

CA UIM

Worldwide Support Team

CA UIM-Spectrum Integration Guide



February 23, 2018

Author: Steve Danseglio

Contributors/Reviewers:

Greg Polenta, Chris Scollin, Jerald Holcomb

CA confidential and proprietary information

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Background

The integration between CA Unified Infrastructure Management (CA UIM) and CA Spectrum offers comprehensive server management capabilities, including integrated root cause analysis, alarm suppression, and more. The bi-directional integration enables customers to manage the entire IT environment through a single solution.

- CA Spectrum users have access to systems and virtual environment information.
- CA UIM users have access to network device information.
- CA UIM users have RCA and alarm suppression.
- CA Spectrum users have performance monitoring.

When you integrate UIM and Spectrum, you leverage the best capabilities of each solution and create custom service solutions using either interface as a single view for all of your network monitoring and management operations and services. The integration also expands the overall monitoring capabilities of the infrastructure with information and alarms from CA UIM.

When you integrate CA UIM and CA Spectrum, your enterprise gains the following benefits:

- Integrates UIM comprehensive server monitoring, not just device monitoring (ICMP/SNMP) with Spectrum
- Leverage the use of Spectrum Event Correlation and Root Cause Analysis on UIM alarms
- Leverage CA UIM capabilities for server management and use the CA Spectrum network management capabilities for 'end-to-end' infrastructure management.
- Leverage the CA Spectrum topology view for the UIM infrastructure. You can embed the topology view in UIM for a particular landscape.
- Provides a holistic view of the availability of host servers and VMware environment across the network and their performance data for fault management in a single pane
- Provides end-to-end root cause and impact analysis across network and server elements, extending the CA Spectrum core capabilities to other infrastructure domains
- Advance condition event correlation between CA UIM and CA Spectrum helps build robust fault management
- Alarm management for both fault and performance alarms using either solution
- *Automated* Event Correlation and Root Cause Analysis

Use Cases

Customers may have a preference for where they manage their alarms, for example UIM to Spectrum, Spectrum to UIM or bi-directional. Devices discovered in Spectrum in a Global Collection (Inventory) can be pulled from Spectrum into UIM. In contrast with UIM, CA Spectrum does not perform historical resource monitoring - its focused more on device monitoring in real-time but it also has fault correlation out of the box which suppresses symptoms and identifies the root cause of an alarm, thereby suppressing alarm noise leaving only the root cause alarm to be assigned or managed. Spectrum also allows customer to monitor changes to network configuration. Customers can take advantage of other Spectrum features which include monitoring of WAPs, Virtual switching, software defined networks and other features.

Environment

- UIM v8.5.1 SP1
- CA Spectrum v10.2.2
- spectrumgtw-8.6.1-HF6, or spectrumgtw v8.64 installed and Activated on the primary hub.
- CA UIM nas probe must be installed and Activated on the Primary hub
- Spectrum UIM Services package (trellis plug-in) must be deployed on the Primary hub
- CA UIM ems probe v9.0.3 or higher deployed and Activated on the Primary hub
- CA UIM trellis probe Activated

This document does NOT cover any other versions of Spectrum or the spectrumgtw which are not already noted in this document. If you're running different UIM/Spectrum versions than those listed in this integration doc, please refer to the link below for compatibility:

<https://docops.ca.com/ca-spectrum/10-2-2/en/integrating/ca-spectrum-and-ca-uim/ca-spectrum-and-ca-uim-bidirectional-integration#CASpectrumandCAUIMBidirectionalIntegration-IntegrationCompatibility>

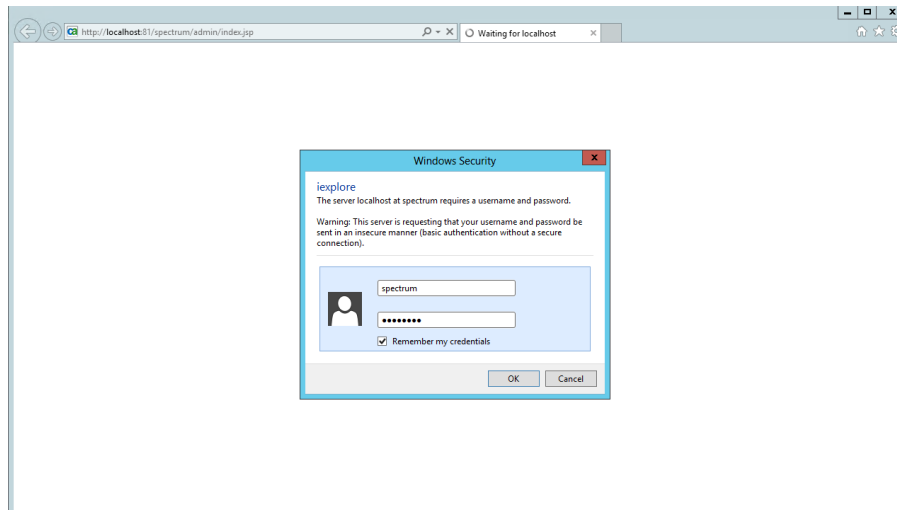
For older versions of UIM and Spectrum, you may also want to check the CA Communities.

