

# Data Exchange Client Help

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# Data Exchange Client

Help version 1.002

## [Overview](#)

What is the Data Exchange Client?

## [What is OPC-DX?](#)

What is OPC Data Exchange (OPC-DX) and how does it work?

## [Creating a DX Connection](#)

How do I create a DX Connection?

## [Basic Client Components](#)

What are the Basic Client Components, and how can I add, modify and delete source servers and DX connections?

## **Overview**

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OPC Data Exchange (OPC-DX) is a standard that builds upon the existing OPC Data Access (OPC-DA) standard. OPC-DA provides interfaces that allow for the transfer of data between an OPC-DA server and an OPC-DA client. Typically, OPC-DA clients subscribe to one or more OPC-DA servers to acquire data, and OPC-DA servers provide data to one or more OPC-DA clients. OPC-DA was largely accepted by the market, and end-users soon demanded the ability to share data between clients and servers as well as between one or more servers. Several companies developed a bridging technology in which the middleware acted as a client to one or more servers and used standard OPC-DA to read data from one server (source server) and write the data to another server (target server). This created what is now referred to as a **Connection**.

The solution had two main issues. The middleware added a new point-of-failure in the communications system, because it was yet another component that the end-user must maintain and diagnose when errors occurred. Furthermore, the end-user was forced to adhere to the middleware supplier's configuration interface. OPC-DX was created to address these needs.

OPC-DX defines two key components: how an OPC-DX server (target) should acquire data from a source server and how to configure one or more connections within an OPC-DX server.

1. The OPC-DX server acquires data from a source server by embedding the appropriate OPC-DA client functionality inside an OPC-DA server. This eliminates the middleware component as a runtime dependency.
2. One or more connections are configured within an OPC-DX server by defining the standard interfaces that the Data Exchange Client adopts. This allows users to configure one or more OPC-DX servers.

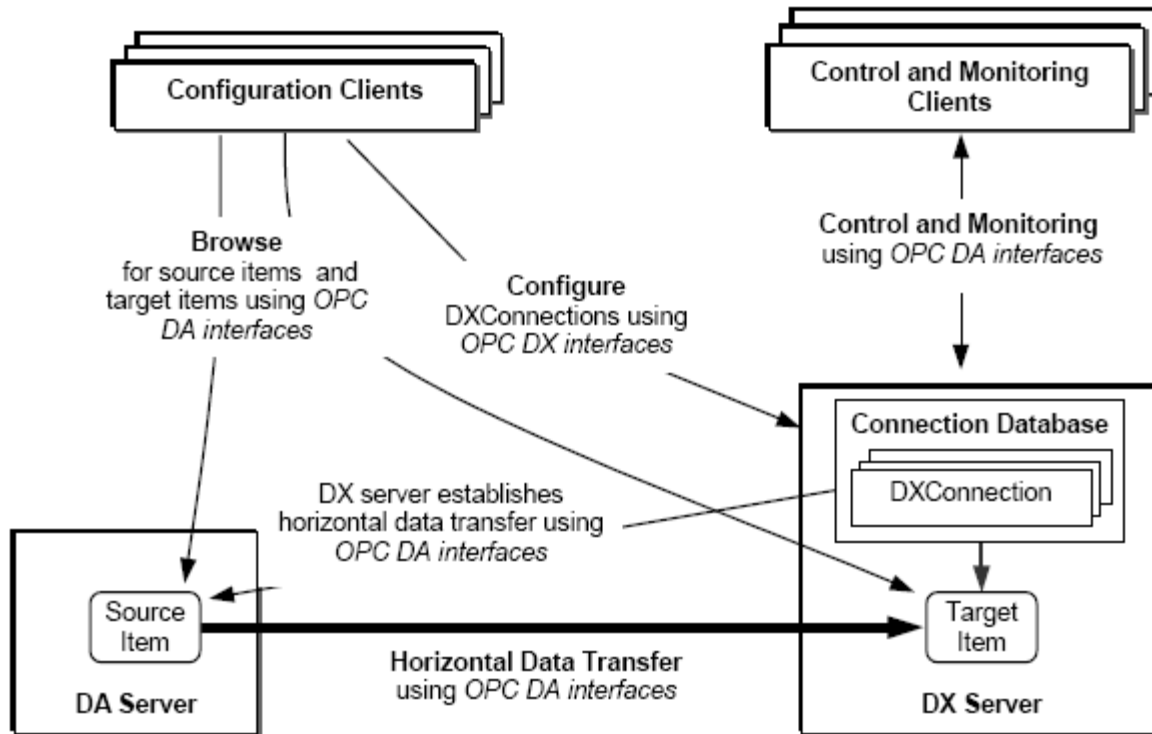
## **What is OPC-DX?**

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OPC Data Exchange (OPC-DX) provides for non-time critical horizontal transfers of data from a source server to an OPC-DX target server. The source server (which can be any OPC-DA or OPC-DX server) provides its source data through standard OPC-DA items.

OPC-DX defines the data transfer from the source item to a target item (which is contained in the target server). This link between source and target is referred to as a **DX Connection**. A DX connection is configured by OPC-DX clients using OPC-DX specific services.

**Note:** OPC-DX also defines related OPC-DA items that clients can use to control and monitor connections using OPC-DA interfaces. For more information, refer to the OPC-DX architecture illustration below.



Configuration clients, such as the Data Exchange Client, use OPC-DA interfaces to browse DA/DX servers for source and target items. Target items always reside in the DX server. Source items may reside in DA or DX servers, including the target DX server. The configuration client selects the source and target items and uses them to define DX connections. DX connections are defined in terms of attributes that identify the source and target items, characterize the data transfer between them, and provide additional descriptive information about the DX connection. The DX server stores its connections in a DX database, which is accessible through the DX server address space.

