



## Cisco Unified Communications/Unified Contact Center Remote Management Services Monitoring Details



Cisco® Unified Communications (UC)/Unified Contact Center (UCC) Remote Management Services (RMS) provide comprehensive availability and performance monitoring and remote, proactive management of the Cisco Unified Communications and Contact Center solutions.

Cisco UC/UCC RMS features a single point of contact to facilitate all Cisco UC and UCC questions, collaborate with clients to address their productivity goals, and coordinate responses to complex technical issues by our expert engineers. Our remote, high-visibility, co-managed approach gives you simple ownership and control of your converged network and peace of mind knowing that Cisco expertise, proven management processes, and advanced management tools are working with you to maximize the value of your Cisco UC/UCC experience.

The Cisco Management Application Platform (MAP) is a comprehensive service solution element that provides 24-hour monitoring of converged network infrastructure and server-based applications.

Services, resources, and applications that are monitored are subject to change without notice.

**Note:** *Incident* signifies an issue with the system; an incident ticket is generated. *Performance* refers to system functioning and responsiveness.

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## Monitoring Details for Cisco Customer Voice Portal (CVP) Ingress Gateway

This document summarizes all of the Cisco Customer Voice Portal (CVP) Ingress Gateway services, resources, and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a CVP Ingress Gateway that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the Gateway for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>Module Status</b>	Monitors individual modules for up/down status.	✓		✓
<b>Interface Monitoring</b>	Monitors critical interfaces (ATM, BRI, E1, Eth, Fa, FC, Gi, Lo, mgmt., POS, PRI, Se, T1, VI, and Vo).	✓	✓	✓
<b>Interface/Port Flapping</b>	Monitors for port or interface that is repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors Gateway performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>Rate of Calls</b>	Displays the call levels processed by the Gateway over time (Daily, Weekly, Monthly & Yearly).		✓	✓
<b>CISCO CUSTOMER VOICE PORTAL (CVP) INGRESS GATEWAY</b>				
<b>System*</b>				
<b>Port Information Viewer</b>	At the port level, displays gateway name, IP address, MAC address, type of interface, VLAN name, MAC address of connected device, IP address of connected device, Cisco MAP and DNS name of connected device, and a Cisco MAP Tools management link to the connected device.			✓
<b>DS0 Metrics</b>	Monitors DS0 availability and usage; opens incident ticket if threshold exceeded.	✓		✓
<b>Port Metrics</b>	Monitors port availability and usage; opens incident ticket if threshold exceeded.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>Trunk Allocation</b>	Displays the number of trunks available per trunk group.			✓
<b>Call Counts</b>	Monitors call volumes.			✓
<b>Request Counts</b>	Monitors call request activity.		✓	✓
<b>Seconds In Use</b>	Monitors activity as a measure of time.			✓
<b>Busy Hour</b>	Calculates and displays monthly busy hour per device.			✓
<b>Erlangs</b>	Calculates and displays monthly and daily Erlang values.			✓
<b>UCCE Trunk Availability <sup>iii</sup></b>	Displays monthly summary and daily hourly detail call metrics per Trunk Group.			✓
<b>H.323 Traffic Metrics</b>	Displays H.323 voice Gateway traffic utilization monthly summary and daily hourly detail call metrics.			✓
<b>Line Code Violations (LCV)</b>	Monitors for T1/DS1 LCV errors; alarms and opens incident ticket when LCV errors are detected.	✓		✓
<b>Path Code Violations (PCV)</b>	Monitors for T1/DS1 PCV errors; alarms and opens incident ticket when PCV errors are detected.	✓		✓
<b>Line Errored Seconds (LES)</b>	Monitors for T1/DS1 LES errors; alarms and opens incident ticket when LES errors are detected.	✓		✓
<b>Controlled Slip Seconds (CSS)</b>	Monitors for T1/DS1 CSS errors; alarms and opens incident ticket when CSS errors are detected.	✓		✓
<b>Errored Seconds (ES)</b>	Monitors for T1/DS1 ES errors; alarms and opens incident ticket when ES errors are detected.	✓		✓
<b>Bursty Errored Seconds (BES)</b>	Monitors for T1/DS1 BES errors; alarms and opens incident ticket when BES errors are detected.	✓		✓
<b>Severely Errored Seconds (SES)</b>	Monitors for T1/DS1 SES errors; alarms and opens incident ticket when SES errors are detected.	✓		✓
<b>Severely Errored Framing Seconds (SEFS)</b>	Monitors for T1/DS1 SEFS errors; alarms and opens incident ticket when SEFS errors are detected.	✓		✓
<b>Degraded Minutes (DM)</b>	Monitors for T1/DS1 DM errors; alarms and opens incident ticket when DM errors are detected.	✓		✓
<b>Unavailable Seconds (UAS)</b>	Monitors for T1/DS1 UAS errors; alarms and opens incident ticket when UAS errors are detected.	✓		✓
<b>T1/DS1 Statistics</b>	Displays near real-time and 10 day historical DS1 interface operational status and error count statistics.			✓
<b>ISDN D-Channel Status</b>	Alarms and opens incident ticket when the status of an interface changes state to not active.	✓		
<b>PRI Interface Operational Status</b>	Monitors the operational status of each interface.	✓		
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to Gateway operation</b>				
<b>Power Supply Status</b>	Monitors the up/down status of the power supply; alerts when power supply state is down.	✓		✓
<b>Fan Status</b>	Monitors the up/down status of the fan; alerts when fan state is down.	✓		✓
<b>Temperature (ambient)</b>	Measures temperature at chassis input.	✓		✓
<b>Temperature (CPU)</b>	Measures temperature at hot spot of chassis.	✓		✓
<b>Temperature (output)</b>	Measures temperature at chassis output.	✓		✓
<b>Modules</b>	Monitors the status of the individual interface modules in the Gateway.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the Gateway is located.			✓
<b>Site Location</b>	Physical location of the Gateway.			✓
<b>Name</b>	Name of the Gateway configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the Gateway.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the Gateway.			✓
<b>Type</b>	Type of device (ex., Gateway).			✓
<b>Vendor</b>	Manufacturer of the Gateway hardware.			✓
<b>Model</b>	Model of the Gateway hardware.			✓
<b>Serial #</b>	Serial number of the Gateway hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Installed Modules</b>	Number of modules installed on the Gateway.			✓
<b>Operating System</b>	Network operating system and version information installed on the Gateway.			✓
<b>IOS® Version</b>	IOS® Version installed on the Gateway.			✓
<b>IOS® Subset</b>	Subset of IOS® version installed on the Gateway.			✓
<b>IOS® Image Name</b>	IOS® image name.			✓
<b>Flash</b>	Amount of flash memory on the Gateway (bytes).			✓
<b>System RAM</b>	Amount of RAM on the Gateway (bytes).			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Date of Last Commit</b>	Date of last commit of configuration files.			✓
<b>Date Last Changed</b>	Date of last detected change to configuration files.			✓
<b>Configuration File Activity</b>	Summary of device configuration file download and change activity.			✓
<b>Network Operating System Version Summary</b>	Displays detailed Cisco IOS®/CatOS version information for managed Cisco devices.			✓
<b>System Infrastructure</b>	At a glance module count, IOS® image name, flash and RAM memory installed on managed Cisco IOS® devices.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Monitoring/Reporting availability is dependent upon the modules installed in the Cisco Gateway device.

<sup>iii</sup> When deployed in a Cisco Unified Contact Center Enterprise environment having an Intelligent Contact Manager (ICM), Historical Database Server (HDS), or Administrative Workstation (AW)

## Monitoring Details for Cisco Customer Voice Portal (CVP) Media Server Versions 3.x, 4.x, 7.x and 8.x

This document summarizes the Cisco Customer Voice Portal Media Server Versions 3.x, 4.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a CVP Ingress Gateway that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>1</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>1</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO CUSTOMER VOICE PORTAL (CVP) MEDIA SERVER SERVICES</b>				
<b>System</b>				
<b>Component Management</b>	Monitors the up/down status of the Unified CVP component management service; opens incident ticket when state is down.	✓		✓
<b>Component Support</b>	Monitors up/down status of the agent that assists troubleshooting of configured CVP devices; opens incident ticket if agent is down or missing.	✓		✓
<b>Server</b>	Monitors the up/down status of the server process.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>Database Synchronization</b>	Monitors the up/down status of the service that ensures database synchronization; opens incident ticket when service state is down.	✓		✓
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>Remote Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Automatic Server Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to server operation</b>				
<b>System Version Control<sup>ii</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>ii</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>ii</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>ii</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>ii</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>ii</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>ii</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status<sup>ii</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>ii</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>ii</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>ii</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors</b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status</b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity</b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓



Attribute	Description	Incident	Performance	Management
<b>Name</b>	Name of the server configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Cisco Customer Voice Portal (CVP) Operation, Administration, and Management Portal (OAMP) Versions 3.x, 4.x, 7.x and 8.x

This document summarizes the Cisco Customer Voice Portal (CVP) Operation, Administration, and Management Portal (OAMP) Versions 3.x, 4.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a CVP OAMP that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓



Attribute	Description	Incident	Performance	Management
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO CUSTOMER VOICE PORTAL (CVP) OPERATION, ADMINISTRATION, AND MANAGEMENT PORTAL (OAMP) SERVICES</b>				
<b>System</b>				
<b>Component Management</b>	Monitors the up/down status of the Unified CVP component management service; opens incident ticket when state is down.	✓		✓
<b>Component Support</b>	Monitors up/down status of the agent that assists troubleshooting of configured CVP devices; opens incident ticket if agent is down or missing.	✓		✓
<b>Server</b>	Monitors up/down status of the server that allows the administration and configuration of CVP component devices; opens incident ticket when service state is down.	✓		✓
<b>Database Synchronization</b>	Monitors the up/down status of the service that ensures database synchronization; opens incident ticket when service state is down.	✓		✓
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>Remote Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Automatic Server Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software.	✓		✓
<b>ANALYSIS TOOLS</b>				

Attribute	Description	Incident	Performance	Management
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to server operation</b>				
<b>System Version Control<sup>ii</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>ii</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>ii</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>ii</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>ii</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>ii</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>ii</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status<sup>ii</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>ii</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>ii</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>ii</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors<sup>ii</sup></b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status<sup>ii</sup></b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity<sup>ii</sup></b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓
<b>Name</b>	Name of the server host system configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % Memory Used key performance indicator.			✓

Attribute	Description	Incident	Performance	Management
<b>Average Memory Utilization – page/sec KPI</b>	Average Memory Utilization – page/sec key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % Disk Used key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Monitoring/Reporting available when agent installed.

