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www.ptc.com
**OPC Quick Client**

Help version 1.040

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It is recommended that users review the license agreement.

**Overview**

The OPC Quick Client assists in the testing and development of the OPC Data Access 1.0 and 2.0 servers. It supports both local and remote OPC server connections. Remote connections are handled through the operating system’s DCOM interface.

*Note:* The OPC Quick Client does not fully support OPC DA 3.0. This help file assumes the use of Windows XP or Server 2003. Service Pack 4 is recommended.

**Client Preparation**

For information on how to prepare the client, follow the instructions below.

1. To start, create a server connection (which will be used to connect to an OPC server).
2. Next, add a group to the connection that contains varying properties (such as update rate, dead band and time bias).
3. Add items to the individual groups. The groups contain properties such as an initial active state, data type, and access path.

*Note:* Active items will automatically receive data change notifications. The current value and quality will be displayed in the Item View.

*See Also:* Server, Group, and Items.
Main Window

The following image is a view of the application.

![OPC Quick Client - Untitled](image)

Title Bar

The Title Bar displays the name of the loaded project file. An asterisk (*) following the name indicates that it has been modified.

Toolbar

- Creates a new project.
- Opens an existing project from disk.
- Saves the current project to disk.
- Creates a new server connection.
- Creates a new group.
- Creates a new item.
- Edits the properties of the selected server, group, or item.
- Cuts the current selection to the clipboard.
- Copies the current selection to the clipboard.
- Pastes the server, group, or items from the clipboard.
- Deletes the current selection.

Group Window

The Group window manages a list of server connections along with their group objects. To display a menu of options applicable to the server / group, right-click on it. To display the property sheet for the server / group, double-click on it. For more information, refer to Server and Group.

Item Window

The Item window displays a list of item information for the selected group. To display a menu of options applicable to the item, right-click on it. To display the properties dialog for the item, double-click on it. For more information, refer to Items.
Note: Clicking on the Item ID column heading will cause the item list to be sorted based on the Item ID. To change column widths, click and drag the header for the desired column to the left or right end of the header button until the column is the desired size.

Message Log
The Message Log window logs status messages generated by the application. As with the Item window, the column headers may be resized. This window does not support sorting.

Server Connection
A server connection provides a link between an OPC server and this client. Groups are added through this connection. To create a new server connection, click Edit | New Server Connection. Alternatively, click the New Server toolbar button.

Prog ID: This parameter specifies the Prog ID of the OPC Server to which the client will connect. Use the tree display to browse for registered servers. The Prog ID field can be automatically updated by double-clicking on any registered server.

Remote Machine Name: This parameter specifies the name of the machine on which the OPC server resides. This field should be left blank if the server is located on the same machine as the client.

Connection Type: This parameter specifies the type of connection the client should establish with the OPC server on the local machine. The options are InProc, Local, or Any. If the server is registered as InProc, then an InProc connection is attempted; otherwise, a Local connection will be attempted. This option is not available when connecting to a remote machine.

Server Properties
Once the client makes a successful connection to a server, the Server Properties dialog may be invoked by clicking Edit | Properties.

Status
The Status tab is the default display, and details the server's current status.
The client queries the server's status and obtains the following information:

<table>
<thead>
<tr>
<th>Status Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prog ID</td>
<td>The Prog ID of the OPC Server to which the client will connect.</td>
</tr>
<tr>
<td>Vendor</td>
<td>A string that specifies vendor-specific information.</td>
</tr>
<tr>
<td>Start Time</td>
<td>Time at which the server was started.</td>
</tr>
<tr>
<td>Current Time</td>
<td>Current time as recognized by the server.</td>
</tr>
<tr>
<td>Last Update Time</td>
<td>Time that the server sent the last data update to the client on this connection.</td>
</tr>
<tr>
<td>Server State</td>
<td>The current state of the server. Valid states are Running, Failure, No Configuration, Suspended, and Test.</td>
</tr>
<tr>
<td>Major Version</td>
<td>Major version of the server software.</td>
</tr>
<tr>
<td>Minor Version</td>
<td>Minor version of the server software.</td>
</tr>
<tr>
<td>Build Number</td>
<td>Build number of the server software.</td>
</tr>
<tr>
<td>Connection Type</td>
<td>Type of connection with the server. This connection may be inproc, local, or any that the OS chooses.</td>
</tr>
</tbody>
</table>

**Interfaces**

The Interfaces tab lists the interfaces that are required at the server level. Interfaces that are not required are considered optional. The Supported column states which interfaces are supported.
Identification
The Identification tab allows users to enter an optional name to identify the client to the server. The default client name is “Quick Client”.