Integration Setup Instructions – Summarized Checklist

Here is a summarized checklist that includes the key steps that need to be taken to integrate UIM with Spectrum.

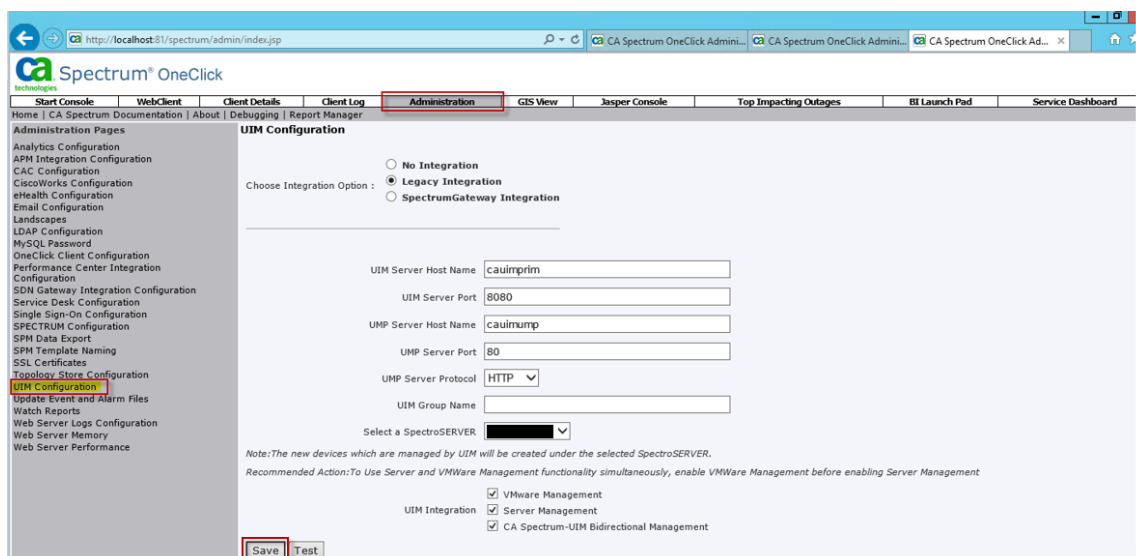
1. Configure the connection between CA UIM and the Spectrum OneClick Server
2. Verify Hardware and Software Requirements are met for the spectrumgtw probe
3. Check with CA UIM Support to be sure you have the latest version/hotfixes
4. Download the Spectrum UIM Services package to your local archive on the Primary hub if it is not already downloaded. Then deploy it to the Primary hub
5. Download and deploy the spectrumgtw probe to the Primary hub if it is not currently deployed
6. Download and deploy the latest hotfix for the spectrumgtw probe
7. Restart trellis, ems and spectrumgtw probes
8. Configure the spectrumgtw probe via the web Admin Console
9. Configure the Inventory and Alarm Synchronization
10. Click Save to save the spectrumgtw configuration

Access the Spectrum OneClick web page, e.g.,
http://<spectrum_server>:81/spectrum/admin/index.jsp and enter the Spectrum OneClick username and password



Configure the connection between CA UIM and Spectrum OneClick Server

Click on the CA Spectrum OneClick Administration Tab. Then choose the “UIM Configuration” page to configure the values. Note the screen shot below has some options from Spectrum Server v10.2.3 that are not implemented yet. You must use Spectrum Server v10.2.2 as of the date of this document. If youre using Spectrum v10.2.3, make sure you select the *Legacy Integration* option.



Note that the VMware and Server Management options displayed in the screen shot above currently do not rely upon the spectrumgtw. Spectrum OneClick will query the nisapi on the UMP server to pull models from UIM and create them in Spectrum. If you don't enable the Server and/or VMware Management options, then no models will be pulled and created. Alarms are separate.

- Select the UIM *Bidirectional* Management integration option on the **UIM Configuration** page.

This bidirectional integration enables the following functionalities:

- **Reception of all CA UIM alarms by CA Spectrum**
This functionality enables CA Spectrum users to update (acknowledge, unacknowledge, clear, assign and unassign troubleshooter, and create service desk tickets) for CA UIM alarms in OneClick. CA UIM receives such updates when its alarms are updated in OneClick.
- **Reception of CA Spectrum Inventory information and all CA Spectrum alarms by CA UIM**
This functionality enables:
 - **CA UIM to maintain updated CA Spectrum inventory information based on a specific Global Collection in Spectrum OneClick**
 - **CA UIM to receive all CA Spectrum alarms**
As a result, CA UIM users can update (acknowledge, unacknowledge, clear, assign and unassign alarms, and create service desk tickets) for CA Spectrum alarms. CA Spectrum receives such updates when its alarms are updated in CA UIM.

