

UNIFY Open Scape Fault Management

MONITORING OpenScape 4000

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Monitoring OpenScape 4000

OSFM Server includes extensive support for OpenScape/Hipath 4000 technology. The prerequisite for monitoring is a functional configuration of the OS4k alarms. OSFM Server receives information from

- **OpenScape/Hipath 4000 Assistant (Single System)**
- OR
- **OpenScape/HiPath 4000 Manager (Managing more Assistants)**

Communication with the OS4K Assistant/Manager

- **OSFM Sever talks to SNMP Agent from OS4K**
- **OSFM Server get information from Informix database/OS4K**
- **OS4K SNMP Agent Traps send traps to OSFM Server**

Before the monitoring can start, the access has to be configured first:

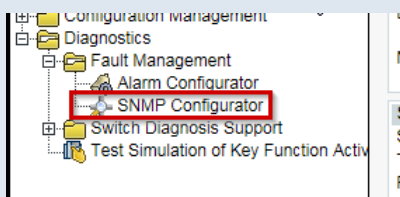
- **OS4K Assistant/Manager: SNMP access for read/write**
- **OS4K Assistant/Manager: SNMP trap target: OSFM server as trap target**
- **OS4K Assistant/Manager: enable „hp_dbr“ user for informix connection**

TASK 1 > OS4K: Setting up access for SNMP and Informix

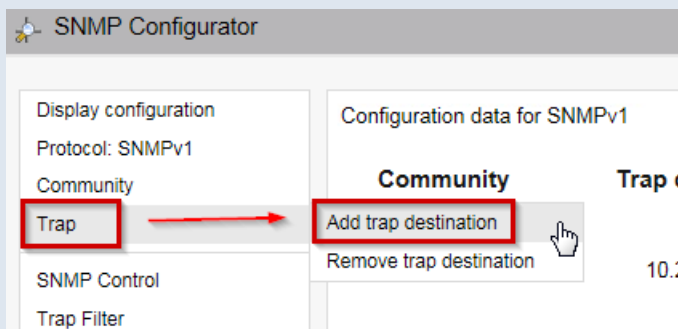
- **Log in to OS4K Assistant/Manager: rsta/hic*300**
- **Check/Activate SNMP Agents: "Base Administration" -> "Application Control"**



- **Add SNMP Communities for read/write:**
- "Diagnostics" -> "Fault Management" -> "SNMP Configurator"**

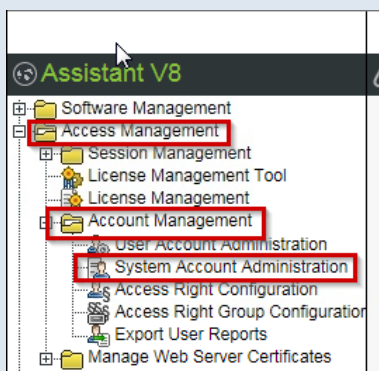


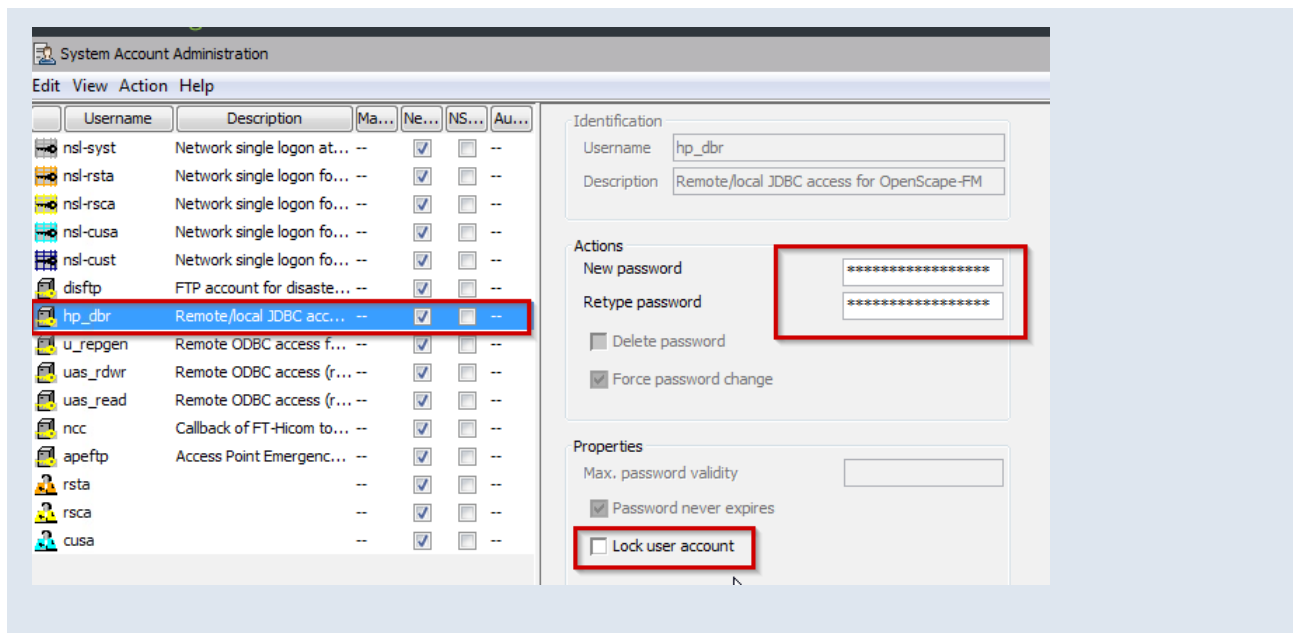
→ **Add SNMP Trap Destination: IP-Address from OSFM-Server**



→ **Activate Informix Database User:**

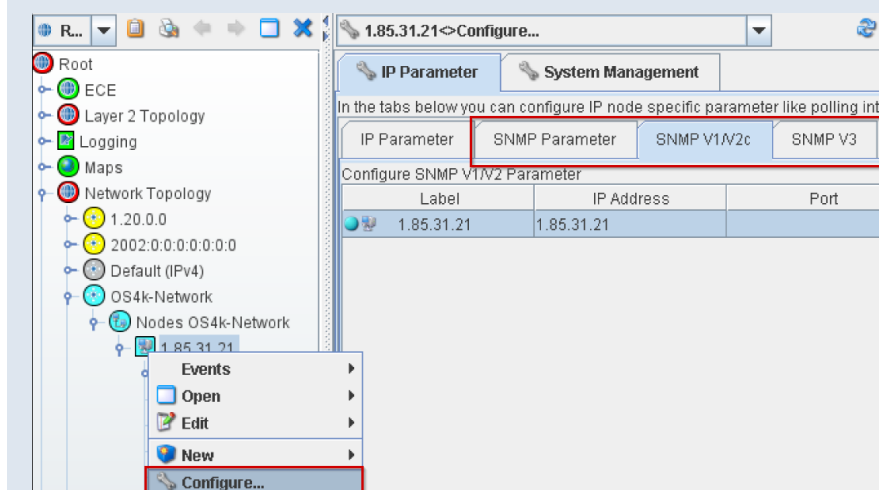
"Access Management" -> "Account Management" -> "System Account Administration"