## Monitoring Details for Cisco Customer Voice Portal (CVP) VXML Gateway Versions 3.x, 4.x, 7.x and 8.x

This document summarizes all of the Cisco Customer Voice Portal (CVP) VXML Gateway Versions 3.x, 4.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a Gateway that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the Gateway for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Module Status</b>	Monitors individual modules for up/down status.	✓		✓
<b>Card Status</b>	Monitors individual cards for up/down status.	✓		✓
<b>Interface Monitoring</b>	Monitors critical interfaces (ATM, E1, Eth, Fa, FC, Gi, Lo, mgmt., POS, Se, T1, and VI).	✓	✓	✓
<b>Interface/Port Flapping</b>	Monitors for port or interface that is repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				

Attribute	Description	Incident	Performance	Management
<b>Monitors Gateway performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO CUSTOMER VOICE PORTAL (CVP) VXML GATEWAY</b>				
<b>System<sup>ii</sup></b>				
<b>DS0 Metrics</b>	Monitors DS0 availability and usage; opens incident ticket if threshold exceeded.	✓		✓
<b>Port Metrics</b>	Monitors port availability and usage; opens incident ticket if threshold exceeded.	✓		✓
<b>Call Counts</b>	Monitors call volumes.			✓
<b>Request Counts</b>	Monitors request activity.		✓	✓
<b>Seconds In Use</b>	Monitors activity as a measure of time.			✓
<b>Busy Hour</b>	Calculates and displays monthly busy hour per device.			✓
<b>Erlangs</b>	Calculates and displays monthly and daily Erlang values.			✓
<b>H.323 Traffic Metrics</b>	Displays H.323 voice Gateway traffic utilization monthly summary and daily hourly detail call metrics.		✓	✓
<b>Failed Calls</b>	Monitors failed calls; alerts when threshold exceeded during a specified timeframe.	✓		✓
<b>Circuit/Channel Availability</b>	Monitors the availability of available circuits/channels; alerts when threshold exceeded during a specified timeframe.	✓		✓
<b>Peer Call Information</b>	Monitors Gateway-peer communications; alerts on issues.	✓		✓
<b>Call Recovery</b>	Monitors call recovery attempts; alerts when threshold exceeded during a specified timeframe.	✓		✓
<b>Line Code Violations (LCV)</b>	Monitors for T1/DS1 LCV errors; alarms and opens incident ticket when LCV errors are detected.	✓		✓
<b>Path Code Violations (PCV)</b>	Monitors for T1/DS1 PCV errors; alarms and opens incident ticket when PCV errors are detected.	✓		✓
<b>Line Errored Seconds (LES)</b>	Monitors for T1/DS1 LES errors; alarms and opens incident ticket when LES errors are detected.	✓		✓
<b>Controlled Slip Seconds (CSS)</b>	Monitors for T1/DS1 CSS errors; alarms and opens incident ticket when CSS errors are detected.	✓		✓
<b>Errored Seconds (ES)</b>	Monitors for T1/DS1 ES errors; alarms and opens incident ticket when ES errors are detected.	✓		✓
<b>Bursty Errored Seconds (BES)</b>	Monitors for T1/DS1 BES errors; alarms and opens incident ticket when BES errors are detected.	✓		✓
<b>Severely Errored Seconds (SES)</b>	Monitors for T1/DS1 SES errors; alarms and opens incident ticket when SES errors are detected.	✓		✓
<b>Severely Errored Framing Seconds (SEFS)</b>	Monitors for T1/DS1 SEFS errors; alarms and opens incident ticket when SEFS errors are detected.	✓		✓
<b>Degraded Minutes (DM)</b>	Monitors for T1/DS1 DM errors; alarms and opens incident ticket when DM errors are detected.	✓		✓
<b>Unavailable Seconds (UAS)</b>	Monitors for T1/DS1 UAS errors; alarms and opens incident ticket when UAS errors are detected.	✓		✓
<b>T1/DS1 Statistics</b>	Displays near real-time and 10 day historical DS1 interface operational status and error count statistics.	✓		✓
<b>ISDN D-Channel Status</b>	Alarms and opens incident ticket when the status of an interface changes state to not active.	✓		✓
<b>PRI Interface Operational Status</b>	Monitors the operational status of each interface.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to Gateway operation</b>				
<b>Power Supply Status</b>	Monitors the up/down status of the power supply; alerts when power supply state is down.	✓		✓
<b>Power Supply Fan Status</b>	Monitors the up/down status of the power supply fan; alerts when power supply state is down.	✓		✓
<b>Fan Status</b>	Monitors the up/down status of the fan; alerts when fan state is down.	✓		✓
<b>Temperature (Ambient)</b>	Measures temperature at chassis input.	✓		✓
<b>Temperature (output)</b>	Measures temperature at chassis output.	✓		✓
<b>Temperature (ioBoard)</b>	Measures temperature at chassis core.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the Gateway is located.			✓
<b>Site Location</b>	Physical location of the Gateway server.			✓
<b>Name</b>	Name of the Gateway configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the Gateway.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the Gateway.			✓
<b>Type</b>	Type of device (ex., Gateway).			✓
<b>Vendor</b>	Manufacturer of the Gateway hardware.			✓
<b>Model</b>	Model of the Gateway hardware.			✓
<b>Serial #</b>	Serial number of the Gateway hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Installed Modules</b>	Number of modules installed on the Gateway.			✓
<b>Operating System</b>	Network operating system and version information installed on the Gateway.			✓
<b>IOS® Version</b>	IOS® Version installed on the Gateway.			✓
<b>IOS® Subset</b>	Subset of IOS® version installed on the Gateway.			✓
<b>IOS® Image Name</b>	IOS® image name.			✓
<b>Flash</b>	Amount of flash memory on the Gateway (bytes).			✓
<b>System RAM</b>	Amount of RAM on the Gateway (bytes).			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Date of Last Commit</b>	Date of last commit of configuration files.			✓
<b>Date Last Changed</b>	Date of last detected change to configuration files.			✓
<b>Configuration File Activity</b>	Summary of device configuration file download and change activity.			✓
<b>Network Operating System Version Summary</b>	Displays detailed Cisco IOS®/CatOS version information for managed Cisco devices.			✓
<b>System Infrastructure</b>	At a glance module count, IOS® image name, flash and RAM memory installed on managed Cisco IOS® devices.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				

Attribute	Description	Incident	Performance	Management
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Percent Memory Used</b>	Average Memory % key performance indicator.			✓
<b>Average Memory Utilization</b>	Average Memory Utilization (Pages/Sec) key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Monitoring/Reporting availability is dependent upon the modules installed in the Cisco CVP VXML Gateway device.

## Monitoring Details for Cisco Customer Voice Portal (CVP) VXML Server Versions 3.x, 4.x, 7.x and 8.x

This document summarizes all of the Cisco Customer Voice Portal (CVP) VXML Server Versions 3.x, 4.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a CVP VXML Server that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓

Attribute	Description	Incident	Performance	Management
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO CUSTOMER VOICE PORTAL (CVP) VXML SERVER SERVICES</b>				
<b>System</b>				
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>Component Support</b>	Monitors up/down status of the agent that assists troubleshooting of configured CVP devices; opens incident ticket if agent is down or missing.	✓		✓
<b>Component Management</b>	Monitors the up/down status of the Unified CVP component management service; opens incident ticket when state is down.	✓		✓
<b>Server</b>	Monitors the up/down status of the server process.	✓		✓
<b>Database Synchronization</b>	Monitors the up/down status of the service that ensures database synchronization; opens incident ticket when service state is down.	✓		✓
<b>Web Server</b>	Monitors the up/down status of the web server service; opens incident ticket when service state is down.	✓		✓
<b>Web Publishing Service</b>	Monitors the up/down status of web publishing service; opens incident ticket when service state is down.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>Remote Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization.	✓		✓
<b>Automatic Server Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to Gateway operation</b>				
<b>System Version Control<sup>ii</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓



Attribute	Description	Incident	Performance	Management
<b>CPU Status<sup>ii</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>ii</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>ii</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>ii</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>ii</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>ii</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status<sup>ii</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>ii</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>ii</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>ii</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors<sup>ii</sup></b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status<sup>ii</sup></b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity<sup>ii</sup></b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓
<b>Name</b>	Name of the server configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % Memory Used key performance indicator.			✓
<b>Average Memory Utilization – page/sec KPI</b>	Average Memory Utilization – page/sec key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % Disk Used key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Cisco Gatekeeper

This document summarizes all of the Cisco Gatekeeper services, resources, and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a Gatekeeper that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the Gatekeeper for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Interface Monitoring</b>	Monitoring of critical interfaces (Eth, Fa, FC, Gi, Lo, m/p, mgmt., and VI).	✓	✓	✓
<b>Interface/Port Flapping</b>	Monitors for port or interface that is repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Module Status</b>	Monitors individual modules for up/down status.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors Gatekeeper performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Opens incident ticket when bandwidth utilization exceeds threshold, and displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓

