

# **IEC 61850 MMS Client Driver**

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# Table of Contents

<b>Table of Contents</b> .....	<b>2</b>
IEC 61850 MMS Client Driver Help .....	3
Overview .....	3
<b>Device Setup</b> .....	<b>4</b>
Automatic Configuration .....	4
Connection .....	5
Communication .....	9
Control .....	10
Tag Database Settings .....	11
<b>Data Types Description</b> .....	<b>13</b>
<b>Address Descriptions</b> .....	<b>14</b>
Supported Functional Constraints .....	15
<b>Error Descriptions</b> .....	<b>16</b>
Duplicate address <tag address> produced from SCL file. Tag will not be created. ....	17
Error: Device <device name>, Address <MMS address>, Invalid bit string data <bit string>. Please enter a string of characters '0' and '1'. ....	17
Error: Device <device name>, Address <MMS address>, Invalid data type <data type> for data attribute. ....	17
Error: Device <device name>, Address <MMS address>, Invalid octet string data <octet string>. Please enter an even number of hexadecimal digits (for example, "00 01 C3"). ....	17
Error: Device <device name>, Cannot write to structured data attribute <MMS address>. ....	17
Error: Device <device name>, Invalid object <MMS address>. ....	18
Error: Device <device name>, Structured data attribute <MMS address> cannot be applied to tag. ....	18
Failed to open SCL file <file path>. ....	18
Invalid address <tag address> produced from SCL file. Tag will not be created. ....	18
No ConnectedAP of SubNetwork <SubNetwork> with IED <IED> and AccessPoint <AccessPoint> found in file <file path>. ....	18
Selected AccessPoint <AccessPoint > not found in file <file path>. ....	19
Selected IED <IED name> not found in file <file path>. ....	19
Selected SubNetwork <SubNetwork> not found in file <file path>. ....	19
<b>Index</b> .....	<b>20</b>

## IEC 61850 MMS Client Driver Help

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Help version 1.018

### CONTENTS

#### [Overview](#)

What is the IEC 61850 MMS Client Driver?

#### [Device Setup](#)

How do I configure devices for use with this driver?

#### [Data Types Description](#)

What data types does the IEC 61850 MMS Client Driver support?

#### [Address Descriptions](#)

How do I address a data location on a device?

#### [Error Descriptions](#)

What error messages are produced by the IEC 61850 MMS Client Driver?

## Overview

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IEC 61850 is a modern electrical substation communication protocol designed with the goal of decreasing data management effort. It uses symbolic addresses to reduce the time-intensive data mapping of numerically-addressed protocols, supports several self-description services for online data configuration and validation, and supports metadata in addition to real, measured data.

The IEC 61850 MMS Client Driver supports the following:

- Solicited data access through Manufacturing Message Specification (MMS) Read and Write requests.
- Unsolicited data through MMS Information Reports.
- Special handling of Reads and Writes as they relate to IEC 61850 control operations.

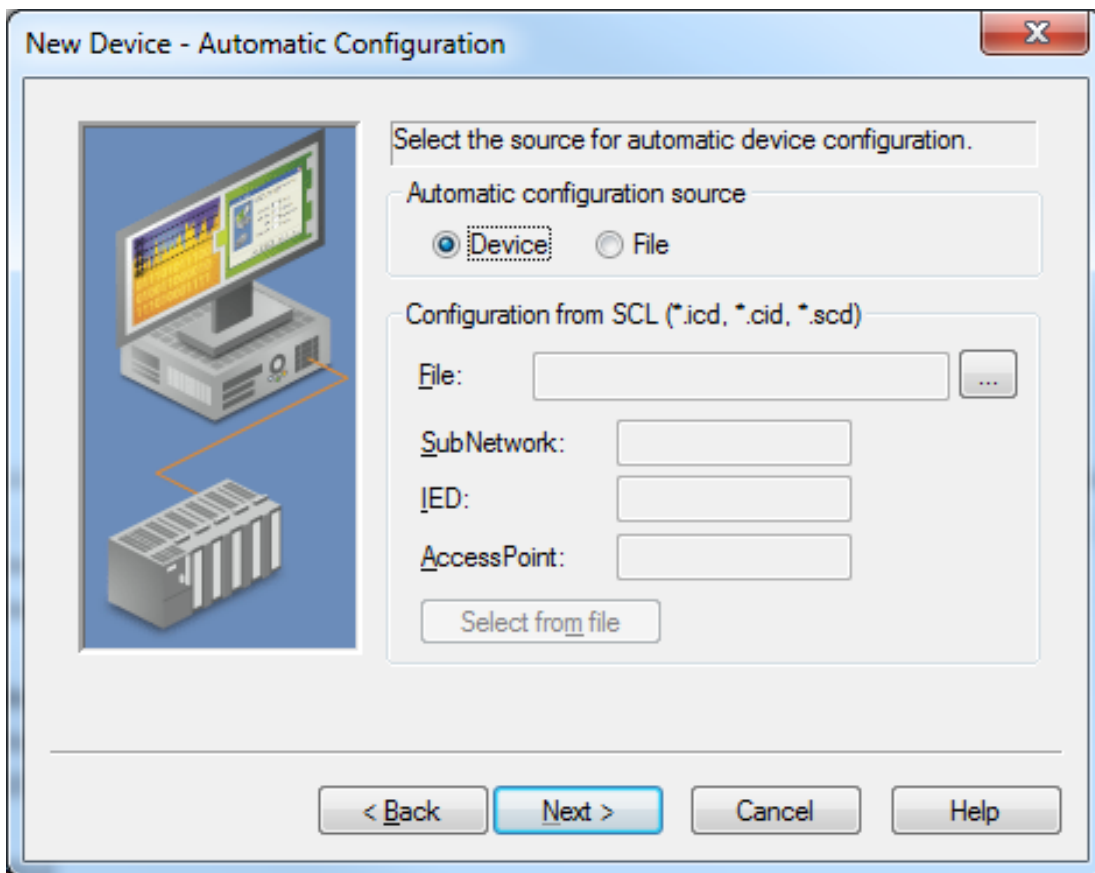
## Device Setup

### Maximum Number of Channels and Devices

The maximum number of supported channels is 256. The maximum number of supported devices is 256.

### Automatic Configuration

This dialog is used to define the source for automatic device configuration, and to specify a Substation Configuration Language (SCL) file that represents a target device.



