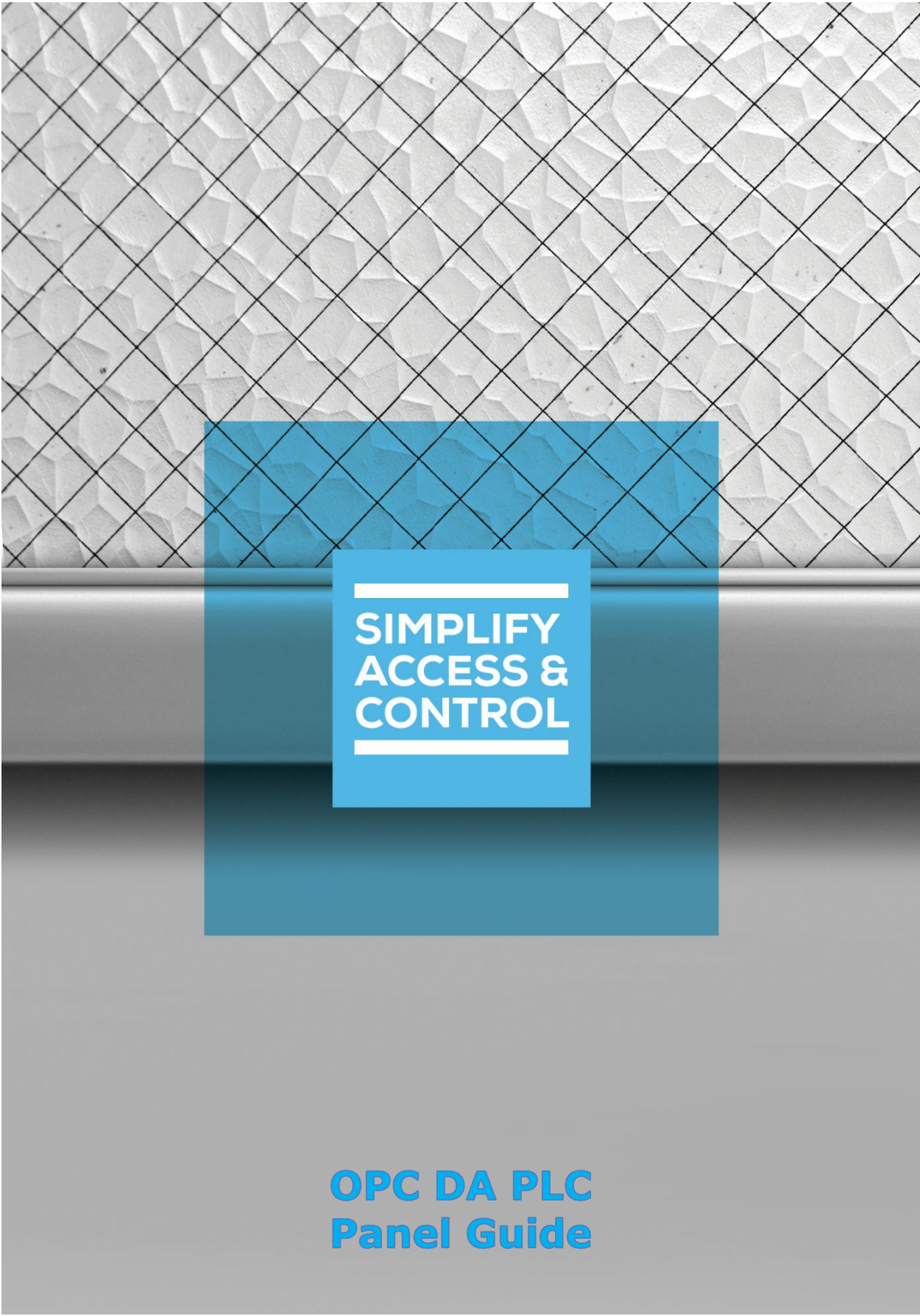


The cover features a background with a grey, textured, diamond-patterned surface. A large, semi-transparent blue rectangle is centered horizontally and vertically. Overlaid on this rectangle is a smaller, solid blue rectangle containing the text 'SIMPLIFY ACCESS & CONTROL' in white, bold, sans-serif capital letters. The text is flanked by two thin white horizontal lines. At the bottom of the cover, the title 'OPC DA PLC Panel Guide' is written in a bold, blue, sans-serif font.

**SIMPLIFY
ACCESS &
CONTROL**

**OPC DA PLC
Panel Guide**

OPC DA PLC Panel Guide

Intelli-Site Lite

Security Management Software

**OPC DA PLC
Panel Guide**

OPC DA PLC Panel Guide

Copyright

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OPC DA PLC Panel Guide

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Technical support is available via telephone or email. Contact Technical Support 8:00 AM to 5:00 PM Central Standard time. When calling after hours, please leave a detailed voice mail message, and someone will return your call as soon as possible.

Email: support@ossi-usa.com

When calling, please be at the computer prepared to provide the following information:

- Product version number, found by selecting the  **About** button from the Intelli-Site Lite Application Menu.
- The type of computer being used, including operating system, processor type, speed, amount of memory, type of display, etc.
- Exact wording of any message that appears on the screen.
- What was occurring when the problem was detected?
- What steps have been taken to reproduce the problem?
- It is highly recommended that the user generate a support package for transmission to Intelli-Site technical support staff. To generate the package, run the Intelli-Site Lite Configuration Utility. *Create Support Package...* is the last option in the **Tools** menu.

OPC DA PLC Panel Guide

Table of Contents

Copyright	3
Trademarks	3
Technical Support Assistance	4
Table of Contents	5
Introduction	7
Installation Guide	8
 Hardware Management View	10
Setup	10
Add the OPC DA Driver	10
Add the OPC DA PLC Panel	13
Configure the OPC DA PLC Panel	14
Enable the OPC DA Driver	20
Panel Control Screen	21
 Design View	23
OPC DA Driver Node	23
OPC DA PLC Panel Node	25
OPC DA PLC Panel Quick Config	26
OPC DA PLC Panel Node Properties	28
OPC DA PLC Child Nodes	29
Project Programming	33
Evaluation Grids and Action Grids	33

OPC DA PLC Panel Guide

Automatically Created Screen Objects	34
The Panel Control Screen.....	40
Revision History	45

OPC DA PLC Panel Guide

Introduction

The Intelli-Site OPC DA PLC panel integration was written using the OPC Foundation OPC Classic API. OPC DA is also known as OPC Classic. The names are used interchangeably.

This guide explains using OPC DA PLC with Intelli-Site Security Management Software.

Note: The OPC DA integration is for those sites upgrading from 3.9 only. Any other installation should use the OPC panel. It is the OPC UA integration which is more secure and has more features.

OPC DA PLC Panel Guide

Installation Guide

Note: The OPC DA driver and panel are for those sites upgrading from 3.9 only. Any other installation should use the OPC driver and panel. It is the OPC UA integration which is more secure and has more features. Please see the OPC Panel Guide.

The OPC DA driver in Intelli-Site must be installed. **The Driver Service and Desktop Client components must be installed on the same computer as the OPC DA server.** The OPC DA driver integration can only communicate with the OPC DA server on the local host. During configuration of the panel, the Desktop Client must also be running on the same computer as the OPC DA server for the same reason. Once the panel is configured, the user can login from any other Desktop Client. As long as the Driver Service is running on the same computer as the OPC DA server, the panel tags and events will be received and transmitted properly.

To be clear, the OPC DA driver must be installed on every computer running the Intelli-Site Engine Service and every computer that has the Desktop Client installed as well.

If Intelli-Site has been installed without the OPC DA driver on the computer running the OPC DA server, run the Intelli-Site installer again and select **Modify**.

During the installation or modify installation process, you are presented with the **Select the drivers you want to install** window.