Attribute	Description	Incident	Performance	Management
<b>CISCO IOS® GATEKEEPER</b>				
<b>System</b>				
<b>Port Information Viewer</b>	At the port level, displays Gatekeeper name, IP address, MAC address, type of interface, VLAN name, MAC address of connected device, IP address of connected device, Cisco MAP and DNS name of connected device, and a Cisco MAP Tools management link to the connected device.			✓
<b>Gatekeeper Statistics</b>	Real-time display of Gatekeeper call metrics.			✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to Gatekeeper operation</b>				
<b>Power Supply Status</b>	Monitors the up/down status of the power supply; alerts when power supply state is down.	✓		✓
<b>Power Supply Fan Status</b>	Monitors the up/down status of the power supply fan; alerts when power supply fan state is down.	✓		✓
<b>Fan Status</b>	Monitors the up/down status of the fan; alerts when fan state is down.	✓		✓
<b>Temperature (ambient)</b>	Measures temperature at chassis input.	✓		✓
<b>Temperature (CPU)</b>	Measures temperature at hot spot of chassis.	✓		✓
<b>Temperature (output)</b>	Measures temperature at chassis output.	✓		✓
<b>Modules</b>	Monitors the status of the individual interface modules in the Gatekeeper.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the Gatekeeper is located.			✓
<b>Site Location</b>	Physical location of the Gatekeeper.			✓
<b>Name</b>	Name of the Gatekeeper configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the Gatekeeper.			✓
<b>Mac Address</b>	Media Access Control (MAC) address assigned to the Gatekeeper.			✓
<b>Type</b>	Type of device (ex Gatekeeper).			✓
<b>Vendor</b>	Manufacturer of the Gatekeeper hardware.			✓
<b>Model</b>	Model of the Gatekeeper hardware.			✓
<b>Serial #</b>	Serial number of the Gatekeeper hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Installed Modules</b>	Number of modules installed on the Gatekeeper.			✓
<b>Operating System</b>	Network operating system and version information installed on the Gatekeeper.			✓
<b>IOS® Version</b>	IOS® Version installed on the Gatekeeper.			✓
<b>IOS® Subset</b>	Subset of IOS® version installed on the Gatekeeper.			✓
<b>IOS® Image Name</b>	IOS® image name.			✓
<b>Flash</b>	Amount of flash memory on the Gatekeeper (bytes).			✓
<b>System RAM</b>	Amount of RAM on the Gatekeeper (bytes).			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Date of Last Commit</b>	Date of last commit of configuration files.			✓
<b>Date Last Changed</b>	Date of last detected change to configuration files.			✓
<b>Configuration File Activity</b>	Summary of device configuration file download and change activity.			✓

Attribute	Description	Incident	Performance	Management
<b>Network Operating System Version Summary</b>	Displays detailed Cisco IOS®/CatOS version information for managed Cisco devices.			✓
<b>System Infrastructure</b>	At a glance module count, IOS® image name, flash and RAM memory installed on managed Cisco IOS® devices.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Memory % KPI</b>	Average Memory Used key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>1</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

## Monitoring Details for Cisco Intelligent Contact Manager (ICM) Computer Telephony Integration Object Server (CTI OS) Versions 6.x, 7.x and 8.x

This document summarizes all of the Cisco Intelligent Contact Management (ICM) Computer Telephony Integration Object Server (CTI OS) Versions 6.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a CTI Object Server that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>1</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>1</sup>		
<b>Interface Monitoring</b>	Monitors the up/down status of Eth interfaces. Monitoring of Eth interfaces applies to speeds of 10/100/1000 Mbps; opens incident ticket if state is down.	✓	✓	✓

Attribute	Description	Incident	Performance	Management
<b>Interface Flapping</b>	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring<sup>ii</sup></b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability.	✓		✓
<b>System Uptime Report</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when drive space utilization exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO INTELLIGENT CONTACT MANAGEMENT (ICM) COMPUTER TELEPHONY INTEGRATION OBJECT SERVER (CTI OS) SERVICES</b>				
<b>System</b>				
<b>CTI OS Service</b>	Monitors the up/down status of the CTI OS service; opens incident ticket when service state is down.	✓		✓
<b>Server</b>	Monitors the up/down status of the service; opens incident ticket when service state is down.	✓		✓
<b>Management Information Translation</b>	Monitors the up/down status of the agent that provides extended ICM CTI server metrics; opens incident ticket if state is down.	✓		✓
<b>Extended Metrics Agent</b>	Monitors the up/down status of the agent that provides extended device metrics; Nopens incident ticket when service state is down.	✓		✓
<b>Diagnostic Portal</b>	Monitors up/down status of the diagnostic portal service; opens incident ticket if service is down.	✓		✓
<b>Data Synchronization</b>	Monitors the up/down status of the process that maintains real-time data in distributed environments; opens incident ticket if state is down.	✓		✓
<b>Web Server</b>	Monitors the up/down status of the web server service; opens incident ticket when service state is down.	✓		✓
<b>Web Publishing Service</b>	Monitors the up/down status of web publishing service; opens incident ticket when service state is down.	✓		✓
<b>Remote Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>Automatic System Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to server operation</b>				
<b>System Version Control<sup>iii</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>iii</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>iii</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>iii</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>iii</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>iii</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>iii</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status<sup>iii</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>iii</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>iii</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>iii</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors<sup>iii</sup></b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status<sup>iii</sup></b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity<sup>iii</sup></b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓
<b>Name</b>	Name of the server configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				

Attribute	Description	Incident	Performance	Management
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % memory used key performance indicator.			✓
<b>Average Memory Utilization (page/sec) KPI</b>	Average memory utilization key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % disk used key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In KPI</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out KPI</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Feature available for CTI Object Server Version 8.x

<sup>iii</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Cisco Intelligent Contact Manager (ICM) Computer Telephony Integration (CTI) Versions 6.x, 7.x and 8.x

This document summarizes all of the Cisco Intelligent Contact Management (ICM) Computer Telephony Integration (CTI) Server Versions 6.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a CTI Server that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		



Attribute	Description	Incident	Performance	Management
<b>Interface Monitoring</b>	Monitors the up/down status of Eth interfaces. Monitoring of Eth interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Interface Flapping</b>	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability.	✓		✓
<b>System Uptime Report</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization 90% exceeds threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when drive space utilization exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO INTELLIGENT CONTACT MANAGEMENT (ICM) COMPUTER TELEPHONY INTEGRATION (CTI) SERVER SERVICES</b>				
<b>System</b>				
<b>CTI Gateway Service</b>	Monitors the up/down status of the CTI Gateway service; opens incident ticket when service state is down.	✓		✓
<b>Server</b>	Monitors the up/down status of the server agent; opens incident ticket when service state is down.	✓		✓
<b>Management Information Translation</b>	Monitors the up/down status of the agent that provides extended ICM CTI server metrics; opens incident ticket if state is down.	✓		✓
<b>Extended Metrics Agent</b>	Monitors the up/down status of the agent that provides extended device metrics; opens incident ticket when service state is down.	✓		✓
<b>Diagnostic Portal<sup>ii</sup></b>	Monitors up/down status of the CTI server diagnostic portal service; opens incident ticket if service is down.	✓		✓
<b>Data Synchronization</b>	Monitors the up/down status of the process that maintains real-time data in distributed environments; opens incident ticket if state is down.	✓		✓
<b>Web Server</b>	Monitors the up/down status of the web server service; opens incident ticket when service state is down.	✓		✓
<b>Web Publishing Service</b>	Monitors the up/down status of web publishing service; opens incident ticket when service state is down.	✓		✓
<b>Remote System Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>Time Synchronization</b>	Monitors system time synchronization; opens incident ticket when service state is down.	✓		✓
<b>Automatic System Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software; opens incident ticket when service state is down.	✓		✓
<b>Trunk Allocation<sup>iii</sup></b>	Displays the number of trunks available per trunk group.			✓
<b>Call Counts<sup>iii</sup></b>	Displays call volumes.			✓
<b>Seconds In Use<sup>iii</sup></b>	Displays call activity as a measure of time.			✓
<b>Busy Hour<sup>iii</sup></b>	Calculates and displays monthly busy hour per device.			✓
<b>Erlangs<sup>iii</sup></b>	Calculates and displays monthly and daily Erlang values.			✓
<b>UCCE Trunk Availability<sup>iii</sup></b>	Displays trunk group name, calls in and out, total calls, seconds in and out, total seconds, busy hour, Erlangs, seconds busy, percentage available, and Max Erlangs Daily Trend performance graph.		✓	✓
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>Component Support</b>	Monitors up/down status of the agent that assists troubleshooting of configured devices; opens incident ticket if agent is down or missing.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives, and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives, and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to Server operation</b>				
<b>System Version Control<sup>iv</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>iv</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>iv</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>iv</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>iv</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>iv</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>iv</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status<sup>iv</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>iv</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>iv</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>iv</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors<sup>iv</sup></b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status<sup>iv</sup></b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity<sup>iv</sup></b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				

Attribute	Description	Incident	Performance	Management
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓
<b>Name</b>	Name of the server configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % memory used key performance indicator.			✓
<b>Average Memory Utilization (page/sec) KPI</b>	Average memory utilization key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % disk used key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In KPI</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out KPI</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Feature available for CTI Server Version 8.x.

<sup>iii</sup> When deployed in a Cisco Unified Contact Center Enterprise environment having an Intelligent Contact Manager (ICM) Historical Database Server (HDS) or Administrative Workstation (AW).

<sup>iv</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Cisco Intelligent Contact Manager (ICM) Administrative Workstation Versions 6.x, 7.x and 8.x

This document summarizes all of the Cisco Intelligent Contact Management (ICM) Administrative Workstation Versions 6.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a workstation that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the workstation for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Interface Monitoring</b>	Monitors the up/down status of Eth interfaces. Monitoring of Eth interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Interface Flapping</b>	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Workstation Operations</b>	Monitors remote workstation operations availability.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors workstation performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when drive space utilization exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO INTELLIGENT CONTACT MANAGEMENT (ICM) ADMINISTRATIVE WORKSTATION SERVICES</b>				
<b>System</b>				

Attribute	Description	Incident	Performance	Management
<b>Management Information Translation</b>	Monitors the up/down status of the agent that provides extended workstation metrics; opens incident ticket if state is down.	✓		✓
<b>Extended Metrics Agent</b>	Monitors the up/down status of the agent that provides extended device metrics; opens incident ticket when service state is down.	✓		✓
<b>Diagnostic Portal<sup>ii</sup></b>	Monitors up/down status of the diagnostic portal service; opens incident ticket if service is down.	✓		✓
<b>Data Synchronization</b>	Monitors the up/down status of the process that maintains real-time data in distributed environments; opens incident ticket if state is down.	✓		✓
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>Server</b>	Monitors the up/down status of the server process.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>Web Server</b>	Monitors the up/down status of the web server service; opens incident ticket when service state is down.	✓		✓
<b>Web Publishing Service</b>	Monitors the up/down status of web publishing service; opens incident ticket when service state is down.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Remote System Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>Automatic Workstation Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the workstation if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software; opens incident ticket when service state is down.	✓		✓
<b>Trunk Allocation<sup>iii</sup></b>	Displays the number of trunks available per trunk group.			✓
<b>Call Counts<sup>iii</sup></b>	Displays call volumes.			✓
<b>Seconds In Use<sup>iii</sup></b>	Displays call activity as a measure of time.			✓
<b>Busy Hour<sup>iii</sup></b>	Calculates and displays monthly busy hour per device.			✓
<b>Erlangs<sup>iii</sup></b>	Calculates and displays monthly and daily Erlang values.			✓
<b>UCCE Trunk Availability<sup>iii</sup></b>	Displays monthly summary and daily hourly detail call metrics per Trunk Group.		✓	✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives, and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives, and displays Trap events; opens incident tickets to alert on issues	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to workstation operation</b>				
<b>System Version Control<sup>iv</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>iv</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>iv</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>iv</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>iv</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>Temperature<sup>iv</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>iv</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status<sup>iv</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>iv</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>iv</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>iv</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors<sup>iv</sup></b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status<sup>iv</sup></b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity<sup>iv</sup></b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the workstation is located.			✓
<b>Site Location</b>	Physical location of the workstation.			✓
<b>Name</b>	Name of the workstation configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the workstation.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the workstation.			✓
<b>Type</b>	Type of device (ex., workstation).			✓
<b>Vendor</b>	Manufacturer of the workstation hardware.			✓
<b>Model</b>	Model of the workstation hardware.			✓
<b>Serial #</b>	Serial number of the workstation hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGERMENTS</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Feature available for ICM Administrative Workstation Version 8.x.