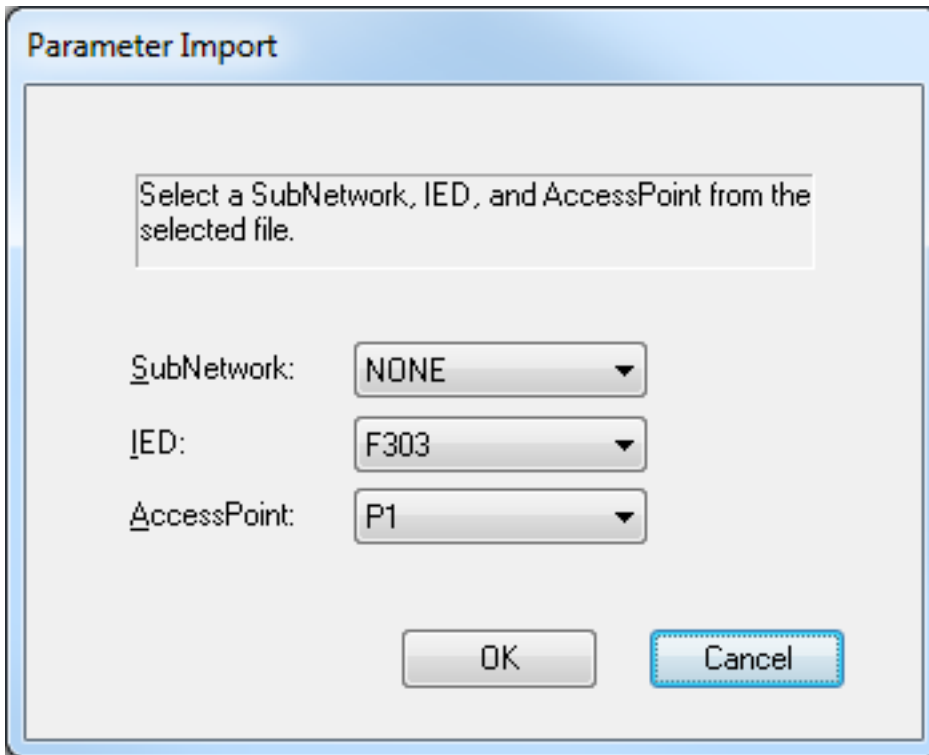
Descriptions of the parameters are as follows:

- **Automatic Configuration Source:** This field specifies the source for automatic device configuration. Options include Device and SCL File. When Device is selected, tags will be created using the online device self-description services. When SCL is selected, tags will be created from the configured SCL file, and the Connection parameters will be imported. The default setting is Device.  
**Note:** For more information on the Connection parameters, refer to [Connection](#).
- **File:** This parameter is set automatically after the configuration file is specified. To locate the file, click the browse (...) button. The selected file can have an .icd, .cid, or .scl extension. This parameter is only available when the Automatic Configuration Source is set to **File**.
- **SubNetwork:** This parameter is set automatically after the SubNetwork is confirmed in SCL Parameter Import. It is only available when the Automatic Configuration Source is set to **File**. For more information, refer to [Parameter Import](#).
- **IED:** This parameter will be set automatically after the Intelligent Electronic Device (IED) is confirmed in SCL Parameter Import. It is only available when the Automatic Configuration Source is set to SCL. For more information, refer to [Parameter Import](#).
- **AccessPoint:** This parameter will be set automatically after the AccessPoint is confirmed in Parameter Import. It is only available when the Automatic Configuration Source is set FileSCL. For more information, refer to [Parameter Import](#).

- **Select from file:** When clicked, this button launches the SCL Parameter Import dialog. It is only available when the Automatic Configuration Source is set to **File**. For more information, refer to [Parameter Import](#).

### Parameter Import

This dialog displays the SubNetworks, IEDs, and AccessPoints available in the file specified in the Automatic Configuration dialog. Once confirmed, the selections will be set in the Automatic Configuration dialog.



Parameter Import

Select a SubNetwork, IED, and AccessPoint from the selected file.

SubNetwork: NONE

IED: F303

AccessPoint: P1

OK Cancel

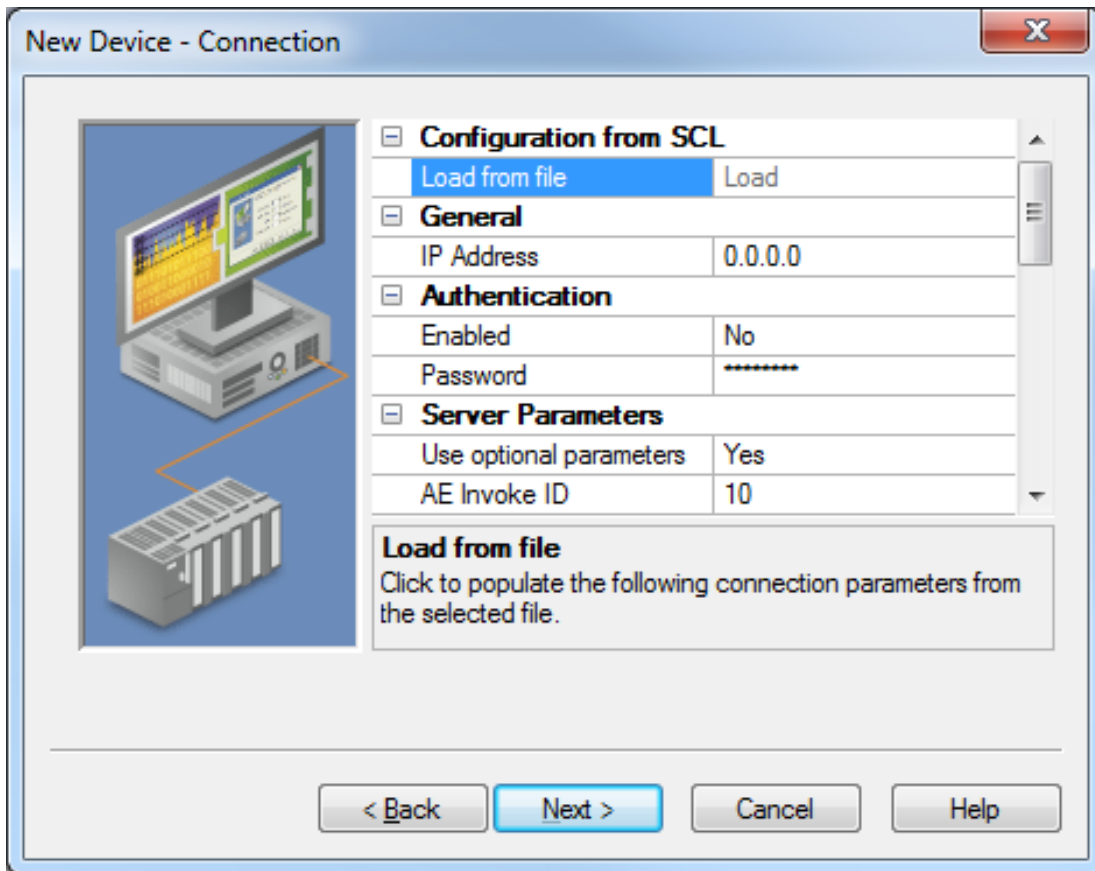
Descriptions of the parameters are as follows:

- **SubNetwork:** This parameter specifies a SubNetwork within the specified file. If multiple SubNetworks exist in the file, the first one encountered is selected by default.
- **IED:** This parameter specifies an IED within the file. If multiple IEDs exist in the file, the first one encountered is selected by default.
- **AccessPoint:** This parameter specifies an AccessPoint within the file. If multiple AccessPoints exist in the file, the first one encountered is selected by default.

