<u>Home</u>

SysMik Scalibur IO driver for Niagara^{N4}

This manual is intended to provide support for installation and usage of the sysmikScalo ndriver module within the Niagara^{N4}framework. The information is believed to be accurate and reliable. However, SysMik GmbH Dresden assumes no responsibility for possible mistakes and deviations in the technical specifications. SysMik GmbH Dresden reserves the right to make modifications in the interest of technical progress to improve our modules and software or to correct mistakes. We are grateful for any feedback and suggestions. Further information (device description, available software) can be found on our homepage www.sysmik.de. Please ask for latest information via email at sales@sysmik.de or info@sysmik.de. SysMik disclaims all warranties in case of improper use or disassembly and software modifications not described in this document or when using improper or faulty tools. Commissioning and operation of the device by qualified personnel only. All applicable regulations have to be observed.

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Table of Contents

SysMik Scalibur IO driver for NiagaraN4

Preface

Document Change Log

Compatibility and Installation

NiagaraN4 Platform Compatibility

License requirements

Hardware requirements

Scalibur IO driver concepts

Scalibur IO driver installation

Scalibur IO Quick Start

Add a SysmikScaloNetwork

Add SysmikScalo devices

Add Scalo proxy points

Sca lo Proxy Extensions

Scalo Device Types in Palette

Digital Inputs

Digital Outputs

Analog Inputs

Analog Outputs

Special Functions

Configure Scalo DALI command EnumSchedule

Configure Scalo Remote Server

Configure Scalo Remote Client

Configure and Watch Ethernet Switch

Component Details

SysmikScaloNetwork

<u>SysmikScaloDeviceFolder</u>

<u>SysmikScaloPointFolder</u>

SysmikScaloDi1

SysmikScaloDi4

SysmikScaloDi8

SysmikScaloDi16

SysmikScaloDi32

SysmikScaloDo1

SysmikScaloDo2

SysmikScaloDo4

SysmikScaloDo8

SysmikScaloDo16

SysmikScaloDo32

SysmikScaloAi2

SysmikScaloTemp2

SysmikScaloAi4

SysmikScaloAi4EcoAmp

SysmikScaloAi4EcoVolt

SysmikScaloAi4EcoTemp

SysmikScaloAi8

SysmikScaloAo2

SysmikScaloAo4

SysmikScaloAo4EcoAmp

SysmikScaloAo4EcoVolt

SysmikScaloAo8

SysmikScaloDi8S0

SysmikScaloDali

SysmikScaloDaliMm

SysmikScaloMBus

SysmikScaloRsUni

Preface

<u>Home</u>

This help document gives you a brief description about using the SysMik Scalibur devices and managing connected Inline terminals within Workplace^{N4} via sysmikScalo ndriver module.

Document Change Log

<u>Home</u>

Description

• Version: 4.2.0.3

Published: Nov 14, 2017

Project now a Git project, no changes on code sources.

• Version: 4.2.0.2

Published: August 8, 2017

Bugfix for MP-Bus support.

• Version: 4.2.0.1

Published: July 27, 2017

Added support Inline Ecoline terminals.

• Version: 4.1.0.10

Published: April 25, 2017

AI updateOnDelta (precision 4) + UpdateOnPoll.

• Version: 4.1.0.8

Published: April 12, 2017

Synchronized Transaction IDs.

• Version: 4.1.0.7

Published: December 16, 2016

No connection break on inactivity.

• Version: 4.1.0.6

Published: September 21, 2016

Using help feature 'GuideOnTarget' added for the most important components.

• Version: 4.1.0.2

Published: Jun 16, 2016

New 'Eth Switch' component in 'Local Platform' component with 'Sysmik Sca Switch cfg View'.

• Version: 4.1.0.1

Published: Apr 11, 2016

Note: This is the first release version.

Compatibility and Installation

<u>Home</u>

NiagaraN4 Platform Compatibility

<u>Home</u>

The sysmikScalo module will function on all NiagaraN4 releases 4.1 and newer on Windows or Linux Operating Systems.

License requirements

<u>Home</u>

The module "sysmikScalo" is provided by SysMik GmbH Dresden and is licensed by a separate license file SysMikGmbH.license. The license file will be included in each delivered SCA device and needs no additional license request.

Note: Other device limits or proxy-point limits may apply to this license.

Hardware requirements

<u>Home</u>

The sysmikScalo ndriver module can be used with all SysMik Scalibur devices containing the kernel version 4.1.3 or higher.

Scalibur IO driver concepts

Home

The Scalibur controller is a bus controller for the Inline system and can use many Inline IO terminals from a big terminal pool. Inline is a modulare IO system from Phoenix Contact (Germany) that allows a flexible, fast and space-saving build of automation stations. An Inline station contains of a bus controller and variable IO terminals with various IO types and channel numbers. The bus controller manages the Inline station and has interfaces to the upper system. One bus controller can use upto 63 IO terminals. There are IO terminals for nearly all applications available:

- Digital inputs and outputs for 1, 2, 4, 8, 16 and 32 channels per terminal
- TRIAC and relay outputs for switching signals and for larger capacities(example lamp loads)
- Analog inputs for measuring of voltages, currents, resistances and temperatures in steps of 2, 4 and 8 channels per terminal
- Analog outputs for output of currents and voltages in increments of 2, 4 and 8 channels per terminal
- Function terminals for the input and output operations or gateway functions (DALI, MBus, S0 pulse counting, serial interface)
- Supply terminals, for example, to build separate power circuits within an Inline station
- The width of the Inline terminals is 1, 2 or 4 dividing unit(s) (12.2 mm)

Inline terminals feature a pluggable wiring level, enabling pre-wiring and easy module replacement. The mechanics of the system allows the exchange of terminals within the station without their complete disassembly. Scalibur controllers comes with Linux OS, where different applications are processed in parallel.





The IO server controls to the modular Inline terminals of Scalibur controller and regulates the possibly competing the hardware access to data points. Communication between Niagara and IO server is implemented via a TCP connection. This opens the way for the another remote control of the lOs by Niagara station. The remote control can be restricted by definition of the IP address of the controlling station or can be completely disabled.