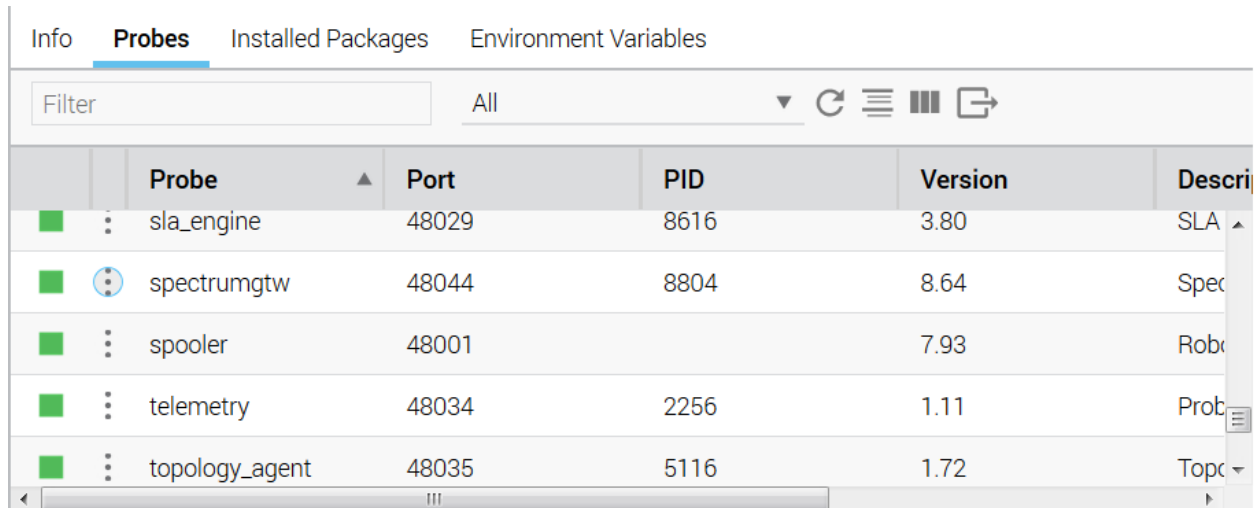
Please note that deletion of CA Spectrum models via CA UIM is **NOT** currently supported.

spectrumgtw probe configuration

Access the UIM web Admin Console url, e.g.,

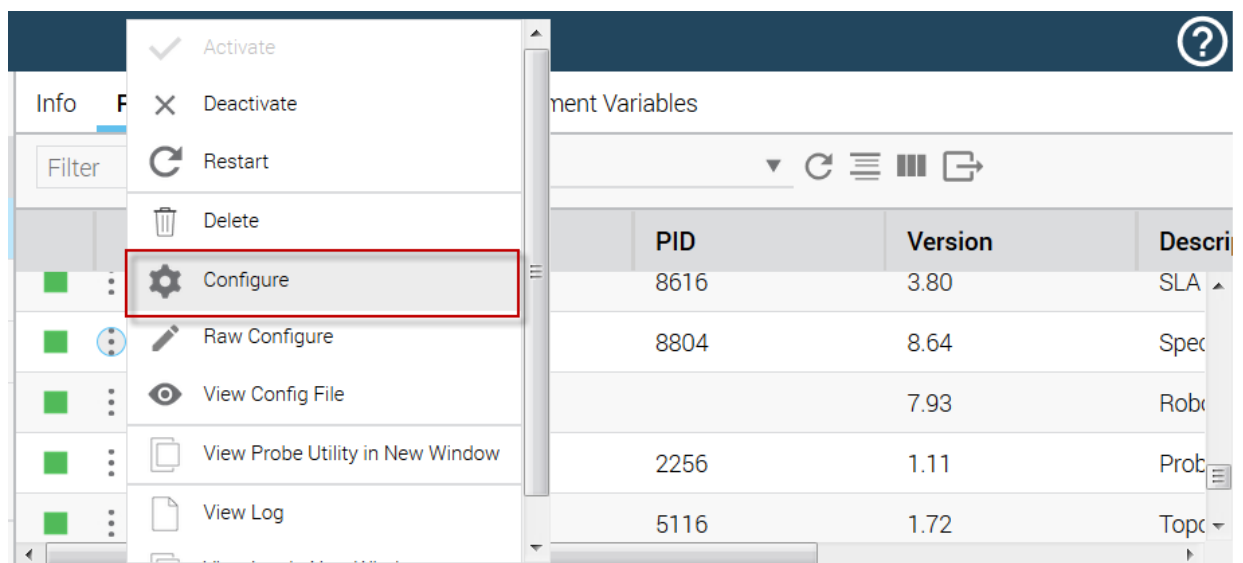
<http://<host>/adminconsoleapp>

and navigate to the Primary hub->Robot, then open the spectrumgtw probe.



