Studio360

powered by

Smartware Studio™

User's Guide

Version 5.0.539
July 2020

Smartware Technologies
1000 Young Street, Suite 450
Tonawanda, NY 14150

Sales and Support
(716) 213-2222

www.smartwaretech.com

Table of Contents

1. INTRODUCTION / ABOUT THIS GUIDE 9

Introducing *Studio360 powered by Smartware Studio* 9
What Does "*powered by Smartware Studio*" Mean? 10
Where Do I Start? 10
About This Guide 12
Other Guides 12
Installing and Administering Smartware Studio *12*
Using the Estimating Module *13*
Using the Designer Module (Design360) *13*
To Learn More about Smartware Studio 13
To Contact Us 13

2. SMARTWARE STUDIO PROJECTS 15

Types of Projects 15
What is Stored in a Project? 16
The Project View *17*
The Network View *17*
Local and Server Projects 18
Creating a New Local Project *18*
Moving a Local Project to the Server *18*
Working with Server Projects 19
Opening a Server Project *19*
Checking Out a Project *20*
Closing a Project *21*
Recent and Favorite Projects *22*
Studio Shortcuts to Projects *23*
Project Previous Versions *23*
Project Nodes 24
Project Properties *25*
Overriding Project Properties *25*
Using Project Properties in Reports and Templates *26*
Custom Project Properties *26*
Importing Project Properties *28*
Other Project Tasks 28
Duplicating Projects *28*
Deleting Projects *29*
Download All Files *30*
New Project Templates 30
Creating a New Project Template *30*
Using a New Project Template when Creating a New Project *31*
Organizing Server Projects 31
Embedding Projects in a Customer Site or Job *31*
Project Shortcuts *32*
Extracting Embedded Projects to Stand-Alone Projects *34*
Server Project Groups 35
Creating and Editing Project Groups *35*
Assigning Projects to Groups *37*
Browsing for Projects in Groups *38*

3. WORKING WITH FOLDERS AND VIEW ITEMS 39

Property Tabs for Items 39
Building the Project View Tree 40
Checking Out a Project 41
Adding Items to the Project View Tree 41
Selecting Folders 41
Moving and Reordering Folders 41
Copying and Duplicating Folders 42
Renaming Folders 42
Deleting Folders 43
Restoring Deleted Items 44
Exporting Folders and Files 46
Exporting Folders and Files to Windows 46
Exporting Folders and Files to a Zip File 46
Exporting Project Tree Nodes as a Studio Export File (.stexp or .stzip) 46
Importing Folders and Files 47
Importing Folders and Files from Windows 47
Importing Project Tree Nodes from a Studio Export File 47
Other Folder Tasks 48
Sending Files in an Email 48
Searching for Nodes 48
Creating Studio Shortcuts to Folders 49
Sharing a Folder with a Cloud Account 49
Viewing Folder ID Numbers 49
Using a Folder with Other Windows Applications 50

4. WORKING WITH FILES 53

The Files Tab 53
Adding Existing Files to a Folder 53
Moving Files between Folders 54
Copying Files Back to Windows 54
Creating New Files from Blank Templates 54
Adding Descriptions and Comments to a File 55
Setting the Document State 55
Searching Files 55
Adding Windows Shortcuts to Files or Web Sites to a Folder 56
How Files are Stored Locally and on the Server (Synch Status) 56
The File Synch Status 57
Downloading Files 57
Managing and Cleaning Up Local Files 58
Setting a Local File Quota 60
Uploading Files to the Server 60
Uploading Files 61
Ignoring Changes to a File 61
Other File Tasks 61
Creating a Zip File 61
Converting to PDF and Printing 62
Emailing Files 62
Creating Studio Shortcuts to Files 62
Using the Studio Clipboard Folder 63
Using Visio Viewer 63
Sharing a File with a Cloud Account 63
Creating an Outlook Reminder for a File 64

Deleting and Restoring Files 64
Deleting Files from a Local Project *64*
Deleting Files from Server Projects *64*
Restoring Deleted Files from the Server *65*
Purging Deleted Files *66*
Previous Versions of Files 66
File Conflicts 67
Locking and Signing Files 69
Subscribing to File Notifications 70

5. WORKING WITH EMAIL 73

The Emails Tab 73
Viewing Emails and Attachments *73*
Searching for Emails *74*
Forwarding Emails *74*
Copying Emails into Smartware Studio 74
Forwarding Emails into a Smartware Studio Project 75
Specifying an Email Alias for a Folder *75*
Accessing a Shared Contact List in Microsoft Outlook *76*
Selecting an Email Address from the Smartware Studio Contact List *78*

