



G500/G100 The Introduction of DS Agile Studio

Learning Module Objective

At the completion of this module you will be able to identify and recite all concepts presented.

If you are viewing this as part of a structured training program *PLEASE* complete the associated assessment test. You are required to score above 80%.

Here's What is Covered in this Module

Learning & Development Overview

1. DS Agile Studio (DSAS) Overview
2. DSAS Screen and Structure
3. Global System Preferences
4. Offline Editor
5. Online Editor
6. IEC61850 Loader
7. LogicLinx
8. Archive Management
9. Device Snapshot Management
10. Typical MCP Configuration Steps using DSAS

DS Agile Studio (DSAS) Overview

DS Agile Studio (DSAS) is the latest generation of configuration tool for the GE Grid Solutions Substation Automation products. DSAS includes MCP Studio for G500/G100/D400/DMC490 and D2x Studio for Legacy D2x Devices. In this module, we will be focus on **DS Agile MCP Studio**.

The **DS Agile MCP studio's** offline and online configuration tool – **Offline/Online Editor** can be used to customize the following aspects of the MCP (G500/G100) configuration:




- Communication connections
- Device data collection
- Master Station data presentation
- Alarm annunciation
- Data calculation
- Data logging
- Operational (One-Line) diagrams
- User management
- HMI preferences
- E-mail notification
- Open VPN and Secure SCADA
- Passthrough and Terminal server
- Device Redundancy
- IEC61131-3 Compliant Automation (using LogicLinx)
- IEC61850 Client (using IEC61850 Loader)

Download and Installation

- Download DSAS ISO image from GE Grid Solution website:

<https://www.gegridsolutions.com/app/viewfiles.aspx?prod=G500&type=7>

Home > Grid Automation > Automation & Control > Gateways & RTUs > G500 Advanced Substation Gateway

Product Lookup   

G500 Advanced Substation Gateway Software

Right click on file to view details, including checksum(s). Left click to download.

File Reference	Title	Version	Publish Date
GER-4947	Firmware 1.0 for G500 End-of-Manufacturing Notice	1.0	2023-09-11
DSAgileStudio	DS Agile Studio v3.1 ISO	3.1.0	2023-09-05



- Open the downloaded ISO image file and run *SetupDSAgileStudio.exe* and follow the prompted instructions to install

Minimum System Requirements for DS Agile MCP Studio:

OS: Windows 7 x64, 10 x64

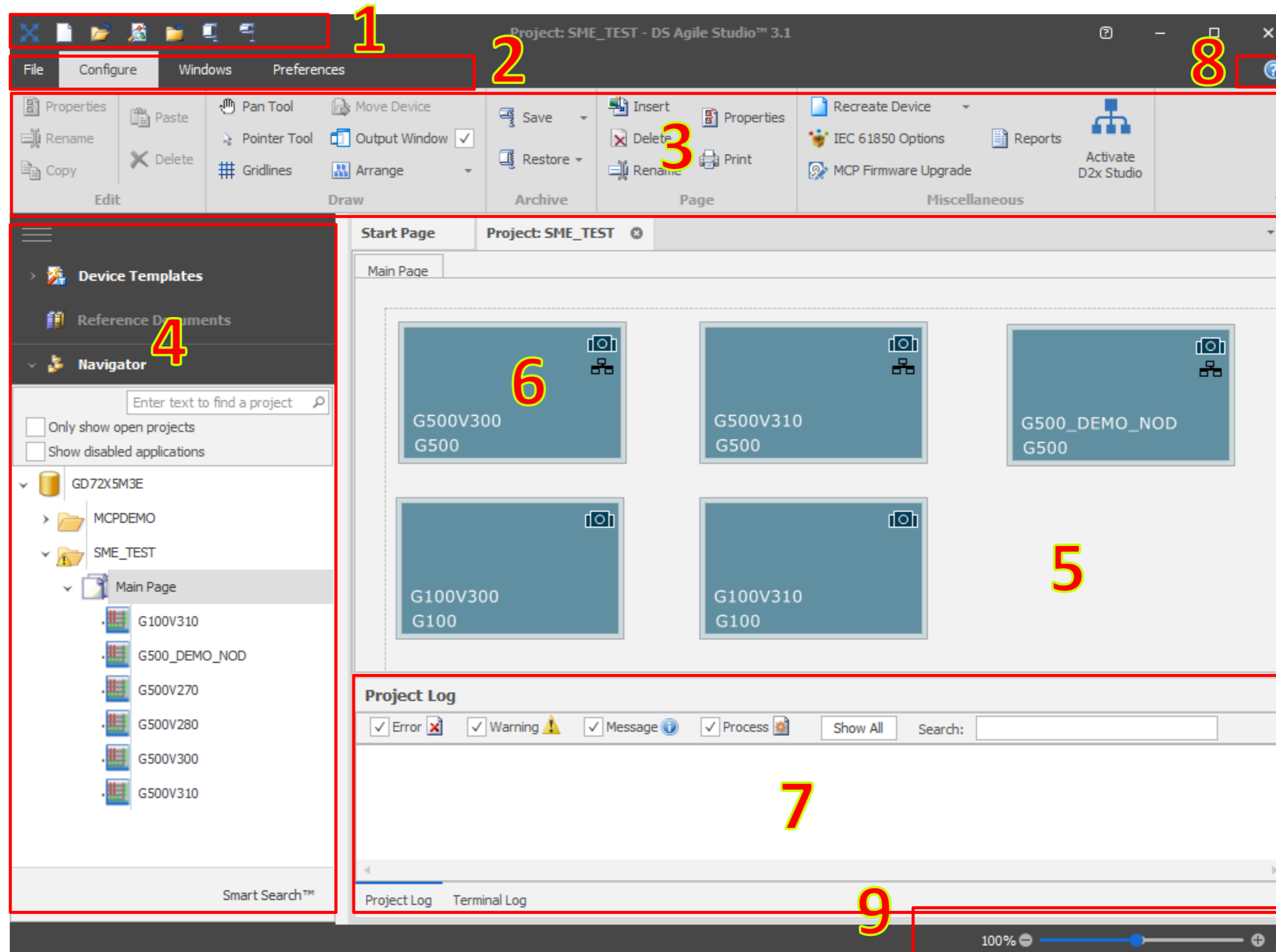
Memory: 8GB Memory

If there is a need or desire to run both parts of DS Agile Studio at the same time (e.g.: to configure G500 and D20MX in one session), a single button can be clicked to activate the remaining functionality. There is no need to exit one tool and start the other.

DSAS Screen and Structure

DSAS screen consists of the following elements:

1. Project Toolbar
 - File / Configure
 - Windows / Preference
2. Main Tab Area
 - When no device is selected
 - When a device is selected
 - When Offline Editor opens
3. Ribbon Area
 - Device Templates
 - Reference Documents
 - Navigator
4. Local Repository
 - Device Templates
 - Reference Documents
 - Navigator
5. Project Page Pane
 - Project Log
 - Terminal Log
 - Device Log
6. Device Symbol
7. Output Window
 - Project Log
 - Terminal Log
 - Device Log
8. Online Help button
9. Zoom Slider



Pane as Docked or Floating Window

- You can move the DSAS window panes to docked or floating windows.
- Multiple floating windows are allowed

When you open DSAS for the first time, you need to create a new project.

