

1. Discover sl1 appliances as devices via SNMP v2 (EM7Default v2) and SNMP v3 (EM7Default v3 MD5).

SL1 Appliances deployed to be discovered:

All-in-one non-MUD

DB non-MUD

CU non-MUD

VM Specifications:

- All-in-one non-MUD 192.168.10.130 [10.1.0-2166]

RAM: 4 GB

Storage: 80 GB

CPU Cores: 2

Network: Bridged adapter

- DB non-MUD 192.168.10.131 [10.1.0-2166]

RAM: 4 GB

Storage: 80 GB

CPU Cores: 2

Network: Bridged adapter

- CU non-MUD 192.168.10.132 [10.1.0-2166]

RAM: 4 GB

Storage: 60 GB

CPU Cores: 2

Network: Bridged adapter

SNMP V2 discovery since All-in-one appliance:

DB non-MUD

Discovery session:

Not secure | 192.168.10.130/em7/index.em7?exec=admin_auto_discovery_ipv6_editor&view=edit&discovery_id=2

Discovery Session Editor | Editing Session [2]

New Reset

Identification Information

Name: DBnonMUD131 Description: snmpV2

IP and Credentials

IP Address/Hostname Discovery List

192.168.10.131

Upload File

Browse for file... Browse...

SNMP Credentials

SNMP

- Cisco SNMPv2 - Example
- Cisco SNMPv3 - Example
- Cisco: CSP SNMP Port 161 Example
- Cisco: CSP SNMP Port 1610 Examp
- DBnonMUD131
- Dell EMC: Isilon SNMPv2 Example
- [EM7 Default V2]
- EM7 Default V3
- IPSLA Example

Other Credentials

Basic/Snippet

- Cisco CUCM Example
- Cisco Meeting Server Example
- Cisco VOS CUC Cluster Status
- Cisco VOS IM&P Cluster Status
- Cisco: ACI Sample Credential
- Cisco: CSP Example
- Citrix XenServer Guardians
- EMC SMI-S Example

Detection and Scanning

Initial Scan Level

[System Default (recommended)]

Scan Throttle

[System Default (recommended)]

Port Scan All IPs

[System Default (recommended)]

Port Scan Timeout

[System Default (recommended)]

Detection Method & Port

Default Method

[UDP: 161 SNMP]

- TCP: 1 - tcpmux
- TCP: 2 - compressnet
- TCP: 3 - compressnet
- TCP: 5 - rje
- TCP: 7 - echo
- TCP: 9 - discard
- TCP: 11 - systat
- TCP: 13 - daytime
- TCP: 15 - netstat
- TCP: 17 - gotd

Interface Inventory Timeout (ms)

600000

Maximum Allowed Interfaces

10000

Bypass Interface Inventory

☐

Basic Settings

Discover Non-SNMP ☐ Model Devices ☒ DHCP ☐

Device Model Cache TTL (h)

2

Collection Server PID: 1

[AIOnonMUD130]

Organization

[System]

Add Devices to Device Group(s)

None

LayerX Appliances

Servers

Apply Device Template

[Choose a Template]

Save Save As Log All ☒

Logs of auto-discovery session:

ScienceLogic, Inc. - Google Chrome

Not secure | 192.168.10.130/em7/index.em7?exec=admin_auto_discovery_logs&Qid=2


Discovery Session | Discovery Session Complete

Refresh


	Date Time	Discovery Log Message	Class Type
1.	2023-07-04 12:41:10	Beginning auto-discovery session	--
2.	2023-07-04 12:41:19	192.168.10.131 (*IP) Discovered and modeled new device	ScienceLogic Inc. EM7 Database
3.	2023-07-04 12:41:20	Auto-discovery session completed	--

Device details:

Close	Properties	Thresholds	Collections	Monitors	Schedule		
Logs	Toolbox	Interfaces	Relationships	Tickets	Redirects	Notes	Attributes
Device Name	DBnonMUD131			Managed Type	Physical Device		
IP Address / ID	192.168.10.131 2			Category	System.EM7		
Class	ScienceLogic, Inc.			Sub-Class	EM7 Database		
Organization	System			Uptime	0 days, 13:50:59		
Collection Mode	Active			Collection Time	2023-07-06 00:30:00		
Description	ScienceLogic EM7 G3 - Central Database			Group / Collector	CUG AIOnonMUD130		
Device Hostname							



Database



DBnonMUD131

SNMP V3 discovery since All-in-one appliance:

CU non-MUD

Discovery session:

⚠ Not secure | 192.168.10.130/em7/index.em7?exec=admin_auto_discovery_ipv6_editor&view=edit&discovery_id=4

Discovery Session Editor | Editing Session [4]

NewReset

Identification Information

Name CUnonMUD132Description snmpv3

IP and Credentials

IP Address/Hostname Discovery List

192.168.10.132

Upload File

Browse for file...Browse...

SNMP Credentials

SNMP

Cisco SNMPv2 - Example

Cisco SNMPv3 - Example

Cisco: CSP SNMP Port 161 Example

Cisco: CSP SNMP Port 1610 Examp

DBnonMUD131

Dell EMC: Isilon SNMPv2 Example

EM7 Default V2

[EM7 Default V3]

Other Credentials

Basic/Snippet

Cisco CUCM Example

Cisco Meeting Server Example

Cisco VOS CUC Cluster Status

Cisco VOS IM&P Cluster Status

Cisco: ACI Sample Credential

Cisco: CSP Example

Citrix XenServer Guardians

EMC SMI-S Example

Detection and Scanning

Initial Scan Level

[System Default (recommended)]

Scan Throttle

[System Default (recommended)]

Port Scan All IPs

[System Default (recommended)]

Port Scan Timeout

[System Default (recommended)]

Detection Method & Port

Default Method

[UDP: 161 SNMP]

TCP: 1 - tcpmux

TCP: 2 - compressnet

TCP: 3 - compressnet

TCP: 5 - rje

TCP: 7 - echo

TCP: 9 - discard

TCP: 11 - systat

TCP: 13 - daytime

TCP: 15 - netstat

TCP: 17 - qotd

Interface Inventory Timeout (ms)

600000

Maximum Allowed Interfaces

10000

Bypass Interface Inventory

☐

Basic Settings

Discover Non-SNMP

☐

Model Devices

☒

DHCP

☐

Device Model Cache TTL (h)

2

Collection Server PID: 1

[AIOnonMUD130]

Organization

[System]

Add Devices to Device Group(s)

None

LayerX Appliances

Servers

Apply Device Template

[Choose a Template]

SaveSave As

Log All

☒

Logs of auto-discovery session:

⚠ Not secure 192.168.10.130/em7/index.em7?exec=admin_auto_discovery_logs&Qid=4			
Discovery Session Discovery Session Complete			Refresh
	Date Time	Discovery Log Message	Class Type
1.	2023-07-04 13:53:08	Beginning auto-discovery session	--
2.	2023-07-04 13:53:16	192.168.10.132 ("IP) Discovered and modeled new device	ScienceLogic Inc. EM7 Data Collector
3.	2023-07-04 13:53:18	Auto-discovery session completed	--

Device details:

⚠ Not secure | 192.168.10.130/em7/index.em7?exec=device_details&did=3

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

Device NameCUnonMUD132

IP Address / ID192.168.10.132 | 3

ClassScienceLogic, Inc.

