

Using OPC90 with OSIsoft PI

Using OPC90 with OSIsoft PI requires the following components:

1. A PI server. This may be a PI 2.x Server on VAX/VMS or a PI 3.x Enterprise Server on Windows or UNIX.
2. The OPC90 server software connected to the ABB Bailey system.
3. A PC running Windows NT or later.
4. The PI-SDK and PI-API from OSIsoft.
5. The PI-OPC Interface (PI-IN-OS-OPC-NTI) from OSIsoft.
6. The PI Interface Configuration Utility (PI-ICU) from OSIsoft. Use of the PI-ICU is optional and requires a PI server version 3.3 or higher.

Software Installation

To take advantage of the data buffering capabilities of the PI-API software, the PI Buffer Server service must be run under a user account that has access to network resources (*not* the Local System account). During installation of the PI-SDK software, the user account can be set by selecting the radio button labeled “Display additional configuration options for the PI-Buffer Server”. The user account must be a member of the local Administrators group and requires the “Log on as a Service” privilege.

PI Software Development Kit (PI-SDK) Setup version 1.3.1.247

PI-Buffer Server Configuration
PI-Buffer Server is used by data collection interface programs

No. Configure the PI-Buffer Server service later.
 Yes. Display additional configuration options for the PI-Buffer Server.

Installation of PI-Buffer Server as a Windows service requires an administrative user. Enter the Windows NT user name in the format Domain\UserName.
Use Domain="." for a user on the local machine.

NT user name: DOMAIN\username

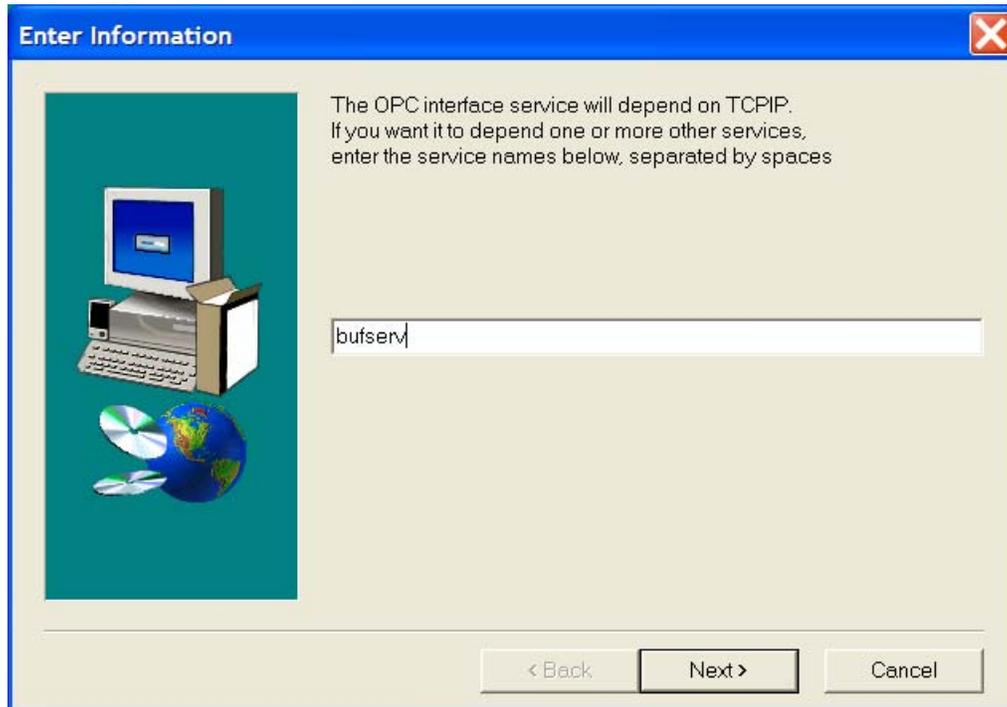
Password: xxxxxxxx

Enable PI-Buffer Server operation

If you wish to change the configuration for PI-Buffer Server, please use the PI - ICU (PI Interface Configuration Utility) or the Windows Control Panel.