OPC DA PLC Panel Guide

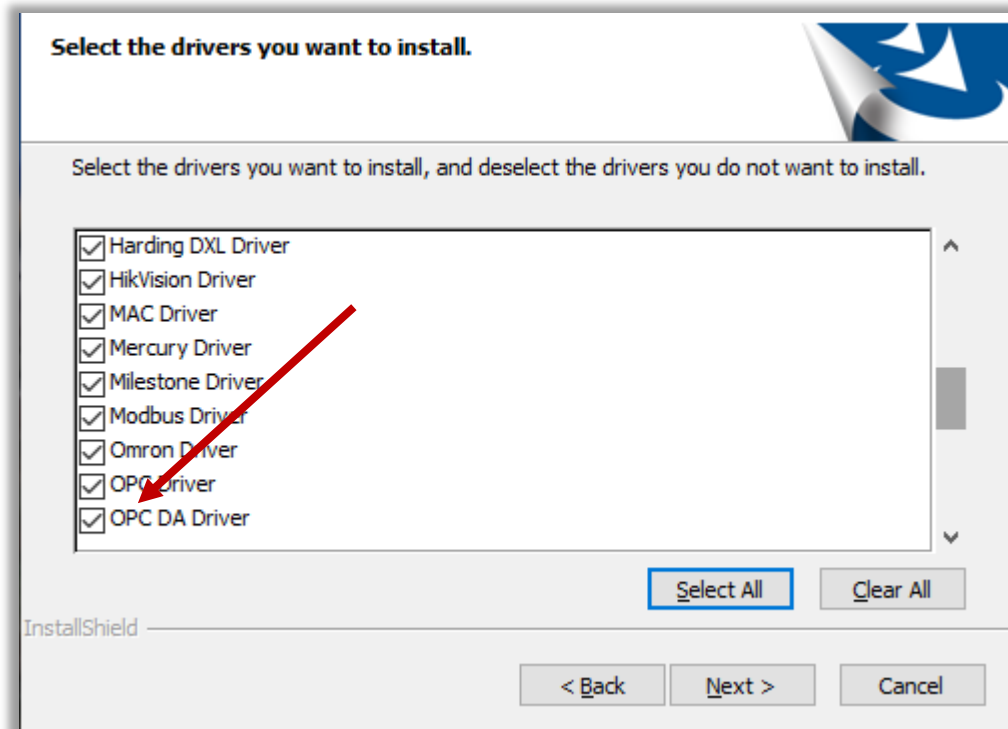


Figure 1 - Select the drivers you want to install

Ensure the **OPC DA Driver** option is checked then continue with the installation or modification.

Note: It may be necessary to scroll down to locate the desired driver.

OPC DA PLC Panel Guide

Hardware Management View

The OPC DA driver and OPC DA PLC panel are best configured in  **Hardware Management View**. Once configured, the panels can be easily monitored and controlled using their panel control screens.

Setup

The OPC DA driver and OPC DA PLC panel are best configured in  **Hardware Management View**.

Once the above information is obtained, the setup process is straight forward.

1. Add the OPC DA Driver
2. Add the OPC DA PLC Panel
3. Configure the Panel
4. Enable the Driver

Add the OPC DA Driver

Adding the OPC DA Driver is simple, but important. Without it, no communication with the OPC DA PLC panels can occur.

Launch the Desktop Client and login.

Note: *When adding the OPC DA driver and/or OPC DA PLC panel, or modifying the existing configuration, the user must login from the Desktop Client on the OPC DA server computer. Communication with the OPC DA server must be done on the OPC DA server's local machine.*

Hardware is managed in the  **Hardware Management View**. If you are not in  **Hardware Management View**, click on  and select .

OPC DA PLC Panel Guide

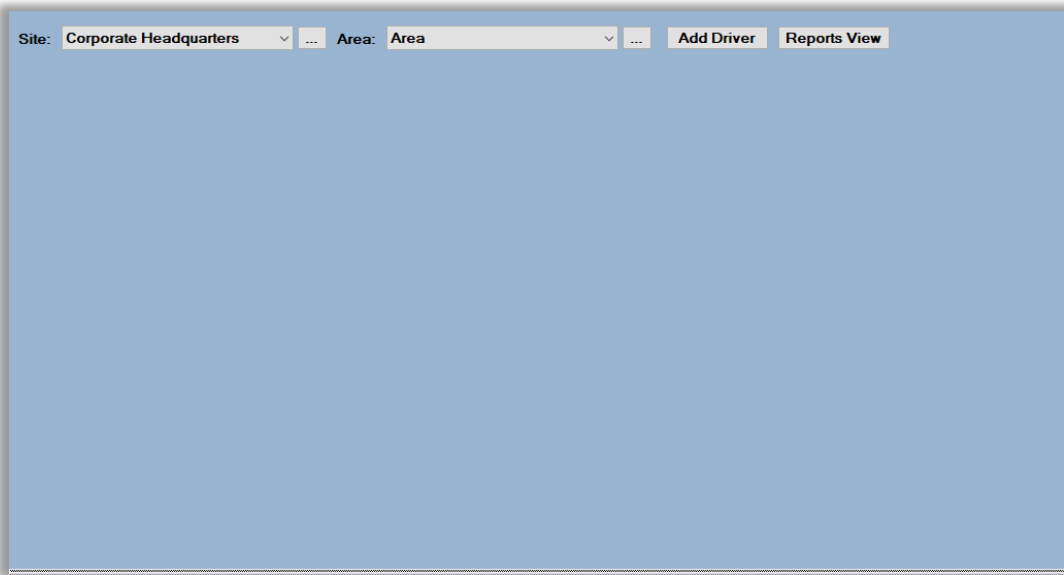


Figure 2 - Hardware Management View

To add the OPC DA driver, click **Add Driver**. The **Choose Driver Type** dialog displays.

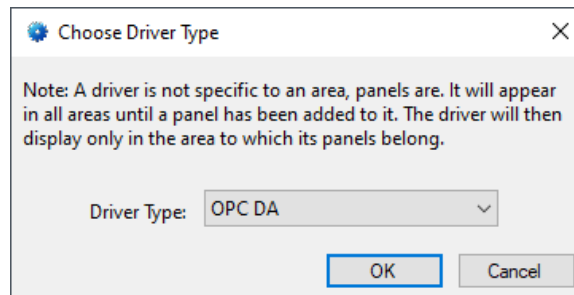


Figure 3 - Choose Driver Type Dialog

Select *OPC DA* from the **Driver Type** drop-down menu in the **Choose Driver Type** dialog. Click **OK**. A new OPC DA driver icon is added to the screen and its properties dialog opens.

Note: If only one driver is installed, the Choose Driver Type dialog does not display. The driver is automatically added and the properties dialog is opened.

OPC DA PLC Panel Guide

The screenshot shows the 'New OPC DA Driver' Properties dialog box. The title bar reads '[1331] New OPC DA Driver'. The 'Properties' tab is active. The 'Name' field contains 'New OPC DA Driver'. The 'ID' field is set to '1331'. The 'User Level' is set to 'All Access'. The 'Notes' field is empty. The 'Enabled' checkbox is unchecked. The 'Default Retry Start Delay' checkbox is checked. The 'Timeout' is set to '1000'. The 'Retry Start Delay' is set to '15'. The 'Update Rate' is set to '250'. The 'Panel List' is empty. The 'Computer List' contains one item, '[4] LATWindows10', which is selected. The 'OK' and 'Cancel' buttons are at the bottom right.

Figure 4 - OPC DA Driver Properties Dialog

Please change the name of the driver to reflect the use and/or location of the panels that this driver will manage. If the **Computer List** does not contain the local machine's name, change it. Click in the field and a **Select Tree Item** window will display the computer nodes. Select the correct computer node. If the local computer is not in the list, see the Intelli-Site User's Guide.

Note: For an explanation of all of the properties of the driver, see [OPC DA Driver Node](#).

OPC DA PLC Panel Guide

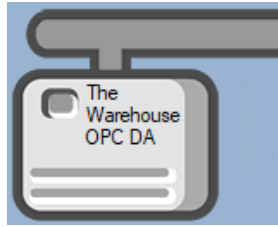


Figure 5 - OPC DA PLC Driver Icon

The OPC DA PLC panel is an OPC DA client written using an API. Therefore, no communication method is needed. The driver talks to the server directly.

Add the OPC DA PLC Panel

Once the OPC DA driver has been added, it's time to add the OPC DA PLC panel to it.

Right-click on the OPC DA PLC Driver and select *Add Panel*. The **Add Panel** dialog displays.

