



cockpit
IT Service Manager

Monitoring - SNMP check configuration

FAQ document

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Introduction

I. Document objective

- To present the operation of the "SNMP - Request" monitoring check

II. Definitions

OID: Means Object Identifier. This is a sequence of integers used to identify an object (disk size, CPU load, version of a system, etc.).

The sequence of integers composing the OID is a hierarchical organization, for example using the OID 1.3.6.1.4.1.2021.10.1.3.1:

1 (iso)
 3 (org)
 6 (dod)
 1 (internet)
 4 (private)
 1 (enterprises)
 2021 (ucdavis)
 10 (laTable)
 1 (laEntry)
 3 (laLoad)
 1 (load during one minute)

MIB file: The Management Information Base (MIB) file is a text-based file containing OIDs, i.e., hierarchical information in the form of a tree on a device. The goal is to retrieve this information remotely via the SNMP protocol.

Any manufacturer can provide MIB files.

Check parameters

I. Prerequisite

- The SNMP access of the equipment to be monitored must be configured and functional, see the SNMP Access FAQ.
- The SNMP agent on the device to be monitored must be active and able to receive SNMP requests.

II. Principle

The check sends an OID to a device via the SNMPGET command, the device returns a value that is evaluated against the threshold.

Note: The "polling" check made sends a request to get a value but does not receive "traps". To send SNMP Traps to Cockpit IT Service Manager, refer to the document https://faq.cockpit-itsm.com/COCKPIT_FAQ_MONITORING_external_alert_configuration_en.pdf

III. Details of the check

A. Main fields

Main fields			
Parameter	Information	Value	Mandatory
Identifier (OID)	OID (Object Identifier) sent to the device		Yes
Manufacturer	Name of the manufacturer		No
MIB file	MIB file		No
Alert threshold	Value not to be exceeded (lower, higher or different).	Integer between 0 and 999,999,999	Yes
	Value returned (different or contains).	Alphanumeric	Yes
	Number of consecutive executions in excess of thresholds before generation of the alert.	Integer between 1 and 99	Yes
	Retain the results (metrics) This feature is only active for digital alert thresholds	Active / Inactive	No

B. SNMP basic request

This is the case for known information on the OID to be entered in the "OID" field, the nature of the returned value (numeric or alphanumeric) as well as the relevant threshold.

It is sufficient to enter the "Identifier (OID)" field and the "Alert threshold" part.
To verify the value returned by the check, execute it from the context menu.

C. SNMP request based on an MIB file

When it is necessary to set up a check without knowing the OIDs, it is necessary to rely on the MIB file of the equipment.

Note: To load the MIB file of the device, see section "I. Prerequisites".

Once the MIB file is loaded into Cockpit IT Service Manager, edit the "SNMP - Request" check, click on the "List" button in the popup window which displays:

- Enter the "Manufacturer" field
- Enter the "MIB file" field
- The OIDs of the selected MIB file appear in the table

Example:

Constructeur:	Adaptec Inc. ▼
Fichier MIB:	HPN ▼

Nom	Type	OID (Identifiant d'objet)
adaptecArrayControllerSoftwareVersion		1.3.6.1.4.1.795.10.1.50.1
adaptecArrayControllerAdapterNumber		1.3.6.1.4.1.795.10.1.50.2
▼ adaptecArrayControllerAdapterTable	Tableau	1.3.6.1.4.1.795.10.1.50.3
▼ adaptecArrayControllerAdapterEntry		1.3.6.1.4.1.795.10.1.50.3.1
adaptecArrayControllerAdapterIndex		1.3.6.1.4.1.795.10.1.50.3.1.1
adaptecArrayControllerAdapterDescription		1.3.6.1.4.1.795.10.1.50.3.1.2
adaptecArrayControllerAdapterType		1.3.6.1.4.1.795.10.1.50.3.1.3
adaptecArrayControllerAdapterVersion		1.3.6.1.4.1.795.10.1.50.3.1.4
adaptecArrayControllerAdapterChannelCount		1.3.6.1.4.1.795.10.1.50.3.1.5
adaptecArrayControllerAdapterStatus		1.3.6.1.4.1.795.10.1.50.3.1.6

The table contains 3 columns:

- "Name": Name corresponding to the item returned by the OID
- "Type": Indicates whether the OID is a table
- "OID (Object Identifier)": OID

When clicking on a line, Cockpit IT Service Manager runs an SNMPGET with the OID of the row and displays the result in the "Details" table:

- "Identifier (OID)": The OID returned may be different from the one displayed in the selection table, in which case it is usually longer. This is the OID that must be used in the check.
- "Description": Details of the returned item which is set in the MIB, and therefore depends on the manufacturer, it may be empty.
- "Value": Value that will be compared with the alert threshold. There are 3 types of value, NODE, TABLE and SCALAR, which are detailed below.