**Note:** The DX server periodically continues its database for use when restarting.

Any DA client is able to browse the database in the DX server using standard DA browse interfaces. The DX server allows clients to define the browse structure for connections using the concept of a **Browse Path**. This is the path used when browsing the interface to reach the DX connection. Branches within the browse path represent logical groupings of DX connections. Clients can define more than one browse path for each connection, thus enabling connections to belong to more than one logical grouping. The DX database also contains a list of **Source Servers**, which are DA or DX servers that contains source items. Each source server entry in the database specifies the address of the source server and the type of interface used by the DX server to access it. An example of a source service entry would be DA 2.05.

### Connections and Source Servers

OPC-DX's specific services may be used concurrently by configuration clients to configure and maintain connection and source server definitions in the database. Clients may use these services to operate on source servers and connections. Connection and source server definitions are assigned a unique version with each modification, so that operations made on the same connection or source server by multiple clients can be handled appropriately. Connections and source servers become operational when they are added, independent of whether or not the client that created them remains connected to the DX server. This means that the configuration client is not required by the runtime component of OPC-DX.

Connections and source servers remain defined in the DX server until a client explicitly removes them. They also have configurable default attributes that define whether or not data transfer is to be enabled when they become operational.

When access to a source server is disabled, the DX server cannot be connected to it. In this case, none of the DX connections and source items may access data from the source server. Once a connection is configured and enabled for data transfer, the DX server accesses the source server to acquire the value of its source item. The DX server updates the target value after performing any necessary conversions, transformations, substitutions or manual overrides.

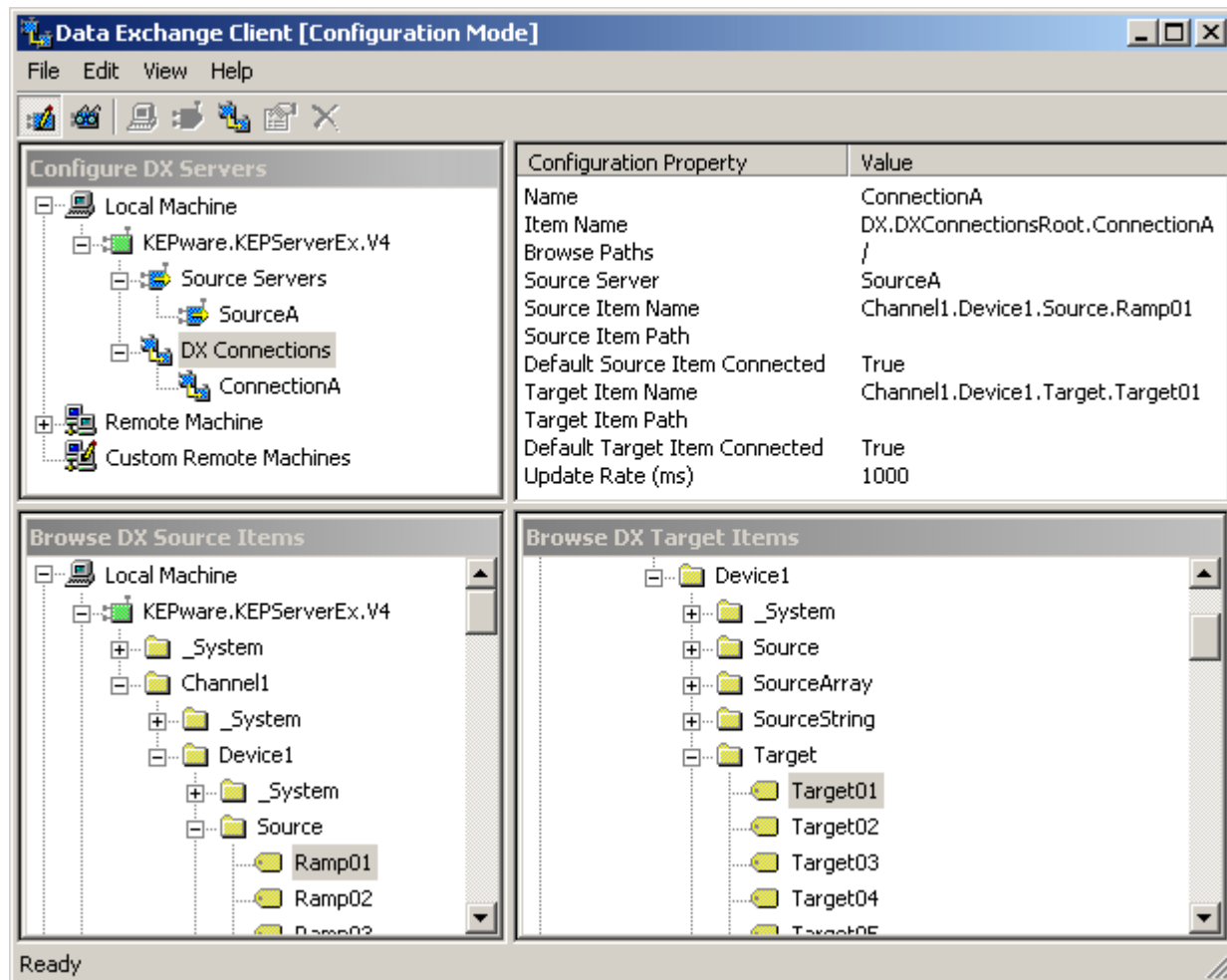
**Note:** For more information on OPC-DX, refer to the latest OPC-DX specification available to members through the OPC Foundation web site <http://www.opcfoundation.org>.

## Creating a DX Connection

To create a DX connection, drag an item from the **Browse DX Source Items** window and drop it onto an item in **Browse DX Target Items**. For more information, refer to [DX Connection](#).

## Basic Client Components

The Data Exchange Client main window lets users browse DX server configurations, DX source items and DX target items. It provides the interface for adding, modifying and deleting source servers and DX connections.