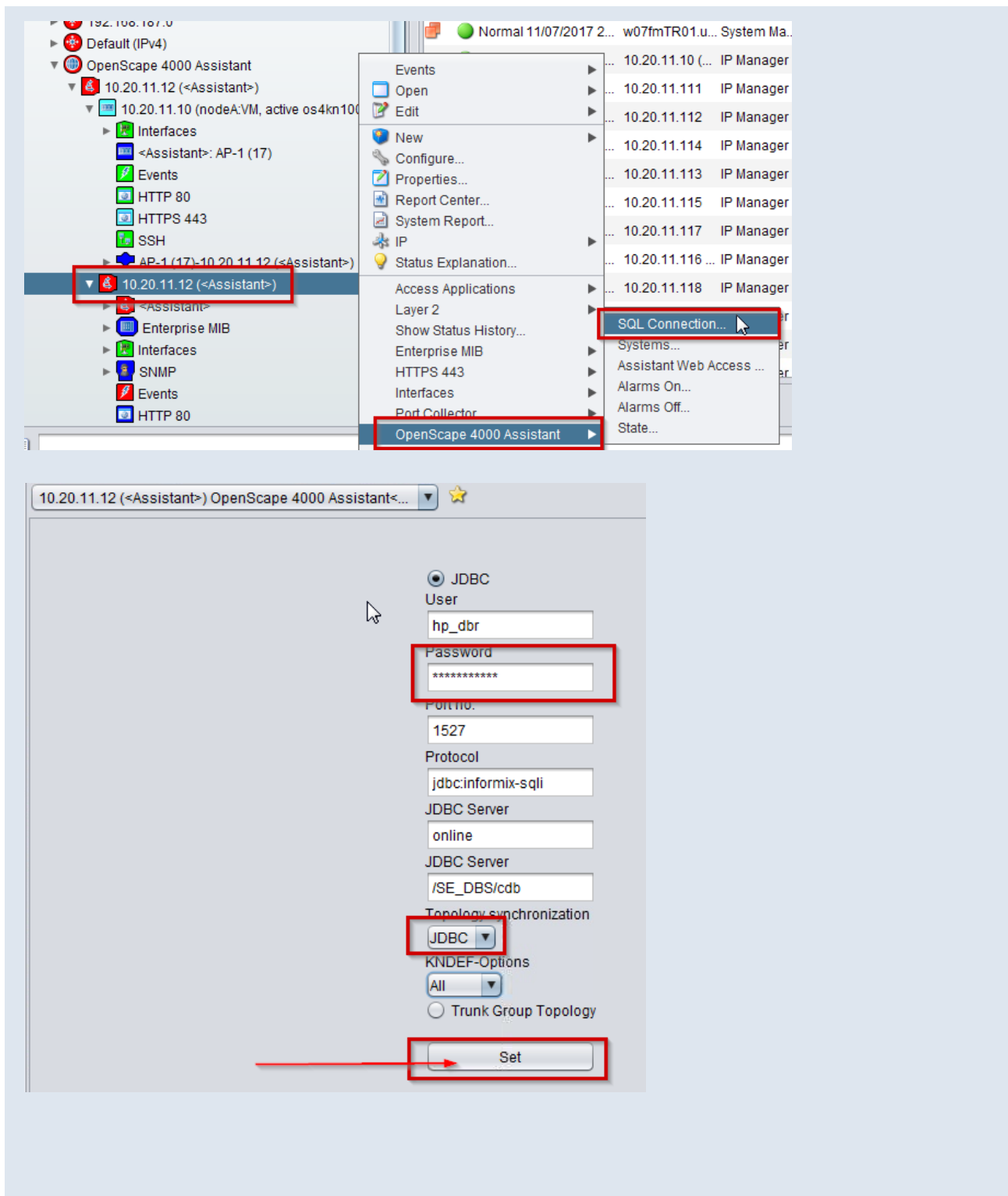


TASK 2 > Add OpenScope/Hipath 4000 Asisstant/Manager to OSFM

- Activate the plugin for "OpenScope 4000"
- Add OS4K Network/Subnet to OSFM Server
- Add OS4K-Assistant as Host to OSFM
- Configure SNMP-Access: Enter community names



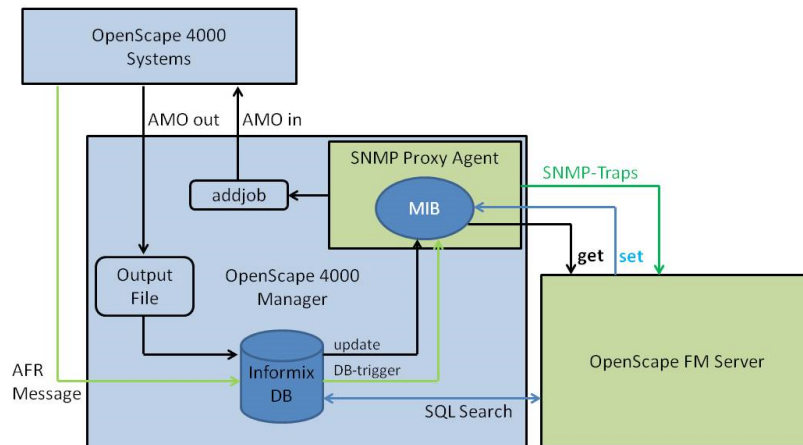
- Configure access to InformixSQL Database



Discovery of OpenScope/Hipath 4000

Workflow

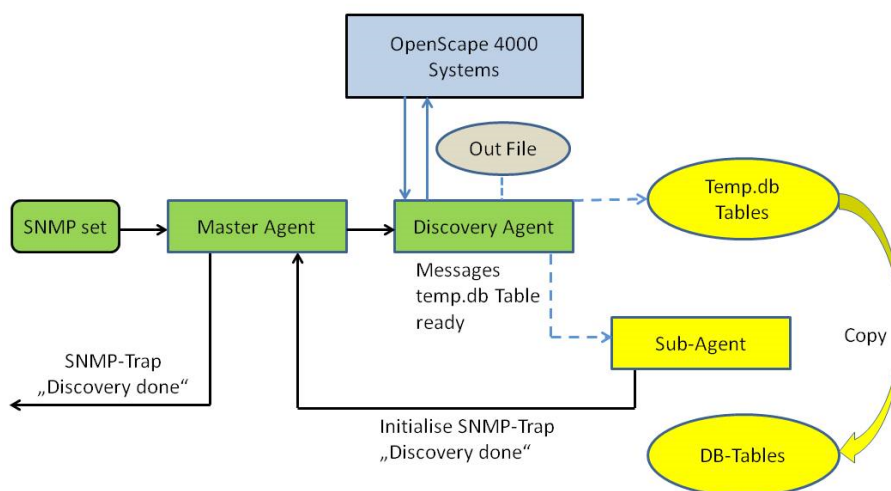
The GET command is used to read the information of the OpenScope 4000 Manager from the MIB of the proxy agent of the OpenScope FM server.



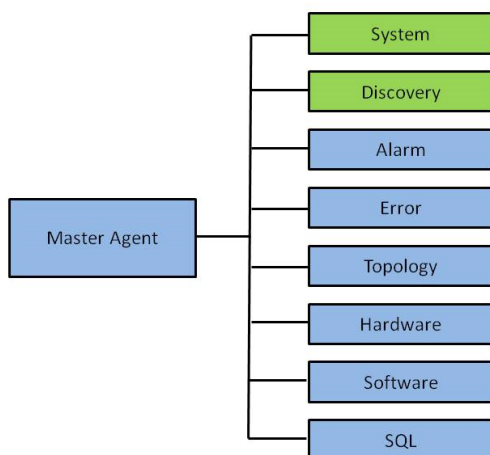
The SET command is used to generate an order via the proxy agent, which is sent to the OS4K Systems. These Systems process the AMO commands defined in the order and send the result back to the OpenScale 4000 Manager. The data is added to the SQL database of the OpenScale 4000 Manager and the OpenScale FM Server is informed. The database of the OpenScale 4000 Manager can be accessed via the SQL search and displayed in the OpenScale FM Server. If an AFR message is sent from the OpenScale 4000 systems to the OpenScale 4000 Manager, it is stored in the OpenScale 4000 Manager database and a trap is sent from the SNMP proxy agent to the OpenScale FM server.

AMO-Discoveries

A discovery order is sent from the OpenScale FM Server via a SET command to the SNMP proxy agent in the OpenScale 4000 Manager, in detail to the master agent.

