大量偶然的操作可能会引发一种特殊结果,这种结果可能会被认为是理所应当的一些规范操作所导致

的,实际上同样的规范操作很难复现出期望的结果,因为每次偶然操作都无法被一一验证是否是造成最 终结果的主要原因。

SinuTrain for SINUMERIK Operate 这款软件来不仅可以模拟调试加工程序和简单的扩展接口画面程序而 且可以用来接通 OPCUA 做远程数控平台使用

SinuTrain 可以去官网下载各种版本如下:

https://www.industry.siemens.com/topics/global/en/cnc4you/cnc_downloads/sinutr ain_downloads/Pages/sinutrain_downloads.aspx

https://new.siemens.com/global/en/markets/machinebuilding/machine-

tools/cnc4you/sinutrain-uebersicht.html

我使用的版本是 V4.7 SP6 建议不要使用 4.8 以上的版本,经过我的测试 4.8 以上做了更 新,目前 0PCua 可以建立但是无法连接读取数据

除了这个 sinutrain 还必须安装 Simatic NET 软件或者安装 TIA portal WINCC 来激活 OPCUA,注意必须 是 V13 以上的版本

附下载链接如下: SIMATIC NET Trial DVD

V16

https://support.industry.siemens.com/cs/document/109776940/contentsof-the-simatic-net-trial-dvd-v16-?dti=0&lc=en-GB

V15 sp1

<u>https://support.industry.siemens.com/cs/document/109762690/-</u> simatic-net-trial-dvd-v15-sp1-download-?dti=0&lc=en-GB

V15

https://support.industry.siemens.com/cs/document/109759410/contentsof-the-simatic-net-trial-dvd-v15-?dti=0&d1=en&1c=zh-CN

V14 sp1

https://support.industry.siemens.com/cs/document/109757169/contentsof-the-simatic-net-trial-dvd-v14-sp1-?dti=0&lc=en-GB

其他重要注意事项:

PCU 或个人电脑必须关闭系统"OPC UA Local Discovery Server"的服务,因为该服务禁 用了所需的 TCP 端口 4840

🔍 服务 文件(F) 操作(A) 音看(V) 帮助(H) 🔶 🤿 🔲 🔲 🙆 💁 📔 🖿 🕨 💷 🔍 服务(本地) ● 服务(本地) 名称 描述 状态 启动类型 登录为 **UA Local Discovery Server** 🔍 Task Scheduler 使用... 已启动 自动 本地系统 描述: 本地服务 CP/IP NetBIOS Helper 提供... 已启动 自动 Allows UA client applications to Carte.Service 手动 本地系统 discover UA servers running on Cartelephony 提供... 手动 网络服务 the host. 🔍 Themes 为用... 已启动 自动 本地系统 Chread Ordering Server 提供.... 手动 本地服务 Canal TIA Administrator 已启动 自动 本地系统 🔍 TPM Base Services 手动 本地服务 允许... CaraceConceptX 已启动 自动 本地系统 😪 UA Local Discovery Server Allo... 已启动 自动 本地系统 UMC Secure Communication 已启动 自动 本地系统

Services (Local)	· · · · · · · · · · · · · · · · · · ·
OPC UA Local Discovery Server	Name
<u>Start</u> the service	Office Source Engine Office Software Protection Platform Office Files
Description:	OPC UA Local Discovery Server
The Local Discovery Server allows UA clients to discover UA servers running on the local machine	OPC UA Local Discovery Server Properties (Local Computer) OPC Be
on the local machine.	Optimize General Log On Recovery Dependencies
	Peer Nar
	Peer Net Service name: UALDS
	Peer Net Display name: OPC UA Local Discovery Server
	Perform Description: The Local Discovery Server allows UA clients discover UA servers running on the local mac Q. Phone S
	Reprint Path to executable:
	PNRP M les (x86)\Common Files\OPC Foundation\UA\Discovery\bin\opc
	Portable Startup type: Automatic Automatic
	🖏 Print Spo
Estanded (Standard /	C Service status: Stopped
	Start Stop Pause Re

另外, 必须启动 NetTcpPortSharing 服务

测试 V4.7 的 sinutrain。首先新建机床。记得不要选 DEMO-Lathe 模板。主要因为 DEMO-Lathe 模板没 有制造商权限。

然后激活 OPC UA 授权选项(Access MyMachine /OPC UA 6FC5800-0AP67-0YB0),设置完了 NCK 复位

			19.04.07 20:03
授权: 全部选件			概告
选件	已设置	已授权	^ IM: 58
6FC5800-0HP53-0YB0 2在II-2日台 (0FM)			全部
6FC5800-0AP54-0YB0			- 选件
S监测器			
6FC5800-0AP55-0YB0			缺少的
SINUMERIK Operate Runtime OA 编与 6FC5800-0AP60-0YB0			授权/选件
SINUMERIK HMI sI Runtime OA 选型 6FC5800-0AP61-0YB0	XA D. CON		搜索
SINUMERIK Operate Runtime OA Easy Screen 6FC5800-0AP64-0YB0	siemen		复位
SINUMERIK Operate Runtime OA Solution Partner 6FC5800-0AP65-0YB0			(po)
SINUMERIK HMI sI Runtime OA .net 6FC5800-0AP66-0YB0			导出
Access MyMachine / OPC UA 6FC5800-0AP67-0YB0			加快探切
SINUMERIK Operate /NCU 6FC5800-0AS00-0YB0			设置选件
5轴加工包,附加功能7轴 6FC5800-0AS01-0YB0			, <u>((</u>
		Þ	
▶ 授权	回数	转 据	