6. THE NETWORK TREE 81

Viewing the Network Tree 81
Checking Out the Project *81*
The Structure of the Network Tree 82
Device Properties *83*
Building the Network Tree 86
Adding Devices to the Network Tree *87*
Configuring Device Buses *88*
Deleting Multiple Devices from the Network Tree *89*
Reordering Devices *89*
Property Sheets and Reports 90
Property Sheet Reports *92*
Importing and Exporting Property Sheet Data *93*
The Passwords Tab 94
Password View History *94*
Password Monitoring Emails *95*
Automation Overview Diagrams 95
Generating an Automation Overview Diagaram *96*
Device Caption *97*
Automation Overview Options *99*
Custom Template File for Automation Overview Pages *100*
Device Points 100
Viewing Aggregate Point Counts *101*
Importing from WorkPlace Tech Application Files *101*
Exporting to Excel *102*
Importing from Excel *102*

7. NETWORK TREE SOFTWARE FILES 103

The Software File Properties 103
Software Files Report *104*
If Software File Is Not Required *105*
Scanning Files 105
Copy Software Files to Devices 106
Duplicating a Single Software File among Multiple Devices 108
Working with WorkPlace Tech 109
Opening WorkPlace Tech *110*
Comparing WorkPlace Tech Application Files *113*
Creating a New WorkPlace Tech Application File *113*
Creating New Application Files within WorkPlace Tech *113*
Exporting the Temporary WorkPlace Tech Project *114*
Configuring the WorkPlace Tech Settings *114*
Working with XPSI 115
Configuring the XPSI Program Settings *118*

8. NETWORK TREE DEVICES 119

EcoStruxure Devices 120
Importing Devices from Xml Files *120*
Niagara Ax Devices 121
Importing Devices *122*
Niagara R2 Devices 122
Bus Configuration Tab *123*
Backing Up a Station *123*
Converting a Station Backup to a Different Format *124*
License Properties *125*
View Station Tree *125*
Import and Resync Devices *126*
Continuum Devices 128
Importing Devices from .DMP files *128*
I/A Network 8000 GCM Devices 130
Backing Up the GCM Block Database *131*
Importing the GCM Block Database *131*
Automatically Building the Network Tree from the GCM Database *133*
LNC Devices *134*
PC Network 138
The Ethernet Router *138*
Remote Connection *139*
Security Devices 139

9. THE SUBMITTAL GENERATOR 141

The Submittal Document 141
Adding Submittal Nodes *142*
Generating the Submittal PDF *142*
Page Numbers *143*
Custom Headers and Footers *144*
Design Pages 145
Part Information PDFs 146
Filtering the Parts to Include *146*
PDF Versions *147*
PDF Files *147*
Sorting the PDFs *148*
Title Pages *148*

Reports 149
Schedule Node Reports *150*
Files 150
Sections 152
Title Pages and Tables of Contents 152
Adding a Title Page to the Submittal Document *152*
Customizing a Title Page Template File *153*
Tables of Contents *153*

10. SCHEDULES AND THE SCHEDULE BUILDER 155

Older Schedules in Smartware Studio *155*
Schedule Nodes 155
Creating a Schedule Node *156*
Updating a Schedule's Template *158*
Creating and Working with Schedule Rows *159*
Editing Schedule Data *159*
Network Tree Schedules *160*
Importing Data into the Schedule *162*
Reports *163*
Schedule Charts in Designer Drawings *164*
Pre-Defined Schedule Templates 164
Valve and Mechanical Schedules *164*
Security Doors *164*
Controller Smart Chart *165*
Automated Engineering Tool (AET) *165*
Creating Custom Schedule Templates 165
The Schedule Template Editor *166*
Exporting a Schedule Template *166*
Schedule Columns *167*
Column Data Types *169*
Option List Properties *170*
Calculated Columns *171*
Part Number Properties *171*
Schedule Header Properties *173*
Global Properties *174*
Distributing Schedule Templates and Reports 175
Versioning for and Distributing Updated Schedule Templates *176*

11. MULTI-FILE LIBRARIES (MFLS) 177

Inserting Files from an MFL 177
Filters *178*
Comparing Libraries *179*
Library History *180*
Viewing and Inserting Files *180*
Inserting Project Tree Nodes from an MFL *181*

Creating and Editing MFLs 182
Managing MFLs *182*
Creating an MFL from a Folder *183*
Editing an MFL *183*
Adding and Editing Files *184*
The Preview Image *184*
Updating Designer Drawings *185*
Adding Node Exports *185*
Submitting User MFLs for Approval 186

12. THE PARTS DATABASE 187

Browsing Parts 187
Search Categories *188*
Device Categories *188*
Other Part Browsers *189*
User Parts 189
Submitting User Parts for Approval *190*
Transferring the User Parts Database *190*
User Part Packages 190

13. CONFIGURATION AND OPTIONS 191

Checking for Updates 191
Selecting Downloadable Files 192

1. Introduction / About This Guide

Smartware Studio is a sophisticated environment for use in all aspects of project development, engineering, estimating and document storage.