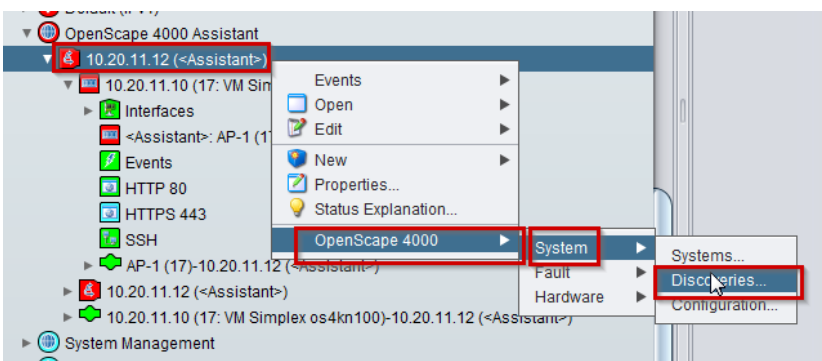


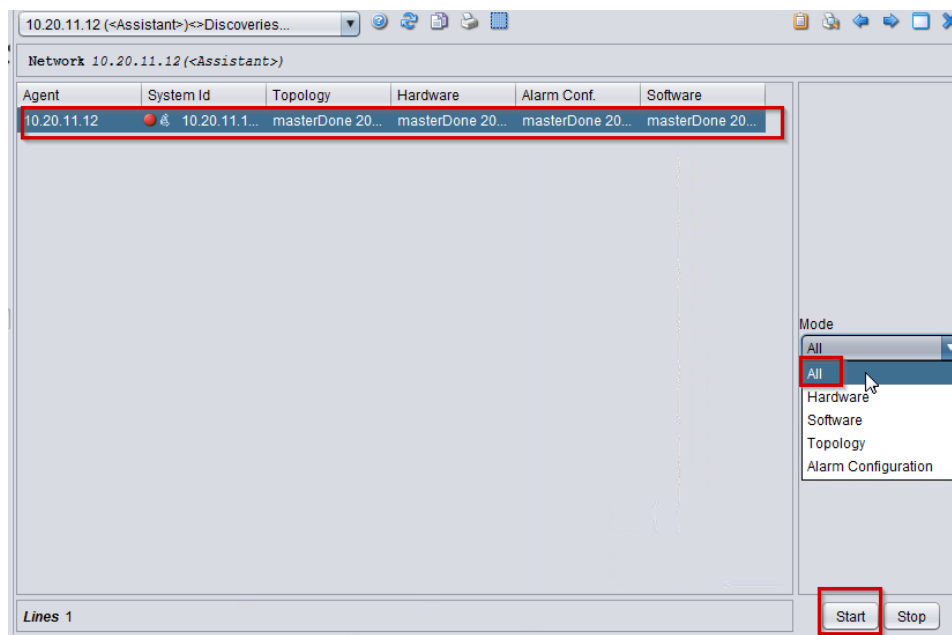
The Master Agent forward the order to the Discovery Agent, which generates a job with the necessary AMO commands and sends it to the OpenScape 4000 system. The Discovery Agent also accepts the result sent back from the OpenScape 4000 system, parses it and writes it to the output file. From there, this data is written to the database table temp.db. Depending on the type of discovery (hardware, software, topology or alarm configuration), the sub-agent is informed and the data is written to the correct database tables. The Sub-Agent informs the Master Agent that the operation has been performed positively or negatively. At the end, OpenScape FM get an SNMP (inform) trap from the Master Agent.



Starting Discovery on the Systems Manually

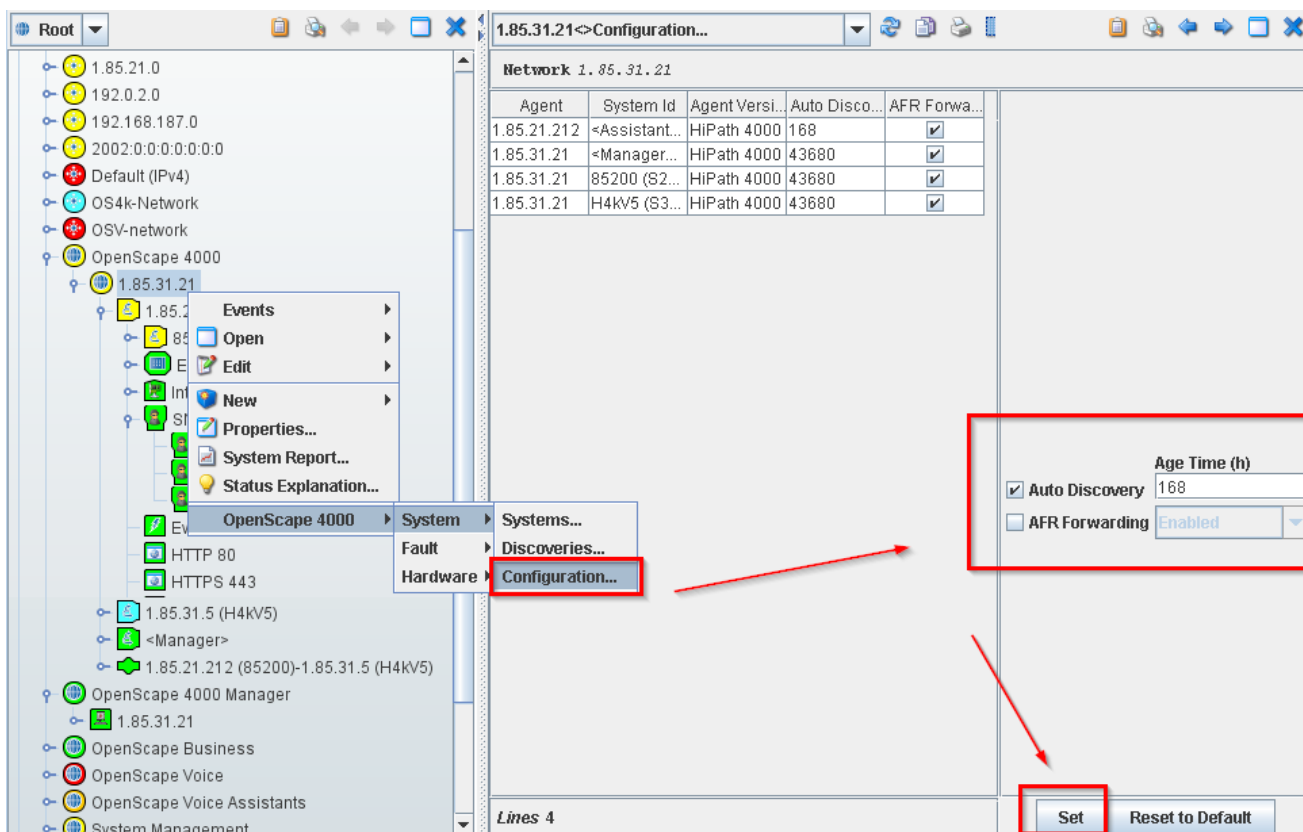
In order to display the hardware, software, topology and alarm configuration of the OpenScape / HiPath 4000 systems in OSFM, a discovery of the systems must be made. This is started via the respective PABX network. Select the corresponding PABX network and click on the „OpenScape 4000 -> System -> Discoveries“... popup context menu entry. A new window appears displaying the OS4K-Systems. A Discovery lasts approx. 20 minutes, depending on the system.





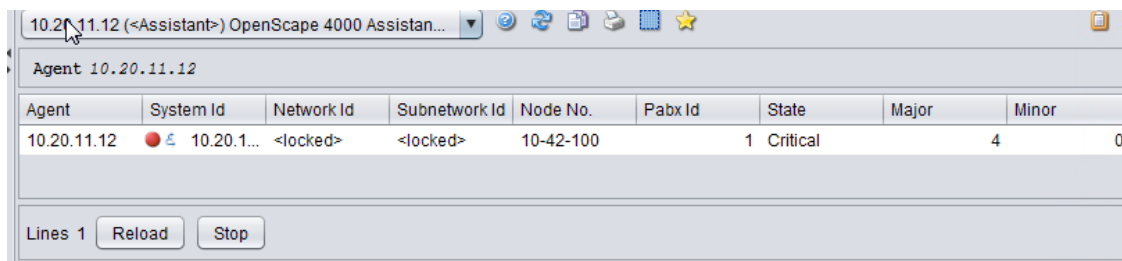
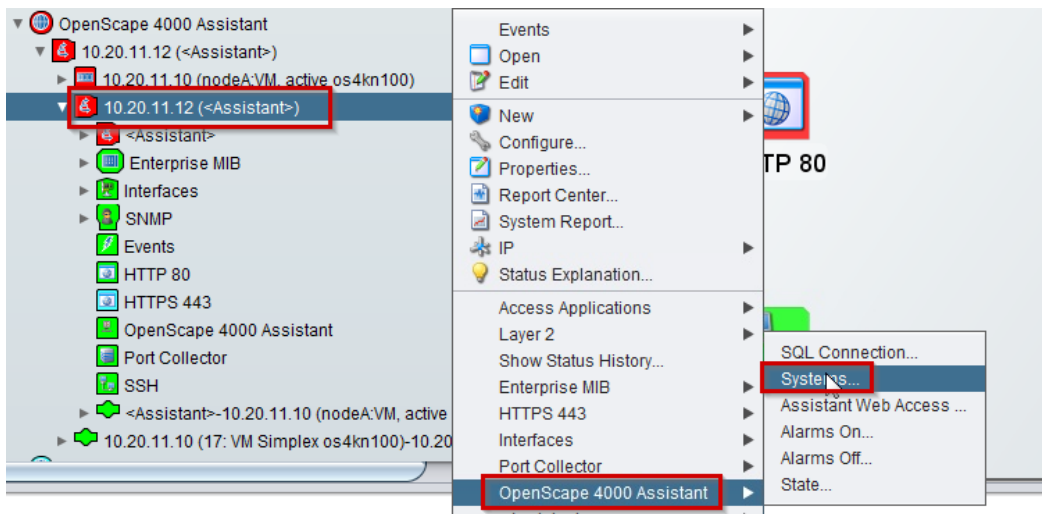
Configuring Automatic Discovery

The automatic discovery can be started via the „OpenScape 4000 -> System -> Configuration...“ context menu. By default, an automatic discovery of the systems is carried out every 168 hours (once a week). Activate the Auto Discovery option and enter the value in hours in the Expiration time field. Afterwards click the Set and Close button.