OrganizationSystem

Collection ModeActive

DescriptionScienceLogic EM7 G3 - Data Collector

Device Hostname

Managed TypePhysical Device

CategorySystem.EM7

Sub-ClassEM7 Data Collector

Uptime0 days, 13:50:59

Collection Time2023-07-06 00:30:00

Group / CollectorCUG | AIOnonMUD130

</

Discovery of a device already discovered with another version of SNMP:
DB non-MUD discovered using SNMP V2 again discovered using SNMP V3

⚠ Not secure 192.168.10.130/em7/index.em7?exec=admin_auto_discovery_ipv6_editor&view=edit&discovery_id=3	
Discovery Session Editor Editing Session [3] New Reset	
Identification Information	
Name DBnonMUD131v3	Description snmpV3
IP and Credentials	
IP Address/Hostname Discovery List	
192.168.10.131	
Upload File	
Browse for file... Browse...	
SNMP Credentials	
SNMP	
Cisco SNMPv2 - Example	
Cisco SNMPv3 - Example	
Cisco CSP SNMP Port 161 Example	
Cisco CSP SNMP Port 1610 Examl	
DBnonMUD131	
Dell EMC: Isilon SNMPv2 Example	
EM7 Default V2	
[EM7 Default V3]	
Other Credentials	
Basic/Snippet	
Cisco CUCM Example	
Cisco Meeting Server Example	
Cisco VOS CUC Cluster Status	
Cisco VOS IM&P Cluster Status	
Cisco ACI Sample Credential	
Cisco CSP Example	
Citrix XenServer Guardians	
EMC SMI-S Example	
Detection and Scanning	
Initial Scan Level	
[System Default (recommended)]	
Scan Throttle	
[System Default (recommended)]	
Port Scan All IPs	
[System Default (recommended)]	
Port Scan Timeout	
[System Default (recommended)]	
Detection Method & Port	
Default Method	
[UDP: 161 SNMP]	
TCP: 1 - tcpmux	
TCP: 2 - compressnet	
TCP: 3 - compressnet	
TCP: 5 - rje	
TCP: 7 - echo	
TCP: 9 - discard	
TCP: 11 - systat	
TCP: 13 - daytime	
TCP: 15 - netstat	
TCP: 17 - gotd	
Interface Inventory Timeout (ms)	
600000	
Maximum Allowed Interfaces	
10000	
Bypass Interface Inventory	
<input type="checkbox"/>	
Basic Settings	
Discover Non-SNMP	
<input type="checkbox"/>	
Model Devices	
<input checked="" type="checkbox"/>	
DHCP	
<input type="checkbox"/>	
Device Model Cache TTL (h)	
2	
Collection Server PID: 1	
[AIOnonMUD130]	
Organization	
[System]	
Add Devices to Device Group(s)	
None	
LayerX Appliances	
Servers	
Apply Device Template	
[Choose a Template]	
Save Save As Log All <input checked="" type="checkbox"/>	

Logs of auto-discovery session:

Discovery Session Discovery Session Complete				Refresh
	Date Time	Discovery Log Message	Class Type	
1.	2023-07-04 12:47:58	Beginning auto-discovery session	--	--
2.	2023-07-04 12:48:08	192.168.10.131 (*IP) Discovered and modeled existing device	ScienceLogic Inc. EM7 Database	
3.	2023-07-04 12:48:10	Auto-discovery session completed	--	--

Is displayed a log message that says that the device has been already discovered and exists.

Device details:

Not secure | 192.168.10.130/em7/index.em7?exec=device_details&did=2

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

Device NameDBnonMUD131

IP Address / ID192.168.10.131 | 2

ClassScienceLogic, Inc.

OrganizationSystem

Collection ModeActive

DescriptionScienceLogic EM7 G3 - Central Database

Device Hostname

Managed TypePhysical Device

CategorySystem.EM7

Sub-ClassEM7 Database

Uptime0 days, 13:50:59

Collection Time2023-07-06 00:32:00

Group / CollectorCUG | AIOnonMUD130

Database

DBnonMUD131

Device Properties

OrganizationAsset

ActionsResetGuide

Identification

Device NameDBnonMUD131

IP Address[192.168.10.131 - verified]

Organization[System]

Monitoring & Management

Device ClassScienceLogic, Inc. EM7 Database

SNMP Read/Write[EM7 Default V2][None]

Preferences

Auto-Clear Events

Accept All Logs

The data of the last discovery (SNMP V2) is not replaced by the new data used in the new discovery (SNMP V3). The original data remains.

2. Data collection review.

Performance and configuration archetypes for SNMP.

Dynamic Application	ID	Poll Frequency	Type
+ EM7: DRBD Status Performance	993	15 mins	SNMP Performance
+ EM7: Event Statistics	1003	5 mins	SNMP Performance
+ HF Data Pull: Storage Tasks	299	1 mins	SNMP Performance
+ LF Data Pull: Storage Tasks	302	1 mins	SNMP Performance
+ MF Data Pull: Storage Tasks	301	1 mins	SNMP Performance
+ Net-SNMP: CPU	1820	5 mins	SNMP Performance
+ Net-SNMP: Swap	1822	5 mins	SNMP Performance
+ Support: DRBD Proxy Stats	1554	2 mins	SNMP Performance
+ Support: InnoDB Size	1551	120 mins	SNMP Performance
+ Support: PT-DiskStats	1549	2 mins	SNMP Performance
+ Support: SL1 Performance	1558	2 mins	SNMP Performance
+ Data Pull Configuration	298	1440 mins	SNMP Configuration
+ EM7: Asset Information	1002	1440 mins	SNMP Configuration
+ EM7: DRBD Status Config	992	5 mins	SNMP Configuration
+ Host Resource: Configuration	91	15 mins	SNMP Configuration
+ Host Resource: Software	92	720 mins	SNMP Configuration
+ Support: Database Configuration	1560	1 mins	SNMP Configuration
+ Support: SL1 Configuration	1559	15 mins	SNMP Configuration
+ Host Resource: Storage	90	5 mins	Snippet Performance
+ Net-SNMP: Physical Memory	1821	5 mins	Snippet Performance
+ Support: File System	1547	120 mins	Snippet Configuration

Data collected for Configuration archetype (Host Resource: Configuration):

Data Pull Configuration

EM7: Asset Information

EM7: DRBD Status Config

Host Resource: Configuration

Host Resource: Software

Support: Database Configuration

Support: File System

Support: SL1 Configuration

Configuration Report | Host Resource: Configuration

Actions

Reset

Guide

Snap-Shot Date [2023-07-06 01:45:00]

Snap-Shots

Host Information

Host Initial Load Device

Host Local Time

Load Parameters

1.

393216

2023-07-06 05:45:20

BOOT_IMAGE=/vmlinuz-3.10.0-1127.el7.x86_64 root=/dev/mapper/em7vg-root ro transparent_hugepage=never rd.

Storage Information

Name

Allocation Unit Size (Bytes)

Index

1.

Physical memory

1024

1

4142202880

2.

Virtual memory

1024

3

8302948352

3.

Memory buffers

1024

6

4142202880

4.

Cached memory

1024

7

702050304

5.

Shared memory

1024

8

73416704

6.

Swap space

1024

10

4160745472

7.

/

4096

31

1072693248

8.

