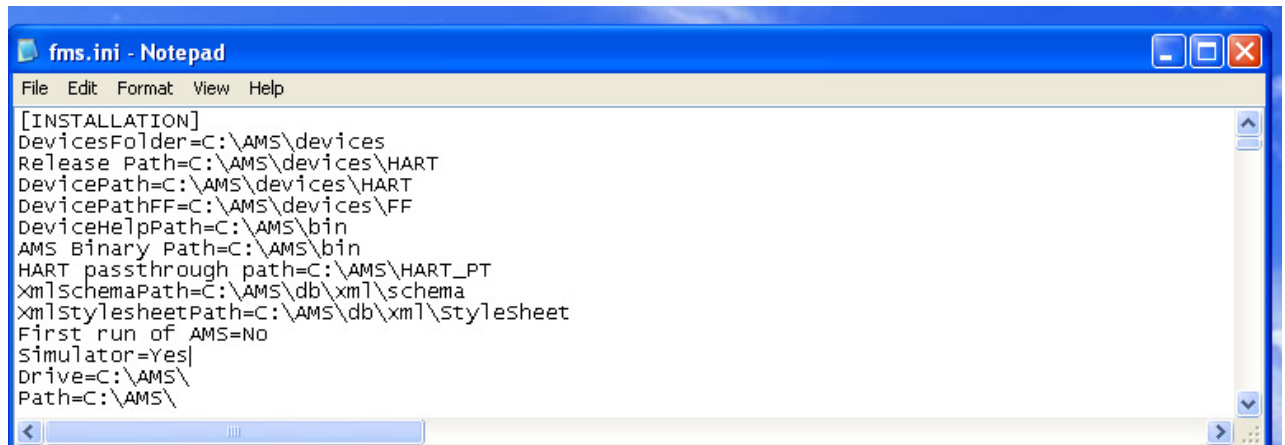


Profibus Device Simulation

Step One: Setup AMS to support simulation

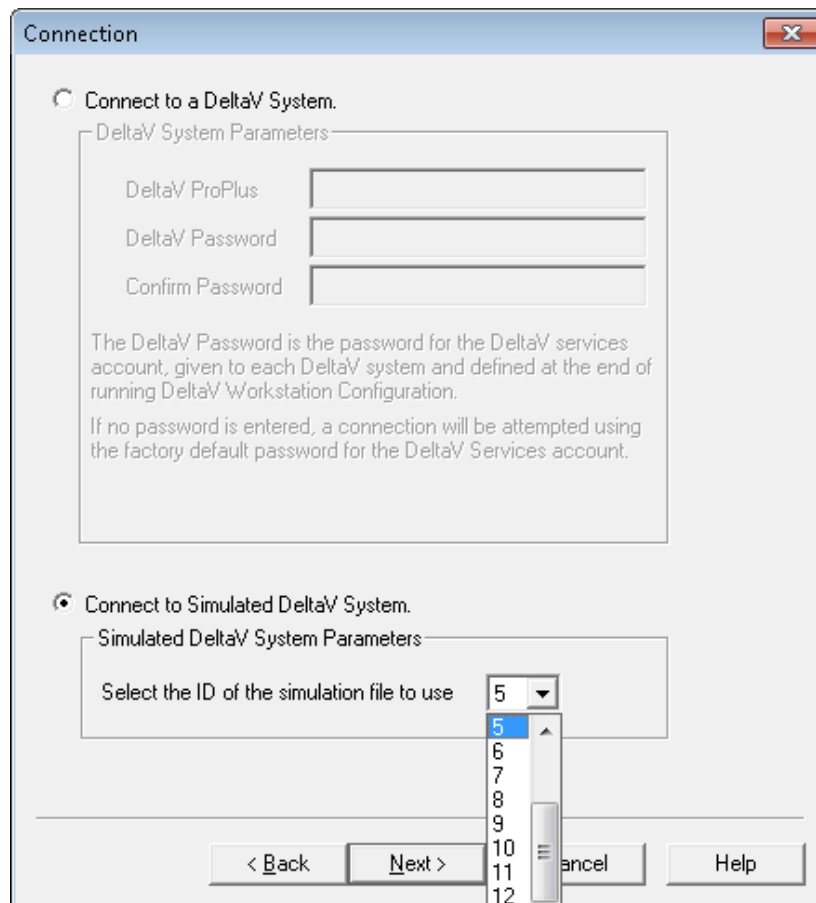
FMS.INI file

- go to Windows Start then Run and open fms.ini or go to C:\WINDOWS and open fms.ini file
- set Simulator to Yes, then close and save the file.