Visual / Operational Changes
When the OPC Quick Client adds, connects, or disconnects a server connection, there will be a change in its appearance. The image that appears to the left of each server connection will change to one of the following:

- The client is connected to the server.
- The client is disconnected from the server.
- The client could not connect to the server (the server may not be properly registered).
Group

A group is used to organize a collection of items with a common set of properties. The group also specifies several properties, such as group name, update rate, time bias, percent dead band, Language ID, active state, and the data connection type (among others). To create a new group, click Edit | New Group. Alternatively, click New Group in the toolbar.

General

Name: This parameter specifies a name that will identify the group. If it is left empty, the OPC server will generate a unique name.

Update Rate: This parameter specifies how often the OPC server will provide updates for changing data. The default setting is 1000 milliseconds.

Time Bias: This parameter specifies the time difference between the client/server and the actual device. The information allows the client to convert the timestamp received by the server back to the local time of the device. The default setting is 0 minutes.

Percent Dead Band: This parameter specifies the percent change in data required to notify the client of a data change. When scaling is enabled for the item, the required data change will be calculated using the scaled range. When scaling is not enabled for the item, the required data change will be calculated using the full range of the specified data type. The default setting is 0.

Language ID: This parameter specifies the language that will be used by the server when returning values as text for operations on this group.

Update Notification: This parameter specifies the method to be used when receiving data change notifications or initiating asynchronous requests. Valid selections are OPC 1.0 (No Timestamp), OPC 1.0 (With
Timestamp) and OPC 2.0/3.0. Data Access 2.0/3.0 servers automatically supply timestamps with all data transactions.

**Active State:** This parameter specifies the active state of the group. When the group is active, the client will receive data change updates for all active items at the specified update rate. The default setting is checked.

**Keep Alive Rate:** This parameter specifies the amount of time between keep-alive messages sent from the server to the client. The default setting is 0 milliseconds.

**Interfaces**

Once a group has been successfully added to the project, click **Edit** ➤ **Properties** and then select **Interfaces**. This will display the information on the interfaces that are required at the group level.

![Group Properties](image_url)

**Note:** Interfaces that are not required are considered optional. The Supported column states which group interfaces are supported by the server.

**Visual / Operational Changes**

When the OPC Quick Client adds, activates, or deactivates a group, the appearance of the folder icon will change to one of the following:

- The group is active.
- The group is inactive.
- The client could not add the specified group to the server connection.
Items

Items represent data that may be accessed via an OPC server. An item specifies the following properties: Item ID, access path, requested data type, and active state. To define an item using the Item Editor dialog, click Edit | New Item. Alternatively, click New Item on the toolbar.

Access Path: This parameter is required by some OPC servers to complete an item definition. To determine whether an access path is needed, refer to the OPC server's help documentation.

Item ID: This parameter specifies the OPC server item that will be used to reference data. To determine valid item names for the location in question, refer to the OPC server's help documentation. If the server supports tag browsing, then an item can be selected by using the browse controls.

Data Type: This parameter specifies the requested data type that will be used when communicating between the OPC server and the OPC Quick Client. This should be specified to agree with the size and type of the register or memory location that is being addressed. For more information, refer to Data Types Description.

Active: This parameter specifies the item's initial active state. It may be changed later. The default setting is checked.

Browse flat address space on selected branch: When checked, this option modifies the item list by attaching the channel and device name. The default setting is unchecked.

Validate item before adding it to the list: When checked, this option validates the item before it is added to the item list. The default setting is checked.
Add Leaves: When clicked, this button adds the item that is currently selected in the item list to the Item ID field.

Button Definitions

Applies changes to the current tag and fills the dialog with properties of the previous tag in the list.
Applies changes to the current tag and fills the dialog with properties of the next tag in the list. If no next tag exists, the client will attempt to automatically increment the current Item ID.
Creates a new item definition.
Duplicate (decimal, hexadecimal, or octal format) current item definition up to 32,767 items (automatically increments).
Deletes the current item definition.
Validates the current item definition.

Browsing
If the server supports browsing, the browsing controls will be available for use in searching for selected items. Filters can be applied as needed to simplify the search.

Visual / Operational Changes
When the OPC Quick Client adds, activates, or deactivates an item, the appearance of the tag icon will change to one of the following:

The item is active.
The item is inactive.
The client could not add the specified item to the group.

Data Types Description
The OPC Quick Client supports the data types listed in the table below. Their default description is determined by the OPC server.