The SysmikScalo ndriver module has been designd to manage the Inline IO terminals via IO server and is described in the next chapters in more detail.

Scalibur IO driver installation

<u>Home</u>

From your PC, use the Niagara WorkplaceN4 4.1.nn installed with the "installation tool" option (checkbox "This instance of Workbench will be used as an installation tool"). This option installs the needed distribution files (.*dist* files) for commissioning various models of SCA platforms. The dist files are located under your Niagara install directory under a "sw" subdirectory.

For details, see <u>"About your software database"</u> in the <u>Platform Guide</u>.

Apart from installing the 4.1.nn version of the Niagara distribution in the SCA, make sure to also install the *SysmikScalo* module.

For details, see <u>"Software Manager"</u> in the <u>Platform Guide</u>.

Following this, the remote SCA is now ready for Scalo configuration in its running station, as described in the rest of this document.

See the next section <u>Scalibur IO Quick Start</u> for a series of task-based procedures, as well as other sections e.g. <u>Scalibur IO driver concepts</u> for conceptual and other sections for operational topics.

Scalibur IO Quick Start

Home

The chapters below will give you a brief overview of how the functions in sysmikScalo module are used within the Workplace^{N4}.

Add a SysmikScaloNetwork

<u>Home</u>

Use the following procedure to add an SysmikScaloNetwork under the station's Drivers container.

To add an SysmikScaloNetwork in the station:

- 1. Double-click the station's Drivers container, to bring up the Driver Manager.
- Click the New button to bring up the New DeviceNetwork dialog. For more details, see <u>"Driver Manager</u> <u>New and Edit"</u> in the <u>Drivers Guide</u>.
- 3. Select "SysmikScaIoNetwork," number to add: 1, and click OK.

This brings up a dialog to name the network.

4. Click OK to add the SysmikScaloNetwork to the station.

You should have an SysmikScaloNetwork named "SysmikScaloNetwork" (or whatever you named it), under your Drivers folder now.

Add SysmikScalo devices

<u>Home</u>

In Scalo architecture, Inline terminals act as "device-level" components. An Inline terminal represents one IO *device*, servicing some number of I/O points (see <u>Scalibur IO driver concepts</u>).

Depending on the Inline configuration, the number of Inline terminals to be discovered varies.

To discover Inline terminals:

1. Double-click the SysmikScaloNetwork, or:

right-click the SysmikScaloNetwork and select Views->N Device Manager.

This brings up the Sca lo Device Manager (N Device Manager).

2. Click the Discover button 🛱 to launch an Inline terminal Discovery job.

A progress bar appears at the top of the view, and updates as the discovery occurs.

3. When the discovery job completes, discovered Inline terminals are listed in the *top pane* of the view, in the "Discovered" table

The bottom pane, labeled "Database," is a table of Inline terminals that are currently mapped into the Niagara station—initially, this table will be empty.

Figure 1 - Discover Terminals

	WorkPlace AX			_ 			
File Edit Search Bookmarks Tools Window Manager Help							
🖣 • 🕨 • 🔯 • 🔲 • 📴 🚰 📑 🔞 📔	· 🗟 🗟 🗋 😽 🗈 🖻	6 🕒	🥱 🥐 🛍 🗞 🤷 📄	E # 🙁 🔾 ล			
💂 😻 Station (CommLon) 🗏 Config 🦂	🗈 Drivers 🛛 📹 SysmikSci	aIoNetwork	c 🚺 Sca Io	Device Manager 🔸			
• 🗉 Nav 🗖	🕑 🐔 Sysmik Sca Io Di	scovery		Success » 🛞			
🔄 🕸 💿 🎯 My Network 💌	Discovered			15 objects			
Platform	Discovery Base Name	Terminal	Terminal Type	9			
₽ 😺 Station (CommLon)	AI2	1	AI_2/SF-ME	<u>^</u>			
🕫 🗏 Config	🔲 DO1	2	DO_1/2				
⊕ @ Services	DI4	3	DI_4				
Drivers	🔲 DI16	4	DI_16	E			
SysmikScaloNetwork	🖩 Dali	5	DALI/MM				
	AO2	6	AO 2/11/00 ME				
Palette	AO4	7	Add Ctrl+A				
😏 🔞 🛕 🗂 sysmikScaIo 🔹	MBus	8	Match Ctrl+M				
	RsUni	9	Select All				
	III Dal	10	DALT	~			
DigitalOutputs	Database			0 objects			
🖻 🦳 AnalogInputs	Name Type Exts S	tatus Ter	minal				
🖶 🧰 AnalogOutputs							
SpecificFunctions							
SysmikScaIoDeviceFolder							
Sodopa Palette							
Unavailable	😂 New Folder	9 New	🖻 Edit 🏻 🏥 Disco	ver 🛛 😳 Cancel			
				٩			

4. Click to Select All discovered Inline terminals, then click the Add button ⊕.

The Add dialog appears, in which you can accept all defaults.

Figure 2 - Add Terminals

Name	Туре	Status	Terminal	
AI2_1	Sysmik Sca Io Ai2	{ok}	1	
DO1_2	Sysmik Sca Io Do2	{ok}	2	
🖬 DI4_3	Sysmik Sca Io Di4	{ok}	3	
🔲 DI16_4	Sysmik Sca Io Di16	{ok}	4	
🔜 Dali_5	Sysmik Sca Io Dali Mm	{ok}	5	
AO2_6	Sysmik Sca Io Ao2	{ok}	6	
AO4_7	Sysmik Sca Io Ao4	{ok}	7	
MBus_8	Sysmik Sca Io M Bus	{ok}	8	
🔜 RsUni_9	Sysmik Sca Io Rs Uni	{ok}	9	
🔜 Dali_10	Sysmik Sca Io Dali	{ok}	10	
🔜 Dali_11	Sysmik Sca Io Dali	{ok}	11	
🔜 Dali_12	Sysmik Sca Io Dali	{ok}	12	
DO4_13	Sysmik Sca Io Do4	{ok}	13	
🖬 DI4_14	Sysmik Sca Io Di4	{ok}	14	
DO4_15	Sysmik Sca Io Do4	{ok}	15	
O Name	AI2 1			7
🔍 Туре	Sysmik Sca Io	Ai2 🔻]	
Status	{ok}			
O Termina	1]		

5. Click OK to add the Inline terminals to your station.

Add Scalo proxy points

<u>Home</u>

As with device objects in other drivers, each Inline terminal device has a Points extension that serves as the container for proxy points. The default view for any Points extension is the Point Manager (and in this case, the *N Point Manager*). You use it to create proxy points under any Inline terminal device object.