## Main Window

### Configure DX Servers

This area is used to browse for available DX servers. It also provides access to the configuration and monitoring of the DX servers. To connect to a DX server, double-click on it.

- In Configuration Mode, users can view, add, modify or delete Source Servers and DX Connections attached to the DX Server.

- In Monitor Mode, users can view the status of a source server or DX Connection.

### Browse DX Source Items

This area is used to browse the address space of DA and DX servers for items that will provide the source data for DX Connections.

### Browse DX Target Items

This area is used to browse the address space of the DX servers for target items that will be assigned to a DX Connection.

**See Also:** [DX Connections](#) and [Source Server](#).

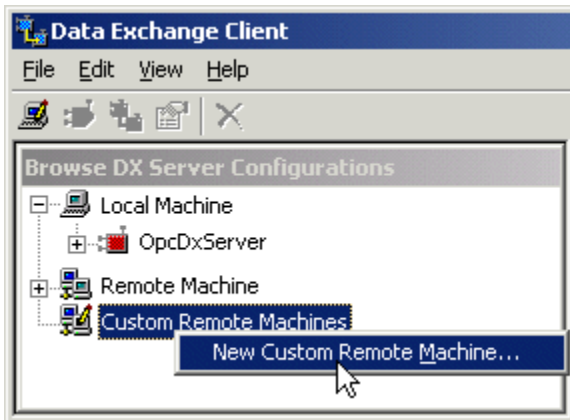
## Custom Remote Machine

A Custom Remote Machine is defined by its name or IP address. Users can add entries to the **Custom Remote Machines** branch in any of the child windows in order to simplify the network browse hierarchy. This is also helpful for machines that are not available through Windows network browsing.

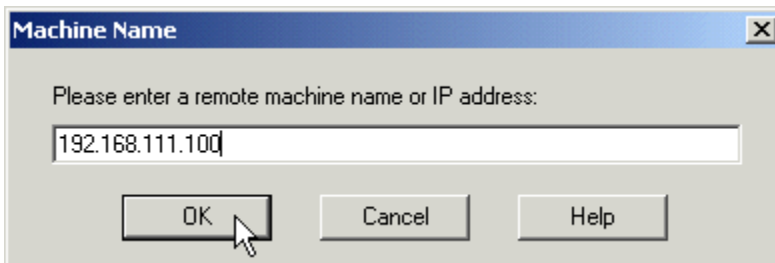
### Creating a New Custom Remote Machine

For information on creating a new custom machine, follow the instructions below.

1. Right-click on the **Custom Remote Machines** branch in any of the child windows. Then, select **New Custom Remote Machine** to invoke the **Machine Name** dialog.



2. Next, enter the name or IP address of the machine to which the **Custom Remote Machine** branch will be added.



3. The custom machine may now connect to the server.

### Deleting a Custom Remote Machine

To delete a custom remote machine, select the desired machine and then press the **DEL** key. Alternatively, select **Edit | Delete** from the Edit Menu or tool bar.

## Source Server

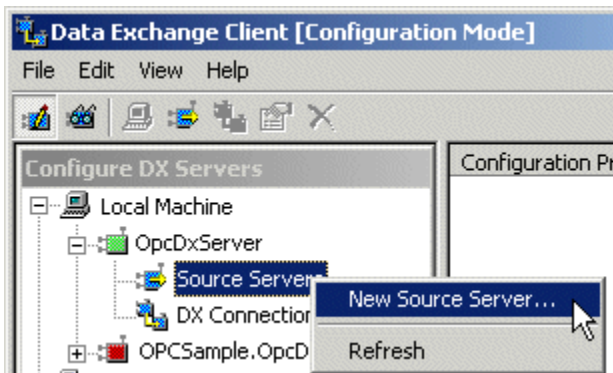
A source server is defined as an OPC-DA or OPC-DX server that contains source items. A DX server requires that a source server be defined for all servers that will provide source items to one or more DX connections.

**Note:** A source server's configuration properties can only be viewed, added to, modified or deleted in Configuration Mode.

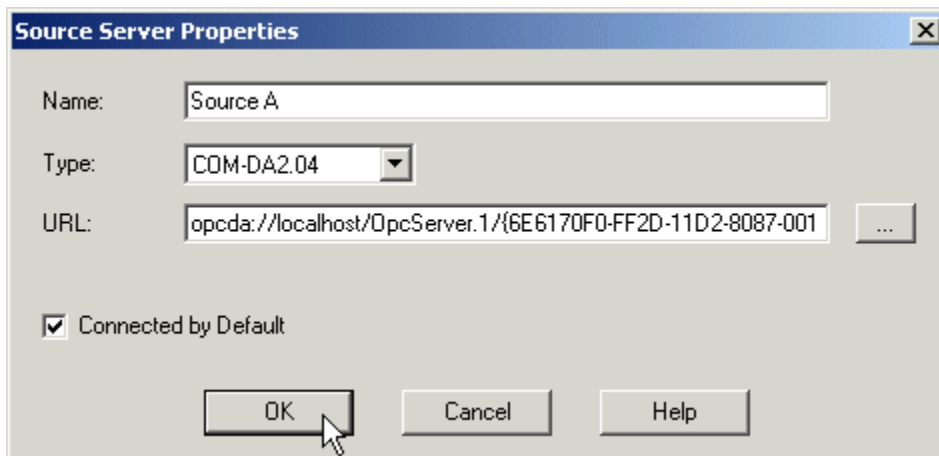
### Adding a Source Server

For information on adding a source server, follow the instructions below.

1. In the **Configure DX Servers** window, expand the DX server to expose the **Source Servers** branch.
2. Next, right-click on the **Source Servers** branch and then select **New Source Server**. This will invoke the **Source Server Properties** dialog.