而后运行图中的: 自动设置 Sinumerik47_SP6.bat 这个文件,注意:执行修改配置文件的时候请保持机床是开启状态。

此电脑 > 本地磁盘 (D:) > 数控精要 > OPCUA大全 > 批处理设置

	名称	修改日期	ANN
	📕 miniweb	2020/5/12 17:15	3
<u>_</u>	📜 miniwebcfg	2020/5/12 17:15	3
π.	📜 miniwebs	2020/5/12 17:15	3
Я	📙 UserDataBase	2020/3/26 10:23	3
*	📱 UserDataBase	2020/3/25 16:27	Ŀ
	自动设置Sinumerik47_SP6	2020/5/12 17:14	١
	💿 自动设置Sinumerik48 SP4	2020/5/12 16:37	١

此批处理文件主要做了如下几步工作:

1. 将 C:\Siemens\SinuTrain\SINUMERIK CNC-SW 840D sl 4.7 SP6\hmi\siemens\sinumerik\hmi\template\cfg \miniweb\下的所有文件

复制到:

"C:\Siemens\SinuTrain\SINUMERIK CNC-SW 840D sl 4.7 SP6\hmi\user\sinumerik\hmi\miniweb\cfg\"目录下

C

2. 打开 C:\Siemens\SinuTrain\SINUMERIK CNC-SW 840D sl 4.7 SP6\hmi\user\sinumerik\hmi\cfg下的

systemconfiguration.ini 文件,增加如下内容:

[processes]

PROC100= image:="C:\Siemens\SinuTrain\SINUMERIK CNC-SW 840D sl 4.7

SP6\hmi\siemens\sinumerik\hmi\miniweb\release\miniweb.exe", process:=MiniWebServer,

cmdline:="..\System ..\WWWRoot", startupTime:=afterServices,

workingdir:="C:\Siemens\SinuTrain\SINUMERIK CNC-SW 840D sI 4.7

SP6\hmi\siemens\sinumerik\hmi\miniweb\release"

3. 将 UserDataBase 中的文件复制到 C:\Siemens\SinuTrain\SINUMERIK CNC-SW 840D sl 4.7

SP6\hmi\siemens\sinumerik\hmi\miniweb\System\UserDataBase\"目录下

以上就是自动配置文件的批处理过程,

然后可以编辑 OPC_UAApplication.xml,这一步可做可不做,如果要修改时必须机床保持开启状态。把其中的"localhost"更改为本机 IP4 地址:比如 192.168.214.1 可以不使用固定 IP,而是采用 DNS host 名称来实现,即写成本机的电脑名称 也可以不做任何修改,因为是在本机做仿真,可以直接用 localhost,这样的话,对应的 IP 地址就是 127.0.0.1

<buildinf0< th=""><th>ProductName="Sinumerik OPC UA"</th></buildinf0<>	ProductName="Sinumerik OPC UA"
	ProductUri="http://automation.siemens.com"
	ManufacturerName="Siemens AG I DT MC"
	SoftwareVersion="4.4.0"
	BuildNumber="2"/>
<pre><applicationdescription< pre=""></applicationdescription<></pre>	ApplicationUri="urn: <mark>l</mark> ocalhost:miniweb"
	ApplicationNameLocale="en_us"
	ApplicationNameText="Sinumerik OPC UA OEM"
	DNSNAME= 10calhost />
<endpointdescription< td=""><td>URL="opc.tcp://localhost 4840"/></td></endpointdescription<>	URL="opc.tcp://localhost 4840"/>
<nodemanagement< td=""><td>TargetProviderName="NodeManagementProvider"/></td></nodemanagement<>	TargetProviderName="NodeManagementProvider"/>

SW4.7 开始 OPC UA 访问增加了用户组密码访问,我们实验的用户名和密码都是 test 小写

下面开始重启机床,这时候随着机床启动的时候会有一个 CMD 窗口一起启动,<mark>请不要关闭</mark>。如果看到这 个字样那么恭喜你,你的 OPC UA 服务器配置成功了。