⁽¹⁾The IO communication is event based. The poll scheduler registers periodically (adjustable by poll scheduler properties) for changes. A longer poll cycle saves processor time without performance loss. Especially analog inputs can produce frequent updates with irrelevant small changes that leads to high processor load. To reduce the load set the property updateOnDelta of analog inputs to a relevant change level (raw value in V, A, Ohm, °C, °F regarding sensor type). This will suppress actions on irrelevant small changes.

This is the recommended way to accurately add Scalo (Inline terminal) proxy points under an Inline terminal device object.

Use the following procedures:

- discover
- <u>add</u>

If your SysmikScaloNetwork has multiple Inline terminal devices, repeat both procedures (<u>discover</u> and <u>add</u>) for *each* Inline terminal device, until you have all I/O points proxied in the station.

To discover I/O points

Perform this task to discover I/O points.

To discover I/O points of an Inline terminal:

1. In the N Device Manager, in the Exts column, double-click the Points icon ⁽⁶⁾ in the row representing the Inline terminal you wish to explore.

This brings up its N Point Manager.

2. Click the Discover button to learn what I/O points are on the Inline terminal.

When the discovery job completes, discovered I/O points are listed in the *top pane* of the view, in the "Discovered" table. Each I/O point occupies one row.

To add discovered I/O points as proxy points

To add discovered I/O points as proxy points:

1. Select the I/O point or points in the Discovery pane of the N Point Manager.

Figure 1 - Add points

85.			
18 ·		WorkPlace AX	^
File Edit Search Bookmarks Tools V	Vind	ow Manager Help	
🖣 • 🕨 • 🔯 • 🛛 • 💯 🛣 🗟 🔞) • 🗟 🕼 🔒 👪 🗅 🎁 🎦 🥯 🥎 🧼 🎬 🍕	. 📍 🖻 🖪 🏰 😂 🕥 😫
🚍 😺 🗏 Config 📲 Drivers 🖷	Sysi	nikScaIoNetwork 🛛 AI2_1 🗞 Points	🖻 Sca Io Point Manager 🔸
• 🗉 Nav		🕑 🔦 Sysmik Sca Io Discovery	Success » 📀
🕒 🕸 💿 🍘 My Network	•	Discovered	2 objects
B SysmikScaIoNetwork	^	Discovery Name Channel	(p
⊕ © localPlatform		= Ai1 1	
	Ξ	= Ai2 2	
Alarm Source Info			
🖻 🌑 Points			
⊕ 🖾 DO1_2		Add Ctrl+A	
₩ DI4_3	~		
▼ ⁽³⁾ Palette		Gi Match Ctri+M	
😰 🛯 🖻 sysmikScaIo	•	Database	0 objects
⊕ @ SvsmikScaIoNetwork	-	Name Type Out Channel ArType	日
🕂 🧰 DigitalInputs			
🖻 🧰 DigitalOutputs			
🖶 🧰 AnalogInputs	Ξ		
🔁 🧰 AnalogOutputs			
Geoing SpecificFunctions			
SysmikScaloDeviceFolder			
Sedona Palette	F		
	-		
Unavailable		🗳 New Folder 🛛 🕒 New 📄 Edit	A Discover O Cancel
			4

- 2. You can map selected points in the station in different ways:
 - \circ Drag from the Discovered pane to Database pane (brings up an Add dialog).
 - Double-click an item in the Discovered pane (also brings up an Add dialog).

This works the same as in other driver's Point Manager views.

3. When the Add dialog appears, you can change some properties like the Type if applicable.

Figure 2 - Configure points

t i		Add			
Name	Туре	Facets	Channel 🕫		
Ao1	Numeric Writable	units=V	1		
Ao2	Numeric Writable	units=V	2		
 Type 	Numeric	Writab	le 🔽		
	Ao1				
O Face	Numeric Writable				
Channel Numeric Point					
	C	КС	ancel		

The following brief summaries explain Add dialog fields:

- Name is the proxy point name—you typically change this to describe the I/O purpose.
- \circ Type is the point "type," which is selectable for any "writable".

Unlike other entries in the Add dialog, you cannot edit the point's Type later.

- Channel is terminal number within the Inline station. Do not change this value!
- Facets are the proxy point's facets, for how the value should be displayed in Niagara.
- 4. When you have all proxy point(s) configured properly for your usage, click OK.

The proxy points ares added to the station, and appear listed in the Database pane.

Sca lo Proxy Extensions

<u>Home</u>

Each Inline terminal proxy point has a special proxy extension slot where device and point specific properties are added.

Figure 1 - Point extension

*	WorkPlace AX
File Edit Search Bookmarks Tools Wir	dow Help
🖣 • 🕨 • 🔯 • 🛛 • 🔯 🚰 📑 🔞 📋	ک 🗟 🕲 🕲 🖓 کې
🚍 10.0.5.201 (CommLon) 🛛 😺 Station (C	ommLon) 🗏 Config 📲 Drivers 📲 SysmikScaIoNetwork 🔛 AI2_1 🚳 Points
The second	Points (Sysmik Sca Io Point Device Ext) □ O Discovery Preferences Sysmik Sca Io Point Discovery Prefe □ O (o)
	Cool (ok) Cool (ok)
Drivers Drivers SysmikScaIoNetwork	Status (ok) Status Gok
e ■ AI2_1 e ♀ Alarm Source Info	© Enabled © True
eb © Points eb ● Ai1	Conversion Default
Proxy Ext	Cuning Policy Name Default Policy Control Contro Control Control Control Con
• ● Palette	Write Value 0.00 {ok}
⊕ · @ SysmikScaIoNetwork ⊕ □ DigitalInputs	Pol Frequency Normal
DigitalOutputs AnalogInputs GysmikScaIoAi2 SysmikScaIoAi4 SysmikScaIoAi4 SysmikScaIoAi4	□ ● Ai Type Auto □ ● Out 0.00 {ok Auto □ ● Ai2 0.0 Vokage _0 _10 _ V Current _0 _20 _m A

The extensions are like known from other drivers and contain the basic features

- Status
- Fault Cause
- Enabled
- Device Facets

- Conversion
- Tuning Policy Name
- Read Value
- Write Value
- Poll Frequency

All SysmikScaIoDevices (Inline terminals) have an additional slot *Channel* containing the IO channel number within this terminal.