The screenshot shows the 'Probes' tab in the UIM Admin Console. It features a table with columns: Probe, Port, PID, Version, and Description. The 'spectrumgtw' probe is highlighted with a blue circle icon. Above the table is a filter input and a dropdown menu set to 'All'. To the right of the table are icons for refresh, list view, grid view, and export.

Probe	Port	PID	Version	Description
sla_engine	48029	8616	3.80	SLA
spectrumgtw	48044	8804	8.64	Spec
spooler	48001		7.93	Robo
telemetry	48034	2256	1.11	Prob
topology_agent	48035	5116	1.72	Topo



- Enable and configure bi-directional integration by Activating the spectrumgtw probe via the UIM Admin Console. Then configure the spectrumgtw probe for CA UIM bidirectional integration.

Note that you will need to know the **Global Collection Name** of the Spectrum OneClick Server.

The probe only synchronizes with the specific CA Spectrum Global Collection that you specify in the **spectrumgtw** node > **Spectrum Configuration** section. This implies you already created a Global Collection for the devices that you want to synchronize with CA UIM.

Probe Configuration - /CA-UIM/UIM-Primary/ /spectrumgtw v8.64

Search... Show search settings

spectrumgtw

Probe Information

Probe Name: spectrumgtw
 Start Time: Sunday 11 February 2018 04:09:18 PM
 Probe Version: 8.64
 Vendor: CA Technologies

Probe Setup

Log level *: 3 - Info
 Maximum Log File Size(KB) *: 10001

Spectrum Configuration

Host Name/IP *: [Redacted]
 Protocol *: http
 Port *: 80
 User Name *: UIM_Integration
 Password *: [Redacted]
 Global Collection Name *: UIM-GC

Inventory Configuration

Full Synchronization Mode *

Enter the Spectrum One-Click Hostname

Save Discard ?

/spectrumgtw v8.64

Save Discard ?

spectrumgtw

Daily

Daily Specific Time (HH:MM) *: 00:00

Incremental Synchronization (...): 31

Alarm Configuration

Full Synchronization Mode *

Hourly

Full Synchronization (Hourly) *: 1

Incremental Synchronization (S...): 30

Synchronize Alarms: *: From Uim To Spectrum

Ticket ID Custom Field: *: custom_1

UMP Connection Details

Configure Multi-tenancy: []

Hostname/IP *: [Redacted]
 Port *: [Redacted]
 User Name *: [Redacted]
 Password *: [Redacted]

Actions

For other configuration details click each Help button and/or access the following Help doc link:

<https://docops.ca.com/ca-unified-infrastructure-management-probes/ga/en/alphabetical-probe-articles/spectrumgtw-spectrum-gateway/spectrumgtw-ac-configuration>

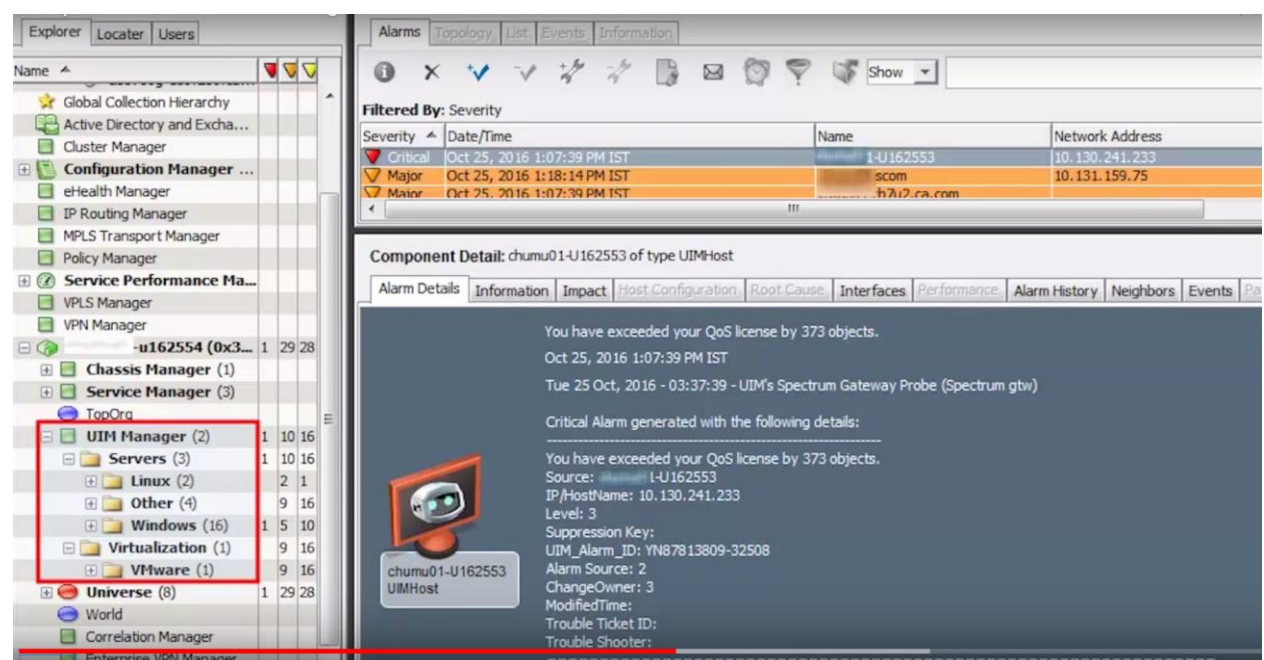
Note: Ticket ID custom field must be filled in, e.g., for integration with Service Desk. Choose *custom_1* if you currently have no integration with any service desk in place.