/var

4096

32

6431965184

9.

/var/log

4096

33

5358223360

10.

/var/log/audit

4096

34

2136997888

11.

/home

4096

35

533377024

12.

/tmp

4096

36

4284481536

13.

/data.local/db

4096

37

4737249280

14.

/dev/shm

4096

42

2071101440

15.

/run

4096

44

2071101440

16.

/sys/fs/cgroup

4096

45

2071101440

17.

/boot

4096

63

533377024

18.

/run/user/0

4096

65

414220288

Device Information

Device Description

1.

GenuineIntel: 11th Gen Intel(R) Core(TM) i7-1165G7 @ 2.80GHz

2.

GenuineIntel: 11th Gen Intel(R) Core(TM) i7-1165G7 @ 2.80GHz

3.

network interface lo

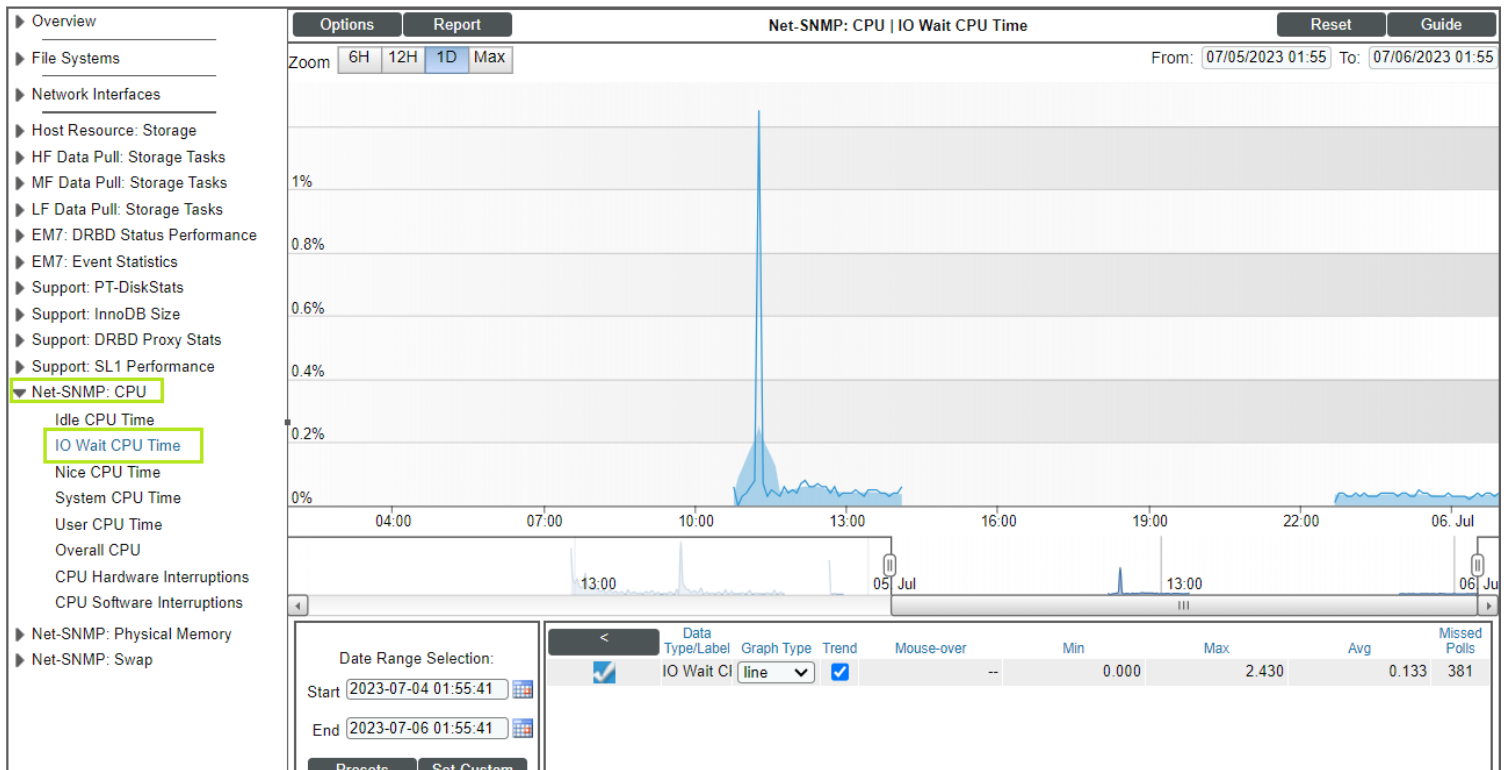
4.

network interface enp0s3

5.

SSD disk (/dev/sda)

Data collected for performance archetype (Net-SNMP: CPU > IO Wait CPU Time):



3. OID and MIB

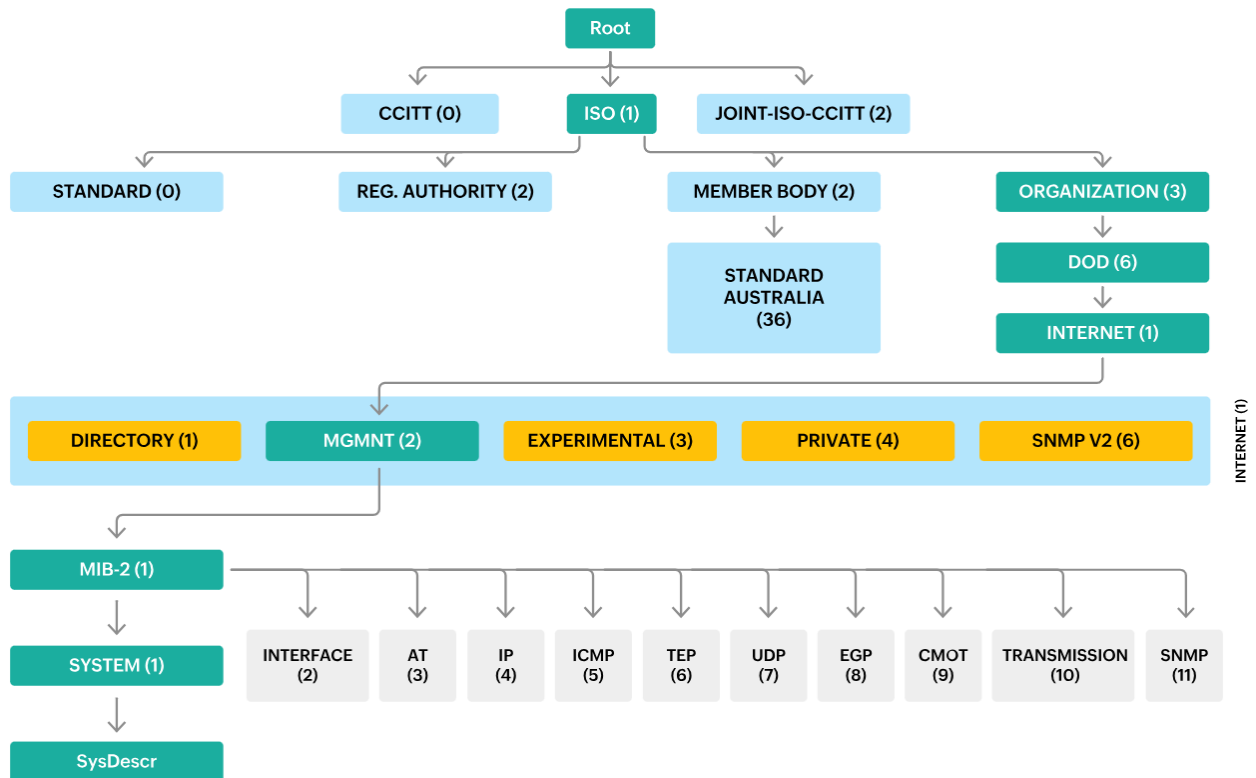
MIB (Management Information Base)

Is a collection of information (definitions) used for managing devices in the network and it is organized into a hierarchical format.