Note: You have to change this number rarely. Normally this value is set by the discover job and must not be changed.

Depending on the Inline terminal type (AI, AO, DI, DO, Special functions, see Scalo Device Types in Palette) the extension (example AI points). can have still one ?? Type slot Ai for Type This slot can be used to change the behaviour of the point (see the Inline Terminal datasheet for details).

Note: The SysmikScaloTemp2 device has still an second additional slot Wire Type.

Scalo Device Types in Palette

<u>Home</u>

The palette of the sysmikScalo module contains all supported Inline terminal types. You can manually configure a Inline station by using the devices (Inline terminals) from palette and putting them into the station by Drag and Drop.

 Note: If later on a SCA device with a valid Inline station is bound to this configuration, the physical station must
 match
 this
 configuration
 100
 percent.

 Normally the best way to get a valid Inline station for a SCA device is to use the Discover function (see Add SysmikScalo devices)
 SysmikScalo devices

Digital Inputs

<u>Home</u>

The following digital input devices are supported

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

•	SysmikScaIoDil							
	This	terminal	has	1	digital	input.		
	(see datasheet of	terminal type ILT_120_	_DI_1 for details.)					
•	SysmikScaIoDi4							
	This	terminal	has	4	digital	inputs.		
	(see datasheet of	terminal type ILT_24_[DI_4-ME for details.	.)				
•	SysmikScaIoDi8							
	This	terminal	has	8	digital	inputs.		
	(see datasheet of	terminal type ILT_24_[DI8_HD for details.))				
•	SysmikScaIoDi16							
	This	terminal	has	16	digital	inputs.		
	(see datasheet of	terminal type ILT_24_[DI_16_ME or ILT_2	4_DI_16 for deta	ils.)			
•	SysmikScaIoDi32							
	This	terminal	has	32	digital	inputs.		
	(see datasheet of terminal type ILT_24_DI32_HD for details.)							

Digital Outputs

<u>Home</u>

The following digital output devices are supported

Note: The ILT manuals can be found in folder ^docs\docSysmikScaIo.

SysmikScaIoDo1

This	terminal	has	1	digital	output.
(see datash	eet of terminal type ILT	_24_230_DOR1W	for details.)		
 SysmikScald 	DDo2				
This	terminal	has	2	digital	outputs.
(see datash	eet of terminal type ILT	_24_48_DOR2_W	for details.)		
 SysmikScalc 	DDo4				
This	terminal	has	4	digital	outputs.
(see datash	eet of terminal type II	_T_24_230_DOR4	_W, ILT_24_230	DOR4_HC, ILT_24	LDO_4-ME or
ILT_DO_4_/	AC-1A for details.)				

 SysmikSc 	caloDo8				
This	terminal	has	8	digital	outputs.
(see dat	asheet of terminal type I	LT_24_DO8_HD for	details.)		
• SysmikSo	caloDo16				
This	terminal	has	16	digital	outputs.
(see dat	asheet of terminal type I	LT_24_DO_16-ME f	or details.)		
 SysmikSc 	caloDo32				
This	terminal	has	32	digital	outputs.
(see dat	asheet of terminal type I	LT_24_DO_32_HD 1	for details.)		
Analog Inputs					
<u>Home</u>					
The following ana	llog input devices are su	pported			
• SysmikSo	caloAi2				
This	terminal	has	2	analog	inputs.
The Ai t	ype can be changed like	below:.			
0	Auto means untouch	ed lower prioritized	programs (like Sca	alo remote) can config	ure the
Č.	analog input			ale remete) can comig	
	analog inpat				
0	Voltage_0_10_V				
0	Current_0_20_mA				
0	Default is Voltage_0_1	0_V (if all priority lev	els are set to Auto)	
(see dat	asheet of terminal type I	B_IL_AI_2_SF-ME f	or details.)		
• SysmikSo	caloTemp2				
This	terminal	has 2	analog	temperature	inputs.
The Ai t	ype can be changed like	below:.			
0	Auto means untouch	ed lower prioritized	programs (like Sca	alo remote) can config	ure the
Ŭ	analog input			alo remete) our comig	
	analog input				
0	Resistance_400Ohm				
0	Resistance_4kOhm				
0	Temperature Ni1000				
C C					

• Temperature_Pt1000

- Temperature_Pt100
- Temperature_LgNi1000
- Default is Temperature_Pt1000 (if all priority levels are set to Auto)

The Wire type can be changed like below:.

- \circ Wire_2
- o Wire_3
- Wire_4 (only available for channel 2)
- Default is Wire_2 (if all priority levels are set to Auto)

(see datasheet of terminal type IB_IL_TEMP_2_RTD for details.)

SysmikScaIoAi4

Thisterminalhas4analoguniversalinputs.The Ai type can be changed like below:.

- Auto ... means untouched, lower prioritized programs (like Scalo remote) can configure the analog input
- Voltage_0_10_V
- Resistance_3kOhm
- Resistance_30kOhm
- Resistance_300kOhm
- Temperature_Ni1000
- Temperature_Pt1000
- Temperature_Pt100
- Temperature_LgNi1000
- Default is Voltage_0_10_V (if all priority levels are set to Auto)

(see datasheet of terminal type IB_IL_AI_TEMP4RTD for details.)

SysmikScaIoAi8

This	terminal	has	8	analog	inputs.
The Ai type can b	e changed like below:.				

- Auto ... means untouched, lower prioritized programs (like Scalo remote) can configure the analog input
- Voltage_0_10_V
- Current_0_20_mA
- Default is Voltage_0_10_V (if all priority levels are set to Auto)

(see datasheet of terminal type IB_IL_AI_8_SF for details.)