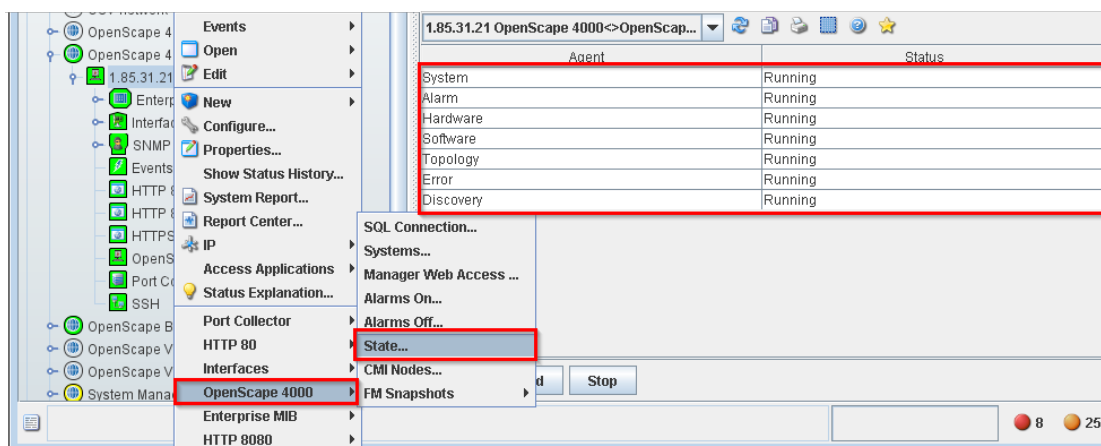
Show system configuration of OS4K

Information about which systems are managed by this OpenScope 4000 Manager can be found via the entry OpenScope 4000 Manager SNMP Proxy Agent -> Systems... can be displayed. A new Info Browser window will open displaying this information. The system is displayed line by line with the name in the column System Id, to which network Id the system belongs, to which subnetwork Id the system belongs, the node number, the PABX Id, the status of the system and whether major, minor or device alarms are present.



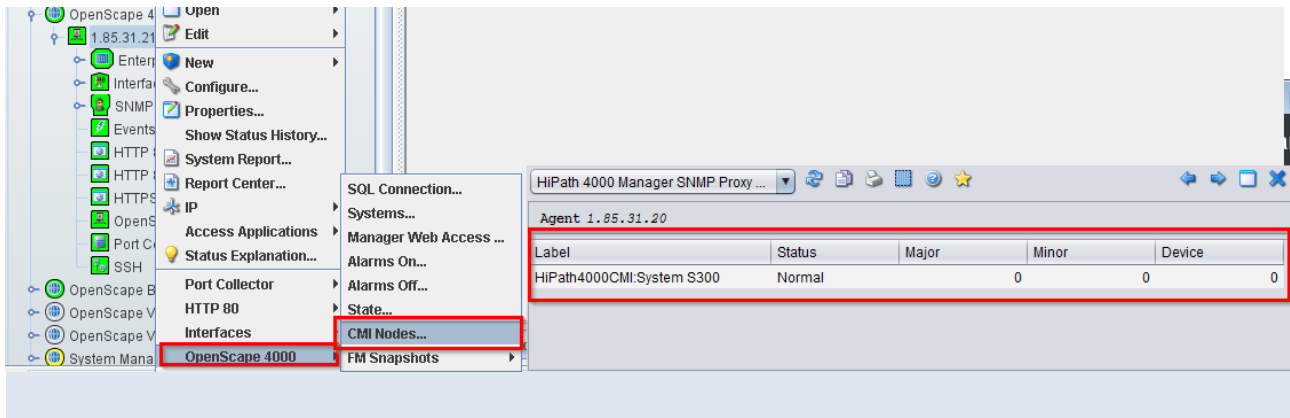
Information about the status of SNMP agents

Information about the status of the agents that must run next to the SNMP proxy can be viewed via the OpenScope 4000 Host Object-> Status... popup menu. be controlled. The agents cannot be switched on via the Info Browser table.



Querying OpenScape 4000 Information

TASK 3 > Information about CMI Objects

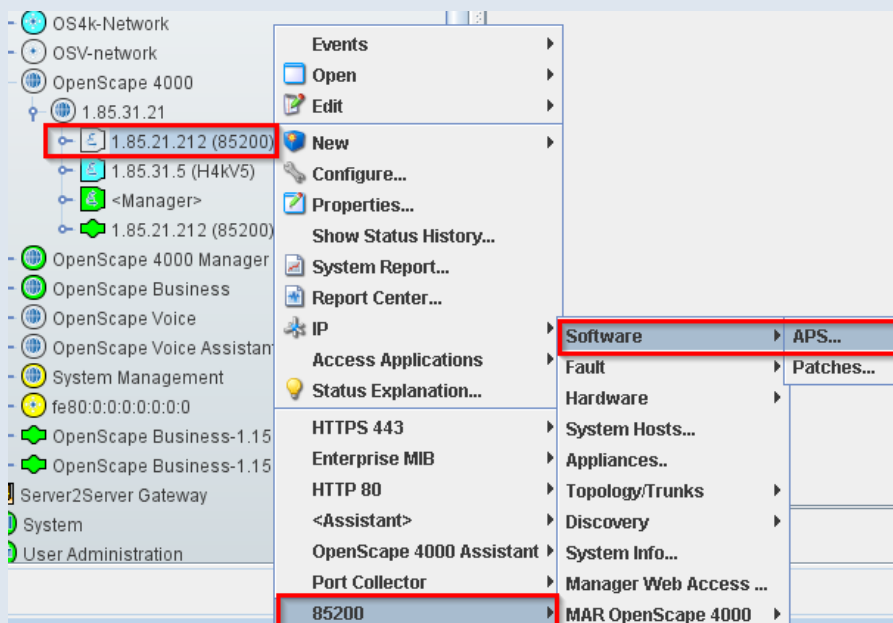


The screenshot shows the OpenScape 4000 Manager interface. On the left, a tree view displays various system components. The 'OpenScape 4000' menu is highlighted, and its sub-menu is open, showing options like 'SQL Connection...', 'Systems...', 'Manager Web Access ...', 'Alarms On...', 'Alarms Off...', 'State...', 'CMI Nodes...', and 'FM Snapshots'. The 'CMI Nodes...' option is selected. On the right, the 'HiPath 4000 Manager SNMP Proxy' window is open, displaying a table of CMI objects.

Label	Status	Major	Minor	Device
HiPath4000CMI: System S300	Normal	0	0	0

TASK 4 > Display software versions of the system

- Information, which APS have been installed on the system, can be viewed via the popup menu Software -> APS... per plant can be displayed. The individual APS are listed in the APS Id column with a detailed description in the Info column.
- Information about which patches are installed on the individual systems can be found via the popup menu Software -> Patches... can be displayed. The patch number, the hardware module and the information whether the patch is to be switched on or not are displayed. The information N in the column Switch on means that the patch is already switched on and does not have to be switched on anymore.



The screenshot shows the OpenScape 4000 Manager interface. On the left, a tree view displays various system components. The '1.85.21.212 (85200)' node is selected. A context menu is open, showing options like 'Events', 'Open', 'Edit', 'New', 'Configure...', 'Properties...', 'Show Status History...', 'System Report...', 'Report Center...', 'IP', 'Access Applications', 'Status Explanation...', 'HTTPS 443', 'Enterprise MIB', 'HTTP 80', '<Assistant>', 'OpenScape 4000 Assistant', 'Port Collector', and '85200'. The 'Software' option is selected, and its sub-menu is open, showing options like 'APS...', 'Fault', 'Patches...', 'Hardware', 'System Hosts...', 'Appliances..', 'Topology/Trunks', 'Discovery', 'System Info...', 'Manager Web Access ...', and 'MAR OpenScape 4000'.

1.85.21.212 (85200)<>85200<>Software<...

