**Tech Note 300**  
Automatically Reconnecting to an Outside Data Source in Industrial Application Server

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**Problem/Issue**

Industrial Application Server has no function to automatically re-connect to disconnected I/O Servers.

**Solution 1**

Automatic re-connection to disconnected I/O Servers can be accomplished on a DIOBJECT-by-DIOBJECT basis or by simply creating a copy of the base DIOBJECT, in this case the `$DDESuiteLinkClient` object, and creating a reconnect script in it.

When you create new DIOBJECTs from this template you will automatically inherit the reconnect script.

Simply use the following script in each instance of a DIOBJECT:

```
Me.Connectionstatus <> "Connected";
```
The default Expression is:

```
<DIOBJECTNAME>.Connectionstatus <> "Connected"
```

In the above figure:

**Expression:**

```
Me.Connectionstatus <> "Connected"
```

In this example the word **me** is used so that you can create as many instances as necessary and not have to change the script. The keyword **me** will always reference the object itself.

**Trigger Type:** While True  
**Trigger Period:** 00:00:05.000000 (5 Seconds)  
**Script body:**

```
<DIOBJECTNAME>.Reconnect = 1;
```
In this example: `me.Reconnect = 1;`
This script will run every 5 seconds and try to force the DIOBJECT to reconnect to the IO Server.

**Solution 2**

To minimize the amount of network traffic generated by constant reconnect attempts to IO Sources that may be offline, simply use the solution below.

Create 6 UDAs in the parent DI Object so that they are inherited. The UDA's created should be

<table>
<thead>
<tr>
<th>UDA Name</th>
<th>Type</th>
<th>Init Value</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>AttemptCount</td>
<td>Integer</td>
<td>3</td>
<td>*</td>
</tr>
<tr>
<td>ConnAttempt</td>
<td>Integer</td>
<td>0</td>
<td>*</td>
</tr>
<tr>
<td>RetryCount</td>
<td>Integer</td>
<td>30</td>
<td>*</td>
</tr>
<tr>
<td>TotalRetries</td>
<td>Integer</td>
<td>0</td>
<td>History Extended</td>
</tr>
<tr>
<td>ConnectionCount</td>
<td>Integer</td>
<td>0</td>
<td>History Extended</td>
</tr>
<tr>
<td>DisconnectionCount</td>
<td>Integer</td>
<td>0</td>
<td>History Extended</td>
</tr>
</tbody>
</table>

Modify the script in Solution 1 to read as follows:

**Trigger Type:** While True  
**Trigger Period:** 00:00:05.000000 (5 Seconds)  
**Script body:**

```
Me.ConnAttempt = Me.ConnAttempt + 1;
If Me.ConnAttempt < Me.AttemptCount then
  Me.Reconnect = 1;
  Me.TotalRetries = Me.TotalRetries + 1;
Endif;

If Me.ConnAttempt > Me.RetryCount then
  Me.ConnAttempt = 0;
Endif;
```

This script will try and connect to the IO Source 3 times and then wait for 140 seconds and then retry the reconnect another 3 times before waiting another 140 seconds. The RetryCount can be modified to allow a longer or greater wait period depending on the trigger period and your specific reconnection needs.

Another script can also be written to help track how many connections and disconnections have taken place:

**Expression:** `Me.Connectionstatus <> "Connected";`
In this example the word me is used so that you can create as many instances as necessary and not have to change the script. The keyword me will always reference the object itself.  
**Trigger Type:** On True  
**Script body:**

```
  Me.ConnectionCount = Me.ConnectionCount + 1;
  Me.ConnAttempt = 0;
```

**Trigger Type:** On False  
**Script body:**

```
  Me.DisconnectionCount = Me.DisconnectionCount + 1;
```

The three UDAs that have been history extended can be logged to InSQL and trended to see
where any potential problems may occur. This would be useful for tuning the system and maximizing network bandwidth.

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