SysmikScaIoAi4EcoAmp

This terminal has 4 analog inputs with 4..20mA.

• SysmikScaIoAi4EcoVolt

This terminal has 4 analog inputs with 0..10V.

• SysmikScaIoAi4EcoTemp

This	terminal	has	4	analog	temperature	inputs.
The Ai type ca	an be changed like	below:.				

- TempC (°C)
- o TempF (°F)

Analog Outputs

<u>Home</u>

The following analog output devices (0 to 10V) are supported

 SysmikScal 	IoAo2						
This	terminal	has	2	analog	outputs.		
(see datas	heet of terminal type IB_	IL_AO_2_U_BP_	ME for details.)				
 SysmikScal 	[0A04						
This	terminal	has	4	analog	outputs.		
(see datas	heet of terminal type IB_	IL_AO_4USF for	details.)				
 SysmikScal 	IoAo8						
This	terminal	has	8	analog	outputs.		
(see datas	(see datasheet of terminal type IB_IL_AO_4_8_U_BP for details.)						

SysmikScaIoAo4EcoAmp

This terminal has 4 analog outputs with 4..20mA.

• SysmikScaIoAo4EcoVolt

This terminal has 4 analog outputs with 0..10V.

Special Functions

<u>Home</u>

The following special functions devices are supported.

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoDi8S0

This	terminal	has	8	S0	counter	inputs.
(see datasheet	of terminal type ILT	_DI_8_S0 for de	etails.)			

Each proxy point Count contains on the proxy extension property an action slot Init Counter. This action can be used to adjust the counter value.

• SysmikScaIoDali

This terminal is a serial DALI standard interface and can manage upto 64 DALI ballasts. (see datasheet of terminal type ILT_DALI_PWR or ILT_DALI for details.)

 ${\mathbb D}$ Tip: The proxy points of this device type can be used to realize a runtime control application for DALI lamps, but not to configure the DALI network. Use the module sysmikSedonaDali (see "SysMik DALI Quick Start") or SCA the build-in DALI configurator (http://SCA-IPfrom webserver Address:81/sca/sox.html?f=&p=ilt_dali.html);) to configure DALI the connected network. (Getting help http://SCA-IPvia: Address:81/sca/help/ScaliburSedona DaliWebConfigurator SBE.pdf).

Each available proxy point within the address#, group#, broadcast point group has the following actions:

- o Off ... Switch the lamp(s) off
- Up ... Dimming up for 200ms, Hint: If the lamp(s) is(are) Off they will not be switched on!
- o Down ... Dimming down for 200ms, Hint: The lamp(s) is(are) not switched off.

- Step Up ... Increment the current value by one (until maximum value is reached)
- Step Down ... Decrement the current value by one (until minimum value is reached)
- o Recall Max Level ... Set the current value to the maximum value
- o Recall Min Level ... Set the current value to the minimum value
- On And Step Up ... Dimming up for 200ms, Hint: If the lamp(s) is(are) Off they will be switched on first!
- o Step Down And Off... Dimming down for 200ms, Hint: The lamp(s) is(are) switched off finally.
- Goto Scene ... Set the current value to value of scene# (# = 0..15)
- Command ... This action slot can be used to set the previously described commands from one slot by using an enumeration parameter value

SysmikScaIoDaliMm

This terminal is a serial DALI multi-master interface and can manage upto 64 DALI ballasts. (see datasheet of terminal type ILT_DALI_MM for details.)

 ${
m U}$ Tip: The proxy points of this device type can be used to realize a runtime control application for DALI lamps, but not to configure the DALI network. Use the module sysmikSedonaDali (see "SysMik DALI Quick Start") or the build-in DALI configurator from SCA webserver (http://SCA-IP-Address:81/sca/sox.html?f=&p=ilt_dali.html);) to configure the connected DALI network. http://SCA-IP-(Getting help via: Address:81/sca/help/ScaliburSedona DaliWebConfigurator SBE.pdf).

Each available proxy point within the address#, group#, broadcast point group has the actions described above, too

Additional to proxy point groups address#, group#, broadcast there are still three additional point groups occupancy, brightness, remote control with 15 points group available. per The brightness proxy extensions contain a property timeout. If within this time no update of the DALI sensors has been occured the point goes to {fault} state. The occupancy proxy extensions contain a property hold. If within this time no new occupancy signal has the goes inactive. been occured occupancy state to The points within the remote control group are set if any key of a remote control is pressed.

SysmikScaIoMbus

This terminal is a serial MBus interface and can manage upto 30 MBus slaves docSysmikScaIo (c) 2014-2017 SysMik GmbH Dresden

The serial interface names will be assigned starting with COM3 and accordingly to the station terminal order.

(see datasheet of terminal type ILT_MBUS for details.)

• SysmikScaIoRsUni

This terminal is a universal serial MBus interface and can manage upto 30 MBus slaves The serial interface names will be assigned starting with COM3 and accordingly to the station terminal order.

The Rs type can be changed like below:.

- o Rs232
- o **Rs485**
- o Rs422

(see datasheet of terminal type ILT_RS_UNI for details.)

Configure Scalo DALI command EnumSchedule

<u>Home</u>

If you have added proxy points to Sysmik Sca Dali or Sysmik Sca Dali Mm terminals each proxy point contains a readonly property slot Dali Cmd Facets.

Connect this slot with the facets property of an Enum Schedule and then the schedule Out slot with the action slot Command of the Proxy Ext slot to configure scheduled DALI command events. This opens the comfortable way of using enumerated DALI commands within an Enum Schedule instead of using only number values.

Figure 1 - Using Dali Cmd Facets as value source in Enum Shedules



Configure Scalo Remote Server

Home

A SysmikScaloNetwork can act as remote IO server for other ScaloNetworks. This behaviour can be configured via SysMikScaloNetwork/localPlatform property slot.

Important: This property slot is not available if the SysmikScaloNetwork is part of a Supervisor^{N4} station!

The following properties can be configured:

• IoRemoteAddr

The default value is 255.255.255.255. That means each IP address can use this IO server from remote. Set this property to a single valid IP address to restrict the access only to this IP address or set an invalid IP address (like "") to disable this feature.