### Connection

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This dialog is used to configure the device's connection settings.



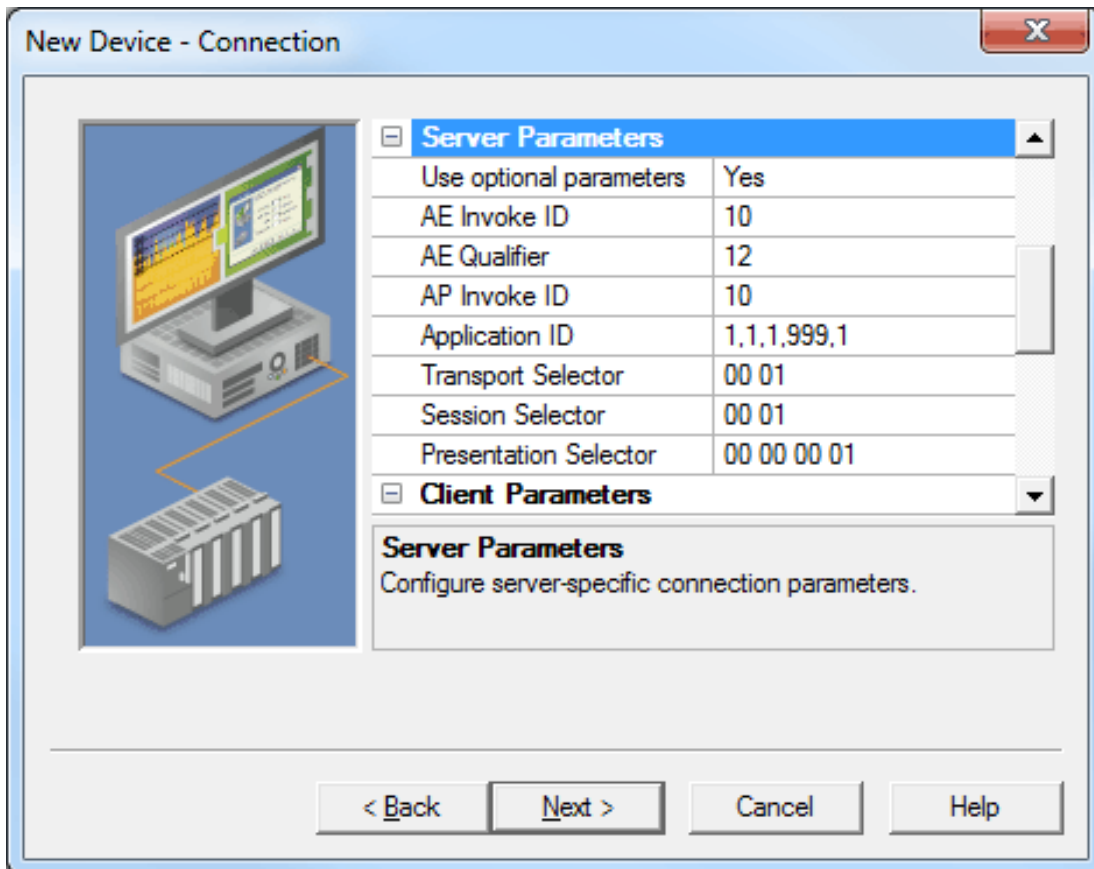
Descriptions of the parameters are as follows:

- **Load from file:** When enabled, the properties of the selected file are used to populate the parameters listed beneath the Authentication and Server Parameters sections. This option is only available if the specified automatic configuration source is **File** (and all parameters have been configured). For more information, refer to [Automatic Configuration](#).
- **IP Address:** This parameter specifies the IP Address of the target device. The default setting is 0.0.0.0.
- **Enabled:** This parameter specifies whether Association Control Service Element (ACSE) authentication is enabled.
- **Password:** This parameter specifies the password for ACSE authentication.

**Note:** For information on the parameters listed beneath the Server Parameters and Client Parameters sections, refer to the subtopics below.

### Server Parameters

This section is used to configure the server-specific connection parameters.

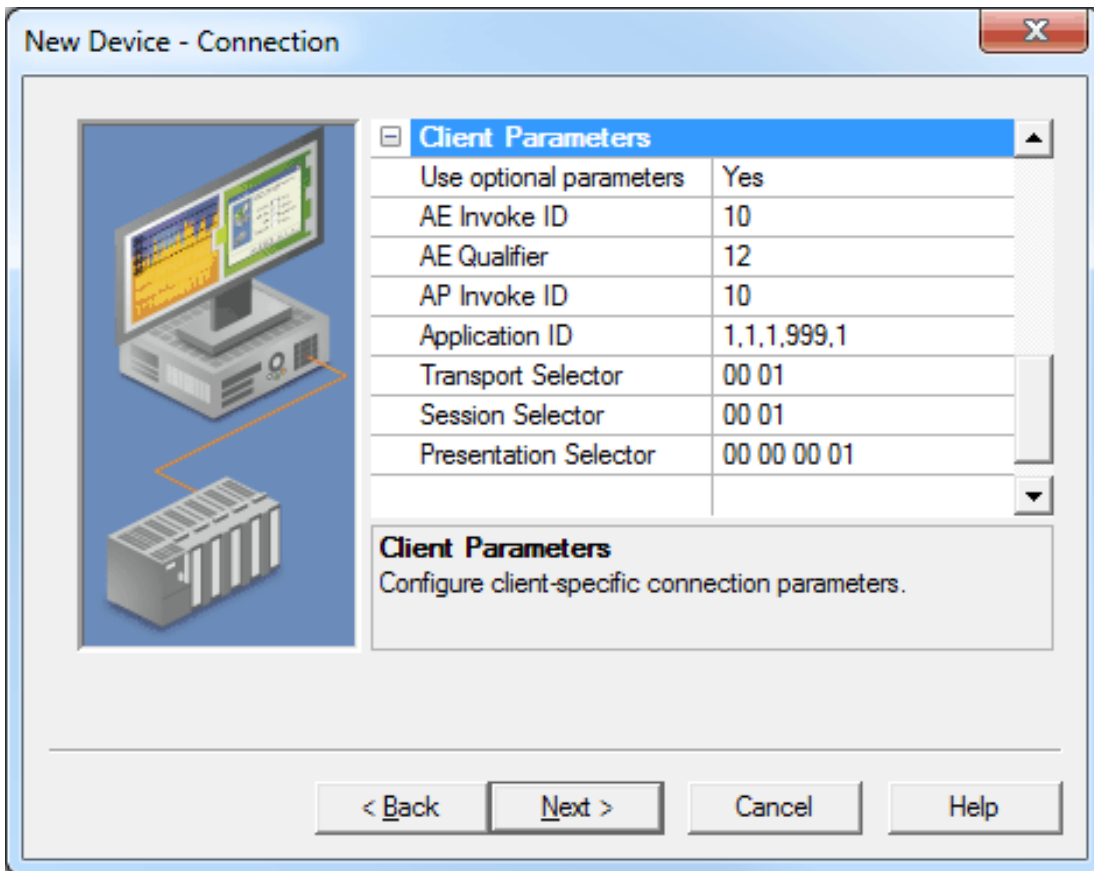


Descriptions of the parameters are as follows:

- **Use optional parameters:** When enabled, the Server Parameters will be available for editing and will be included when initiating a connection with a device. The default setting is Yes.
- **AE Invoke ID:** This parameter specifies the ACSE AE Invoke ID. The valid range is 0 to 65535. The default setting is 10 (unless a value is specified in the SCL file).
- **AE Qualifier:** This parameter specifies the ACSE AE Qualifier. The valid range is 0 to 65535. The default setting is 12 (unless a value is specified in the SCL file).
- **AP Invoke ID:** This parameter specifies the ACSE AP Invoke ID. The valid range is 0 to 65535. The default setting is 10 (unless a value is specified in the SCL file).
- **Application ID:** This parameter specifies the ACSE Application ID. It must be 10 or less integers, and delimited by commas. The default setting is "1,1,1,999,1" (unless a value is specified in the SCL file).
- **Transport Selector:** This parameter configures the server OSI-TSEL and is used in establishing a remote server connection. It specifies a byte array, which is expressed as pairs of hexadecimal digits separated by zero or more spaces. The maximum size is 50 bytes (or 100 hex chars). The default setting is "00 01" (unless a value is specified in the SCL file).
- **Session Selector:** This parameter configures the server OSI-SSEL and is used in establishing a remote server connection. It specifies a byte array, which is expressed as pairs of hexadecimal digits separated by zero or more spaces. The maximum size is 50 bytes (or 100 hex chars). The default setting is "00 01" (unless a value is specified in the SCL file).
- **Presentation Selector:** This parameter configures the server OSI-PSEL and is used in establishing a remote server connection. It specifies a byte array, which is expressed as pairs of hexadecimal digits separated by zero or more spaces. The maximum size is 50 bytes (or 100 hex chars). The default setting is "00 00 01" (unless a value is specified in the SCL file).

### Client Parameters

This section is used to configure the client-specific connection parameters.



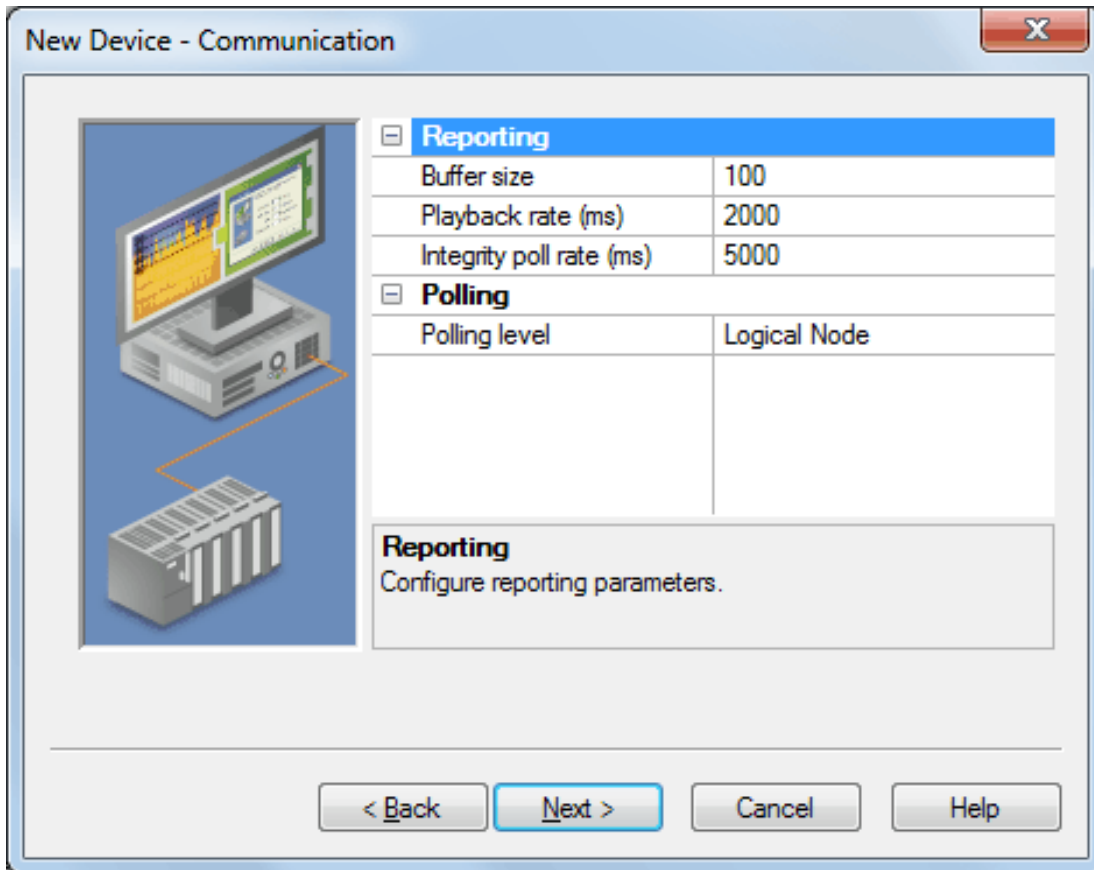
Descriptions of the parameters are as follows:

- **Use optional parameters:** When enabled, the Client Parameters will be available for editing and will be included when initiating a connection with a device. The default setting is Yes.
- **AE Invoke ID:** This parameter specifies the ACSE AE Invoke ID. The valid range is 0 to 65535. The default setting is 10 (unless a value is specified in the file).
- **AE Qualifier:** This parameter specifies the ACSE AE Qualifier. The valid range is 0 to 65535. The default setting is 12 (unless a value is specified in the file).
- **AP Invoke ID:** This parameter specifies the ACSE AP Invoke ID. The valid range is 0 to 65535. The default setting is 10 (unless a value is specified in the file).
- **Application ID:** This parameter specifies the ACSE Application ID. It must be 10 or less integers, and delimited by commas. The default setting is "1,1,1,999,1" (unless a value is specified in the file).
- **Transport Selector:** This parameter configures the server OSI-TSEL and is used in establishing a remote server connection. It specifies a byte array, which is expressed as pairs of hexadecimal digits separated by zero or more spaces. The maximum size is 50 bytes (or 100 hex chars). The default setting is "00 01" (unless a value is specified in the file).
- **Session Selector:** This parameter configures the server OSI-SSEL and is used in establishing a remote server connection. It specifies a byte array, which is expressed as pairs of hexadecimal digits separated by zero or more spaces. The maximum size is 50 bytes (or 100 hex chars). The default setting is "00 01" (unless a value is specified in the file).
- **Presentation Selector:** This parameter configures the server OSI-PSEL and is used in establishing a remote server connection. It specifies a byte array, which is expressed as pairs of hexadecimal digits separated by zero or more spaces. The maximum size is 50 bytes (or 100 hex chars). The default setting is "00 00 01" (unless a value is specified in the file).