C:\Siemens\SinuTrain\SINUMERIK CNC-SW 840D sl 4.7 SP6\hmi\siemens\sinumerik\hmi\miniweb\release\miniweb.exe	\Box \times
Registering (DLL: 0FB80000) Service: UserDataBase.	^
Loading Service dll succeeded: 'Dll/MWEB_XUDB_Dll.dll' :	
Registering (DLL: 0F650000) Service: Authentication.	
Loading Service dll succeeded: 'Dll/MWEB_HTTP_Security_Dll.dll' :	
Registering (STATIC) Service: LicenseSrvc.	
Registering (STATIC) Service: ListMgmt.	
Registering (STATIC) Service: VarIF.	
Initialisation of static modules completed!	
Initialisation of static modules completed!	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not yet available, wait another 5 sec	
Parameter-file for AddressModeller not available, giving up!	
Try loading Service dll 'Dll/MWEB_TraceApplication_Dll.dll' :	
"MWEB_TRACEAPP_CloseAndReopenTracefile" BAILED OUT (Code: E6890002): Cannot open trace file: /Traces/MiniWeb.log	
"MWEB_TRACE_ConfigChanged" BAILED OUT with code: E6890051: Failed: Error opening Trace file, giving up.	
Trace output will be redirected to TraceApp	
OpcUa Server started successfully on 192.168.214.1:4840.	
Ups no public Port :-(.	

如果使用 localhost 效果如下:

C:\Siemens\SinuTrain\SINUMERIK CNC-SW 840D sl 4.7 SP6\hmi\siemens\sinumerik\hmi\miniweb\release\miniweb.exe	- 🗆	×
Registering (DLL: 0F0E0000) Service: UserDataBase.		~
Loading Service dll succeeded: 'Dll/MWEB_XUDB_Dll.dll' :		
Registering (DLL: 0F220000) Service: Authentication.		
Loading Service dll succeeded: 'Dll/MWEB_HTTP_Security_Dll.dll' :		
Registering (STATIC) Service: LicenseSrvc.		
Registering (STATIC) Service: ListMgmt.		
Registering (STATIC) Service: VarIF.		
Initialisation of static modules completed!		
Initialisation of static modules completed!		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not yet available, wait another 5 sec		
Parameter-file for AddressModeller not available, giving up!		
Try loading Service dll 'Dll/MWEB_TraceApplication_Dll.dll' :		
"MWEB_TRACEAPP_CloseAndReopenTracefile" BAILED OUT (Code: E6890002): Cannot open trace file: /Traces/MiniWeb	.log	
"MWEB_TRACE_ConfigChanged" BAILED OUT with code: E6890051: Failed: Error opening Trace file, giving up.		
Trace output will be redirected to TraceApp		
OpcUa Server started successfully on 127.0.0.1:4840.		
Ups no public Port :-(.		
		~

可用命令 netstat -a -n 查看当前的端口 4840 是否开启

好了开始用 Client 测试连接吧,4.5 不需要密码,4.7 需要密码(测试工具 opc ua client v2.0),采用拖放方式 选取变量

de: 192.168.214.1 Endpoints: Sinumerik OPC UA B→ / Channel/UserFrame D→ / DriveVsa D→ / GUD D→ / Hmi D→ / Methods D→ / Nok D→ / Plc	Basic128Rsa15, SignAndEncrypt] [opc.tcp://192.168.214.1:4840] Attributes Value NodeId i=87 NodeClass Object BrowseName Views	nnect
⊕ Canal /SEA ⊕ Canal /TEA	DisplayName Views Description WriteMask None	
	Write Values — X Write Value Nodeld Current Value 29.3 ns=2;s=/Channel/Parameter/R 29.3	

SinuTrain for SINUMERIK Operate - Vertical milli	ng machine (840D sl 4.7 SP6)	- 🗆 X			
		\diamond			
SIEMENS	🚆 Simple OPC UA Sinumerik Client V2.0			-	
R参数 R 8 15. R 1 58. R 2 9 R 2	Connect opc.tcp://192.168.214.1:4840 Disconnect Sinumerik/VarProvider	OPC UA Server URL O to W 4.5 sp3 Us Used Namespoe URI Image: Sp3 nor high version Pa	er name: Lest ssword: Lest		
R 4	- Sinumerik	VaribleName	▲ Value	Quailty	StampTime
R 5	The State S	/Channel/Parameter/R[u1,0]	15.2	Good	3/27/2020 04:1
R6	由·时间	/Channel/Parameter/R[u1,1]	58.6	Good	3/27/2020 04:1
H Z B 8	·····································	/Channel/Parameter/R[u1,2]	95	Good	3/27/2020 04:1
R 9 R 10 R 11 R 12 R 13 R 14 R 15 R 15 R 16 R 16	 □ Auf □ R参数 □ //Dnamel/Parameter/R[u1,1] □ //Dnamel/Parameter/Rpa ● 程序运行状态 ● 報助鉄塔 ● 報告 ● 報告 ● 報告 ● 和助鉄塔 ● PL支援 ● PL支援 ● PL支援 ● Tfool 				
B 18		Monitor Clear Monitor List			
R 19		VaribleName	Value	Quaity	StampTime
C		/Channel/Parameter/R[u1,0]	15.2 0	àood	3/27/2020 04:1
고 고 문 고 문		/Channel/Parameter/R[u1,1]	58.6 0	àood	3/27/2020 04:1
rammi SinuTrain	Varible Standard O Customer				
	Search:	Read Write Clear R	/W List		
	Server Message:				a