IMC

Service Health Manager 7.0 (E0101)

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What's New in this Release

IMC SHM 7.0 (E0101) can be installed directly, or you can upgrade frombased on IMC SHM 5.1 (E0202) or later versions. The following lists all features released after IMC SHM 7.0 (E0101).

Features released in IMC SHM 7.0 (E0101)

- **KQI Management**
  - In the KQI management, the KPI indexes provide the function of showing the value range descriptions.
- **NQA Group**
  - Supports uniformly configuring the NQA group access privileges for operator groups.

Features released in IMC SHM 5.2 (E0401)

- **NQA device**
  - Supports importing non-Web management base index items from devices.
- **SHM report**
  - Uses the dynamic chart technology to display the SHM reports.

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Problems Fixed in this Release

IMC SHM 7.0 (E0101) fixes the following problems, including all bugs fixed after IMC SHM 5.1 (E0202) and its patch versions.

Resolved Problems in IMC SHM 7.0 (E0101)

1. On the NQA device list page, when you click the **Name** column to arrange the devices, an error page appears.
2. In iMC in Chinese, when you view the SLA service health report and click the view original data link for KQI, the original data of KQI indexes cannot be viewed.
3. When you create an SLA service, add a compound KQI, and configure the compound KQI, the compound KQI cannot be successfully configured.
4. When you click the **Report** button to view the comparison report and summary report of an NQA instance, the report window does not appear.
5. When you import non-Web management base index items from a device, the DHCP index items cannot be imported.

Resolved Problems in IMC SHM 5.2 (E0401)

1. Log in to IMC as a viewer and enter the SLA service violation alarm details page. The viewer has the privilege to clearing violation. The privilege control is incorrect.
2. Select the basic indexs when you add an NQA type. The page does not provide a scroll bar, so the operation buttons are not displayed on the page.
3. When you audit the NQA device configurations multiple times, the auditing function is invalidated, and the auditing time does not change.
4. Import the NQA non-Web management basic index items. The index items selected to be imported and the configured NQA instance name are cleared when you select the NQA level.
5. After IMC is restarted, view the NQA instance creation name on the NQA instance list. The NQA instance creation time becomes the system start time.

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SHM Software Distribution Contents

The SHM software contains the following files and programs:

1. **SHM\manual\readme_shm_7.0 (E0101).html** - This file

2. **SHM\windows\install** - IMC SHM installation program for Windows OS
3. **SHM\linux\install** - IMC SHM installation program for Linux OS

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Installation Prerequisites

Server Requirements

The following are the minimum hardware and software requirements for running IMC on a server:

- Hardware
  - More than 2 Pentium4 3.0 Ghz processors
  - 2 GB RAM or higher
  - 100 GB of free hard disk space or higher
- Operating system (Versions marked X64 are recommended):
  - Windows Server 2003 with Service Pack 2
  - Windows Server 2003 X64 with Service Pack 2 and KB942288
  - Windows Server 2003 R2 with Service Pack 2
  - Windows Server 2003 R2 X64 with Service Pack 2 with KB942288
  - Windows Server 2008 with Service Pack 2
  - Windows Server 2008 X64 with Service Pack 2
  - Windows Server 2008 R2 with Service Pack 1
  - Windows Server 2008 R2 X64 with Service Pack 1
  - Red Hat Enterprise Linux 5 (Enterprise and Standard versions only)
  - Red Hat Enterprise Linux 5 X64 (Enterprise and Standard versions only)
  - Red Hat Enterprise Linux 5.5 (Enterprise and Standard versions only)
  - Red Hat Enterprise Linux 5.5 X64 (Enterprise and Standard versions only)
  - Red Hat Enterprise Linux 6.1 X64 (Enterprise and Standard versions only)
- VMware
  - VMware Workstation 6.5.x
  - VMware ESX Server 4.x

- Hyper-V:
    - Windows Server 2008 R2 Hyper-V
- Database
    - Microsoft SQL Server 2005 Service Pack 4 (Windows only)
    - Microsoft SQL Server 2008 Service Pack 3 (Windows only)
    - Microsoft SQL Server 2008 R2 Service Pack 2 (Windows only)
    - Microsoft SQL Server 2012 Service Pack 1 (Windows only)
    - Oracle 11g Release 1 (Linux only)
    - Oracle 11g Release 2 (Linux only)
    - Oracle 11g Release 2 (64-bit) (Linux only)
    - MySQL Enterprise Server 5.1 (Linux and Windows)
    - MySQL Enterprise Server 5.5 (Linux and Windows)
- IMC Platform Compatibility
    - IMC Platform version: IMC PLAT 7.0 (E0101).