The network devices have a database that is called MIB, MIB table or MIB Tree with a set of objects.

OID (Object Identifier)

Is an address that is used to differentiate between devices within the MIB hierarchy. The OID is used to refer to unique characteristics and navigate through variables on the connected device. The value of these identifiers varies from text to numbers and counters.



4. SNMP Dynamic applications aligned to a SL1 appliance

All-in-one appliance dynamic apps:

Device Name	AIOnonMUD130	Managed Type	Physical Device	
IP Address / ID	192.168.10.130 1	Category	System.EM7	
Class	ScienceLogic, Inc.	Sub-Class	EM7 All-In-One	
Organization	System	Uptime	0 days, 15:24:56	
Collection Mode	Active	Collection Time	2023-07-06 02:00:00	
Description	ScienceLogic EM7 G3 - All-In-One	Group / Collector	CUG CUnonMUD132	
Device Hostname				

Dynamic Application™ Collections					Expand	Actions	Reset	Guide
Dynamic Application	ID	Poll Frequency	Type	Credential	Collector			
+ EM7: DRBD Status Performance	993	15 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132			
+ EM7: Event Statistics	1003	5 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132			
+ Net-SNMP: CPU	1820	5 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132			
+ Net-SNMP: Swap	1822	5 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132			
+ Support: DRBD Proxy Stats	1554	2 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132			
+ Support: InnoDB Size	1551	120 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132			
+ Support: PT-DiskStats	1549	2 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132			
+ Support: SL1 Performance	1558	2 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132			
+ EM7: Asset Information	1002	1440 mins	SNMP Configuration	Default SNMP Credential	CUnonMUD132			
+ EM7: DRBD Status Config	992	5 mins	SNMP Configuration	Default SNMP Credential	CUnonMUD132			
+ Host Resource: Configuration	91	15 mins	SNMP Configuration	Default SNMP Credential	CUnonMUD132			
+ Host Resource: Software	92	720 mins	SNMP Configuration	Default SNMP Credential	CUnonMUD132			
+ Support: Database Configuration	1560	1 mins	SNMP Configuration	Default SNMP Credential	CUnonMUD132			
+ Support: SL1 Configuration	1559	15 mins	SNMP Configuration	Default SNMP Credential	CUnonMUD132			
+ Host Resource: Storage	90	5 mins	Snippet Performance	Default SNMP Credential	CUnonMUD132			
+ Net-SNMP: Physical Memory	1821	5 mins	Snippet Performance	Default SNMP Credential	CUnonMUD132			
+ Support: File System	1547	120 mins	Snippet Configuration	Default SNMP Credential	CUnonMUD132			

Database appliance SNMP dynamic apps:

Device Name

DBnonMUD131

IP Address / ID

192.168.10.131 | 2

Class

ScienceLogic, Inc.

Organization

System

Collection Mode

Active

Description

ScienceLogic EM7 G3 - Central Database

Device Hostname

Managed Type

Physical Device

Category

System EM7

Sub-Class

EM7 Database

Uptime

0 days, 15:21:01

Collection Time

2023-07-06 02:02:00

Group / Collector

CUG | AIOnonMUD130

Database

DBnonMUD131

Dynamic Application™ Collections

Expand

Actions

Reset

Guide

Dynamic Application

ID

Poll Frequency

Type

Credential

Collector

+ EM7: DRBD Status Performance

993

15 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ EM7: Event Statistics

1003

5 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ HF Data Pull: Storage Tasks

299

1 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ LF Data Pull: Storage Tasks

302

1 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ MF Data Pull: Storage Tasks

301

1 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ Net-SNMP: CPU

1820

5 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ Net-SNMP: Swap

1822

5 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ Support: DRBD Proxy Stats

1554

2 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ Support: InnoDB Size

1551

120 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ Support: PT-DiskStats

1549

2 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ Support: SL1 Performance

1558

2 mins

SNMP Performance

Default SNMP Credential

AIOnonMUD130

+ Data Pull Configuration

298

1440 mins

SNMP Configuration

Default SNMP Credential

AIOnonMUD130

+ EM7: Asset Information

1002

1440 mins

SNMP Configuration

Default SNMP Credential

AIOnonMUD130

+ EM7: DRBD Status Config

992

5 mins

SNMP Configuration

Default SNMP Credential

AIOnonMUD130

+ Host Resource: Configuration

91

15 mins

SNMP Configuration

Default SNMP Credential

AIOnonMUD130

+ Host Resource: Software

92

720 mins

SNMP Configuration

Default SNMP Credential

AIOnonMUD130

+ Support: Database Configuration

1560

1 mins

SNMP Configuration

Default SNMP Credential

AIOnonMUD130

+ Support: SL1 Configuration

1559

15 mins

SNMP Configuration

Default SNMP Credential

AIOnonMUD130

+ Host Resource: Storage

90

5 mins

Snippet Performance

Default SNMP Credential

AIOnonMUD130

+ Net-SNMP: Physical Memory

1821

5 mins

Snippet Performance

Default SNMP Credential

AIOnonMUD130

+ Support: File System

1547

120 mins

Snippet Configuration

Default SNMP Credential

AIOnonMUD130

Data collector appliance SNMP dynamic apps:

Device Name

CUnonMUD132

IP Address / ID

192.168.10.132 | 2

Class

ScienceLogic, Inc.