The project tree structure elements are:

Projects

- Pages
- Devices
- Applications

Global System Preferences

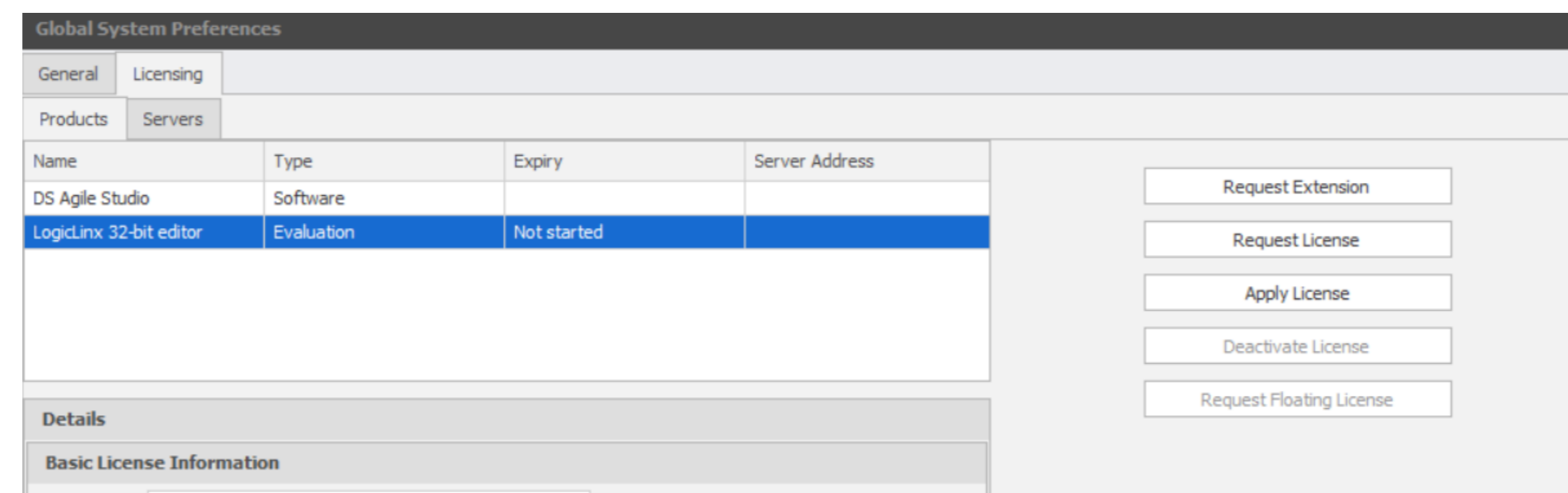
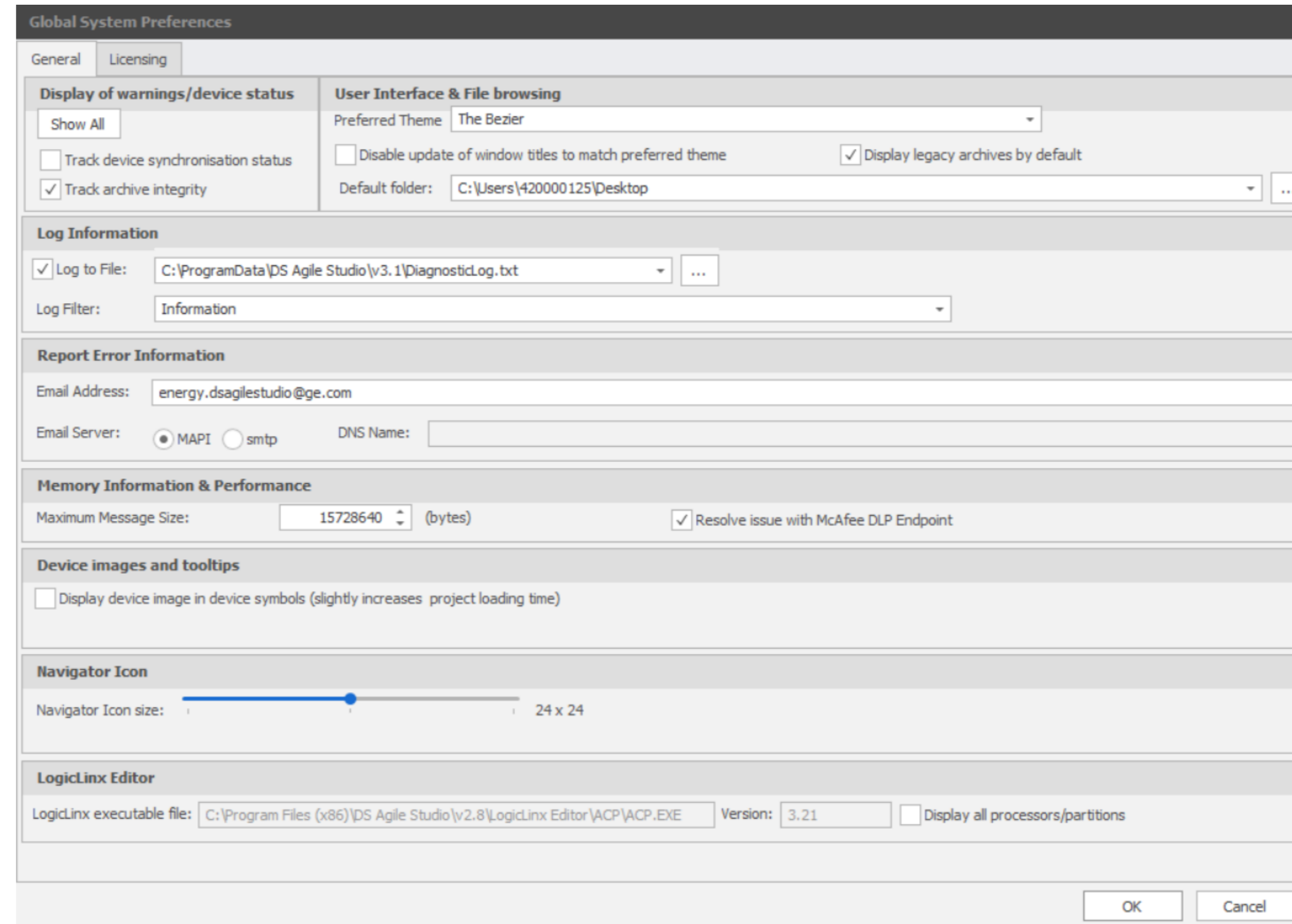
These groups of parameters are available when **General** tab is selected:

- Display of warnings/device status
- User Interface & File Browsing
- Log Information
- Report Error Information
- Memory Information & Performance
- Device images and tooltips
- Navigator Icon
- LogicLinx Editor

The **Licensing** tab allows you to manage your software licensing for DSAS and the 32-bit LogicLinx Editor.

- The **Products** list allows you to view your current license status.
- The **Buttons** allow you to:
 - Request Extension
 - Request License
 - Apply License
 - Deactivate License
 - Request Floating License
- The **Details** panel shows the details of the selected license in the products list.

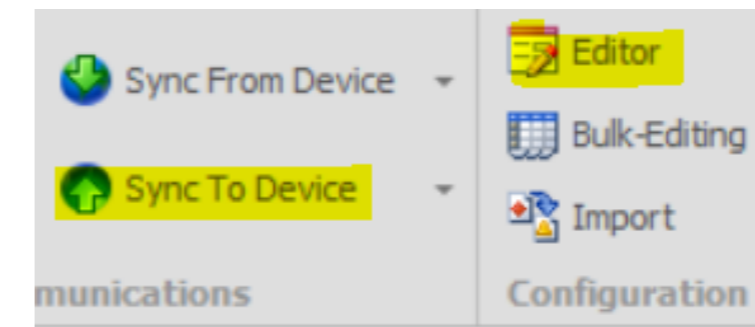
Selecting the option “Display device image in device symbols” slightly increases project loading time.