<sup>iii</sup> Metrics available when deployed in a Cisco Unified Contact Center Enterprise environment.

<sup>iv</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Cisco Support Tools Server Versions 6.x, 7.x and 8.x

This document summarizes the Cisco Support Tools Server Versions 6.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a Support Tools Server that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>SUPPORT TOOLS SERVER SERVICES</b>				
<b>System</b>				
<b>Support Tools</b>	Monitors up/down status of the Support Tools communication support and processing service; opens incident ticket when service state is down.	✓		✓
<b>Support Tools Web Service</b>	Monitors the up/down status of the Support Tools web service; opens incident ticket when service state is down.	✓		✓
<b>Management Information Translation</b>	Monitors the up/down status of the agent that provides extended server metrics; opens incident ticket when service state is down.	✓		✓



Attribute	Description	Incident	Performance	Management
<b>Diagnostic Portal<sup>ii</sup></b>	Monitors up/down status of the diagnostic portal service; opens incident ticket if service is down.	✓		✓
<b>Component Support</b>	Monitors up/down status of the agent that assists troubleshooting of Unified Communications devices; opens incident ticket if agent is down or missing.	✓		✓
<b>Server</b>	Monitors up/down status of the host server process; opens incident ticket when service state is down.	✓		✓
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>Remote Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Automatic Server Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to server operation</b>				
<b>System Version Control<sup>iii</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>iii</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>iii</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>iii</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>iii</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>iii</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>iii</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status<sup>iii</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>iii</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>iii</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>iii</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors<sup>iii</sup></b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status<sup>iii</sup></b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity<sup>iii</sup></b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				

Attribute	Description	Incident	Performance	Management
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓
<b>Name</b>	Name of the server configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % memory used key performance indicator.			✓
<b>Average Memory Utilization (page/sec) KPI</b>	Average memory utilization key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % disk used key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In KPI</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out KPI</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Feature available for Support Tools Server Version 8.x.

<sup>iii</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Cisco Switches

This document summarizes the Cisco Switch services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		

Attribute	Description	Incident	Performance	Management
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a switch that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the switch for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Module Status</b>	Monitors individual modules for up/down status.	✓		✓
<b>Carrier Facing Interface Monitoring</b>	Monitors the up/down status of critical carrier facing interfaces of types Eth, Fa, FC, Gi, Lo, m/p, mgmt, and Vl. Monitoring of Eth, Fa, and Gi interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Intranet Interface Monitoring</b>	Monitors the up/down status of critical intranet interfaces of types Eth, Fa, Gi. Monitoring of Eth, Fa, Gi interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Interface/Port Flapping</b>	Monitors for port or interface that is repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>System Uptime</b>	Reports the length of time the switch has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors switch performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket if memory utilization exceeds threshold of 80%; displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO IOS SWITCH</b>				
<b>System</b>				
<b>Port Information Viewer</b>	At the port level, displays router name, IP address, MAC address, type of interface, VLAN name, MAC address of connected device, IP address of connected device, Cisco MAP and DNS name of connected device, and a Cisco MAP Tools management link to the connected device.			✓
<b>Switch Role Monitoring<sup>ii</sup></b>	In a Cisco StackWise configuration, monitors the role of the switch. Alerts when the role of the switch changes.	✓	✓	✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to Server operation</b>				

Attribute	Description	Incident	Performance	Management
<b>Power Supply Status</b>	Monitors the up/down status of the power supply; alerts when power supply state is down.	✓		✓
<b>Power Supply Fan Status</b>	Monitors the up/down status of the power supply; alerts when power supply fan state is down.	✓		✓
<b>Fan Status</b>	Monitors the up/down status of the fan; alerts when fan state is down.	✓		✓
<b>Temperature (Ambient)</b>	Measures temperature at chassis input.	✓		✓
<b>Temperature (CPU)</b>	Measures temperature at hot spot of chassis.	✓		✓
<b>Temperature (output)</b>	Measures temperature at chassis output.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the switch is located.			✓
<b>Site Location</b>	Physical location of the switch.			✓
<b>Name</b>	Name of switch configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to switch.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to switch.			✓
<b>Type</b>	Type of device (ex., switch).			✓
<b>Vendor</b>	Manufacturer of hardware.			✓
<b>Model</b>	Model of switch.			✓
<b>Serial #</b>	Serial number of switch.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Installed Modules</b>	Number of modules installed on switch.			✓
<b>Operating System</b>	Displays network operating system and version information for Cisco devices.			✓
<b>IOS® Version</b>	IOS® Version installed on the switch.			✓
<b>IOS® Subset</b>	Subset of IOS® version installed on the switch.			✓
<b>IOS® Image Name</b>	IOS® image name.			✓
<b>Flash</b>	Amount of flash memory on switch (bytes).			✓
<b>System RAM</b>	Amount of RAM on switch (bytes).			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Date of Last Commit</b>	Date of last commit of configuration files.			✓
<b>Date Last Changed</b>	Date of last detected change to configuration files.			✓
<b>Configuration File Activity</b>	Summary of device configuration file download and change activity.			✓
<b>Network Operating System Version Summary</b>	Displays detailed Cisco IOS®/CatOS version information for managed Cisco devices.			✓
<b>System Infrastructure</b>	At a glance module count, IOS® image name, flash and RAM memory installed on managed Cisco IOS® devices.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				

Measure service response against objectives				
SLA Manager	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Available for Cisco IOS® Switches configured to utilize Cisco StackWise technology.

## Monitoring Details for Cisco Unified Border Element (CUBE)

This document summarizes all of the Cisco Unified Border Element (CUBE) services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
Root Cause Analysis	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
Dependency Visibility	Identifies services and processes that may be impacted by dependency on a Cisco Unified Border Element that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the Router/Gateway for availability</b>				
ICMP Polling	ICMP ping test for up/down status.	✓		✓
ICMP Flapping	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
SNMP Agent	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms); opens incident tickets to alert on issues.	✓		✓
SNMP Uptime Polling	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
SNMP Flapping	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
Carrier Facing Interface Monitoring	Monitors the up/down status of critical carrier facing interfaces of types ATM, E1, Eth, Fa, Gi, Lo, m/p, mgmt., POS, Se, T1, and VI. Monitoring of Eth, Fa, and Gi interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
Intranet Interface Monitoring	Monitors the up/down status of critical intranet interfaces of types ATM, E1, Eth, Fa, FC, Gi, Lo, m/p, mgmt., POS, Se, T1, and VI. Monitoring of Eth, Fa, and Gi interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
Interface Flapping	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
Port Flapping	Monitors for ports repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
Module Status	Monitors individual modules for up/down status.	✓		✓
Card Status	Monitors the up/down status of each card within router module(s); opens incident ticket if card state is down.	✓		✓
System Uptime	Reports the length of time system has been in up status.			✓
Monthly Device Availability	Displays the current to previous month's device availability metrics versus SLA target.			✓
Scheduled Outages	Displays a list of scheduled outages during a given time period.			✓
Top Active Device	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				