To understand how the custom field can be used for Tickets and how to know what field to use, please refer to this link:

<https://docops.ca.com/ca-unified-infrastructure-management-probes/ga/en/alphabetical-probe-articles/spectrumgtw-spectrum-gateway/spectrumgtw-ac-configuration#spectrumgtwACConfiguration-TicketIDCustomField>

- Finish configuring the spectrumgtw probe and then click Save to save the configuration.

UIM Inventory is also synced to Spectrum as you can see from within the new container (UIM Manager), in the Spectrum OneClick Manager.



Confirm Integration

After the UIM-Spectrum integration steps have been completed, you can check the integration by performing a few additional steps:

- Check that UIM Manager and UIM Inventory appear under the Spectrum 'Universe' in the Spectrum OneClick Explorer Tab.

- Check alarms in USM and Spectrum OneClick and check the alarm counts. You can also check the Source of the alarms, for example the Source column will display as 'SPECTRUM' OR 'NAS.'

Contents: My Spectrum

Alarms Topology List Events Information

Filtered By: Severity

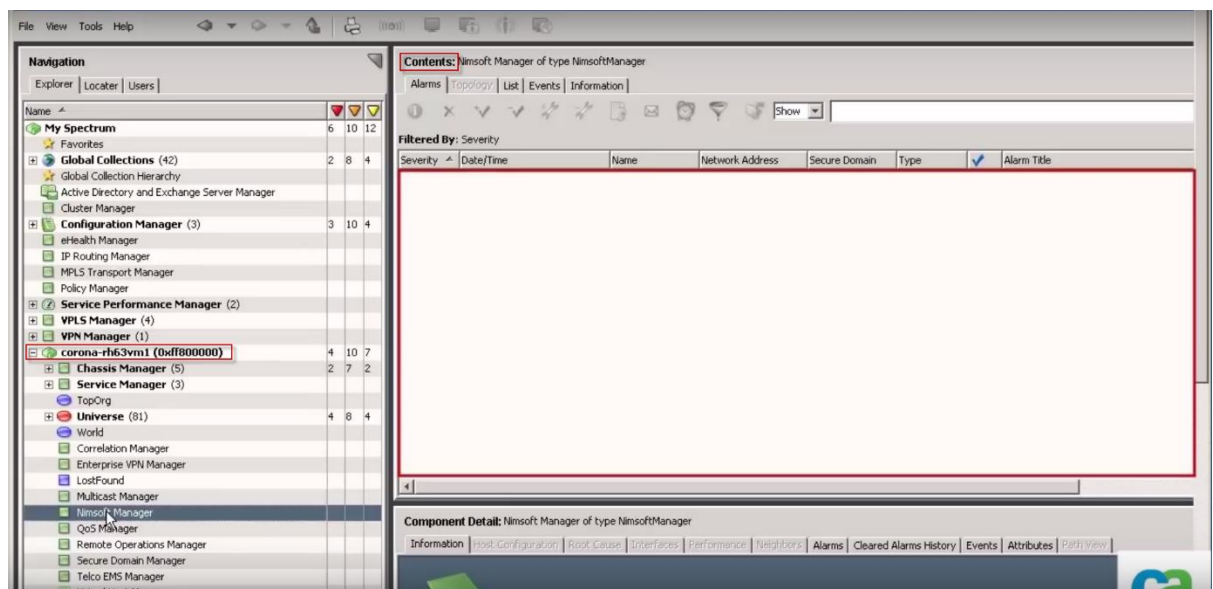
Severity	Date/Time	Name	Alarm Title	Cause Code	Type	Source	Landscape	UIM Alarm Id
Major	Feb 23, 2018 4:50:35 PM EST	subua01-w12com	The CPU for subua01-w12com.CPU.CPU Usage (Average/Rate) on nvmpa-vc1443 is outside expected limits (91.5	0x63300d7	VMware Vrt...	NAS	polgr01-e2422 (0x1000000)	ZX46867137-998
Critical	Feb 23, 2018 4:50:35 PM EST	cisco2511-96.18...	The SNMP Agent at '138.42.96.18 in group 'Spectrum Lab' is not responding	0x63300e6	Cisco2501	NAS	polgr01-e2422 (0x1000000)	ZX46867137-998
Minor	Feb 23, 2018 1:06:35 PM EST	polgr01-e2421	URL response for 'MSN' is 109 ms, which exceeds the threshold (10 ms)	0x63300e6	UIMHost	NAS	polgr01-e2422 (0x1000000)	ZX46867137-163
Major	Feb 23, 2018 12:24:19 PM EST	cisco2511-96.18...	N/A	0x10707	Cisco2501	SPECTRUM	polgr01-e2422 (0x1000000)	Sa904e43-e8f3-1
Major	Feb 23, 2018 11:00:35 AM EST	chum01-esx4.c...	The disk usage for chum01-esx4.ca.com.Disk.Disk Write Rate on nvmpa-vc1443 is outside expected limits (3309.4	0x6330112	VMware ESX...	NAS	polgr01-e2422 (0x1000000)	QV01132892-701
Major	Feb 23, 2018 10:34:13 AM EST	cs2524-96.45.c...	MANAGEMENT AGENT LOST	0x10701	Cisco2524	SPECTRUM	polgr01-e2422 (0x1000000)	Sa903475-e285-
Major	Feb 23, 2018 6:20:37 AM EST	i-simrepo	The CPU for i-simrepo.CPU.CPU Usage (Average/Rate) on nvmpa-vc1443 is outside expected limits (99.0 > 90.0)	0x63300d7	EventModel	NAS	polgr01-e2422 (0x1000000)	NY4499818-676
Major	Feb 22, 2018 8:00:35 PM EST	chum01-esx4.c...	The disk usage for chum01-esx4.ca.com.Disk.Disk Read Rate on nvmpa-vc1443 is outside expected limits (1888.4	0x63300e6	VMware ESX...	NAS	polgr01-e2422 (0x1000000)	RD11171217-385
Major	Feb 22, 2018 3:31:35 PM EST	polgr01-e2421	Read Latency is now 912.02 ms, which is >= error threshold (10.00 ms)	0x63300e6	UIMHost	NAS	polgr01-e2422 (0x1000000)	RE13999403-346
Major	Feb 22, 2018 3:24:05 PM EST	polgr01-e3753	update - Max restarts of service reached	0x63300e6	UIMHost	NAS	polgr01-e2422 (0x1000000)	RE13999403-361
Major	Feb 22, 2018 12:27:23 AM EST	fabr02-10.ca.com	MANAGEMENT AGENT LOST	0x10701	VMware Ma...	SPECTRUM	polgr01-e2422 (0x1000000)	Sa8e54bb-8d91-