Offline Editor

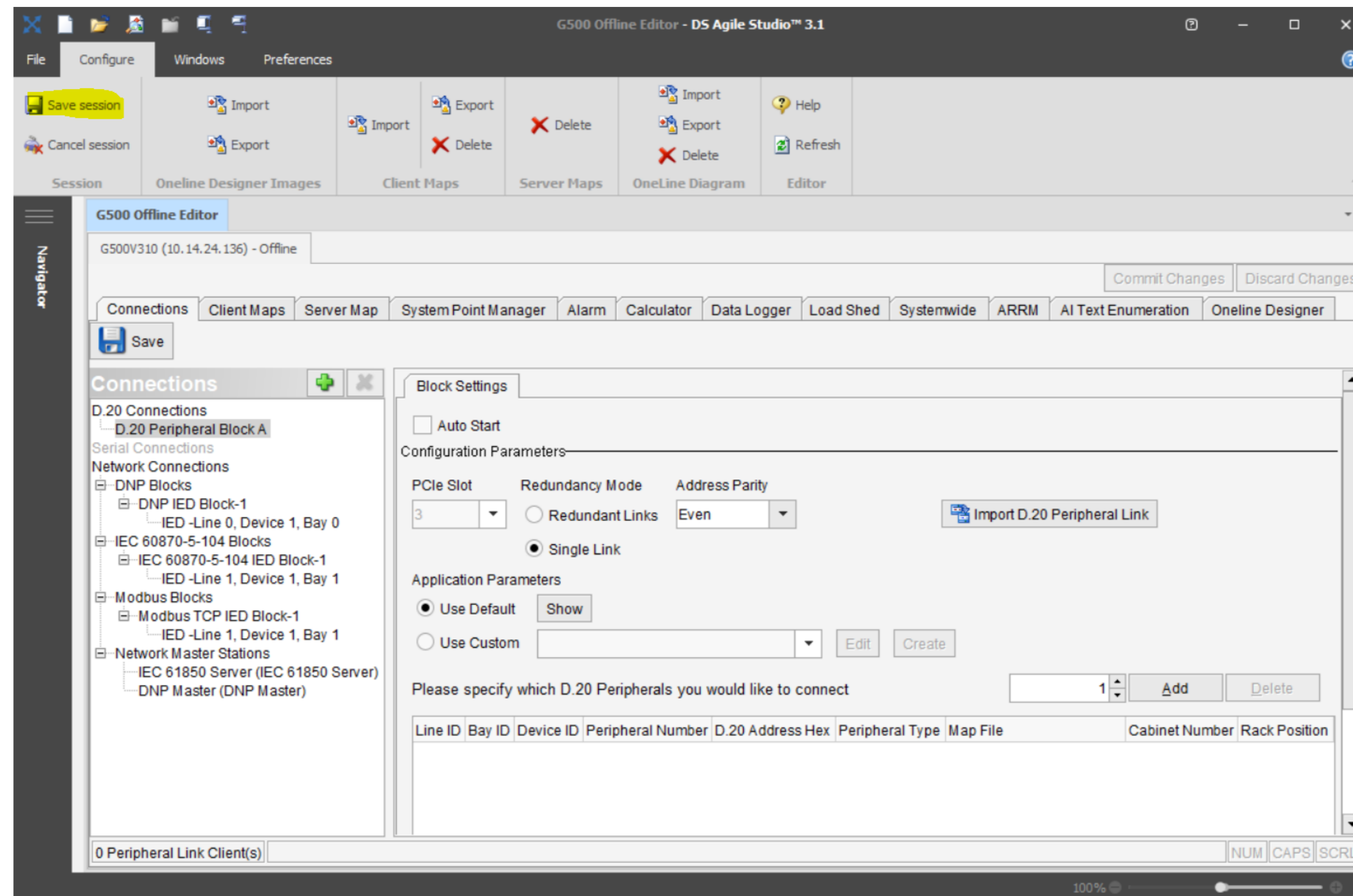
The Offline Configuration Tool – **Offline Editor** is an important component of **DSAS**, which is used to create, edit and update the MCP configuration that includes IEDs/master stations/automation applications/HMI settings/security settings or system configurations etc.

Offline Editor can be accessed via the **Editor** button under the **Configuration** ribbon category when the MCP device is selected. You need to click **Save Session** to save all committed changes made before you exit Offline Editor. All the configuration changes will not take effect on the MCP device until **Sync To Device** operation is performed.



Specifically, **Offline Editor** is used to:

- Setup serial or network connections to devices and master stations
- Create and select point maps for clients and servers
- Configure alarms
- Create automation by using Calculator
- Create automation using System Point Manager
- Configure Data Logger
- Configure Load Shed
- Set system wide preference
- Configure to acquire files (ARRM)
- Create Online Diagram
- Create Secure SCADA and Open VPN server configuration

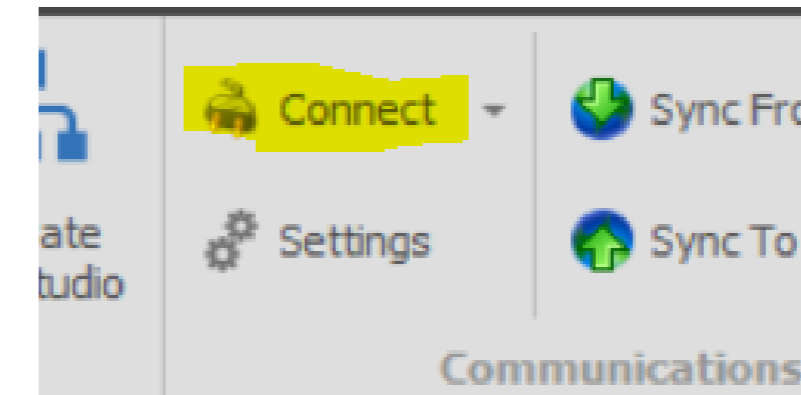


You can always click the Help button or press F1 within Offline Editor to see more context-sensitive help information.

Online Editor

The Online Configuration Tool – **Online Editor** is a configuration tool in **Connected Mode** to the actual MCP device, that can be used to configure most configuration as Offline Editor does with some exceptions. In addition, Online Editor can also be used to configure the **Access** feature and provide the certificate **Utilities**.

Online Editor can be accessed via the **Connect** button under the **Communications** ribbon category when the MCP device is selected. It is required to Login using administrator credentials. All the configuration changes will be made to the actual MCP device right after you click **Save** button, followed by **Commit Changes**.

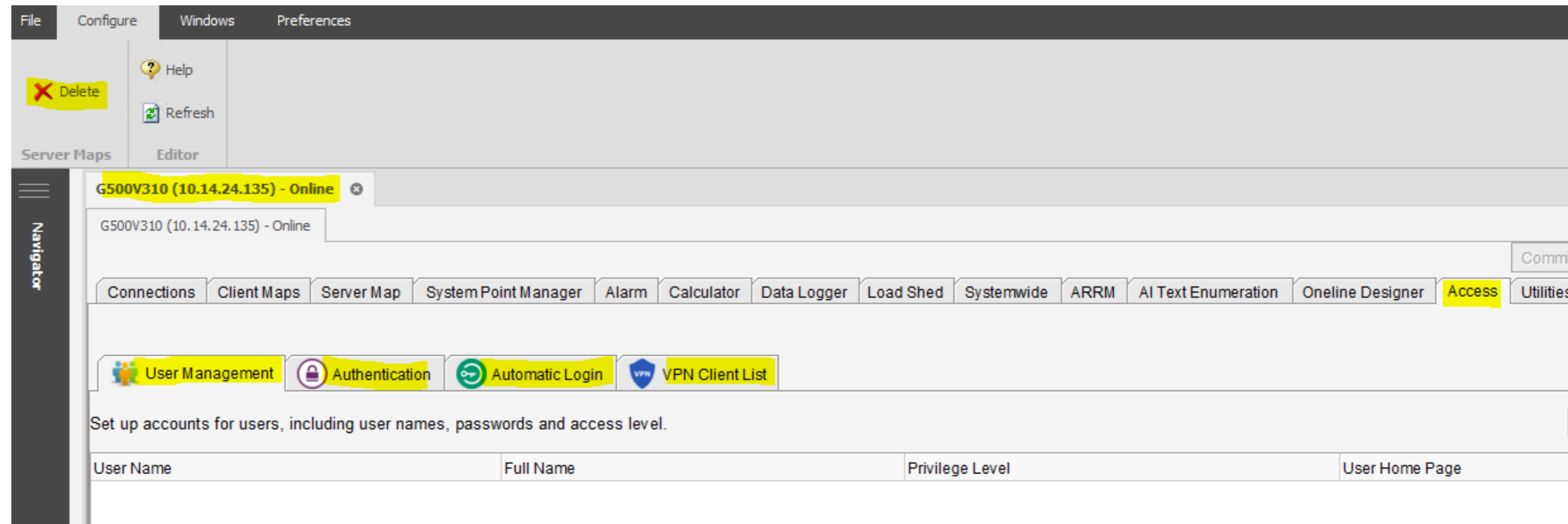


Some **Exceptions** are:

- Limited ribbon options
- Can't configure **IEC61850 server**

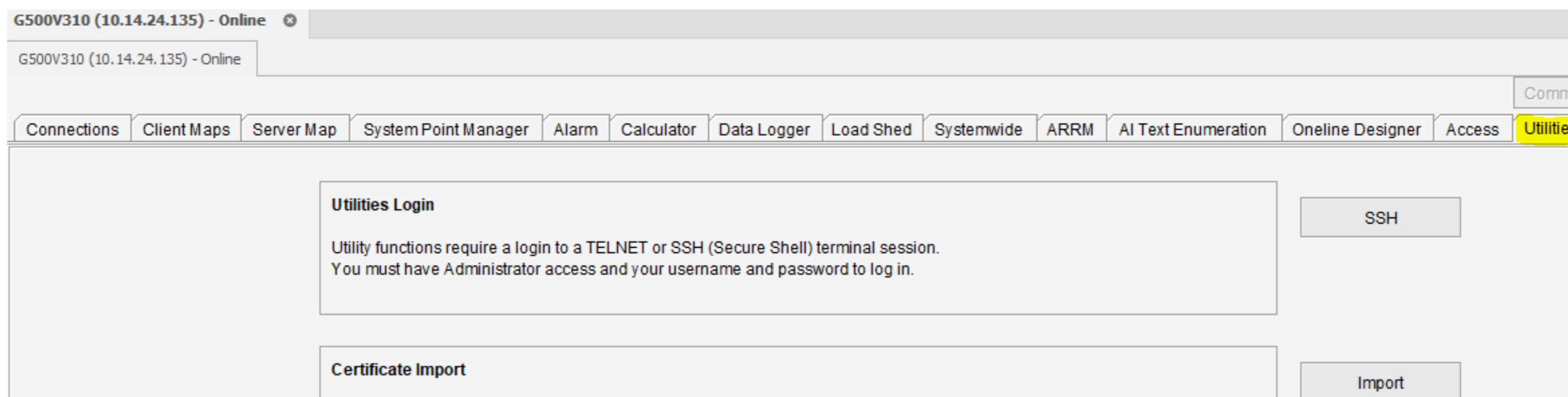
With **Access** tab, you can setup:

- User Management
- Authentication
- HMI Automatic Login
- VPN Client List



With **Utilities** tab, you can perform:

- SSH Login
- Certificate Import
- Certificate Management
- Generate Gateway Key Pair
- Export VPN Client File
- Upload SSL Server Certificate / Server Key



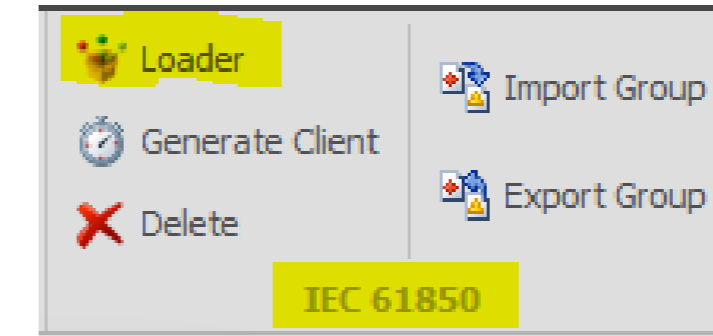
You can always click the Help button or press F1 within Online Editor to see more context-sensitive help information.

It is recommended to perform **Sync From Device** operation after you make the changes to the configuration in **Online Editor**, so that the configuration can be synchronized and updated between the actual MCP device and the DSAS MCP device.

IEC61850 Loader

The IEC61850 Loader (the **Loader**) is specifically designed to configure the MCP to communicate to IEC61850 compliant server devices. The Loader makes use of the self-description capabilities of the IEC61850 protocol and device information files provided by most devices to simplify and speed up configuration of the IEC61850 client application.