Introducing *Studio360 powered by Smartware Studio*

Smartware Studio, also known as *Studio360,* is a software platform for creating and managing a wide range of documents and information about engineering control projects. It consists of several fully integrated modules, including:

The Core Module

- Advanced File Storage
- Email Storage
- Automatic online/offline synchronization of files
- Automatic retention of multiple versions of each file
- Network Tree modeling and software file storage
- Password storage
- Part Database and PDF Data Sheet browsing
- Standard System Library

Designer Module (also known as *Design360*)

- Creating of Engineering Submittals using Microsoft Visio
- Controller Library shapes
- Reporting and Checkout Sheets
- Gathering of PDF Reports

Estimating Module

- Creation of Sales and Engineering Estimates and Reports

All the modules include data and direct support for the following Product Lines:

- Schneider Electric I/A Series (I/A Lon, I/A BACnet, Network 8000)
- Schneider Electric Continuum, Vista and I/Net
- Schneider Electric Struxureware

What Does "*powered by Smartware Studio*" Mean?

Studio360 is the Schneider Electric branded edition of Smartware Studio. The installation process and many display elements are customized to best suit the Schneider Electric branches and partners. Both editions contain all of the same features and functionality, so anywhere in the documentation or programs where you may see references to Smartware Studio, you can be sure it applies equally to Studio360.

Likewise, the Designer Module is also referred to as *Design360* and is an integrated version of our well-established *Designer Suite 2005* stand-alone product.

Where Do I Start?

Where you start depends on what type of user you are. There are three general classes of users (you may be more than one):

Type of User	Your Normal Role(s)	What You Want to Do with Studio
User	• Application Engineers • Application Software Developers • Graphics Developers • Project Managers • Estimators • Technicians • Administrative Personnel	• Install the software on your Workstation • Work with Files • Work with Emails • Create Submittal Drawings with Design360 • Model a Controller Network • Store Controller Software
Office Administrator	• Office Manager • Accounting Manager • Engineering Manager • Parts Manager • IT/Network Administrator	• Create and manage User Accounts and Permissions • Manage and issue Workstation licenses • Manage, customize and add to the Parts Database • Manage and control software updates for other users • Create and distribute custom templates for Design360
IT/Network Administrator	• IT/Network Administrator	• Install the software on your server • Create, configure and manage the SQL Server database • Create, configure and manage the shared folder on your file server • Set up file server permissions • Install the software on Workstations

Before anyone in an office can begin to use the system, the *IT/Network Administrator* will need to install and configure the database and file server.

- The *Setup and Administration Guide* provides a complete, detailed walkthrough of the various steps required.
- Once the server has been configured, workstations can be installed and licensed by individual users without them having direct access to the server. The licensing process points each workstation to your server.

You will want to designate at least one person in your office (and possibly several) to be an *Office Administrator*. When using the software, this person has access to additional administrative tasks (through the ADMIN menu and described in the later chapters of the *Setup and Administration Guide*) such as:

- User Account Management
- License Account Management
- Parts Database Management
- Permissions Management
- Design360 Template Management
- Standard Library Management

For all other *Users*

- If the software needs to be installed and/or licenses on their workstation, refer to the relevant chapters in the *Setup and Administration Guide*.
- Once installed, this *User's Guide* will provide a solid foundation of the Core Module and its Project and File storage features.
- For Applications Engineers who will use the *Design360* module, refer to the *Designer Module/Design360 User's Guide*.

NOTE:

- All the *Guides* are available in printer-friendly PDF formats directly from the Help menu or on our web site.
- An *Office Administrator* can determine which other users have access to the administrative features by selecting the ADMIN→USER AND LICENSES menu command.

About This Guide

This guide is intended for all users of Smartware Studio. It describes most of the basics for using it to store and retrieve all types of information for Customer Sites and Job Projects, and how to work with the devices on the Network Tree.

