure 36 - Cisco UCS Discovery Session Editor



Step 7: Enter the following values in the Discovery Session Editor:

- IP Address Discovery List—IP address of Cisco CUCM
- SNMP Credentials—Select the applicable SNMP credential
- Other Credentials—Select the applicable Cisco CUCM credential
- Apply Device Template—**CUCM**

Step 8: Click **Save**. The discovery session you created appears at the top of the Discovery Control Panel page.

Step 9: Click the lightning bolt icon. A window appears and is updated as discovery progresses.

Process

Collaboration Baselining and Monitoring the Network—Day 1

1. Generate reports

With the addition of collaboration devices to your monitoring there are additional dashboards and reports which focus specifically on collaboration technologies.

Procedure 1 Generate reports

The Reports tab can be used to generate instant, weekly, or monthly management reports, enabling you to present data collected by ScienceLogic EM7 in many different analysis formats.

Step 1: On the Reports tab, in the Navbar, select the type of report you want to create. The most popular reports are the Quick Reports.

After you select a Quick Report, a selection screen appears so that you can choose the data of interest. Reports can be generated in several formats. A sample video call usage report is shown in Figure 37 while a graphical Endpoint Availability report is shown in Figure 38.

Figure 37 - Sample table report output

ScienceLogic™

Video Calls by DeviceGroup, Call Type, Bandwidth – Start: May 31, 2012, Duration: 8 da

Organization: System				
	Call Type	Bandwidth	Calls	Total Hours
	Audio	64	27	19.46
	Unknown	4032	1	0.01
	Unknown	2500	1	0
	Unknown	1152	1	0.4
	Unknown	768	122	70.89
	Unknown	64	9	4.74
	Unknown	0	123	0
	Video	6000	1	2.49
	Video	5952	1	0.5
	Video	2496	1	0.25
	Video	1920	2	0
	Video	1152	4	0.87
	Video	768	378	110.71
	Video	384	64	38.7
Totals for Organization: System:			**735**	**249.02**
Grand Totals:			**735**	**249.02**

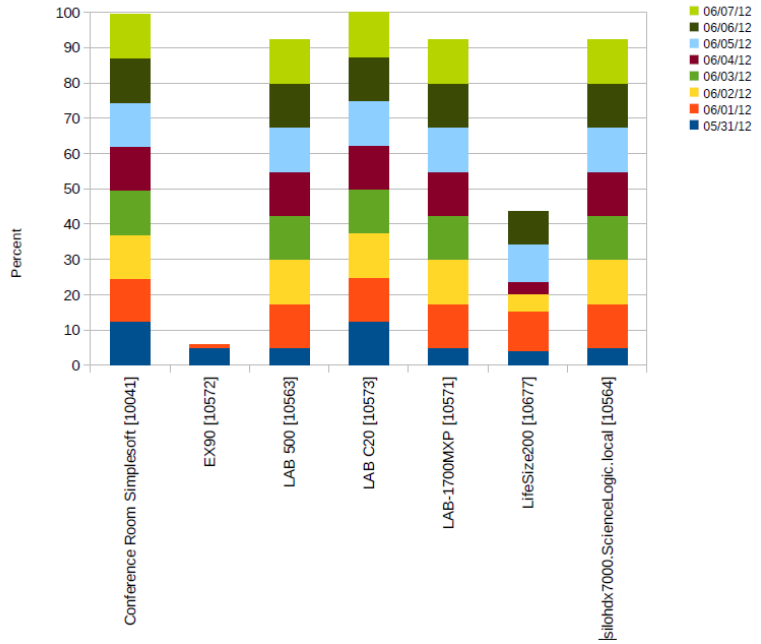
Generated On: June 8th, 2012 02:21:43 PM

