



BIMdance SNMP SmartConnector

User's Manual

Installation and Operation Instructions. Version 2.0.10

11.12.2024





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User's Manual

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Overview

BIMdance SNMP SmartConnector is middleware that can be plugged into the Schneider Electric SmartConnector Framework as an extension. BIMdance SNMP SmartConnector allows communication between the SNMP agent and EWS server according to user-provided configuration. EWS servers generate EBO alarms when TRAP messages are received. This extension supports the following versions of the SNMP protocol: v1, v2, and v3.

BIMdance SNMP SmartConnector includes the SNMP Manager Configurator module, which allows the creation of SNMP Manager configurations to receive required OIDs and TRAP messages. The main functionality of the SNMP Manager Configurator includes:

- SNMP Agent Discovery: Discover SNMP agents on the LAN or manually add them to the configuration.
- SNMPv3 Security: Configure SNMPv3 security settings.
- SNMPv3 Engine Configuration: Configure the SNMPv3 engine.
- MIB Entity Selection: Select the required MIB entities (objects, tables, traps, etc.) to send to the EWS server.
- Vendor MIB Parsing: Parse vendor MIBs.
- EBO Alarm Configuration: The creation and configuration of EBO alarms are based on received traps and their associated varbinds.



What's new

- Enhanced EBO Alarm Configuration: More robust configuration options for creating custom EBO alarms triggered by SNMP traps. This includes improved handling of various data types in alarm messages and the ability to specify multiple values or ranges for variables triggering alarms.
- Improved MIB Handling: Enhanced support for parsing and handling vendor-specific MIB files, improving compatibility with a wider range of SNMP devices. Improved error handling during MIB loading and parsing.
- The ability to manually specify the OIDs and IIDs of objects that are not included in the MIB file.
- Simplified Alarm Message Formatting: Improved the formatting of alarm messages sent to the EBO, making them more concise and informative. More flexible handling of ifIndex in alarm messages.
- Support for configuring SNMP trap varbind masks has been added to filter unwanted variables and improve trap processing and filtering.



Installation



The BIMdance SNMP SmartConnector requires the .NET framework version 4.8. The required SmartConnector framework version is provided in additional setup information.

BIMdance SNMP SmartConnector Installation

1. Run the setup.exe installer executable and confirm that you must run as an Administrator. You will be presented with a dialog in Fig. 1.



Figure 1. Installer welcome dialog.

- 2. Click to Install.
- 3. If .Net Framework version 4.8 is not installed, its installation will start (Fig. 2). Follow the installation instructions.

G Microsoft .NET Framework	×
.NET Framework 4.8 Setup Please accept the license terms to continue.	NET
MICROSOFT SOFTWARE SUPPLEMENTAL LICENSE TERMS	
.NET FRAMEWORK AND ASSOCIATED LANGUAGE PACKS FOR MICROSOFT WINDOWS OPERATING SYSTEM	J
Microsoft Corporation (or based on where you live, one of its affiliates) licenses this supplement to you. If you are licensed to use Microsoft Windows operating system software (the "software"), you may use this supplement. You may not use it if you do not have a license for the software. You may use this supplement with each validly licensed copy of the software.	
The following license terms describe additional use terms for this	
I have read and accept the license terms.	
For data collection information, read the <u>Microsoft Privacy Statement</u> .	
Install Can	cel

Figure 2. .NET Framework 4.8 Installer.





4. Please read the end user license agreement (Fig. 3) and select the "I accept the terms in the License Agreement" option. Then press the Install button.



Figure 3. EULA.

If, during the installation process, the error message SmartConnector not found was displayed (Fig. 4), it means that a correctly installed SmartConnector was not detected on the computer. Please check that SmartConnector is installed correctly and then try the installation again.

🛃 SNMP extensi	on for Smar	tConnector Setup	_		\times
¢	Ð	Welcome to the SNMF SmartConnector Setu	9 extensior p Wizard	n for	
		Please wait while the Setup Wiza through the installation.	ard prepares to	o guide yo	u
	SmartCor	nector not found	×		
	8	SmartConnector could not be fou Please check that it was installed	und. correctly.		
			OK		
		Back	Next	Canc	el

Figure 4. Installation error.



6. After installation, click Finish (Fig. 5).



Figure 5. Installation completed successfully.

7. Finish the installation by clicking the Close button in the installation complete dialog (Fig. 6).



Figure 6. Installation complete dialog.



SmartConnector.SnmpConfigurator operating

Main Window

After installation, you can run BIMdance SNMP SmartConnector from the Windows Start Menu - folder BIMdance, then click the BIMdance SNMP SmartConnector shortcut (Fig. 7).



Figure 7-shortcut for SNMP configurator.

The SNMP Configurator application aims to create configuration files containing a list of required OIDs, IIDs, and Traps definitions.

An **OID** is a unique identifier used to name objects in the MIB (Management Information Base). It defines the structure and hierarchy of managed objects. OIDs are represented as a series of numbers separated by dots (e.g., 1.3.6.1.2.1.1), where each number represents a node in a tree structure. Specifies what is being managed or queried (e.g., system uptime, interface status). OID defines the type or class of object (what attribute is being managed).

An **IID** specifies an instance of an object within the MIB. It is used to differentiate between multiple instances of the same object type, often in the case of tables. An IID is an extension added to an OID to identify a specific instance. Determines the particular instance of the object being managed or queried. IID specifies the instance or occurrence of that object (which specific instance is being managed).

In essence, the OID + IID combination uniquely identifies a single instance of a managed object in the SNMP system.

An **SNMP trap** is a type of asynchronous notification message sent by an SNMP agent to an SNMP manager. Traps are used to alert the manager about specific events or changes in the managed device's status without requiring the manager to poll the agent continuously. Traps notify the SNMP manager of significant events, such as system failures, configuration changes, or performance thresholds being exceeded. They allow for real-time monitoring and quicker responses to critical events.

The SNMP agent (installed on a managed device) monitors the device's status. When a predefined condition or threshold is met (e.g., high CPU usage, device reboot), the agent sends a trap message to the SNMP manager. The SNMP manager processes the trap and can take appropriate action, such as logging the event or triggering an alert.



A trap message typically includes:

- The OID (Object Identifier) identifies the type of event.
- A timestamp indicating when the event occurred.
- Additional information or variable bindings providing context about the event.

Values of these items will be forwarded to the EWS server by the SmartConnector framework. One configuration file is created for one SNMP manager.

M SmartConnector SNMP Manager Configurator		- 🗆 X
File Settings Help	B	SNMP
Agents (right-click for context menu)	Agents System Info	
	sysDescr	÷
	sysObjectID	
	sysUpTime	
	sysContact	
	sysName	
4	sysLocation	A
		Ψ.
	MIBs	* *
Time Type Origin	Destination	Ver.

Figure 8. SnmpConfigurator main window.

Main Menu. On the top of the window (Fig. 8), you can configure the SNMP v3 Authoritative engine

• Trap users set *, and specify the SNMP manager local endpoint *.

SNMP v3 Settings. SNMP v3 Authoritative engine configuration allows the setting manager Engine ID and specifies users to authenticate and decrypt received SNMP version 3 packets (Fig. 9).





44-6	-72-74-2E-50-6F-7	7-65-72-53-4E-4	D-50			ID is displaye	ed as a hex string
oots 1	Start Tim	e 15.02.2024 1	9:37:42			("xx-xxxx-	-xx")
sers Tab	,						
Name		Authentication P	assword	Protocol	Privacy	Password	Protocol
user1		123	Add .		23		TripleDes
			Delet	e			
			Prop	erties			
					_		

Figure 9. SNMP v3 Authoritative engine configuration.

You can add users by clicking the context menu on the user's table.

Trap Users. To receive and decode SNMPv3 traps, you have to configure the trap users list (Fig. 10). To decode SNMPv3 traps from any agent for a specified user, leave the User Engine ID field blank. For enhanced security, if you want to decode SNMPv3 traps for a specified user from a specific agent, enter the agent's Engine ID in the User Engine ID field. If the configurator has already received a trap from an SNMP agent, the agent's Engine ID will be available in the dropdown list.