Please refer to the table of contents for a complete list of chapters and topics.

Other Guides

There are a number of other Guides, all of which are available from the Smartware Studio HELP menu or from the Smartware Studio/Studio360 page of our web site.

Installing and Administering Smartware Studio

For complete details on how to install, setup and configure Smartware Studio, refer to the separate *Smartware Studio Setup and Administration Guide.*

Using the Estimating Module

For complete details on how to use the Smartware Studio Estimating Module, refer to the separate *Smartware Studio Estimating Module User's Guide.*

Using the Designer Module (Design360)

For complete details on how to use the Smartware Studio Designer Module, refer to the separate *Smartware Studio Designer Module User's Guide.*

To Learn More about Smartware Studio

Many of the topics covered in this Guide are better illustrated through visual examples. To that end, our video training sessions are available for viewing and downloading from our web site. We encourage you to use these videos as part of your training.

To Contact Us

Our technical support team is available weekdays from 8 am to 5 pm eastern time at (716) 213-2222. You may also visit our web site at http://www.smartwaretech.com or email us at techsupport@smartwaretech.com.

Additionally, all Smartware support and contact information can be found in the HELP→ABOUT SMARTWARE STUDIO / STUDIO 360 menu.

2. Smartware Studio Projects

All Smartware Studio Projects are similar in that they allow you to store all types of files and information in tree-based structures. Where they usually differ is in the type of information that is normally stored in the Project and some of the specific features that are available.

Types of Projects

There are five types of Projects:

- Customer Sites
- Jobs
- Estimates
- Designer (Design360) Projects
- Libraries

A *Customer Site Project* is designed to represent an entire Client Facility, such as an entire school district, manufacturing plant or hospital system. A *Job Project* is intended to represent an accounting-level job or project.

- If the devices from multiple buildings are connected or integrated, they should be part of the same Customer Site project so that a single Network Tree can be used.
- If you have multiple jobs related to a Customer, you can create shortcuts to the Job projects within the Customer Site Project. Refer to the later section on *Organizing Server Projects*.

An *Estimate Project* is used to calculate the costs associated with a prospective project and to create the corresponding quotes and reports. Refer to the *Smartware Studio Estimating Module User's Guide* for more detail.

A Designer (Design360) Project is used to create a project submittal consisting of Visio-based engineering drawings and other schedules and reports. Refer to the *Smartware Studio Designer Module User's Guide* for more detail.

A *Library Project* is intended to be a repository for portions of project trees that you want to share and reuse.

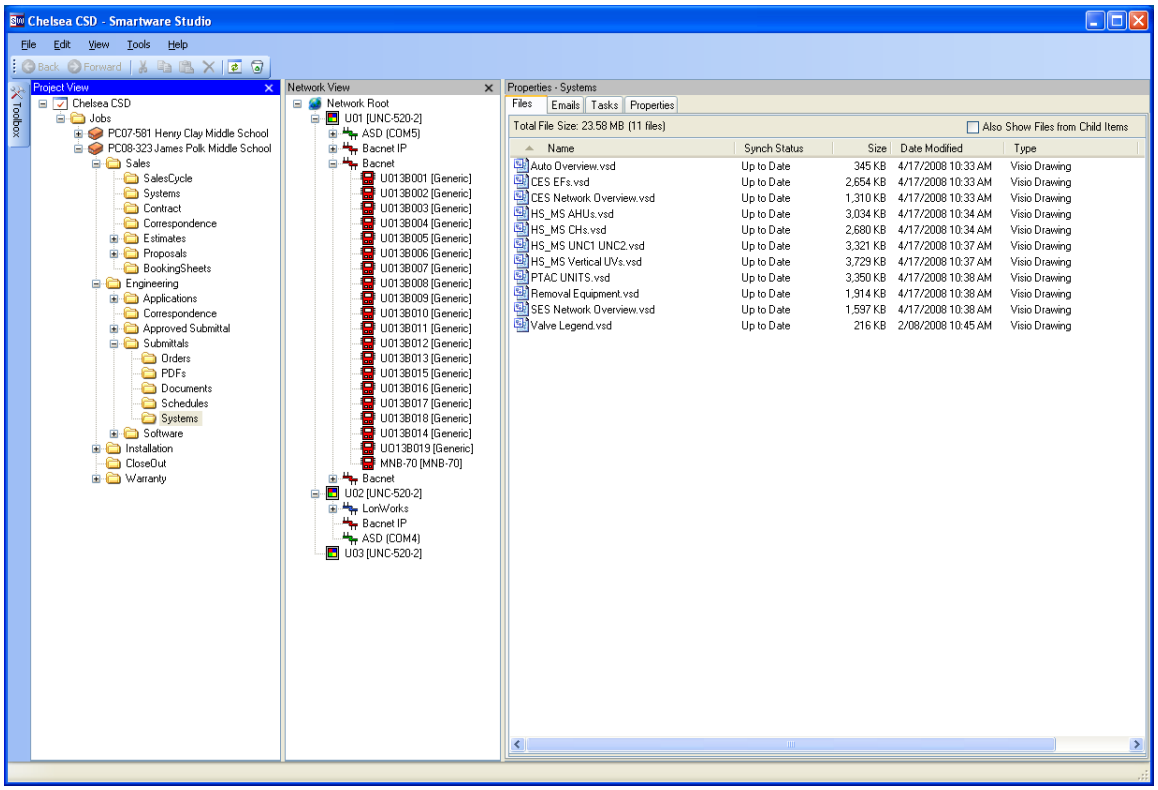
Refer to the later section on *Organizing Server Projects* for more information about the best way to organize projects with and within each other.