Organization

System

Collection Mode

Active

Description

ScienceLogic EM7 G3 - Data Collector

Device Hostname

Managed Type

Physical Device

Category

System EM7

Sub-Class

EM7 Data Collector

Uptime

0 days, 15:20:56

Collection Time

2023-07-06 02:02:00

Group / Collector

CUG | CUnonMUD132

Data Collector

CUnonMUD132

Dynamic Application™ Collections

Expand

Actions

Reset

Guide

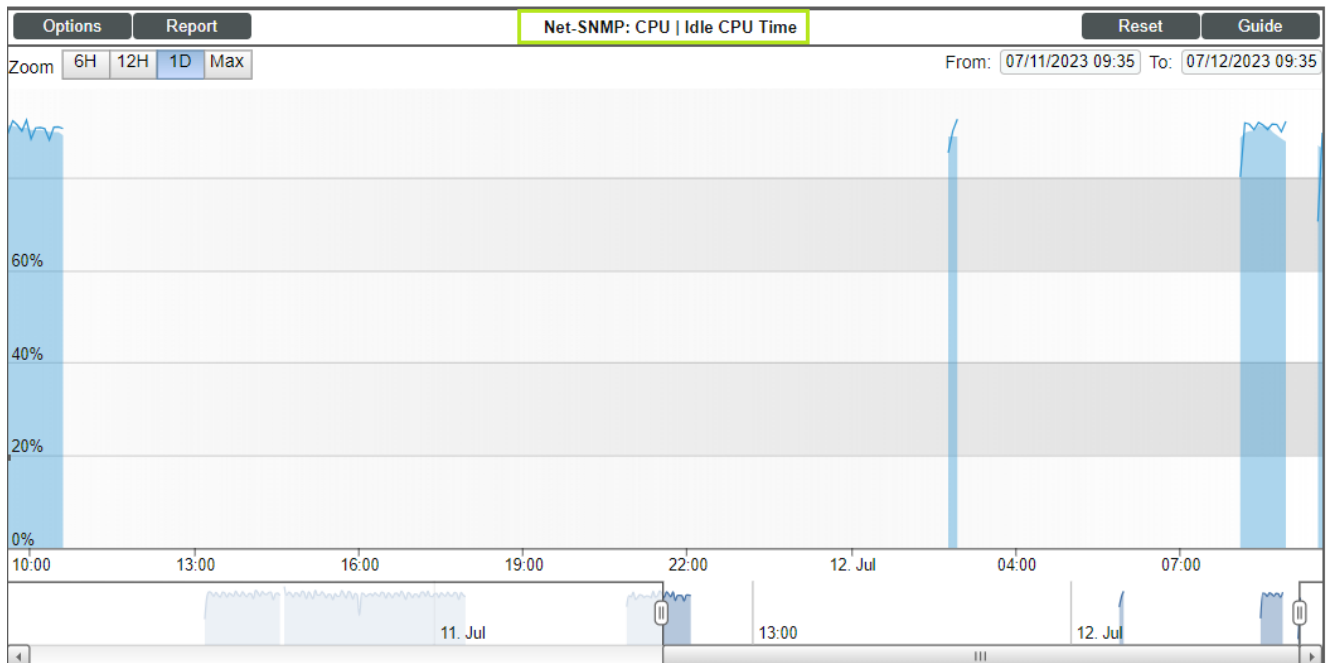
Dynamic Application	ID	Poll Frequency	Type	Credential	Collector		
+ EM7: Event Statistics	1003	5 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>
+ Net-SNMP: CPU	1820	5 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>
+ Net-SNMP: Swap	1822	5 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>
+ Support: SL1 Performance	1558	2 mins	SNMP Performance	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>
+ EM7: Asset Information	1002	1440 mins	SNMP Configuration	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>
+ Host Resource: Configuration	91	15 mins	SNMP Configuration	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>
+ Host Resource: Software	92	720 mins	SNMP Configuration	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>
+ Support: SL1 Configuration	1559	15 mins	SNMP Configuration	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>
+ Host Resource: Storage	90	5 mins	Snippet Performance	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>
+ Net-SNMP: Physical Memory	1821	5 mins	Snippet Performance	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>
+ Support: File System	1547	120 mins	Snippet Configuration	Default SNMP Credential	CUnonMUD132		<input type="checkbox"/>

5. Collection objects.

SNMP performance Collection and presentation objects

Dynamic Application™ Collections										Expand	Actions	Reset	Guide
Net-SNMP: CPU		1820	5 mins	SNMP Performance	Default SNMP Credential	AIOnonMUD130							
Presentation Object *		Version	Pid	Found	Collecting	Group	Label	Precedence					
CPU Hardware Interruptions		1.6	p_7291	yes	yes			0					
Collection Object *		Cid	Found	Collecting	Edited By								
CPU Hardware Interruptions		o_19761	yes	yes	--								
Idle CPU Time		o_19755	yes	yes	--								
Nice CPU Time		o_19757	yes	yes	--								
System CPU Time		o_19758	yes	yes	--								
User CPU Time		o_19759	yes	yes	--								
CPU Software Interruptions		1.6	p_7292	yes	yes			0					
Collection Object *		Cid	Found	Collecting	Edited By								
CPU Software Interruptions		o_19762	yes	yes	--								
Idle CPU Time		o_19755	yes	yes	--								
Nice CPU Time		o_19757	yes	yes	--								
System CPU Time		o_19758	yes	yes	--								
User CPU Time		o_19759	yes	yes	--								
Idle CPU Time		1.6	p_7285	yes	yes			0					
Collection Object *		Cid	Found	Collecting	Edited By								
Idle CPU Time		o_19755	yes	yes	--								
Nice CPU Time		o_19757	yes	yes	--								
System CPU Time		o_19758	yes	yes	--								
User CPU Time		o_19759	yes	yes	--								
iIO Wait CPU Time		1.6	p_7286	yes	yes			0					
Collection Object *		Cid	Found	Collecting	Edited By								
Idle CPU Time		o_19755	yes	yes	--								

Collected data displayed in the collected objects from a Performance archetype.



6. Log files for SNMP

Is possible to see them going to the following directory:

/data/logs/

```
snmp_agent.log
snmp_agent.log.20230705-1688572861.gz
snmp_agent.log.20230706-1688612461
snmp_collector.log
snmp_collector.log.20230705-1688515261.gz
snmp_collector.log.20230706-1688612461.gz
snmp_detail_collect.py.log
```

snmp_agent.log file log

```
GNU nano 2.3.1 File: snmp_agent.log
2023-07-06 04:38:46,679,"WARNING","5985","140477263140608","snmp_agent","179","Service /opt/em7/admin/stats/em7_drbd_stats.sh exited with status 0 and generated output:"
2023-07-06 04:38:46,679,"WARNING","5985","140477263140608","snmp_agent","181"," grep: /etc/drbd.d/r0.res: No such file or directory"
2023-07-06 04:38:46,679,"WARNING","5985","140477263140608","snmp_agent","181"," grep: /etc/drbd.d/r0.res: No such file or directory"
2023-07-06 04:38:52,023,"WARNING","5985","140477263140608","snmp_agent","179","Service /opt/em7/admin/stats/versions.py exited with status 127 and generated output:"
2023-07-06 04:38:52,024,"WARNING","5985","140477263140608","snmp_agent","181"," /bin/sh: /opt/em7/admin/stats/versions.py: No such file or directory"
2023-07-06 04:38:52,384,"WARNING","5985","140477263140608","snmp_agent","179","Service /opt/em7/admin/stats/monitor_space.py exited with status 1"
```