Figure 38 - Sample Graphical report output

ScienceLogic™

Video Endpoint Availability Chart – Start: May 31, 2012, Duration: 8 days

Organization: System



Process

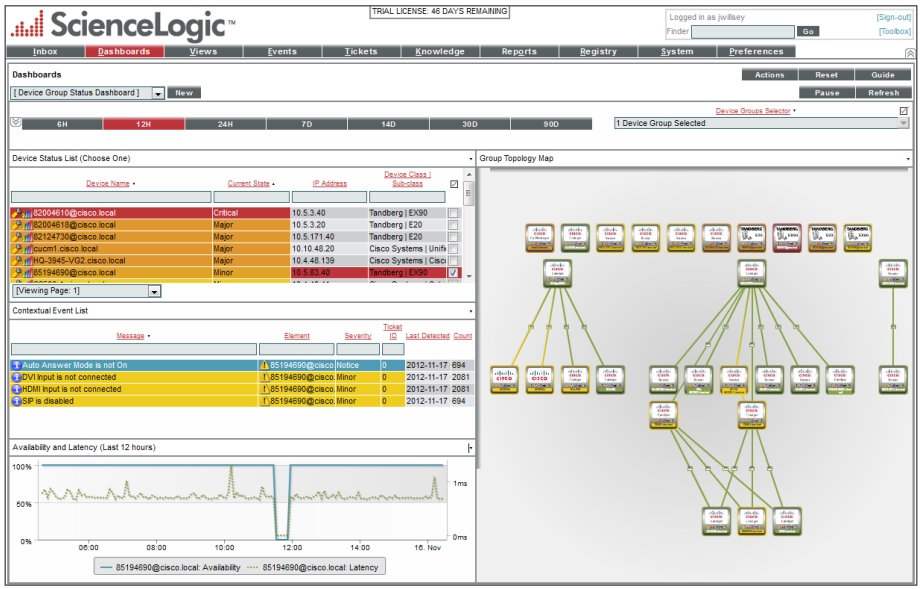
Collaboration Working with Dashboards

1. Build your own custom dashboard
2. Create a device group
3. Create a navigation widget
4. Create a device and event list widgets
5. Add a time series widget
6. Add the dynamic map to your dashboard

Procedure 1 Build your own custom dashboard

Virtually any dashboard display can be created by dragging and dropping data you would like to have displayed and specifying how the data should look. ScienceLogic EM7's flexibility enables each user to have personalized dashboards that provide data that is most important to that user.

Figure 39 - Sample customized dashboard featuring collaboration devices



Use the dashboard in Figure 15 as an example to complete this procedure. This Dashboard will utilize context sensitive navigation which enables flexible information retrieval on a single screen.

For this exercise, we will focus on just collaboration devices, routers and switches. To do so, we will create a group of devices specific to our collaboration infrastructure.

Procedure 2 Create a device group

Step 1: Navigate to **Registry** > **Devices** > **Device Groups**, and then click **Create**.

Step 2: For the device group name, enter Collaboration Devices.

Step 3: For Child Visibility, select **Yes**.

Step 4: Choose all entries under visibility by pressing Shift + click.

Step 5: Under the Sharing Key, choose **Shared with users in your organization**, and under the Permissions Key, choose **Grant All**.

Next, create an automatic Dynamic Group.

Step 6: Under Dynamics Rules, click **Add**. The Rule Editor window opens.

Step 7: In the **Active Selectors** list, choose **Device Category**, type **Video**, select all of the Video.X device categories, click **OK**, and then click **Save**.

Next, add a second rule.

Step 8: In the **Active Selectors** list, choose **Device Category**, type **Telephony**, select all of the Telephony.X device categories, click **OK**, and then click **Save**.

Step 9: In the **Active Selectors** list, choose **Device Category**, **Network. Router**, and **Network.Switches**, click **OK**, and then click **Save**. You have now defined a dynamic custom group that will also be visible as a map.

Tech Tip

Dynamic Groups is a rules-based system to perform group membership. Many other options are available, such as by device name, or Expression match. Note, as you select items, you get a live preview of the devices that match your search criteria.

Step 10: You can see your map by navigating to the Views tab, and then, in the Navbar on the left, clicking **Shared Customized Maps** and finding the map named after your custom group.

