Technical Note 017

OPC UA Server Configuration per System Platform

Rev. 1 19/01/2021



Introduzione

Questa Tech Note descrive i passi essenziali per esporre i dati di una un applicativo System Platform via OPC UA. Si descrive come abilitare il servizio Aveva OPCUAService all'interno di una galaxy. All'interno della Tech Note sono descritte due configurazioni diverse, che utilizzano servizi e Software diversi.

Versioni

Quanto descritto in questa TN si applica alla versione 2020 Update 3 SP1 istallata su sistema operativo Windows Server 2016.

Quanto descritto in questa TN è stato testato con le seguenti configurazioni:

o Application Server 2020– Windows Server 2016 Standard Edition

Procedimento

Metodo 1

Configurazione del servizio OPC UA Service all'interno della Galaxy (IDE)

Per prima cosa dobbiamo attivare la security all'interno della galaxy inserendo almeno un user con diritti di amministrazione nella galaxy.

| 🗓 Configure Securit | у | | | |
|---------------------|----------------------------------|-----------|-------|---|
| Authentication Mode | Security Groups | Roles | Users | Credentials |
| Define th | e Security Roles o | if the Ga | laxy | |
| Roles available: | + | × | Gene | ral permissions: |
| Role | Access I 9999 0 0 000 5000 | evel | Oper | ✓ DE Permissions ✓ Can Start the IDE ✓ Importing and Exporting ✓ System Configuration ✓ System Configuration ✓ Application Configuration ✓ Application Configuration ✓ Deployment Permissions ✓ Deployment Permissions ✓ Management Permissions ✓ Management Permissions ✓ Can Start the SMC ✓ Deployment ✓ Default |

A questo punto passiamo a configurare il servizio OPC UA Service

Dal menu Galaxy\Configure\Archestra Services selezioniamo AvevaOPCUAService.1.0\Default_Nomegalaxy_OpcUAService. Se il servizio non è già undeployed, facciamo click dx e undeploy per poter modificare alcuni parametri.



È consigliabile abilitare encrypted communication tra Opc Client e il server, ed eventualmente non permettere la connessione anonima.

A questo punto la configurazione del server OpcUA è conclusa, possiamo fare checkin e quindi deployare il servizio, in basso la dicitura deve riportare l'avvenuto deploy del servizio stesso

| | Assignments ■ |
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| Services 🔋 Nodes | Update Reset |
| Default_OMI_WorkShop_OPCUAService , WINSRV20 | 16 : Deploy Success |

Andremo ora ad utilizzare un OPC UA Client per accedere ai dati presenti all'interno della Galaxy deployata, in questo esempio utilizzeremo un client chiamato OPC Expert, la configurazione potrebbe cambiare da client a client.

Apriamo OPC Expert, aggiungiamo un nuovo Computer, inseriamo quindi un nuovo OPC Server

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| E - 09 SIM (OI.SIM.1) E - 09 Toolbox OPC Powe | ¥ Add an existing s | erver | | × | | | |
| | Enter the OPC server | 's information. Hover over | options for more information. | | | | |
| | Server appears as: Type: | UA | | ~ | | | |
| | Vendor: | Aveva | | ~ | | | |
| | Server description: | Wonderware App Serv | er | ~ | | | |
| | AppID or URL | opc.tcp://WINSRV20 | 16:48031 | ~ | | | |
| | Program ID (ProgID |) opc.tcp://localhost:48 | 40 | ~ | | | |
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A questo punto dovremo connetterci al nostro OpcUA Server, ci verranno chieste le credenziali, inseriamo l'utente che abbiamo definito all'interno della Galaxy

Nonostante inseriamo un utente e psw corretti il client non riuscirà a connettersi, il problema è legato all'impostazione che abbiamo configurato nell'OpcUA Server che richiede una Encrypted communication (Basic256SHA256and SingAndEncrypt), dobbiamo quindi istallare i certificati generati dall'OPC client.

