



Newer Cisco SBA Guides Available

This guide is part of an older series of Cisco Smart Business Architecture designs. To access the latest Cisco SBA Guides, go to <http://www.cisco.com/go/sba>

Cisco strives to update and enhance SBA guides on a regular basis. As we develop a new 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.





SBA

BORDERLESS
NETWORKS

DEPLOYMENT
GUIDE

ScienceLogic EM7 Network Management Guide



● ● ● SMART BUSINESS ARCHITECTURE

August 2012 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 August 2012 are the “August 2012 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.

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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.

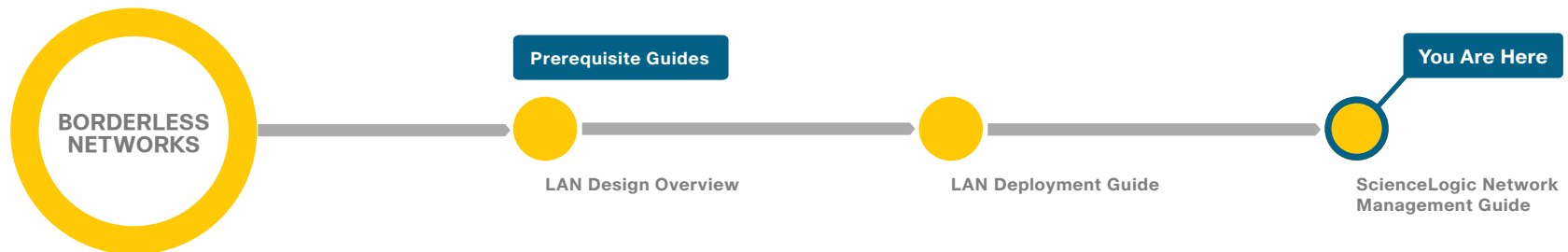
About This Guide

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 configuration 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



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 *Cisco SBA—Borderless Networks 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

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, EM7 does not require that you buy additional licenses to add more users, devices, virtual servers, and applications, making it easy to scale network management as your data center 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