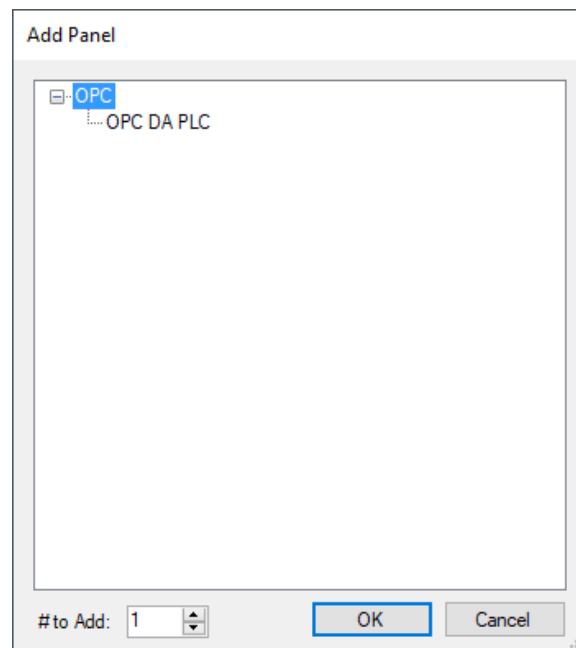


Figure 6 - Add Panel Dialog

OPC DA PLC Panel Guide

This dialog only displays the panels that are appropriate for the target driver. Select the OPC DA PLC panel. Normally, there is only one OPC server running on a computer at a time, but if your facility has more, set **# to Add** equal to the number of OPC servers on this computer. Additional panels can be added later. Click **OK** . A **New OPC DA PLC** icon is added to the target OPC DA PLC driver.



Figure 7 - A new OPC DA PLC panel attached to the OPC DA driver

Next comes configuring the panel.

Configure the OPC DA PLC Panel

The OPC DA PLC panel is configured using the **Quick Config** dialog. To open the **Quick Config** dialog, right-click on the OPC DA PLC icon and select *Quick Config*.

A screenshot of the 'Configure New OPC DA PLC' dialog box. The dialog has a title bar with a gear icon and the text 'Configure New OPC DA PLC'. It contains several input fields and buttons. The 'Panel Name' field is set to 'New OPC DA PLC'. There is a 'Path' field. To the right of the 'Panel Name' field are 'Virtual' and 'Verify Tags' checkboxes. Below the 'Path' field is a 'Find Server' button. The dialog is divided into two main sections: 'Groups' and 'Points'. The 'Groups' section has a table with one column 'Name'. The 'Points' section has a table with four columns: 'Name', 'Address', 'Type', and 'Threshold'. At the bottom of the 'Groups' section are 'Add' and 'Delete' buttons. At the bottom of the 'Points' section are 'Add Tags' and 'Delete' buttons. At the very bottom of the dialog are 'Apply', 'OK', and 'Cancel' buttons.

Figure 8 – OPC DA PLC Panel Quick Config Dialog

OPC DA PLC Panel Guide

Change the **Panel Name** to describe its use or location. In our example, it is the OPC DA PLC Server panel for The Warehouse.

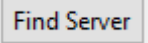
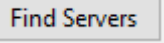
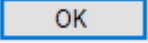
Next, click . It brings up the **Select Server** dialog.



Figure 9 - Select Server dialog

Click . The Desktop Client will search the local machine for any OPC DA version 3 servers. The OPC Foundation strongly recommends only using OPC DA version 3. Therefore, Intelli-Site only supports OPC DA version 3. Each of the servers found on the local machine are added to the **Servers** list. Check the desired server then click . This dialog closes and the **Path** field now contains the link to reach the server.

Note: The checkbox must be checked to select the server. Highlighting it is not enough. Ask me how I know.

OPC DA PLC Panel Guide

Configure New OPC DA PLC

Panel Name: Virtual: ☐ Verify Tags

Path: Find Server

Groups:

Name

Points:

Name	Address	Type	Threshold
------	---------	------	-----------

Add Delete Add Tags Delete Apply OK Cancel

Figure 10 - Quick Config dialog after selecting a server

Next, we need to add points. Points correspond to PLC tags.

Groups:

Name

Points:

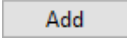
Name	Address	Type	Threshold
------	---------	------	-----------

Add Delete Add Tags Delete

Figure 11 - Groups and Points tables

OPC DA PLC Panel Guide

No point can be added until a group is added and selected. A group is a method to organize the points into logical collections. It is an artifact of Intelli-Site Lite and not the panel. How a point is used should dictate the group it belongs to. The example being used has points that are inputs and points that are outputs. We will group those points as **Inputs**, and **Outputs**. Locating those points in the Project Node Tree when programming screen objects will be easier to find since we know the type of points they are. But another way to group them could be based on how those points are used. If those points are associated with a door as a DPS, REX, lock, and timers, one could create groups for each door and assign the points associated with that door to it. It's about how you think about it. Do you see the points as their type or as their usage? This example groups points by their type.

Add a group by clicking the  button under the **Groups** table.

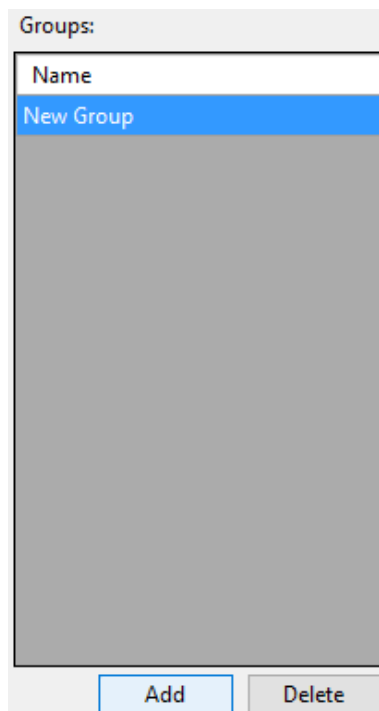


Figure 12 - New Group added to the Groups table

Click on the group in the table to rename it. Notice that the buttons under the **Points** table are enabled. You can now add points to the selected group.

OPC DA PLC Panel Guide

Configure New OPC DA PLC

Panel Name: Virtual: ☐ Verify Tags

Path: Find Server

Groups:

Name
Inputs

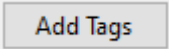
Points:

Name	Address	Type	Threshold
------	---------	------	-----------

Add Delete Add Tags Delete

Apply OK Cancel

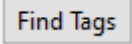
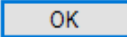
Figure 13 - Partially configured Quick Config with a new Group

Notice the  button is now active. Click it. The **Add Tags** dialog displays.

OPC DA PLC Panel Guide



Figure 14 - The Add Tags dialog

Click . The Desktop Client queries the OPC DA Server for the list of tags it has. This takes a while; patience is a virtue. When the list of tags have been written to the **Select Tags** field, select the tags to add to the panel. Then click the  button.

OPC DA PLC Panel Guide

Panel Name: Virtual: ☐ Verify Tags

Path: Find Server

Groups:

Name
Inputs

Points:

Name	Address	Type	Threshold
Tag1	Channel1.Device1.Tag1	UInt16	0
Tag2	Channel1.Device1.Tag2	UInt16	0

Add Delete Add Tags Delete Apply OK Cancel

Figure 15 - Newly added tags

Repeat this process for each of the groups in the PLC, click the **OK** button to save the changes and close the **Quick Config** dialog.

Enable the OPC DA Driver

At this point, the OPC DA PLC panel and the OPC DA driver are configured, but the driver is not online. A quick way to know this is that the communication indicator is grey.

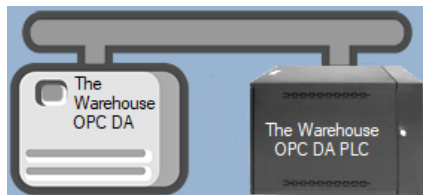


Figure 16 – Disabled OPC DA Driver

OPC DA PLC Panel Guide

Right-click on the driver to open the context menu; select *Enable Driver*. The communications indicator will change color to green when it's online.

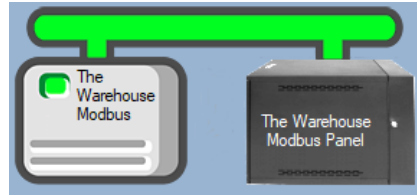


Figure 17 - Enabled OPC DA Driver

If for some reason the Engine cannot connect to the Driver Service or the Driver cannot connect to the OPC DA PLC, the communication indicator will be red.



