

Industri<mark>al</mark> Automation



HOW TO

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INTRODUCTION

he purpose of this document is to provide instructions for the replacement of a device on the DeviceNet™ network with the same device that has a different major firmware revision. The document also shows how to create a new configuration file and download data to the scanner. It is important to emphasize that:

- IO data map is not changed during this process
- IO data size and bit map stay the same

The only requirement is that the EDS files of all devices present on the network are available during service. The same procedure may be used for the replacement of any two devices of any manufacturer where the only difference between devices is the major firmware revision number.

The replacement procedure described in this document is based on the example of swapping FDN20-4S-4XSG and FDN20-16XSG devices that have firmware revision 2.6 with the devices that have firmware revision 3.2 or greater. The tools used for network configuration are standard Rockwell Automation applications for DeviceNet network configuration: RSLinx[™] and RSNetWorx[™].

The replacement procedure includes following steps:

- Install EDS files and icons
- Save old configuration file
- Replace devices
- Power-up network
- Resolve device's mismatch
- Download new configuration
- Save new configuration file

EDS files and icons

EDS and icon files for the devices with firmware revision 2.x have been modified. These icons are shown in RED to make it easier to distinguish between the different revisions.



Installation of the EDS files is done using the standard "EDS Hardware Installation Tool" by Rockwell Software. Make sure that all Rockwell Software applications on your computer are closed before installing EDS files.

To start the EDS Hardware Installation Tool, select "Add" and follow program instruction:

This tool allows you to change the hardware description information currently installed on your computer.		
Add	Launch the EDS Wizard and add selected hardware descrip and associated components only.	
Remove	Launch the EDS Wizard and remove selected hardware des files and associated components only.	
Remove All	Remove all previously installed hardware description files an associated components from your computer.	

RED icons indicate devices having firmware revision 2. GREEN icons indicate devices having firmware revision 3.

Rockwell Softwa	re's EDS Wizard
Change Graph i You can cha	ic Image nge the graphic image that is associated with a device.
	Product Types
Change icon	General Purpose Discrete I/O
	FDN20 16×SG (16io)
	FDN20 16×SG (16io)
	FDN20 4S 4XSG (8in/4out)
	FDN20 4S 4XSG (8in/4out)
	<back next=""> Cancel</back>

SAVE OLD CONFIGURATION FILE

Start RSNetWorx, open new project and browse network. Nodes 1 and 5 will be replaced by the devices that have firmware revision 3.xxx.



UPLOAD SCANNER CONFIGURATION

Select the "Scanlist" tab of the scanner's properties window and upload the scanner's configuration:

📲 1747-SDN Scanner Module 🔹 💽 🔀
General Module Scanlist Input Output ADR Summary
1747-SDN Scanner Module Name: 1747-SDN Scanner Module
Scanner Configuration Applet 🛛 🔀
software's configuration; or download the software's configuration to the device, updating the device? For more information, press F1
Device: 1747-SDN Scanner Module [19]
Catalog: 1747-SDN/B
Revision: 6.002
OK Cancel Apply Help

Check input and output data maps. Do not change or modify any data.

1747-SDN Scanner Module	?
General Module Scanlist Input Output ADR	Summary
Node 🔨 Type Size Map	AutoMap
05, FDN20 Polled 3 I:1.5.0	Unmap
	Advanced
	> Options
Memory: Discrete Image: Start Word: Image: Start Word:	
l:1.0 Read-Only	
1:1.1 01, FDN20 4S 4XSG (8in/ 1:1.2 1:1.3	/4out)
1.1.4 1.1.5 05, FDN20 16×SG (16	io)
105, FDN 11.7	20 16X5G [160]
OK Cancel Ap	pply Help

🕈 1747-SDN	Scanner Module		? 🛛
General Mod	lule Scanlist Input	Output ADR 9	oummary
Node	/ Type Size DN20Polled 1	Map	AutoMap
🛄 05, F	DN20 Polled 2	0:1.5.0	Unmap
			Advanced
<		>	Options
Memory:	Discrete 💌	Start Word: 0	<u>.</u>
Bits 15 - 0	15 14 13 12 11 10	987654	3 2 1 0 🔨
0:1.0		Read-Only	
0:1.1		01, FDN20 49	5 4×SG (8in
0:1.2			
0.1.3			
0:1.5	05 FD	N20 16XSG (16in)	
0:1.6	00,10	14.64 [100]	
0:1.7	-		1270
J 0:1.8	1		≥
	OK Car	cel Apply	Help

UPLOAD DEVICE CONFIGURATION

Select "Upload from Network" menu function to upload all nodes identity information and current settings. "Upload from Network" will upload all device data that are defined by associated EDS to your application tool.