**Note:** The Source Server Properties dialog is used to name the source connection, to select the type of connection the DX server should make when connecting to that source server, and to select the URL for the source server.



Descriptions of the Source Server Properties are as follows.

- **Name:** This parameter is used to enter a name that aliases the underlying source server. This name will be used a DX connection is defined. It must be unique within any given DX server configuration.
- **Type:** This parameter identifies the type of interface that will be used to access the source server. The interface types identified by this attribute must be included in the DX server's supported types. The default setting COM-DA 2.04 is recommended.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.SourceServers.[Source Server Name].ServerType*.

- **URL:** This configuration attribute provides the DX server with a fully qualified connection path to the source

server. To have this attribute configured automatically, browse for a source server by using the browse button.

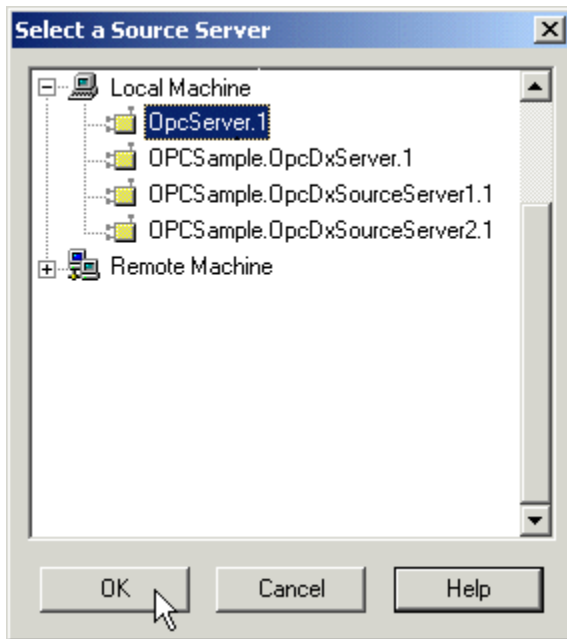
- **Connected by Default:** This setting corresponds to the default connection state of the source server upon start up or re-initialization of the OPC DX server.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.SourceServers.[Source Server Name].DefaultSourceServerConnected*.

### Browsing for a Source Server

For information on browsing for a source server, follow the instructions below.

1. Select the browse button. This is located to the right of the URL edit box in **Source Server Properties**.
2. Next, browse for and select a source server on the Local or any Remote Machine.



3. Once selected, click **OK**.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.SourceServers.[Source Server Name].ServerURL*.

### Modify Source Server

To modify a source server, select the source server and then press the **ENTER** key. Alternatively, select **Edit | Properties** from the Edit Menu or tool bar. This will invoke the **Source Server Properties** dialog. Modify the source server as desired and then click **OK** to accept the changes.

### Delete Source Server

To delete a source server, select the desired source server and then press the **DEL** key. Alternatively, select **Edit | Delete** from the Edit Menu or tool bar.

**Note:** A source server can only be deleted if there are no DX connections referencing it.

### DX Connections

DX Connections define how an OPC-DX server should retrieve data from a particular source item and then write it to a target item. The source item may reside in any OPC-DA or OPC-DX server, including the target DX server. The target always resides with the OPC-DX server that owns the connection.

**Note:** A DX connection's configuration properties can only be viewed, added to, modified or deleted in Configuration Mode.

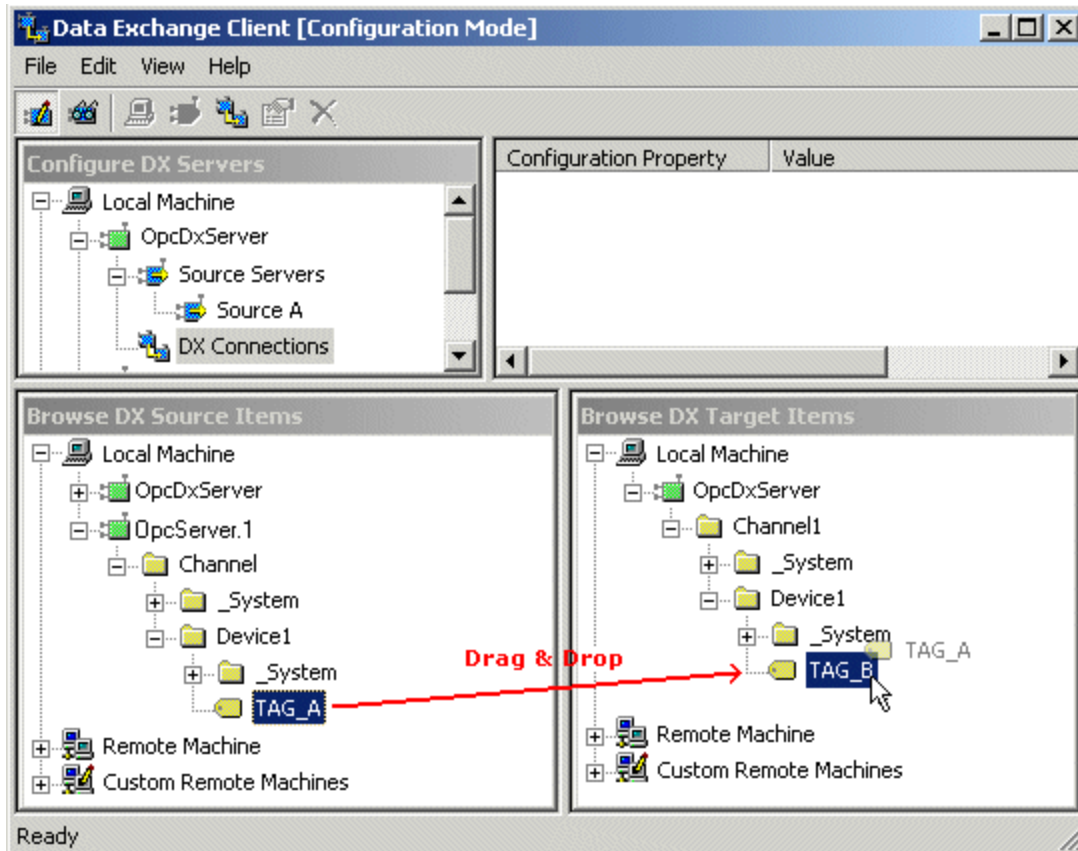


## Adding a DX Connection

To add a DX connection, users first must configure a source server. Then, the Data Exchange Client can add a DX connection through **Drag and Drop** or **Manually**. For more information on configuring a source server, refer to [Source Server](#).