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Nella directory c:\programdata\Aveva\PCS\OPC UA Rejected Client Certificates\Certs troveremo il certificate generato dal Cient (nel nostro caso OPC Expert) e lo istalleremo



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| | This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store. | |
| | A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept. | |
| | Store Location | |
| | ◯ Current User | |
| | Local Machine | |
| | To continue, dick Next. | |
| 4 | Cartificate Import Witard | × |
| | Settificate import wizard | |
| | | |
| | Certificate Store | |
| | Certificate stores are system areas where certificates are kept. | |
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A questo punto saremo in grado di connetterci all'OPC UA Server e accedere alle variabili al suo interno

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Metodo 2

Implementare un OPC UA Server interface all'interno della vostra Galaxy è possibile utilizzando un Wonderware certified software partner chiamato **Top Server OPC Client Suite**

Siccome TOP Server supporta client connectivity di tipo OPC DA, OPC UA e Wonderware Suitelink, può fungere da bridge dei dati all'interno della vostra galaxy.

NB: è possibile utilizzare Top Server OPC Client Suite anche con versioni precedenti della System Platform (Ver. 2017 o Ver 2014).

Gli utenti Wonderware che leggono questo articolo probabilmente conoscono OI Gateway (precedentemente noto come FS Gateway), almeno per quanto riguarda la capacità di InTouch o di Application Server di connettersi a un server OPC DA e nelle recenti versioni anche a OPC UA. OI Gateway può fare molto di più, inclusa la connessione ai dati disponibili in Application Server o InTouch e quindi esporre tali dati tramite OPC DA e Wonderware SuiteLink.

Andremo quindi a configurare una connessione di tipo Archestra Connection all'interno di OI gateway per esporre via OPC DA i dati presenti all'interno della nostra Galaxy.



A questo punto potremo utilizzare TOP SERVER OPC DA Client Driver per connetterci a Wonderware OI Gateway e leggere i dati provenienti dalla nostra Galaxy, aprendo Top Server 6 Configuration andremo ad aggiungere un nuovo Canale OPC DA e quindi a scegliere le variabili che vogliamo leggere provenienti dalla nostra Galaxy.

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A questo punto potremo usare un qualsiasi OPC UA CLIENT per accedere a TOP Server OPC Client e leggere i dati della nostra Galaxy via OPC UA

Di Seguito un esempio di configurazione utilizzando il client OPC Expert

Aggiungiamo un OPC UA al Client OPC Expert

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| Server Endpoints Trusted Clients Discovery Servers URL Coperting opc. tcp://127.0.0.1:49380 Coperting://WinSrv2016_datasen Endpoint Definition TCP Connection Network Adapter: Port Number: Port Number: Security Policies Security | Trusted Servers Instar / Security Basic 2565ha 256 (s Localhost only 49380 pc. top;/ cated) Deprecated) | Ince Certificates | | em ID It Add an existi Enter the OPC s Server appear Type: Vendor: Server descrip AppID or URL Program ID (Pr | em h rs erver's information. I s as: UA Software Tr Software Tr tion: Top Server opc top.//1 ogID) | Value Hover over options f solbox DPC Client 27.0.0.1.49380 | TimeStamp 443-00 DM or more information | Quality | Update Rate |
| | | | | | | | | | |
| Date Note: Server Runtime reinitiali: | | OK | Cancel | Help | | | | | |
| 12/4/2020 TEU8:36 ANI TOH | | OK | Cancer | nap | | | | | |
| (i) 12/4/2020 11:08:56 AM Sim Level Date/Tim | • | Error Code | Computer Name | Description | | | | | |

Come AppID o URL prendiamo quelli forniti direttamente da Top Server OPC

Prima di connettersi al Server OPC UA dovremo gestire i certificati e quindi fare il Trust Certificate