Trap Users Configuration		× -	5		5111
00		4	gents System Info SNMPv3 User		×
Engine ID 왔	User Nar snmpadn	ne nin	Engine Id Name Auth Password Priv Password Auth Protocol	172.29.12.124:161 [80-00 172.29.12.122:161 [80-00 password password Md5 ∨ Priv Protocol OK	0-2A-1D-03-00-5 0-2A-1D-03-00-5 TripleDes ~ Cancel
(+) (-) <td>ge (Received) ge (Received)</td> <td>172.29.12.122:50120 172.29.12.122:48554</td> <td>Des 0.0. 0 0.0. 4 0.0.</td> <td>tination 0.0:50937 0.0:162 0.0:162</td> <td>Ver. Three Three Three</td>	ge (Received) ge (Received)	172.29.12.122:50120 172.29.12.122:48554	Des 0.0. 0 0.0. 4 0.0.	tination 0.0:50937 0.0:162 0.0:162	Ver. Three Three Three

Figure 10. Trap Users.





Ethernet Settings. SNMP manager local IP endpoint allows the specification required network interface and port, which listens on the trap and informs messages (Fig. 11).

Choose Loo	al Address/Port	×
Address:	192.168.56.1 ~	Port: 162
	ОК	Cancel

Figure 11. Local IP Endpoint.

Logging. The communication log allows the user to obtain full information about SNMP communication between the manager and agents (Fig. 8.8). Request and response messages are shown in the log monitor. When communication fails, or a response contains errors, a user can inspect this information through a detailed message window (Fig. 12).



Figure 12. Logging.

The button to enable the notification monitor starts the notification catcher (Fig. 8.2). All received traps and informed messages are displayed on the log monitor.

Buttons on Fig. 8.3 allow to create new, save current, or open saved configurations.





Agents. The list of configured Agents for communication is presented in Fig. 8.4 and Fig. 13. After clicking on the Agent item, the configurator shows basic SNMP information on the form's right side: sysDescr, sysObjectId, sysContact, sysName, sysLocation, and loaded MIB files. It allows checking that the device communicates appropriately. The error message appears in the sysDescr field if the device is offline.

Agents (right-click for context menu)	Agents System	n Info	
10.0.0.181:161	sysDescr	Brother NC-8100w, Firmware Ver.1.02 (13.03.07),MID 84E-401	4
	sysObjectID	1.3.6.1.4.1.2435.2.3.9.1	
	sysUpTime	19664595	
	sysContact		
	sysName	BRWF4B7E29ECE9B	
	sysLocation		4
			4
Q	MIBs		4

Figure 13. Agents.

Manage the list of Agents.

You can add or discover SNMP devices manually. For manual adding, press the "+" button (Fig. 8.7).

Neme	<u> </u>		Port 1	01	version: U	02	0
Name:	public						
User Authentica	tion and Privacy	/ (V3)					
Name							
Auth Password					Auth Protocol	None	~
Priv Password					Priv Protocol	None	~

Figure 14. Adding SNMP devices.

On the displayed dialog (Fig. 14), setting the IP address, TCP port, device name, Community, and version is required for v1 and v2. For version 3, additional security settings are possible.

Each item in the Agents list can be removed or edited with appropriate buttons (Fig. 8.7).





The Device discovery dialog can be called by button Fig. 8.6. When the dialog appears, the discovery procedure is initialized. After about 60 seconds, the result of the discovery is listed in the Discovered Agents list. By checking wanted items, you can add agents to the current configuration. Confirm adding by + button.

Devices Discovering	x
Discovered Agents Image: 192.168.56.1:161	
1 devices found.	\otimes \oplus

Figure 15. Discovering.

SNMP Agent Configuration

After creating the required Agent list, you must configure each device. It means you must specify the necessary OIDs, tables IIDs, and traps to process. Access to the device configuration tool is possible through the device context menu in the Agents list.



Figure 16. Agent context menu.





Buttons on Fig. 16.1 are the same as in Fig. 8.7. For configuring the device, press Configure Device... (Fig. 16.2). After that, an agent configuration dialog will appear (Fig. 17).

M SNMP Entity Configuration					- 🗆 ×
File					
SNMP Entity: 172.29.12.86	:161			(\div)	ΘX✓
MIB Tree (drag and drop to Required OIDs)	Required OIDs (participa	te in requests)			-
⊡ ≣ 3 org	Name		Module	Usage	lype
ė	iii sysContact	1.3.6.1.2.1.1.4	RFC1213-MIB	Object	Dart.Snmp.SimpleType.Oct.
internet					
arrectory					
□ □ 1 mib_2					
⊟ ⊡≣ 1 system					
······································					
4 sysContact					
5 sysName					
6 sysLocation					
8 svsORLastChange					
9 sysORTable					
i interfaces	<				>
terten 4in	Details				
€ 5 icmp	Name: sysContact				^
ter and the second sec	OID: 1.3.6.1.2.1.1.4 Module: RFC1213-MIB				
Tudp	Usage: Object				
10 transmission	Syntax: OctetString (SIZ	E (0255))			
259 nodes loaded	Diselar Lint- 266a				

Figure 17. Snmp Entity Configuration.

Consider the configuration of the example device Dlink DGS-1210-28P (IP:192.168.56.1). First, we need to add additional MIB files that contain the necessary definitions for this device:

• Go to the menu File -> Load MIB.... In the Open dialog, specify the required MIB files and their dependencies (section IMPORTS of the file (Fig. 18)).



41	
42	DGS-1210-28P_BX DEFINITIONS ::= BEGIN
44	IMPORTS
	MODULE-IDENTITY, OBJECT-TYPE,
46	enterprises, IpAddress, Integer32, Unsigned32, TimeTicks, Counter32
47	
40	
49	
50	
51	SnmpAdminString,SnmpEngineID,SnmpSecurityLevel FROM SNMP-FRAMEWORK-MIB
52	dot1dBridge, dot1dBasePortEntry, dot1dBasePort FROM BRIDGE-MIB
53	RowStatus, TruthValue, DisplayString,
54	TEXTUAL-CONVENTION, MacAddress FROM SNMPv2-TC
	AddressFamilyNumbers FROM IANA-ADDRESS-FAMILY-NUMBERS-MIB;
57	
58	d-link OBJECT IDENTIFIER ::= { enterprises 171 }
	dlink-products OBJECT IDENTIFIER ::= { d-link 10 }
60	<pre>dlink-DGS12XXSeriesProd OBJECT IDENTIFIER ::= { dlink-products 76}</pre>
61	dgs-1210-28pbx OBJECT IDENTIFIER ::= { dlink-DGS12XXSeriesProd 16 }
62	

Figure 18. MIB Dependencies.

٢		Select MIB files					x
€ ⊚ - ↑ 퉫 •	This PC + Local Disk (C:) + Temp + SnmpExte	ension + Configurator +	Mibs	✓ C S	earch Mibs		P
Organize 👻 New folde	er					•	
🖳 Recent places 🦯	Name	Date modified	Туре	Size			
This PC Desktop Documents Downloads Music Pictures Videos Local Disk (C:) Local Disk (C:) Distr (F:) Backup1 (G:) Backup2 (H:) Local Disk (b:) Distr (F:)	DGS-1210-28P-BX-3-10-008.mib ianaaddresfamilynumbers-mib.txt IF-MIB INET-ADDRESS-MIB.mib SNMP-FRAMEWORK-MIB.mib	4/8/2015 8:45 PM 10/23/2018 3:57 AM 1/20/2014 1:12 PM 10/23/2018 3:54 AM 1/20/2014 1:12 PM	MIB File Text Document File MIB File MIB File	393 KB 8 KB 71 KB 17 KB 22 KB			
File	name:				All files (*.*) Open	Cance	

Figure 19. Open dialog.

• Press the OPEN button. After parsing MIB files in the MIB Definition Tree, new objects corresponding to the Dlink switch will appear (Fig. 20).







Figure 20. MIB Tree.

• In the next step, we have to specify the required objects for requests. Expand the required node of the MIB Tree and drag and drop objects to the Required OIDs table. If the required object has a Usage attribute equal to Table, you can choose the necessary IIDs using the object context menu (Fig. 21, 22).