Figure 18 - Enabled OPC DA PLC Driver that is not communicating with the Driver Service

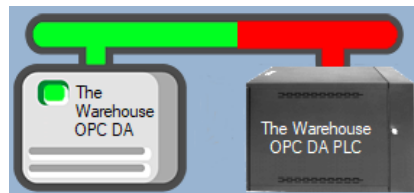


Figure 19 - Enabled OPC DA PLC Driver that is communicating with the Driver Service but NOT the panel

Congratulations! The OPC DA PLC is integrated and ready to use in screen design for  **Live View**. Screen design occurs in  **Design View**.

Panel Control Screen

Every OPC DA PLC panel has a **Panel Control Screen**. From this screen, the user can monitor the current state of the panel. Clicking on the panel icon in  **Hardware Management View** opens the **Panel Control Screen** of the target panel. The content of the screen is dictated by the panel.

OPC DA PLC Panel Guide

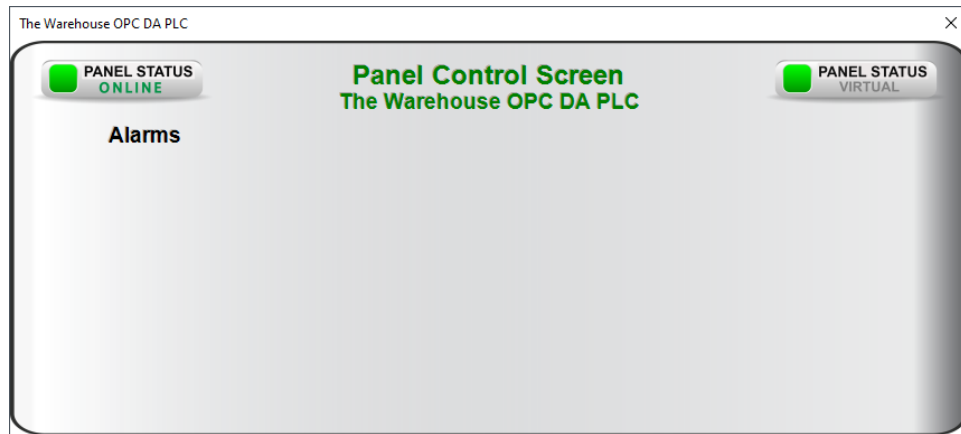


Figure 20 - Sample OPC DA PLC Panel Control Screen

Because there are no I/O Points associated with a OPC DA PLC panel when the panel is added, there are no points on this screen other than the Online Panel Status and the Virtual Panel Status.

Once the panel has been configured, screen objects can be added to this **Panel Control Screen** popup screen to give the user quick access to the point states and values. See [The Panel Control Screen](#) in Project Programming.

OPC DA PLC Panel Guide

Design View

 **Design View** is the home of the Project Node Tree and the place where screens and screen objects are programmed. The following sections explain the OPC DA PLC Driver node properties, the OPC DA PLC node properties, and screen object programming especially the automatically created screen objects.

OPC DA Driver Node

The OPC DA PLC driver node is found by expanding **Setup->Computer Setup->Drivers**.

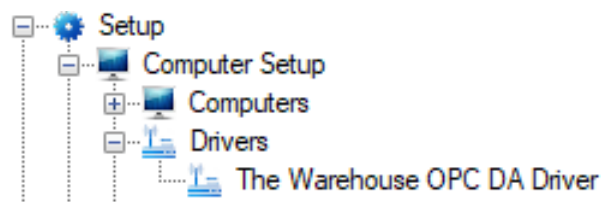


Figure 21 - OPC DA Driver node in the Project Node Tree

Right-click on the driver node and select *Properties* to open the properties dialog.

OPC DA PLC Panel Guide

The screenshot shows a Windows-style dialog box titled "[1331] The Warehouse OPC DA Driver". It has a "Properties" tab. The "Name" field is an edit box containing "The Warehouse OPC DA Driver". The "ID" field is a numeric spinner set to "1331". The "User Level" is a drop-down menu showing "All Access". The "Notes" field is a large multiline text area. Below it is an "Enabled" checkbox, which is currently unchecked. There are two rows of settings: "Default Retry Start Delay" (checked) and "Timeout" (spinner set to 1000); "Retry Start Delay" (spinner set to 15) and "Update Rate" (spinner set to 250). At the bottom are two list boxes: "Panel List" containing "[1332] New OPC DA PLC" and "Computer List" containing "[4] LATWindows10". "OK" and "Cancel" buttons are at the bottom right.

Figure 22 - OPC DA PLC Driver properties dialog

Name – edit box; the name for the node; the name doesn't have to be unique

ID – numeric (disabled); the unique identifier of this node; generated by the software

User Level – drop-down menu (default: All Access); the User Level a user must possess to open the properties for this node

Notes – multiline edit box; any notes the user may have for the node

Enabled – check box; when checked the driver is enabled

Default Retry Start Delay – check box (default: checked); if the driver did not connect, pause before attempting to connect again

OPC DA PLC Panel Guide

Retry Start Delay – numeric (default: 15); number of seconds to wait between retries on connection attempts

Timeout – numeric (default: 1000); number of milliseconds to wait for a response before assuming the packet was not received

Update Rate – numeric (default: 25); number of milliseconds to wait after a timeout before sending the packet again

Panel List- drop box; the OPC DA PLC panel nodes attached to this driver

Computer List – drop box (default: the computer on which the Engine is running); the computer node on which this driver is running

OPC DA PLC Panel Node

The OPC DA PLC panel node is found by expanding **System Layout** then the Site and Area to which the OPC DA PLC panel was added in  **Hardware Management View**. In the example below, the panel was added to the site **Corporate Headquarters** and the area **Area**.

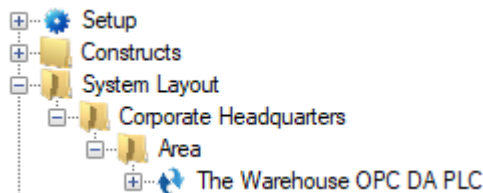


Figure 23 - The OPC DA PLC panel node in the Project Node Tree

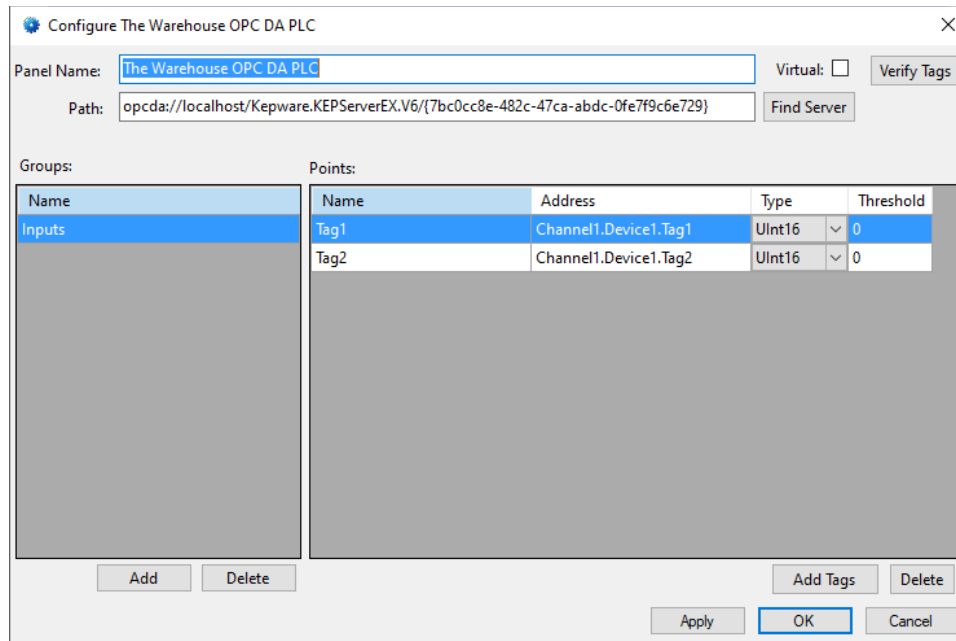
The OPC DA PLC panel node is the root node for the panel. The following sections will explain:

- The configuration of the OPC DA PLC panel (a.k.a. **Quick Config**)
- The properties of the OPC DA PLC panel node
- The child nodes of the OPC DA PLC panel

OPC DA PLC Panel Guide

OPC DA PLC Panel Quick Config

The **Quick Config** dialog is accessible either in  **Hardware Management View** or in  **Design View**. To open the **Quick Config** dialog, right-click on the OPC DA PLC panel node and select *Quick Config*.