📲 *DeviceNet - R	SNetWorx for DeviceNet			
Eile Edit View N	etwork Device Diagnostics Too	ls <u>H</u> elp		
	Single Pass Browse			
1747-S	古 <u>O</u> nline F1U	16XSG	1770-KFD	
Scanne Module	Upload from Network Download to Network	L	RS232 Interface	
	Properties		-	RSNetWorx for DeviceNet
	01	05	62	Uploading entire network, including all devices Do you want to continue?
	•	•	•	Yes No

SAVE CONFIGURATION FILE

Use "Save As" function to save all configuration data into separate directory. This is your original network configuration file that includes:

- Scanner setup
- IO data map
- Device identity, associated parameters and electronic keys

The configuration file will be saved as:



The configuration will be saved as:

Save As	? 🛛
Save in: 🔁 New Folder (2)	▼ ← Ê [*] □
প্র Original network.dnt	

CREATE NETWORK REPORT

Create the network report for the entire network. It will provide a hard copy of all necessary configuration data in case of loss of the configuration file:



The network report provides information necessary for restoration of configuration file, such as:

- Scanner setup
- IO data maps
- Device identity and all parameters defined by EDS file



DEVICE REPLACEMENT

Make a plan for device replacement. Network and product documentation must be available. Start replacement by closing Rockwell Software applications; put the controller in program mode, turn off DeviceNet power and place a label with the node address at each location where the replacement will take place. While swapping the device, make sure to set the proper node address and rewire all IO's per current project documentation (related mainly to FDN20-4S-4XSG). FDN20-16XSG has all IO's connectorized and it should not be any problem swapping the device. Once the devices are replaced, make sure that the network media is brought to its original state.

NETWORK POWER-UP PROCEDURE

Make a plan for the network power-up. Verify that the scanner is set to program mode. You may power-up the entire network at once or a portion of network. The expected network behavior when all nodes are powered at once should be:

- All connected nodes will be allocated within a few seconds
- All FDN20-16XSG's MOD/NET LEDs should be solid GREEN
- No communication errors because DeviceNet connectors were not rewired

In case of communication errors which may be caused by miswiring of FDN-4S-4XSG, disconnect swapped nodes and then reconnect one by one. If the device is miswired, you will know immediately which one. Expected node behavior is:

- Solid GREEN MOD/NET LED means that node is allocated and works OK
- RED NET/MOD LED means duplicate node address detected i.e. node is set to wrong address
- Bus-off error on the scanner's display means miswiring problem on the device

RESOLVE DEVICE MISMATCH

When all nodes are connected and network communication has no errors, start RSNetWorx (do not go)



Go online



There will be device mismatch indicators on the swapped nodes:



Double-click on the first device. "Device Mismatch Dialog" window appears. Click "OK" to resolve mismatch:

Device Mis	match Dialog	
An identity r A difference	nismatch has been detected! exists between the identity of the device	e that you configured offline and the
To resolve to configuratio	his difference, click OK. The software w n while changing to the device identity th letion, an entry in the Message view will i	ill attempt to maintain the current device at was detected online. ndicate the result of this change.
Type Vendor Device Product Revision	Offline Identity InterlinkBT LLC [256] General Purpose Discrete I/O [7] FDN20 4S 4XSG (8in/4out) [2833] 2.006	Online Identity InterlinkBT LLC [256] General Purpose Discrete I/O [7] FDN20 4S 4XSG (8in/4out) [2833] 3.002
1	OK Cancel	Help

The result of mismatch resolution is displayed in the "Device Property" page. It means that RSNetWorx, or any other configuration tool, has updated device identity data in the configuration file. That file is not yet downloaded to the scanner.

Device mismatch resolution will sometimes result in additional warning messages that may be considered just a warning, as shown on the next figure.

👎 FDN20 4S 4	XSG (Bin/4out)
General Param	eters 1/0 Data EDS File
FD	N20 4S 4XSG (8in/4out)
Name:	FDN20 4S 4XSG (8in/4out)
Description:	
Address:	1
- Device Ident	ity [Primary]
Vendor:	InterlinkBT LLC [256]
Type:	General Purpose Discrete I/O [7]
Device:	FDN20 4S 4XSG (8in/4out) [2833]
Catalog:	F0177
Revision:	3.002
	OK Cancel Apply Help

EDS files for different firmware revision of a device may contain different set of parameters and are not the same. The difference will be listed as follows:



Click "CANCEL" to resolve the mismatch. Repeat the same procedure for each mismatched device.

New network configuration shows FDN20 devices that were replaced:



DOWNLOAD NEW CONFIGURATION

Once the mismatch resolution phase is done for every replaced node on the network, the configuration data may be downloaded to the scanner. Notice that IO data has not been changed at any time during this procedure. Open "Scanlist" tab of the scanner's property page and download new configuration to the scanner.

📴 1747-SDN Scanner Module	? 🛛		
General Module Scanlist Input Available Devices:	Output ADR Summary Scanlist: Image: Constraint of the second s	Download Scanlist from Scanner	Download
Automap on Add	Vode Active	C Selected Scanlist Records C Select Range: From: C To: 63	Cancel
Download to Scanner Edit I/O Parameters OK Ca	Product Code Major Revision Minor Apply Help		

SAVE NEW CONFIGURATION

Upload device configuration from the network, the same way as it was done before. Go to file menu and "Save As" new configuration file as "Updated network" file. Create the network report for your records.

Ele Edit View Network	<u>Device Diagne</u>	
New 1	CENIHN	Save As
🗃 Open	Ctrl+O	
a Save	Ctrl+5	Save in 🗀 New Folder (2) 🔄 🛨 🖽 🕈 🖽 🔹
Gen Date Report Print Setup Print Proview Brint 1 Original network.dnt	Ctrl+P	J Original network drit
2 Oakland_R2.dnt 3 Oakland_R2dnt.dnt 4 AnhauserBusch.dnt	[File name Updated network.cht Save