IoPort

This property can be used to change the default (2015) IO server port.

Sedona Enabled

This property can be used to enable or disable the Sedona Virtual Machine.

Configure Scalo Remote Client

<u>Home</u>

A SysmikScaloNetwork can act as remote client for any IO server. This behaviour can be configured via SysMikScaloNetwork/Address property slot.

 $^{(1)}$ Tip: The main focus of this feature is the remote usage of SCA Inline terminal proxy points from a Supervisor^{N4} station!

The following properties can be configured:

• Ip Address

The default value is 127.0.0.1. That means the local IO server is used.

This is only possible if the SysmikScaloNetwork is part of an SCA station!

Set this property to a single valid IP address to use a remote SCA IP address to connect to the IO server of this SCA.

• IoPort

Set this property accordingly to the IO server port configuration (default value is 2015).

Configure and Watch Ethernet Switch

<u>Home</u>

The SysmikScaIoNetwork contains within the Local Platform component since version 3.8.41.5 a new slot Eth Switch.

This component can be used to configure the behaviour of the SCA ethernet switch and to watch the port status.

Figure 1 - Property sheet view of SysmikScaloNetwork

a	WorkPlace AX
File Edit Search Bookmarks Too	ls Window Help
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🚍 10.0.5.202 (demo) 🛛 😺 Station	(demo) 🗏 Config 🖆 Drivers 🛍 SysmikScaIoNetwork
- E Nav	SysmikScaIoNetwork (Sysmik Sca Io Network)
🗄 🥸 💿 🎯 My Network 💌	□ O Status {ok}
PxHome	Enabled O true
⊕ @ Services	Fault Cause
⊖ ⊂@ Drivers	⊞ Health Ok [15-Jun-16 3:10 PM CEST]
B Cadona Network	Alarm Source Info Alarm Source Info
B SysmikScaloNetw =	Monitor Ping Monitor
GoixNetwork	Tuning Policies Tuning Policy Map
⊕ @ ModbusTcpNetwo	B Poll Scheduler N Poll Scheduler
General ModbusTcpSlaveN	Address 127.0.0.1:2015
🙂 🧰 Logic	Local Platform Systilk Sca to Platform
🕀 🖸 Sampler 📃	Sedona Enabled True V
	□ ○ Io Port 2015
	□ ○ Io Remote Addr 255.255.255
	Eth Switch Sysmik Sca Io Switch
GysmikScaIoNetwork	□ ◎ Status {ok}
DigitalInputs DigitalOutputs	Fault Cause
🖻 🧰 AnalogInputs	Enabled O true
AnalogOutputs SpecificFunctions	🗆 = Lani State true {stale}
B G SysmikScaIoDeviceFolder	Ean2 State true {stale}
Content SysmikScaIoPointFolder	Lan3 State true {stale}
	Ean4 State true {stale}
	Multicast Limit Max _2 Mbps
	Dai_10 Sysmik Sca Io Dai

Tip: The main focus of the switch configuration is to allow the usage of ethernet topologies with loops and the Rapid Spanning Tree Protocol (RSTP).

The following properties can be configured:

• Enabled

This boolean property can be used to enable or disable the cyclic check of the switch port status properties LAN1 State ... LAN4 State. If set to true a check is performed every two seconds. But the status values are only valid if ports are configured for Loop and/or RSTP usage. The following values are possible:

- true {ok} = Forwarding, redundancy is used
- **false {ok}** = Blocking, redundancy is available
- * {stale} = No information provided, i.e. no RSTP and/or Loop configured
- * {disabled} = The cyclic status check has been disabled
- Multicast Limit

The enumeration property can be used to change the multicast limit value as needed.

The default value is set to Max_2Mbps.

If set to off the broadcast or multicast storm protection is disabled. This should be used with care.

Figure 2 - Configure the SCA ethernet switch

*			Work	Place AX					
File Edit Search Bookmarks Tools	s Window Help								
🖣 • 🕨 • 🔯 • 🛛 • 💯 🚰 🎲 🔅	📵 🝺 🖬 🖬 🕞 😽 🗅 I	fi 🗗 👄 🥱 🍖							
📮 10.0.5.202 (demo) 🛛 😺 Station (d	demo) 🗏 Config 📲 Drivers	SysmikScaIoNetwo	rk 🛛 💿 Local Platform	Eth Switch					Sysmik Sca S
• 🗉 Nav 🗖									
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Config									
⊕ @ PxHome ⊕ @ Services			KA	KSTP Group A	KB KSTI	Group B			
⊡ ^C Drivers			L	Loop Control	N Norn	nal Switch Port			
GedonaNetwork									
SysmikScaIoNetwork			N	Active Configuration	n - Nota	available			
ObixNetwork ModbusTcpNetwork									
ModbusTcpSlaveNetwork	Split 2	Mode	e 1 Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8
🕂 🔁 Logic	Split 0 eth1	LAN1	N N	N	RB	RB	RB	-	-
✓ OPalette									
	Split 1		N N	N	RB	RB	RB	-	-
₽ @ SysmikScaIoNetwork	Culit 2			DA	N	BA			
🖻 🧰 DigitalInputs	Split 2		N	RA.	N	KA	L.	-	-
DigitalOutputs AnalogInputs	Solit 3 eth0 pri		NL	RA	N	RA	L		-
P analogOutputs	opired		-				-		
SpecificFunctions									
SysmikScaloDeviceroider SysmikScaloPointFolder									
			Tin: Click the 'Mode	#' text buttons to a	set the needed r	node.			
			rpr clercine ribue		see the needed i				
			📑 Refresh	Save					
• 🕜 Help 🗖									

Use the Sysmik Sca Switch Config View to configure the ethernet switch behaviour. This is the default view of Sysmik Sca Switch Config component.

In this view can change the splitting and the mode of the LAN ports. you Use the Split # buttons to change the number of switches (1 or 2) and the number of ports used by the switches.

Split	eth1 ports	eth0 ports
0	0	4
1	1	3
2	2	2
3	3	1

Click button to the mode to this а Mode # change port option. If the text color is lightgray this mode option is not available in the selected splitting type. The loop control option is using a simple proprietary loop preventation algorithm.