Attribute	Description	Incident	Performance	Management
<b>Monitors Route/Gateway performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs		✓	✓
<b>CISCO UNIFIED BORDER ELEMENT (CUBE)</b>				
<b>System<sup>ii</sup></b>				
<b>Port Information Viewer</b>	At the port level, displays router name, IP address, MAC address, type of interface, VLAN name, MAC address of connected device, IP address of connected device, Cisco MAP and DNS name of connected device, and a Cisco MAP Tools management link to the connected device.			✓
<b>Line Code Violations (LCV)</b>	Monitors for T1/DS1 LCV errors; alarms and opens incident ticket when LCV errors are detected.	✓		✓
<b>Path Code Violations (PCV)</b>	Monitors for T1/DS1 PCV errors; alarms and opens incident ticket when PCV errors are detected.	✓		✓
<b>Line Errored Seconds (LES)</b>	Monitors for T1/DS1 LES errors; alarms and opens incident ticket when LES errors are detected.	✓		✓
<b>Controlled Slip Seconds (CSS)</b>	Monitors for T1/DS1 CSS errors; alarms and opens incident ticket when CSS errors are detected.	✓		✓
<b>Errored Seconds (ES)</b>	Monitors for T1/DS1 ES errors; alarms and opens incident ticket when ES errors are detected.	✓		✓
<b>Bursty Errored Seconds (BES)</b>	Monitors for T1/DS1 BES errors; alarms and opens incident ticket when BES errors are detected.	✓		✓
<b>Severely Errored Seconds (SES)</b>	Monitors for T1/DS1 SES errors; alarms and opens incident ticket when SES errors are detected.	✓		✓
<b>Severely Errored Framing Seconds (SEFS)</b>	Monitors for T1/DS1 SEFS errors; alarms and opens incident ticket when SEFS errors are detected.	✓		✓
<b>Degraded Minutes (DM)</b>	Monitors for T1/DS1 DM errors; alarms and opens incident ticket when DM errors are detected.	✓		✓
<b>Unavailable Seconds (UAS)</b>	Monitors for T1/DS1 UAS errors; alarms and opens incident ticket when UAS errors are detected.	✓		✓
<b>T1/DS1 Statistics</b>	Displays near real-time and 10 day historical DS1 interface operational status and error count statistics.			✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to Route/Gateway operation</b>				
<b>Power Supply Status</b>	Monitors the up/down status of the power supply; alerts when power supply state is down.	✓		✓
<b>Power Supply Fan Status</b>	Monitors the up/down status of the power supply fan; alerts when power supply fan state is down.	✓		✓
<b>Fan Status</b>	Monitors the up/down status of the fan; alerts when fan state is down.	✓		✓
<b>Temperature (Ambient)</b>	Measures temperature at chassis input.	✓		✓
<b>Temperature (CPU)</b>	Measures temperature at hot spot of chassis.	✓		✓
<b>Temperature (output)</b>	Measures temperature at chassis output.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>Modules</b>	Monitors the status of the individual interface modules in the Gateway.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the Router/Gateway is located.			✓
<b>Site Location</b>	Physical location of the Router/Gateway.			✓
<b>Name</b>	Name of the Router/Gateway configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the Router/Gateway.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the Router/Gateway.			✓
<b>Type</b>	Type of device (ex., Router/Gateway).			✓
<b>Vendor</b>	Manufacturer of the hardware.			✓
<b>Serial #</b>	Serial number of the Router/Gateway hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Installed Modules</b>	Number of modules installed on the Router/Gateway.			✓
<b>Operating System</b>	Displays network operating system and version information for Cisco devices.			✓
<b>IOS® Version</b>	IOS® Version installed on the Router/Gateway element.			✓
<b>IOS® Subset</b>	Subset of IOS® version installed on the Router/Gateway.			✓
<b>IOS® Image Name</b>	IOS® image name.			✓
<b>Flash</b>	Amount of flash memory on the Router/Gateway (bytes).			✓
<b>System RAM</b>	Amount of RAM on the Router/Gateway (bytes).			✓
<b>Date Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Date Last Commit</b>	Date of last commit of configuration files.			✓
<b>Date Last Changed</b>	Date of last detected change to configuration files.			✓
<b>Configuration File Activity</b>	Summary of device configuration file download and change activity.			✓
<b>Network Operating System Version Summary</b>	Displays detailed Cisco IOS®/CatOS version information for managed Cisco devices.			✓
<b>System Infrastructure Hardware Inventory</b>	At a glance module count, IOS® image name, flash and RAM memory installed on managed Cisco IOS® devices. Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Port Information Viewer is available for all Cisco router models. DS1, ISDN, D-Channel, and PRI monitoring/reporting available with the applicable modules deployed on the router.



## Monitoring Details for Cisco Unified SIP Proxy (CUSP)

This document summarizes all of the Cisco Unified SIP Proxy\*\* (CUSP) services, resources and applications monitored by Cisco MAP.

\*\* For Cisco models 38XX Integrated Services Router (ISR) Series Chassis.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a Cisco Unified SIP Proxy that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the router for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>Module Status</b>	Monitors individual modules for up/down status.	✓		✓
<b>Card Status</b>	Monitors the up/down status of each card within router module(s); opens incident ticket if card state is down.	✓		✓
<b>Carrier Facing Interface Monitoring</b>	Monitors the up/down status of critical carrier facing interfaces of types ATM, E1, Eth, Fa, FC, Gi, Lo, m/p, mgmt., POS, Se, T1, and VI. Monitoring of Eth, Fa, Gi interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Intranet Interface Monitoring</b>	Monitors the up/down status of critical carrier facing interfaces of types ATM, E1, Eth, Fa, FC, Gi, Lo, m/p, mgmt., POS, Se, T1, and VI. Monitoring of Eth, Fa, Gi interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Interface Flapping</b>	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Port Flapping</b>	Monitors for ports repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>System Uptime</b>	Reports the length of time the router has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors router performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly, & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when router memory utilization exceeds threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO UNIFIED SIP PROXY</b>				

Attribute	Description	Incident	Performance	Management
<b>System <sup>ii</sup></b>				
<b>Port Information Viewer</b>	At the port level, displays router name, IP address, MAC address, type of interface, VLAN name, MAC address of connected device, IP address of connected device, Cisco MAP and DNS name of connected device, and a Cisco MAP Tools management link to the connected device.			✓
<b>Line Code Violations (LCV)</b>	Monitors for T1/DS1 LCV errors; alarms and opens incident ticket when LCV errors are detected.	✓		✓
<b>Path Code Violations (PCV)</b>	Monitors for T1/DS1 PCV errors; alarms and opens incident ticket when PCV errors are detected.	✓		✓
<b>Line Errored Seconds (LES)</b>	Monitors for T1/DS1 LES errors; alarms and opens incident ticket when LES errors are detected.	✓		✓
<b>Controlled Slip Seconds (CSS)</b>	Monitors for T1/DS1 CSS errors; alarms and opens incident ticket when CSS errors are detected.	✓		✓
<b>Errored Seconds (ES)</b>	Monitors for T1/DS1 ES errors; alarms and opens incident ticket when ES errors are detected.	✓		✓
<b>Bursty Errored Seconds (BES)</b>	Monitors for T1/DS1 BES errors; alarms and opens incident ticket when BES errors are detected.	✓		✓
<b>Severely Errored Seconds (SES)</b>	Monitors for T1/DS1 SES errors; alarms and opens incident ticket when SES errors are detected.	✓		✓
<b>Severely Errored Framing Seconds (SEFS)</b>	Monitors for T1/DS1 SEFS errors; alarms and opens incident ticket when SEFS errors are detected.	✓		✓
<b>Degraded Minutes (DM)</b>	Monitors for T1/DS1 DM errors; alarms and opens incident ticket when DM errors are detected.	✓		✓
<b>Unavailable Seconds (UAS)</b>	Monitors for T1/DS1 UAS errors; alarms and opens incident ticket when UAS errors are detected.	✓		✓
<b>T1/DS1 Statistics</b>	Displays near real-time and 10 day historical DS1 interface operational status and error count statistics.	✓		✓
<b>ISDN D-Channel Status</b>	Alarms and opens incident ticket when the status of an interface changes state to not active.	✓		✓
<b>PRI Interface Operational Status</b>	Monitors the operational status of each interface; opens incident ticket when status is down.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives, and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives, and displays Trap events; opens incident tickets to alert on issues	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to router operation</b>				
<b>Power Supply Status</b>	Monitors the up/down status of the power supply; alerts when power supply state is down.	✓		✓
<b>Power Supply Fan Status</b>	Monitors the status of the router power supply fan; alerts when power supply state is down.	✓		✓
<b>Fan Status</b>	Monitors the up/down status of the fan; alerts when fan state is down.	✓		✓
<b>Temperature (Ambient)</b>	Measures temperature at chassis input.	✓		✓
<b>Temperature (CPU)</b>	Measures temperature at hot spot of chassis.	✓		✓
<b>Temperature (output)</b>	Measures temperature at chassis output.	✓		✓
<b>Modules</b>	Monitors the status of the individual interface modules in the Gateway.	✓		✓
<b>Card Status</b>	Monitors the status of each card mounted in the interface modules of the router.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the router is located.			✓

Attribute	Description	Incident	Performance	Management
Site Location	Physical location of the router.			✓
Name	Name of router configured in Cisco MAP.			✓
IP	IP address assigned to router.			✓
MAC Address	Media Access Control (MAC) address assigned to the router.			✓
Type	Type of device (ex., router).			✓
Vendor	Manufacturer of the router hardware.			✓
Serial #	Model of the router.			✓
Contract Expiration	Serial number of router module.			✓
Installed Modules	Date that service/support contract expires.			✓
Operating System	Number of modules installed in chassis.			✓
IOS <sup>®</sup> Version	Displays network operating system and version information for Cisco devices.			✓
IOS <sup>®</sup> Subset	IOS <sup>®</sup> Version installed on the router.			✓
IOS <sup>®</sup> Image Name	Subset of IOS <sup>®</sup> version installed on the router.			✓
Flash	IOS <sup>®</sup> image name.			✓
System RAM	Amount of flash memory on the router (bytes).			✓
Date Last Backup	Amount of RAM on the router (bytes).			✓
Date Last Commit	Date of last successful back-up of configuration files.			✓
Configuration File Activity	Summary of device configuration file download and change activity.			✓
Network Operating System Version Summary	Displays detailed Cisco IOS <sup>®</sup> /CatOS version information for managed Cisco devices.			✓
System Infrastructure	At a glance module count, IOS <sup>®</sup> image name, flash and RAM memory installed on managed Cisco IOS <sup>®</sup> devices.			✓
Hardware Inventory	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
Average CPU % KPI	Average CPU % key performance indicator.			✓
Average Percent Memory Used	Average Memory % key performance indicator.			✓
Average Memory Utilization	Average Memory Utilization (Pages/Sec) key performance indicator.			✓
Average Ping Latency KPI	Average Ping Latency key performance indicator.			✓
Average Bandwidth In	Average Bandwidth In key performance indicator.			✓
Average Bandwidth Out	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
SLA Manager	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Port Information Viewer is available for all Cisco Router models. DS1, ISDN, D-Channel, and PRI monitoring/reporting available with the applicable modules deployed on the router.