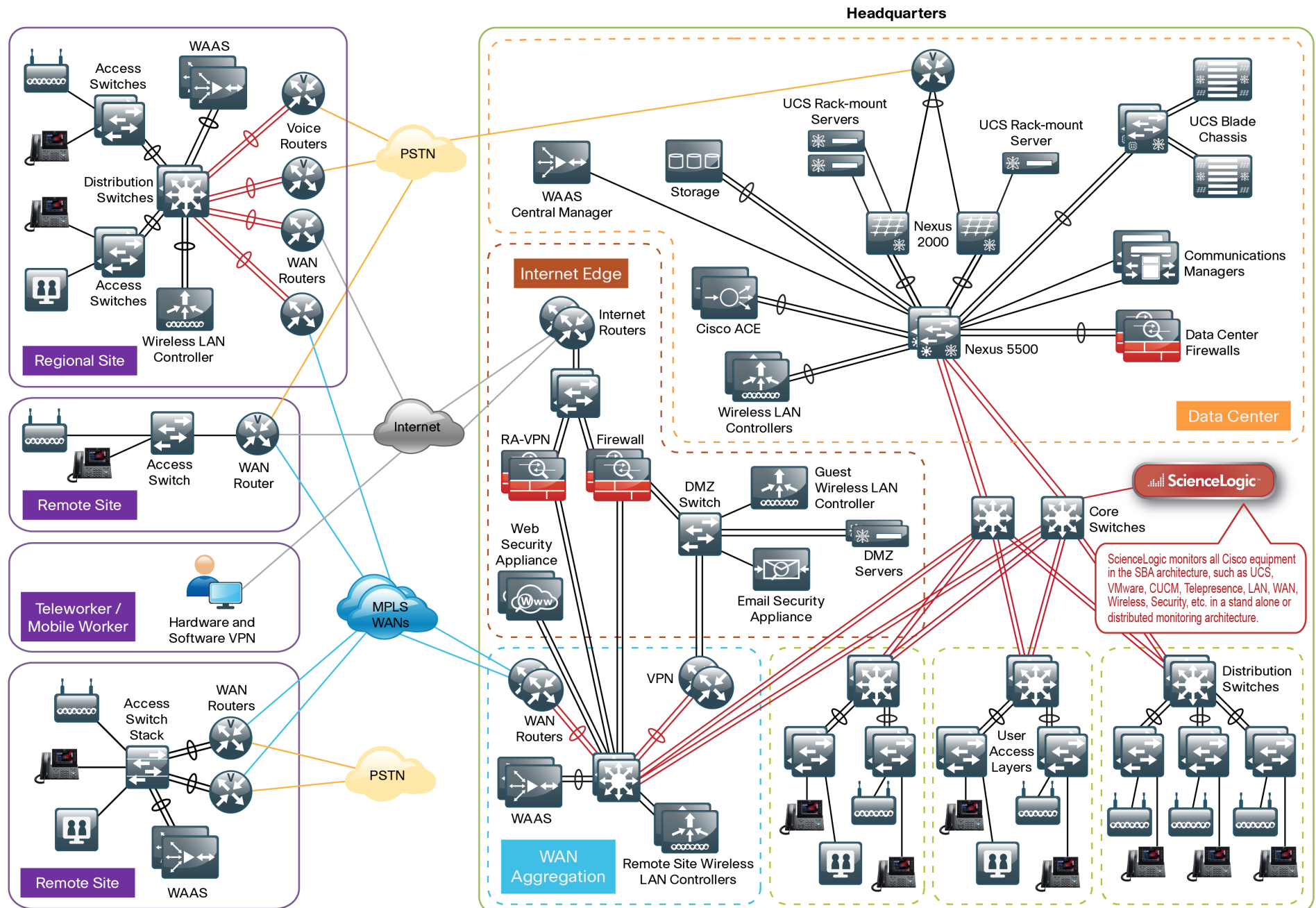
Key Features

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

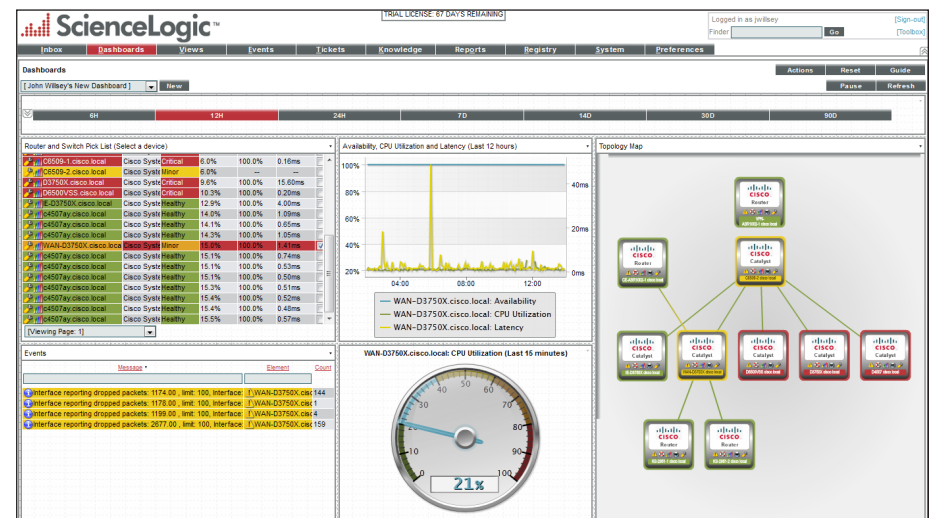
ScienceLogic EM7 is designed for quick and easy setup. Appliances include an operating system, EM7 management applications, a firewall, and a database—all preinstalled, preconfigured, and pretested.

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 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 **[https://\[EM7 IP address\]:7700](https://[EM7 IP address]:7700)**. This connects you to the ScienceLogic EM7 management console.

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**.

The screenshot shows the 'Settings' window with two tabs: 'General Settings' and 'Security Settings'. The 'General Settings' tab is active, showing fields for 'Name Servers' (nameserver 45.0.2.70, nameserver 8.8.8.8), 'Hostname' (em7_den), 'Syslog Server' (syslog.enet.interop.net), 'Time Server' (pool.ntp.org), and 'IP Connection Tracking' (65536). The 'Security Settings' tab is also visible, showing 'EM7 License Key' (Browse...), 'Registration Key' (Download), and 'License Parameters' (Organization: SCIENCELOGIC QA INTERNAL USE ONLY, Licensed Capacity: 1000, License Type: Trial, Expiration Date: 2012-07-17 04:00:00, Hardware Specs: Model: PowerEdge R610, Processors: 4, Memory: 24 GB). Both tabs have a 'Save' button at the bottom.

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.

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**, and then click **Save**.

Step 10: Close the window.

Step 11: 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 12: To view your discovered network devices, click the Registry tab. After 10–30 minutes, Performance and Dashboard graphs are populated.

Procedure 3 Discover your network

Step 1: In a browser window, enter [http://\[EM7 IP address\]](http://[EM7 IP address]). This connects you to the ScienceLogic EM7 web console.

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

Step 3: Review and accept the license agreement.



Tech Tip

Polling occurs every 5–15 minutes.

ScienceLogic™ TRIAL LICENSE: 89 DAYS REMAINING

Logged in as jwilliey [Sign-out] [Toolbox]

Find: [] Go

Navigation: Inbox Dashboards Views Events Tickets Knowledge Reports Registry System Preferences

Left Sidebar: Devices (Device Manager, Device Components, Device Groups, Hardware, Processes, Services, Software, Templates), Monitors, Networks, IT Services, Accounts, Assets, Business Services, Events, Run Book, Ticketing, Web Proxies

Device Manager | Devices Found (211)