Note: The available mode options depends on the selected splitting type.

Component Details

<u>Home</u>

SysmikScaloNetwork

<u>Home</u>

SysmikScaloNetwork is the base container for all SymikScalo components in the station. In addition to being the network container for SysmikScaloDevices and their child proxy points, it contains the station's SysmikScalo communications protocol stack, which configures the station's representation as a SysmikScalo device.

As with other NiagaraN4 driver networks, the SysmikScaloNetwork should reside under the station's Drivers container. For general information, see <u>Scalibur IO driver concepts</u> and <u>Add a SysmikScaloNetwork</u>.

SysmikScaloDeviceFolder

<u>Home</u>

SymikScaloDeviceFolder is the SysmikScalo implementation of a folder under a SysmikScaloNetwork. Typically, you add such folders using the New Folder button in the N Device Manager view of the SysmikScaloNetwork. Each SysmikScaloDeviceFolder has its own N Point Manager view. The SysmikScaloDeviceFolder is also available in the SysmikScalo palette.

SysmikScaloPointFolder

<u>Home</u>

SysmikScaloPointFolder is the SysmikScalo implementation of a folder under a SysmikScaloDevice's Points container. You add such folders using the New Folder button in the N Point Manager view of the Points component. Each SysmikScaloPointFolder has its own N Point Manager view. The SysmikScaloPointFolder is also available in the bacnet palette.

SysmikScaloDi1

<u>Home</u>

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoDi1

This	terminal	has	1	digital	input.
(see datasl	neet of terminal type ILT	s.)			

SysmikScaloDi4

<u>Home</u>

Note: The ILT man	uals can be found ir	n folder ^docs\doc	SysmikScalo.		
• SysmikScaloDi This (see datasheet	4 terminal of terminal type ILT	has ⁻ _24_DI_4-ME for d	4 letails.)	digital	inputs.
SysmikScaloDi8					
Home					
Note: The ILT man	uals can be found ir	n folder ^docs\doc	SysmikScaIo.		
• SysmikScaIoDi	8				
This	terminal	has	8	digital	inputs.
(see datasheet	of terminal type ILT	_24_DI8_HD for de	etails.)		
SysmikScaloDi16					
Home					
Note: The ILT man	uals can be found ir	1 folder ^docs\doc	SysmikScaIo.		
• SysmikScaIoDi	16				
This	terminal	has	16	digital	inputs.
(see datasheet	of terminal type ILT	_24_DI_16_ME or	ILT_24_DI_16 f	or details.)	
SysmikScaloDi32					
<u>Home</u>					
Note: The ILT man	uals can be found ir	1 folder ^docs\doc	SysmikScaIo.		
	22				
• SysmikScalopi This	terminal	has	32	digital	inputs.
(see datasheet	of terminal type ILT	24DI32HD for c	details.)	5	
SysmikScaloDo1					
Home					
docSysmikScaIo	(c) 2014-2017	SysMik GmbH Dro	esden		

Note: The ILT manuals can be found in folder ^docs\docSysmikScaIo.

SysmikScaIoDo1

This	terminal	has	1	digital	output				
(see datasheet of terminal type ILT_24_230_DOR1W for details.)									
SysmikScaloDo2									

<u>Home</u>

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

• SysmikScaIoDo2

This	terminal	has	2	digital	outputs.
(see datash	eet of terminal type ILT		/ for details.)		

SysmikScaloDo4

Home

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoDo4

Thisterminalhas4digitaloutputs.(see datasheet of terminal type ILT_24_230_DOR4_W, ILT_24_230_DOR4_HC, ILT_24_DO_4-ME orILT_DO_4_AC-1A for details.)

SysmikScaloDo8

<u>Home</u>

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoDo8

This	terminal	has	8	digital	outputs.
(see datash	eet of terminal type IL1	24 DO8 HD for	details.)		

SysmikScaloDo16

<u>Home</u>

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

• SysmikScaIoDo16

oyominocui	02010				
This	terminal	has	16	digital	outputs.
(see datas	heet of terminal type ILT	「_24_DO_16-ME f	for details.)		

SysmikScaloDo32

<u>Home</u>

Note: The ILT manuals can be found in folder ^docs\docSysmikScaIo.

• SysmikScaIoDo32

This	terminal	has	32	digital	outputs.
(see datash	neet of terminal type II	T 24 DO 32 HD	for details)		

SysmikScaloAi2

Home

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoAi2

This	terminal	has	2	analog	inputs.

The Ai type can be changed like below:.

- Auto ... means untouched, lower prioritized programs (like Scalo remote) can configure the analog input
- Voltage_0_10_V
- Current_0_20_mA
- Default is Voltage_0_10_V (if all priority levels are set to Auto)

(see datasheet of terminal type ILT_AI_2_SF-ME for details.)

SysmikScaloTemp2

<u>Home</u>

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoTemp2

Thisterminalhas2analogtemperatureinputs.The Ai type can be changed like below:.

- Auto ... means untouched, lower prioritized programs (like Scalo remote) can configure the analog input
- Resistance_400Ohm
- Resistance_4kOhm
- Temperature_Ni1000
- Temperature_Pt1000
- Temperature_Pt100
- Temperature_LgNi1000
- Default is Temperature_Pt1000 (if all priority levels are set to Auto)

The Wire type can be changed like below:.

- Wire_2
- o Wire_3
- Wire_4 (only available for channel 2)
- Default is Wire_2 (if all priority levels are set to Auto)

(see datasheet of terminal type ILT_TEMP_2_RTD for details.)

SysmikScaloAi4

<u>Home</u>

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoAi4

This	terminal	has	4	analog	universal	inputs.
The Ai type	can be changed	like below:.				

• Auto ... means untouched, lower prioritized programs (like Scalo remote) can configure the analog input

- Voltage_0_10_V
- Resistance_3kOhm
- Resistance_30kOhm
- Resistance_300kOhm
- Temperature_Ni1000
- Temperature_Pt1000
- Temperature_Pt100
- Temperature_LgNi1000
- Default is Voltage_0_10_V (if all priority levels are set to Auto)

(see datasheet of terminal type ILT_AI_TEMP4RTD for details.)

