



SmartDiagnostics[®] Application Note

OPC Server Installation Instructions

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Overview

The SmartDiagnostics OPC Server allows OPC DA compliant clients to retrieve current values in near real-time from SmartDiagnostics.

Requirements

Windows 7 or later or Windows Server 2008 R2 or later

Minimum 2GB of RAM

The OPC server also installs the following dependencies if they are not already available on the system:



- Microsoft .NET Runtime 4.5.1
- Microsoft Visual C++ 2010 redistributable
- OPC Foundation OPC Core Components - [more info](#)

The system running the OPC server must be able to communicate with the SmartDiagnostics server (cloud or on-prem depending on your application). This may require firewall configuration changes. For cloud customers, you must permit outbound HTTPS (port 443) to sd.kcftech.com. For on-prem customers, you must permit outbound HTTP port 52000 to your SmartDiagnostics server. Note that web filtering proxies are not supported. Contact your IT department for assistance.

Installation Procedure

Download the OPC Server software itself is here:

- <https://kcftech.com/smartdiagnostics/resources/software/SmartDiagnosticsOPCServer.exe>

Once the install completes, configure the service by editing this file:

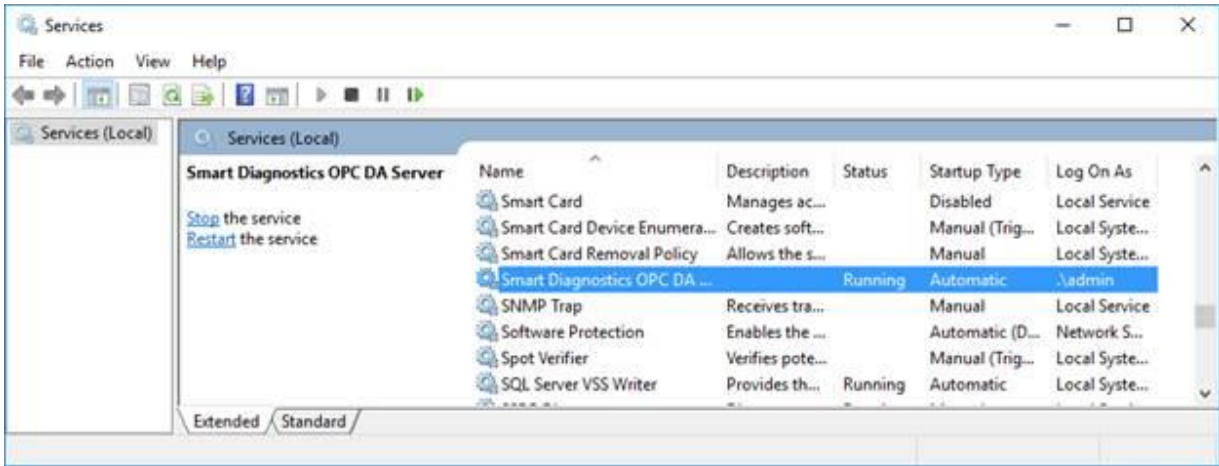
- C:\Program Files (x86)\KCF Technologies\Smart Diagnostics\OPC Server\customOPC.config

Edit the following keys:

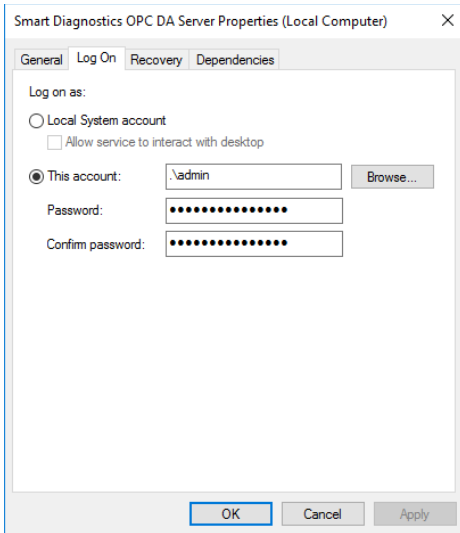
- Set the “apiKey” to the OPC API Key that KCF Support will give to you.
- For cloud based Smart Diagnostics installations, leave the “sdUrl” to “https://sd.kcftech.com”
For on-prem applications, change “sdUrl” to “http://<server_ip>:52000”

Save the .config file.

After editing and saving the file, start the windows service by searching for Services in the start menu, find the “Smart Diagnostics OPC DA Server” in the list, right click and select “Start” or “Restart” if it’s already running.