## Monitoring Details for Cisco Intelligent Contact Management (ICM) Historical Database Server (HDS) Versions 6.x, 7.x and 8.x

This document summarizes all of the Cisco Intelligent Contact Management (ICM) Historical Database Server (HDS) Versions 6.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on an ICM HDS that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Interface Monitoring</b>	Monitors the up/down status of Eth interfaces. Monitoring of Eth interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Interface Flapping</b>	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO INTELLIGENT CONTACT MANAGEMENT (ICM) HISTORICAL DATABASE SERVER (HDS)</b>				
<b>System Services</b>				

Attribute	Description	Incident	Performance	Management
<b>ICM Services</b>	Monitors ICM services; opens incident ticket on Operator requested shutdown requests.	✓		✓
<b>Server</b>	Monitors the up/down status of the server process; opens incident ticket when service state is down.	✓		✓
<b>Management Information Translation</b>	Monitors the up/down status of the agent that provides extended ICM HDS metrics; opens incident ticket if state is down.	✓		✓
<b>Extended Metrics Agent</b>	Monitors the up/down status of the agent that provides extended device metrics; opens incident ticket when service state is down.	✓		✓
<b>Diagnostic Portal<sup>ii</sup></b>	Monitors up/down status of the diagnostic portal service; opens incident ticket if service is down.	✓		✓
<b>Data Synchronization</b>	Monitors the up/down status of the process that maintains real-time data in distributed environments; opens incident ticket if state is down.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>Database Services</b>	Monitors the up/down status of database services; opens incident ticket if state is down.	✓		✓
<b>Database Administration</b>	Monitors the up/down status of the database administration service; opens incident ticket if state is down.	✓		✓
<b>WebView</b>	Monitors the up/down status of ICM WebView services; opens incident ticket if state is down.	✓		✓
<b>WebView Monitor</b>	Monitors the up/down status of the service that restarts WebView if problems are detected; opens incident ticket if state is down.	✓		✓
<b>Web Server</b>	Monitors the up/down status of the web server service; opens incident ticket when service state is down.	✓		✓
<b>Web Publishing Service</b>	Monitors the up/down status of web publishing service; opens incident ticket when service state is down.	✓		✓
<b>Remote System Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization; opens incident ticket when service state is down.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Automatic Server Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software; opens incident ticket when service state is down.	✓		✓
<b>Trunk Allocation<sup>iii</sup></b>	Displays the number of trunks available per trunk group.			✓
<b>Call Counts<sup>iii</sup></b>	Displays call volumes.			✓
<b>Seconds In Use<sup>iii</sup></b>	Displays call activity as a measure of time.			✓
<b>Busy Hour<sup>iii</sup></b>	Calculates and displays monthly busy hour per device.			✓
<b>Erlangs<sup>iii</sup></b>	Calculates and displays monthly and daily Erlang values.			✓
<b>UCCE Trunk Availability<sup>iii</sup></b>	Displays trunk group name, calls in and out, total calls, seconds in and out, total seconds, busy hour, Erlangs, seconds busy, percentage available, and Max Erlangs Daily Trend performance graph.		✓	✓
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>Component Support</b>	Monitors up/down status of the agent that assists troubleshooting of configured CVP devices; opens incident ticket if agent is down or missing.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives, and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives, and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				

Attribute	Description	Incident	Performance	Management
<b>Monitors key hardware components essential to server operation</b>				
<b>System Version Control<sup>iv</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>iv</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>iv</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>iv</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>iv</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>iv</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>iv</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status<sup>iv</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>iv</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>iv</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>iv</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors<sup>iv</sup></b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status<sup>iv</sup></b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity<sup>iv</sup></b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓
<b>Name</b>	Name of the server configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % memory used key performance indicator.			✓
<b>Average Memory Utilization (page/sec) KPI</b>	Average memory utilization key performance indicator.			✓
<b>Average SQL Server User Connections KPI</b>	Average SQL server user connections key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % disk used key performance indicator.			✓

Attribute	Description	Incident	Performance	Management
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In KPI</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out KPI</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Feature available for ICM Historical Data Server Version 8.x.

<sup>iii</sup> Metrics available when deployed in a Cisco Unified Contact Center Enterprise environment.

<sup>iv</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Cisco Intelligent Contact Manager (ICM) Logger Versions 6.x, 7.x and 8.x

This document summarizes all of the Cisco Intelligent Contact Management (ICM) Logger Versions 6.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on an ICM Logger that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Interface Monitoring</b>	Monitors the up/down status of Eth interfaces. Monitoring of Eth interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Interface Flapping</b>	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability; opens incident tickets to alert on issues.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓

Attribute	Description	Incident	Performance	Management
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO INTELLIGENT CONTACT MANAGER (ICM) LOGGER</b>				
<b>System</b>				
<b>ICM Logger Service</b>	Monitors the up/down status of the ICM Logger Service; opens incident ticket when service state is down.	✓		✓
<b>Server</b>	Monitors the up/down status of the server process; opens incident ticket when service state is down.	✓		✓
<b>Management Information Translation</b>	Monitors the up/down status of the agent that provides extended ICM HDS metrics; opens incident ticket if state is down.	✓		✓
<b>Extended Metrics Agent</b>	Monitors the up/down status of the agent that provides extended device metrics; opens incident ticket when service state is down.	✓		✓
<b>Diagnostic Portal<sup>ii</sup></b>	Monitors up/down status of the diagnostic portal service; opens incident ticket if service is down.	✓		✓
<b>Database Services</b>	Monitors the up/down status of database services; opens incident ticket when service state is down.	✓		✓
<b>Database Administration</b>	Monitors the up/down status of database administration services; opens incident ticket when service state is down.	✓		✓
<b>Data Synchronization</b>	Monitors the up/down status of the process that maintains real-time data in distributed environments; opens incident ticket if state is down.	✓		✓
<b>Web Server</b>	Monitors the up/down status of the web server service; opens incident ticket when service state is down.	✓		✓
<b>Web Publishing Service</b>	Monitors the up/down status of web publishing service; opens incident ticket when service state is down.	✓		✓
<b>Remote System Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization; opens incident ticket when service state is down.	✓		✓
<b>Automatic Server Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software; opens incident ticket when service state is down.	✓		✓



Attribute	Description	Incident	Performance	Management
<b>Trunk Allocation<sup>iii</sup></b>	Displays the number of trunks available per trunk group.			✓
<b>Call Counts<sup>iii</sup></b>	Displays call volumes.			✓
<b>Seconds In Use<sup>iii</sup></b>	Displays call activity as a measure of time.			✓
<b>Busy Hour<sup>iii</sup></b>	Calculates and displays monthly busy hour per device.			✓
<b>Erlangs<sup>iii</sup></b>	Calculates and displays monthly and daily Erlang values.			✓
<b>UCCE Trunk Availability<sup>iii</sup></b>	Displays trunk group name, calls in and out, total calls, seconds in and out, total seconds, busy hour, Erlangs, seconds busy, percentage available, and Max Erlangs Daily Trend performance graph.		✓	✓
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>Component Support</b>	Monitors up/down status of the agent that assists troubleshooting of configured devices; opens incident ticket if agent is down or missing.	✓		✓
<b>Configuration Logging</b>	Monitors the up/down status of the service that stores configuration data in the central database; opens incident ticket when service state is down.	✓		✓
<b>Customer Event Handling</b>	Monitors the up/down status of the service that receives, filters, and saves events for delivery to ICM support; opens incident ticket when service state is down.	✓		✓
<b>Historical Data Logging</b>	Monitors the up/down status of the process that stores historical data in the central database; opens incident ticket when service state is down.	✓		✓
<b>Database Maintenance</b>	Monitors the up/down status of database maintenance services; opens incident ticket when service state is down.	✓		✓
<b>Database Recovery</b>	Monitors the up/down status of the central database recovery service; opens incident ticket when service state is down.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives, and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives, and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to server operation</b>				
<b>System Version Control<sup>iv</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>iv</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>iv</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>iv</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>iv</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>iv</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>iv</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status<sup>iv</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>iv</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>iv</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>iv</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors<sup>iv</sup></b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status<sup>iv</sup></b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>Power Supply Capacity<sup>iv</sup></b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓
<b>Name</b>	Name of the server configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % memory used key performance indicator.			✓
<b>Average Memory Utilization (page/sec) KPI</b>	Average memory utilization key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % disk used key performance indicator.			✓
<b>Average Clients Connected</b>	Average Clients Connected key performance indicator			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Feature available for ICM Logger Version 8.x.

<sup>iii</sup> When deployed in a Cisco Unified Contact Center Enterprise environment having an Intelligent Contact Manager (ICM) Historical Database Server (HDS) or Administrative Workstation (AW).

<sup>iv</sup> Monitoring/Reporting available with agent install

## Monitoring Details for Cisco Intelligent Contact Management (ICM) Network Gateway

This document summarizes the Cisco Intelligent Contact Management (ICM) Network Gateway services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on an ICM Network Gateway that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the Gateway for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Interface Monitoring</b>	Monitors the up/down status of Eth interfaces. Monitoring of Eth interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Interface Flapping</b>	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability; opens incident tickets to alert on issues.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors Gateway performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO INTELLIGENT CONTACT MANAGEMENT (ICM) NETWORK GATEWAY</b>				
<b>System</b>				
<b>Server</b>	Monitors the up/down status of the server process; opens incident ticket when service state is down.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>Web Server</b>	Monitors the up/down status of the web server service; opens incident ticket when service state is down.	✓		✓
<b>Web Publishing Service</b>	Monitors the up/down status of web publishing service; opens incident ticket when service state is down.	✓		✓
<b>Data Synchronization</b>	Monitors the up/down status of the process that maintains real-time data in distributed environments; opens incident ticket if state is down.	✓		✓
<b>Remote System Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Extended Metrics Agent</b>	Monitors the up/down status of the agent that provides extended device metrics; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization.	✓		✓
<b>Automatic System Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software.	✓		✓
<b>Trunk Allocation<sup>ii</sup></b>	Displays the number of trunks available per trunk group.			✓
<b>Call Counts<sup>ii</sup></b>	Monitors call volumes; opens incident ticket if threshold exceeded.			✓
<b>Seconds In Use<sup>ii</sup></b>	Monitors activity as a measure of time; opens incident ticket if threshold exceeded.			✓
<b>Busy Hour<sup>ii</sup></b>	Calculates and displays monthly busy hour per device.			✓
<b>Erlangs<sup>ii</sup></b>	Calculates and displays monthly and daily Erlang values.			✓
<b>UCCE Trunk Availability<sup>ii</sup></b>	Displays trunk group name, calls in and out, total calls, seconds in and out, total seconds, busy hour, Erlangs, seconds busy, percentage available, and Max Erlangs Daily Trend performance graph.		✓	✓
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>Component Support</b>	Monitors up/down status of the agent that assists troubleshooting of configured devices; opens incident ticket if agent is down or missing.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives, and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives, and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to Gateway operation</b>				
<b>System Version Control<sup>iii</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>iii</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>iii</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>iii</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>iii</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>iii</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>iii</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Disk Controller Status<sup>iii</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>Logical Disk (RAID) Status</b> <sup>iii</sup>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status</b> <sup>iii</sup>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors</b> <sup>iv</sup>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status</b> <sup>iii</sup>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity</b> <sup>iii</sup>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the Gateway is located.			✓
<b>Site Location</b>	Physical location of the Gateway.			✓
<b>Name</b>	Name of the Gateway configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the Gateway.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the Gateway.			✓
<b>Type</b>	Type of device (ex., Gateway).			✓
<b>Vendor</b>	Manufacturer of the Gateway hardware.			✓
<b>Model</b>	Model of the Gateway hardware.			✓
<b>Serial #</b>	Serial number of the Gateway hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % memory used key performance indicator.			✓
<b>Average Memory Utilization (page/sec) KPI</b>	Average memory utilization key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % disk used key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In KPI</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out KPI</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> When deployed in a Cisco Unified Contact Center Enterprise environment having an Intelligent Contact Manager (ICM) Historical Database Server (HDS) or Administrative Workstation (AW).