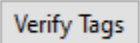


Groups:		Points:			
Name		Name	Address	Type	Threshold
Inputs		Tag1	Channel1.Device1.Tag1	UInt16	0
		Tag2	Channel1.Device1.Tag2	UInt16	0

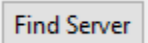
Figure 24 - OPC DA PLC panel Quick Config dialog

Panel Name – edit box; the name of the OPC DA PLC panel; updating this field will change the name of the node

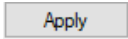
Virtual – check box; when checked the panel is virtualized, allowing the driver to be brought online without having the physical panel available

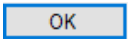
 - button; verify the tags that are in the configuration exist on the OPC DA PLC server; use if any tags have been added outside the **Quick Config**

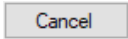
Path – edit box; the fully qualified path to the server; the server must be on the localhost of the Driver Service

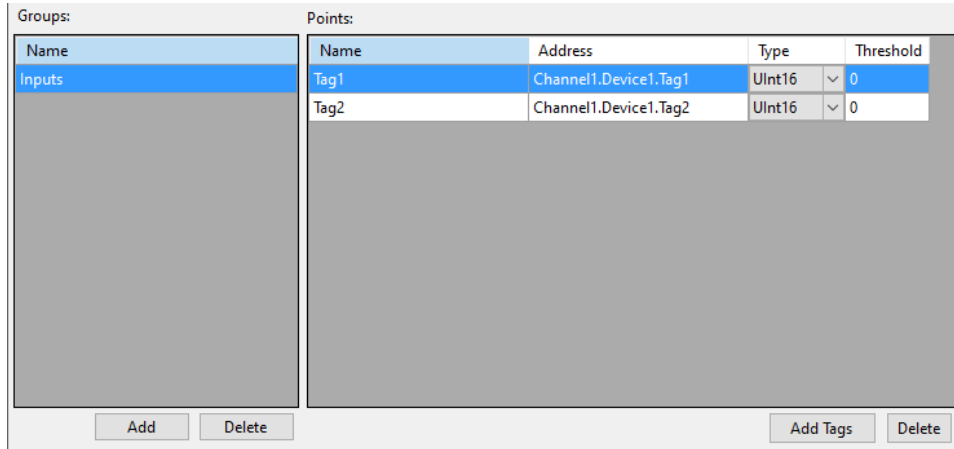
 - button; use this button to find the server on the local machine; **the Desktop Client must be running on the computer hosting the OPC DA PLC server**

OPC DA PLC Panel Guide

 - button; save all modifications but do not close the dialog

 - button; save all modifications and close the dialog

 - button; abandon any modifications and close the dialog



The screenshot shows a dialog box with two main sections: 'Groups' and 'Points'. The 'Groups' section on the left has a table with one row 'Inputs' and two buttons 'Add' and 'Delete' below it. The 'Points' section on the right has a table with four columns: 'Name', 'Address', 'Type', and 'Threshold'. It contains two rows: 'Tag1' with address 'Channel1.Device1.Tag1' and 'Tag2' with address 'Channel1.Device1.Tag2'. Both have type 'UInt16' and threshold '0'. There are 'Add Tags' and 'Delete' buttons below the 'Points' table.

Groups:		Points:			
Name		Name	Address	Type	Threshold
Inputs		Tag1	Channel1.Device1.Tag1	UInt16	0
		Tag2	Channel1.Device1.Tag2	UInt16	0

Groups – how tags are organized in the Tree

 - button; add a group to the **Groups** table

 - button; delete the highlighted row from the **Groups** table

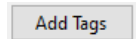
Points – table; the tags assigned to the highlighted group

Name – edit box, the tag name

Address – edit box; the address of the tag in the panel

Type – drop-down list (values: *None, Boolean, Byte, Int16, UInt16, Int32, UInt32, Int64, UInt64, Float, Double*); the tag's type

Threshold – numeric; when the value of the tag is equal to or greater than the specified threshold, the point is high

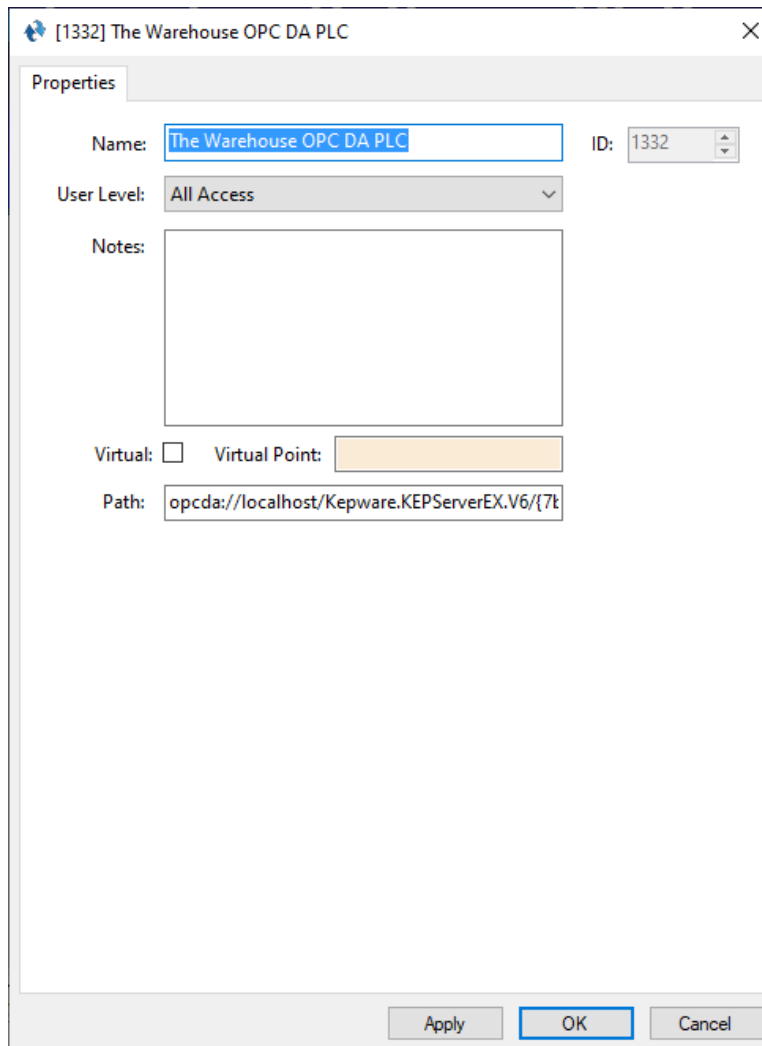
 - button; the only way to add tags to the **Points** table; clicking this button opens the **Add Tags** dialog. See

 - button; delete the highlighted tag from the **Points** table

OPC DA PLC Panel Guide

OPC DA PLC Panel Node Properties

Right-click on the OPC DA PLC panel node to open the properties. The **Quick Config** dialog is the only means to manage the panel and its child node properties. The properties dialog contains the bare minimum of properties.



The screenshot shows a 'Properties' dialog box for a node named 'The Warehouse OPC DA PLC'. The dialog has a title bar with a blue icon, the text '[1332] The Warehouse OPC DA PLC', and a close button. The main area contains several fields: 'Name' (text box with 'The Warehouse OPC DA PLC'), 'ID' (spin box with '1332'), 'User Level' (drop-down menu with 'All Access'), 'Notes' (text area), 'Virtual' (checkbox), 'Virtual Point' (text box), and 'Path' (text box with 'opcda://localhost/Kepware.KEPServerEX.V6/{7t'). At the bottom are 'Apply', 'OK', and 'Cancel' buttons.