## Communication

This dialog is used to configure the parameters for polling, reporting, and report buffering.



Descriptions of the parameters are as follows:

- Buffer size:** This parameter specifies the data buffer size. If the length of the data buffer exceeds the maximum, the oldest value on the buffer is discarded. The valid range is 1 to 10000. The default setting is 100.
- Playback rate:** This parameter specifies the amount of time before a value is removed from the data buffer after it is assigned to a tag. The valid range is 50 to 999999999 milliseconds. The default setting is 2000 milliseconds.
 

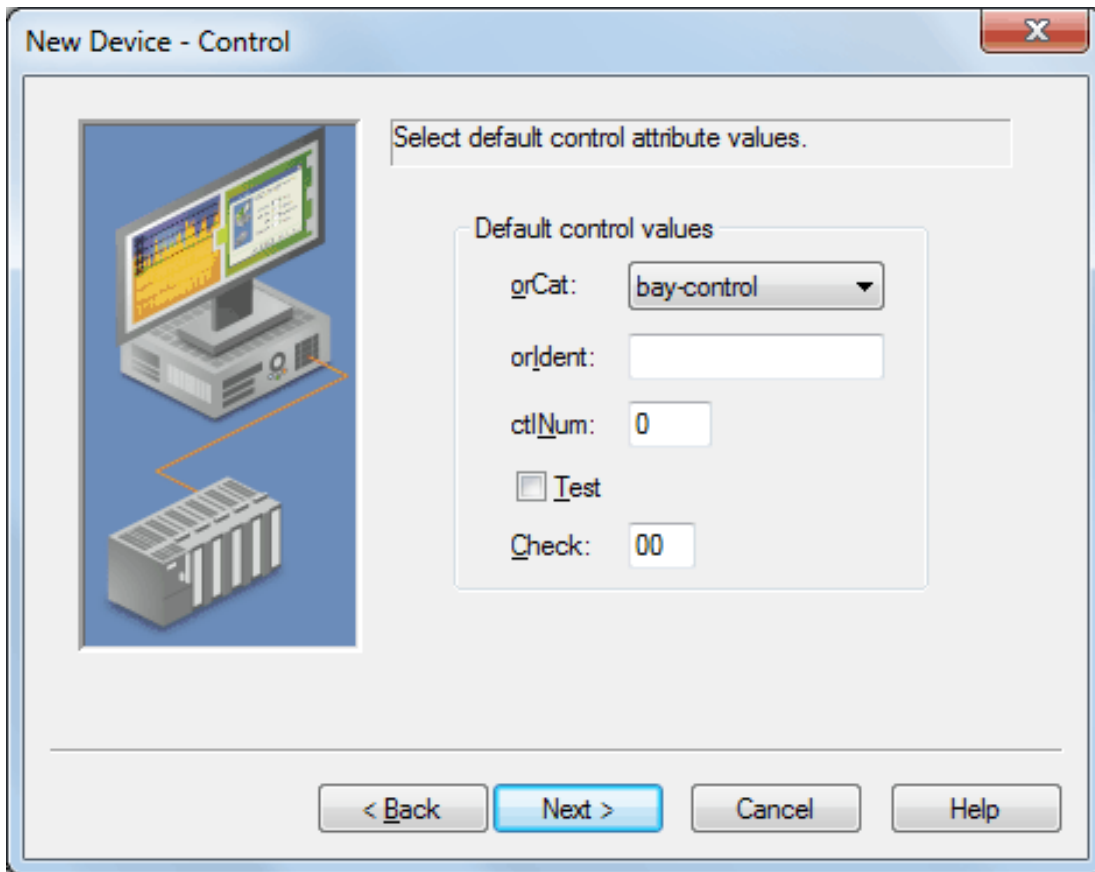
**Note:** If multiple clients reference the same buffered data, the playback rate should be greater than the longest scan rate. If only one client references the buffered data, a playback rate of 0 is sufficient.

**Note:** Enabling the OPC DA setting **Return initial updates for items in a single callback** may result in loss of buffered data when using drivers that support Event Playback for unsolicited device protocols. The compliance setting should be disabled if loss of buffered data is a concern.
- Integrity poll rate:** An integrity poll is used to verify connectivity to the IED at a minimum of every  $x$  milliseconds. It is recommended when the IED is only sending reports as a way to know that connectivity is lost. It can also be used to verify connectivity faster than the poll rate when polling the IED slowly (such as in minutes). This parameter specifies the amount of time that can elapse between either receiving a report or receiving a solicited response before the driver must check the integrity of its connection with the IED. The valid range is 0 to 999999999 milliseconds. The default setting is 5000 milliseconds. To disable integrity polling, specify a value of 0 milliseconds.
 

**Note:** When the integrity poll rate has elapsed without any communication, the channel sends a read for an RCB attribute to the IED. If the read fails, the connection to the IED is considered lost. At that point, the device is placed into an error state and all tags are set to bad quality. If the read succeeds, no action is taken.
- Polling level:** This parameter specifies the level at which data is grouped and polled. Options include Logical Node, Functional Constraint, and Data Object. The default setting is Logical Node.

## Control

This dialog is used to configure the device's control attribute values. The IEC 61850 MMS Client Driver supports structured writes to controllable objects that contain the orCat, orIdent, ctINum, Test, and Check attributes.