<sup>iii</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Cisco Intelligent Contact Manager Peripheral Gateway (ICM PG) Versions 6.x, 7.x and 8.x

This document summarizes all of the Cisco Intelligent Contact Management (ICM) Peripheral Gateway (PG) Versions 6.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on an ICM PG that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the Gateway for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Interface Monitoring</b>	Monitors the up/down status of Eth interfaces. Monitoring of Eth interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Interface Flapping</b>	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors Gateway performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly, & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO INTELLIGENT CONTACT MANAGER PERIPHERAL GATEWAY (ICM PG)</b>				
<b>System</b>				

Attribute	Description	Incident	Performance	Management
<b>Management Information Translation</b>	Monitors the up/down status of the agent that provides extended ICM PG metrics; opens incident ticket when service state is down.	✓		✓
<b>Extended Metrics Agent</b>	Monitors the up/down status of the agent that provides extended device metrics; opens incident ticket when service state is down.	✓		✓
<b>Diagnostic Portal<sup>ii</sup></b>	Monitors up/down status of the diagnostic portal service; opens incident ticket if service is down.	✓		✓
<b>Database Synchronization</b>	Monitors the up/down status of the process that maintains real-time data in distributed environments; opens incident ticket if state is down.	✓		✓
<b>ICM Command Line Utility</b>	Monitors the up/down status of the ICM Command Line service; opens incident ticket when service state is down.	✓		✓
<b>ICM Redundancy</b>	Monitors the up/down status of the processes that insure device and application redundancy within the ICM environment; opens incident ticket when service state is down.	✓		✓
<b>ICM Connectivity</b>	Monitors the up/down status of the processes that insure device and application connectivity within the ICM environment; opens incident ticket when service state is down.	✓		✓
<b>Server</b>	Monitors the up/down status of the server process; opens incident ticket when service state is down.	✓		✓
<b>Web Server</b>	Monitors the up/down status of the web server service; opens incident ticket when service state is down.	✓		✓
<b>Web Publishing Service</b>	Monitors the up/down status of web publishing service; opens incident ticket when service state is down.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization; opens incident ticket when service state is down.	✓		✓
<b>Remote System Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>Automatic System Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software; opens incident ticket when service state is down.	✓		✓
<b>System Activity Report</b>	Daily call traffic report of Peripheral Gateways (PGs) and the Peripheral Interface Managers (PIMs) associated with them. Displays hourly and a running total of CVP, ICM, Dialer, WIM, and EIM call counts.			✓
<b>Trunk Allocation<sup>iii</sup></b>	Displays the number of trunks available per trunk group.			✓
<b>Call Counts<sup>iii</sup></b>	Displays call volumes.			✓
<b>Seconds In Use<sup>iii</sup></b>	Displays call activity as a measure of time.			✓
<b>Busy Hour<sup>iii</sup></b>	Calculates and displays monthly busy hour per device.			✓
<b>Erlangs<sup>iii</sup></b>	Calculates and displays monthly and daily Erlang values.			✓
<b>UCCE Trunk Availability<sup>iii</sup></b>	Displays trunk group name, calls in and out, total calls, seconds in and out, total seconds, busy hour, Erlangs, seconds busy, percentage available, and Max Erlangs Daily Trend performance graph.		✓	✓
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>Component Support</b>	Monitors up/down status of the agent that assists troubleshooting of configured CVP devices; opens incident ticket if agent is down or missing.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives, and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives, and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to Gateway operation</b>				



Attribute	Description	Incident	Performance	Management
<b>System Version Control<sup>iv</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>iv</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>iv</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>iv</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>iv</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>iv</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>iv</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status<sup>iv</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>iv</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>iv</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>iv</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors<sup>iv</sup></b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status<sup>iv</sup></b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity<sup>iv</sup></b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the Gateway is located.			✓
<b>Site Location</b>	Physical location of the Gateway.			✓
<b>Name</b>	Name of the Gateway configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the Gateway.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the Gateway.			✓
<b>Type</b>	Type of device (ex., Gateway).			✓
<b>Vendor</b>	Manufacturer of the Gateway hardware.			✓
<b>Model</b>	Model of the Gateway hardware.			✓
<b>Serial #</b>	Serial number of the Gateway hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % memory used key performance indicator.			✓
<b>Average Memory Utilization (page/sec) KPI</b>	Average memory utilization key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % disk used key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓



Attribute	Description	Incident	Performance	Management
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Feature available for ICM Peripheral Gateway Version 8.x.

<sup>iii</sup> When deploys in a Cisco Unified Contact Center Enterprise environment having an Intelligent Contact Manager (ICM) Historical Database Server (HDS) or Administrative Workstation (AW).

<sup>iv</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Cisco Intelligent Contact Manager WebView Server Versions 6.x, 7.x and 8.x

This document summarizes the Cisco Intelligent Contact Management (ICM) WebView Server Versions 6.x, 7.x and 8.x services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on an ICM WebView Server that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Interface Monitoring</b>	Monitors the up/down status of Eth interfaces. Monitoring of Eth interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Interface Flapping</b>	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓

Attribute	Description	Incident	Performance	Management
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds 90% threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>CISCO INTELLIGENT CONTACT MANAGEMENT (ICM) ROUTER</b>				
<b>System</b>				
<b>WebView Service</b>	Monitors the up/down status of the WebView service; opens incident ticket when service state is down.	✓		✓
<b>WebView Service Auto- Restart</b>	Monitors the up/down status of the service that automatically restarts the WebView service if it fails; opens incident ticket when service state is down.	✓		✓
<b>WebView Monitor</b>	Monitors the up/down status of the service that restarts WebView if problems are detected; opens incident ticket if state is down.	✓		✓
<b>Server</b>	Monitors the up/down status of the server process; opens incident ticket when service state is down.	✓		✓
<b>Endpoint Protection</b>	Monitors the up/down status of the agent responsible for zero-update attack prevention, data loss prevention, and compliance and acceptable use auditing and enforcement; opens incident ticket if agent is down or missing.	✓		✓
<b>Component Support</b>	Monitors up/down status of the agent that assists troubleshooting of configured devices; opens incident ticket if agent is down or missing.	✓		✓
<b>Data Synchronization</b>	Monitors the up/down status of the process that maintains real-time data in distributed environments; opens incident ticket if state is down.	✓		✓
<b>Remote Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>Management Information Translation</b>	Monitors the up/down status of the agent that provides extended device metrics; opens incident ticket when service state is down.	✓		✓
<b>Extended Metrics Agent</b>	Monitors the up/down status of the agent that provides extended device metrics; opens incident ticket when service state is down.	✓		✓
<b>Diagnostic Portal<sup>ii</sup></b>	Monitors up/down status of the diagnostic portal service; opens incident ticket if service is down.	✓		✓
<b>Automatic Server Shutdown</b>	Monitors the up/down status of the process that automatically shuts down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization; opens incident ticket when service state is down.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software; opens incident ticket when service state is down.	✓		✓
<b>Trunk Allocation<sup>iii</sup></b>	Displays the number of trunks available per trunk group.			✓
<b>Call Counts<sup>iii</sup></b>	Monitors call volumes.			✓

Attribute	Description	Incident	Performance	Management
<b>Seconds In Use</b> <sup>iii</sup>	Displays call activity as a measure of time.			✓
<b>Busy Hour</b> <sup>iii</sup>	Calculates and displays monthly busy hour per device.			✓
<b>Erlangs</b> <sup>iii</sup>	Calculates and displays monthly and daily Erlang values.			✓
<b>UCCE Trunk Availability</b> <sup>iii</sup>	Displays trunk group name, calls in and out, total calls, seconds in and out, total seconds, busy hour, Erlangs, seconds busy, percentage available, and Max Erlangs Daily Trend performance graph.		✓	✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives, and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives, and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to server operation</b>				
<b>System Version Control</b> <sup>iv</sup>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status</b> <sup>iv</sup>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors</b> <sup>iv</sup>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status</b> <sup>iv</sup>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed</b> <sup>iv</sup>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature</b> <sup>iv</sup>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status</b> <sup>iv</sup>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status</b> <sup>iv</sup>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status</b> <sup>iv</sup>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status</b> <sup>iv</sup>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status</b> <sup>iv</sup>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors</b> <sup>iv</sup>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status</b> <sup>iv</sup>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity</b> <sup>iv</sup>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓
<b>Name</b>	Name of the server configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓

Attribute	Description	Incident	Performance	Management
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % memory used key performance indicator.			✓
<b>Average Memory Utilization (page/sec) KPI</b>	Average memory utilization key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % disk used key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable; Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Feature available for Cisco ICM WebView Server Version 8.x.

<sup>iii</sup> When displayed in a Cisco Unified Contact Center Enterprise environment having an Intelligent Contact Manager (ICM) Historical Database Server (HDS) or Administrative Workstation (AW).