<table>
<thead>
<tr>
<th>Native</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boolean</td>
<td>Single bit</td>
</tr>
<tr>
<td>Boolean Array</td>
<td>Single bit array</td>
</tr>
<tr>
<td>Char</td>
<td>Signed 8-bit value</td>
</tr>
<tr>
<td>Char Array</td>
<td>Signed 8-bit value array</td>
</tr>
<tr>
<td>Byte</td>
<td>Unsigned 8-bit value</td>
</tr>
<tr>
<td>Byte Array</td>
<td>Unsigned 8-bit value array</td>
</tr>
<tr>
<td>Short</td>
<td>Signed 16-bit value</td>
</tr>
<tr>
<td>Short Array</td>
<td>Signed 16-bit value array</td>
</tr>
<tr>
<td>Word</td>
<td>Unsigned 16-bit value</td>
</tr>
<tr>
<td>Word Array</td>
<td>Unsigned 16-bit value array</td>
</tr>
<tr>
<td>Long</td>
<td>Signed 32-bit value</td>
</tr>
<tr>
<td>Long Array</td>
<td>Signed 32-bit value array</td>
</tr>
<tr>
<td>DWord</td>
<td>Unsigned 32-bit value</td>
</tr>
<tr>
<td>DWord Array</td>
<td>Unsigned 32-bit value array</td>
</tr>
<tr>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>LLong</td>
<td>Signed 64-bit value</td>
</tr>
<tr>
<td>LLong Array</td>
<td>Signed 64-bit value array</td>
</tr>
<tr>
<td>QWord</td>
<td>Unsigned 64-bit value</td>
</tr>
<tr>
<td>QWord Array</td>
<td>Unsigned 64-bit value array</td>
</tr>
<tr>
<td>Float</td>
<td>Single precision floating-point value (32 bits)*</td>
</tr>
<tr>
<td>Float Array</td>
<td>Single precision floating-point value array*</td>
</tr>
<tr>
<td>Double</td>
<td>Double precision floating-point value (64 bits)*</td>
</tr>
<tr>
<td>Double Array</td>
<td>Double precision floating-point value array*</td>
</tr>
<tr>
<td>String</td>
<td>Zero-terminated character array</td>
</tr>
<tr>
<td>String Array</td>
<td>Zero-terminated string array</td>
</tr>
<tr>
<td>Date</td>
<td>YYYY-MM-DDThh:mm:ss.000</td>
</tr>
</tbody>
</table>

*When a floating-point value is Infinite, Indeterminate, or NaN, the following is displayed in the Value column of its Item Properties:

- 1.#INF
- -1.#INF
- -1.#IND
- 1.#QNAN
- -1.#QNAN

**Note:** By default, the Quick Client rounds the displayed value of Float data types after the second decimal place and Double data types after the fifth decimal place. To view the full, un-rounded value, go to **Tools | Options...** and check the option to display **Hexadecimal** values for Floats.

**See Also:** **Options** and **Items**.

### Operations

The OPC Quick Client performs operations on an OPC server at the Server, Group, and Item level. This allows users to test the functionality of an OPC server.

#### Server Operations

**Connect**

To establish a connection to the server, click **Tools | Server** and then select **Connect**. All groups and items will be added.

**Disconnect**

To disconnect from the server, click **Tools | Server** and then select **Disconnect**.

**Reconnect**

To re-establish a connection to the server, click **Tools | Server** and then select **Reconnect**.

**Get Error String**

To obtain an error description for any valid error codes, click **Tools | Server** and then select **Get Error String**.
Note: To request an error description from the server, enter the error code and then press **Apply**. If the server can translate the error code, the description will appear. An OPC server should be able to translate any OPC error code, in addition to Win32 errors.

This operation tests the following server functionality: IOPCServer::GetErrorString().

**Enumerate Groups**

To enumerate groups available to the server connection, click **Tools** | **Server** and then select **Enumerate Groups**.

Note: The server can be requested to enumerate groups by name or by object. When enumerating by name, the server passes back an enumeration of strings each containing the name of a group. When enumerating by object, the server passes back an enumeration of group interface pointers (IUnknown), which the client can make use of by querying for other interfaces. Either way, the client uses both mechanisms to obtain the same results: a list of group names along with the properties of each group. The client can request that only private groups (groups this client added to the server connection), public groups (groups that may have been added by another client, but are made available) or all groups be enumerated.
This operation tests the following server functionality: IOPCServer::CreateGroupEnumerator(), IOPCServer::GetGroupByName(), IOPCGroupStateMgt::GetState().

Get Group By Name
To obtain group properties by name, click Tools | Server and then select Get Group By Name.

Auto Create Tags
To automatically create tags from the connected OPC server, click Tools | Server and then select Auto Create Tags. For more information, refer to Options.

Group Operations
Clone Group
To clone the selected group, click Tools | Group and then select Clone Group. The OPC server should create a new group with a unique name and with identical properties to the group that is being cloned. If the cloned group contains items, those items should also be cloned. The state of the cloned group and items should be set to inactive.