### Drag and Drop

1. To add a DX connection using drag and drop, first select a source item in the **Browse DX Source Items** window.
2. Next, drop the source item on a target item in the **Browse DX Target Item** window, as shown below.



3. After the source item has been dropped, the **Connection Properties** dialog will be displayed.

**Note:** By default, the source server, source item and target item fields will be filled in from information gathered during the drag and drop operation.

4. At this point, users can choose to modify other connection properties. When finished, select **OK**.

### Manually Adding a Connection

1. To add a DX connection manually, first select the DX server in the **Configure DX Servers** window.
2. Next, right-click on the DX server and select **New Connection...**

**Note:** Manual mode requires that all connection properties be previously specified.

### Connection Properties

Descriptions of the connection properties are shown below.

- **Connection Name:** This parameter is the user-defined name assigned to the particular DX connection. It must be unique within the DX server's connection database.
- **Browse Paths:** This parameter defines the branch or branches of a DX connection, and allows users to create logical groupings for DX connections. More than one browse path can be defined using a comma delimiter. For example, /DeviceA, /DeviceB/Area1.
- **Source Server:** This parameter is used to select the previously defined source server (which contains the source item being attached to this connection).

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].SourceServerName*.

- **Source Item Path:** This parameter defines the item path for the source item. It depends on the source server's requirements. For more information, refer to the source server's documentation.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX*.

*DXConnectionsRoot.[DX Connection Name].SourceItemPath.*

- **Source Item Name:** This parameter defines the source item's Item ID. It depends on the source server's requirements. For more information, refer to the source server's documentation.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].SourceItemName.*

- **Update Rate:** This parameter specifies the time interval in which the DX server should acquire source item updates and write the data to the target item. The interval is measured in milliseconds.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].UpdateRate.*

- **Deadband:** This parameter specifies the percent change in the source server item value that will cause the source server to transfer the data to the DX server. The data will then be written to the target item.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].Deadband.*

- **Source Connected By Default:** This parameter specifies whether or not the DX server should connect to the source item on startup or re-initialization of the connection. Changes to this parameter will only affect the connection upon startup or re-initialization of the DX server.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].DefaultSourceItemConnected.*

- **Target Item Path:** This parameter defines the item path for the target item. It depends on the target server's requirements. For more information, refer to the target server's documentation.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].TargetItemPath.*

- **Target Item Name:** This parameter defines the Item ID for the target item. It depends on the target server's requirements. For more information, refer to the target server's documentation.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].TargetItemName.*

- **Enable Substitute Value:** This parameter specifies whether or not the substitute value should be applied to a target item under source item error conditions.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].EnableSubstituteValue.*

- **Substitute Value:** This parameter specifies the substitute value that should be applied to a target item under source item error conditions (if **Enable substitute values** is enabled).

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].SubstituteValue.*

- **Override Target by Default:** This parameter specifies whether or not the override value should be applied to a target item on startup or re-initialization of the DX connection. Changes to this parameter will only affect the connection upon startup or re-initialization of the DX server.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].DefaultOverridden.*

- **Default Override Value:** This parameter specifies the default override value that should be applied to a target item on startup or re-initialization of the DX connection. Changes to this parameter will only affect the connection upon startup or re-initialization of the DX server.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].DefaultOverrideValue*.

- **Target Connected By Default:** This parameter corresponds to the target item's default DX connection state. This dialogue setting will only take effect upon creation of the DX connection or on re-start or re-initialization of the OPC DX server. Changes to this parameter will only affect the connection upon startup or re-initialization of the DX server.

**Note:** This property's Read Only value is available to OPC-DA clients through the following Item ID: *DX.DXConnectionsRoot.[DX Connection Name].DefaultTargetItemConnected*.

### Modifying a DX Connection

To modify a DX connection, select the connection and then press the **ENTER** key. Alternatively, select **Edit | Properties** from the Edit Menu or tool bar. This will invoke the **Connection Properties** dialog. Next, modify the connection as desired. To accept the changes, click **OK**.

### Deleting a DX Connection

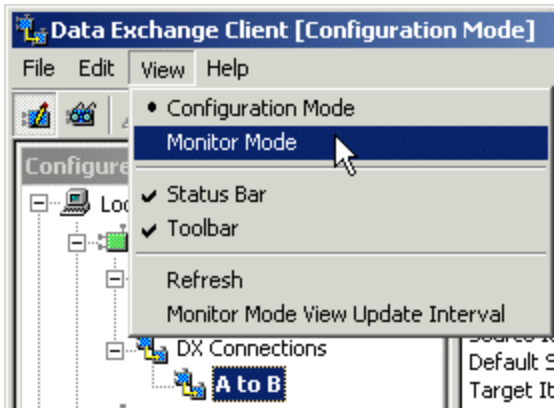
To delete a DX connection, select the desired connection and then press the **DEL** key. Alternatively, select **Edit | Delete** from the Edit Menu or tool bar.