Device Name	IP Address	Device Class	Device Class Sub-class	OID	Organization	Current State	Collection State	Collection Rate	SNMP Community	SNMP Version	Actions	Reset	Guide
1	CE-ASR1002-1.cisco.local	10.4.32.2	Router	Cisco Systems ASR 1002	128	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
2	FW-FW-ASR1002-1.cisco.local	10.4.32.18	Router	Cisco Systems ASR 1002	122	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
3	SW-SW-ASR1002-1.cisco.local	10.4.32.1	Switches	Cisco Systems Catalyst 3750 119	Enterprise	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
4	SW-SW-ASR1002-1.cisco.local	10.4.40.14	Switches	Cisco Systems Catalyst 3750 119	Enterprise	Enterprise	Critical	Enterprise	Unavailable	1_Cisco_SNMP V2	25		
5	WAN-D3750-X.cisco.local	10.4.32.3	Switches	Cisco Systems Catalyst 3750 124	Enterprise	Enterprise	Minor	Enterprise	Active	1_Cisco_SNMP V2	25		
6	D4507.cisco.local	0.4.40.18	Switches	Cisco Systems Catalyst 4500 187	Enterprise	Enterprise	Critical	Enterprise	Unavailable	1_Cisco_SNMP V2	25		
7	C4500-2.cisco.local	10.4.40.28	Switches	Cisco Systems Catalyst 4500 116	Enterprise	Enterprise	Minor	Enterprise	Active	1_Cisco_SNMP V2	25		
8	C5505-1.cisco.local	10.4.40.41	Switches	Cisco Systems Catalyst 5505 188	Enterprise	Enterprise	Critical	Enterprise	Unavailable	1_Cisco_SNMP V2	25		
9	D6500VSS.cisco.local	10.4.40.10	Switches	Cisco Systems Catalyst WSC 195	Enterprise	Enterprise	Critical	Enterprise	Unavailable	1_Cisco_SNMP V2	25		
10	RS211-2921-2.cisco.local	10.255.252.2	Router	Cisco Systems Cisco IOS So 1205	Enterprise	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
11	RS211-2921-1.cisco.local	10.255.252.3	Router	Cisco Systems Cisco IOS So 1203	Enterprise	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
12	RS222-2921-1.cisco.local	10.255.252.2	Router	Cisco Systems Cisco IOS So 1201	Enterprise	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
13	RS222-2921-2.cisco.local	10.255.252.3	Router	Cisco Systems Cisco IOS So 1205	Enterprise	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
14	RS216-2921.cisco.local	10.255.252.2	Router	Cisco Systems Cisco IOS So 1202	Enterprise	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
15	RS221-2921.cisco.local	10.255.252.2	Router	Cisco Systems Cisco IOS So 1204	Enterprise	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
16	RS-2921-2.cisco.local	10.4.32.152	Router	Cisco Systems Cisco IOS So 1030	Enterprise	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
17	RS-2921-1.cisco.local	10.4.32.151	Router	Cisco Systems Cisco IOS So 1035	Enterprise	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
18	HQ-3945-V02.cisco.local	10.4.48.108	Router	Cisco Systems Cisco IOS So 1198	Enterprise	Enterprise	Minor	Enterprise	Active	1_Cisco_SNMP V2	25		
19	HQ-3945-V01.cisco.local	10.4.48.138	Router	Cisco Systems Cisco IOS So 179	Enterprise	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		
20	HS-448-17	0.4.48.17	Pingable	Cisco Systems ICMP	66	Enterprise	Healthy	Enterprise	Active	--	25		
21	HS-448-20	0.4.48.20	Pingable	Cisco Systems ICMP	1038	Enterprise	Healthy	Enterprise	Active	--	25		
22	HS-463-28	0.4.63.28	Pingable	Cisco Systems ICMP	118	Enterprise	Healthy	Enterprise	Active	--	25		
23	WAE-2.cisco.local	10.4.32.152	Servers	Cisco Systems OE 7330	126	Enterprise	Healthy	Enterprise	Active	1_Cisco_SNMP V2	25		

Process

Baselining and Monitoring the Network—Day 1

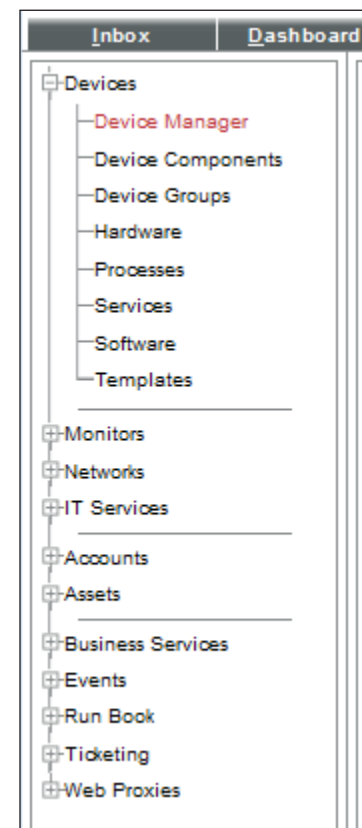
1. Review the registry (inventory)
2. View events and create custom events
3. Generate reports

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).



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.

Device Manager Devices Found [212]						
Device Name	IP Address	Device Category	Device Class / Sub-Class	Org	Organization	Current State
1. RS211-2921-1.cisco.local	10.255.255.211	Router	Cisco Systems Cisco IOS Software, C21203	Enterprise	Enterprise	Healthy
2. RS210-2921-1.cisco.local	10.255.255.210	Router	Cisco Systems Cisco IOS Software, C21202	Enterprise	Enterprise	Healthy
3. RS222-2921-2.cisco.local	10.255.253.222	Router	Cisco Systems Cisco IOS Software, C21205	Enterprise	Enterprise	Healthy
4. RS211-2921-2.cisco.local	10.255.253.211	Router	Cisco Systems Cisco IOS Software, C21206	Enterprise	Enterprise	Healthy
5. RS222-2921-1.cisco.local	10.255.253.222	Router	Cisco Systems Cisco IOS Software, C21201	Enterprise	Enterprise	Healthy
6. RS221-2921.cisco.local	10.255.251.221	Router	Cisco Systems Cisco IOS Software, C21204	Enterprise	Enterprise	Healthy
7. 85234730@cisco.local	10.5.171.40	Endpoint	Tandberg E20	1221	Enterprise	Major
8. 85194690@cisco.local	10.5.83.40	Endpoint	Tandberg EX90	1222	Enterprise	Minor
9. 85114610@cisco.local	10.5.3.40	Endpoint	Tandberg EX90	1218	Enterprise	Major

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.