Figure 25 - OPC DA PLC node properties dialog

Name – edit box; the name for the node; the name doesn't have to be unique

ID – numeric (disabled); the unique identifier of this node; generated by the software

User Level – drop-down menu (default: All Access); the User Level a user must possess to open the properties for this node

OPC DA PLC Panel Guide

Notes – multiline edit box; any notes the user may have for the node

Virtual – check box; when checked the panel is virtualized, allowing the driver to be brought online without having the physical panel available

Virtual Point – drop box; this I/O Point will be set when the panel is virtualized, clear when it is not

Path - edit box; the fully qualified path to the server; the server must be on the localhost of the Driver Service

OPC DA PLC Child Nodes

The OPC DA PLC child nodes are the **Alarms** node and the group nodes. When a group is added in **Quick Config**, a node is added to the panel node in the Tree for that group. Any points added to the group in the **Quick Config** are added to the Tree as child nodes of the group node. The alarms are children of the **Alarms** node.

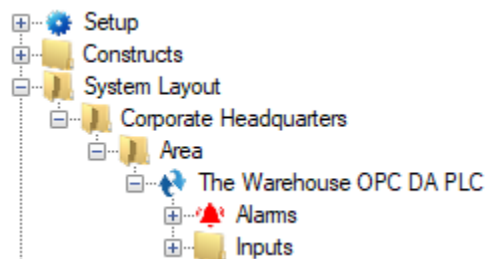


Figure 26 - Sample panel node and the Group nodes

Note: While group nodes and even point nodes can be added in Design View, please use Quick Config to ensure the tag information matches the information in the actual panel.

Alarms

The alarm for the OPC DA PLC is located under the **Alarms** node. There is one (1) alarm, **Panel Status**.

OPC DA PLC Panel Guide

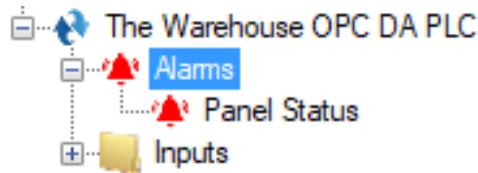


Figure 27 - OPC DA PLC panel Alarms child nodes

The **Panel Status** point is high when the panel is offline (assuming the driver is online, and the panel is not virtualized).

Point Nodes

The point nodes are the children of the group nodes also known as the tags. While they are referred to as points in general, they are specifically *Points* or *Values*. A *Point* can only be 0 or 1, on or off, high or low. A *Value* is an integer from 0 to 65535. The tag's **Type** determines if a point is a *Point* or a *Value*. Tags of **Type Boolean** are points. Tags of **Type Byte, Int16, UInt16, Int32, UInt32, Int64, UInt64, Float, Double** are values. Value nodes can also have child nodes (a.k.a. sub-nodes) added to them in  **Design View**. These points are much like counter value nodes for counters. When the tag's value equals the value of the child node, the child node is set on.

Point Node Properties

Right-click on the point node to open the properties. These fields are specifically about the point. The **Quick Config** dialog is the recommend means to manage the point node properties. The point node is a special kind of I/O Point node called GenProto node. It has all the fields of an I/O Point with a few additional fields specific to the point. We will only discuss the additional fields. For an explanation of the I/O Point, see section **The Properties Dialog** of the Intelli-Site Lite User's Guide.

OPC DA PLC Panel Guide

The screenshot shows a dialog box titled "[1345] The Warehouse OPC DA PLC\Inputs\Tag1". It has four tabs: "Properties", "Operation", "Alarm Queue", and "Actions". The "Properties" tab is active. It contains the following fields:

- Name:** Tag1 (text box)
- ID:** 1345 (spin box)
- User Level:** All Access (dropdown menu)
- Notes:** (empty text area)
- Tag:** Channel1.Device1.Tag1 (text box)
- Type:** UInt16 (dropdown menu)
- Current Value:** 24091 (spin box)
- High Threshold:** 0 (spin box)

At the bottom right are "OK" and "Cancel" buttons.

Figure 28 - Point node properties dialog

Tag – edit box; the address of the tag

Type – drop-down list (values: *None, Boolean, Byte, Int16, UInt16, Int32, UInt32, Int64, UInt64, Float, Double*); the tag's data type

Current Value – numeric (disabled); the current value of the point

High Threshold – numeric; when the **Current Value** is equal to or greater than this number, the point is high; disabled when the tag is of type *Boolean*

Value Sub-Nodes

When a point node is a value type tag, it can have value sub-nodes. Like their parents, these sub-nodes are special GenProto nodes. They are like counter value nodes in that their state is tied to the current value of their parent node. And like a counter value, when a value sub-node is the target of a **SendCommand** action, the parent node is acted on by the value child node if possible.

OPC DA PLC Panel Guide

To better understand these nodes, let's examine the properties dialog. Because a value sub-node is a GenProto node, we will only discuss the additional fields specific to a value sub-node. For an explanation of the rest of the fields and tabs, see section **The Properties Dialog** of the Intelli-Site Lite User's Guide.

First, though, one needs to add a value child node. Locate the desired point node in the Tree. Right-click on it and select either *Add Node*, or *Add Node and Edit*.

Note: *If the point node is not a Value node, these menu options are disabled.*

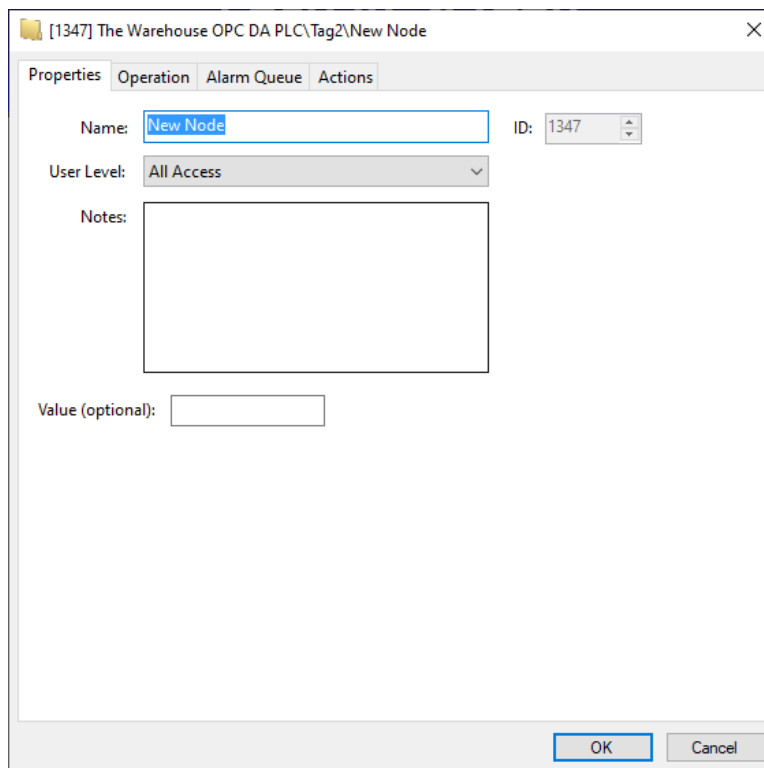


Figure 29 - Value Sub-Node properties dialog

The Properties tab has the standard properties of **Name**, **ID**, **User Level**, and **Notes**. The only new field is **Value**. It is an optional field. If it is empty, this node is treated as a group node. This means even value sub-nodes can have child nodes. There is no limit to the depth of child nodes. This gives the user flexibility in organizing the sub-values. Even if the value sub-node has a number in the **Value** field, it can still have child nodes of its own.

OPC DA PLC Panel Guide

When the **Value** field is treated much like a counter value. When the parent Value node equals this sub-node, this sub-node is in a high state. The parent Value node can be set to the value of this sub-node using **SendCommand**.

Project Programming

The point nodes can be used in project programming in evaluation grids and in action grids. The point nodes can also be dragged and dropped onto screens to automatically create screen objects.

Evaluation Grids and Action Grids

The panel and point nodes can be used in evaluation and action grids.

The Panel Node

When a panel node is used in the evaluation grid, there are two **Selection** options: *Virtual* and *Driver Online*.

	Point	Selection	Qual.	Oper.	
▶	[1332] The Warehouse OPC DA PLC	▼	▼	▼	▲
		Virtual	▼	▼	
		Driver Offline	▼	▼	
		** Not Available **	▼	▼	▼

The panel node can be used in action grids as the target of the following actions:

- **VirtualizePanel**
- **UnvirtualizePanel**

	Action	Target	
▶ 1	UnvirtualizePanel	[1332] The Warehouse OPC DA PLC	▲
2			
3			
4			
5			
6			▼

The Point Nodes

The point nodes are I/O Points. Therefore, they can be used in evaluation grids and action grids.