Add Simulated Network in AMS.

- Open AMS Network Configuration.
- Click Add... button and install DeltaV Network.
- In Connection Dialog box, select "Connect to Simulated DeltaV System" and select your Simulation File ID (0-16).
- Finish the Add Network Wizard and close the Network Configuration window.

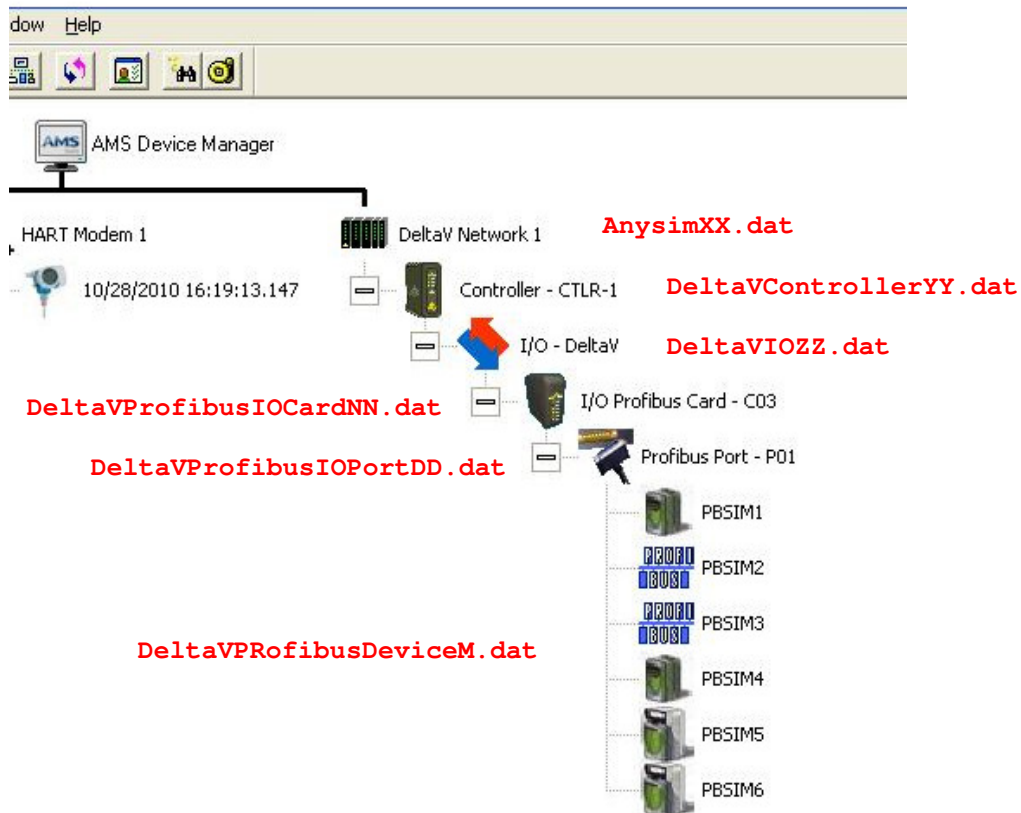


Step Two: Create the simulation set

This step generates the simulation set AMS Device Manager will use to simulate the Profibus Devices in DeltaV network. This set is composed of .DAT files which also dictate the structure of the simulation. Below are the .DAT files needed for the simulation:

Anysim XX .dat	where: XX - simulation ID (0-16)
DeltaVController YY .dat	where: YY - DeltaV Controller Level Num.
DeltaVIO ZZ .dat	where: ZZ - DeltaV IO level
DeltaVProfibusIOCard NN .dat	where: NN - Profibus Card Number
DeltaVProfibusIOPort DD .dat	where: DD - Profibus Port Number
DeltaVProfibusDevice M .dat	where: M - Device Number

Below is a Sample of the simulated HSE Network with 2 FF devices:



The screenshot above shows the simulated DeltaV Network Ladder and the corresponding .dat file for each ladder.