Required OIDs (participate	in requests)				
Name	OID	Module	Usage	Туре	
i≡ sysContact	1.3.6.1.2.1.1.4	RFC1213-MIB	Object	Dart.Snmp.SimpleType.(
i≡ sysName	1.3.6.1.2.1.1.5	RFC1213-MIB	Object	Dart.Snmp.SimpleType.(I
i≡ sysLocation	1.3.6.1.2.1.1.6	RFC1213-MIB	Object	Dart.Snmp.SimpleType.(1
sysServices	1.3.6.1.2.1.1.7	RFC1213-MIB	Object	Dart.Snmp.SimpleType.I	I
sysORLastChange	1.3.6.1.2.1.1.8	SNMPv2-MIB	Object	Dart.Snmp.SimpleType.	I
📰 ifNumber	1.3.6.1.2.1.2.1	RFC1213-MIB	Object	Dart.Snmp.SimpleType.I	1
ipForwarding	1.3.6.1.2.1.4.1	RFC1213-MIB	Object	Dart.Snmp.SimpleType.I	I
i ipDefaultTTL	1.3.6.1.2.1.4.2	RFC1213-MIB	Object	Dart.Snmp.SimpleType.I	I
ipInReceives	1.3.6.1.2.1.4.3	RFC1213-MIB	Object	Dart.Snmp.SimpleType.C	I
📰 ipInHdrErrors	1.3.6.1.2.1.4.4	RFC1213-MIB	Object	Dart.Snmp.SimpleType.(I
ip In AddrErrors	1.3.6.1.2.1.4.5	RFC1213-MIB	Object	Dart.Snmp.SimpleType.(I
i Table	-		ble	Dart.Snmp.SequenceOf	1
📰 at Table 🛛 🔵 💶	Remove		ble	Dart.Snmp.SequenceOf	I
ipAddrTable			ble	Dart.Snmp.SequenceOf	ľ
	Select required obje	ects from table			
Details	Set custom notifica	tion message			
Name: if Table OID: 1.3.6.1.2.1.2.2 Module: RFC1213-MIB Usage: Table Type: Dart.Snmp.Sequence Syntax: SequenceOf Seque	:Of ence {ifIndex Integer, ifDesc	r Octet String, if Type Intege	n if Mtu Integer if	Speed Gauge, ifPhysAddress	
Dhun Addman if Admin Ctatus	Internet ifOnerStatus Interne	r ifl antChange Time Tieles	if In October Count	or if In Lloost Dista Countar	

Figure 21. Table definition.

M Select required IIDs from table	•		– 🗆 X
SNMP Table	: Name: ifTable Ol	D: 1.3.6.1.2.1.2.2	$\times \oplus$
Name	OID	Value	
1.3.6.1.2.1.2.2.1.1.2 (fIndex)	1.3.6.1.2.1.2.2.1.1.2	2	
1.3.6.1.2.1.2.2.1.2.2 (if Descr)	1.3.6.1.2.1.2.2.1.2.2	NullO	
1.3.6.1.2.1.2.2.1.3.2 (fType)	1.3.6.1.2.1.2.2.1.3.2	1	
1.3.6.1.2.1.2.2.1.4.2 (fMtu)	1.3.6.1.2.1.2.2.1.4.2	1500	
1.3.6.1.2.1.2.2.1.5.2 (fSpeed)	1.3.6.1.2.1.2.2.1.5.2	4294967295	
1.3.6.1.2.1.2.2.1.1.3 (fIndex)	1.3.6.1.2.1.2.2.1.1.3	3	1
1.3.6.1.2.1.2.2.1.2.3 (fDescr)	1.3.6.1.2.1.2.2.1.2.3	Loopback0	
1.3.6.1.2.1.2.2.1.3.3 (fType)	1.3.6.1.2.1.2.2.1.3.3	24	
1.3.6.1.2.1.2.2.1.4.3 (fMtu)	1.3.6.1.2.1.2.2.1.4.3	1514	
1.3.6.1.2.1.2.2.1.5.3 (fSpeed)	1.3.6.1.2.1.2.2.1.5.3	4294967295	
1.3.6.1.2.1.2.2.1.1.4 (flndex)	1.3.6.1.2.1.2.2.1.1.4	4	
1.3.6.1.2.1.2.2.1.2.4 (fDescr)	1.3.6.1.2.1.2.2.1.2.4	Man201	
1.3.6.1.2.1.2.2.1.3.4 (#Type)	1.3.6.1.2.1.2.2.1.3.4	6	
1.3.6.1.2.1.2.2.1.4.4 (fMtu)	1.3.6.1.2.1.2.2.1.4.4	1500	
1.3.6.1.2.1.2.2.1.5.4 (#Speed)	1.3.6.1.2.1.2.2.1.5.4	100000000	
1.3.6.1.2.1.2.2.1.1.5 (fIndex)	1.3.6.1.2.1.2.2.1.1.5	5	
1.3.6.1.2.1.2.2.1.2.5 (fDescr)	1.3.6.1.2.1.2.2.1.2.5	Man202	
1.3.6.1.2.1.2.2.1.3.5 (#Type)	1.3.6.1.2.1.2.2.1.3.5	6	
1.3.6.1.2.1.2.2.1.4.5 (if Mtu)	1.3.6.1.2.1.2.2.1.4.5	1500	
1.3.6.1.2.1.2.2.1.5.5 (fSpeed)	1.3.6.1.2.1.2.2.1.5.5	100000000	

Figure 22. Choosing IIDs.

• If you don't need any other objects for requests, press the V button on Snmp Entity Configuration Dialog (Fig. 16). If at least one object is added to the configuration of OIDs or IIDs, the buttons Query Device Values... and Query Device Tables... (Fig. 16.3, 4) are enabled.



- **SNMP**
- If you need to add an OID or IID that doesn't exist in the current MIB file, you can add its OID

manually by pressing the l	button $(+)$ in Figure 23.	
M SNMP Entity Configuration		- 🗆 X
File		
SNMP Entity: 172.29.12.72	2:161 snmpadmin Add new Required OID ×	
MIB Tree (drag and drop to Required OIDs)	Name OID Check Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes Image: SysDes	Usage Type Object Dart.Snmp.SimpleType.Oct. Object Dart.Snmp.SimpleType.Oct. Object Dart.Snmp.SimpleType.Id Object Dart.Snmp.SimpleType.Id Notification Notification Notification Notification Notification
Time Systematics Time Systematics Time Systematics Systematics Time 2 interfaces	OK Cancel	,
terren arten arte	Details	
thermal forms thermal forms therm		
273 nodes loaded		

 \bigcirc

Figure 23. Adding OID manually.

• After entering OID and pressing the Check button (Fig.23), the application will try to connect to the device and read object values (Fig. 24). Checking requires that the device should be online and available.





2	Add new Required OID $\qquad \times$
	OID 1.3.6.1.2.1.1.4 Check
	Name: sysContact OID: 1.3.6.1.2.1.1.4 Module: RFC1213-MIB Usage: Object Type: Dart.Snmp.SimpleType.OctetString Syntax: OctetString (SIZE (0255)) Display-Hint: 255a Access: ReadWrite Status: Mandatory Description: The textual identification of the contact person for this managed node, together with information on how to contact this person.
and the state of t	OK Cancel

Figure 24.Successful checking.

SNMP traps and EBO alarms

If you need to get traps into EBO, you should configure the transformation of trap messages to EBO alarms:

• Configure SNMP Trap v3 users. The Engine ID can be added manually or selected from the drop-down list or left blank if you want to receive traps from all devices.



Figure 25.Configuring trap users.





SNMPv3 User	×
Engine Id Name Auth Password	172.29.12.124:161 [80-00-2A-1D-03-00-5 172.29.12.122:161 [80-00-2A-1D-03-00-5 password
Priv Password	password
Auth Protocol	Md5 \checkmark Priv Protocol TripleDes \vee
	OK Cancel

Figure 26.Configuring trap users.