Agent 1.85.31.21 System Id 85200 Customer UNIFY ACADEMY 1-85-200

APS Id	Info
A0-E40AC	P30252B4900A00101 undef 49 neutral AMO-IHS
B0-E40BC	P30252B4900B00101 undef 49 neutral AMO-SWU
D0-E40DC	P30252B4900D00101 undef 49 neutral IHS (ADS)
L0-E40LC	P30252B4900W00101 undef 49 neutral Loadware
L0-TNKLK	P30252B4900W40101 undef 49 neutral Loadware
S0-E40SC	P30252B4900S00101 undef 49 neutral SWU
S0-T4XSX	P30252B4950S00101 undef 49 International SWU
Y0-E40YC	P30252N4901BH0739 undef 49 German AMO-SWU
Y7-P4TYT	P30252N4901U00107 undef 49 German UNIX

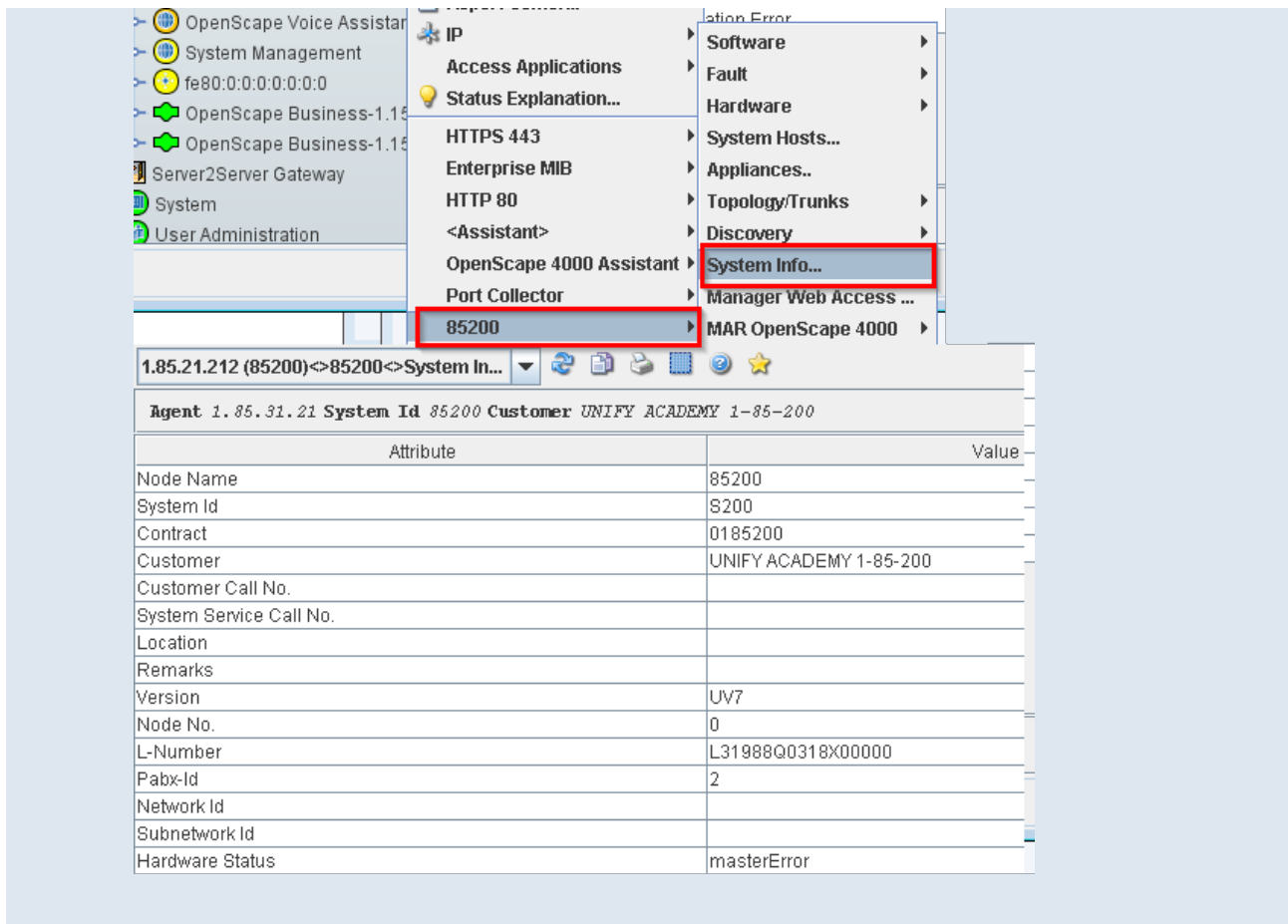
1.85.21.212 (85200)<>85200<>Software<...

Agent 1.85.31.21 System Id 85200 Customer UNIFY ACADEMY 1-85-200

Number	HW Module	Activation
PSA0233	BPA	N
PSA0234	BPA	N
PSA0236	BPA	N
PSA0237	BPA	N
PSA0238	BPA	N
PSA0240	BPA	N
PSA0249	BPA	N
PSA0250	BPA	N
PSA0251	BPA	N
PSA0252	BPA	N
PSA0253	BPA	N

TASK 5 > Detailed information about the system

- Information about the selected system can be called up via the context menu "System Info"... can be displayed. This browser window displays the values for the attributes, such as network node name, system id, contract, customer, L-number, and so on. is displayed. These values were entered in the OpenScape 4000 Manager system administration and read out by OpenScape FM via SNMP. The status of the individual discoveries of the attachment is also displayed here.

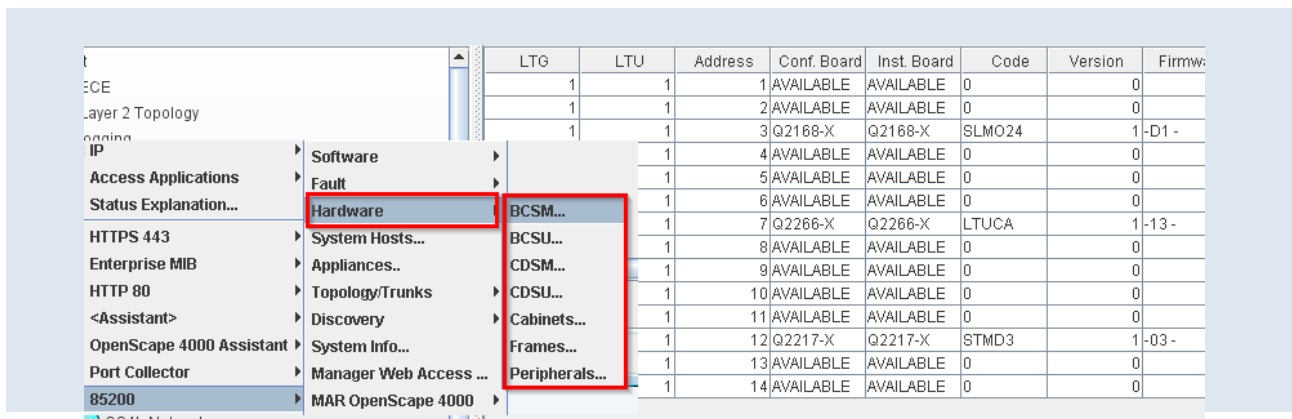


1.85.21.212 (85200) <> 85200 <> System In...

Agent 1.85.31.21 System Id 85200 Customer UNIFY ACADEMY 1-85-200

Attribute	Value
Node Name	85200
System Id	8200
Contract	0185200
Customer	UNIFY ACADEMY 1-85-200
Customer Call No.	
System Service Call No.	
Location	
Remarks	
Version	UV7
Node No.	0
L-Number	L31988Q0318X00000
Pabx-Id	2
Network Id	
Subnetwork Id	
Hardware Status	masterError

TASK 6 > Information about hardware components



LTG	LTU	Address	Conf. Board	Inst. Board	Code	Version	Firmw.
1	1	1	AVAILABLE	AVAILABLE	0	0	
1	1	2	AVAILABLE	AVAILABLE	0	0	
1	1	3	Q2168-X	Q2168-X	SLMO24	1-D1 -	
1	1	4	AVAILABLE	AVAILABLE	0	0	
1	1	5	AVAILABLE	AVAILABLE	0	0	
1	1	6	AVAILABLE	AVAILABLE	0	0	
1	1	7	Q2266-X	Q2266-X	LTUCA	1-13 -	
1	1	8	AVAILABLE	AVAILABLE	0	0	
1	1	9	AVAILABLE	AVAILABLE	0	0	
1	1	10	AVAILABLE	AVAILABLE	0	0	
1	1	11	AVAILABLE	AVAILABLE	0	0	
1	1	12	Q2217-X	Q2217-X	STMD3	1-03 -	
1	1	13	AVAILABLE	AVAILABLE	0	0	
1	1	14	AVAILABLE	AVAILABLE	0	0	

Alarms and error messages of the OpenScope 4000 systems

TASK 7 > Display alarm configuration

→ Alarm configuration and alarm filter:

The screenshot shows the OpenScope 4000 Manager interface. The left sidebar displays a tree view of the network topology. The main window shows a table of alarms for agent 1.85.21.212 (85200). The 'Alarms' menu is open, and the 'Alarm Configuration...' option is highlighted. The table below shows the current state of the alarms.

Group	Class	Name	Base	Minor Thre...	Major Thre...	Minor Time	Major Time	Device Time
Central SWU	15	EXTERNAL...	-	1%	2%	600	600	-
WU	16	LTG CENT...	-	5%	8%	900	900	-
WU	17	CC CENT...	-	2%	-	900	900	-
WU	18	SWITCHIN...	-	1%	2%	900	900	-
WU	19	CLOCKIN...	-	2%	4%	900	900	-
WU	20	SIGNAL U...	-	1%	2%	900	900	-
WU	23	SW ERRO...	-	-	-	0	0	-
WU	24	SYSTEM M...	-	-	-	0	0	-
WU	25	POWER S...	-	1%	2%	120	120	-
WU	26	SM FAILURE	-	-	1%	0	1800	-
WU	29	MAINTENA...	-	1%	2%	1	1	-
WU	32	ACCESS P...	-	1%	2%	120	120	-

TASK 8 > OS4K Show alarms in ON and OFF state

→ Alarms that have already occurred once but have been removed are not deleted from the SQL database of OpenScope 4000 Manager, but are only set to the status off. This means that these alarms can also be queried.