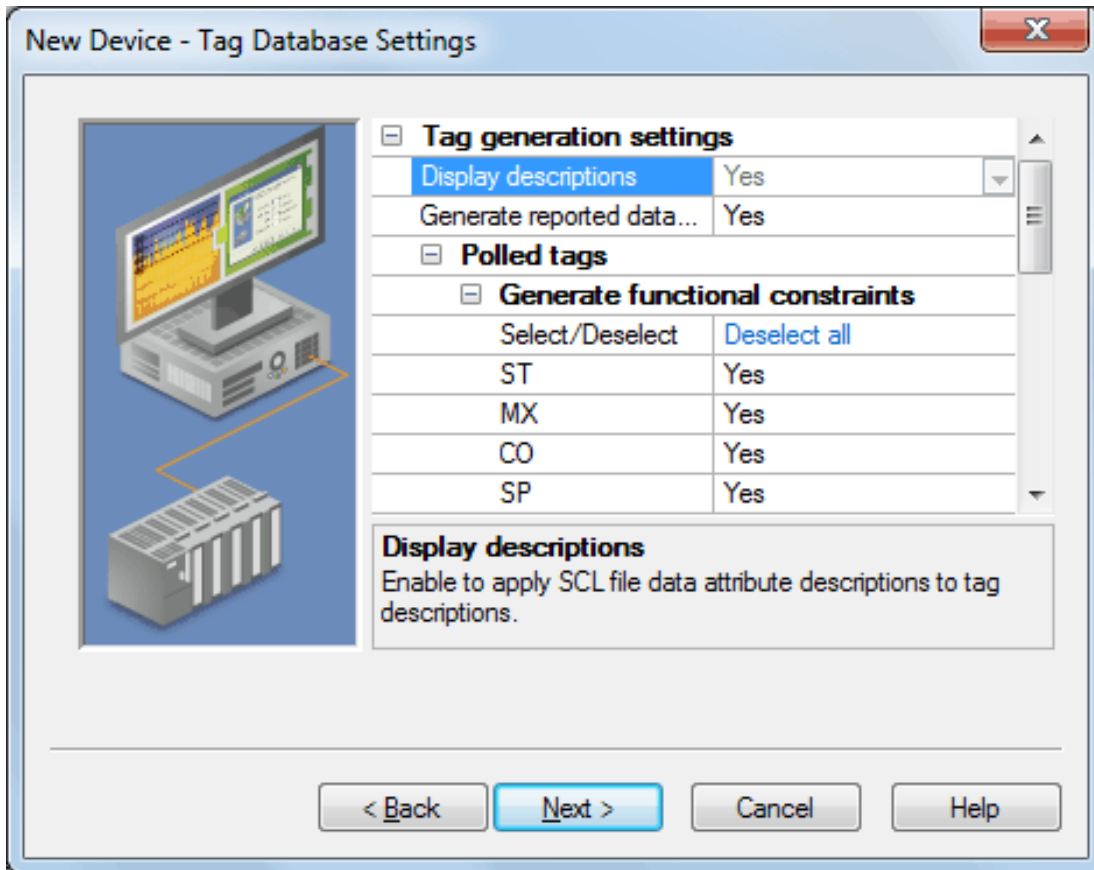


Descriptions of the parameters are as follows:

- **orCat:** This parameter specifies the value of orCat when making a structured write to a control object. The default setting is bay-control. Options include the following:
  - not-supported
  - bay-control
  - station-control
  - remote-control
  - automatic-bay
  - automatic-station
  - automatic-remote
  - maintenance
  - process
- **orIdent:** This parameter specifies the value of the \_orIdent Tag. The value must be a hex byte array (such as "01 7A F0"). It is blank by default.
- **ctINum:** This parameter specifies the value of the \_ctINum Tag. The value must be an 8 bit unsigned integer. The default setting is 0.
- **Test:** This parameter specifies the Boolean value assigned to the \_Test Tag. When checked, the value is 1. When unchecked, the value is 0. The default setting is unchecked.
- **Check:** This parameter specifies the value of the \_Check Tag. The value must be a 2 bit string. The default setting is 00.

## Tag Database Settings

This dialog is used to configure the tag generation source parameters.



Descriptions of the parameters are as follows:

- **Display descriptions:** If enabled, this option will apply the SCL file data attribute descriptions to the tag descriptions. It is only available when tags are created from SCL. The default setting is Yes.
- **Generate reported data:** If enabled, this option generates tags for data sets referenced by report control blocks. The default setting is Yes.
- **Select/Deselect:** This option specifies whether to select or deselect all Functional Constraints. The default setting is Deselect All.
- **ST:** If enabled, this option generates tags with the ST Functional Constraint. The default setting is Yes.
- **MX:** If enabled, this option generates tags with the MX Functional Constraint. The default setting is Yes.
- **CO:** If enabled, this option generates tags with the CO Functional Constraint. The default setting is Yes.
- **SP:** If enabled, this option generates tags with the SP Functional Constraint. The default setting is Yes.
- **SV:** If enabled, this option generates tags with the SV Functional Constraint. The default setting is Yes.
- **CF:** If enabled, this option generates tags with the CF Functional Constraint. The default setting is Yes.
- **DC:** If enabled, this option generates tags with the DC Functional Constraint. The default setting is Yes.
- **SG:** If enabled, this option generates tags with the SG Functional Constraint. The default setting is Yes.
- **SE:** If enabled, this option generates tags with the SE Functional Constraint. The default setting is Yes.
- **EX:** If enabled, this option generates tags with the EX Functional Constraint. The default setting is Yes.
- **BR:** If enabled, this option generates tags with the BR Functional Constraint. The default setting is Yes.
- **RP:** If enabled, this option generates tags with the RP Functional Constraint. The default setting is Yes.
- **LG:** If enabled, this option generates tags with the LG Functional Constraint. The default setting is Yes.
- **GO:** If enabled, this option generates tags with the GO Functional Constraint. The default setting is Yes.
- **GS:** If enabled, this option generates tags with the GS Functional Constraint. The default setting is Yes.
- **MS:** If enabled, this option generates tags with the MS Functional Constraint. The default setting is Yes.
- **US:** If enabled, this option generates tags with the US Functional Constraint. The default setting is Yes.

**Note:** For more information, refer to [Supported Functional Constraints](#).

## Data Types Description

OPC Data Type	MMS Data Type	Description
Bool	Boolean	Single bit
Char	Integer (8 bit)	Signed 8 bit value
Byte	Unsigned Integer (8 bit)	Unsigned 8 bit value
Short	Integer (16 bit)	Signed 16 bit value
Word	Unsigned Integer (16 bit)	Unsigned 16 bit value
Long	Integer (32 bit)	Signed 32 bit value
DWord	Unsigned Integer (32 bit)	Unsigned 32 bit value
Float	Floating-point (32 bit)	32 bit floating point value
Byte	Bit string (length <= 8)	*
Word	Bit string (8 < length <= 16)	*
DWord	Bit string (16 < length <= 32)	*
String	Bit string (length > 32)	*
String	Octet-string	An array of bytes (octets).
String	Visible-string	ANSI characters up to 255 characters in length.
String	MMS String	UTF-8 encoded string up to 255 characters in length.
Date	Binary Time	6 byte structure containing days since Jan 1, 1984 and milliseconds since midnight. It uses the format "MM/DD/YYYY_HH:MM:SS.mmm".
Date	UTC Time	8 byte structure containing seconds of the century, a fraction of a second, and a time quality. It uses the format "MM/DD/YYYY_HH:MM:SS.mmm".