Tech Tip

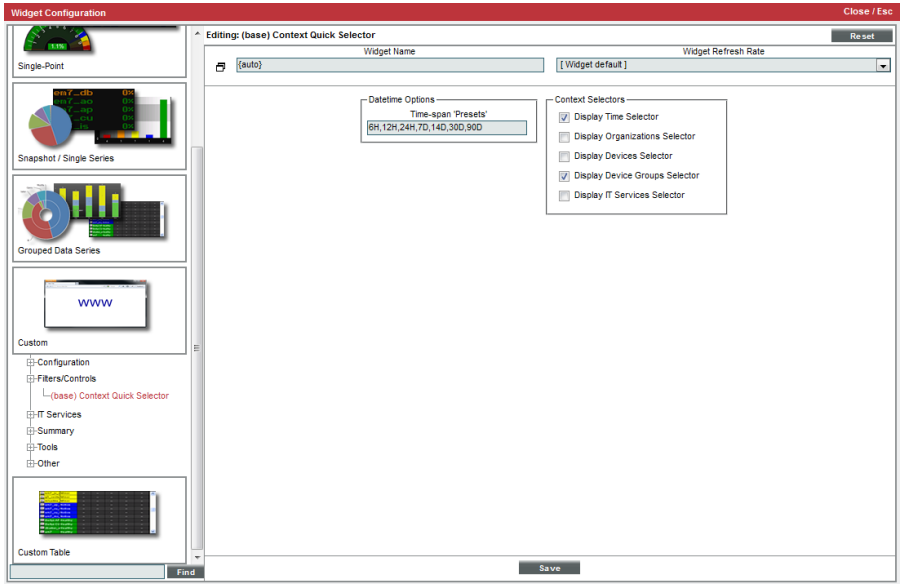
Topology links update every four hours.

Procedure 3 Create a navigation widget

Step 1: On the Dashboards tab, click **New**. This displays a blank dashboard with a background grid.

Step 2: Create your first widget by dragging and dropping a box, of desired size, into the upper-left corner of the page. The Widget Configuration menu opens.

Figure 40 - Contextual widget configuration



Step 3: Choose **(base) Context quick Selector** for the widget type, clear all of the options except **Display Time Selector** and **Device Groups Selector**, then click **Save**.

Step 4: Resize across the top of the page. Your time navigation selector is now complete.

Tech Tip

Navigation can be done in a few ways. You can browse by category, and then click the large Icon to display the available choices, or type the name of the widget in the search field in the bottom left corner. In this case, typing **context** lists the contextual-based navigation widget.

Next, you add a list of switches to the upper, left side of the dashboard.

Procedure 4 Create a device and event list widgets

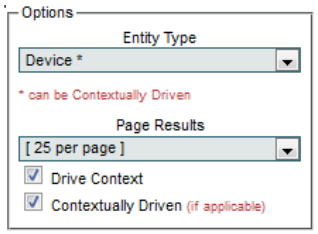
Step 1: Drag and drop a box onto the left side of the page. This creates a new widget.

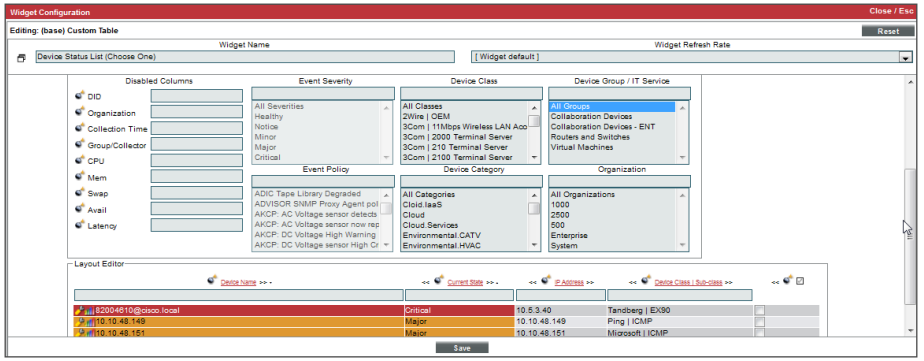
Step 2: Choose **(base) Custom Table** for the widget type.