AnysimXX.dat

AnysimXX.dat is the highest in the ladder of simulated DeltaV Network. Below shows the content of this file:

```
-----  
Name  
<Network Name>  
Kind  
10000  
Configuration File  
DeltaVControllerYY.dat  
-----
```

You can add more linking device by adding another DeltaVControllerYY.dat

Example:

```
-----  
Name  
DeltaV Network 1  
Kind  
10000  
Configuration File  
DeltaVController01.dat  
Configuration File  
DeltaVController02.dat  
-----
```

DeltaVControllerYY.dat

This file is for the second level of the ladder which is the Controller.

```
-----  
Name  
<Controller Name> - CTLR-Y //should be 1 if YY = 01  
Kind  
10001  
Configuration File  
DeltaVIOZZ.dat  
-----
```

You can also add more Controllers by appending another Configuration File line and the corresponding .dat file.

Example:

```
-----  
Name  
Controller - CTLR-1  
Kind  
10001  
Configuration File  
DeltaVIO01.dat  
Configuration File  
DeltaVIO02.dat  
-----
```

DeltaVIOZZ.dat

This file is for the DeltaV IO ladder. This will handle different types of I/O Cards such as HART, Foundation Fieldbus and in this case, Profibus Card.

```
Name
<I/O Name>
Kind
10003
Configuration File
DeltaVProfibusIOCardNN.dat
```

Example:

```
Name
I/O - DeltaV
Kind
10003
Configuration File
DeltaVProfibusIOCard01.dat
Configuration File
DeltaVProfibusIOCard02.dat
```

DeltaVProfibusIOCardNN.dat

This file simulates the Profibus I/O Card.

```
Name
"<I/O Profibus Card Number Name> - CNN"
Kind
10012
Configuration File
DeltaVProfibusIOPortDD.dat
```

Example:

```
Name
"I/O Profibus Card - C01"
Kind
10012
Configuration File
DeltaVProfibusIOPort01.dat
Configuration File
DeltaVProfibusIOPort02.dat
```

DeltaVProfibusIOPortDD.dat

This file simulates the Profibus Port Number.

```
-----
Name
"<Profibus Port Number Name> - PDD"
Kind
10013
Configuration File
DeltaVProfibusDeviceM.dat
-----
```

Example:

```
Name
"Profibus Port - P01"
Kind
10013
Configuration File
DeltaVProfibusDevice1.dat
Configuration File
DeltaVProfibusDevice2.dat
-----
```

DeltaVProfibusDeviceM.dat

This file has the most information in all of the DAT files created. This is the device level DAT file. The user needs to have the copy of .GSD or .GSE open in creating DeltaVProfibusDeviceM.dat.

The GSD or GSE file is located in the device folder (Example: ~AMS\Devices \PROFIBUS-DP\000160\0002).

```
-----
Name
"<Tag Name>"
Kind
90
HARDWARE_PATH
CTLR-Y IOZ CNN PDD      //for Y and Z, if YY=01 then Y=1
Comm Address
"<MFGID.HEX><DEV.TYPEID.HEX><DEVREV.HEX><Tag Name> 71,
<MFGID.DEC>,<DEV.TYPEID.DEC>,<DEVREV.DEC>"
HostTag
"<Tag Name>"
GSDIdent_Number
< Ident_Number.DEC>      //Variables in red are from GSD/GSE file
GSDVendor_Name
< Vendor_Name>
GSDModel_Name
<Model_Name>
GSDRevision
"<Revision>"
MfrID
<MFGID.DEC>
-----
```

```
DeviceType
<DEV.TYPEID.DEC>
DeviceRevision
<DEVREV.DEC>
DeviceID
"<MFGID.HEX><DEV.TYPEID.HEX><DEVREV.HEX><Tag Name>"
```

Example:

```
Filename: DeltaVProfibusDevice1.Dat
Device: Control Techniques Commander SK Rev 1
Mfg ID(hex): 000160
Device Type ID(hex): 0002
Device Rev(hex): 1
```

```
Name
"PBSIM1"
Kind
90
HARDWARE_PATH
CTLR-1 IO1 C01 P01
Comm Address
"0000016000020001pbsim1 71,352,2,1"
HostTag
"PBSIM1"
GSDIdent_Number
1650
GSDVendor_Name
Control Techniques
GSDModel_Name
Commander SK (DP-V1)
GSDRevision
"1.5"
MfrID
352
DeviceType
2
DeviceRevision
1
DeviceID
"0000016000020001pbsim1"
```

Put all the .dat file in the devices folder under AMS (~AMS\Device)

Step Three: Simulation File Creations (.INI file)

The Simulation file contains generated values for all the parameters of the device. An application for creating this file is available in AMS Device Manager. The user just needs to know where the application is and how it works.