< Back Next > Cancel

During installation of the PI-OPC Interface, a dependency should be set for the PI Buffer Server service (“bufserv”).



Interface Startup Batch File Settings

The interface startup batch file contains the settings required for the operation of the interface service. The name of the batch file must match the service name with “.bat” appended. For example, a service named “opcint” would read its settings from a file called “opcint.bat” located in the same folder as the executable file. The default location for the interface files is Program Files\PIPC\interfaces\opcint. See the following sample interface batch file.

```
Opcint ^
/PS=O ^
/EC=1 ^
/ID=1 ^
/SERVER=RoviSys.OPC90Server ^
/HOST=piserver:5450 ^
/MA=Y ^
/TS=N ^
/opcstopstat ^
/f=00:00:01 ^
/f=00:00:01 ^
/f=00:00:05 ^
/f=00:00:10
```

The document “OPC Interface to the PI System” distributed with the OPC interface lists the startup options for this interface. At a minimum, the startup batch file must contain the following flags:

1. /PS - Pointsource character, used to identify the tags that will be processed by the interface.
2. /ID - the unique identifier for the interface. This should be an integer number.
3. /SERVER - the name of the OPC server. Use "RoviSys.OPC90Server" for OPC90.
4. /HOST - the name of the PI server.
5. /F - Scan class frequency. At least one scan class must be specified.

DCOM Permissions and Security Settings

The computer where the OPC Interface runs requires default DCOM settings in order for data to be transferred to the interface. Run dcomcnfg on the interface node. On Windows XP and later, the Component Services MSC console will open. Find the My Computer icon under the Component Services Computers folder, right-click, and select Properties. On the Default Properties tab, make sure that the checkbox labeled "Enable Distributed COM on this computer" is checked. Set the Default Authentication Level to "Connect" and the Default Impersonation Level to "Identify".

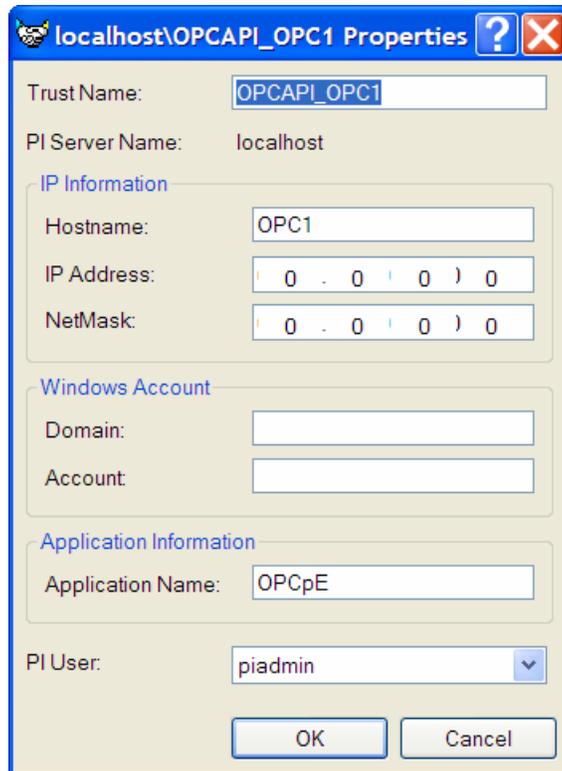
Switch to the Default COM Security tab and edit the Access Permissions to include Network, Interactive, and System. You should also add the user that the interface will run under, or add a group that the user belongs to such as Everyone. Add the same set of users to the Launch Permissions.

On the node where OPC90 runs, locate the OPC90 Server item in the DCOM Config folder under the My Computer entry. Right-click and select Properties. On the Security tab you can either leave the permissions set to "Use Default" if the default permissions contain the required groups (Network, Interactive, and System plus the interface user), or you can add the required groups to customize the permissions. On the identity tab it may be possible to leave "The launching user" selected. If you are accessing OPC90 over the network, it may be necessary to specify a user from the domain. If no domain is available, create user accounts with identical names and passwords on both machines and select that account as the DCOM identity and also as the service account for the OPC interface.