Close
Properties
Thresholds
Collections
Monitors
Schedule
Logs
Toolbox
Interfaces
Relationships
Tickets
Redirects
Notes

Device Name: RS211-2921-1.cisco.local
IP Address / ID: 10.255.255.211 | 1203
Class: Cisco Systems
Organization: Enterprise
Collection Mode: Active
Description: Cisco IOS Software, C2900 Software (C2900-UNIVERSALK9-M)

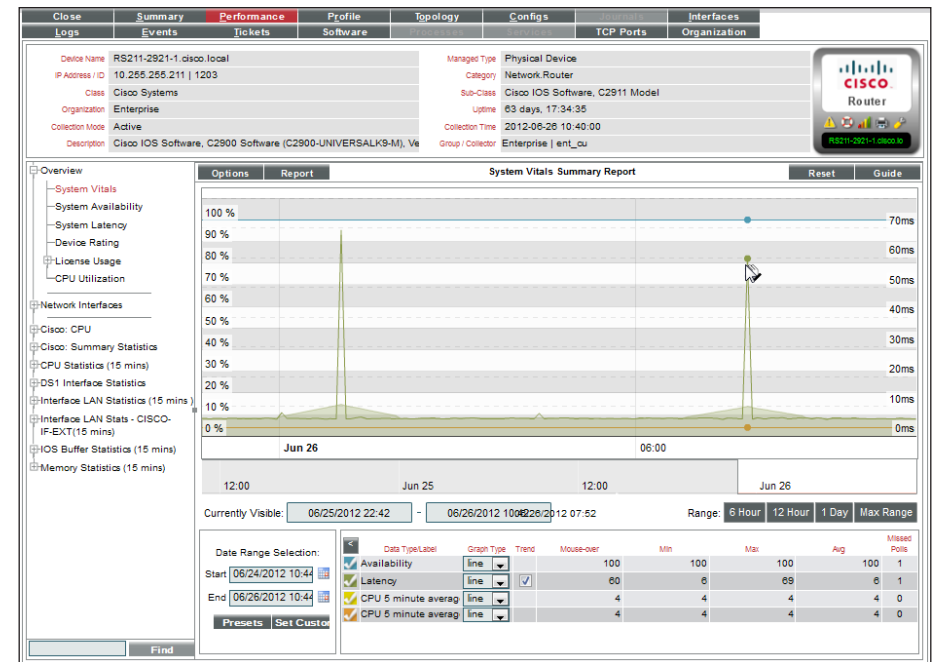
Managed Type: Physical Device
Category: Network Router
Sub-Class: Cisco IOS Software, C2911 Model
Uptime: 63 days, 17:34:35
Collection Time: 2012-06-26 10:40:00
Group / Collector: Enterprise | ent_lou

Device Toolbox
Actions
Reset
Guide

SSH
Secure Web
SNMP Walker
Port Scan
Deep Port Scan
Traceroute
Ping Tool
Forward DIG
Reverse DIG

ARIN Whois
ARP Lookup
ARP Ping
SNMP Dump
Web Policy

- 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.



- 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.

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

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.

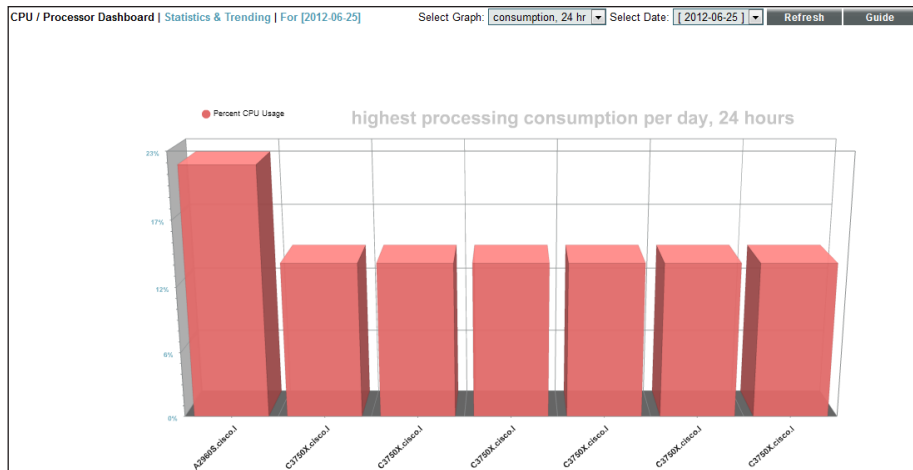
Step 1: On the Reports tab, in the Navbar, select the type of report you want to create. The most popular reports are the Quick Reports and Leaderboards.