The screenshot shows the OpenScope 4000 Manager interface. The left sidebar displays a tree view of the network topology. The main window shows a table of alarms for agent 10.20.11.12. The 'Alarms On...' menu is open, and the 'Alarms On...' option is highlighted. The table below shows the current state of the alarms.

System Id	Group	Class	Name	State	Priority
SYS1	Central	2	LTU FAILURE	On	major
SYS1	Central	32	ACCESS POINT ...	On	major
SYS1	Central	33	BAD IP CONNE...	On	major
SYS1	SWU Peripheral	8	BASE STATION	On	major

10.20.11.12 (<Assistant>) OpenScope 4000 Assistan...					
Agent 10.20.11.12					
System Id	Group	Class	Name	State	Priority
SYS1	Central	2	LTU FAILURE	On	major
SYS1	Central	32	ACCESS POINT ...	On	major
SYS1	Central	33	BAD IP CONNE...	On	major
SYS1	SWU Peripheral	8	BASE STATION	On	major

The alarms are displayed line by line and additional information that led to this alarm can be queried. Actions can also be called to reset or clear the alarm.

1.85.21.212 (85200)<>85200<>Fault<>Alarms Off...												
Agent 1.85.31.21 System Id 85200 Customer UNIFY ACADEMY 1-85-200												
up	Class	Name	State	Priority	Module	Time	Arrival Time	Old Time	LTUs	Event State	User	Change Ti...
	10	IS RESTAR...	Off	minor	A1	06/28/2010...	06/28/2016...	06/27/2010...	0			
	29	MAINTENA...	Off	minor	A1	01/05/2016...	01/05/2016...	01/04/2016...	0			
	29	MAINTENA...	Off	major	A1	12/16/2015...	12/17/2015...	12/16/2015...	0			
ogic...	2	OUTWARD...	Off	major	BPA	12/16/2015...	12/17/2015...	12/16/2015...	0			
ogic...	10	R010:K100...	Off	major	BPA	12/16/2015...	12/17/2015...	12/16/2015...	0			
ogic...	30	R030:K300...	Off	major	BPA	12/16/2015...	12/17/2015...	12/16/2015...	0			
<div> <div>Interval Errors...</div> <div>Alarm Configuration...</div> <div>SHB</div> <div>Reset</div> <div>Hardware Units</div> <div>Delete</div> <div>Corr. Targets</div> <div>Acknowledge</div> <div>Original</div> </div>												

▶ Error

The error messages that led to this alarm are displayed.

▶ Interval Errors ...

The error browser is opened, which lists the errors of the alarm that occurred in a certain period of time. The period is defined by the Time Before (Min) and Time After (Min) fields. These refer to the time stamp of the selected alarm.

▶ Alarm Configuration

The Info Browser of the alarm configuration is opened, but only the configuration for this selected alarm is displayed.

▶ Service Manual (SHB)

The service manual (ALFE) is opened if it has been installed before.

▶ Reset

Certain alarms can be reset on the system via the AMO GRA. A separate browser window show whether the alarm could be reset or not.

▶ Hardware Units

This list shiw the units for which at least one of the selected alarms is defined.

▶ Delete

The alarm will be deleted from the SQL database of the OpenScape 4000 Manager.

▶ Corr. Targets

Target alarms that may be related to another alarm are displayed when the affected alarm is selected and the Correlated Targets button is clicked. A list of all possible correlated target alarms will be displayed.

▶ Acknowledge

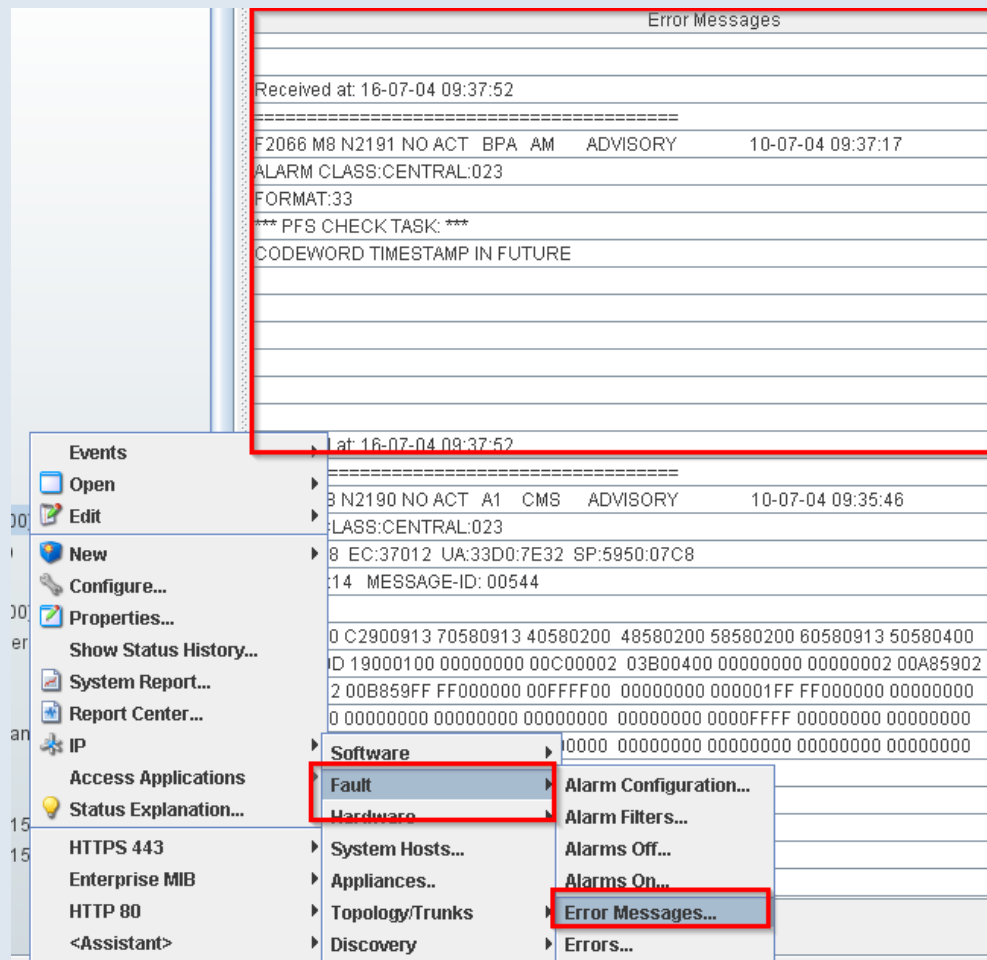
Only becomes active if unacknowledged new alarms are also present. This is the case when a new trap arrives.

▶ Original

The original alarm message of the selected alarms is displayed.

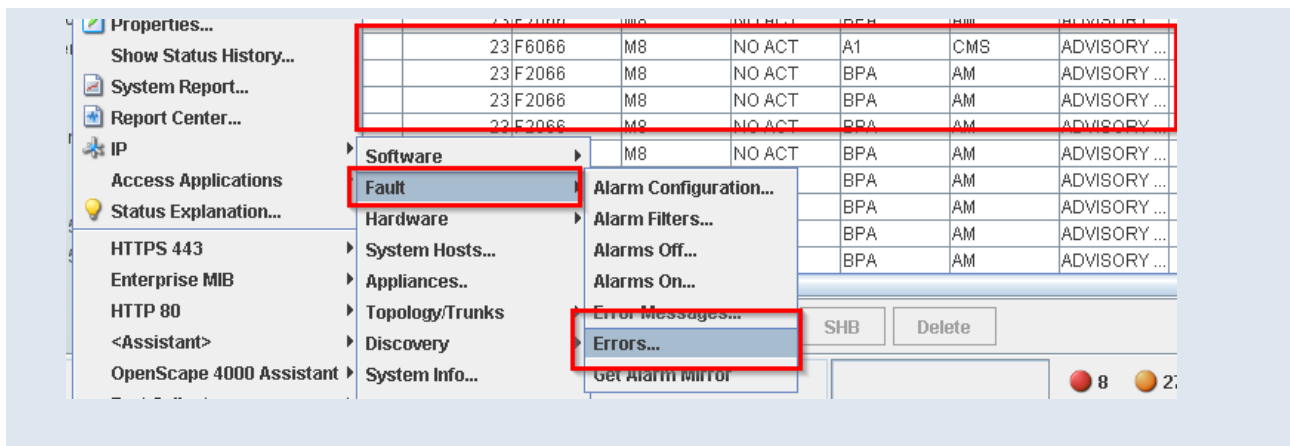
TASK 9 > Show error messages in original

- The original error messages can be displayed in an Info Browser via the entry Error -> Error messages... can be displayed. These values can be interpreted via the error description in the service manual.