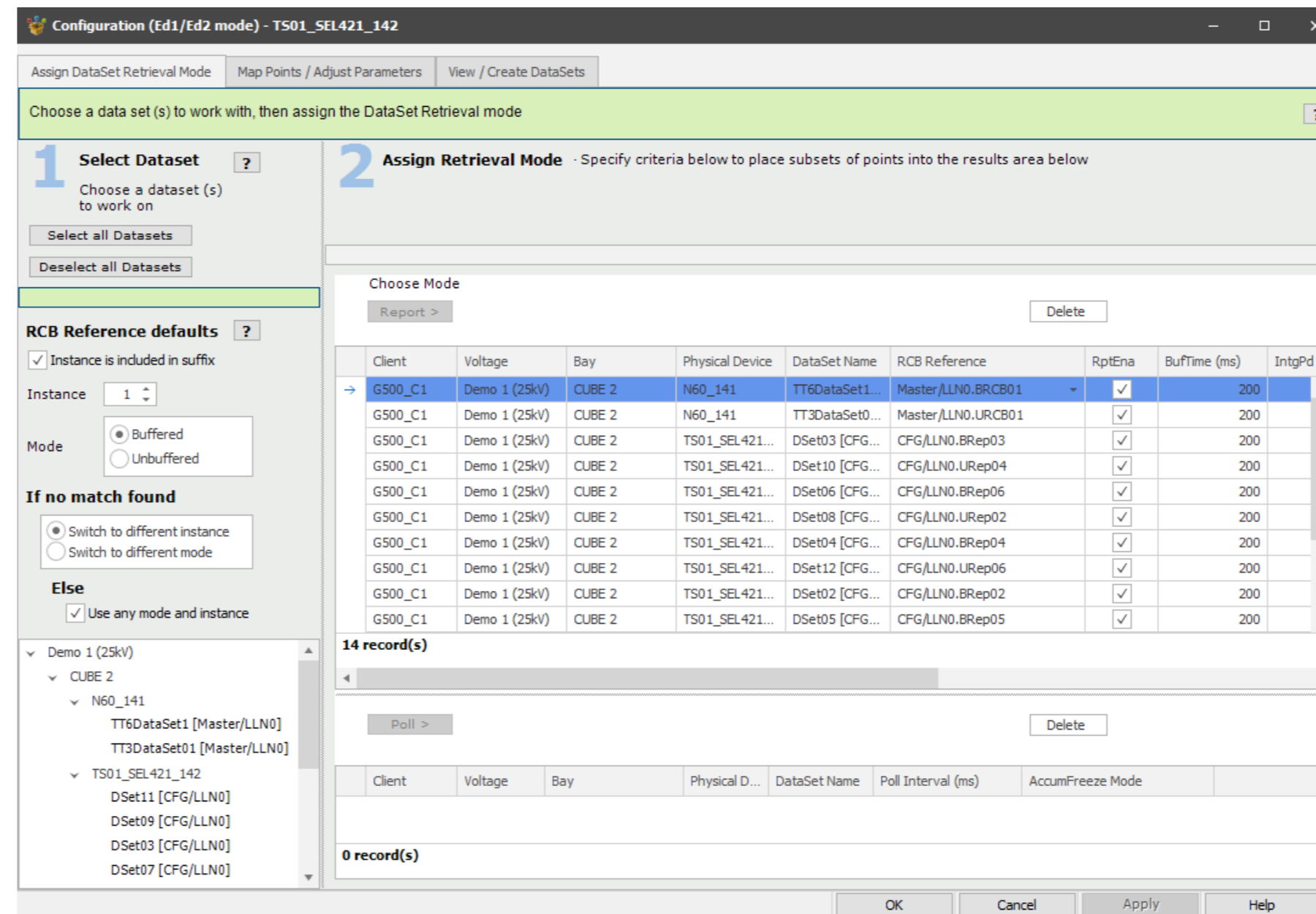
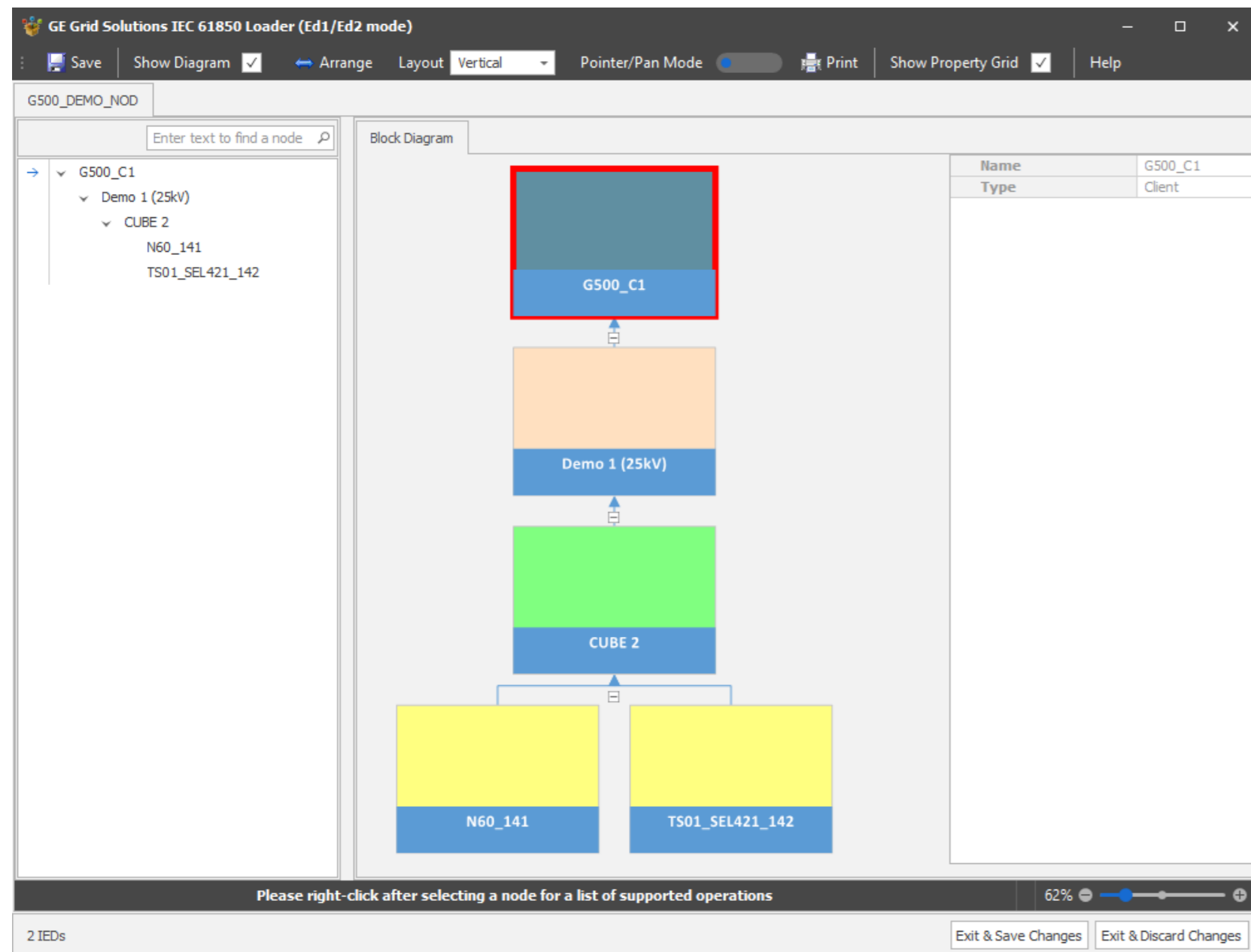
The Loader can be accessed via the **Loader** button under the **IEC61850** ribbon category when the MCP device is selected. You will need to click **Generate Client** button to generate IEC61850 client maps after you save changes and exit the Loader.



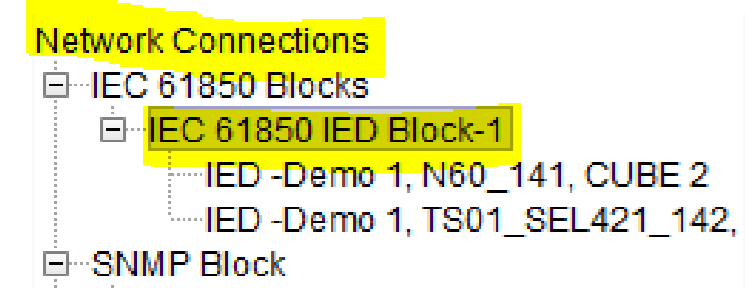
Using the Loader, you can create the client configuration that identifies the devices, points and reporting and polling information required to setup the communications between the IEC61850 compliant server devices and the MCP device.

You can always click the Help button or press F1 within the Loader to see more context-sensitive help information.

Additional License is required to enable IEC61850 client application on the MCP device.



Once configured and generated, the IEC61850 devices are available for view-only in the **Offline/Online Editor**.



Please specify IEC 61850 devices to include in this block

Line ID	Bay ID	Device ID	Map File	IP Address	Secondary IP Address	Network Port Number	Transport Layer	Primary OSITSEL	Secondary OSITSEL	Alt. Ch
Demo 1	CUBE 2	N60_141	61850_1_...	192.168.8.2...	0.0.0.0	102	TCP	0001	0001	
Demo 1	CUBE 2	TS01_SEL...	61850_1_...	192.168.8.2...	0.0.0.0	102	TCP	0001	0001	

LogicLinx

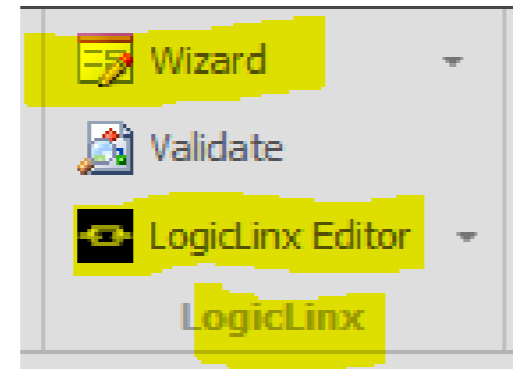
LogicLinx is a tool that enables the user to create automation applications that have traditionally been too costly or difficult to implement - all without hard wiring. Using the **IEC61131-3** programming languages, the user can create automation routines that run on the MCP.

Obtaining LogicLinx 32-bit Editor

Can be ordered as either: Software licenses or USB dongles

- Evaluation and Software licenses are obtained within **DSAS** through **Global System Preferences > Licenses** tab
- USB dongles are obtained by contacting GE Grid Solutions sales

LogicLinx can be accessed via the **Wizard / Editor** button under the **LogicLinx** ribbon category when the MCP device is selected.