Step 3: Give the new widget a name (example: Device Status List (Pick a Device Group, then Choose a Device)).

For options, select **Entity Type > Device,** and then select **Drive Context and Contextually Driven**. You can pick and choose the columns you like. When you click a column by which to sort, a small up or down diamond appears to the right of the column name.

Figure 41 - Custom table widget configuration





Next, you add a contextual-based list of events based on switch selection.

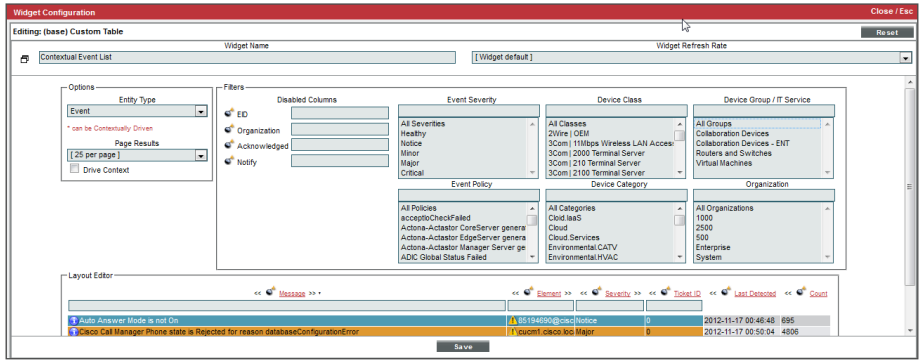
Step 4: Drag and drop a box onto the left side of the page. This creates a new widget.

Step 5: Choose **(base) Custom Table** for the widget type.

Step 6: Give the new widget a name (example: Events).

Step 7: For options, select **Options** > **Contextually Driven**. Next select **Entity Type** > **Event**. You can pick and choose the columns you like.

Figure 42 - Custom table widget configuration



Next, you can add a Time series performance graph for availability latency and CPU.

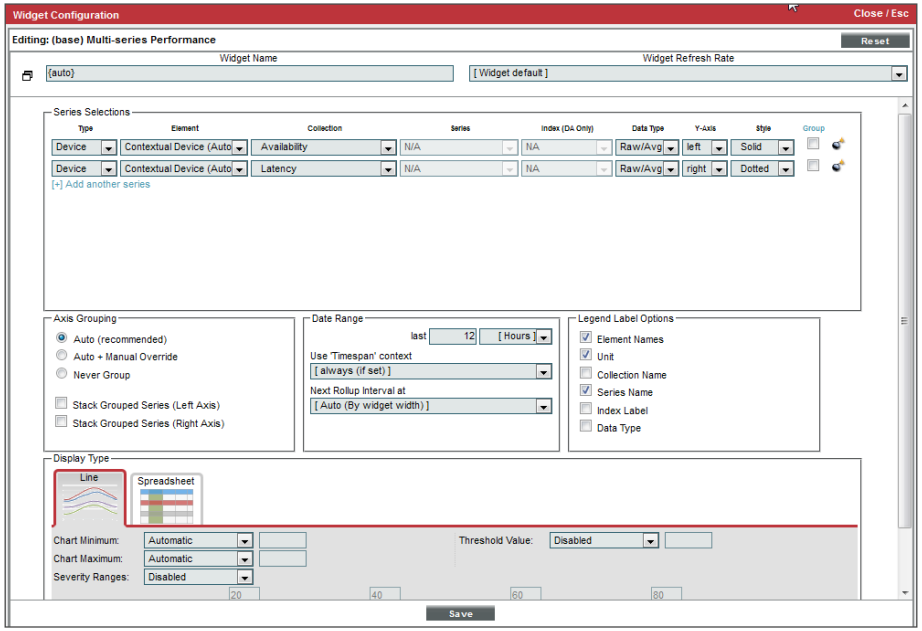
Procedure 5 Add a time series widget

Step 1: Drag and drop a box onto the left side of the page. This creates a new widget.