snmp_collector.log

```
snmp_collector: Starting snmp_collector_snmp_collector_1 ...
snmp_collector: ^[[1A^[[2K^MStarting snmp_collector_snmp_collector_1 ... ^[[32mdone^[[0m^M^[[1BAttaching to snmp_collector_snmp_collector_1
snmp_collector: ^[[36msnmp_collector_1 |^[[0m WARNING: no logs are available with the 'syslog' log driver
snmp_collector[2296]: 2023-07-10 13:23:15,542::INFO::1:snmp_collector.config.73::Service Running with Config:
snmp_collector[2296]: LOG_LEVEL : INFO
snmp_collector[2296]: SNMP_ENGINE : netsnmp
snmp_collector[2296]: ASNMP SERVICE HOST : 127.0.0.1
snmp_collector[2296]: ASNMP SERVICE PORT : 8082
snmp_collector[2296]: MAX_REQUEST_BURST : 10
snmp_collector[2296]: NETSNMP_DEBUG : False
snmp_collector[2296]: ASYNCIO_DEBUG : False
snmp_collector[2296]: MARIADB_HOST : 127.0.0.1
snmp_collector[2296]: MARIADB_PORT : 7706
snmp_collector[2296]: MARIADB_USER : root
snmp_collector[2296]: MARIADB_PSWD : *****
snmp_collector[2296]: USE_GETBULK : True
snmp_collector[2296]: MAX_REPETITIONS : 5
snmp_collector[2296]: MONITOR_PERIOD : 3600
snmp_collector[2296]: TOP_N : 10
snmp_collector[2296]: MAX_SESSION_CACHE : 2000
snmp_collector[2296]: SESSION_CACHE_TTL : 86400
snmp_collector[2296]: MAX_JOB_METRICS_CACHE : 100000
snmp_collector[2296]: JOB_METRICS_CACHE_TTL : 86400
snmp_collector[2296]: PROMETHEUS_CLIENT_PORT : 0
snmp_collector[2296]:
snmp_collector[2296]: 2023-07-10 13:23:15,543::INFO::1: _main_.41::Starting ASNMP service loop...
snmp_collector[2296]: 2023-07-10 13:23:15,551::INFO::1:root.745::creating tasks and starting event loop ...
snmp_collector[2296]: 2023-07-10 13:23:15,552::INFO::1:snmp_collector.snmp_collector.491::configuring HTTP endpoint server on 127.0.0.1:8082
snmp_collector[2296]: 2023-07-10 13:23:15,552::INFO::1:snmp_collector.snmp_collector.342::waiting on collection jobs
snmp_collector[2296]: 2023-07-10 13:23:15,552::INFO::1:snmp_collector.snmp_collector.598::wait for results to queue
snmp_collector[2296]: 2023-07-10 13:23:15,552::INFO::1:monitor.457::
```

7. Enable DEBUG mode for SNMP service

The DEBUG mode can be enabled by editing the file `snmp_collector.env` that is inside the `/opt/em7/services/snmp_collector/` directory.

```
[em7admin@AIOnonMUD130 logs]$ cd /opt/em7/services/snmp_collector/  
[em7admin@AIOnonMUD130 snmp_collector]$ ls  
docker-compose.yml  set_env.sh  snmp_collector.env  snmp-collector.tar  
[em7admin@AIOnonMUD130 snmp_collector]$ sudo nano snmp_collector.env
```

Is required to use a `sudo nano` command to be able to proper edit the file, and type the user password.

```
[em7admin@AIOnonMUD130 snmp_collector]$ sudo nano snmp_collector.env  
[sudo] password for em7admin:  
[em7admin@AIOnonMUD130 snmp_collector]$ sudo nano snmp_collector.env
```

After typing the password:

```
GNU nano 2.3.1  
  
LOG_LEVEL=INFO  
USE_HTTPS=True
```

Changing the log level to DEBUG:

```
GNU nano 2.3.1  
  
LOG_LEVEL=DEBUG  
USE_HTTPS=True
```

To save the changes is necessary to press `ctrl + c` to exit, “Y” key to save the changes and “Enter” key to remain the name of the file.

After this is required to restart the SNMP service and to do this, we need to use the following command:

```
[em7admin@AIOnonMUD130 snmp_collector]$ sudo nano snmp_collector.env  
[em7admin@AIOnonMUD130 snmp_collector]$ sudo systemctl restart snmp_collector  
[em7admin@AIOnonMUD130 snmp_collector]$ sudo nano snmp_collector.env  
[em7admin@AIOnonMUD130 snmp_collector]$
```

The services will be restarted.

8. SNMP Walks

This command is used to see the whole OIDs list from the system.

```
snmpwalk -v3 -l authPriv -u newuserv3 -a SHA -A em7authpass -x AES -X em7privpass 192.168.10.130
```

```
NOTIFICATION-LOG-MIB::nlmLogEngineID."default".1 = ""
NOTIFICATION-LOG-MIB::nlmLogEngineID."default".2 = ""
NOTIFICATION-LOG-MIB::nlmLogContextEngineID."default".1 = ""
NOTIFICATION-LOG-MIB::nlmLogContextEngineID."default".2 = ""
NOTIFICATION-LOG-MIB::nlmLogContextName."default".1 = STRING:
NOTIFICATION-LOG-MIB::nlmLogContextName."default".2 = STRING:
NOTIFICATION-LOG-MIB::nlmLogNotificationID."default".1 = OID: SNMPv2-MIB::coldStart
NOTIFICATION-LOG-MIB::nlmLogNotificationID."default".2 = OID: SNMPv2-MIB::coldStart
NOTIFICATION-LOG-MIB::nlmLogVariableID."default".1.1 = OID: DISMAN-EVENT-MIB::sysUpTimeInstance
NOTIFICATION-LOG-MIB::nlmLogVariableID."default".1.2 = OID: SNMP-COMMUNITY-MIB::snmpTrapAddress.0
NOTIFICATION-LOG-MIB::nlmLogVariableID."default".1.3 = OID: SNMPv2-MIB::snmpTrapEnterprise.0
NOTIFICATION-LOG-MIB::nlmLogVariableID."default".2.1 = OID: DISMAN-EVENT-MIB::sysUpTimeInstance
NOTIFICATION-LOG-MIB::nlmLogVariableID."default".2.2 = OID: SNMPv2-MIB::snmpTrapEnterprise.0
NOTIFICATION-LOG-MIB::nlmLogVariableValueType."default".1.1 = INTEGER: timeTicks(3)
NOTIFICATION-LOG-MIB::nlmLogVariableValueType."default".1.2 = INTEGER: ipAddress(5)
NOTIFICATION-LOG-MIB::nlmLogVariableValueType."default".1.3 = INTEGER: objectId(7)
NOTIFICATION-LOG-MIB::nlmLogVariableValueType."default".2.1 = INTEGER: timeTicks(3)
NOTIFICATION-LOG-MIB::nlmLogVariableValueType."default".2.2 = INTEGER: objectId(7)
NOTIFICATION-LOG-MIB::nlmLogVariableTimeTicksVal."default".1.1 = Timeticks: (21) 0:00:00.21
NOTIFICATION-LOG-MIB::nlmLogVariableTimeTicksVal."default".2.1 = Timeticks: (21) 0:00:00.21
NOTIFICATION-LOG-MIB::nlmLogVariableIpAddressVal."default".1.2 = IpAddress: 192.168.10.130
NOTIFICATION-LOG-MIB::nlmLogVariableOidVal."default".1.3 = OID: NET-SNMP-MIB::netSnmpAgentOIDs.10
NOTIFICATION-LOG-MIB::nlmLogVariableOidVal."default".2.2 = OID: NET-SNMP-MIB::netSnmpAgentOIDs.10
SCTP-MIB::sctpCurrEstab.0 = Gauge32: 0
SCTP-MIB::sctpActiveEstabs.0 = Counter32: 0
SCTP-MIB::sctpPassiveEstabs.0 = Counter32: 0
SCTP-MIB::sctpAbortedds.0 = Counter32: 0
SCTP-MIB::sctpShutdowns.0 = Counter32: 0
SCTP-MIB::sctpOutOfBlues.0 = Counter32: 0
SCTP-MIB::sctpChecksumErrors.0 = Counter32: 0
SCTP-MIB::sctpOutCtrlChunks.0 = Counter64: 0
SCTP-MIB::sctpOutOrderChunks.0 = Counter64: 0
SCTP-MIB::sctpOutUnorderChunks.0 = Counter64: 0
SCTP-MIB::sctpInCtrlChunks.0 = Counter64: 0
SCTP-MIB::sctpInOrderChunks.0 = Counter64: 0
SCTP-MIB::sctpInUnorderChunks.0 = Counter64: 0
```

```
snmpwalk -v3 -l authPriv -u newuserv3 -a SHA -A em7authpass -x AES -X em7privpass 192.168.10.130
```

```
sysDescr.0
```

```
[em7admin@AIONonMUD130 ~]$ snmpwalk -v3 -l authPriv -u newuserv3 -a SHA -A em7authpass -x AES -X
SNMPv2-MIB::sysDescr.0 = STRING: ScienceLogic EM7 G3 - All-In-One
```

```
snmpwalk -v3 -l authPriv -u newuserv3 -a SHA -A em7authpass -x AES -X em7privpass 192.168.10.130
```

```
sysName.0
```

```
[em7admin@AIONonMUD130 ~]$ snmpwalk -v3 -l authPriv -u newuserv3 -a SHA -A em7authpass -x
SNMPv2-MIB::sysName.0 = STRING: AIONonMUD130
```