• Import the MIB file into the SNMP configurator and add the required trap OIDs

M SNMP Entity Configuration					- 🗆 ×
File Load MIB Close Close	:161 snmpadm	in		(+)	ЭXV
Intervention of the control of the	Name iii sysName iii sysName iiii sysNervices iiii pinReceives iii poddrTable iiii coldStart iiii warmStart iiinkDown iiii authenticationFailure Vetails	OID 1.3.6.1.2.1.1.5 1.3.6.1.2.1.1.1 1.3.6.1.2.1.4.3 1.3.6.1.2.1.4.23 1.3.6.1.2.1.4.20 1.3.6.1.6.3.1.1.5.1 1.3.6.1.6.3.1.1.5.2 1.3.6.1.6.3.1.1.5.3 1.3.6.1.6.3.1.1.5.5	Module RFC1213-MIB RFC1213-MIB RFC1213-MIB RFC1213-MIB RFC1213-MIB SNMPv2-MIB SNMPv2-MIB SNMPv2-MIB SNMPv2-MIB	Usage Object Object Object Object Table Notification Notification Notification	Type Dart.Snmp.SimpleType.Oct. Dart.Snmp.SimpleType.Oct. Dart.Snmp.SimpleType.Inte. Dart.Snmp.SimpleType.Co Dart.Snmp.SequenceOf
273 nodes loaded	,				^

Figure 27. Trap adding.





• By default, the SNMP extension transfers the trap message to the EBO Alarm as an Alarm message (Alarm text). Since a single trap is sent for all ports' linkUp (linkDown) events, a single alarm object (with a changing text) will be created in the EBO for linkUp (linkDown) events.



• If you need another alarm text, it is possible to override it. This can be done via the context menu option 'Set custom notification message' Fig. 29.1.

		SNMP E	ntity Configuration			
File SNMP Entity: 10.0.0.113:	:16	1 snmpadmi	n dlink		()	ΘX✓
MIB Tree (drag and drop to Required OIDs)		Required OIDs (participat	e in requests)	Mada	Luna	T
		Name	OID	Module	Usage	Туре
		iii sysName	1.3.6.1.2.1.1.5	RFC1213-MIB	Object	Dart.Snmp.SimpleType.Oct.
		E snmp TrapOID	1.3.6.1.6.3.1.1.4.1	RFC1213-MIB	Object	Dart.Snmp.SimpleType.Id
		snmpSetSerialNo	1.3.6.1.6.3.1.1.6.1	SNMPv2-MIB	Object	Dart.Snmp.SimpleType.Inte
		III if Table	1.3.6.1.2.1.2.2	RFC1213-MIB	Table	Dart.Snmp.SequenceOf
		III ipAddrTable	1.3.6.1.2.1.4.20	RFC1213-MIB	Table	Dart.Snmp.SequenceOf
E I system		III ipNetToMediaTable	1.3.6.1.2.1.4.22	RFC1213-MIB	Table	Dart.Snmp.SequenceOf
1 svsDescr		III ifXTable	1.3.6.1.2.1.31.1.1	IF-MIB	Table	Dart.Snmp.SequenceOf
2 sysObjectID	≡	📃 coldStart	1.3.6.1.6.3.1.1.5.1	SNMPv2-MIB	Notification	
3 sysUpTime		🔢 warmStart	1.3.6.1.6.3.1.1.5.2	SNMPv2-MIB	Notification	
4 sysContact		linkDown	2711231321	SNMP22-MIB	Notification	
5 sysName		🖬 linkUp 🕞	Remove	ИВ	Notification	
6 sysLocation		authentication		ИІВ	Notification	
		😑 egpNeighborL 📰	Select required objects from	n table MIB	Notification	
8 sysORLastChange		Q	Set custom notification me	ssage		
Interfaces		<	Ш			>
Brean Aip		Details				
Biemp Biem 6tcp Biem 7udp Biem 8egp	~	Name: linkDown OID: 1.3.6.1.6.3.1.1.5.3 Module: SNMPv2-MIB Usage: Notification Type:				_ ≡
< III >		Syntax:				×
1288 nodes loaded						





In the configuration window (Fig. 30), you can define alarm template text messages (Fig. 30.4). These templates can be constant or include values from other SNMP objects (Fig. 30.3). Indexes (or other varbind values) for generating individual alarms are set in Fig. 30.2. For each received trap, the SNMP extension generates an EBO alarm using the specified template (Fig. 30.4).

As an example, it is required that individual EBO alarms are generated for linkDown events on ports 1 through 18, with the affected port's name indicated in the alarm text.

			C	ustom No	tification I	Message			
Over	ride Natification Measure								
J Oven	nde Noulication message								
Notifica	ation Message Settings								
Varbin	nds								
	Variable				OI)			
►	ifIndex				1.3	.6.1.2.1.2.2.1.1.*			
	ifOperStatus				1.3	.6.1.2.1.2.2.1.8.*			
									1
✓ In	adividual alarma for the poloci	ليت التحديد التحد							
	IUIVIUUAI AIAITIIS IUI LITE SELECLI	ed varbind	values (Maxim	um 256 valu	es per trap)				
	iuividual alainis for the select	ed varbind	values (Maxim	um 256 valu	es per trap)				
ifInde	ex		1-18	um 256 valu	es per trap)			 	2
ifInde	ex		1-18	ium 256 valu	es per trap)			 	2
ifInde	ex lests		1-18	um 256 valu	es per trap)				
if Inde	ex lests		1-18	um 256 valu	OII	0			
ifInde Reque	ex lests Variable fName	varbina v	1-18	um 256 valu	OII	D .6.1.2.1.31.1.1.1.1	.{fIndex}	 	
ifInde Reque	ex lests Variable if Name	v varbina	T-18	um 256 valu	OII	D .6.1.2.1.31.1.1.1.1	.(fIndex)	 	
ifInde Reque	ex lests Variable if Name		1-18	um 256 valu	OIL	D .6.1.2.1.31.1.1.1.1	.(fIndex)		
ifInde Reque	ex lests Variable fName		1-18	um 256 valu	OII	D .6.1.2.1.31.1.1.1.1	.{fIndex}		
ifInde Reque	ex lests Variable fName		1-18	um 256 valu	OII	D .6.1.2.1.31.1.1.1.1	.{fIndex}		2
ifInde Reque	ex lests Variable if Name		Values (Maxim	um 256 valu	OII	D .6.1.2.1.31.1.1.1.1	.(flndex)		
ifInde Reque	ex lests Variable if Name		1-18	um 256 valu	OII	D .6.1.2.1.31.1.1.1.1	.{fIndex}		
if Inde Reque	ex ests Variable fName Template		1-18	um 256 valu	OII	D .6.1.2.1.31.1.1.1.1	.{fIndex}		
ifInde Reque	ex ests Variable fName Template me} link down. OperStatus = {	(ifOperStatu	I-18	um 256 valu	OII	D .6.1.2.1.31.1.1.1.1	.{fIndex}		
ifInde Reque • •	ex uests Variable fName Template me) link down. OperStatus = {	{ifOperStatu	values (viaxom	um 256 valu	OIL	D .6.1.2.1.31.1.1.1.1	.{findex}		
ifInde Reque	ex lests Variable ifName i Template me) link down. OperStatus = {	{ifOperStatu	values (viaxim 1-18 is}	um 256 valu	OII	D .6.1.2.1.31.1.1.1.1	.(fIndex)		

Figure 30. Configure alarm message.

The example below uses the ifIndex varbind (Fig. 30.1) to request the port name from the ifName table (Fig. 30.3) by selecting a specific row. The ifOperStatus varbind's value is then





included in the alarm text. Figure 30.2 specifies the index range for which individual alarm objects should be created (maximum 256 per each trap).