Note: when running dcomcnfg under Windows NT or Windows 2000, the server list and the My Computer properties are combined into a single panel.

PITrust for Interface Node

A PITrust must be configured on the PI server so that the interface can connect with write privileges to the PI data. The trust can be restricted by IP address and/or by hostname. If specifying the application name for API processes, use OPCpE. If restricting access by application, an additional trust will be required for the PI Buffer Server (use APIBE as the name).



PI Tag Configuration

The following PI tag attributes require specific settings relevant to the OPC interface. Interface tags should be created using the “classic” point class.

Tag Attribute	Description
PointSource	PointSource of interface - must match character specified by /PS flag of interface startup batch file. Typically, “O” is used for OPC interfaces.
Location1	Interface ID - must match /ID parameter specified in interface startup file.
Location2	Special Handling - specifies special processing of various data types. See OPC Interface manual for details. (Usually left at default of 0 for most cases).
Location3	Input or output - The following settings apply to OPC points: 0 = polled or event 1 = OPC advise processing (see note below) 2 = output 3 = watchdog (see interface failover manual) 4 = watchdog (see interface failover manual)
Location4	Scan class - corresponds to the scan periods specified by the /F flag(s) in the startup file. (See note regarding Advise tags below).
Location5	Optional dead band for advise processing. The dead band settings for Bailey/ABB are controlled at the block level, so this setting is

	not relevant when using OPC90. Leave Location5 set to 0 (default).
InstrumentTag	OPC item address. See examples below.
PointType	The data type of the PI point. Float32 is most often used for analog data, but Int16 or Int32 may be appropriate for some situations. The Digital point type requires a DigitalSet containing the desired state descriptors to be specified. Text data can be collected in a String point.

When using a mix of advise and polled points, avoid placing both types of point in the same scan class. If advise-processed points are placed in the first scan class, the interface will automatically create OPC collection groups as needed. Advise processing reduces the amount of data transferred from the OPC server (OPC90) and the interface.

The InstrumentTag field of the PI tag configuration should be set to the item string of the desired OPC90 tag data, starting with the device and ending with the attribute. In a majority of cases, the "OUT" attribute contains the current block output. An example from the *SamplePoints.cfg* supplied with OPC90 would be *CIU-A.Import.AIL_point.OUT* for the current value of the sample analog input. Consult the block reference section of this manual to determine the correct attribute to use for a particular block type. Some block types may contain more than one attribute of interest. For instance you may want to collect the PV, SP, OUT and MODE attributes from a STN block. Each attribute would be mapped to a separate PI tag. The PV, SP, and OUT would be Float32 (analog) tags and the MODE would be a Digital tag with a DigitalSet containing the state descriptors for station modes.

Troubleshooting PI Data Collection From OPC90

After configuring the CIU device and adding the desired blocks in your OPC90 configuration, select "Monitor" from the View menu to verify that OPC90 is receiving data from the loop. Next, use an OPC client such as the PI OPCTool distributed with the PI OPC Interface to connect to OPC90. Connect to the RoviSys.OPC90Server, create a test group, and add at least one item to the group. Try executing an asynchronous read. If the data read fails, check the DCOM permissions on the OPC server.

If the OPC test client successfully reads data from OPC90 but the interface fails to write data, perform the following checks:

1. Restart the OPC interface and immediately check the PIPC log file (located in the PIPC\DAT folder) for errors. The log file should report the number of points found for the interface. If no points were found, check that the Pointsource of your PI tags matches the /PS parameter in you interface startup file, and also check that the Location1 parameter of the points matches the /ID startup flag.
2. If no data is written to any of the PI tags (they all read "Point Created" or "Shutdown"), check the PI server message log for PITrust connections from the interface node. If there is a message saying that the default trust was used (rather than a successful PITrust

- match), you will need to check the trust configuration. Both the PI Buffer Server service and the interface will need to be restarted after the trust is configured on the server
3. Verify that the time settings on the interface node match those of the PI server. Both the time zone and the clock should match.