1. NODE

The NODEs are the nodes of the MIB hierarchy; they organize the hierarchy but do not return data. They cannot therefore be used for a check.

When clicking on a "NODE" a value of "noSuchInstance" is returned.

Example:

Name	Type	Object identifier
ucdavis		1.3.6.1.4.1.2021
prTable	Table	1.3.6.1.4.1.2021.2
prEntry		1.3.6.1.4.1.2021.2.1
prIndex		1.3.6.1.4.1.2021.2.1.1
prNames		1.3.6.1.4.1.2021.2.1.2
prMin		1.3.6.1.4.1.2021.2.1.3
prMax		1.3.6.1.4.1.2021.2.1.4
prCount		1.3.6.1.4.1.2021.2.1.5
prErrorFlag		1.3.6.1.4.1.2021.2.1.100
prErrorMessage		1.3.6.1.4.1.2021.2.1.101
prErrFix		1.3.6.1.4.1.2021.2.1.102
prErrFixCmd		1.3.6.1.4.1.2021.2.1.103
memory		1.3.6.1.4.1.2021.4
memIndex		1.3.6.1.4.1.2021.4.1
memErrorName		1.3.6.1.4.1.2021.4.2
memTotalSwap		1.3.6.1.4.1.2021.4.3
memAvailSwap		1.3.6.1.4.1.2021.4.4

Details	
Identifier (OID):	1.3.6.1.4.1.2021.2.1.0
Description:	
Value:	noSuchInstance

2. SCALAR

"SCALAR" OIDs return a numeric or alphanumeric value, they can be used for the check.

Alphanumeric value example:

version	1.3.6.1.4.1.2021.100
versionIndex	1.3.6.1.4.1.2021.100.1
versionTag	1.3.6.1.4.1.2021.100.2
versionDate	1.3.6.1.4.1.2021.100.3
versionCDate	1.3.6.1.4.1.2021.100.4
versionIdent	1.3.6.1.4.1.2021.100.5
versionConfigureOptions	1.3.6.1.4.1.2021.100.6

Details	
Identifier (OID):	1.3.6.1.4.1.2021.100.5.0
Description:	
Value:	\$Id: versioninfo.c 1786 2008-11-10 13:36:41Z richie \$

In this case it is necessary to use the "Alphanumeric value" alert threshold.

Numeric value example:

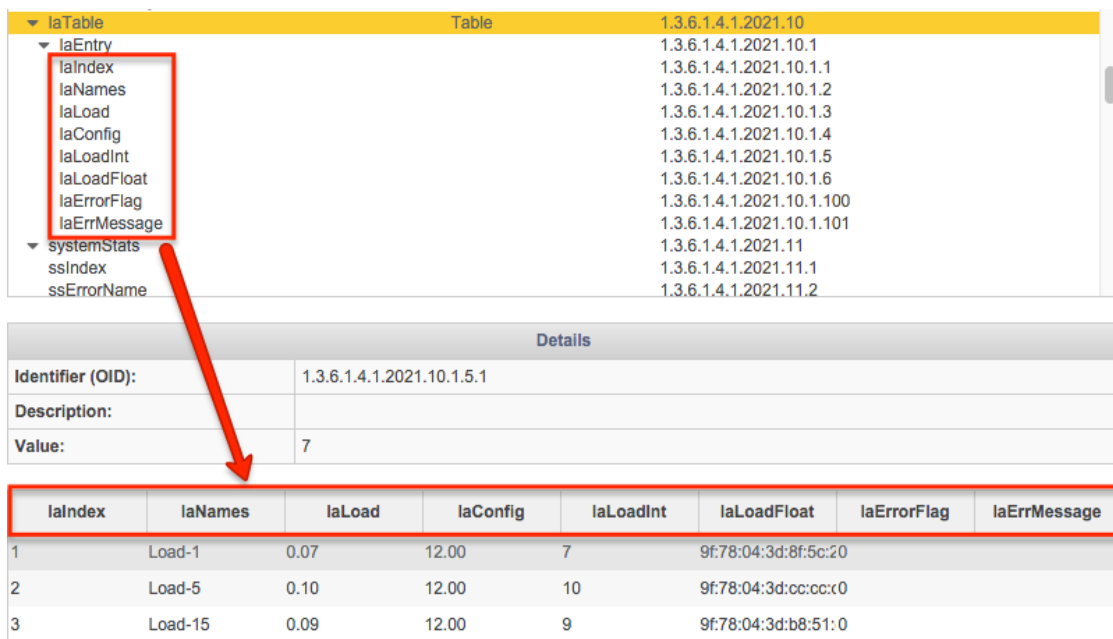
memory	1.3.6.1.4.1.2021.4
memIndex	1.3.6.1.4.1.2021.4.1
memErrorName	1.3.6.1.4.1.2021.4.2
memTotalSwap	1.3.6.1.4.1.2021.4.3
memAvailSwap	1.3.6.1.4.1.2021.4.4
memTotalReal	1.3.6.1.4.1.2021.4.5
memAvailReal	1.3.6.1.4.1.2021.4.6
memTotalSwapTXT	1.3.6.1.4.1.2021.4.7