Displaying 62 of

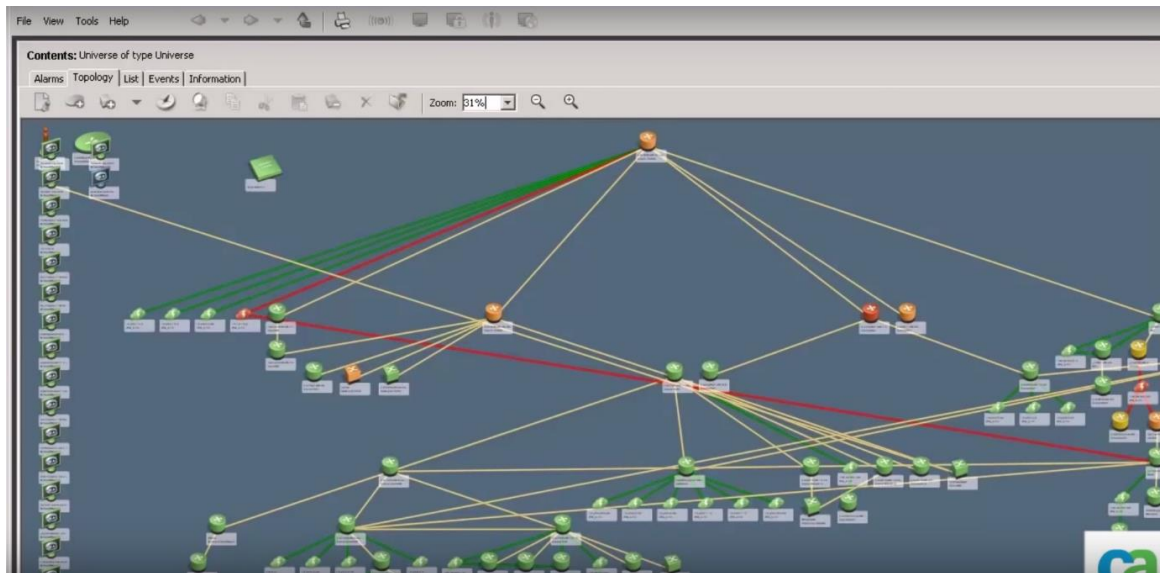
- Alarms cleared in Spectrum should be automatically cleared in UIM if you have bi-directional integration configured.
 - Clear an alarm in Spectrum and then check within 30 secs to see if it is cleared in UIM (USM Alarm View).
 - Clear an alarm in UIM and check to confirm that it is cleared in Spectrum OneClick

Click on the landscape within Spectrum OneClick and expand it (click the +)

If there is no data displayed on the right-hand side of the window under the Contents:, e.g., Alarms Tab, then UIM and Spectrum are not currently integrated with each other.