You can find varbinds in the message details section of the SNMP Manager configurator (Fig. 31)

Message Type: Trap2Message Time Received: 10.12.2024 15:32:36 SNMP Version: Two Origin Address/Port: 10.0.0.113:49154 Destination Address/Port: 0.0.0.0:162				~
Community: snmpadmin Id: 1326749069 Variable IIDs and Values: <u>1.3.6.1.2.1.2.2.1.1.3 (ifIndex): 3</u> <u>1.3.6.1.2.1.2.2.1.7.3 (ifAdminStatus)</u> <u>1.3.6.1.2.1.2.2.1.8.3 (ifOperStatus)</u> <u>1.3.6.1.6.3.1.1.4.3.0 (snmpTrapEnte</u>): 1 2 rprise): 1.3.6.1.2.1.1	<u>1</u>		
Description: SysUpTime: 78835187 OID: 1.3.6.1.6.3.1.1.5.3				<
Description: SysUpTime: 78835187 OID: 1.3.6.1.6.3.1.1.5.3 15:27:48.5096267 Trap2Message (R	eceived) 10	0.0.0.113:49154	4	0.0.0
Description: SysUpTime: 78835187 OID: 1.3.6.1.6.3.1.1.5.3 15:27:48.5096267 Trap2Message (R/ 15:31:05.5207139 Trap2Message (R/	eceived) 10 eceived) 10	0.0.0.113:49154 0.0.0.113:49154	4	0.0.0



Creating the required EBO alarm objects resulted in the display shown in Figure 32.





30 - 年×	Alarms ×	
	Вид Список Свойства	
77	🛱 🕞 🗄 🔂 - 🖉 Быстрый ф	ильп
rs	Имя	Описание
	10.0.0.113_dlink_authenticationFailure	An authenticationFailure trap signifies that the SNMP entity has received a protocol message that is not properly authenticated. While all implementations of SNMP entitie
•	/ 10.0.0.113_dlink_coldStart	A coldStart trap signifies that the SNMP entity, supporting a notification originator application, is reinitializing itself and that its configuration may have been altered.
Jt	10.0.0.113_dlink_egpNeighborLoss	An egpNeighborLoss trap signifies that an EGP neighbor has been marked down and the EGP peer relationship no longer obtains.
Folder	10.0.0.113_dlink_linkDown	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
Web Service EcoStruxure	10.0.0.113_dlink_linkDown_ifIndex_1	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
SnmpManager	10.0.0.113_dlink_linkDown_ifIndex_2	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
∡ 🔯 10.0.0.113_dlink	10.0.0.113_dlink_linkDown_ifIndex_3	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
▶ Alarms	10.0.0.113_dlink_linkDown_ifIndex_4	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
	10.0.0.113_dlink_linkDown_ifIndex_5	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
	10.0.0.113_dlink_linkDown_ifIndex_6	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
ipAdd Table	10.0.0.113_dlink_linkDown_lfIndex_7	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
dink DeviceStatus	10.0.0.113_dlink_linkDown_ifIndex_8	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
SnmpSetSerialNo	10.0.0.113_dlink_linkDown_ifIndex_9	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
snmpTrapOID	10.0.0.113_dlink_linkDown_ifIndex_10	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
b SysName	10.0.0.113_dlink_linkDown_ifIndex_11	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
ResetAlarms	10.0.0.113_dlink_linkDown_ifIndex_12	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
NOt2	10.0.0.113_dlink_linkDown_ifIndex_13	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
Дискретное значение	10.0.0.113_dlink_linkDown_ifIndex_14	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
Уведомление, вызванное переменной	10.0.0.113_dlink_linkDown_ifIndex_15	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
Шаблон отчета уведомления	10.0.0.113_dlink_linkDown_ifIndex_16	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
1д Тревог	10.0.0.113_dlink_linkDown_ifIndex_17	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
	10.0.0.113_dlink_linkDown_ifIndex_18	A linkDown trap signifies that the SNMPv2 entity, acting in an agent role, recognizes a failure in one of the communication links represented in its configuration.
	10.0.0.113 dlink linkUp	A linkUp trap signifies that the SNMPv2 entity, acting in an agent role, recognizes that one of the communication links represented in its configuration has come up.

Figure 32. EBO alarm objects.

The receipt of a trap will activate the alarm with the corresponding text, as shown in Figure 33.

✓ 🛕 💩 🚿 🚍 🗿 🖀 🖀 🖾 💁 🖓 🖧 → 🏹 🖧 - Dow

Состояние	 Количество 	Приоритет	Время срабатывания 🔻	Имя источника	Текст сигнала тревоги
<u> </u>	0	55	11.12.2024 13:21:26	10.0.0.113_dlink_linkDown_ifIndex_6	10.0.0.113_dlink_linkDown_ifIndex_6 : Slot0/6 link down. OperStatus = 2
<u> </u>	0	55	11.12.2024 13:21:20	10.0.0.113_dlink_linkDown_ifIndex_5	10.0.0.113_dlink_linkDown_ifIndex_5 : Slot0/5 link down. OperStatus = 2
<u> </u>	0	55	11.12.2024 13:21:15	10.0.0.113_dlink_linkDown_ifIndex_4	10.0.0.113_dlink_linkDown_ifIndex_4 : Slot0/4 link down. OperStatus = 2
<u> </u>	0	55	11.12.2024 13:21:09	10.0.0.113_dlink_linkDown_ifIndex_3	10.0.0.113_dlink_linkDown_ifIndex_3 : Slot0/3 link down. OperStatus = 2
<u> </u>	0	55	11.12.2024 13:21:04	10.0.0.113_dlink_linkDown_ifIndex_2	10.0.0.113_dlink_linkDown_ifIndex_2 : Slot0/2 link down. OperStatus = 2
<u> </u>	0	55	11.12.2024 13:20:56	10.0.0.113_dlink_linkDown_ifIndex_7	10.0.0.113_dlink_linkDown_ifIndex_7 : Slot0/7 link down. OperStatus = 2

Figure 33. EBO alarm messages.



SNMP Agent requests

When the configuration is complete, you can check it by performing requests. In the SNMP Agent context menu, select Query Device Values... (Fig. 16.3). After that, a response form will appear (Fig. 34).

Name	OID	Value	Туре				
i≣ sysObjectID	1.3.6.1.2.1.1.2	1.3.6.1.4.1.9.1.258	Dart.Snmp.SimpleType.ld				
i≣ sysUpTime	1.3.6.1.2.1.1.3	140314	Dart.Snmp.SimpleType.TimeTicks				
i≡ sysContact	1.3.6.1.2.1.1.4	admin	Dart.Snmp.SimpleType.OctetString				
i≡ sysName	1.3.6.1.2.1.1.5	DLINKROUTER	Dart.Snmp.SimpleType.OctetString				
sysLocation	1.3.6.1.2.1.1.6	server-room-2	Dart.Snmp.SimpleType.OctetString				
sysServices	1.3.6.1.2.1.1.7	78	Dart.Snmp.SimpleType.Integer				
i≡ sysORLastChange	1.3.6.1.2.1.1.8	0	Dart.Snmp.SimpleType.TimeTicks				
ifNumber ⊡	1.3.6.1.2.1.2.1	0	Dart.Snmp.SimpleType.Integer				
ipForwarding	1.3.6.1.2.1.4.1	1	Dart.Snmp.SimpleType.Integer				
📰 ipDefaultTTL	1.3.6.1.2.1.4.2	255	Dart.Snmp.SimpleType.Integer				
ipInReceives	1.3.6.1.2.1.4.3	504125447	Dart.Snmp.SimpleType.Counter				
ipInHdrErrors	1.3.6.1.2.1.4.4	227191340	Dart.Snmp.SimpleType.Counter				
ipInAddrErrors	1.3.6.1.2.1.4.5	0	Dart.Snmp.SimpleType.Counter				
Details Vame: sysLocation VID: 1.3.6.1.2.1.1.6 Value: RFC1213-MIB Vage: Object Vipe: Dart.Smmp.SimpleType.OctetString Vipe: Detats String (STE)							
Access: Read/Write Status: Mandatory Description: The physical lo	ocation of this node (e.g., `	'telephone closet, 3rd floor').					

Figure 34. Responses.

The column Value has some IID values if the configuration is correct and the device is online. In case of failure, you can inspect the issue by log monitoring (Fig. 12).





Also, you can get whole IID values of required SNMP tables by pressing Query Device Tables... (Fig. 16.4). Response form on Fig. 35.