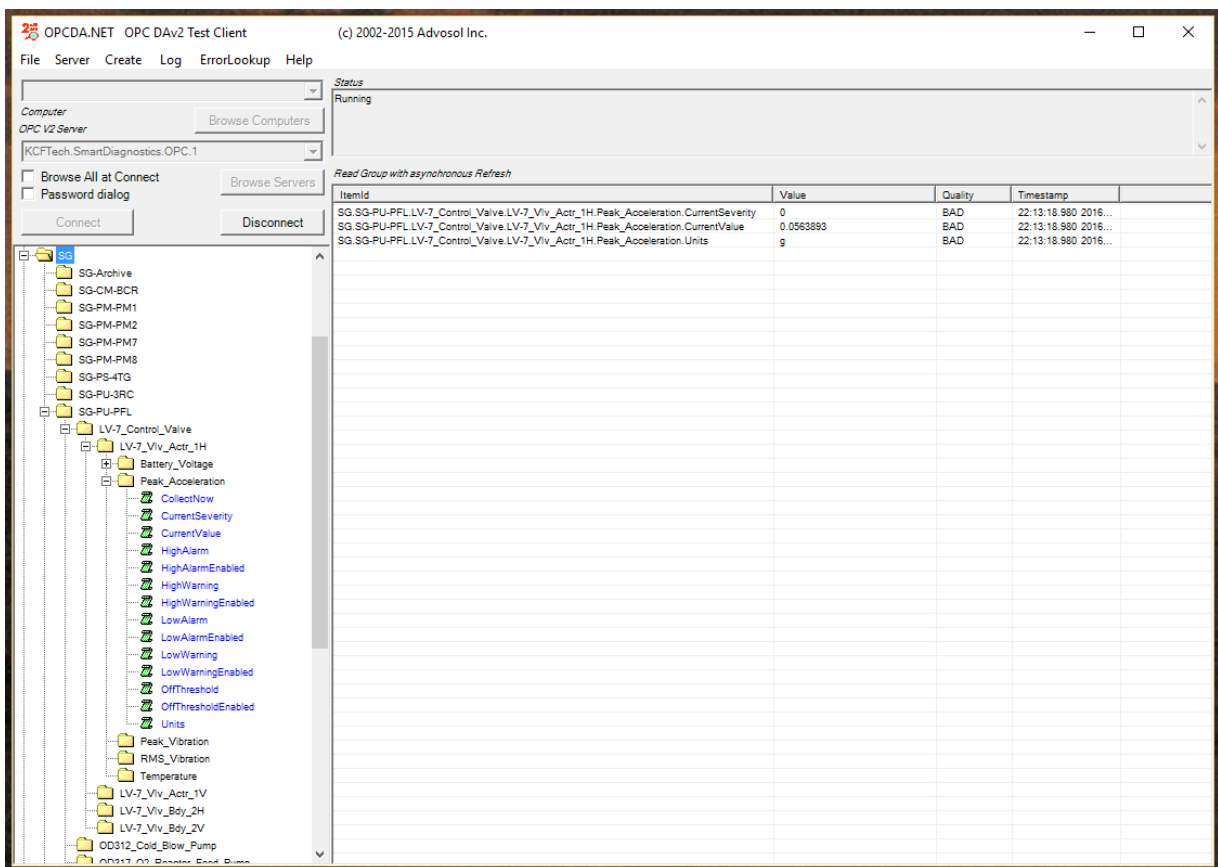
Depending on your Windows version, the Local System or Local Service accounts may not have the necessary permissions to access DCOM. In this case, it may be necessary to modify the service configuration to run under a different account that is a member of the Administrators group.





Usage

Once the OPC Server is running, test that it is successfully installed with an OPC Test client. Connect to the “**KCFTech.SmartDiagnostics.OPC.1**” server. **Note: there are 2 servers listed, connect to the .OPC.1, not the .OPC one.** You will be able to browse an OPC structure that will reflect the structure you’ve created in SmartDiagnostics.



Itemid	Value	Quality	Timestamp
SG.SG-PU-PFL.LV-7_Control_Valve.LV-7_Viv_Actr_1H.Peak_Acceleration.CurrentSeverity	0	BAD	22:13:18.580 2016...
SG.SG-PU-PFL.LV-7_Control_Valve.LV-7_Viv_Actr_1H.Peak_Acceleration.CurrentValue	0.0563893	BAD	22:13:18.580 2016...
SG.SG-PU-PFL.LV-7_Control_Valve.LV-7_Viv_Actr_1H.Peak_Acceleration.Units	g	BAD	22:13:18.580 2016...

Each indicator in SmartDiagnostics will expose the following list of items:

- Current Value
- Current Severity
- High Alarm Value
- High Alarm Enabled



- High Warn Value
- High Warn Enabled
- Low Warn Value
- Low Warn Enabled
- Off Threshold Value
- Off Threshold Enabled
- Units

There is also a CollectNow item. When you write a 1 to CollectNow, it will initiate the process of collecting data from the corresponding sensor. Please note that this may take up to several minutes to complete.

Troubleshooting

The OPC Server writes status information to a log file located at C:\ProgramData\KCF Technologies\Smart Diagnostics\logs\opc\OPCLog.txt. A successful connection will show the indicators being pulled down from the account within Smart Diagnostics.

```
2017-02-22 10:55:28.3783 NSPlugin.AppPlugin Server Starting
2017-02-22 10:55:28.4323 NSPlugin.AppPlugin -----APIKEY: ABCABCABCA -----
2017-02-22 10:55:28.4533 NSPlugin.AppPlugin -----DOMAIN: https://sd.kcftech.com -----
2017-02-22 10:55:28.4653 NSPlugin.AppPlugin Getting indicators from Server.
2017-02-22 10:55:29.5345 NSPlugin.AppPlugin Retrieved {1} indicators.
2017-02-22 10:55:29.5545 NSPlugin.AppPlugin Adding item system1.machine1.Bearing
2017-02-22 10:55:29.5755 NSPlugin.AppPlugin Adding item system1.machine1.fan
```

If it appears that the server cannot connect and retrieve indicators, try connecting to <https://sd.kcftech.com> from a web browser on the server to check for an open internet connection to the Smart Diagnostics cloud.

If the log file looks like the OPC server is successfully pulling values from SmartDiagnostics, but you are still seeing errors in an OPC test client when trying to browse the OPC server, double check the user / service account that the Smart Diagnostics OPC server service is running under and make sure that account has proper permissions to use DCOM (see the installation section).