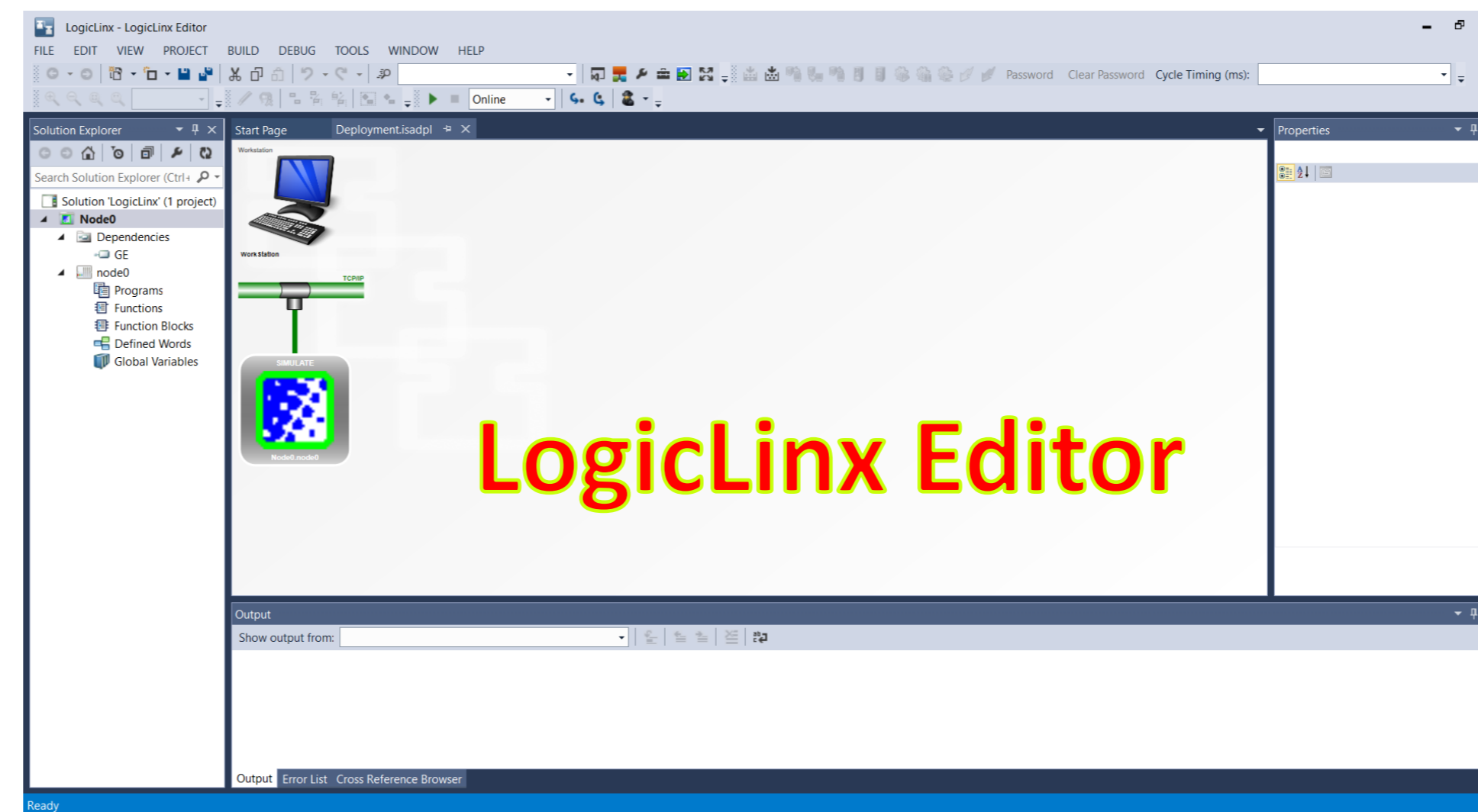


The **LogicLinx Wizard** is used to configure and upload the LogicLinx application to your MCP:

- Define the connection type: Serial or Ethernet
- Define LogicLinx Owned Points
- Define Mapped Points

The **LogicLinx Editor** is used to create **IEC61131-3** compliant automation routines by using textual and graphical languages:

- Sequential Functions Chart
- Structured Text
- Ladder Diagram
- Function Block Diagram



Refer to the SWM0107 LogicLinx on a Multilin MCP Quick Start Guide for more details.

You can always click the Help button or press F1 within the LogicLinx Editor to see more help information.

Additional License is required to enable LogicLinx Executor application on the MCP device.

Archive Management

DS Agile MCP Studio has the option to archive the entire Local Repository, an entire project and an individual device and then restore it to the same or different machines in which the DS Agile MCP Studio is installed.

Archive management can be accessed via **File -> Archive -> Project / Local Repository / Customer Support Bundle**

Local Repository Archive

Local Repository can contain many projects. DSAS can save/restore all the projects available in Local Repository.

- **Save / Restore** a Local Repository Archive

Project Archive

Project can contain many devices. DSAS can save/restore all the devices available in the project page.