We can manage these requests in a better and useful way using a tool called MIB Browser.

iReasoning MIB Browser

File Edit Operations Tools Bookmarks Help

Address: 192.168.10.130 Advanced... OID: .1.3.6.1.2.1.1.5.0 Operations: Get Next Go

SNMP MIBs

MIB Tree

- iso.org.dod.internet.mgmt.mib-2
 - system
 - sysDescr
 - sysObjectID
 - sysUpTime
 - sysContact
 - sysName
 - sysLocation
 - sysServices
 - interfaces
 - at

Result Table

Name/OID	Value	Type	IP:Port
sysObjectID.0	.1.3.6.1.4.1.19567.2.1.10	OID	192.168....
sysUpTime.0	22 minutes 24.07 seconds (13...	TimeTicks	192.168....
sysName.0	AIOnonMUD130	OctetString	192.168....
sysLocation.0	Unknown	OctetString	192.168....
sysServices.0	No Such Instance	NoSuchIn...	192.168....
snmpOutPkts.0	3742	Counter32	192.168....
snmpInGenErrs.0	0	Counter32	192.168....
icmpInErrors.0	20	Counter32	192.168....

Name sysName

OID .1.3.6.1.2.1.1.5

MIB RFC1213-MIB

Syntax DisplayString (OCTET STRI...

.iso.org.dod.internet.mgmt.mib-2.system.sysName.0

9. Testing SHA and AES Protocols.

Create a new user editing the /etc/snmp/snmpd.conf.d/snmpd_default.conf file.

Must be replaced the name of the new user and set the SHA and AES protocols as following:

```
GNU nano 2.3.1 File: snmpd_default.conf

agentAddress udp:161,udp6:161

group MyRWGroup v1 local
group MyRWGroup v2c local
group MyRWGroup usm local
group MyRWGroup usm newuserV3
group MyROGroup v1 mynetwork
group MyROGroup v2c mynetwork
group MyROGroup usm mynetwork

access MyROGroup "" any noauth exact all none none
access MyRWGroup "" any noauth exact all all none

rwuser newuserV3 priv
createUser newuserV3 SHA em7authpass AES em7privpass

syscontact support@sciencelogic.com

rwcommunity em7default
rocommunity em7default
rocommunity6 newuserV3
rwcommunity6 newuserV3

authtrapenable 2
trapcommunity public
informsink 127.0.0.1
trapsink localhost em7default
load 10.0 8.0 6.0

disk / 20%
disk /var 20%
disk /var/log 20%
disk /var/log/audit 20%
disk /home 20%
disk /tmp 20%
disk /data.local/db 30%

skipNFSInHostResources true
```

After save the changes in the file restart the SNMPD service using the following command:

```
[sudo] password for em7admin:
[em7admin@AIOnonMUD130 snmpd.conf.d]$ sudo systemctl restart snmpd
[em7admin@AIOnonMUD130 snmpd.conf.d]$
```


New discovery SNMP V3 credential with data according to the protocols set.

Credential Editor [93]

Edit SNMP Credential #93 New Reset

Basic Settings

Profile Name: SHA-Test

SNMP Version: [SNMP V3]

Port: 161

Timeout(ms): 1500

Retries: 1

SNMP V1/V2 Settings

SNMP Community (Read-Only):

SNMP Community (Read/Write):

SNMP V3 Settings

Security Name: newuserv3

em7authpass

Security Passphrase:

Authentication Protocol: [SHA]

Security Level: [Authentication and Encryption]

SNMP v3 Engine ID:

Context Name:

Privacy Protocol: [AES-128]

Privacy Protocol Pass Phrase:

em7privpass

Save Save As

Discovery session settings:

Discovery Session Editor | Editing Session [5] New Reset

Identification Information

Name: SHA-test

Description: snmpv3

IP and Credentials

IP Address/Hostname Discovery List

192.168.10.130

Upload File

Browse for file... Browse...

SNMP Credentials

Dell EMC: Isilon SNMPv2 Example

EM7 Default V2

EM7 Default V3

IPSLA Example

LifeSize: Endpoint SNMP

[SHA-Test]

SNMP Public V1

SNMP Public V2

WS2012SNMP-V2

Other Credentials

Basic/Snippet

Cisco CUCM Example

Cisco Meeting Server Example

Cisco VOS CUC Cluster Status

Cisco VOS IM&P Cluster Status

Cisco: ACI Sample Credential

Cisco: CSP Example

Citrix XenServer Guardians

EMC SMI-S Example

Detection and Scanning

Initial Scan Level

[System Default (recommended)]

Scan Throttle

[System Default (recommended)]

Port Scan All IPs

[System Default (recommended)]

Port Scan Timeout

[System Default (recommended)]

Detection Method & Port

Default Method

[UDP: 161 SNMP]

TCP: 1 - tcpmux

TCP: 2 - compressnet

TCP: 3 - compressnet

TCP: 5 - rje

TCP: 7 - echo

TCP: 9 - discard

TCP: 11 - systat

TCP: 13 - daytime

TCP: 15 - netstat

TCP: 17 - gotd

Interface Inventory Timeout (ms)

600000

Maximum Allowed Interfaces

10000

Bypass Interface Inventory

☐

Basic Settings

Discover Non-SNMP ☐

Model Devices ☒

DHCP ☐

Device Model Cache TTL (h)

2

Collection Server PID: 1

[AIOnonMUD130]

Organization

[System]

Add Devices to Device Group(s)

None

LayerX Appliances

Servers

Apply Device Template

[Choose a Template]

Save Save As

Log All ☒

Discovery results:

Device Name	IP Address	Device Category	Device Class / Sub-class	DID	Organization	Current State	Collection Group	Collection State	SNMP Credential	SNMP Version
1. AIONonMUD130	192.168.10.130	System EM7	ScienceLogic, Inc. EM7 All-In-One	5	System	Major	CUG	Active	SHA-Test	V3