## Configuration vs Monitor Mode

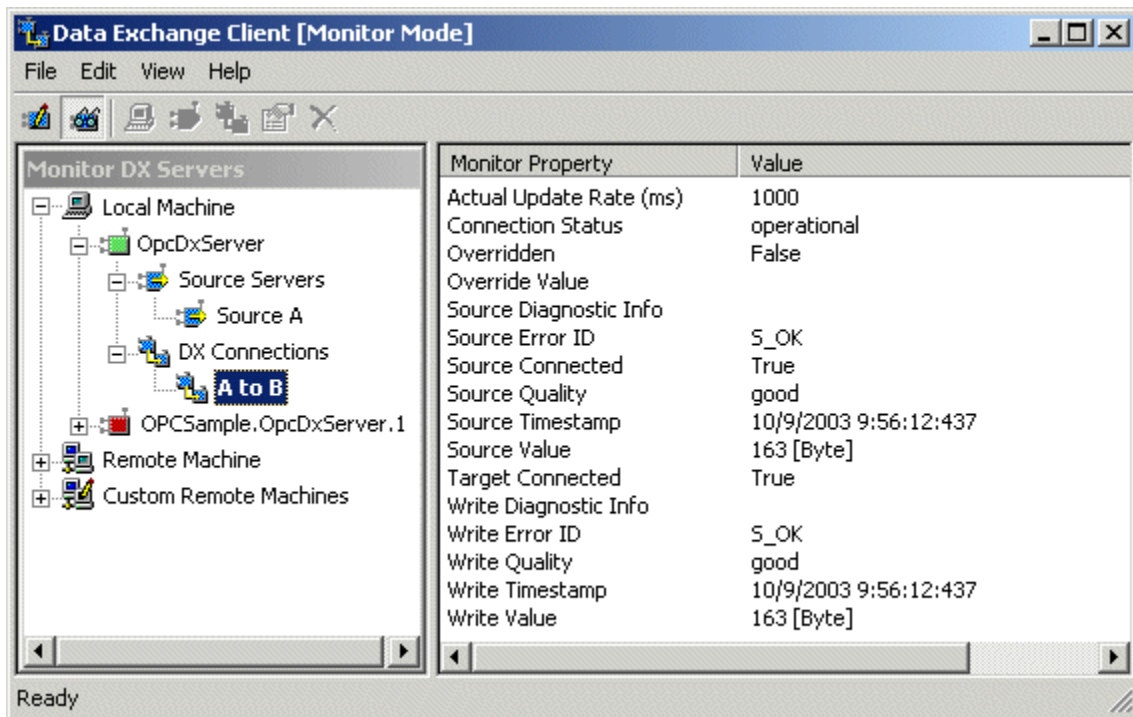
**Configuration Mode** is used to view the configuration parameters of a DX server, source server or DX connection that exists in an OPC-DX server. In this mode, users can add, modify and delete the source server and DX connections within a server. **Monitor Mode** is used to view the runtime parameters of a DX server, source server or DX connection that exists in an OPC-DX server.

For information on toggling between Configuration and Monitor mode, follow the instructions below.

1. Click **View** and then select **Monitor Mode** from the drop-down menu.



2. Next, select the DX server, source server or connection that will be monitored. The selected object's status parameters will be displayed in the **Monitor Property** window.



OPC-DX servers expose a number of OPC-DA items to allow any DA client to monitor (and in some cases control) DX servers, source servers and DX connections. A complete list of available DA items is listed below.

### DX Server Items

| Item ID                           | Description   |
|-----------------------------------|---|
| DX.ServerStatus.DirtyFlag         | Read Only Boolean value that indicates whether or not the the latest configuration has been persisted by the DX server.<br><br>If the value is FALSE, the configuration is persisted. If the value is TRUE, the configuration has changes that have not been currently persisted. The DX server will set this value to FALSE to upon persisting the latest configuration. |
| DX.ServerStatus.DXConnectionCount | Read Only unsigned Integer Value that indicates the number of currently configured connections in the DX server.  |
| DX.ServerStatus.ErrorDiagnostic   | Read Only String value that gives vendor specific additional data regarding the current Error ID.   |
| DX.ServerStatus.ErrorID           | Read Only Integer Value that indicates the highest severity error currently encountered in the DX server. A negative value indicates an error.  |
| DX.ServerStatus.MaxDXConnections  | Read Only unsigned Integer Value that indicates the maximum number of connections supported by the DX server. If the server is only limited by system resources this value is set to 0xFFFFFFFF.  |
| DX.ServerStatus.MaxQueueSize      | Read Only unsigned Integer Value that represents the maximum number of source item updates the DX server will cache when source updates occur at a rate faster than can be written to the target. A value of 1 indicates that only the last source update will be written to the target.  |
| DX.ServerStatus.ServerState       | Read Only String value that indicates the current state of the DX server. The valid server states are as follows:<br><br>1. Running: server is running normally.<br>2. Failed: vendor specific error has occurred.  |

|                                   |  |
|-----------------------------------|--|
|                                   | <p>3. NoConfig: The DX server is running, but there is no configuration and thus no data to transfer.</p> <p>4. Suspended: The DX server is not currently servicing data transfers.</p> <p>5. Shutdown: The DX server is currently in the process of shutting down.</p> <p>6. Test: The DX server is in test mode, source and/or target items may be simulated.</p> <p>7. CommFault: The DX server is running, but is having problems communicating with its data sources.</p> |
| DX.ServerStatus.SourceServerTypes | Read Only String array that lists the types of connections the DX server supports for connecting to source servers (e.g., COM-DA2.05).   |

