GENESIS64
OPC Data Communication via DCOM

APPLICATION NOTE

September 2013

Description: Guide to system configuration allowing access to data provided by OPC Server which is not running on system with where GenBroker provides communication
OS Requirement: Windows 8 x64 (Professional or Enterprise Edition) /Windows 7 x64 (Professional or Enterprise Edition) /Windows Server 2012 x64 /Windows Server 2008 R2 x64 /Windows Vista x64 SP2 (Business, Ultimate, or Enterprise Edition) /Windows Server 2008 x64
General Requirement: GENESIS64-family product

Introduction

This guide describes a way and required system and ICONICS Platform Services settings to get data from OPC Servers which are not exposed via GenBroker (using direct OPC communication). In such case it is required to allow specific DCOM access permissions in system settings and properly configure ICONICS software. When you will try to access data you will have to know name of the PLC (machine) where OPC Server is running (or at least IP Address) and ProgId (Human-readable name) of OPC server itself.

DCOM settings

It is required to allow certain DCOM Access Permissions on machine-wide level to unblock DCOM callbacks to the client sent by OPC server. These settings have to be done on client machine where you want to display and use data (concretely where FrameWorX Server is running, because you can have distributed ICONICS solution using central FWX Server where remote clients are using that central FWX Server, in such case it is required to do so only on that FWX Server node). To properly set system DCOM settings you need to know which identity (user) is used for running the OPC Server:

- If you don't know user, who's launching OPC Server, you will have to use ANONYMOUS LOGON group in steps described below to allow access to users who are not in machine's user directory
- If you know the user, use it in the steps described below (if it is Domain User using domain account, use the one from domain, if not it will be needed to create local shadow account using same username and same password for proper impersonation on machine running FWX server

DCOM system configuration

1. Press Start button or CTRL+R to populate 'Run' dialog, type '**dcomcnfg**' (without quotes) and hit Enter to open up DCOM configuration console
2. Expand left-side tree to populate 'My Computer' item – **Console Root -> Computers -> My Computer**
3. Right-click **My Computer** and from context menu choose Properties
4. In opened dialog switch to **COM Security** tab
5. In Access Permissions pane click **Edit Limits** button
6. If user or user group which you identified in steps above is not listed in the listbox, then add it
7. Make sure that given user or group (e.g. ANONYMOUS LOGON or specific user) **has allowed** '**Remote Access**' **permission**

Registry settings

For clients running GENESIS64 v10.71 and older it is required to do following steps in registry (In v10.80 following steps are done by the installation):

1. Press Start button or CTRL + R to populate 'Run' dialog, type 'regedit' (without quotes) and hit enter to open up Registry Editor.
2. Add Key '**IcoFwxServer.exe**' to HKLM\SOFTWARE\Classes\AppId (without quotes)
    a. Set (default) default value to '**IcoFwxServer'**
    b. Add new string value 'AppId' and set value to '**{52945e6f-6045-457f-9ae7-771bcf313e74}**'
3. Add Key '**{52945e6f-6045-457f-9ae7-771bcf313e74}**' to HKLM\SOFTWARE\Classes\AppId (without quotes)
    a. Set (default) default value to '**IcoFwxServer'**
    b. Add new DWORD value named '**AuthenticationLevel**' and set value to 1
    c. Add new DWORD value '**ImpersonationLevel**' and set value to 2

GenBroker settings

In order to communicate with OPC Servers without using GenBroker it is required to set **OPC Direct** option as default in GenBroker configuration:

1. Launch Workbench64
2. Switch to FrameWorX Server provider
3. Expand localhost -> Classic OPC
4. Double-click GenBroker tree item to open configuration dialog in new tab
5. In the Channels tab of ICONICS GenBrokerConfiguration Properties right-click **OPC Direct Channel** and from context menu choose Set As Default

Displaying data

To display data in GraphWorX64 you have to know ProgId (human-readable name) of OPC server (for example BR.OPC.Server_AR) and machine name (or at least IP Address). By following these steps you will browse data in Data Browser and display them in GraphWorX64's Process Points:

8. Launch GraphWorX64
9. Insert a Process Point anywhere to canvas – Data Browser will automatically open
10. To the address field write full path to OPC Server in following syntax:
11. @\\<MachineNameOrIPAddress>\<OPCServerProgId>\
12. After hitting Enter button you should address OPC Server's address space – choose one tag from the list
13. Confirm selection by pressing OK button
14. Switch GraphWorX64's display to runtime mode – you should see data