If the UIM and Spectrum integration was successfully completed, you can click on the Topology Tab and view the UIM server nodes that were added to the Spectrum Topology view. For example:



In this case you can see the UIM servers on the left-hand side of the view, but if the router-switch that those machines belonged to was discoverable via SNMP, then they would be accurately mapped based on their relationship(s) to the router-switch.

You should also be able to select and view the servers on the left-side navigation window and view the information, e.g., QoS metrics on the right.

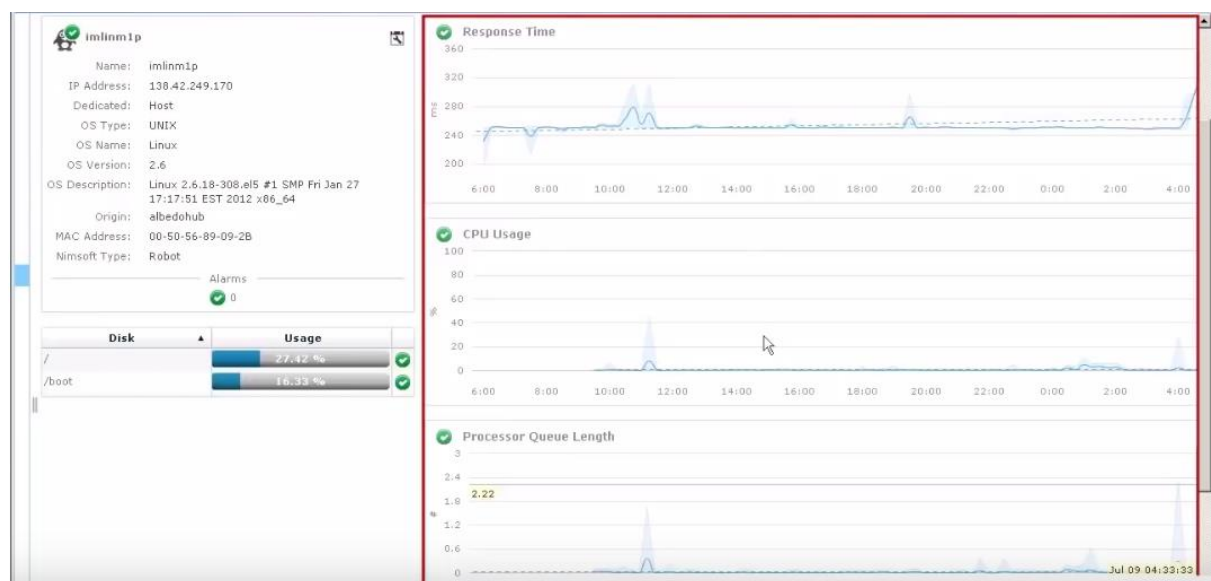
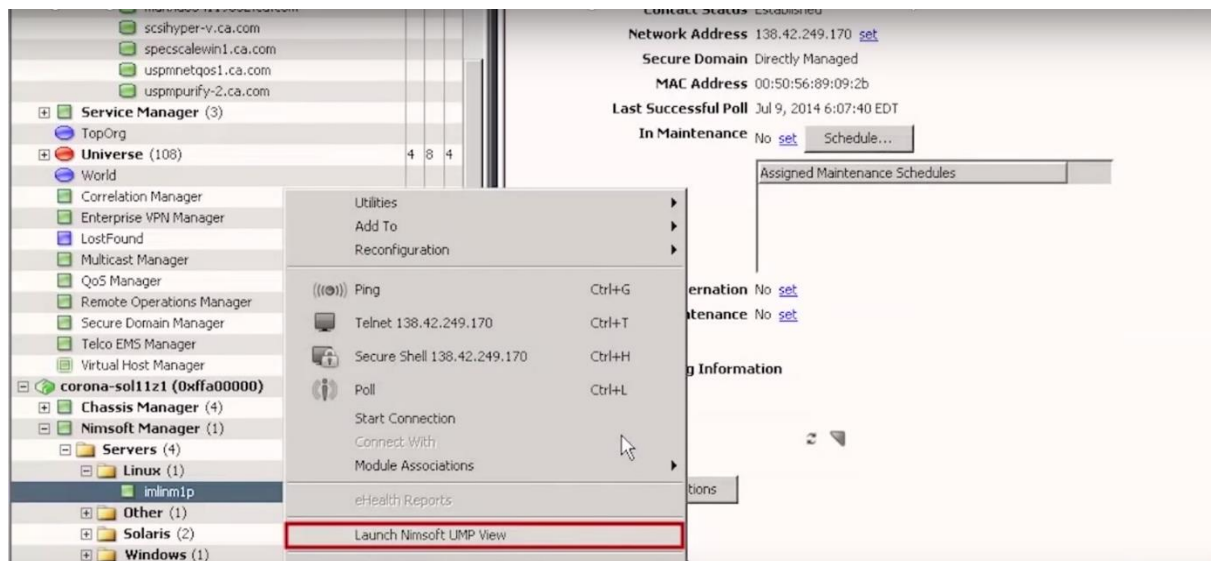
Left-side navigation window (Universe (108)):