### Source Server Items

| Item ID   | Description   |
|---|---|
| DX.SourceServers.[ServerName].DefaultSourceServerConnected    | <p>Read Only Boolean (as defined in a Configuration Client) that indicates whether or not the DX server should connect to this source server on startup or re-initialization.</p> <p>If the value is FALSE, the DX server will not connect to the source server on startup or re-initialization. If the value is TRUE, the DX server will connect to the source server on startup or re-initialization.</p>   |
| DX.SourceServers.[ServerName].Description                     | Read Only String(as defined in a Configuration Client) that contains the description text for this source server.   |
| DX.SourceServers.[ServerName].ServerType                      | Read Only String(as defined in a Configuration Client) that contains type of interface that should be used when accessing the source server.  |
| DX.SourceServers.[ServerName].ServerURL                       | Read Only String (as defined in a Configuration Client) that provides the necessary information required for the DX server to make a connection to the source server. The URL depends on the ServerType. Its setting can be modified through a Configuration Client.  |
| DX.SourceServers.[ServerName].Status.ConnectFailCount         | Read Only unsigned Integer Value that indicates the number of failed attempts to connect to the source server.  |
| DX.SourceServers.[ServerName].Status.ConnectStatus            | <p>Read Only String that indicates the connection state to the source server. The valid connection states are as follows:</p> <ol style="list-style-type: none"> <li>1. Connected: The DX server is connected to the source server.</li> <li>2. Disconnected: The DX server is not connected to the source server.</li> <li>3. Connecting: The DX server is in the process of connecting to the source server.</li> <li>4. Failed: The DX server was unable to connect to the source server.</li> </ol> |
| DX.SourceServers.[ServerName].Status.ErrorDiagnostic          | Read Only String value that gives vendor specific additional data regarding the current Error ID.   |
| DX.SourceServers.[ServerName].Status.ErrorID                  | Read Only Integer Value that indicates the highest severity error currently encountered in connecting to the source server. A negative value indicates an error.  |
| DX.SourceServers.[ServerName].Status.LastConnectFailTimestamp | Read Only Date value that indicates the last time the DX server was unable to connect to the source server.   |
| DX.SourceServers.[ServerName].Status.LastConnectTimestamp     | Read Only Date value that indicates the last time the DX server connected to the source server.   |
| DX.SourceServers.[ServerName].Status.LastDataChangeTimestamp  | Read Only Date value that indicates the last time the DX server received a source item update from the source server.   |
| DX.SourceServers.[ServerName].Status.PingTime                 | Read Only unsigned Integer Value that indicates the current time in milliseconds that DX server is 'pinging' the source server to determine that it is still available. The ping time is calculated by  |

|  |  |
|--|--|
|  | the DX server as 3 times the smallest actual update rate of a DX connection, where the DX connection source item belongs to the source server. If this calculation is less than 2 seconds, than the ping time may be set to 2 seconds by the DX server.  |
| DX.SourceServers.[ServerName].Status.SourceServerConnected | <p>Read/Write Boolean value that indicates whether or not the DX server should hold a connection to the source server. On startup or re-initialization, the DX server copies the DefaultSourceServerConnected value to this parameter. Any DA client can write to this item to 'control' the connection to the source server.</p> <p>If this value is FALSE, then the DX server will be disconnected from the source server. If this value is TRUE, then the DX server will be connected to the source server.</p> |

### DX Connection Items

| ItemID  | Description   |
|---|---|
| DX.DXConnectionRoot.[ConnectionName].Deadband                   | Read Only floating point value (as defined in a Configuration Client) that indicates the percent change in source item data that will trigger an update to be written to the target.  |
| DX.DXConnectionRoot.ConnectionName].DefaultOverridden           | <p>Read Only Boolean value (as defined in a Configuration Client) that indicates whether or not the DX server should override the target item value with the override value on startup or re-initialization.</p> <p>If the value if FALSE, the target item will not be overridden on startup or re-initialization. If the value if TRUE, the target item will be overridden on startup or re-initialization.</p>  |
| DX.DXConnectionRoot.[ConnectionName].DefaultOverrideValue       | Read Only value (as defined in a Configuration Client) that the target item will be set to if it is overridden, on startup or re-initialization.  |
| DX.DXConnectionRoot.[ConnectionName].DefaultSourceItemConnected | <p>Read Only Boolean value (as defined in a Configuration Client) that indicates whether or not the DX server should subscribe to this source item on startup or re-initialization.</p> <p>If the value is FALSE, the DX server will not subscribe to the source item on startup or re-initialization. If the value is TRUE, the DX server will subscribe to the source item on startup or re-initialization.</p> |
| DX.DXConnectionRoot.[ConnectionName].DefaultTargetItemConnected | <p>Read Only Boolean value (as defined in a Configuration Client) that indicates whether or not the DX server should connect to this target item on startup or re-initialization.</p> <p>If the value is FALSE, the DX server will not connect to the target item on startup or re-initialization. If the value is TRUE, the DX server will connect to the target item on startup or re-initialization.</p>       |
| DX.DXConnectionRoot.[ConnectionName].Description                | Read Only String value (as defined in a Configuration Client) that contains the description text for the DX connection.   |
| DX.DXConnectionRoot.[ConnectionName].EnableSubstituteValue      | <p>Read Only Boolean value (as defined in a Configuration Client) that indicates whether or not the target item will be set to a substitute value if there is an error associated with the source.</p> <p>If the value is FALSE, the target item will not be substituted on source error. If the value is TRUE, the target item will contain the substitute on source error.</p>                                  |
| DX.DXConnectionRoot.[ConnectionName].QueueSize                  | Read Only unsigned Integer Value (as defined by the Configuration Client) that indicates the number of source item updates to queue when receiving source item updates faster than can be written to the target.  |
| DX.DXConnectionRoot.[ConnectionName].SourceItemName             | Read Only String value (as defined in a Configuration Client) that contains the fully qualified item name for the source item.  |