Details	
Identifier (OID):	1.3.6.1.4.1.2021.4.6.0
Description:	
Value:	73556

In this case it is necessary to use the "Numeric value" alert threshold

3. TABLE

"TABLE" OIDs have "TABLE_ROW" and "TABLE_COLUMN" OID children. Clicking on one of the OIDs in the table displays the "Details" section:



Details	
Identifier (OID):	1.3.6.1.4.1.2021.10.1.5.1
Description:	
Value:	7

laIndex	laNames	laLoad	laConfig	laLoadInt	laLoadFloat	laErrorFlag	laErrorMessage
1	Load-1	0.07	12.00	7	9f:78:04:3d:8f:5c:20		
2	Load-5	0.10	12.00	10	9f:78:04:3d:cc:cc:c0		
3	Load-15	0.09	12.00	9	9f:78:04:3d:b8:51:0		

Clicking the "List" button refreshes the table data:

laIndex	laNames	laLoad	laConfig	laLoadInt	laLoadFloat	la
1	Load-1	0.08	12.00	8	9f:78:04:3d:a3:d7:0	
2	Load-5	0.10	12.00	10	9f:78:04:3d:cc:cc:c0	
3	Load-15	0.09	12.00	9	9f:78:04:3d:b8:51:0	



Using a TABLE OID is not recommended as it retrieves several values.

Note: When a "TABLE" OID is selected, the check is carried out on the first row and first column of the table.

However, it is possible to use the value of a cell in the table. Clicking on a cell in the table automatically updates the "Value" and "Identifier (OID)" fields:

Details

Identifier (OID):	1.3.6.1.4.1.2021.10.1.5.1
Description:	
Value:	7

laIndex	laNames	laLoad	laConfig	laLoadInt	laLoadFloat	laErrorFlag
1	Load-1	0.07	12.00	7	9f:78:04:3d:8f:5c:20	
2	Load-5	0.09	12.00	9	9f:78:04:3d:b8:51:0	
3	Load-15	0.09	12.00	9	9f:78:04:3d:b8:51:0	

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When a table does not load a value, it means that the OID does not exist on the equipment:

Details

Identifier (OID):	1.3.6.1.4.1.2021.2.1.2.0
Description:	
Value:	225568

Empty result

prIndex	prNames	prMin	prMax	prCount	prErrorFlag	prErrorMessage	prErrFix	prErrFixCmd
No element								

↻

When the desired OID has been found, click on the "Save" button to return to the check parameters.

IV. Manual tests

To be sure that the equipment will respond to the request it is possible to test the OID manually.

Example:

```
snmpget -v 2c -c public 10.0.0.1 1.3.6.1.4.1.9.6.1.105.1.12
SNMPV2-SMI::enterprises.9.6.1.105.1.12.0 = STRING: « Thu Jul 30 15:49:20 2015, cisco changed »
```

The term "STRING" in the response indicates that the value returned is alphanumeric.

The SNMPGET command can be used to obtain the value corresponding to the OID.

The SNMPWALK command can be used to obtain the values of all OIDs existing after the last integer of the OID passed in the command.

V. Error messages

- "Result was not a Number": the alert threshold is set to be "numeric" and the response contains text. This may be due to an alphanumeric response or an error message (impossible connection, etc.).
- "No such object available on this agent at this OID" or "NoSuchInstance": The selected OID does not return any data. This can happen even if the OID comes from a manufacturer MIB dedicated to the device, the problem comes from the equipment.

Annexes

I. OID examples

Below are some examples of generic OIDs:

- 1.3.6.1.4.1.2021.10.1.3.1 => system load over 1 minute
- 1.3.6.1.4.1.2021.10.1.3.2 => system load over 5 minutes
- 1.3.6.1.4.1.2021.10.1.3.3 => system load over 15 minutes
- 1.3.6.1.4.1.2021.11.51.0 => time CPU available
- 1.3.6.1.4.1.2021.4.4.0 => free swap space
- 1.3.6.1.4.1.2021.4.6.0 => RAM used
- 1.3.6.1.4.1.2021.4.11.0 => Free RAM
- 1.3.6.1.4.1.2021.4.15.0 => cache memory
- 1.3.6.1.4.1.2021.4.5.0 => total memory of the equipment
- 1.3.6.1.2.1.1.3.0 => date and time of system startup
- 1.3.6.1.4.1.2021.9.1.7.1 => free space on the disk
- 1.3.6.1.4.1.2021.9.1.8.1 => space occupied on the disk
- 1.3.6.1.4.1.2021.9.1.9.1 => percentage of disk occupancy

Note 1: for the OIDs of the disks, the last digit corresponds to the disk number.

Document end