- 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 5.

Figure 5 - Sample report output

Beginning: Jun 2012 Span: To present Items: Selected Categories: All Device Categories Number of Interfaces: 225			
Organization: Enterprise [1] Categories: Unknown Device: DC6548UPb [67]			
IF ID	Description	Total	Average
429	fc1/28	0.00 KB	0.00 KB/day
430	fc1/29	52.01 GB	2.04 GB/day
623	fc1/30	56.37 GB	2.21 GB/day
618	fc1/31	299.89 MB	11.79 MB/day
443	fc1/32	0.00 KB	0.00 KB/day
446	san-port-channel 29	108.42 GB	4.26 GB/day
558	san-port-channel 31	299.39 MB	11.76 MB/day
665	mgmt0	7.62 GB	524.22 MB/day
433	Vlan1	0.00 KB	0.00 KB/day
509	Vlan116	0.00 KB	0.00 KB/day

- 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.



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.

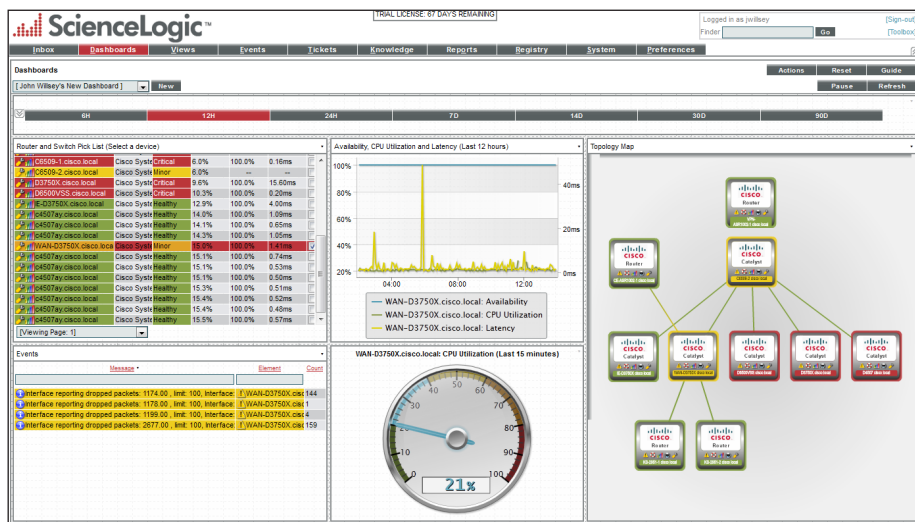
Figure 6 - Out-of-the-box interactive dashboard for VMware ESX Host Analysis running on a Cisco UCS platform



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.

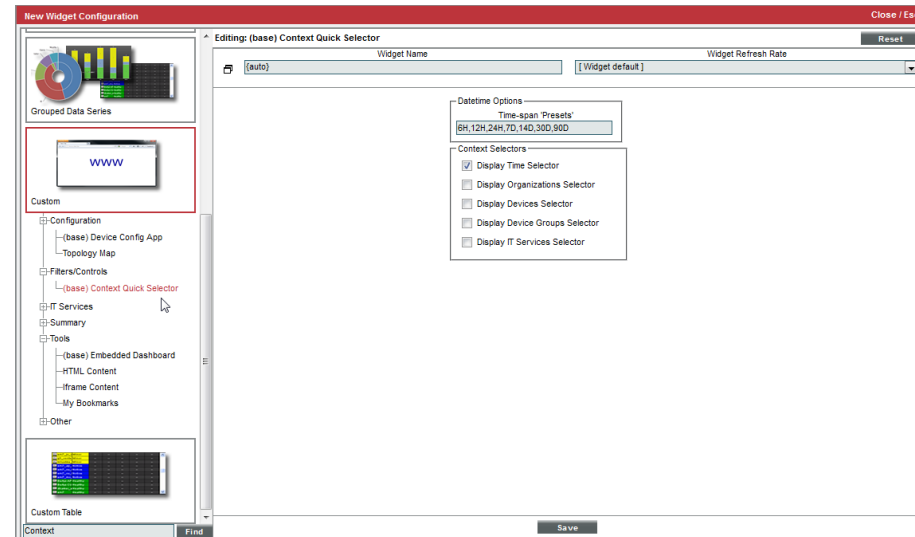
Figure 7 - Sample customized dashboard



Use the dashboard in Figure 7 as an example to complete this procedure.

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.



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.

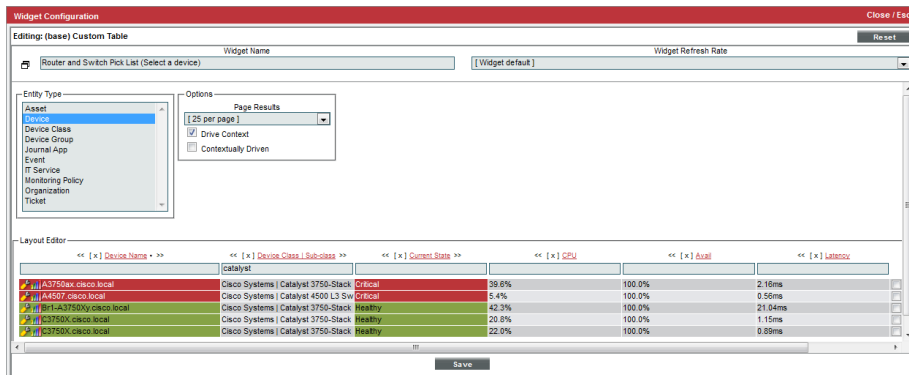
Next, you add a list of switches to the upper, left side of the dashboard.

