

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/sinutrain_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 OPCua 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/contents-of-the-simatic-net-trial-dvd-v16-?dti=0&lc=en-GB>

V15 sp1

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

V15

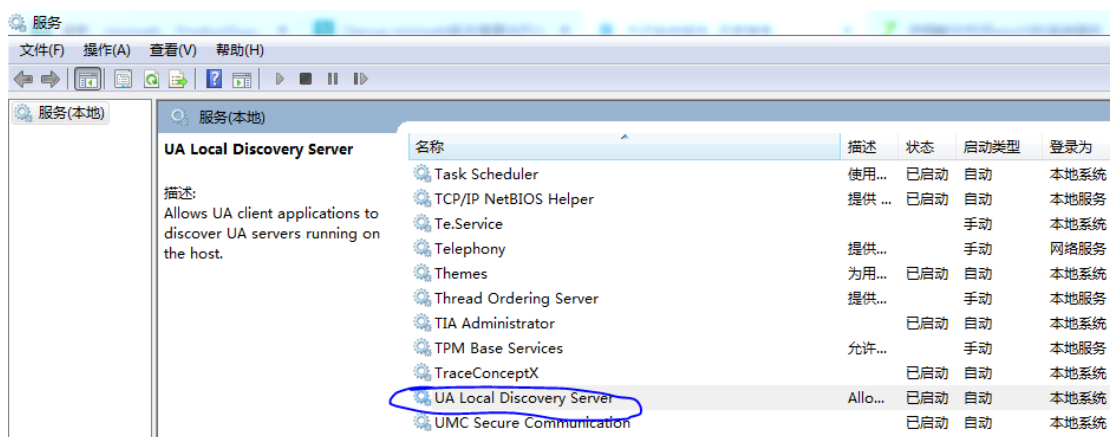
<https://support.industry.siemens.com/cs/document/109759410/contents-of-the-simatic-net-trial-dvd-v15-?dti=0&dl=en&lc=zh-CN>

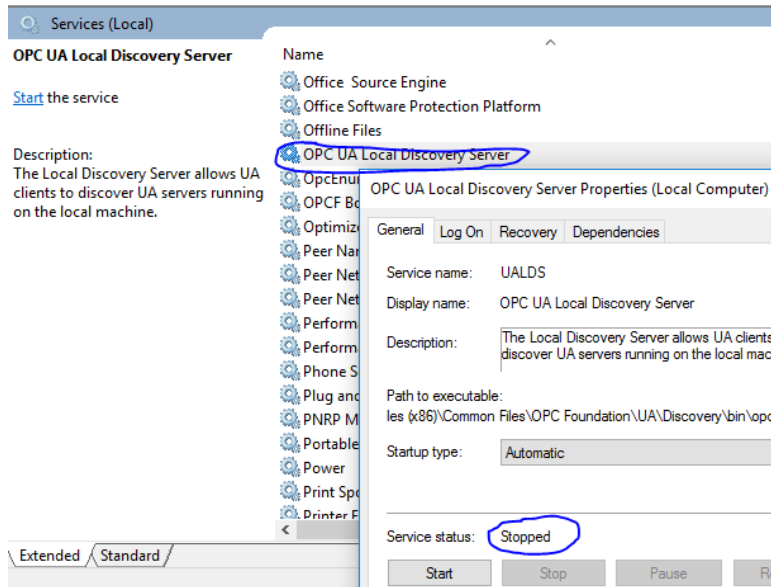
V14 sp1

<https://support.industry.siemens.com/cs/document/109757169/contents-of-the-simatic-net-trial-dvd-v14-spl-?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





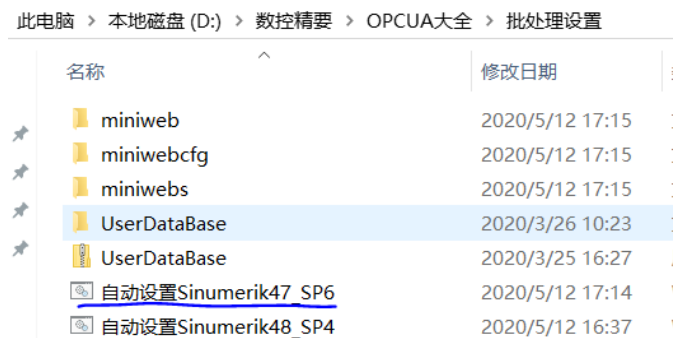
另外，必须启动 NetTcpPortSharing 服务

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



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

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 sl 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

```
<BUILDINFO          ProductName="Sinumerik OPC UA"
                    ProductUri="http://automation.siemens.com"
                    ManufacturerName="Siemens AG I DT MC"
                    SoftwareVersion="4.4.0"
                    BuildNumber="2"/>
<APPLICATIONDESCRIPTION ApplicationUri="urn:localhost:miniweb"
                        ApplicationNameLocale="en_us"
                        ApplicationNameText="Sinumerik OPC UA OEM"
                        DNSNAME=localhost />
<ENDPOINTDESCRIPTION URL="opc.tcp://localhost:4840"/>
<NODEMANAGEMENT     TargetProviderName="NodeManagementProvider"/>
</OPCUAAPPLICATION>
```

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，**请不要关闭**。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
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: LicenseSrcv.
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
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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, 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: LicenseSrcv.
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
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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, 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