|   |  |
|---|--|
| DX.DXConnectionRoot.[ConnectionName].SourceItemPath               | Read Only String value (as defined in a Configuration Client) that contains the fully qualified item path for the source item.   |
| DX.DXConnectionRoot.[ConnectionName].SourceServerName             | Read Only String value (as defined in a Configuration Client) that contains the name of the source server assigned to the connection.  |
| DX.DXConnectionRoot.[ConnectionName].Status.ActualUpdateRate      | Read Only unsigned Integer Value that indicates the actual rate in milliseconds at which the DX server obtains source item updates and write the data to the target. This may differ from the requested update rate, if the requested update rate is not supported by the server.  |
| DX.DXConnectionRoot.[ConnectionName].Status.DXConnectionState     | Read Only String value that indicates the current state of the DX connection. The valid server states are as follows:<br><br><ol style="list-style-type: none"> <li>1. Initializing: Connection is initializing or reinitializing.</li> <li>2. Operational: Connection is running normally.</li> <li>3. Deactivate: Connection to source item data has been terminated or never initiated.</li> <li>4. SourceServerNotConnected: Connection to source item is not established.</li> <li>5. SubscriptionFailed: Connection to source item has failed.</li> <li>6. TargetItemNotFound: Target item could not be located in the DX server.</li> </ol> |
| DX.DXConnectionRoot.[ConnectionName].Status.Overridden            | Read/Write Boolean value that indicates whether or not the DX server should override the target item value with the OverrideValue. On startup or re-initialization, the DX server copies the DefaultOverridden value to this parameter. Any DA client can write to this item to 'control' the override state of the target item.<br><br>If this value is FALSE, then the DX server will be not override the target item value. If this value is TRUE, then the DX server will override the target item value.  |
| DX.DXConnectionRoot.[ConnectionName].Status.OverrideValue         | Read/Write Boolean value that indicates the override value that should be applied to the target item when Overridden is set to TRUE. On startup or re-initialization, the DX server copies the DefaultOverrideValue value to this parameter. Any DA client can write to this item to 'control' the override value for the target item.   |
| DX.DXConnectionRoot.[ConnectionName].Status.QueueFlushCount       | Read Only unsigned Integer Value that indicates the number of times the source item queue has been flushed. The queue is flushed whenever a new source item update is received and the queue is currently full, or equal to MaxQueueSize.  |
| DX.DXConnectionRoot.[ConnectionName].Status.QueueHighWaterMark    | Read Only unsigned Integer Value that indicates the highest number of queued source item updates.  |
| DX.DXConnectionRoot.[ConnectionName].Status.SourceErrorDiagnostic | Read Only String value that gives vendor specific additional data regarding the current Source ErrorID.  |
| DX.DXConnectionRoot.[ConnectionName].Status.SourceErrorID         | Read Only Integer Value that indicates the highest severity error currently encountered for the source item. A negative value indicates an error.  |
| DX.DXConnectionRoot.[ConnectionName].Status.SourceItemConnected   | Read/Write Boolean value that indicates whether or not the DX server should subscribe to the source item. On startup or re-initialization, the DX server copies the DefaultSourceItem-Connected value to this parameter. Any DA client can write to this item to 'control' the subscription to the source item.<br><br>If this value is FALSE, then the DX server will be unsubscribe from the source item. If this value is TRUE, then the DX server will subscribe to the source item.   |
| DX.DXConnectionRoot.[ConnectionName].Status.SourceQuality         | Read Only signed Short value that indicates the quality of the last value received from the source.  |
| DX.DXConnectionRoot.[ConnectionName].Status.SourceTimestamp       | Read Only Date value that indicates the time of the last value received from the source.   |



|  |   |
|--|---|
| DX.DXConnectionRoot.[ConnectionName].Status.SourceValue          | Read Only value that indicates the last value received from the source.   |
| DX.DXConnectionRoot.[ConnectionName].Status.TargetItemConnected  | <p>Read/Write Boolean value that indicates whether or not the DX server should connect to the target item. On startup or re-initialization, the DX server copies the DefaultTargetItemConnected value to this parameter. Any DA client can write to this item to 'control' the connection to the target item.</p> <p>If this value is FALSE, then the DX server will be disconnect from the target item. If this value is TRUE, then the DX server will connect to the target item.</p> |
| DX.DXConnectionRoot.[ConnectionName].Status.WriteErrorDiagnostic | Read Only String value that gives vendor specific additional data regarding the current WriteErrorID.   |
| DX.DXConnectionRoot.[ConnectionName].Status.WriteErrorID         | Read Only Integer Value that indicates the highest severity error currently encountered for the target item. A negative value indicates an error.   |
| DX.DXConnectionRoot.[ConnectionName].Status.WriteQuality         | Read Only Date value that indicates the quality of the value last written to the target, regardless if the write succeeded or failed.   |
| DX.DXConnectionRoot.[ConnectionName].Status.WriteTimestamp       | Read Only Date value that indicates the time the last write to the target was sent, regardless if the write succeeded or failed.  |
| DX.DXConnectionRoot.[ConnectionName].Status.WriteValue           | Read Only value that indicates the last value that was written to the target, regardless if the write succeeded or failed.  |
| DX.DXConnectionRoot.[ConnectionName].SubstituteValue             | Read Only value (as defined in a Configuration Client) that the target item will be set to if EnableSubstituteValue is set to TRUE and there is an error associated with the source.  |
| DX.DXConnectionRoot.[ConnectionName].TargetItemName              | Read Only String value (as defined in a Configuration Client) that contains the fully qualified item name for the target item.  |
| DX.DXConnectionRoot.[ConnectionName].TargetItemPath              | Read Only String value (as defined in a Configuration Client) that contains the fully item path for the target item.  |
| DX.DXConnectionRoot.[ConnectionName].UpdateRate                  | Read Only unsigned Integer Value (as defined in a Configuration Client) that indicates the requested rate (in milliseconds_ at which the DX server should obtain source item updates and write the data to the target.  |

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