Release Note

Integrated Testing Tool
ITT600 Version 2.0 Service Pack 3
Dear Reader,

We are pleased to announce the release of ITT600 Version 2.0 SP3.

Integrated Testing Tool ITT600 SA Explorer is designed for easy diagnosis and troubleshooting of IEC 61850-compliant substation automation systems and applications. The tool features convenient navigation, comprehensive presentation of application data and support for consistency checks, both on- and off-line.

ITT600 - Introduction

Integrated Testing Tool ITT600 SA Explorer is designed for easy diagnosis and troubleshooting of IEC 61850 compliant substation automation systems and applications. It features convenient navigation, comprehensive presentation of application data and support for consistency checks, both on and off-line.

ITT600 facilitates the easy exploration of the IEC 61850 configuration in any protection and control IED, the visualization of GOOSE messages and the communication simulation of an IED. ITT600's versatile functionality eliminates the need for multiple testing tools and helps engineers to isolate the root cause of system communication problems. This allows efficient diagnosis and troubleshooting of substation automation applications and therefore significantly reduces testing and commissioning time.

ITT600 SA Explorer makes IEC 61850 systems easy to use. By translating the complex terminology of communication protocols into the standardized IEC 61850 language, it makes the essential information available to all users, allowing anybody to use the same tool.

Ordering and delivery information

The ITT600 can be ordered from Substation Automation Products, Västerås, Sweden. The delivery includes a case with the software, manual and installation guide on CD and the USB hardware license key.

ITT600 Version 2.0 SP3 requires a USB hardware license key to function during start-up and runtime of the tool.

Life cycle statement

ITT600 Version 2.0 SP3 is a standalone product and replaces all former versions. Bug-fix and feature pack releases of ITT600 Version 2.0 are available via internet download with the built-in “check for updates” function – they run with the same license key.

ITT600 SA Explorer is a generic tool for testing, commissioning and maintenance of IEC 61850 based SA systems. Thus, it can be used together with any IEC 61850-compliant IEDs. However, it cannot be ensured that the full functionality of the tool can be supported for all such IEDs.

Documentation

Following documentation can be found on the product CD:
- 1MRK512009-ITT600 SA Explorer Installation Guide
- 1MRK512006-UEN-ITT600 SA Explorer
- 1MRG035473-ITT600 SA Explorer Release Note
Technical requirements on environment
The minimum hardware requirements are:
• 500 MB of free hard disk space
• Dual-core processor
• 3 GB RAM

The recommended hardware requirements for medium to big projects are:
• 1 GB of free hard disk space
• 64 bit operating system
• Quad-core processor
• 6 GB RAM
• SSD for system drive

The following operating systems are supported:
• Windows 7 (64- and 32-bit)
• Windows 8 (64- and 32-bit)
• Windows 10 (64- and 32-bit)
• Windows Server 2008 R2 SP1 (64-bit)
• Windows Server 2012 R2 (64-bit)
• Windows Server 2016 (64-bit)

Installation
ITT600 2.0 SP3 will replace any previously installed version. ITT600 requires some additional software delivered on the CD:
• Windows Installer 4.5
• .NET Framework 4.7.1

Kind regards
Michael Obrist
Global Product Manager, Grid Automation Products
All releases and included changes since ITT600 Version 2.0 (September 2013)

Service pack release ITT600 Version 2.0 SP3
(August 2019)

This release replaces the former ITT600 2.0.x versions.

**New and enhanced features**
- Responsive UI during long running operations: Starting simulation & Connecting to IED
- Additional log message indicating that gateway cannot be simulated
- Updated/ Revised context menus
- Context menu for customer names switch on the tree view
- IED connection view on subnetwork (#21903)
- Improved log panel performance in verbose mode logging
- Enabling/ Disabling SV Control Blocks

**General fixes and improvements**
- Explore IEDs: Support for multiple LPHDS
- Explore IEDs: Support MMS array data types to be simulate (#24698)
- Explore IEDs: Improved Dynamic Data Set functionality
- Explore IEDs: Mismatch of switch position between IEC 61850 stack and User Interface (#91129)
- Explore IEDs: Exception when connecting to an IED in DO view (#91318)
- Explore IEDs: Values not updated after connecting to an IED (#94385)
- Explore IEDs: Crash after MMS Client Timeout change (#40682)
- Explore IEDs: Confirm Edit SG Values not possible (#40684, #40691)
- Explore IEDs: RCB properties write error during a negative response from Server (#40686, #40688)
- Explore IEDs: Owner class for RCB missing (#26112)
- Explore IEDs: No warning/ error message when Subnetwork type in the SCD is not set or not part of 8-MMS (#33037, #39168)
- Explore IEDs: ITT does not create the Topology while browsing IED without SCD file if there are LD under LD (#38252)
- Explore IEDs: IED misconfigured after reconnecting (#37388,)
- Explore IEDs: RCB edition not recognized (#38134)
- Explore IEDs: No communication with an IED/ problem simulating (#39247)
- Explore Models: Export to excel model differences
- Explore Models: Improved UX
- Explore Ethernet: Decoding SV packets with HSR frame and/ or with VLan frame
- Explore Ethernet: Cannot decode SV Packets (wrong TLV detection) (#40689)
- Explore Ethernet: Sampled Values with HSR frame are not recognized (#38016, #40679)
- Explore Ethernet: Exception decoding MMS packet (#34673)
- Explore Ethernet: Capture network traffic from context menu always crash first time (#40683)
- Explore Ethernet: Wrong representation of Report Times in MMS report (#40687)
- Explore Ethernet: Bad timestamp quality: Leap second known (#33569)
- Explore Models: In case a node is missing in one model, there are no differences (#32342)
- Explore GOOSE: GOOSE signals not received (#35981)
- Explore GOOSE: GOOSE signals not updated when changed by another IED (#40478)
- Explore SV: SV streams with the same SV ID distinguished by Simulation bit
- Explore SV: SV streams with the same SV ID distinguished by HSR lane tag
- Explore SV: Improved SV stream statistics (#37155)
- Explore SV: Changed Invalid/ reserved quality settings according to 9-2 (#35116)
<table>
<thead>
<tr>
<th>Issue Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explore SV: 16.7Hz Support (#31392)</td>
</tr>
<tr>
<td>Explore SV: Cannot decode SV Packets (wrong TLV detection) (#40689)</td>
</tr>
<tr>
<td>Explore SV: Inconsistent behavior of SV reference (#40680)</td>
</tr>
<tr>
<td>Explore SV: Cannot show simulated and real stream (#38018)</td>
</tr>
<tr>
<td>Explore SV: Sampled Values with HSR frame are not recognized (#38016, #40679)</td>
</tr>
<tr>
<td>Explore SV: Phases of unused signals are fluctuating in simulation mode (#35836)</td>
</tr>
<tr>
<td>Explore SV: ConfRev and APPID are not shown (#32780)</td>
</tr>
<tr>
<td>Explore SV: Phasors Displayer keeps displaying phasors after unplug network cable (#12172)</td>
</tr>
</tbody>
</table>
Service pack release ITT600 Version 2.0 SP2
(April 2016)