Manag	OID	Tree		
Name	OID	Туре		
⊞ ifTable	1.3.6.1.2.1.2.2	Dart.Snmp.SequenceOf		
at lable	1.3.6.1.2.1.3.1	Dart.Snmp.SequenceOf		
	1.5.0.1.2.1.4.20	Dart.oninp.SequenceOf		
Table View				
Table View fIndex	fDescr	ŕТуре	ifMtu	ifSpeed
Table View fIndex 2	fDescr Null0	fType	ifMtu 1500	ifSpeed 429496729
Table View findex 2 3	fDescr Null0 Loopback0	fType 1 24	ifMtu 1500 1514	ifSpeed 429496729 429496729
iable View findex 2 3 4	ifDescr Null0 Loopback0 Van201	fType 1 24 6	ifMtu 1500 1514 1500	fSpeed 429496729 429496729 100000000
Table View findex 2 3 4 5	ifDescr Null0 Loopback0 Vian201 Vian202	fType 1 24 6 6	ifMtu 1500 1514 1500 1500	ifSpeed 429496729 429496729 10000000 100000000
Table View findex 2 3 4 5 5 5	ifDescr Null0 Loopback0 Vian201 Vian202 Vian203	f Type 1 24 6 6 6	ifMtu 1500 1514 1500 1500 1500	ifSpeed 429496729 429496729 10000000 10000000 10000000
Table View findex 2 3 4 5 6 7	fDescr Null0 Loopback0 Van201 Van202 Van203 Van204	fType 1 24 6 6 6 6	fMtu 1500 1514 1500 1500 1500 1500	fSpeed 429496729 429496729 10000000 10000000 10000000 10000000
Table View (Index 2 3 4 5 5 7 7	fDescr Null0 Loopback0 Vian201 Vian202 Vian203 Vian203 Vian204 Vian205	f Type 1 24 6 6 6 6 6 6	ifMtu 1500 1514 1500 1500 1500 1500 1500	fSpeed 429496729 429496729 10000000 10000000 10000000 10000000 1000000
Table View Findex 2 3 4 5 5 5 7 8 9	fDescr Null0 Loopback0 Van201 Van202 Van203 Van204 Van205 Van205	f Type 1 24 6 6 6 6 6 6 6 6 6	ifMtu 1500 1514 1500 1500 1500 1500 1500 1500	fSpeed 429496729 429496729 10000000 100000000 100000000 100000000

Figure 35. Table Response Form.

SNMP Set request is also available. Press the button Set value... in the device context menu (Fig. 16.5). The Set value dialog will appear. The configurator may write all values with ReadWrite credentials.





Objects Set Value							
objects bet value				^			
	ntity: 192.168	.56.1:161 Dlink					
MIB Node Name	New Value						
sysUpTime				Set			
Name	OID	Туре	Access				
i≡ sysObjectID	1.3.6.1.2.1.1.2	Dart.Snmp.SimpleType.Id	ReadOnly				
📰 sysUp Time	1.3.6.1.2.1.1.3	Dart.Snmp.SimpleType.TimeTicks	ReadOnly				
:≡ sysContact	1.3.6.1.2.1.1.4	Dart.Snmp.SimpleType.OctetString	ReadWrite				
📰 sysName	1.3.6.1.2.1.1.5	Dart.Snmp.SimpleType.OctetString	ReadWrite				
= sysLocation	1.3.6.1.2.1.1.6	Dart.Snmp.SimpleType.OctetString	ReadWrite				
sysServices	1.3.6.1.2.1.1.7	Dart.Snmp.SimpleType.Integer	ReadOnly				
ः≣ sysORLastChange	1.3.6.1.2.1.1.8	Dart.Snmp.SimpleType.TimeTicks	ReadOnly				
if Number	1.3.6.1.2.1.2.1	Dart.Snmp.SimpleType.Integer	ReadOnly				
ः≣ ipForwarding	1.3.6.1.2.1.4.1	Dart.Snmp.SimpleType.Integer	ReadWrite				
ः≣ ipDefaultTTL	1.3.6.1.2.1.4.2	Dart.Snmp.SimpleType.Integer	ReadWrite				
ipInReceives	1.3.6.1.2.1.4.3	Dart.Snmp.SimpleType.Counter	ReadOnly				
ipInHdrErrors	1.3.6.1.2.1.4.4	Dart.Snmp.SimpleType.Counter	ReadOnly				
ip In AddrErrors	1.3.6.1.2.1.4.5	Dart.Snmp.SimpleType.Counter	ReadOnly				
Details			·				
Name: sysUpTime OID: 13.6.1.2.1.3 Module: RFC1213-MIB Usage: Object Type: Dart.Snmp.SimpleType.TimeTicks Syntax: TimeTicks Display-Hint: Access: ReadOnly Status: Mandatory Description: The time (in hundredths of a second) since the network management portion of the system was last re-initialized.							
				Close			

Figure 36. Set values.

Saving Configuration File

When all required objects are specified, you can save the current configuration in the file. Select menu File > Save... or press the Save button (Fig. 8.3).



BIMdance SNMP SmartConnector deployment and configuration

When the set of SNMP objects is determined and a configuration file with an objects list is created, we can deploy SnmpExtension to the SmartConnector framework.

SmartConnector portal. Initial Configuration

Type in the browser address string http://localhost:8082 for accessing the SmartConnector web portal.

BIMdance SNMP Extension installation aims to deploy libraries to the SmartConnector framework. Now, we are starting the configuration of the deployed extension:

- 1. In the portal main menu, select the item ConFigurations -> Processors.
- 2. Click on the button Add New + (Fig 37.1)

1	Status	Configurations - E	WS Servers	Setup - About		Logged in as admin v			
Processor Configurations									
Refresh ${\cal G}$	Add New 🕂								
		Name	Execution Count	Last Execution Time (hh:mm:ss)	Total Execution Time (hh:mm:ss)	Description			
66	â 🕨	Long Running Process	or O	00:00:00	00:00:00	Sample processor which will start and idle until commanded to stop.			
66	â 🕨	Null Processor	0	00:00:00	00:00:00	Sample processor that does nothing but sleep for a fixed duration.			
2 items present									



Figure 37. Adding a new extension.

3. In the dialog page, Add processor configuration and pick a BIMdance SNMP SmartConnector assembly (Fig. 38.2), then click Next.



Status Configurations + EWS Servers Setup + About	Logged in as admin +
Add Processor Configuration	
Back Next Cancel	
Step 1 - Pick an assembly	
Mongoose.Process	3 candidates
SmartConnector SnmpExtension	1 candidates
Assembly Description	
SNMP v1 v2 v3 Manager. Data Conversion to EWS	
Assembly Company	
LK Proekt Ltd.	
Assembly Copyright	
Copyright © LK Proekt Ltd. 2018	
Assembly Version	
1.1.2.8	

Figure 38. Picking the assembly.

4. Assembly includes one public class – SnmpProcessor. It will create SNMP object placeholders in the EWS server for data placement and initiate data exchange between the SNMP manager and the EWS server. Please choose SnmpProcessor (Fig. 39.1) and click the Next button (Fig. 39.2).

Status	Configurations -	EWS Servers	Setup -	About	Logged in as admin v
Add Proce	essor Con	ifiguratio	on		
Back Next Cancel	I				
Step 2 - Choos	e a Class				
SmartConnector.Snmp	Extension.SnmpProcess	sor			
		-			

Figure 39. Choosing a class.

5. The last step of adding a class to the SmartConnector framework is setting the name and description. The name must be meaningful.

Status	Configurations -	EWS Servers	Setup ▼	About		Logged in as admin -
Add Proces	ssor Con	figuratio	n			
Back Finish Cancel						
Step 3 - Name C	Configuration					
Name						
Description Snmp Manager Data Excl	nange 2					
Assembly File	-				Class Name	
C:\Program Files (x86)\Sc	hneider Electric\Smart	Connector\SmartCo	nnector.Snmp	Extension.dll	SmartConnector.SnmpExtension.SnmpProcessor	

Figure 40. Setting name and description.