OPC DA PLC Panel Guide

The **SetOn** command sets the tag to its threshold value. The **SetOff** command sets the tag to zero (0).

The Sub-nodes of Point Nodes

The sub-nodes of Point Nodes of **Type** value can be used in action grids to modify the Point Node's value. To set the parent Value node to equal the sub-node, use **SendCommand** and target the sub-node.

	Action	Target
► 1	SendCommand	[1349] The Warehouse OPC DA PLC\Tag1\234
2		
3		
4		
5		
6		

Figure 30 - Example Action grid using an unsigned sub-value node

Automatically Created Screen Objects

The point nodes can be used as evaluation points for the evaluation grids of screen objects. This allows the user to monitor and control the state of each point.

Instead of programming the screen objects by hand, drag and drop the nodes onto the screen to automatically create screen objects that are programmed based on the type of point it is.

Remember that point nodes are either points or values based on their tag **Type**. Each can be dragged and dropped on the screen to automatically create a screen object.

Point Screen Objects

When a point node of **Type Boolean** is dragged and dropped onto the screen, a button is created.

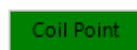


Figure 31 - Sample screen object created from a Point

The properties dialog for this screen object has two states. The following sections describe these two states.

OPC DA PLC Panel Guide

Point Screen Object Properties: State 0 – Normal

State 0 is the base state. It displays when the evaluation grid on the other state does not evaluate to true. Stated more simply, when the point is off, this state displays.

The screenshot shows the 'States' tab for the '[1353] BTag' object. It features a state grid with two states: '0' (Normal, green) and '1' (BTag, red). The 'State Properties' section shows the 'Name' as 'Normal' and a 'Lock Object' checkbox. The 'Display Properties' section includes 'Flash To State' (None), 'Flash Rate (ms)' (1000), 'Image' (empty), 'Stretch' (unchecked), 'Rotate (deg.)' (0), and an 'Effects' button. The 'Label Properties' section includes 'Font' and 'Shadow' buttons, 'H. Just.' (Center), 'V. Just.' (Center), 'Label Object' ([1352] The Warehouse), 'Pop Up X' (0), and 'Pop Up Y' (0). The 'Hover Object' and 'Hover Text' fields are empty. The 'Action' grid at the bottom lists actions for different mouse events: 'Play' (Click.wav) for Mouse Down (2), 'SetOn' ([1352] The Warehouse OPC DA PLC\Inputs\BTag) for Mouse Up, and 'Inactive' for Mouse Enter and Mouse Leave. The 'Mouse Down (2)' event is selected.

	Action	Target
1	Play	[1195] Click.wav
2	SetOn	[1352] The Warehouse OPC DA PLC\Inputs\BTag
3		
4		
5		
6		

Figure 32 - Sample point button properties dialog: State 0

Notice the **Action** grid. Clicking on this screen object will issue a **SetOn** for the tag.

OPC DA PLC Panel Guide

Point Screen Object Properties: State 1 - Alarm

This state is displayed when the point is high. See the evaluation grid. The evaluation grid is programmed to return true when the point's state is evaluated as high.

The screenshot shows the 'Properties' dialog for '[1353] BTag', specifically the 'States' tab. The 'State Properties' section shows the state name 'Alarm' and a 'Lock Object' checkbox. Below this is a table with columns: Point, Selection, Qual., and Oper. The first row is highlighted with a red box and contains the following data:

Point	Selection	Qual.	Oper.
[1352] The Warehouse OPC DA PLC\Inputs...	State		
	** Not Applicable **		
	** Not Applicable **		
	** Not Applicable **		

Below the table are 'Insert' and 'Delete' buttons. The 'Display Properties' section includes 'Flash To State' (set to 'None'), 'Flash Rate (ms)' (set to '1000'), 'Image' (set to 'BTag'), 'Stretch' (unchecked), 'Rotate (deg.)' (set to '0'), and 'Effects' (checked). The 'Label Properties' section includes 'Label Object' (set to '[1352] The Warehouse'), 'PopUp X' (set to '0'), 'PopUp Y' (set to '0'), and 'Hover Text' (empty). At the bottom is an 'Action' grid with columns 'Action' and 'Target'.

Action	Target
1 Play	[1195] Click.wav
2 SetOff	[1352] The Warehouse OPC DA PLC\Inputs\BTag
3	
4	
5	
6	

Below the action grid are buttons for 'Mouse Down (2)', 'Mouse Up', 'Active', 'Inactive', 'Mouse Enter', and 'Mouse Leave'. At the bottom right are 'OK' and 'Cancel' buttons.

Figure 33 - Sample Input Status point button properties dialog: State 1

Notice the **Action** grid. Clicking on this screen object in this state will issue a **SetOff** targeting the tag.

OPC DA PLC Panel Guide

Value Screen Objects

When the point node the node is a Value node meaning it is not a simple on or off tag and it is dragged and dropped to the screen, a simple screen object is created that displays the current value of the object.



Figure 34 - Sample screen node created from a register node

The screen object is programmed to display the current value of the point.

[1351] Value (1)

Properties States

0

0

Insert >> Add << Delete

State Properties

Name: State 0 Lock Object

Display Properties

Flash To State: None Flash Rate (ms): 1000 Image: Stretch: Rotate (deg.): 0 Effects

Label Properties

Font Shadow H. Just.: Left V. Just.: Center Label Object: [1346] The Warehouse PopUp X: 0 PopUp Y: 0

Hover Object: Hover Text:

	Action	Target
1		
2		
3		
4		
5		
6		

Mouse Down Mouse Up Active Inactive Mouse Enter Mouse Leave

Insert Delete

OK Cancel

Figure 35 - Sample Value screen object properties dialog: State 0

OPC DA PLC Panel Guide

Values cannot be set on or off; they can only be displayed. Therefore, the **Action** grid has no programming. They can be set to a specific value. See [Sub-Value Node Screen Objects](#).

Sub-Value Node Screen Objects

When a sub-value node is dragged and dropped onto a screen, a button screen object is created. These screen objects are used to set the parent value node to a specific value which is defined in the **Value** field of the sub-value node's properties dialog.



Figure 36 - Sample screen object created from a Sub-Value node

The properties dialog for this screen object has two states. The following sections describe these two states.

OPC DA PLC Panel Guide

Sub-Value Node Screen Object Properties: State 0 – Off

State 0 is the base state. It displays when the evaluation grid on the other state does not evaluate to true. Stated more simply, when the point is off, this state displays.

Action	Target
1 Play	[1195] Click.wav
2 SendCommand	[1349] The Warehouse OPC DA PLC.Tag1\234
3	
4	
5	
6	

Figure 37 - Sample sub-value node screen object properties dialog: State 0

Notice the **Action** grid. When this button is clicked in this state, a **SendCommand** action targeting this sub-value node is executed. This command is sent to the panel to set the parent value node to the sub-value's **Value**.

Sub-Value Node Screen Object Properties: State 1 - On

This state is displayed when the point is high. See the evaluation grid. The evaluation grid is programmed to return true when the point's state is evaluated as high. A sub-value node is high when its parent value node equals the sub-value node's **Value**.

OPC DA PLC Panel Guide

Figure 38 shows the 'State Properties' dialog box for State 0. The dialog is titled '[1350] 234' and has tabs for 'Properties' and 'States'. The 'States' tab is active, showing a table with columns: Point, Selection, Qual., and Oper. The first row is highlighted with a red box and contains the text '[1349] The Warehouse OPC DA PLC Tag1\...' under Point, 'State' under Selection, and empty cells for Qual. and Oper. Below this table are sections for Display Properties (Flash To State, Flash Rate, Image, Rotate, Effects) and Label Properties (Label Object, PopUp X, PopUp Y, Hover Object, Hover Text). At the bottom is an 'Action' grid with columns Action and Target, and a list of mouse events: Mouse Down, Mouse Up, Active, Inactive, Mouse Enter, Mouse Leave. The dialog has OK and Cancel buttons at the bottom right.