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Port Usage

The IMC Server will BIND to and use the following TCP/IP Ports.

Port	Usage
TCP 61616	Used for communication in Master-Slave deployment environment.
TCP 22	SSH port, used to Configure Cisco device.
TCP 23	Telnet port, used to Configure Cisco device.
UDP 161	SNMP port, used to manage SNMP devices. elements.
TCP 1433	SQL Server database listening port (Windows only).

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Typical Installation

Before installing SHM, make sure the IMC is installed correctly. To install SHM, click **Install** button on the **Monitor** tab of the Intelligent Deployment Monitoring Agent, then select the

components sub-directory of the upgrade package, and click **OK** button to launch the installation wizard.

For detailed installation instructions, please refer to *IMC Installation Guide*.

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Installing and Upgrading IMC

Please follow these instructions for upgrading the IMC:

1. Back up the IMC database on the Environment tab in the Deployment Monitoring Agent.
2. Stop IMC in the Deployment Monitoring Agent.
3. Click **Install** button in the **Monitor** tab of the Deployment Monitoring Agent.
4. Select the *windows/install/components* subdirectory of the upgrade package, and click **OK** button.
5. After the installation finishes, the Deployment Monitoring Agent will detect the components that need to be upgraded. Click **OK** button to start upgrading the components.
6. In Distributed deployment mode, upgrade all components deployed on every subordinate server.
7. After all components are updated, start all processes in the Deployment Monitoring Agent window.

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Removing IMC

You can remove SHM component through the intelligent deployment monitoring agent. To do this, follow these steps:

1. In the Intelligent Deployment Monitoring Agent window, select **Stop IMC** on the **Monitor** tab to stop all processes of IMC.
2. On the **Deploy** tab, right-click the SHM component, and select **Uninstall the Component** from the shortcut menu.
3. A dialog box appears, indicating that the component was successfully removed. Click **OK**.

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KQI Index Details

Class Name	KQI	KPI	KPI Description	Calculation Method	KQI Rating	Availab
Device Status	CPU Usage	CPU Usage	PERF	Average	5Rating: 60~80 4Rating: 30~60 3Rating: 0~30 2Rating: 80~90 1Rating: Other	2,3,4,5:A Other: Unavail
	Memory Usage	Memory Usage	PERF	Average	5Rating: 60~80 4Rating: 30~60 3Rating: 0~30 2Rating: 80~90 1Rating: Other	2,3,4,5:A Other: Unavail
	Device Response Time	Device Response Time	PERF	Average	5Rating: 0~10 4Rating: 10~30 3Rating: 30~50 2Rating: 50~100 1Rating: Other	2,3,4,5:A Other: Unavail
	Device Unreachable	Device Unreachable	PERF	Average	5Rating: 0~0 4Rating: 1~20 3Rating: 20~30 2Rating: 30~50 1Rating: Other	2,3,4,5:A Other: Unavail

	Device Alarms	Critical Alarms	ALARM	Formula:(Critical Alarms*0.8+Major Alarms*0.5+Minor Alarms*0.2+Warning Alarms*0.1)	5Rating: -~0 4Rating: 0~2 3Rating: 2~5 2Rating: 5~10 1Rating: Other	2,3,4,5:A Other: Unavail
		Major Alarms	ALARM			
		Minor Alarms	ALARM			
		Warning Alarms	ALARM			
NQA Voice Quality	Voice MOS	Voice MOS	SHM	Average	5Rating: 5~+ 4Rating: 4~5 3Rating: 3~4 2Rating: 2~3 1Rating: Other	2,3,4,5:A Other: Unavail
	Voice icpif	Voice icpif	SHM	Average	5Rating: 5~+ 4Rating: 4~5 3Rating: 3~4 2Rating: 2~3 1Rating: Other	2,3,4,5:A Other: Unavail
	Jitter	S2D_PLUS_AVG_JITTER	SHM	Average	5Rating: 0~5 4Rating: 5~10 3Rating: 10~20 2Rating: 20~30 1Rating: Other	2,3,4,5:A Other: Unavail
		S2D_NEG_AVG_JITTER	SHM			
		D2S_PLUS_AVG_JITTER	SHM			
		D2S_NEG_AVG_JITTER	SHM			
	one way average relay	s2davgdelay	SHM	Average	5Rating: 0~5 4Rating: 5~15 3Rating:	2,3,4,5:A Other: Unavail
		d2savgdelay	SHM			