- **Save / Restore** a Project Archive

Customer Support Bundle Archive

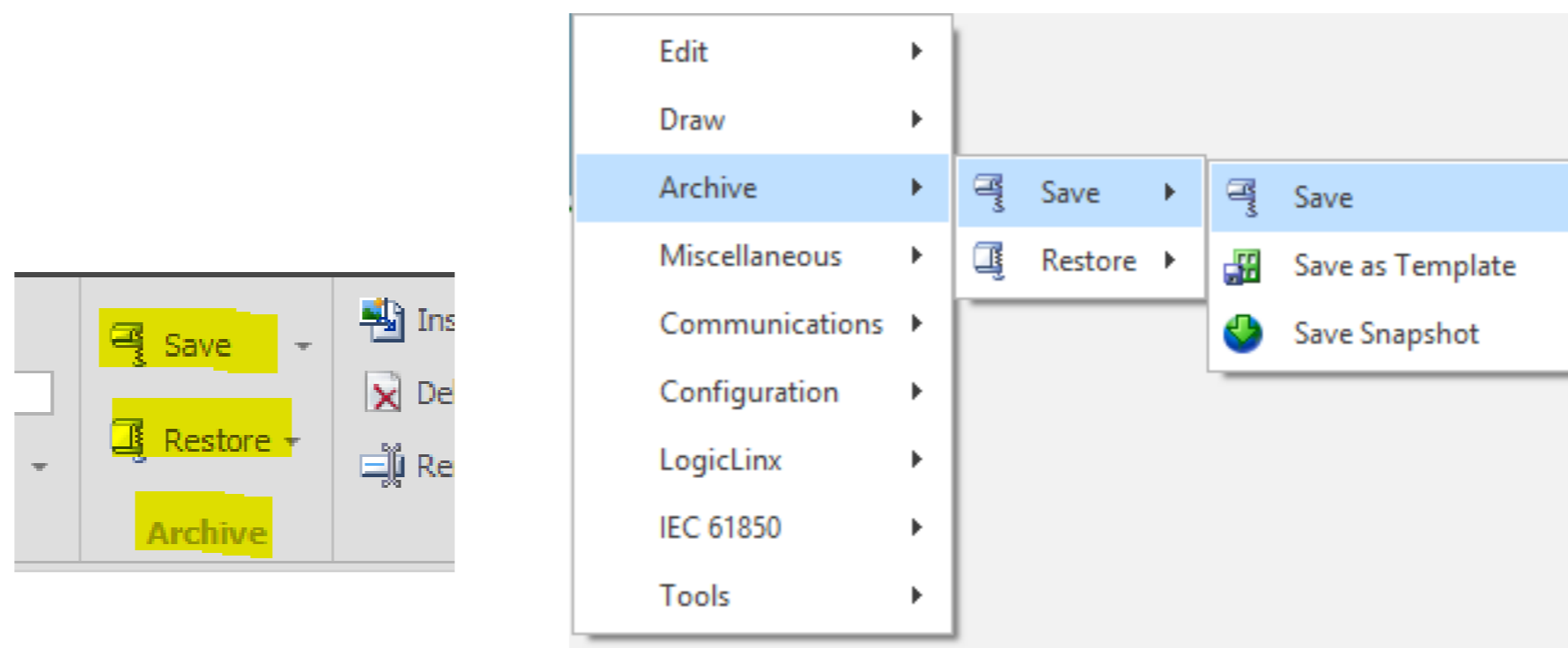
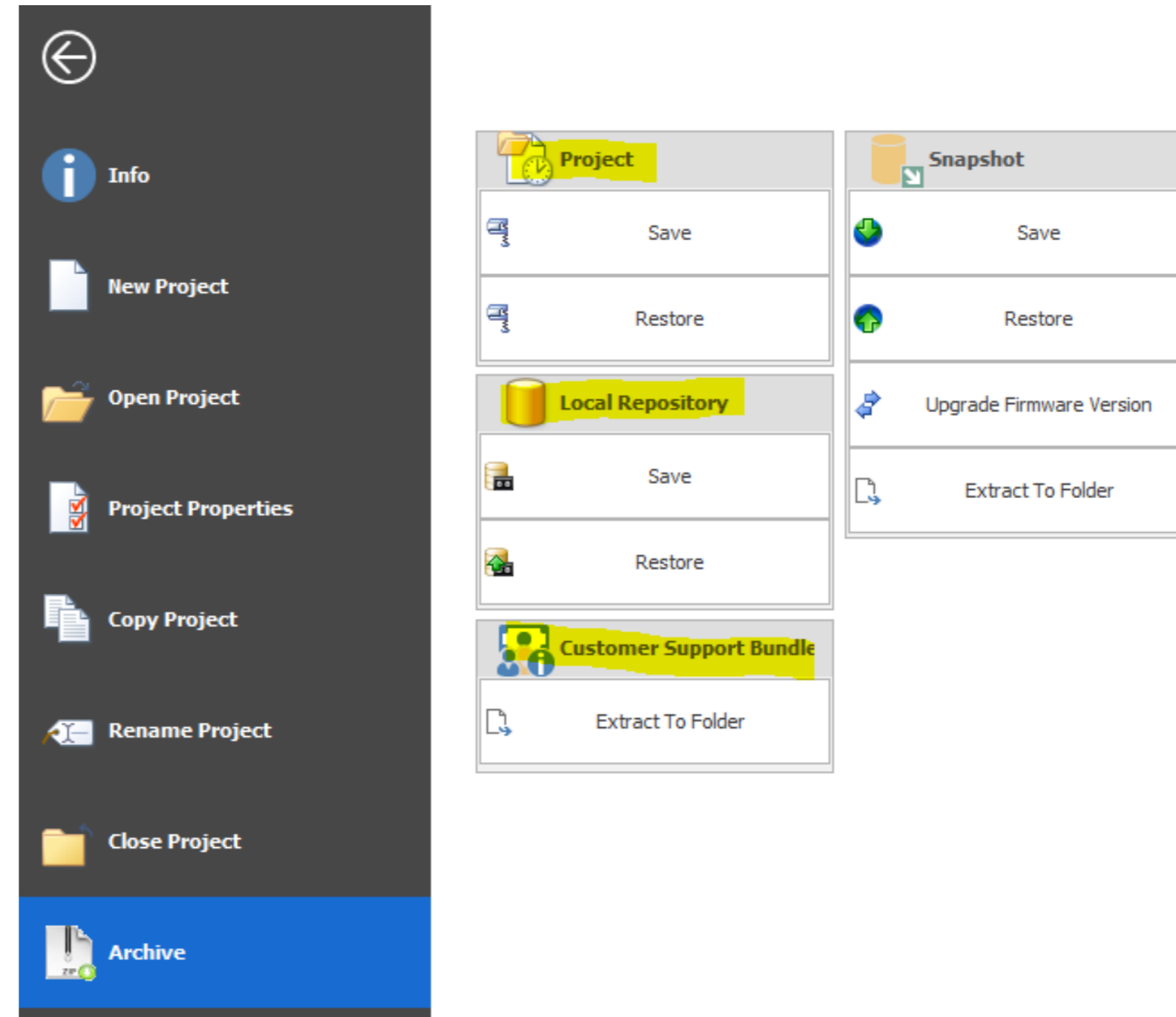
DSAS also offers the option to extract to folder for Customer Support Bundle Archive collected by "mcpcsb" tool.

- **Extract To Folder**

Device Archive

Archive management for Individual device can be accessed by **Save / Restore** option under **Archive** ribbon category or right click menu -> **Archive -> Save / Restore** when the MCP device is selected.

- **Save / Restore** a MCP Device Archive



While saving the Project or Device archive, the user will have an option to Reset ID and email passwords in restored device(s). Once reset, they cannot be recovered, and will have to be entered manually.

Device Snapshot Management

Device **Snapshot** is an archived image of the device which includes all configuration and settings required to completely recover a MCP device, taken at a given time, in the form of a special compressed file. There are two types of snapshots:

Standard Snapshot

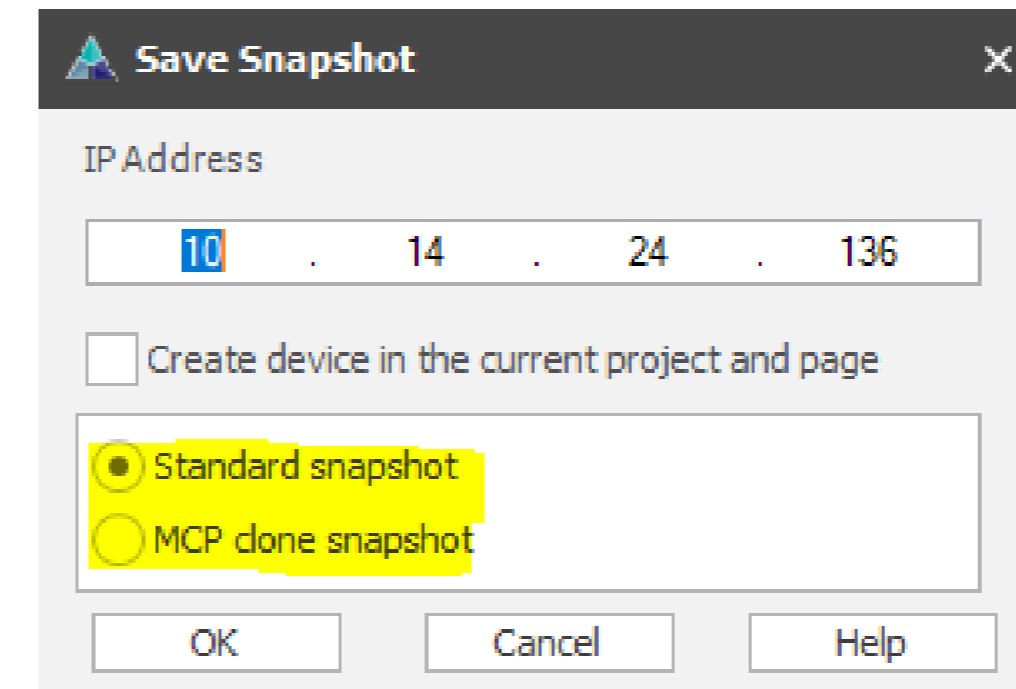
- Standard Snapshot is used between one MCP to any MCP of same firmware version.

MCP Clone Snapshot

- MCP Clone Snapshot may be used with the same firmware version or across different firmware versions from one version to a newer one.

Using DS Agile MCP Studio,

- Snapshots can be saved from the MCP using only administrator user credentials.
- Snapshots can be restored to the MCP using default credentials or any other configured administrator user credentials.

