

Integration Objects'

OPC Simulation Tools

OPC Server Simulators Full Edition
Version 2.1Rev.1

QUICK USER GUIDE

Integration Objects' OPC Server Simulators Full Edition Quick User's Guide Version 2.1Rev.1
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ABOUT THIS USER GUIDE

This guide is a quick step by step guide on how to install and use the OPC Server Simulators Full Edition.

INSTALLATION PRE-REQUISITES

In order to properly run the OPC Server Simulators Full Edition, install these software components on the target system:

- The [OPC core components 3.00](#) which consist of all shared OPC modules including the DCOM proxy/stub libraries, the OPC Server Enumerator, .NET wrappers, etc. You can alternatively apply the OPC Core Components 3.00 Redistributable delivered with the current package or download it from the OPC Foundation site (www.opcfoundation.org).
- NET Framework 2.0.

INSTALLING THE OPC SERVER SIMULATORS FULL EDITION

To install the OPC Server Simulators Full Edition, run the installation executable using an administrator account and the wizard will take you through the different installation steps.

CONFIGURING THE ADVANCED OPC DA HDA SERVER SIMULATOR

This section provides the steps on how to configure the Advanced OPC DA HDA Server Simulator address space.

Step1: Go to the installation folder “**..\Program Files (x86)\Integration Objects\Integration Objects' OPC Server Simulators Full Edition\Advanced OPC DA HDA Server Simulator**”

Step2: Open the AddressSpace.csv file.

Step3: Add the tags name, the data tape, access right and the simulation status.

Step4: Save and Close the file.

	A	B	C	D
1	TagName	DataType	AccessRights	Simulated
2	Random/Text	VT_BSTR	R	TRUE
3	Random/Date	VT_DATE	R	TRUE
4	Random/Boolean	VT_BOOL	R	TRUE
5	Random/Int1	VT_I1	R	TRUE
6	Random/UInt1	VT_UI1	R	TRUE
7	Random/Int2	VT_I2	R	TRUE
8	Random/UInt2	VT_UI2	R	TRUE
9	Random/Int4	VT_I4	R	TRUE
10	Random/UInt4	VT_UI4	R	TRUE

Figure 1: Address Space File

The "AddressSpace.csv" file is composed of the following fields:

- **Tag Name:** The name of the tag.
- **Tag type:** The OPC Server supports the following simple VARIANT data types:
 - VT_I1
 - VT_UI1
 - VT_I2
 - VT_UI2
 - VT_I4
 - VT_UI4
 - VT_R4
 - VT_R8
 - VT_DATE
 - VT_BSTR
 - VT_BOOL
- **Access Right:** The right access: R (read only access) or RW (read and write access).
- **Simulated:**
 - True if the values will be randomly generated or simulated using the "ValueSpace.csv" file.

Or False if the tag values will be static. Only an OPC client will be able to change the tag value. You can use the "ValueSpace.csv" file to simulate the data values of the OPC items.

	A	B	C	D
1	Random/Real8		Writable/Boolean	
2	145	GOOD		0 GOOD
3	146	GOOD		1 GOOD
4	147	GOOD		1 GOOD
5	148	GOOD		1 GOOD
6	149	GOOD		0 GOOD
7	150	GOOD		1 GOOD

Figure 2: Value Space File

There are 2 columns for each tag in the "ValueSpace.csv" file:

- The first column starts with the name of the tag and then the data values.
- The second column starts with an empty row and then the value qualities.

In other words, the CSV format is as follows:

- The first line indicates the tag names. Each tag name cell should be followed by an empty cell.
- The data values and qualities should be specified starting from the second line. Each couple of columns relates to one tag and is organized as:
 - The first column lists the tag values.
 - The second column lists the quality of each value.

As previously indicated, the “**ValueSpace.csv**” file should include the data to be simulated for the tags marked as “SIMULATED=TRUE”. Note that you do not have to include all of them. You can include only the ones for which you have a specific data set to simulate.

REGISTERING THE ADVANCED OPC DA HDA SERVER SIMULATOR

This server is automatically registered during the installation. However, users can register it manually by following the steps below:

Step1: **Go to Start => Programs => Integration Objects => OPC Server Simulators Full Edition** and start the Advanced OPC DA HDA Server Simulator Full Edition as administrator.

Step2: Click on the server menu and click on the **Register** menu button.