					15~25 2Rating: 25~50 1Rating: Other	
	Average RTT	Average RTT	SHM	Average	5Rating: 0~10 4Rating: 10~30 3Rating: 30~50 2Rating: 50~100 1Rating: Other	2,3,4,5:A Other: Unavail
	Packet Loss Rate	Packet Loss Rate	SHM	Average	5Rating: 0~0 4Rating: 0~0.001 3Rating: 0.001~0.01 2Rating: 0.01~0.1 1Rating: Other	2,3,4,5:A Other: Unavail
	Error Rate	Error Rate	SHM	Average	5Rating: 0~0 4Rating: 0~0.001 3Rating: 0.001~0.01 2Rating: 0.01~0.1 1Rating: Other	2,3,4,5:A Other: Unavail
	Unreachable Rate	Unreachable Rate	SHM	Average	5Rating: 0~0 4Rating: 1~20 3Rating: 20~30 2Rating: 30~50 1Rating: Other	2,3,4,5:A Other: Unavail

Application Traffic	Traffic	Traffic	NTA	Sum	5Rating: Other	5Rating
	Speed	Speed	NTA	Average	5Rating: Other	the sam
Interface Traffic	In Traffic	In Traffic	NTA	Sum	5Rating: Other	5Rating
	Out Traffic	Out Traffic	NTA	Sum	5Rating: Other	the sam
	In Speed	In Speed	NTA	Average	5Rating: Other	the sam
	Out Speed	Out Speed	NTA	Average	5Rating: Other	the sam
Host Traffic	In Traffic	In Traffic	NTA	Sum	5Rating: Other	2,3,4,5:A Other: Unavail
	Out Traffic	Out Traffic	NTA	Sum	5Rating: Other	2,3,4,5:A Other: Unavail
	In Speed	In Speed	NTA	Average	5Rating: Other	2,3,4,5:A Other: Unavail
	Out Speed	Out Speed	NTA	Average	5Rating: Other	2,3,4,5:A Other: Unavail
Interface Performance	Interface Performance	inspeed	PERF	Sum	5Rating: Other	2,3,4,5:A Other: Unavail
		outspeed	PERF			
	Max bandwidth Usage	inutilizationratio	PERF	Maximum	5Rating: 60~80 4Rating: 30~60 3Rating: 0~30 2Rating: 80~90 1Rating: Other	2,3,4,5:A Other: Unavail
		oututilizationratio	PERF			
	Valid Through Usage	inspeed	PERF	Formula: SUM(inspeed) *(1-AVG(inpacketlost)	5Rating: Other	2,3,4,5:A Other: Unavail
		outspeed	PERF			
		inpacketlost	PERF			

		outpacketlost	PERF	+ SUM(outspeed) *（1-AVG(outpacketlost)）		
NQA Link Quality	Jitter	S2D_PLUS_AVG_JITTER	SHM	Average	5Rating: 0~5 4Rating: 5~10 3Rating: 10~20 2Rating: 20~30 1Rating: Other	2,3,4,5:A Other: Unavail
		S2D_NEG_AVG_JITTER	SHM			
		D2S_PLUS_AVG_JITTER	SHM			
		D2S_NEG_AVG_JITTER	SHM			
	one way average relay	s2davgdelay	SHM	Average	5Rating: 0~5 4Rating: 5~15 3Rating: 15~25 2Rating: 25~50 1Rating: Other	2,3,4,5:A Other: Unavail
		d2savgdelay	SHM			
	Average RTT	Average RTT	SHM	Average	5Rating: 0~10 4Rating: 10~30 3Rating: 30~50 2Rating: 50~100 1Rating: Other	2,3,4,5:A Other: Unavail
	Packet Loss Rate	Packet Loss Rate	SHM	Average	5Rating: 0~0 4Rating: 0~0.001 3Rating: 0.001~0.01 2Rating: 0.01~0.1 1Rating: Other	2,3,4,5:A Other: Unavail