\*MMS supports bit strings up to 256 bits in length. Bit strings less than 32 bits long can be assigned to unsigned integers, whereas larger bit strings can only be applied to strings. They will be assigned to unsigned integers with the first bit in the bit string corresponding to the integer's lowest order bit.

## Address Descriptions

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### Polled Tag Addressing

The IEC 61850 MMS Client Driver's syntax for Polled Tag Addressing is *LDName/LNName\$FC\$DataName\$DataAttrName[\$DataAttrComponent[\$ ...]]*, where:

- *LDName* indicates the Logical Device Name. It is limited to 32 characters.
- *LNName\$FC\$DataName\$DataAttrName[\$DataAttrComponent[\$ ...]]* indicates the Object Name. It is limited to 64 characters.
- [*\$* ] indicates an option.
- [*\$ ...*] indicates additional names of recursively nested definitions.
- *FC* indicates the Functional Constraint (FC) that describes the services that can be performed on the data.
- *\$* is a separator.

Examples of the address syntax include "Rly1/LLN0\$ST\$Mod\$stVal" and "Rly2/LLN0\$BR\$brcb1\$RptEna".

**Note:** A primitive Data Attribute's object reference syntax is *LDName/LNName.DataName.DataAttrName [.DataAttrComponent[. ...]]*. The '.' separator used in IEC 61850-7-2 is replaced by '\$' in MMS addressing.

### Reported Tag Addressing

The IEC 61850 MMS Client Driver's syntax for Reported Tag Addressing is *LDName/LNName\$FC\$RCBName:LDName/LNName\$FC\$DataName\$DataAttrName[\$DataAttrComponent[\$ ...]]*, where:

- *LDName/LNName\$FC\$RCBName* indicates the Report Control Block (RCB) name. It is limited to 64 characters.
- *:* is a separator between the RCB name and the name of the reported object.
- *LNName\$FC\$DataName\$DataAttrName[\$DataAttrComponent[\$ ...]]* indicates the Object Name. It is limited to 64 characters.

An example of the address syntax is "Rly1/LLN0\$BR\$brcb1:Rly1/LLN0\$ST\$Mod\$stVal". Valid functional constraints for the RCB name include BR (which indicates a buffered report control block) and RP (which indicates an unbuffered report control block). The Object Name must indicate a primitive attribute that is included in a data set member referenced by the RCB.

### Automatic Subscription

For reported tags like "Rly1/LLN0\$BR\$brcb1:Rly1/LLN0\$ST\$Mod\$stVal," the driver writes a value of '1' to "Rly1/LLN0\$BR\$brcb1\$RptEna" on each scan of the tag until the Report Control Block is enabled. Attempts to enable the RCB fail if it is already enabled by another client. If all tags referencing the RCB "Rly1/LLN0\$BR\$brcb1" are removed, the driver writes a value of '0' to "RptEna" to unsubscribe from receiving reports.

### Initial Update

Once a Report Control Block has been successfully enabled, the driver must request an initial value for the data monitored by the RCB. How the driver accomplishes this depends on the services that are supported by the RCB. If the driver supports general interrogation, it writes a value of '1' to the RCB's GI attribute to request a general interrogation report. Support is indicated by the general interrogation bit of the RCB's TrgOps attribute.

- If an unbuffered RCB does not support general interrogation, the driver reads the data set referenced by the RCB's DataSet attribute for an initial update.
- If a buffered RCB does not support general interrogation, the initial update logic depends on whether the RCB supports including EntryID values in reports. Support is indicated by the EntryID bit of the RCB's OptFlds attribute.
  - An EntryID bit of '0' indicates that it is not supported. In this case, the driver gives the device one scan period to send all buffered reports that it may contain. If values have not been reported for all members of the RCB's referenced data set after that time, the driver reads the referenced data set.
  - An EntryID bit of '1' indicates that it is supported. In this case, the driver gives the device as many scan periods as necessary for the EntryID of the last received report to equal the current value of the RCB's EntryID attribute. When these two values are equal (or if zero buffered reports are received within one scan period), the implication is that all buffered data has been sent to the driver. If values have not been reported for all members of the RCB's referenced data set at this time, the driver reads the referenced data set.

## Supported Functional Constraints

Each Data Attribute and object reference are associated with a Functional Constraint. It must be included in order to fully describe a Data Attribute. The IEC 61850 MMS Client Driver inserts an FC NamedVariable object between the logical node level and the data level so that Data Attributes can be described by their address only. For more information on the supported Functional Constraints, refer to the table below.

Constraint	Definition	Description	Access
ST	Status Information	This represents a status information whose value can be read, substituted, reported, and logged but not written.	Read Only
MX	Measurands (Analog Values)	This represents a measurand information whose value can be read, substituted, reported, and logged but not written.	Read Only
CO	Control	This represents a control information whose value may be operated and read.	Read/Write
SP	Setpoint	This represents a setpoint information whose value may be controlled and read. Values that are controlled become effective immediately.	Read/Write
SV	Substitution	This represents a substitution information whose value can be written to substitute the value attribute and read.	Read/Write
CF	Configuration	This represents a configuration information whose value may be written and read. Values that are controlled become effective immediately or are deferred.	Read/Write
DC	Description	This represents a description information whose value can be written and read.	Read/Write
SG	Setting Group	Logical Devices that implement the SGCB class maintain multiple grouped values of all instances of DataAttributes with the Functional Constraint SG. Each group contains one value for each DataAttribute with Functional Constraint SG, which will be the current active value. Values of the DataAttribute with FC=SG cannot be written.	Read Only
SE	Setting Group Editable	This represents a DataAttribute that can be edited by SGCB services.	Read/Write
EX	Extended Definition	This represents an extension information that provides a reference to a name space. Extensions are used in conjunction with extended definitions of LNs, DATA, and DataAttributes. Values of the DataAttribute with FC=EX cannot be written.	Read Only
BR	Buffered Report	This represents a report control information of a BRCB that can be written and read.	Read/Write
RP	Unbuffered Report	This represents a report control information of a URCB that can be written and read.	Read/Write
LG	Logging	This represents a log control information of a LCB that can be written and read.	Read/Write
GO	Goose Control*	This represents a goose control information of a GoCB that can be written and read.	Read/Write
GS	Gsse Control*	This represents a goose control information of a GsCB that can be written and read.	Read/Write
MS	Multicast Sampled Value Control	This represents a sampled value control information of an MSVCB that can be written and read.	Read/Write
US	Unicast Sampled Value Control	This represents a sampled value control information of an instance of a UNICAST-SVC that can be written and read.	Read/Write

\* Reserved for control classes.

## Error Descriptions

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The following error/warning messages may be generated. Click on the link for a description of the message.