Asynchronous Refresh (Cache / Device)
To perform an asynchronous refresh from cache / device on the selected items, click Tools | Group and then select Asynchronous 1.0/2.0 Cache Refresh or Asynchronous 1.0/2.0 Device Refresh. Refreshes done using 1.0 use IAdviseSink to return refresh notifications. Refreshes done using 2.0 use connection points to exchange data between client and server.
Item Operations

Set Active / Inactive
To activate / inactivate the selected item(s), click Tools | Item and then select Set Active | Inactive. Only active items should receive on data change updates.

Note: The group must be set to active.

Synchronous Read (Cache / Device)
To perform a synchronous read from the cache / device on the selected items, click Tools | Item and then select Synchronous Cache Read or Synchronous Device Read.

Asynchronous Read (Cache / Device)
To perform an asynchronous read from the cache / device on the selected items, click Tools | Item and then select Asynchronous 1.0/2.0 Cache Read or Asynchronous 1.0/2.0 Device Read. Reads done using 1.0 use IAdviseSink to return read complete notifications. Reads done using 2.0 use connection points to exchange data between the client and server.

Synchronous / Asynchronous Write
To perform a synchronous / asynchronous write on the selected items, click Tools | Item and then select Synchronous Write or Asynchronous 1.0/2.0 Write.

Note: Both types of writes utilize the same dialog. The dialog displays the current value at a 100 millisecond refresh rate. To send the data to the server, enter the data to write in the Write Value column and then press Apply. To apply the write and close the dialog, click OK. To abort the operation, click Cancel.
Options

The OPC Quick Client is used to configure many settings. To open the Options dialog, click Tools | Options.

Automatically Build a Client Project When Launched by the Server: When checked, the OPC Quick Client will automatically build a client project with all the tags in the OPC server when it is launched from the OPC server. The default setting is checked.

Ignore Browse Paths Containing Leading Underscores When Auto-Building: When checked, items that belong to browse path segments beginning with an underscore will not be included in automatically built projects. These paths may include system or internal device tags. The default setting is unchecked (all available items will be included in the project).

Prompt to Save Project on Exit: When checked, users will be prompted to save the project before exiting the application. The default setting is checked.

Default Group Update Rate (ms): This parameter specifies the default update rate for automatically generated groups. The update rate determines how often the OPC server will provide updates for changing data. The default setting is 1000 milliseconds. For more information, refer to Group.

Auto-Generated Group Name Depth: This field specifies the depth level for names of automatically generated groups. The default setting is 3. For more information, refer to “Group Name Depth” below.

Show hexadecimal value for floating point numbers: When enabled, this option will affect how floating point numbers are displayed and written.

- In terms of display, this option causes Float or Double data types to display the floating point number in addition to the hexadecimal value. For example, “12.34 (0x414570A4)”.
- In terms of writing, this option allows hexadecimal values to be written for Float and Double data types. The hexadecimal value should be in the form “0x123456789ABCDEF1” for Floats (8 digits) and “0x123456789ABCDEF123456789ABCDEF” for Doubles (16 digits). Inputs that are not in a hexadecimal format will be treated as normal floating point inputs.

Use DCOM for remote security: When checked, the OPC Quick Client, opens on next launch with system-level DCOM security settings. When unchecked, the OPC Quick Client opens with “wide-open” DCOM security settings. The default is unchecked.
Note: This option will also increase the Floating Point Precision to 17.

**Group Name Depth**

The higher the group name depth, the more sub-groups that will be created. For example, tags structured like "Channel1.Device1.Tag1" and "Channel1.Device1.Group1.Tag1" in OPC server will be added differently in OPC Quick Client depending on the Group Name depth setting.

<table>
<thead>
<tr>
<th>Depth Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The group &quot;Channel1&quot; (name depth: 1) will be created. Both tags will be added to this group.</td>
</tr>
<tr>
<td>2</td>
<td>The group &quot;Channel1.Device1&quot; (name depth: 2) will be created. Both tags will be added to this group.</td>
</tr>
<tr>
<td>3</td>
<td>The group &quot;Channel1.Device1&quot; (name depth: 3. Tag names do not form a part of the group name) will be created. The tag &quot;Channel1.Device1.Tag1&quot; will be added to this group. The group &quot;Channel1.Device1.Group1&quot; (name depth: 3) will be created. The tag &quot;Channel1.Device1.Group1.Tag1&quot; will be added to this group.</td>
</tr>
</tbody>
</table>

Note: The maximum allowed group name depth is 3. In the example above, if there were any more sub-groups inside Group1, they would be added to the OPC Quick Client group "Channel1.Device1.Group1".
**License Agreement**

**License and Warranty**
The license and warranty refer to the OPC Quick Client provided with the OPC server. It does not refer to any other software provided by the supplier.

The OPC Quick Client Software accompanying this license agreement is the property of supplier and is protected by copyright law. A user’s rights and obligations in its use are described as follows:

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