	Error Rate	Error Rate	SHM	Average	5Rating: 0~0 4Rating: 0~0.001 3Rating: 0.001~0.01 2Rating: 0.01~0.1 1Rating: Other	2,3,4,5:A Other: Unavail
	Unreachable Rate	Unreachable Rate	SHM	Average	5Rating: 0~0 4Rating: 1~20 3Rating: 20~30 2Rating: 30~50 1Rating: Other	2,3,4,5:A Other: Unavail

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KPI Index Details

Class Name	KPI	Key Word	Description	Data Resource	Unit	Default Value
Device	CPU Usage	cpu:2		PERF	%	0
	Memory Usage	memory:4		PERF	%	0
	Device Response Time	response:6		PERF	ms	0
	Device Unreachable	unreachable:8		PERF	%	0
	Critical Alarms	critical		ALARM		0
	Major Alarms	major		ALARM		0
	Minor Alarms	minor		ALARM		0
	Warning Alarms	warn		ALARM		0
Interface	inspeed	inspeed:1		PERF	bps	0

	outspeed	outspeed:5		PERF	bps	0
	inutilizationratio	inutilizationratio:9		PERF	%	0
	oututilizationratio	oututilizationratio:13		PERF	%	0
	inpacketlost	inpacketlost:33		PERF	%	0
	outpacketlost	outpacketlost:41		PERF	%	0
NQA Voice	Voice MOS	mos		SHM		0
	Voice icpif	icpif		SHM		0
	S2D_PLUS_AVG_JITTER	S2D_PLUS_AVG_JITTER		SHM	ms	0
	S2D_NEG_AVG_JITTER	S2D_NEG_AVG_JITTER		SHM	ms	0
	D2S_PLUS_AVG_JITTER	D2S_PLUS_AVG_JITTER		SHM	ms	
	D2S_NEG_AVG_JITTER	D2S_NEG_AVG_JITTER		SHM	ms	
	s2davgdelay	s2davgdelay		SHM	ms	0
	d2savgdelay	d2savgdelay		SHM	ms	0
	Average RTT	rtt		SHM	ms	0
	Packet Loss Rate	lostpacket		SHM	%	0
	Error Rate	errorratio		SHM	%	0
	Unreachable Rate	unreachablerate		SHM	%	0
NQA Link	S2D_PLUS_AVG_JITTER	S2D_PLUS_AVG_JITTER		SHM	ms	0
	S2D_NEG_AVG_JITTER	S2D_NEG_AVG_JITTER		SHM	ms	
	D2S_PLUS_AVG_JITTER	D2S_PLUS_AVG_JITTER		SHM	ms	
	D2S_NEG_AVG_JITTER	D2S_NEG_AVG_JITTER		SHM	ms	0
	s2davgdelay	s2davgdelay		SHM	ms	0
	d2savgdelay	d2savgdelay		SHM	ms	0
	Average RTT	rtt		SHM	ms	0
	Packet Loss Rate	lostpacket		SHM	%	0
	Error Rate	errorratio		SHM	%	0
	Unreachable Rate	unreachablerate		SHM	%	0

NTA Application	Traffic	traffic		NTA	MB	0
	Speed	speed		NTA	MB	0
	In Traffic	trafficIn		NTA	MB	0
	Out Traffic	trafficOut		NTA	MB	0
	In Speed	speedIn		NTA	Mbps	0
	Out Speed	speedOut		NTA	Mbps	0

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Known Problems

- Before upgrading SHM to the version 7.0, create KQI indexes related to APM. After upgrading SHM to the version 7.0, uninstall the APM component and create SLA services. Then, the page for creating SLA services cannot show all KQI indexes. As a result, you cannot add SLA services.
- Create an NQA instance of an UDP type, select Cisco devices as the source devices, and select non-Cisco devices as the destination devices. View the unreachability data of the NQA instance. Then, the displayed unreachability rates of NQA instances are incorrect.
- When you import NQA instances from devices, an error page occurs when the import is complete. However, the instances have been successfully imported.
- The **Help** link is not displayed in the upper right corner of the page for adding or modifying NQA groups.
- When you view the icon view page of an SLA service, the availability icons for services are incorrectly colored.

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