Sempre da Top Server OPC andremo a validare il certificato generato dal Client OPC UA per poi connettere il Server con il client

| OPC UA Conf | iguration Manag | ger | | | | | |
|------------------|-----------------------|-------------------------|-------|----------------------------|---------------------------------------|----------------------------------|-------------|
| erver Endpoints | Trusted Clients | Discovery Servers | Trust | ted Servers | Instance Certific | ates | |
| Client Name | | | Δ. | URI | | | |
| • OPC Expert | | | | urn:WinSrv2 | 2016:OPC Expert | | |
| OPC Expert | | | | urn:WinSrv2 | 2016:OPC Expert | | a av pa cli |
| UaExpert | UA Client Driver | | | urn:WinSrv2 urn:WinSrv2 | 2016:SWToolbox.T 2016:UnifiedAutor | OPServer.V6:U nation:UaExpert | A%20Cli |
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| Tourset | Furnat | Demous | | Defect | 1 | Man Carl | 6 |
| import | Export | Remove | | Reject | | view Certi | ncate |
| e: Server Runtin | ne reinitialization i | s required to utilize d | hange | s. | | Close | Help |

A questo punto saremo in grado di visualizzare i dati della Galaxy utilizzando un OPC UA CLIENT

| Y OPC Exper | t | | | | | | | | | | | - | |
|--|--|---------------|--------|-----------------|--|---|---|----------------------------------|--|---|-----------------------------|--|------------------------------|
| File View | Tools Help | | | | | | | | | | | | |
| | TT (OI.MQTT.1) | Realtime Data | | Alarms & Events | | | | | | | | | |
| | Expert (opc:tcp://localhost:5/8 IR (OI.SIDIR.1) (OI.SIM.1) box OPC Power Server 6.9 (SW 2 Server/UA@WinSrv2016 (opc) System APPSERVER _Statistics _System Dati Galaxy Dati Galaxy Dati Galaxy | Type | Status | Alarm | Computer WINSRV WINSRV WINSRV | OPC Server TOP Serve TOP Serve TOP Serve | Item ID ns=2:s=APP ns=2:s=APP ns=2:s=APP | Item TT1 TT2 TT3 | Value 153.5485 140.8669 147.0689 | TimeStamp 4:56:26 PM 4:56:26 PM 4:56:26 PM | Quality Good (Good (| Update Ra 1000 milise 1000 milise 1000 milise | te E sc S sc S sc S |
| < | | | | | | | | | | | | | |
| Level | Date/Time | Error Co | de | Com | puter Name | Description | | | | | | | |
| () Information | 12/14/2020 4:49:02 PM | N/A | | WIN | ISRV2016 (| Attempting to | subscribe to "T | [1" from TOP Se | rver/UA@WinSrv2016 | opc.tcp://localhost:4 | 9380/) on W | INSRV2016 | (This |
| Information Information | 12/14/2020 4:49:02 PM 12/14/2020 4:49:03 PM | N/A N/A | | WIN WIN | ISRV2016 (ISRV2016 (| Subscribed t Attempting to | o "TT1" from TO o subscribe to "T | P Server/UA@W [2" from TOP Se | /inSrv2016 (opc.tcp:// rver/UA@WinSrv2016 | localhost:49380/) on V 6 (opc.tcp://localhost:4 | /INSRV2016 9380/) on W | 6 (This Comp /INSRV2016 | uter), (This |

Step 3 – Licensing

Il licensing dei server OPC UA utilizzati (metodo 1 o 2) è diverso

Se utilizziamo OPC UA Service all'interno della Galaxy (IDE) e quindi il Metodo 1, la licenza è disponibile solo a partire dalle versioni System Platform 2020 in modalità Flex Licensing.

Se utilizziamo Software Toolbox Top Server OPC (metodo 2) la licenza sarà acquistabile sempre tramite i canali classici Wonderware.

NB. Sarà possibile implementare questa soluzione (metodo2) a partire dalle versioni 2014R2 in avanti

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Disclaimer

Il presente documento è fornito a scopo di esempio e non sostituisce la documentazione AVEVA. L'applicazione di quanto contenuto, in un preciso ambito applicativo, deve essere sempre validata da un tecnico Wonderware. La documentazione rilasciata da AVEVA resta il riferimento tecnico ufficiale da seguire: <u>softwaresupport@aveva.com</u>. Wonderware Italia non si assume la responsabilità di un'applicazione scorretta di questo documento.