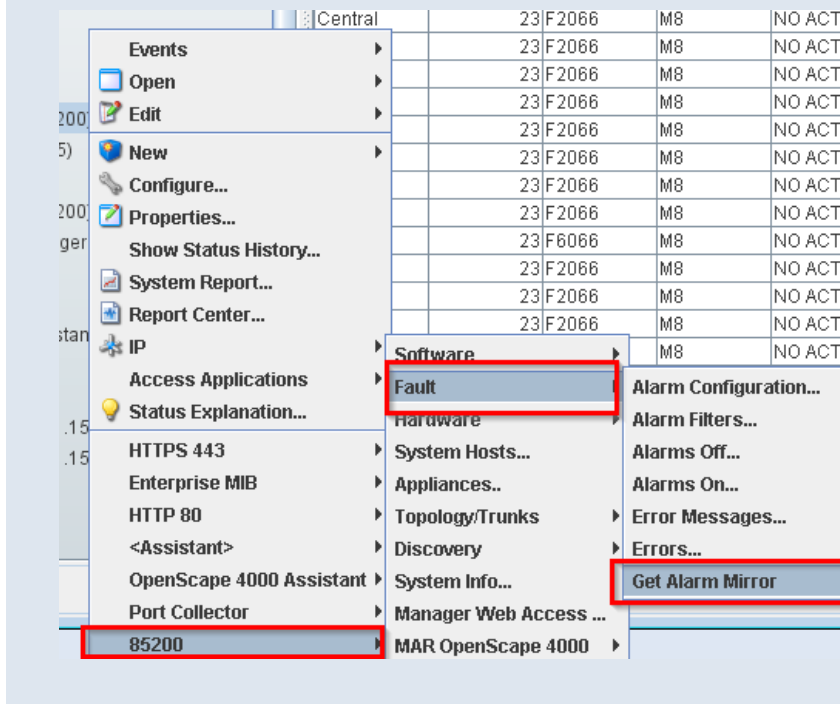
TASK 10 > Show list of all error messages

- The selected errors can be removed manually from the SQL database using the Delete button. It is also possible here to open the original error message via the Error Messages... button. The service manual is also available, which then displays detailed information on the selected fault.



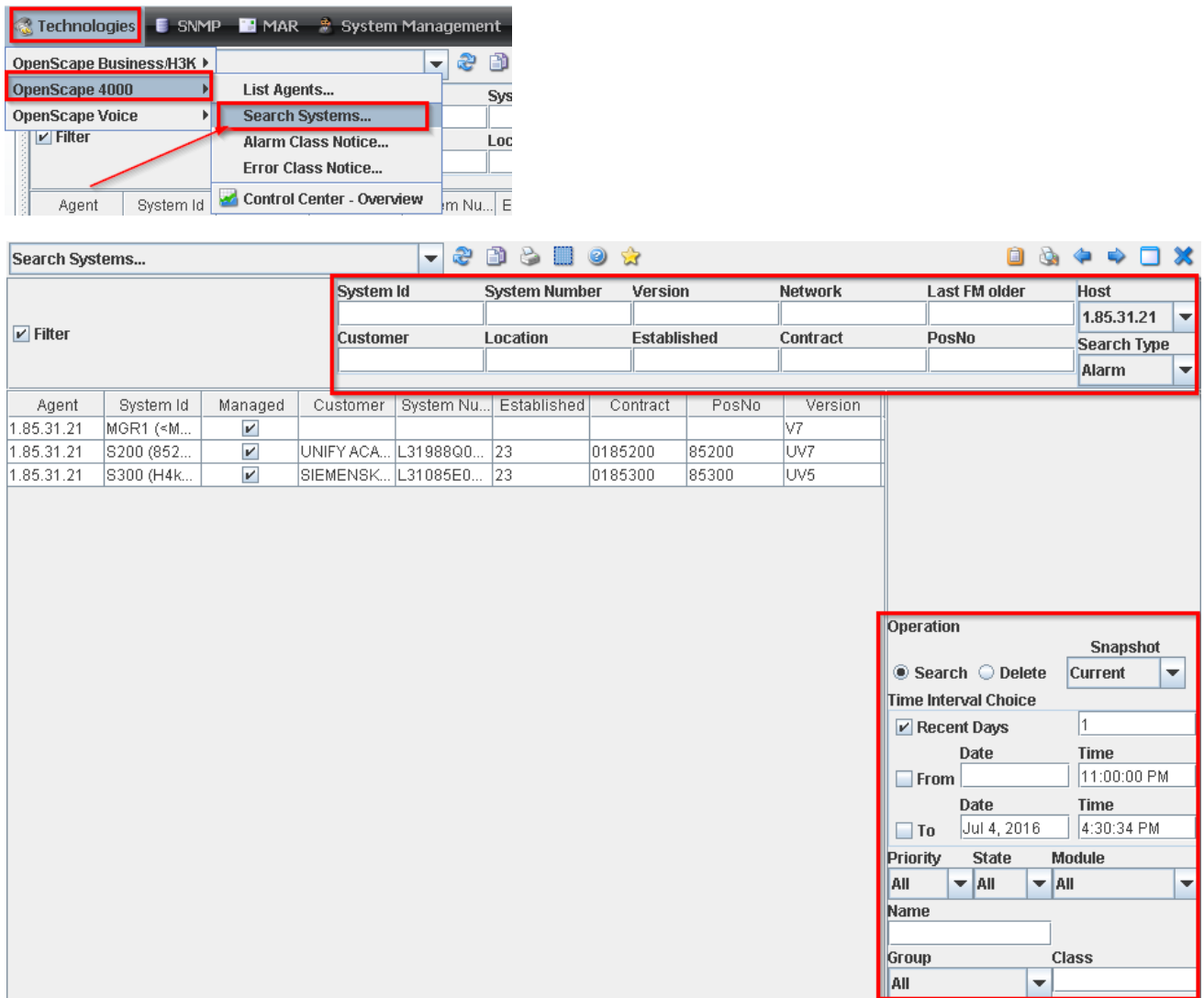
TASK 11 > Reloading Alarms into the Informix SQL Database

→ Via the context menu Error -> Alarm mirror, the alarms present on the systems can be synchronized with the OpenScape FM. This may be the case if all existing alarms have been deleted from the SQL database. The alarm mirror can now be used to restore the exact status of the alarms on the systems.



Search for alarms

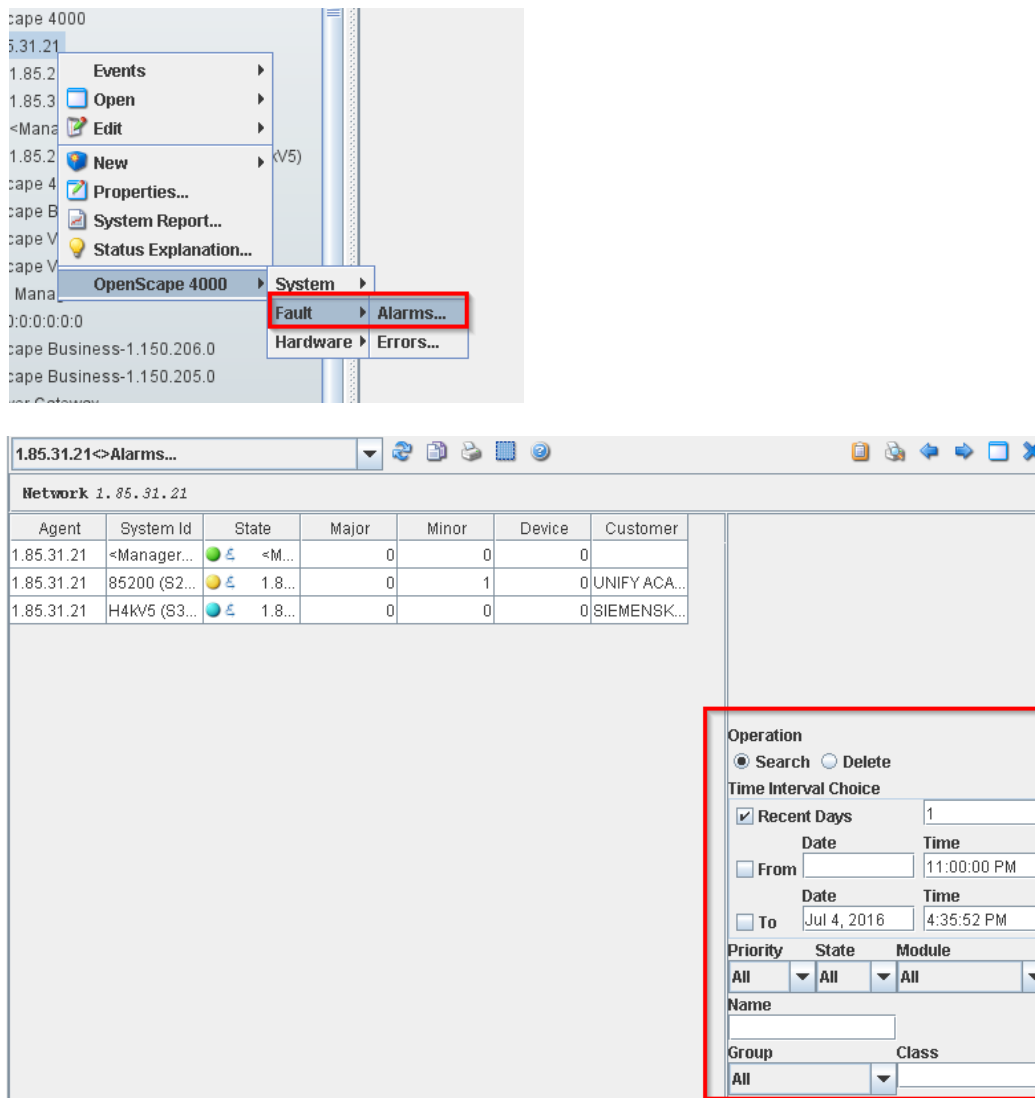
The search for existing alarms (on/off) and for errors can be started via the entry "Technologies" -> "OpenScape 4000" in the main menu, or also via the context menu of the PABX network → Menu entry "Search systems...".