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 on a column by which to sort, a small up or down diamond appears to the right of the column name.



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.

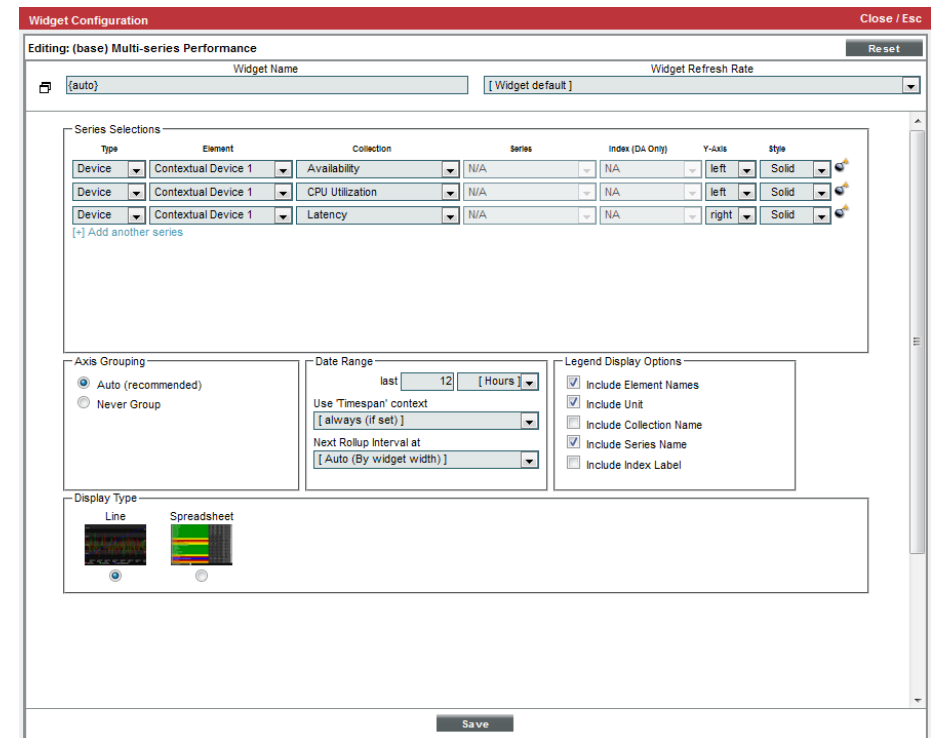
Next, you can add a Time series performance graph for availability latency and CPU.

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 Figure 8, below, and then click **Save**.

Figure 8 - 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.

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.

Process

Monitoring a Cisco UCS environment (optional)

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

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 **Create**. This creates a new SOAP/XML Host Credential.

The screenshot shows the 'Credential Editor [38]' window with the title 'Edit CURL/SOAP Credential #38'. It has 'New' and 'Reset' buttons in the top right. The window is divided into several sections:

- Basic Settings:** Includes fields for Profile Name (UCS), Content Encoding (application/soap+xml), Method (POST), HTTP Version (HTTP/1.1), URL (https://%D/nuova), HTTP Auth User, HTTP Auth Password, and Timeout (seconds) (5).
- Proxy Settings:** Includes fields for IP, Port (0), User, and Password.
- CURL Options:** A list of options on the left (CAINFO, CAPATH, CLOSEPOLICY, CONNECTTIMEOUT, COOKIE, COOKIEFILE, COOKIEJAR, COOKIELIST, CRLE, CUSTOMREQUEST, DNSCACHE, TIMEOUT) and a central field for SSLVERIFYHOST (0).
- Soap Options:** Includes an Embedded Password [%P] field and four Embed Value [%1] through [%4] fields (username, password, and two empty).
- HTTP Headers:** A section with a '+ Add a header' link.

A 'Save' button is located at the bottom center of the dialog.

Step 3: Enter the following field values:

- Profile Name—**UCS_Credentials** (you may name this as you wish)
- Content Encoding— **application/soap+xml**
- URL—**https://%D/nuova**
- Timeout— **5**

Step 4: Under Curl Options, select **SSLVERIFYHOST**, and then select a value of **0**.

Step 5: In the Embed Value [%1] field, enter the username, and in the Embed Value [%2] field, enter the password for a valid user or administrative account.

Step 6: Click **Save**.



Tech Tip

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 screenshot shows the 'Discovery Session Editor' window with the following configurations:

- IP and Credentials:**
 - IP Address Discovery List: 10.4.63.30
 - SNMP Credentials: LSNMP Public V2 (selected)
 - Other Credentials: LUCS (selected)
- Detection and Scanning:**
 - Initial Scan Level: [5. Deep discovery]
 - Scan Throttle: [System Default (recommended)]
 - Port Scan All IPs: [System Default (recommended)]
 - Port Scan Timeout: [System Default (recommended)]
 - Detection Method & Port: [Default Method]
- Basic Settings:**
 - Discover Non-SNMP: ☒
 - Duplication Protection: ☒
 - Collection Server PID: 7
 - Organization: [Enterprise]
 - Add Devices to Device Group(s): None
 - Apply Device Template: [Default Device]

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—Checked

Step 4: Click **Save**.