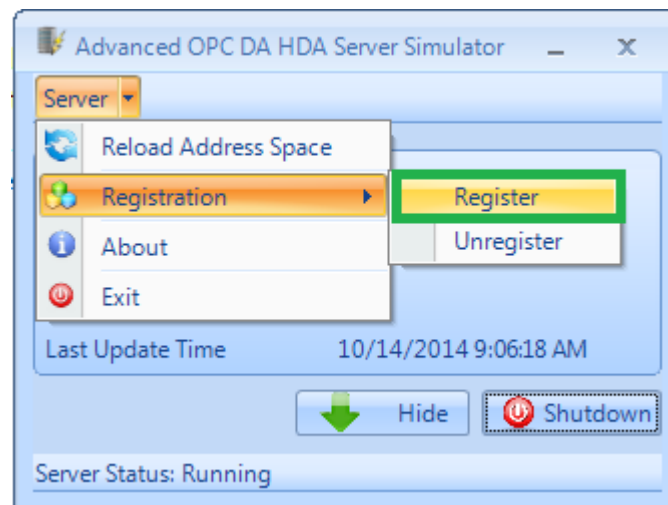


Figure 3: Register Server

The progID of the advanced simulator is:

IntegrationObjects.AdvancedSimulatorFullEdition.1

CONNECTING TO THE ADVANCED OPC DA HDA SERVER SIMULATOR

Step1: Launch your OPC DA/HDA Client.

Step2: Enter the IP address of the machine where the OPC Server is installed.

Step3: Connect to the OPC Server with the following progID:

“IntegrationObjects.AdvancedSimulatorFullEdition.1”

Step4: Add a group and select the items to be read in case it is an OPC DA client.

Step5: Add HDA items to be read in case it is an OPC HDA client.

CONFIGURING THE OPC A&E SERVER SIMULATOR

This section provides the steps on how to configure the OPC A&E Server Simulator event space.

Step1: Go to the installation folder “.:\\Program Files (x86)\\Integration Objects\\Integration Objects' OPC Server Simulators Full Edition\\OPC A&E Server Simulator”

Step2: Open the IOAESimServer.csv file.

Step3: Add the event parameters in the csv file.

Step4: Save and Close the file.

	A	B	C	D	E	F	G	H
1	EventType	SourceName	AreaName	ConditionName	SubconditionName	ActiveState	Message	EventCategoryID
2	4	FIC1001	Boiler1:makeup1	PVLEVEL	HIHI	1	HIHI Alarm	
3	4	FIC1001	Boiler1:makeup1	PVLEVEL	HI	1	HI Alarm	
4	4	FIC1001	Boiler1:makeup1	PVLEVEL	HI	0	Condition Normal	
5	4	FIC1001	Boiler1:makeup1	PVLEVEL	LO	1	LO Alarm	
6	4	FIC1001	Boiler1:makeup1	PVLEVEL	LOLO	1	LOLO Alarm	
7	4	FIC1002	Boiler1:makeup2	DEVIATION	DEVIATION	1	Deviation Alarm	
8	4	FIC1002	Boiler1:makeup2	DEVIATION	DEVIATION	0	Condition Normal	
9	4	FIC1003	Water1:makeup3	PVLEVEL	HIHI	1	HIHI Alarm	
10	4	FIC1003	Water1:makeup3	PVLEVEL	HI	1	HI Alarm	
11	4	FIC1003	Water1:makeup3	PVLEVEL	HI	0	Condition Normal	
12	4	FIC1003	Water1:makeup3	PVLEVEL	LO	1	LO Alarm	
13	4	FIC1003	Water1:makeup3	PVLEVEL	LOLO	1	LOLO Alarm	
14	4	FIC1004	Water1:makeup4	DEVIATION	DEVIATION	1	Deviation Alarm	
15	4	FIC1004	Water1:makeup4	DEVIATION	DEVIATION	0	Condition Normal	
16	1	System_Event		NA	NA	0	Simple Event	
17	2	Tracking_EVENT		NA	NA	0	Setpoint changed Tracking Event	
18								

Figure 4: OPC A&E Simulator CSV file

This file is composed of the following fields:

- **EventType:** The type of the event to be generated. This field can contain one of these values:
 - 1 for simple event.
 - 2 for tracking event.
 - 4 for condition event.
- **SourceName:** The event source name to be generated.
- **AreaName:** The area name related to the event's source.
- **ConditionName:** The condition name related to the event to generate.
- **SubConditionName:** The current sub-condition name for multi-state conditions. For a single-state condition, this contains the condition name.
- **ActiveState:** The event state. This field can be 0 for inactive state and 1 for active.