Select the corresponding OpenScape 4000 Manager from the Host field and the Alarms entry from the Search field. Other choices from this field are Error, BCSM, BCSU, CDSM, CDSU, and Systems. Then click the Search Systems button. All systems of this manager are now displayed in the list. Select a system or all of them. So the button search alarms... activated. A search can be defined for certain times. The search can also be restricted by priorities (Major, Minor, Device, All), by status (On, Off, All) and by modules (BPA, BPB, A1, All). The Group field, which offers the options All, Central, SWU Peripherals, SWU Logical, SM Peripherals and Element Manager for selection, can also be used to restrict the search result.

Another option to start search is via the popup menu of the PABX network. Click on the entry OpenScape 4000 -> Error -> Alarms/Error.... there. Here you can also see the systems that belong to this PABX network. Select one or more installations and then click on the Search alarms... button to search. The

search result can be returned via the Priority, Status, Module, Group, etc. fields can be restricted. In both cases the alarms will be displayed in a new Info Browser window.

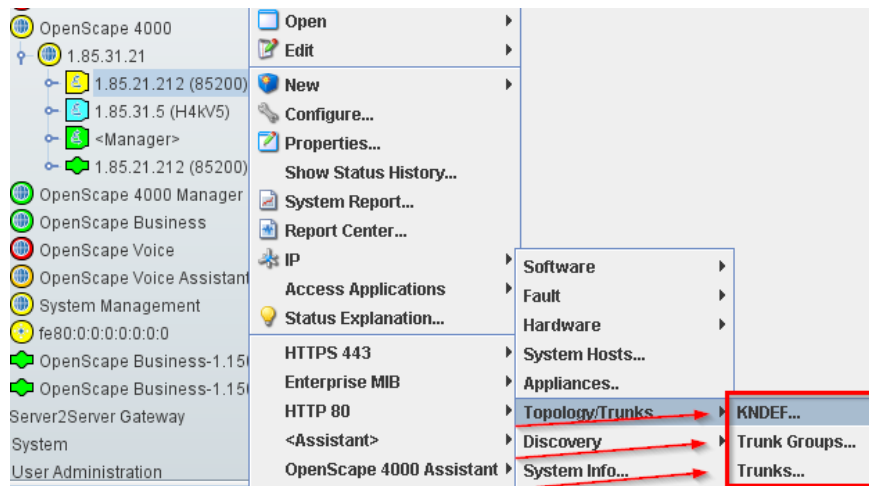


TASK 12 > Installing the Service Manual (ALFE)

- **OSFM Server: Create a new folder:**
 <OpenScope FM\client\help\alfe>
- **Copy the file P31003H3100S100010029.zip (from the CD:\h4k\Alfe) into the new directory.**
- **Stop and restart the server.**

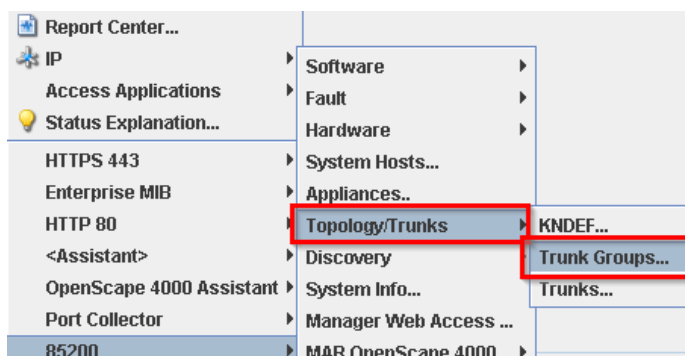
Trunk groups and trunks

The KNDEF entries can be displayed with the popup menu Topology/Sets -> KNDEF.... These entries are also used for display of the PABX network topology. All KNDEF entries for the selected system are listed here in this table.



1.85.21.212 (85200) <-> 85200 <-> Topology/...	
Agent 1.85.31.21 System Id 85200 Customer UNIFY ACADEMY 1-85-200	
Index	Node No.
0	10-85-200

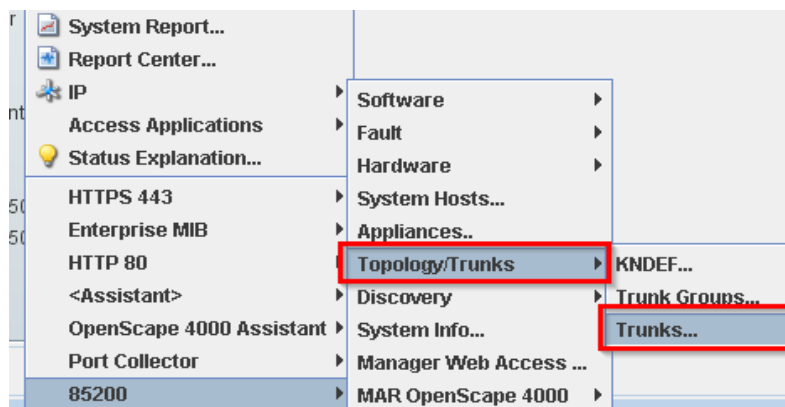
The bundles set up on the system can be displayed with the popup menu Topology/Sets -> Trunk groups.... Information on the setup bundles are displayed in table view. The bundle number (ID), bundle name, device type (Device) and maximum number of sets are displayed by the AMO BUEND. The node number (destination) and alarm number are read from the AMO TDCSU/TACSU. The sets assigned to this bundle can be displayed with the Sets... button.



1.85.21.212 (85200)<>85200<>Topology/...							
Agent 1.85.31.21 System Id 85200 Customer UNIFY ACADEMY 1-85-200 Discovery 2015-12-15							
Id	Name	Device	Type	Max Trunks	AMO Node ...	Configured...	Alarms
10	S0 KNOTE...	S0CONN	digital	4	10-85-100	0	10
30	S0 KNOTE...	S0CONN	digital	10	10-85-300	0	30
90	AMT LEIPZIG	S0COD	digital	2	1-1-290	0	90

All Trunks are displayed in a table with the popup menu Topology/Sets -> Trunks....

The locations of the setup sets are additionally displayed. The status shows whether or not the trunk is in operation. The assigned alarm number is displayed in the Alarm column.



1.85.21.212 (85200)<>85200<>Topology/...								
Agent 1.85.31.21 System Id 85200 Customer UNIFY ACADEMY 1-85-200 Discovery 2015-12-15 14:51:21.0								
Id	Type	Number	Name	Device	State	Alarm	Ch. Group	Channels
10	digital	1-01-012-0...	S0 KNOTE...	S0CONN	yes	10	0	
10	digital	1-01-012-0...	S0 KNOTE...	S0CONN	yes	10	0	
30	digital	1-01-012-0...	S0 KNOTE...	S0CONN	yes	30	0	
30	digital	1-01-012-0...	S0 KNOTE...	S0CONN	yes	30	0	
90	digital	1-01-012-0...	ISDNAMTL...	S0COD	yes	90	0	