The discovery session you created appears at the top of the Discovery Control Panel page. To run the discovery, click the lightning bolt icon.



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.

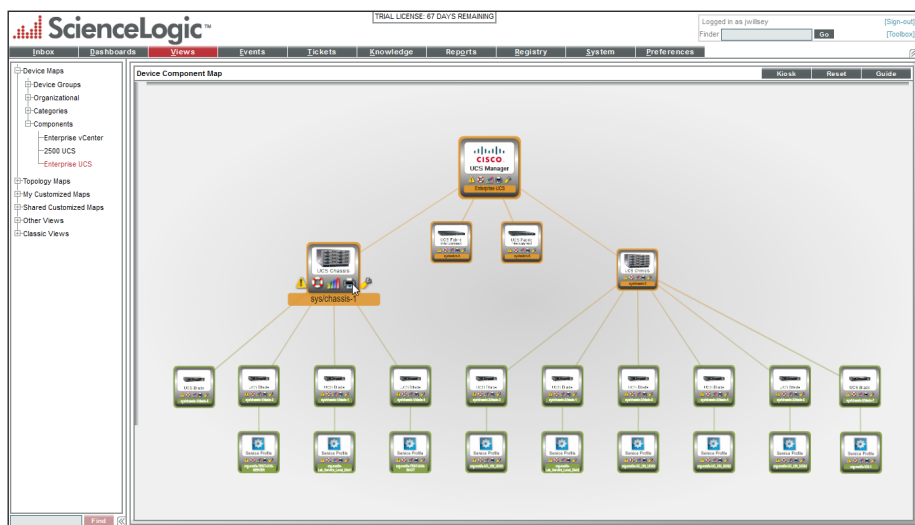
Process

Viewing the Cisco UCS Component Devices

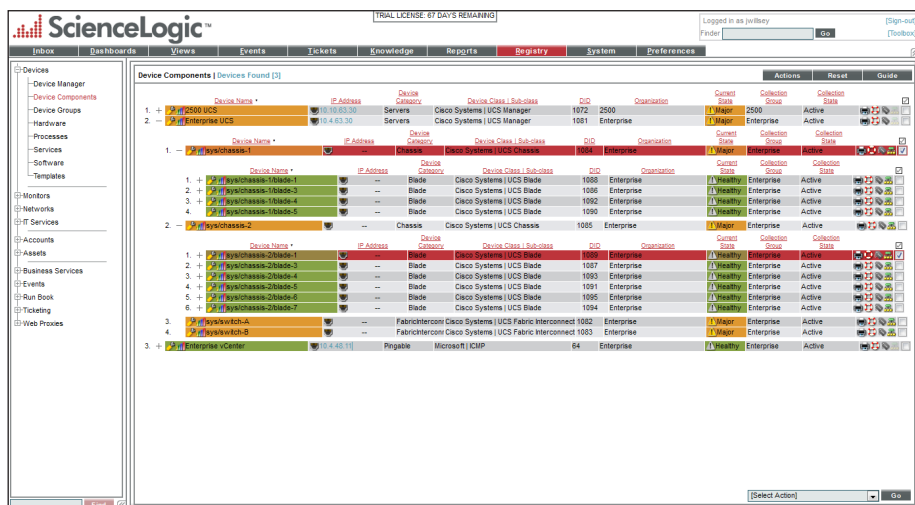
1. View the component map
2. View active Cisco UCS events

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.

View the component map



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



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 UCS 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 9 - EM7 active events screen with integrated fault management

TRIAL LICENSE: 60 DAYS REMAINING

Sign In

Tools

Inbox

Dashboard

Views

Events

Tickets

Knowledge

Reports

Registry

System

Preferences

Event Console

Events Found [137]

Collapse

Custom View

Save

Delete

Search

Event Message

UCS

Operation

Content Information

2000

San Jose CA

0 (+3) Healthy

0 (+12) Notice

1 (+13) Minor

4 (+5) Major

0 (+4) Critical

Name	Type	Event Message	Severity	Acknowledged	Note	Total	Due / Elapsed	Last Detected	ECID	Source	Count	Notify
1. rsyslog-chassis-1	Device	UCS: Power supply unit not operable, now unknown	Major	<input type="checkbox"/>	3 hrs 5 mins	2012-06-27 18:30:05	1051778	sdDynamic	38	...
2. rsyslog-chassis-2	Device	UCS: Power supply unit not operable, now unknown	Major	<input type="checkbox"/>	3 hrs 5 mins	2012-06-27 18:30:07	1051832	sdDynamic	38	...
3. rsyslog-switch-A	Device	UCS: Power supply unit not operable, now inoperable	Major	<input type="checkbox"/>	3 hrs 5 mins	2012-06-27 18:30:05	1051788	sdDynamic	38	...
4. rsyslog-switch-B	Device	UCS: Power supply unit not operable, now inoperable	Major	<input type="checkbox"/>	3 hrs 5 mins	2012-06-27 18:30:05	1051790	sdDynamic	38	...
5. rsyslog-switch-C	Device	UCS: Fabric PSU Voltage has exceeded threshold (210V) Minor	Minor	<input type="checkbox"/>	40 mins 18 secs	2012-06-27 18:30:05	1052222	sdDynamic	9	...
6. rsyslog-switch-D	Device	UCS: Fabric PSU Voltage has returned to normal (210V) Healthy	Healthy	<input type="checkbox"/>	20 secs	2012-06-27 18:30:05	1052290	sdDynamic	1	...