<sup>iv</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Linux Operating System

This document summarizes the Linux Operating System services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a server that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓

Attribute	Description	Incident	Performance	Management
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability; opens incident tickets to alert on issues.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Total Memory Used</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>Total Memory Available</b>	Opens incident ticket when Total Memory Available falls below 10%, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>LINUX OS SERVICES</b>				
<b>System</b>				
<b>System Job Scheduler</b>	Monitors the up/down status of the system job scheduler; opens incident ticket when service state is down.	✓		✓
<b>Secure Access</b>	Monitors the up/down status of secure access service; opens incident ticket when service state is down.	✓		✓
<b>System Event Reporting</b>	Monitors the up/down status of system event reporting service; opens incident ticket when service state is down.	✓		✓
<b>System Management</b>	Monitors the up/down status of system management service; opens incident ticket when service state is down.	✓		✓
<b>Web Server</b>	Monitors the up/down status of the web server service; opens incident ticket when service state is down.	✓		✓
<b>Internet Name Resolution</b>	Monitors the up/down status of the system internet name resolution service; opens incident ticket when service state is down.	✓		✓
<b>Remote Access Services</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>System Time</b>	Monitors system time synchronization; opens incident ticket when service state is down.	✓		✓
<b>System Resource Sharing</b>	Monitors the up/down status of the system resource sharing service; opens incident ticket when service state is down.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to Server operation</b>				

Attribute	Description	Incident	Performance	Management
<b>System Version Control</b> <sup>ii</sup>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status</b> <sup>ii</sup>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors</b> <sup>ii</sup>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status</b> <sup>ii</sup>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed</b> <sup>ii</sup>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature</b> <sup>ii</sup>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status</b> <sup>ii</sup>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓
<b>Memory Error Status</b> <sup>ii</sup>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status</b> <sup>ii</sup>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status</b> <sup>ii</sup>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status</b> <sup>ii</sup>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors</b> <sup>ii</sup>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status</b> <sup>ii</sup>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity</b> <sup>ii</sup>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓
<b>Name</b>	Name of the server configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Disk Used</b>	Average % disk used key performance indicator.			✓
<b>Average % Memory Used</b>	Average % memory used key performance indicator.			✓
<b>Average Memory Utilization (page/sec)</b>	Average memory utilization key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In</b>	Average Bandwidth In key performance indicator.			✓

Attribute	Description	Incident	Performance	Management
<b>Average Bandwidth Out</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Monitoring/Reporting available with agent installed.

## Monitoring Details for Microsoft Windows Server Operating System

This document summarizes the Microsoft Windows Server services, resources and applications monitored by Cisco MAP.

Attribute	Description	Incident	Performance	Management
<b>EVENT PROCESSING</b>				
<b>Identifies the precise source of problems</b>				
<b>Root Cause Analysis</b>	Identifies the root cause of issues in the unified communications network to support fast resolution and minimize business disruption.	✓		
<b>Dependency Visibility</b>	Identifies services and processes that may be impacted by dependency on a server that has failed.	✓		✓
<b>AVAILABILITY</b>				
<b>Monitors the server for availability</b>				
<b>ICMP Polling</b>	ICMP ping test for up/down status.	✓		✓
<b>ICMP Flapping</b>	Monitors for ICMP repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>SNMP Agent</b>	Verifies whether SNMP agent is working (Time to Live (TTL) < 256 ms).	✓		✓
<b>SNMP Uptime Polling</b>	Opens incident ticket if SNMP uptime is less than 15 minutes to indicate outages and system restarts.	✓		✓
<b>SNMP Flapping</b>	Monitors for SNMP agent repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Interface Monitoring</b>	Monitors the up/down status of Eth interfaces. Monitoring of Eth interfaces applies to speeds of 10/100/1000 Mbps. Opens incident ticket if state is down.	✓	✓	✓
<b>Interface Flapping</b>	Monitors for interfaces repeatedly alternating between up and down states within a short period of time.	✓ <sup>i</sup>		
<b>Service Port Monitoring</b>	Monitors service ports for availability; opens incident tickets to alert on issues.	✓		✓
<b>Remote Server Operations</b>	Monitors remote server operations availability; opens incident tickets to alert on issues.	✓		✓
<b>System Uptime</b>	Reports the length of time system has been in up status.			✓
<b>Monthly Device Availability</b>	Displays the current to previous month's device availability metrics versus SLA target.			✓
<b>Scheduled Outages</b>	Displays a list of scheduled outages during a given time period.			✓
<b>Top Active Devices</b>	Displays devices that are generating the most case incident case activity.			✓
<b>PERFORMANCE</b>				
<b>Monitors server performance and trends</b>				

Attribute	Description	Incident	Performance	Management
<b>CPU Utilization</b>	Opens incident ticket if CPU utilization exceeds threshold for 10 minutes; displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Memory Utilization</b>	Opens incident ticket when memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Virtual Memory Utilization</b>	Opens incident ticket when virtual memory utilization exceeds 90% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages (used and free) in performance graphs.	✓	✓	✓
<b>Drive Space</b>	Opens incident ticket when hard drive usage exceeds 85% threshold, and displays Daily, Weekly, Monthly & Yearly utilization percentages in performance graphs.	✓	✓	✓
<b>Bandwidth Utilization</b>	Displays Daily, Weekly, Monthly & Yearly bandwidth utilization percentages (used and free) in performance graphs.		✓	✓
<b>Round Trip Time</b>	Displays Daily, Weekly, Monthly & Yearly percentages in performance graphs.		✓	✓
<b>MICROSOFT WINDOWS SERVER SERVICES</b>				
<b>System</b>				
<b>Server</b>	Monitors the up/down status of the server service; opens incident ticket when service state is down.	✓		✓
<b>Web Server</b>	Monitors the up/down status of the web server service; opens incident ticket when service state is down.	✓		✓
<b>Web Publishing Service</b>	Monitors the up/down status of web publishing service; opens incident ticket when service state is down.	✓		✓
<b>Data Synchronization</b>	Monitors the up/down status of the process that maintains real-time data in distributed environments; opens incident ticket if state is down.	✓		✓
<b>System Management</b>	Monitors the up/down status of the system management process; opens incident ticket when service state is down.	✓		✓
<b>Automatic System Shutdown</b>	Monitors the up/down status of the process that automatically shut down the server if a major fault is detected; opens incident ticket when service state is down.	✓		✓
<b>Remote Access</b>	Monitors the up/down status of remote access service; opens incident ticket when service state is down.	✓		✓
<b>Time Synchronization</b>	Monitors system time synchronization.	✓		✓
<b>System Event Log</b>	Monitors the up/down status of the system event log process; opens incident ticket when service state is down.	✓		✓
<b>Anti-Virus Services</b>	Monitors the presence and status of Anti-Virus software.	✓		✓
<b>ANALYSIS TOOLS</b>				
<b>Viewers to analyze system event and performance detail</b>				
<b>Syslog Viewer</b>	Captures, archives and displays SYSLOG events; opens incident tickets to alert on issues.	✓		✓
<b>Traplog Viewer</b>	Captures, archives and displays Trap events; opens incident tickets to alert on issues.	✓		✓
<b>HARDWARE / ENVIRONMENTAL</b>				
<b>Monitors key hardware components essential to server operation</b>				
<b>System Version Control<sup>1</sup></b>	Monitors the process that manages server software and firmware; opens incident ticket if state is down.	✓		✓
<b>CPU Status<sup>2</sup></b>	Monitors CPU; opens incident ticket if CPU fails.	✓		✓
<b>CPU Errors<sup>2</sup></b>	Monitors the number of CPU errors; opens incident ticket if the number of errors exceeds threshold.	✓		✓
<b>Fan Status<sup>2</sup></b>	Monitors the up/down status of all fans detected in the chassis; opens incident ticket when fan state is down.	✓		✓
<b>Fan Speed<sup>2</sup></b>	Monitors fan speed; opens incident ticket if fan is not spinning as fast as it should be.	✓		✓
<b>Temperature<sup>2</sup></b>	Monitors all temperature sensors detected in chassis; opens incident ticket if temperature exceeds threshold.	✓		✓
<b>Memory Status<sup>2</sup></b>	Monitors memory status; opens incident ticket if degraded or failed.	✓		✓



Attribute	Description	Incident	Performance	Management
<b>Memory Error Status<sup>ii</sup></b>	Monitors memory error messages; opens incident ticket if error threshold exceeded.	✓		✓
<b>Disk Controller Status<sup>ii</sup></b>	Monitors disk controller status; opens incident ticket if status is down.	✓		✓
<b>Logical Disk (RAID) Status<sup>ii</sup></b>	Monitors logical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Status<sup>ii</sup></b>	Monitors physical disk status; opens incident ticket if status is down.	✓		✓
<b>Physical Disk Errors<sup>ii</sup></b>	Monitors the number of physical disk errors messages; opens incident ticket if threshold exceeded.	✓		✓
<b>Power Supply Status<sup>ii</sup></b>	Monitors the status and condition of the power supply; opens incident ticket on error or when state is down.	✓		✓
<b>Power Supply Capacity<sup>ii</sup></b>	Monitors currently in use power; opens incident ticket if device is consuming more power than can be supplied.	✓		✓
<b>ASSET DETAIL</b>				
<b>Information to help you manage your IT investment</b>				
<b>Site Name</b>	Name of site where the server is located.			✓
<b>Site Location</b>	Physical location of the server.			✓
<b>Name</b>	Name of the server configured in Cisco MAP.			✓
<b>IP</b>	IP address assigned to the server.			✓
<b>MAC Address</b>	Media Access Control (MAC) address assigned to the server.			✓
<b>Type</b>	Type of device (ex., server).			✓
<b>Vendor</b>	Manufacturer of the server hardware.			✓
<b>Model</b>	Model of the server hardware.			✓
<b>Serial #</b>	Serial number of the server hardware.			✓
<b>Contract Expiration</b>	Date that service/support contract expires.			✓
<b>Date of Last Backup</b>	Date of last successful back-up of configuration files.			✓
<b>Hardware Inventory</b>	Identifies hardware components managed by Cisco MAP.			✓
<b>KEY PERFORMANCE INDICATORS (KPIs)</b>				
<b>Measure performance metrics against objectives</b>				
<b>Average CPU % KPI</b>	Average CPU % key performance indicator.			✓
<b>Average % Disk Used KPI</b>	Average % disk used key performance indicator.			✓
<b>Average % Memory Used KPI</b>	Average % memory used key performance indicator.			✓
<b>Average Memory Utilization (page/sec) KPI</b>	Average memory utilization key performance indicator.			✓
<b>Average Ping Latency KPI</b>	Average Ping Latency key performance indicator.			✓
<b>Average Bandwidth In KPI</b>	Average Bandwidth In key performance indicator.			✓
<b>Average Bandwidth Out KPI</b>	Average Bandwidth Out key performance indicator.			✓
<b>SERVICE LEVEL MANAGEMENT</b>				
<b>Measure service response against objectives</b>				
<b>SLA Manager</b>	Reports on service responsiveness to issues identified by Cisco MAP, including SLA violation issues.			✓

<sup>i</sup> A case is opened when ICMP, SNMP, an Interface, or a Port has become unavailable. Cisco MAP will update the corresponding existing case for the device if subsequent flapping is detected within a short period of time.

<sup>ii</sup> Monitoring/Reporting available with agent installed.



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