New and enhanced features

New IED Status View showing the complete IED status in respect to its testing configuration
Representation of LD naming (Flexible Product Naming)
The user is informed before disconnecting an IED in case there are active Blockings, Substitution or Testing.
Quick Checker reads and compares more attributes
IEDs containing a ServerAt SCL element can be simulated

General fixes and improvements

Improvements in the Setting Group Editor (Available on the Setting Group Control Block)
Explore Models robustness is improved
Improved performance when browsing IEDs
Connect all IEDs allows now to additionally enable all reports. The operation can also be cancelled
Connect all IEDs shows only one message box at the end of the operation
The default OrIdent for control commands can be set in the ITT600 options
Explore GOOSE shows DataSet name in addition to the GOOSE control block name
Synchronized destination folder for MMS and FTP file transfer
Synchronized description in Process Event and Point Value List
Process Event List shows Functional Constraint SP changes
Description (Customer Names) of IEDs and other nodes can be shown in the tree view (new tool option)
PRP Supervision Frames Analyzer shows additional information
The detected IEC 61850 Edition is shown in IED properties
IEC 61850 CDC type is shown in Data properties
SCL Text Elements are shown in the properties
Removed duplicated entries in IED Simulation tab
Improved coloring in Explore SV
Client IEDs is shown for GOOSE control blocks
Installed .Net 4.6 is detected and does no longer cause a startup crash.
Time handling and therefore visualization in Explore GOOSE is improved
Quality attributes invalid and reserved are now displayed correctly in Explore SV

Service pack release ITT600 Version 2.0 SP1
(January 2015)

General fixes and improvements

When simulating an IED, its IP address is now added to the selected Network Interface Card (NIC). The existing IP Address is not
The selected NIC for IED simulation is shown in the status bar of ITT600 Explore IEDs.
All attributes are now initialized with a default value after the simulation has been started. All CSWI/XCBR Logical Nodes ( LN) are
When simulating an Ed.1 IEDs, missing trigger options are added for all required attributes. In previous versions the trigger options
Improved MMS file transfer service support for simulated IEDs.
IEDs with more than 500 GOOSE inputs can be simulated.
The progress bar when starting the IED simulation now disappears when the simulation is ready.
The status of Logical Nodes (connected, simulated, offline) is now synchronized between the “By Subnetworks” and “By Substation”
The corresponding Dataset name is shown next to the Report Control Block name in the treerview
Unique Report ID (RptID) is set when enabling a buffered or unbuffered Report and therefore also the Client column of the Eventlist is
Commands for VSGGIO (DPStatus) are now supported.
Disable all substituted values works now also for nested elements.
All ReportControlBlock option fields can be written to an IED before enabling a Report.
VLAN ID and GOOSE APPID are displayed in hexadecimal format in ITT600 Explore Ethernet.
Comparison filters in ITT600 Explore Models have been fixed.
ITT600 SA Explorer is now installed properly for all users of the computer.
## ITT600 Version 2.0
(March 2014)

### New and enhanced features
- Support for IEC 61850 Ed.2
- Simulation of an IED for IEC 61850-8-1 based communication services (MMS and GOOSE)
- Comparison of network equipment device configuration parameters is included in the “Quick Checker”
- Support for larger SCL files since ITT600 SA Explorer is running as native 64 bit process
- Support for Windows 8 (32 Bit / 64 Bit)

### General fixes and improvements
- Startup page for easy access of recently used files and IEDs
- Unified options dialog for all ITT600 configuration options
- Function to directly open the device web interface in a web browser
- MMS file transfer folder is always shown
- Select Before Operate command dialog shows Local/Remote and Interlocking status
- Functional naming and description included in Explore GOOSE module
- Direct access to GOOSE Packet details in Explore GOOSE module
- Performance in Explore Models module improved