Enterprise

San Jose CA

0 (+1) Healthy

0 (+21) Notice

0 (+27) Minor

4 (+1) Major

0 (+2) Critical

Name	Type	Event Message	Severity	Acknowledged	Note	Total	Due / Elapsed	Last Detected	ECID	Source	Count	Notify
1. rsyslog-chassis-1	Device	UCS: Power supply unit not operable, now unknown	Major	<input type="checkbox"/>	1 day 7 hrs	2012-06-27 18:30:05	1048094	sdDynamic	380	...
2. rsyslog-chassis-2	Device	UCS: Power supply unit not operable, now unknown	Major	<input type="checkbox"/>	1 day 7 hrs	2012-06-27 18:30:05	1048096	sdDynamic	379	...
3. rsyslog-switch-A	Device	UCS: Power supply unit not operable, now inoperable	Major	<input type="checkbox"/>	1 day 7 hrs	2012-06-27 18:25:22	1048090	sdDynamic	379	...
4. rsyslog-switch-B	Device	UCS: Power supply unit not operable, now inoperable	Major	<input type="checkbox"/>	2 days 12 hrs	2012-06-27 18:25:27	1048715	sdDynamic	726	...

1 (+45) Healthy

0 (+35) Notice

1 (+44) Minor

0 (+15) Major

0 (+28) Critical

Select Action

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 Figure 9, 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 10 - vCenter component map view

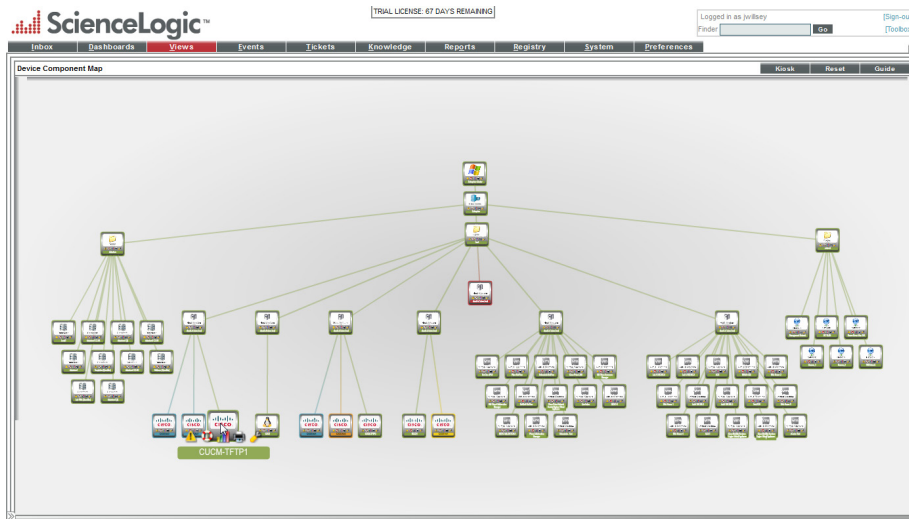
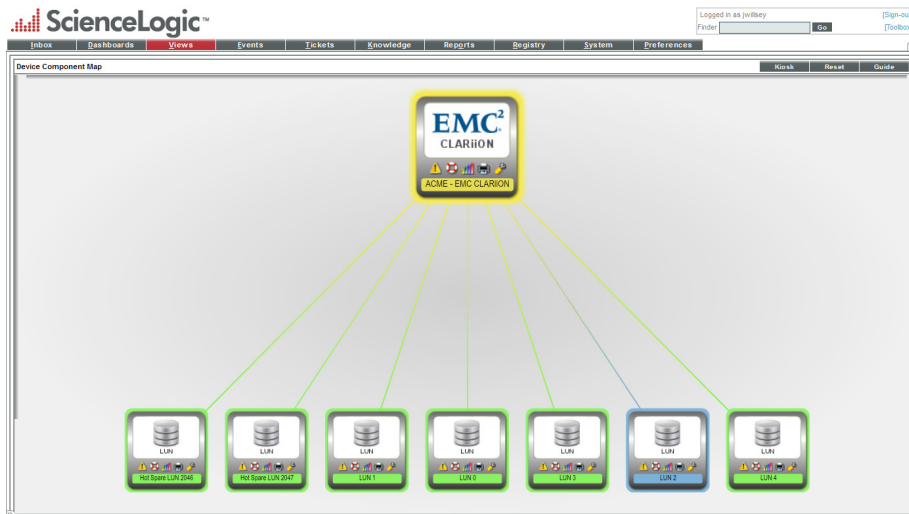


Figure 11 - EMC SAN component map view



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>

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Phone: (800) SCI-LOGIC, ext 1

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Notes

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