Device Name	AIONonMUD130	Managed Type	Physical Device
IP Address / ID	192.168.10.130 5	Category	System EM7
Class	ScienceLogic, Inc.	Sub-Class	EM7 All-In-One
Organization	System	Uptime	0 days, 06:21:09
Collection Mode	Active	Collection Time	2023-07-10 21:42:00
Description	ScienceLogic EM7 G3 - All-In-One	Group / Collector	CUG AIONonMUD130
Device Hostname			



Dynamic Application™ Collections							Expand	Actions	Reset	Guide
Dynamic Application	ID	Poll Frequency	Type	Credential	Collector					
+ EM7: DRBD Status Performance	993	15 mins	SNMP Performance	Default SNMP Credential	AIONonMUD130					
+ EM7: Event Statistics	1003	5 mins	SNMP Performance	Default SNMP Credential	AIONonMUD130					
+ Net-SNMP: CPU	1820	5 mins	SNMP Performance	Default SNMP Credential	AIONonMUD130					
+ Net-SNMP: Swap	1822	5 mins	SNMP Performance	Default SNMP Credential	AIONonMUD130					
+ Support: DRBD Proxy Stats	1554	2 mins	SNMP Performance	Default SNMP Credential	AIONonMUD130					
+ Support: InnoDB Size	1551	120 mins	SNMP Performance	Default SNMP Credential	AIONonMUD130					
+ Support: PT-DiskStats	1549	2 mins	SNMP Performance	Default SNMP Credential	AIONonMUD130					
+ Support: SL1 Performance	1558	2 mins	SNMP Performance	Default SNMP Credential	AIONonMUD130					
+ EM7: Asset Information	1002	1440 mins	SNMP Configuration	Default SNMP Credential	AIONonMUD130					
+ EM7: DRBD Status Config	992	5 mins	SNMP Configuration	Default SNMP Credential	AIONonMUD130					
+ Host Resource: Configuration	91	15 mins	SNMP Configuration	Default SNMP Credential	AIONonMUD130					
+ Host Resource: Software	92	720 mins	SNMP Configuration	Default SNMP Credential	AIONonMUD130					
+ Support: Database Configuration	1560	1 mins	SNMP Configuration	Default SNMP Credential	AIONonMUD130					
+ Support: SL1 Configuration	1559	15 mins	SNMP Configuration	Default SNMP Credential	AIONonMUD130					
+ Host Resource: Storage	90	5 mins	Snippet Performance	Default SNMP Credential	AIONonMUD130					
+ Net-SNMP: Physical Memory	1821	5 mins	Snippet Performance	Default SNMP Credential	AIONonMUD130					
+ Support: File System	1547	120 mins	Snippet Configuration	Default SNMP Credential	AIONonMUD130					

EM7: Asset Information	Configuration Report Host Resource: Configuration	Actions	Reset	Guide
EM7: DRBD Status Config	Snap-Shot Date [2023-07-10 21:30:00]			Snap-Shots
Host Resource: Configuration	<div> <div>9. /var/log</div> <div>10. /var/log/audit</div> <div>11. /home</div> <div>12. /tmp</div> <div>13. /data.local/db</div> <div>14. /dev/shm</div> <div>15. /run</div> <div>16. /sys/fs/cgroup</div> <div>17. /boot</div> <div>18. /var/lib/docker/containers/11d6ea74c8647df6e68649d381d084e7134a5d71f5d0f3e82ab1c0d790b04d4f/mounts/shm</div> <div>19. /var/lib/docker/containers/3a1f8f8eea92410ca77494cba5f8dacbe81efbd2b946ad5ecd81136d96a404fe/mounts/shm</div> <div>20. /var/lib/docker/containers/c1699c7ff539d123c009f6b7fabec07f3901fea66c9abc155b518f78bc5d6cc3/mounts/shm</div> <div>21. /run/user/0</div> </div>			
Host Resource: Software	<div> <div>Device Information</div> <div>Device Description</div> <div>1. GenuineIntel: 11th Gen Intel(R) Core(TM) i7-1165G7 @ 2.80GHz</div> <div>2. GenuineIntel: 11th Gen Intel(R) Core(TM) i7-1165G7 @ 2.80GHz</div> <div>3. network interface lo</div> <div>4. network interface enp0s3</div> <div>5. network interface docker0</div> <div>6. SCSI disk (/dev/sda)</div> <div>7. LVM volume (em7vg-db)</div> <div>8. LVM volume (em7vg-home)</div> <div>9. LVM volume (em7vg-var_log)</div> <div>10. LVM volume (em7vg-var)</div> <div>11. LVM volume (em7vg-var_log_audit)</div> <div>12. LVM volume (em7vg-tmp)</div> <div>13. LVM volume (em7vg-swap)</div> <div>14. LVM volume (em7vg-root)</div> <div>15. Guessing that there's a floating point co-processor</div> </div>			
Support: Database Configuration				
Support: File System				
Support: SL1 Configuration				

The dynamic applications were automatically and properly aligned as well as the data collected that can be seen in the collection objects.

10. Concurrent SNMP collection.

The SNMP collection scale can be increased by enabling the Concurrent SNMP collection and it is an independent service that runs as a container on a data collector.

When the concurrent SNMP collection is enabled each data collector will have four SNMP collector containers.

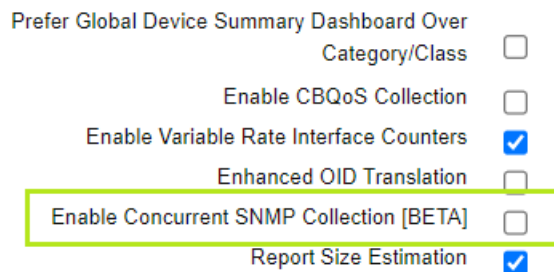
SL1 will restart each of the SNMP collector containers periodically on each data collector to ensure that each of them remains healthy. If one of the SNMP collector containers is restarted the workload is handled by the other three.

This feature provides:

- SNMP collection task can run in parallel.
- Improved performance for SNMP Dynamic apps.
- Use of resources on each data collector is reduced.
- High-latency devices have more dependable collection.

The Concurrent SNMP collection can be enabled in the following path:

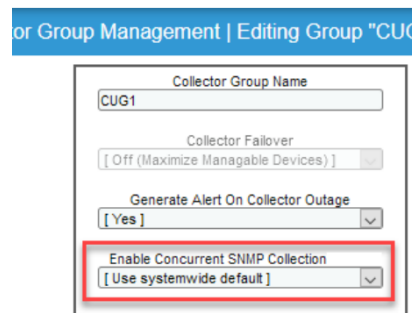
System > Settings > Behavior



Prefer Global Device Summary Dashboard Over Category/Class	<input type="checkbox"/>
Enable CBQoS Collection	<input type="checkbox"/>
Enable Variable Rate Interface Counters	<input checked="" type="checkbox"/>
Enhanced OID Translation	<input type="checkbox"/>
Enable Concurrent SNMP Collection [BETA]	<input type="checkbox"/>
Report Size Estimation	<input checked="" type="checkbox"/>

Enabling a Collector group to Use Concurrent SNMP Collection:

System > Settings > Collector Groups



Collector Group Management Editing Group "CUG1"	
Collector Group Name	CUG1
Collector Failover	[Off (Maximize Managable Devices)]
Generate Alert On Collector Outage	[Yes]
Enable Concurrent SNMP Collection	[Use systemwide default]