- **Message:** A text describing the event to be generated.
- **EventCategoryID:** The event Category ID related to the event.
- **EventCategoryName:** The EventCategoryID associated name.
- **Severity:** A value between 1 and 1000 describing the severity level of the event being generated.
- **QualityValue:** The quality to be associated to the event such as 192 for GOOD.
- **AckRequired:** This flag indicates that the related condition requires acknowledgment of this event. It can be 0 (not required) or 1 (required).
- **ActorID:** It presents the actor ID for the event notification for tracking events.

SETTING THE ALARMS GENERATION FREQUENCY

The alarms generation frequency can be modified from the “**ConfigOPCAEServerSDK.ini**” configuration file by following the below steps:

Step1: Go to the OPC A&E Simulator folder “**.\Program Files (x86)\Integration Objects\Integration Objects' OPC Server Simulators\OPC A&E Server Simulator**”

Step2: Open the “**ConfigOPCAEServerSDK.ini**” configuration file.

Step3: In the ApplicationSetting section, set the timer value in milliseconds and save the file.

```
[ApplicationSetting]
Timer=2000
```

Figure 5: Application Settings

REGISTERING THE OPC A&E SERVER SIMULATOR

The OPC A&E Server Simulator is automatically registered during the installation. However, users can register it manually by following the steps below:

Step1: **Go to Start => Programs => Integration Objects => OPC Server Simulators Full Edition** and start the OPC A&E Server Simulator Full Edition as administrator.

Step2: Click on the registration menu and click on the **Register** menu button.

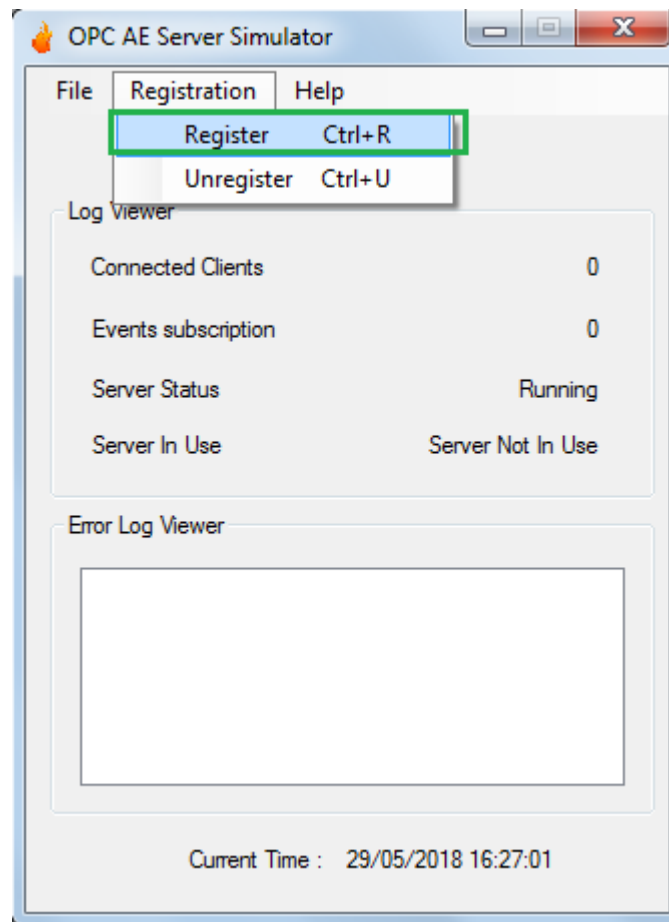


Figure 6: Register the OPC A&E Server Simulator

CONNECTING TO THE OPC A&E SERVER SIMULATOR

Step1: Launch your OPC AE Client.

Step2: Enter the IP address of the machine where the OPC Server is installed.

Step3: Connect to the OPC Server with the following progID:

“IntegrationObjects.OPCAEServer.SimulatorFullEdition.1”

Step4: Add an event subscription and view the received alarms and events.

For additional information on this guide, questions or problems to report, please contact:

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