- 6. After finishing the last step of processor configuration in paragraph number 5, we must set several configuration parameters of the processor in the Detail tab (Fig. 41):
 - a. Config File location (Fig. 41.2) means the configuration file of SmartConnector.SnmpConfigurator is created in the Saving Configuration File section.
 - b. Update Rate (Fig. 41.4). It means a period of sending data to the EWS server from the SNMP manager. It measures in milliseconds and can be set in [1000 200000] range.
 - c. EWS Address (Fig. 41.3) this property should be set to the address required to access our EWS interface.
 - d. Server Name (Fig. 41.5) This property is just a friendly text name field to allow you to identify the specific endpoint you are configured for quickly.
 - e. User Name and Password (41.6, 7) these properties are required to authenticate the EWS server connection.

Details	
Config File *	
D:\SnmpManagerHome_config.csnmp	ß
Realm	
CustomRealm	Ŭ
Ews Address *	
http://localhost:5305/SmartConnectorSnmpService	G
	كا
Server Name *	
SmartConnector SNMP Service	ß
User Name *	
~ Encrypted ~ 6	G
Password *	
~ Encrypted ~	G

Figure 41. Setup processor additional configuration.

- 7. Click on the Save button to finish the configuration.
- 8. SnmpProcessor is a long-running processor, and it must be run at the start of the SmartConnector framework (Fig. 42.2).

Processor	Details	Control	History	Schedule		
Runs On Sta	art				Manually Startable	
True				•	True	- 0
Runs On Sc	hedule				Manually Stoppable	
False				- 0	True	- 0

Figure 42. Update processor additional configuration.



SmartConnector portal. Run Extension



Please add a license for the BIMdance SNMP SmartConnector before running any processors. Section Licensing describes the process.

If the configuration is performed correctly, then the Processor Configuration page of the SmartConnector portal looks like in Fig. 43.

Status	Configurations -	EWS Servers	Setup - A	bout		Logged in as admin v		
Processor Configurations								
Refresh ${\cal G}$ Add New 🕇								
	Name		Execution Count	Last Execution Time (hh:mm:ss)	Total Execution Time (hh:mm:ss)	Description		
☞ @ 🗎 ►	Long Runnin	ng Processor	0	00:00:00	00:00:00	Sample processor which will start and idle until commanded to stop.		
☞ @ 🗎 ►	Null Process	or	0	00:00:00	00:00:00	Sample processor that does nothing but sleep for a fixed duration.		
66 ₫ ►	Snmp Proce	SSOF	0	00:00:00	00:00:00	Snmp Manager Data Exchange		
				3 items present				

Figure 43. Processor Configurations page.

To run the extension, press the button on Fig. 43.1 panel. After that, the button changes the icon to . Changing the icon to again means that SnmpProcessor has completed its operations, and some error occurs (please follow the instructions in the Logging section for investigation).

If the SnmpProcessor is operating correctly, the run button (Fig. 41.1) will remain **until** stopped manually by the user.



Acquiring data in SBO from the EWS server

To acquire data from the SNMP agent to EBO, create the EcoStruxure Web Service interface (Fig. 44). Specify the name and description. Click on the Next button.

Create New Object: EcoStruxure Web Service			?	×
Select type and name the object				
Quick filter Alarm Dashboard Interface Modbus Interface SmartDriver Interface SmartDriver Interface EcoStruxure Web Service Script Web Service Simple XML Web Service SOAP Web Service SOAP Web Service INET Interface INET Interface INT Interface Notification Pipe Notification Pipe Schedule	Name Path Description	ASDIO 2	Edit in wiz	card
		Create and edit Create	Can	cel

Figure 44. Creating EWS interface.

On the connection information form, specify the EWS server host IP address (Fig. 45.1). If the EWS server and Enterprise Server are located on the same PC, then IP will be 127.0.0.1 or localhost. Specify communication port to 5305 value (Fig. 45.2). EWS Path – /SmartConnectorSnmpService (Fig. 45.3). Specify the User Name – admin and New password – Admin!23 (Fig. 45.4). Click Create (Fig. 45.5).



🚰 Create New Object: Ec	oStruxure Web Service	?	×
Connection Inform	ation		
EWS Server 127. Protocol HTT	0.0.1 1 P v EWS Communication Port 5305		
EWS Path	vice Call		
User name New password	admin		
Commi password	4		
	Previous	Next	
	Create and edit Create	Cancel	

Figure 45. Specifying connection information for the interface.

If a connection between the EWS server and the SmartConnector Snmp Service interface is established, then in the system tree pane, the object Enterprise Server/Hardware/EcoStruxure Web Services/Smart Struxure Web Service Snmp/Smart Connector Snmp Service will appear (Fig. 46). Right click on it and choose the item Host EWS objects.... Then, select the target object in the system tree and click the OK button.





			-
IO - localhost - Building Operation WorkStation (\oplus	New object	Ctrl+N
Edit View Actions Window Tools Help	<u></u>	New folder	Ctrl+Shift+N
Ptruxure:	<u>A</u>	New connected object	
ilding Operation 日• 俳 🗞 🤇	Ŧ	Expand	
	Ċ	Open	Ctrl+O
→ ASDIO ► System ► Hardware ► Ec	¢	Open in new tab	Ctrl+Shift+O
Tree 🗸	đ	Show in folder	
1		View	
o System		Host EWS Objects	
Alarm Control Panel Audio	Ś	Types	
Backup and Restore	Ð	Refresh	F5
Binding Templates	-20	Cut	Ct-L V
Connect Settings	4	Cut	Ctri+X
Content Types	L)	Сору	Ctrl+C
Custom Types	r B	Paste	Ctrl+V
Domains			C. I. C. C. M.
Ecostruxure web Services		Paste as shortcut	Ctrl+Shift+V
Extended Permissions	Ē	Paste special	Ctrl+Alt+V
External Log Storage Enderation Configurations		Duplicate	
		Move	
BACnet devices	Ē	Delete	Del
EcoStruxure Web Services		Rename	F2
Alarms			16
EcoStruxure Web Service		Create shortcut	
SmartConnector SNMP Service	ß	Properties	Ctrl+R
Alarm Event Types			
LonWorks			
ZigbeePlugIn			
Interface Manager			

Figure 46. Hosting EWS objects.

After hosting EWS objects, in the system tree pane under the created interface EcoStruxure Web Service Snmp node, the SmartConnector SNMP Service folder will appear with SNMP objects (Fig. 47). If values update and the EWS State is Good, then communication between EBO Enterprise Server (or AS) and SNMP manager is established.



Name	Description	Value	EWS State				
🜍 ifTable	A list of interface entries. The number of entries is given by the value of inNum						
SysPoEPortSettingTable	A table of objects that display and control the power characteristics of power						
Dlink DGS 1210_DeviceStatus	Common SNMP device status and error description	Online	Good				
sysContact	1.3.6.1.2.1.1.4	+7 983 324 4649	Good				
log sysDescr	1.3.6.1.2.1.1.1	DGS-1210-28P 3.10.013	Good				
sysDhcpAutoConfiguration	1.3.6.1.4.1.171.10.76.16.1.14	2	Good				
🚱 sysFanStatus	1.3.6.1.4.1.171.10.76.16.1.15.1	1	Good				
sysFirmwareVersion	1.3.6.1.4.1.171.10.76.16.1.3	3.10.013	Good				
🚱 sysGroupInterval	1.3.6.1.4.1.171.10.76.16.1.6	120	Good				
sysHardwareVersion	1.3.6.1.4.1.171.10.76.16.1.2	B1	Good				
sysJumboFrameEnable	1.3.6.1.4.1.171.10.76.16.1.12	2	Good				
sysLocation	1.3.6.1.2.1.1.6	privet medved	Good				
sysLocationName	1.3.6.1.4.1.171.10.76.16.1.5	privet medved	Good				
🚱 sysLoginTimeoutInterval	1.3.6.1.4.1.171.10.76.16.1.4	4	Good				
loo sysName	1.3.6.1.2.1.1.5	superTestValue ggg	Good				
log sysObjectID	1.3.6.1.2.1.1.2	1.3.6.1.4.1.171.10.76.16	Good				
🚱 sysRestart	1.3.6.1.4.1.171.10.76.16.1.9	2	Good				
🚱 sysSafeGuardEnable	1.3.6.1.4.1.171.10.76.16.1.8	1	Good				
🚱 sysSave	1.3.6.1.4.1.171.10.76.16.1.10	2	Good				
sysServices	1.3.6.1.2.1.1.7	72	Good				
sysSwitchName	1.3.6.1.4.1.171.10.76.16.1.1	superTestValue ggg	Good				
sysSystemPassword	1.3.6.1.4.1.171.10.76.16.1.7	[htydfv	Good				
🚱 sysUpTime	1.3.6.1.2.1.1.3	103 456 784	Good				

Figure 47. Acquiring data in SBO.