Figure 38 - Sample sub-value node screen object properties dialog: State 0

Notice the **Action** grid. There are no actions when the screen object is in this state. Clicking on this button does nothing.

The Panel Control Screen

The Panel Control Screen is a popup screen that is added when the panel is added. It can be displayed in  **Hardware Management View** by clicking on the panel icon.

OPC DA PLC Panel Guide

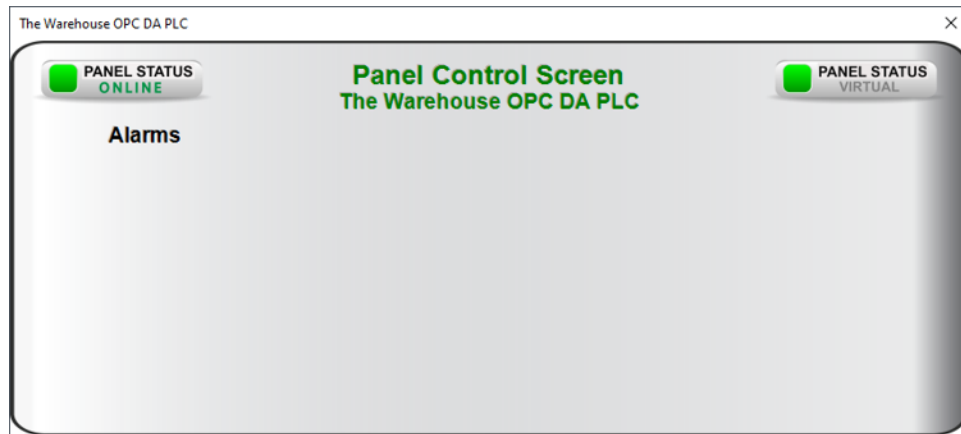


Figure 39 - Panel Control Screen

When an OPC DA PLC panel is added, there are no points. Therefore, the Panel Control Screen has no points. You must program the screen to display the points and values once the panel is programmed.

To find and modify the Panel Control Screen, you'll need to be in  **Design View**. The Panel Control Screens are found by expanding **Screen Control->Popup Screens->Area Popup Screens**.

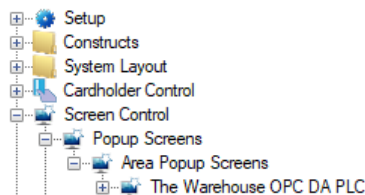


Figure 40 - Panel Control Screens in the Project Node Tree

If there is only one or two OPC DA PLC panels, finding the corresponding Panel Control Screen is relatively simple. Open the properties dialog of the Panel Control Screen and examine **Base Object** field.

OPC DA PLC Panel Guide

[1336] Area Popup Screens\The Warehouse OPC DA PLC

Properties

Name: ID:

User Level:

Notes:

Width: X Position:

Height: Y Position:

Background:

Base Object:

Transparent Background (PopUp action only): ☐

Display/Dismiss Actions

Event:

	Action	Target
1		
2		
3		
4		
5		

Insert
Delete

OK Cancel

Figure 41 - Panel Control Screen properties dialog

Another way to locate the corresponding Panel Control Screen is to use *Find...->All objects referencing this node* on the panel node itself.

OPC DA PLC Panel Guide

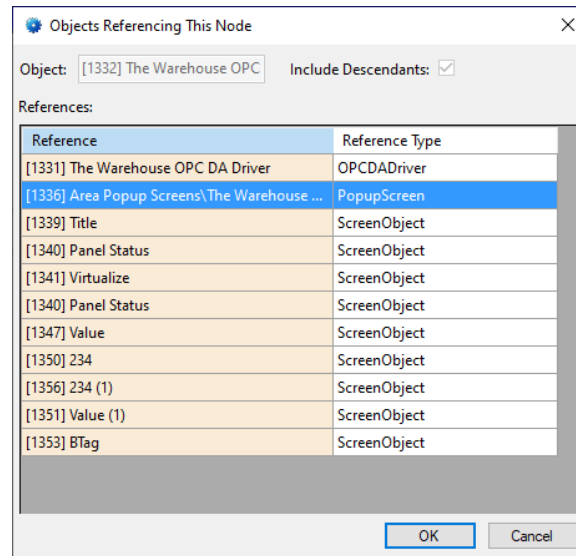
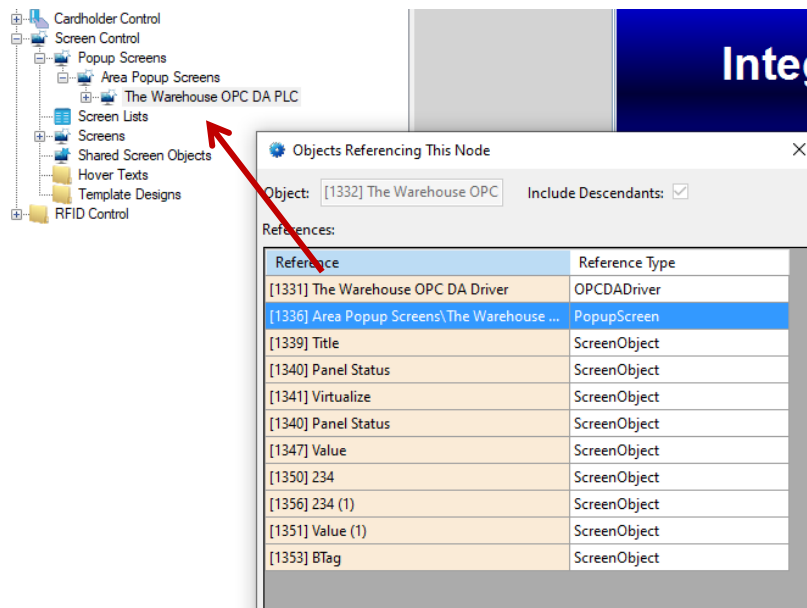


Figure 42 - Find...->All objects referencing this node dialog

Right-click on the Panel Control Screen in the **References** and select *Go To/Find In Tree*. The software will expand the Tree and select the Panel Control Screen node.



The highlighting is grey because it does not have focus. Cancel out of the **Objects Referencing This Node** dialog and the highlighting will be blue. Double-click on the Panel Control Screen node to open the screen for programming.

OPC DA PLC Panel Guide

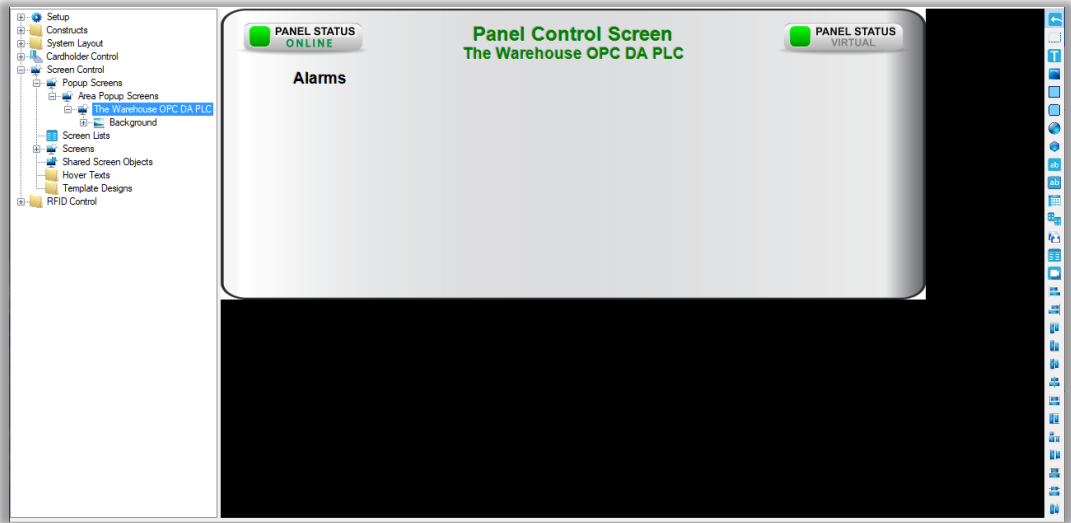


Figure 43 - Panel Control Screen in  Design View

Add the points that are important to watch in  **Hardware Management View**.

OPC DA PLC Panel Guide

Revision History

2026-05-21 Creation Date