Step 2: Choose **(base) Multi-series Performance** for the widget type.

Step 3: Under Series Selections, choose the settings that match the settings in the following figure, and then click **Save**.

Figure 43 - Multi-series performance Widget settings



Tech Tip

The background colors can be changed to visually illustrate severity by adjusting the colored sliders in the widget configuration.

Next, you build a topology map and then add it to the Dashboard.

Procedure 6 Add the dynamic map to your dashboard

Step 1: Drag and drop a box onto the right side of the dashboard. This creates a new widget that fills the right side of the unused dashboard area.

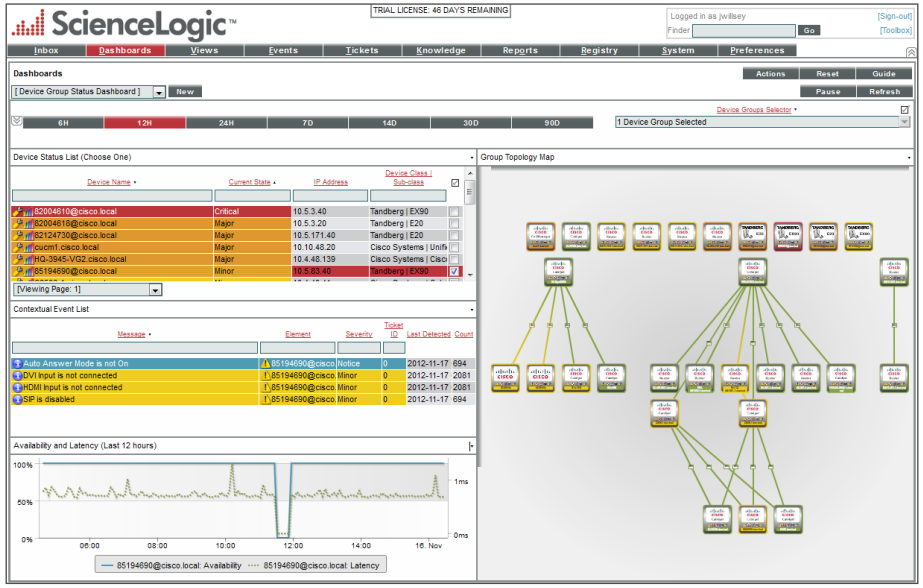
Step 2: Choose **Topology Map** for the widget type.

Step 3: Choose **Custom Group** for the map type, choose **Collaboration Devices**, enter **Group Topology map** for the map title, and then click **Save**. This produces a topology map of your routers and switches within a dashboard view.

Step 4: You should now have a dashboard.

Step 5: This dashboard is built using dynamic contexts and groups. Go ahead and try switching to your Router and Switches Group created earlier. Notice how the entire dashboard updates with new contextually relevant data.

Figure 44 - Customized dashboard featuring collaboration devices



Optimizing and Maintaining the Health of the Network—Day 2+

Over several days after you install and deploy ScienceLogic EM7, the system builds historical data and creates trending information for your data. After baseline data is collected, thresholds can be adjusted globally, by group or by individual device in order to meet the needs of your environment.

For example, if a remote location is using a satellite WAN link, you may observe notifications that network latency is over threshold. For these links, you can adjust the latency to be appropriate for satellite technology.

As events occur, they can be turned into tickets manually, or by automation in order to create an automated IT operations environment. As you navigate through the product, remember to use the Guide button in the upper-right corner of most screens for contextual help.

Appendix A: Contact Information

Visit the Cisco page on the ScienceLogic website for more information:

http://www.sciencelogic.com/product/technologies/network/cisco

Email: partners@sciencelogic.com

Phone: (800) SCI-LOGIC

For Sales inquiries:

Email: sales@sciencelogic.com

Phone: (800) SCI-LOGIC, ext 1

For information on becoming a ScienceLogic Partner:

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Notes

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