Logging

SmartConnector framework records all actions and exceptions info to the log file (Fig. 48). The default location is C:\Program Data\SmartConnector\Logs*.log.

	2017-09-28	19:53:50.6452,Info,WorkerThread, <no principal="">,Opc Setup Processor for Matrikon.Simulation,Started,</no>
2	2017-09-28	19:53:51.2465,Info,WorkerThread, <no principal="">,Opc Setup Processor for Matrikon.Simulation,Ended successfully,</no>
3	2017-09-28	19:53:51.2465,Info,WorkerThread, <no principal="">,Opc Setup Processor for Matrikon.Simulation,Next run when commanded,</no>
4	2017-09-28	19:53:56.5426,Info,WorkerThread, <no principal="">,Opc Update Processor for Matrikon.Simulation,Started,</no>
5	2017-09-28	19:53:56.6367,Info,Processor, <no principal="">,Connected to server Matrikon.OPC.Simulation,</no>

Figure 48. Sample of SmartConnector framework logging.

SNMP extension configurator logs (Fig. 49) are located in

%localappdata%\Local\BIMdance\Snmp.Configurator\Log*.log.

```
2024-12-03 05:50:44.568 +10:00 [INF] Message was received:
1.3.6.1.4.1.10781.4.2.1.1 - Trap2Message (Received) - 172.29.12.124:57345 -
0.0.0.0:162 - Three)
Variables:
[1.3.6.1.4.1.10781.4.2.2.1.1 - sboAlarmMessage - Source: /7SHD1/test/Change of
State Alarm Alarm text: test Priority: 100 Triggered timestamp: 2024-12-03
05:36:01 +10H Report: ]
2024-12-03 05:51:44.548 +10:00 [INF] Message was received:
1.3.6.1.4.1.10781.4.2.1.1 - Trap2Message (Received) - 172.29.12.124:41221 -
0.0.0.0:162 - Three)
Variables:
[1.3.6.1.4.1.10781.4.2.2.1.1 - sboAlarmMessage - Source: /7SHD1/test/Change of
State Alarm Alarm text: test Priority: 100 Triggered timestamp: 2024-12-03
05:38:01 +10H Report: ]
```

Figure 49. Sample of SNMP extension configurator logging.

Licensing

After adding the extension assembly, you must install the license file provided by the seller (see <u>Contacts</u> section). To install a license, select Setup -> Licenses main menu item of the SmartConnector portal (Fig. 50.1). Click on the Add button and select the license file in the file open dialog.



S	Status	Configurations -	EWS Servers	Setup -	About				Logged in as admin -
Licenses		Licenses Configura Processo In Memor	Licenses Configuration Schedules Processor Values In Memory Cache						
Refresh 🗘	Thumbprint (Add 🕘 Dow	nload ③ Assembly Ve	Logging F Users Service S	Filters Settings		Licensed To	Expiration Date	
Ê	SmartCo	nnector.SnmpExtensi	on		No custom	features		Never expires	
Ê	Mongoos	e.Service.exe	2.5.*		No custom	features		02/07/2024 8:15 PM	
					2 items	present			

Schneider Electric

1 2022 Schneider Electric Buildings LLC. All rights reserved. This product includes functionality that is covered by patents and patents pending. Please contact Schneider Electric for details.

Figure 50. Licensing.

Software Requirements

BIMdance SNMP SmartConnector tested on the following operating systems:

- Windows 7
- Windows 8.1 x64
- Windows 10 x64
- Windows 11 x64
- Windows Server 2008 x64
- Windows Server 2012 x64
- Windows Server 2016 x64
- Windows Server 2019 x64
- Windows Server 2022 x64

This software requires .NET framework 4.8, SmartConnector v2.5.4 or later, and EcoStruxure Building Operation v5.0 or later.

Appendix 1. Troubleshooting

EWS Server is not started

It may occur if this URL is already registered in HTTP.SYS. In this case, the log file (<u>Logging</u> section) looks like this:





84	2018-08-01 12:38:39.1004,Status,Service, <no principal="">,Starting EWS Server <u>http://localhost:5358/SmartConnectorOpcDaServer.</u></no>
85	2018-08-01 12:38:39.2289,Error,Service, <no principal="">,HTTP could not register URL <u>http://+:5358/SmartConnectorOpcDaServer/.</u></no>
86	Another application has already registered this URL with HTTP.SYS.
87	Failed to listen on prefix 'http://+:5358/SmartConnectorOpcDaServer/' because it conflicts with an existing registration on the machine.
88	at System.ServiceModel.Channels.SharedHttpTransportManager.OnOpen()
89	at System.ServiceModel.Channels.TransportManager.Open(TransportChannelListener channelListener)
90	at System.ServiceModel.Channels.TransportManagerContainer.Open(SelectTransportManagersCallback selectTransportManagerCallback)
91	at System.ServiceModel.Channels.TransportChannelListener.OnOpen(TimeSpan timeout)
92	at System.ServiceModel.Channels.HttpChannelListener`1.OnOpen(TimeSpan timeout)
93	at System.ServiceModel.Channels.CommunicationObject.Open(TimeSpan timeout)
94	at System.ServiceModel.Dispatcher.ChannelDispatcher.OnOpen(TimeSpan timeout)
95	at System.ServiceModel.Channels.CommunicationObject.Open(TimeSpan timeout)
96	at System.ServiceModel.ServiceHostBase.OnOpen(TimeSpan timeout)
97	at System.ServiceModel.Channels.CommunicationObject.Open(TimeSpan timeout)
98	at Mongoose.Service.Mongoose.SpinUpEwsServerHost(EwsServer server)
99	
100	2018-08-01 12:38:39.4193,Info,Processor, <no principal="">,Add tags placeholders started,</no>

Fig. 51. EWS server starting issue log file.

To fix this issue, please follow the steps below:

- 1. Start the console with administrator permissions
- 2. Write the following command (Fig. 52.1):

Administrator: Command Prompt	x
C:\Windows\system32>netsh http show urlacl	^
	≡

Fig. 52. Command

- 3. In the result list, find the required URL (Fig. 53, line 87)
- 4. Delete item (Fig. 44.1) from the list by the following command: **netsh http delete urlacl url=http://*:5358**/
- 5. Restart OpcProcessor by the SmartConnector portal.



Administrator: Command Prompt
Listen: Yes Delegate: Yes User: BUILTIN\Administrators Listen: No Delegate: No User: NT AUTHORITY\SYSTEM Listen: Yes Delegate: Yes SDDL: D:(A;;GA;;;S-1-5-80-3435701886-799518250-3791383489-3228296122- -2938884314>(A;;GR;;;BA>(A;;GA;;;SY)
Reserved URL : http://*:5357/ User: BUILTIN\Users Listen: Yes Delegate: No User: NT AUTHORITY\LOCAL SERVICE Listen: Yes Delegate: No SDDL: D:(A;;GX;;;LS)
Reserved URL : https://*:5358/ User: BUILTIN\Users Listen: Yes Delegate: No User: NT AUTHORITY\LOCAL SERVICE Listen: Yes Delegate: No SDDL: D:(A;;GX;;;BU)(A;;GX;;;LS)
Reserved URL : http://127.0.0.1:47873/help/ User: \Everyone Listen: Yes Delegate: No SDDL: D:(A;;GX;;;WD) C:\Windows\sustem32>

Fig. 53. HTTP.SYS content

Contacts

For any questions, please mail to support@bimdance.io Discord support server: https://discord.gg/4hcsGGBBNF