SysmikScaloAi4EcoAmp

Home

SysmikScaIoAi4EcoAmp

This terminal has 4 analog inputs with 4..20mA.

SysmikScaloAi4EcoVolt

<u>Home</u>

• SysmikScaIoAi4EcoVolt

This terminal has 4 analog inputs with 0..10V.

SysmikScaloAi4EcoTemp

<u>Home</u>

SysmikScaIoAi4EcoTemp

This	terminal	has	4	analog	temperature	inputs.
The Ai type ca	an be changed like	below:.				

- TempC (°C)
- TempF (°F)

SysmikScaloAi8

<u>Home</u>

Note: The ILT manuals can be found in folder ^docs\docSysmikScaIo.

• SysmikScaIoAi8

This	terminal	has	8	analog	inputs.

The Ai type can be changed like below:.

- Auto ... means untouched, lower prioritized programs (like Scalo remote) can configure the analog input
- Voltage_0_10_V
- Current_0_20_mA
- Default is Voltage_0_10_V (if all priority levels are set to Auto)

(see datasheet of terminal type ILT_AI_8_SF for details.)

SysmikScaloAo2

<u>Home</u>

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoAo2

This	terminal	has	2	analog	outputs.
(see datash	eet of terminal type ILT	TAO 2 U BP MI	E for details.)		

SysmikScaloAo4

<u>Home</u>

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoAo4

This	terminal	has	4	analog	outputs.
(see datashee	et of terminal type IL				

SysmikScaloAo4EcoAmp

<u>Home</u>

SysmikScaIoAo4EcoAmp

This terminal has 4 analog outputs with 4..20mA.

SysmikScaloAo4EcoVolt

<u>Home</u>

SysmikScaIoAo4EcoVolt

This terminal has 4 analog outputs with 0..10V.

SysmikScaloAo8

<u>Home</u>

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoAo8

This	terminal	has	8	analog	outputs.
(see datash	eet of terminal type IL	FAO48UBP	for details.)		

SysmikScaloDi8S0

Home

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoDi8S0

Thisterminalhas8S0counterinputs.(see datasheet of terminal type ILTDI8S0 for details.)

Each proxy point Count contains on the proxy extension property an action slot Init Counter. This action can be used to adjust the counter value.

SysmikScaloDali

<u>Home</u>

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoDali

This terminal is a serial DALI standard interface and can manage upto 64 DALI ballasts. (see datasheet of terminal type ILT_DALI_PWR or ILT_DALI for details.)

 ${
m U}$ Tip: The proxy points of this device type can be used to realize a runtime control application for DALI but configure DALI lamps, not to the network. Use the module "SysMik DALI Quick Start") sysmikSedonaDali (see or build-in DALI configurator SCA (http://SCA-IPthe from webserver Address:81/sca/sox.html?f=&p=ilt_dali.html);) DALI network. to configure the connected help http://SCA-IP-(Getting via: Address:81/sca/help/ScaliburSedona DaliWebConfigurator SBE.pdf).

Each available proxy point within the address#, group#, broadcast point group has the following actions:

- Off ... Switch the lamp(s) off
- Up ... Dimming up for 200ms, Hint: If the lamp(s) is(are) Off they will not be switched on!
- o Down ... Dimming down for 200ms, Hint: The lamp(s) is(are) not switched off.
- o Step Up ... Increment the current value by one (until maximum value is reached)
- o Step Down ... Decrement the current value by one (until minimum value is reached)
- o Recall Max Level ... Set the current value to the maximum value
- o Recall Min Level ... Set the current value to the minimum value
- On And Step Up ... Dimming up for 200ms, Hint: If the lamp(s) is(are) Off they will be switched on first!
- Step Down And Off... Dimming down for 200ms, Hint: The lamp(s) is(are) switched off finally.
- Goto Scene ... Set the current value to value of scene# (# = 0..15)
- Command ... This action slot can be used to set the previously described commands from one slot by using an enumeration parameter value

SysmikScaloDaliMm

Home

Note: The ILT manuals can be found in folder ^docs\docSysmikScaIo.

SysmikScaIoDaliMm

This terminal is a serial DALI multi-master interface and can manage upto 64 DALI ballasts. (see datasheet of terminal type ILT_DALI_MM for details.)

 ${
m U}$ Tip: The proxy points of this device type can be used to realize a runtime control application for DALI but not configure the DALI lamps, to network. Use the module sysmikSedonaDali (see "SysMik DALI Quick Start") or build-in DALI configurator SCA (http://SCA-IPthe from webserver configure Address:81/sca/sox.html?f=&p=ilt_dali.html);) the connected DALI network. to help http://SCA-IP-(Getting via: Address:81/sca/help/ScaliburSedona DaliWebConfigurator SBE.pdf).

Each available proxy point within the address#, group#, broadcast point group has the actions described above, too

Additional to proxy point groups address#, group#, broadcast there are still three additional point groups brightness, remote with 15 points occupancy, control per group available. The brightness proxy extensions contain a property timeout. If within this time no update of the DALI sensors has been occured the point goes to {fault} state. The occupancy proxy extensions contain a property hold. If within this time no new occupancy signal has been occured the occupancy state goes to inactive. The points within the remote control group are set if any key of a remote control is pressed.

SysmikScaloMBus

Home

Note: The ILT manuals can be found in folder <code>^docs\docSysmikScaIo</code>.

SysmikScaIoMbus

This terminal is a serial MBus interface and can manage upto 30 MBus slaves The serial interface names will be assigned starting with COM3 and accordingly to the station terminal order.

(see datasheet of terminal type ILT_MBUS for details.)

SysmikScaloRsUni

<u>Home</u>

Note: The ILT manuals can be found in folder ^docs\docSysmikScaIo.

SysmikScaIoRsUni

This terminal is a universal serial MBus interface and can manage upto 30 MBus slaves

The serial interface names will be assigned starting with COM3 and accordingly to the station terminal order.

The Rs type can be changed like below:.

- o **Rs232**
- o **Rs485**
- o **Rs422**

(see datasheet of terminal type ILT_RS_UNI for details.)

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