Application Name: **SimulationFileCreator.exe**

Location: ~ **AMS\Bin**

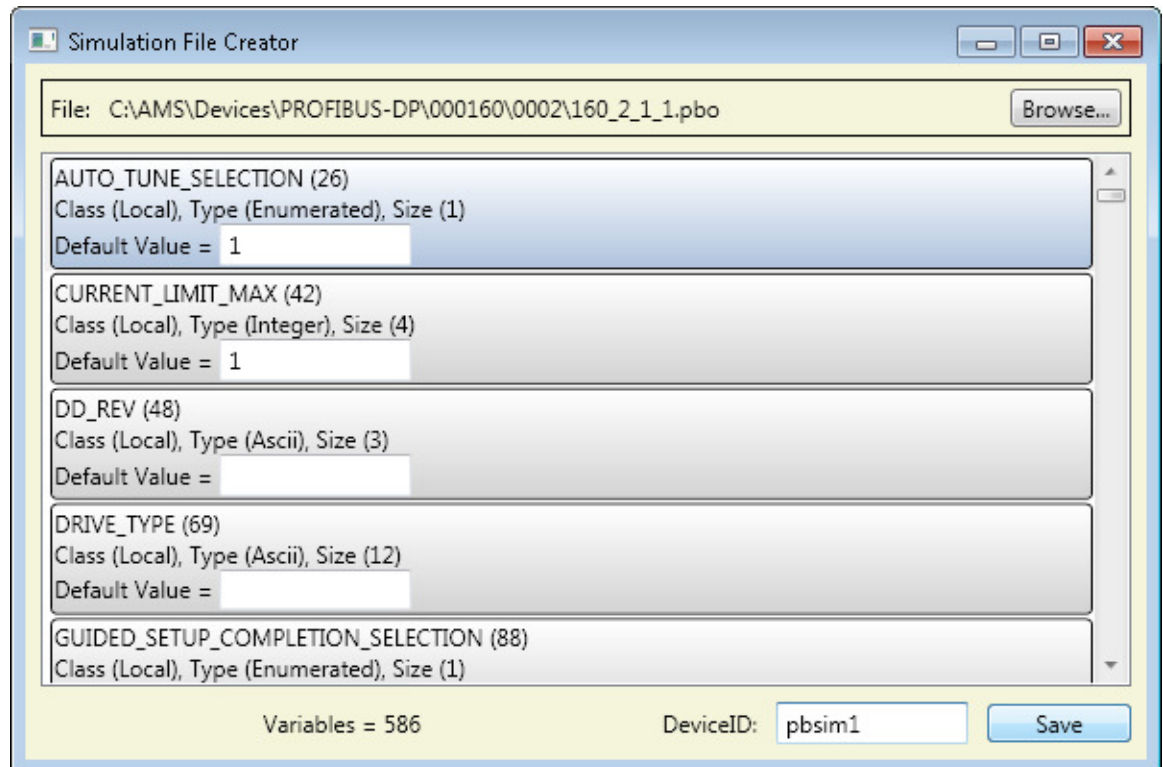
Files Needed:

- **DeltaVProfibusDeviceM.dat file** (must be available before the simulation file)
 - **.PBO file** (Device DD)
1. Launch the SimulationFileCreator.exe
 2. Browse to the PBO file of the device you want to simulate and open it.
 3. After it loads the variables, enter the DeviceID of the device you wish to simulate, this should match the Tag Name in the Device's DAT file and will be the same device id that you will identify it with later on.

Example:

Tag Name = "PBSIM1" //reason why the DeltaVProfibusDeviceM.dat must be created first.







DeviceID = "0000016000020001pbsim1"



4. If you wish to change the default values for any of the variables, now would be a good time to do it. Typically you will not need to modify the default value.

- Click the Save button. The file will then be saved in Devices folder; ~AMS\Devices. The output filename is the same with the DeviceID.

Example generated files:

Name ▲	Size	Type
 0000001F24000001PBSIM2.ini	17 KB	Configuration Settings
 0000002A00010200PBSIM3.ini	54 KB	Configuration Settings
 0000016000010001PBSIM5.ini	71 KB	Configuration Settings
 0000016000010002PBSIM6.ini	71 KB	Configuration Settings
 0000016000020001PBSIM1.ini	12 KB	Configuration Settings
 0000016000020002PBSIM4.ini	12 KB	Configuration Settings

Once all the required files are in Devices folder (,dat files and metadata files), start AMS device manager and execute Rebuild Hierarchy in your Simulated DeltaV Network.