- mcast1.ca.com
- mcast6.ca.com
- mcast7.ca.com
- mcastsrc5.ca.com
- munha03-i118761.ca.com
- munha03-i118762.ca.com
- munha03-i119032.ca.com
- scsihyper-v.ca.com
- specscalewin1.ca.com
- uspmnetqos1.ca.com
- uspmnetpurify-2.ca.com
- Service Manager (3)
- TopOrg
- World
- Correlation Manager
- Enterprise VPN Manager
- LostFound
- Multicast Manager
- QoS Manager
- Remote Operations Manager
- Secure Domain Manager
- Telco EMS Manager
- Virtual Host Manager

Right-side QoS metrics panel:

- Thresholds And Watches
- Reconfiguration
- Global Collections Memberships
- QoS Metric Information
 - QoS CPU Usage Metrics
 - CPU Usage for System (%) 0.03
 - CPU Usage for User (%) 0.01
 - CPU Usage for Wait (%) 0.0
 - QoS CPU Multi Usage Metrics (highlighted with a red box)
 - CPU Multi Usage for System
 - CPU Multi Usage for User
 - CPU Multi Usage for Wait
 - QoS Memory Metrics
 - QoS Disk Metrics

As you drill down into the QoS metrics and their sources, you can Launch UIM UMP view which will bring you to the UMP portal view where you can view the details of the monitored metrics (graphs) – which contain all of the monitored data associated with a machine.



Alarm Filtering, Multi-Tenancy, and Mapping Origins

(spectrumgtw v8.64 probe required)

<https://docops.ca.com/ca-unified-infrastructure-management-probes/ga/en/alphabetical-probe-articles/spectrumgtw-spectrum-gateway/spectrumgtw-advanced-configuration>

Best Practices

<https://docops.ca.com/agile-operations-product-integrations/ga/en/integrating/integrate-ca-uim-and-ca-spectrum/ca-uim-and-ca-spectrum-integration-best-practices#CAUIMandCASpectrumIntegrationBestPractices-RecommendedDeploymentPractices>

Key UIM-Spectrum Integration Terms

Global Collection:

Container that you can group devices in. Used to import devices into that container. Sync is based on a single GC.

Landscapes:

Each server has its own landscape. The landscape IS the Spectro Server. Note that model handles in alarms indicate the landscape it belongs to.

Universe:

Entire topology in Spectrum

Inventory: in Spectrum is a list of devices from a single or multiple landscapes.

For a complete glossary of Spectrum terms please refer to the following link:

<https://docops.ca.com/ca-spectrum/10-0/en/glossary>

Troubleshooting

- **Problem:**

Integration setup error. Using the UIM Infrastructure Manager (IM) or web Admin Console, ensure that the spectrumgtw probe is Activated before you click 'Test' or 'Save' to save the connection parameters, otherwise the connection will fail and you will see this error below towards the bottom of the page:

SPC-NIM-6: Connection Error:SPC-NIM-9:Unable to connect to UIM Server.

Solution:

Activate the spectrumgtw probe

- **Problem:**

The "IP/Hostname:" field in the SpectrumOneClick alarm window always displays IP instead of hostname. (Pertains to the use of spectrumgtw-8.6.1-HF6 only)

Solution:

Using Raw Configure for the probe, ensure that DNS_ENABLED is set to TRUE. Then click Ok to restart the probe. If the hostname is resolveable, it will populate the field with the hostname.

- **Problem:**

spectrumgtw probe will not send alarms to Spectrum. Spectrum alarm:

UIM Manager - CONTACT LOST WITH CA UIM's SPECTRUM GATEWAY PROBE(Spectrumgtw)

Alarms from UIM were either not updating in Spectrum or taking over 30 minutes to populate.

Solution:

1. Deactivate spectrumgtw and ems
2. Delete the contents of the Nimsoft/probes/gateway/spectrumgtw/cache folder
3. Rename the ems folder, and redeploy ems
4. Activate ems and spectrumgtw
5. Open the spectrumgtw GUI in the web Admin Console
 - Under Spectrum Configuration, Click "Actions"
 - Under Actions do both "Synchronize All Alarms Now" and "Synchronize All Inventory Now"