- [Duplicate address <tag address> produced from SCL file. Tag will not be created.](#)
- [Error: Device <device name>, Address <MMS address>, Invalid bit string data <bit string>. Please enter a string of characters '0' and '1'.](#)
- [Error: Device <device name>, Address <MMS address>, Invalid data type <data type> for data attribute.](#)
- [Error: Device <device name>, Address <MMS address>, Invalid octet string data <octet string>. Please enter an even number of hexadecimal digits \(for example, "00 01 C3"\).](#)
- [Error: Device <device name>, Cannot write to structured data attribute <MMS address>.](#)
- [Error: Device <device name>, Invalid object <MMS address>.](#)
- [Error: Device <device name>, Structured data attribute <MMS address> cannot be applied to tag.](#)
- [Failed to open SCL file <file path>.](#)
- [Invalid address <tag address> produced from SCL file. Tag will not be created](#)
- [No ConnectedAP of SubNetwork <SubNetwork> with IED <IED> and AccessPoint <AccessPoint> found in file <file path>.](#)
- [Selected AccessPoint <AccessPoint > not found in file <file path>.](#)
- [Selected IED <IED name> not found in file <file path>.](#)
- [Selected SubNetwork <SubNetwork > not found in file <file path>.](#)



---

**Duplicate address <tag address> produced from SCL file. Tag will not be created.**

---

**Error Type:**

Warning

**Possible Cause:**

1. A structured data object in the selected SCL file has two file attributes with the same name.
2. Two control blocks are configured with the same name.

**Solution:**

Verify that all data object and control block names are unique.

---

**Error: Device <device name>, Address <MMS address>, Invalid bit string data <bit string>. Please enter a string of characters '0' and '1'.**

---

**Error Type:**

Warning

**Possible Cause:**

Data that was written to a tag representing an MMS bit string includes a character besides '0' or '1'.

**Solution:**

Verify that the data being written to bit string tags only includes the '0' and '1' characters. For example, "001101".

---

**Error: Device <device name>, Address <MMS address>, Invalid data type <data type> for data attribute.**

---

**Error Type:**

Warning

**Possible Cause:**

The tag's data type is not valid for the data attribute referenced by the tag's address.

**Solution:**

Verify that the tag has an appropriate data type for the data attribute to which it refers.

**Note:**For more information on the OPC data types' corresponding MMS data types, refer to [Data Types Description](#).

---

**Error: Device <device name>, Address <MMS address>, Invalid octet string data <octet string>. Please enter an even number of hexadecimal digits (for example, "00 01 C3").**

---

**Error Type:**

Warning

**Possible Cause:**

Data was written to a tag representing an MMS octet string that is not an even number of hexadecimal digits.

**Solution:**

Verify that the data written being to octet string tags includes an even number of hexadecimal digits. For example, "00 01 C3".

---

**Error: Device <device name>, Cannot write to structured data attribute <MMS address>.**

---

**Error Type:**

Warning

**Possible Cause:**

A tag has been configured with the address of a structured data attribute.

**Solution:**

Verify that all tags only refer to data attributes with primitive types.

**Note:**

Tags must refer to data attributes with primitive types.

**Error: Device <device name>, Invalid object <MMS address>.**

---

**Error Type:**

Warning

**Possible Cause:**

A tag has been configured with an address that is not valid for the connected device.

**Solution:**

Verify that the tags (including the given address) are configured correctly.

**Error: Device <device name>, Structured data attribute <MMS address> cannot be applied to tag.**

---

**Error Type:**

Warning

**Possible Cause:**

A tag has been configured with the address of a structured data attribute.

**Solution:**

Verify that all tags only refer to data attributes with primitive types.

**Note:**

Tags must refer to data attributes with primitive types.

**Failed to open SCL file <file path>.**

---

**Error Type:**

Warning

**Possible Cause:**

The selected SCL File is not a valid UNC path.

**Solution:**

Verify that the selected SCL file path is valid.

**Invalid address <tag address> produced from SCL file. Tag will not be created.**

---

**Error Type:**

Warning

**Possible Cause:**

A data object in the specified SCL File has a character that is not valid for IEC 61850 addresses.

**Solution:**

Verify that the DataTypeTemplates section of the specified SCL File only includes valid characters.

**No ConnectedAP of SubNetwork <SubNetwork> with IED <IED> and AccessPoint <AccessPoint> found in file <file path>.**

---

**Error Type:**

Warning

**Possible Cause:**

The SubNetwork and IED selected in the SCL tab (located in **Device Properties**) do not form a ConnectedAP in the selected SCL file.

**Solution:**

Verify that the selected SubNetwork, IED, and SCL File paths are valid.

**Selected AccessPoint <AccessPoint > not found in file <file path>.**

---

**Error Type:**

Warning

**Possible Cause:**

The AccessPoint parameter is not present in the file as specified in the SCL File field (located in the **SCL** tab of **Device Properties**).

**Solution:**

Verify that both the AccessPoint and SCL file parameters are configured correctly.

**Selected IED <IED name> not found in file <file path>.**

---

**Error Type:**

Warning

**Possible Cause:**

The IED is not present in the file as specified in the SCL File field (located in the **SCL** tab of **Device Properties**).

**Solution:**

Verify that both the IED and SCL File parameters are configured correctly.

**Selected SubNetwork <SubNetwork> not found in file <file path>.**

---

**Error Type:**

Warning

**Possible Cause:**

The SubNetwork parameter is not present in the file as specified in the SCL File field (located in the **SCL** tab of **Device Properties**).

**Solution:**

Verify that both the SubNetwork and SCL File parameters are configured correctly.

# Index

## A

Address Descriptions 14  
Automatic Configuration 4

## C

Communication 9  
Connection 5  
Control 10

## D

Data Types Description 13  
Device Setup 4  
Duplicate address <tag address> produced from SCL file. Tag will not be created. 17

## E

Error Descriptions 16  
Error: Device <device name>, Address <MMS address>, Invalid bit string data <bit string>. Please enter a string of characters '0' and '1'. 17  
Error: Device <device name>, Address <MMS address>, Invalid data type <data type> for data attribute. 17  
Error: Device <device name>, Address <MMS address>, Invalid octet string data <octet string>. Please enter an even number of hexadecimal digits (for example, 00 01 C3). 17  
Error: Device <device name>, Cannot write to structured data attribute <MMS address>. 17  
Error: Device <device name>, Invalid object <MMS address>. 18  
Error: Device <device name>, Structured data attribute <MMS address> cannot be applied to tag. 18

## F

Failed to open SCL file <file path>. 18

## H

Help Contents 3

## I

Invalid address <tag address> produced from SCL file. Tag will not be created. 18

**N**

No ConnectedAP of SubNetwork <SubNetwork> with IED <IED> and AccessPoint <AccessPoint> found in file <file path>. 18

**O**

Overview 3

**S**

Selected AccessPoint <AccessPoint > not found in file <file path>. 19

Selected IED <IED name> not found in file <file path>. 19

Selected SubNetwork <SubNetwork> not found in file <file path>. 19

Supported Functional Constraints 15

**T**

Tag Database Settings 11