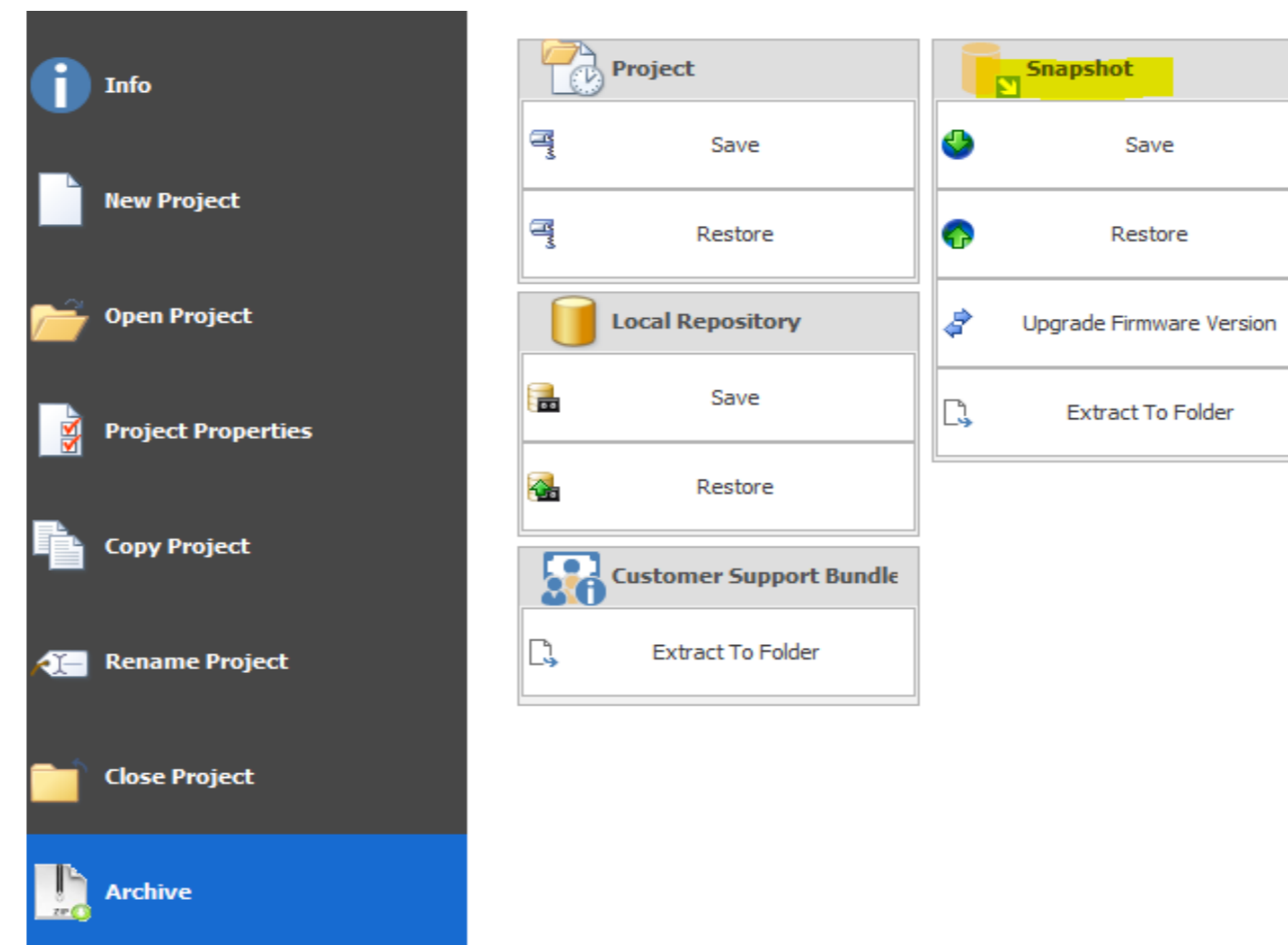
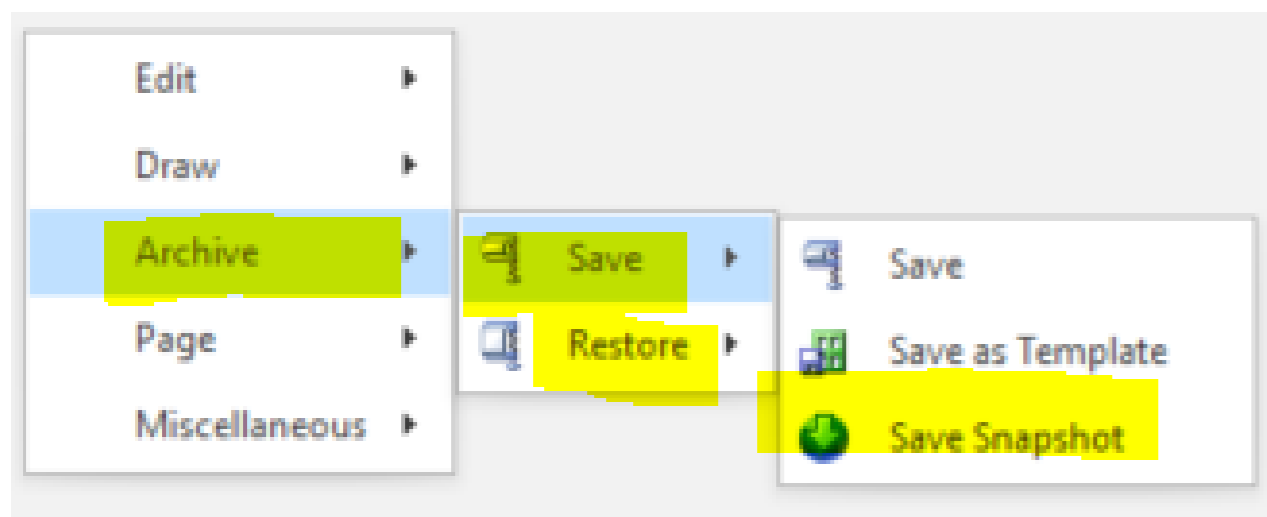


Snapshot Save and Restore Workflow can be started from one of the followings :

- From **Ribbon** Save/Restore or Sync From/To Device dropdown list:
- From **File -> Archive menu**:



- From device or project page **Right Click menu**:



Refer to the Application Note AN0015 MCP Snapshot and Configuration Workflows for a full understanding of the included data types in snapshots of both types and their associated save / restore options in workflows.

Typical MCP Configuration Steps using DSAS

Once system settings are configured using MCP Gateway Local Configuration Utility settings (mcpcfg) or MCP Settings GUI , use **DS Agile MCP studio**'s online & offline configuration tool to configure the MCP's gateway/SCADA configuration. The typical sequence of steps involved in configuring MCP from DS Agile MCP Studio are as follows:

1. Create a **Project** if not using an existing project.
2. Create a MCP **Device** by dragging the MCP icon from the **Device Template** into project page
3. Fill out the **Device Properties**, Licensing and Redundancy info as desired
4. (Optional) Perform "**Sync From Device**" to get the current system settings from the MCP device
5. Open **Offline Editor** to:
 - Create and edit Client (device) maps
 - Setup device serial and network connections except IEC61850 client, including protocol-specific parameters
 - (If needed), configure automation applications including DEM, Calculator, System Point Management, etc.
 - Create and edit Server (master station) maps
 - Setup master station serial and network connections, including protocol-specific parameters
 - (If needed), configure other applications including Datalogger, ARRM, One-line diagram, etc.
 - (If needed), configure Passthrough, Terminal Server, Secure Connection Relay and OpenVPN connection
6. Run **LogicLinx** to configure if IEC61131-3 compliant automation is needed
7. Run **IEC61850 Loader** to configure if IEC61850 client needs to be configured
8. Open **Online Editor** to configure System Security settings (e.g. HMI Auto Login, certificates management, etc.) if needed
9. Perform "**Sync to Device**" to transfer the saved and committed configuration to the MCP device

The DS Agile MCP Studio validates the changes and reports any errors. Once a configuration is validated and committed to MCP through "Sync To Device" option, the previous configuration files are replaced with the new files and all the MCP applications are re-started to reflect with the new configuration changes.

All Gateway/SCADA Configuration information for an individual MCP is stored as a set of configuration files. The configuration files are saved into the Solid-State Drive on the MCP. The configuration files are stored as XML files.

Thank You for Watching this Module.

If you are watching this as part of a structured learning program, please don't forget to take the test.

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