What is Stored in a Project?

A Smartware Studio Project consists of two *tree-like* sets of information:

- *The Project View*, which for Customer Sites and Job is essentially the same as the folders and sub-folders in Windows.
    - In a *Designer Project*, the Project View also contains System Folder and Schedule Folders, which hold Designer-specific Visio drawings and Excel schedules.
    - In an *Estimate*, the Project View contains the Estimate's Areas and Systems.
- *The Network View*, which allows you to model the physical layout of the devices in the facility or project.

As you select any item in either tree, a set of tab pages is shown on the right side of the application window:



For any item in either tree, you can store:

- Any type of *files*, which can be shared between users and automatically versioned.
- *Emails* copied from Microsoft Outlook or forwarded from any email program
- *Tasks* and *Notes*
- Additional *properties* specific to the item (e.g., the address of a device)

Not all the tabs may be visible at all times. To explicitly show a tab, select the item from the VIEW menu.

The Project View

The folders in the Project View are intended to store documents of all types.

- There are two main types of folders: *Folders* and *Job Folders*. They are essentially the same, though the Job Folder contains additional properties (e.g., *Job Number*) that will help Smartware Studio located specific jobs across multiple projects.
- There is a default folder in the Project View of a Customer Site called *Jobs*, designed to contain separate Job Folders for each accounting-level job associated with the client facility.
- Each Job Folder can contain any number of sub-folders. A good practice is to have a standard folder structure to use for each job. Refer to the later section on *Organizing Projects*.
- You can import an entire folder structure with all its files from Windows. Right-click on a node and select IMPORT→IMPORT FOLDERS AND FILES.
- You can export a folder structure with all its files to Windows. Right-click on a node and select EXPORT→EXPORT FOLDERS AND FILES.

Refer to the later chapters *Working with Folders and View Items* and *Working with Files* for more details on these and other tasks.

The Network View

The Network View is intended to model a complete facility and its network and devices.

- You can store device-specific information, such as addresses and configuration information with each device.
- You can store software application and backup files directly with the corresponding device nodes.
- The tree can be built by hand from stencils or imported from other device backups, such as a Niagara R2 UNC *config.xml* file, a Network 8000 GCM block file, or a Continuum *.dmp* file.
- Smartware Studio contains advanced tools for working with WorkPlace Tech and generating Automation Overview diagrams.
- There are many customizable reports that can be run with detailed device information.

Refer to later chapters on *The Network Tree* and *Network Tree Software Files* for more details on these and other tasks.

Local and Server Projects

All projects start as a local project stored only on the workstation on which they were created.

Local projects can then be moved to the server so that all users can open and view them, and access and add files, emails and tasks.

Once on the server, Smartware Studio will automatically enable you to keep multiple versions of files, allow users to share and synchronize their files and data, and enable the Password Manager.

Creating a New Local Project

To create a new Local Project:

- If the OPEN PROJECT dialog is not displayed, select the FILE→NEW PROJECT menu command.
- On the OPEN PROJECT dialog, click the NEW PROJECT button under the LOCAL PROJECTS list. You will be prompted to specify the *Project Type* and other information.
- If your company has created any New Project Templates (projects flagged by an administrator as projects to be copied as starting points for new projects), you can choose from the list of Templates for the corresponding Project Type. Refer to the later section on *New Project Templates* for more information.

Moving a Local Project to the Server

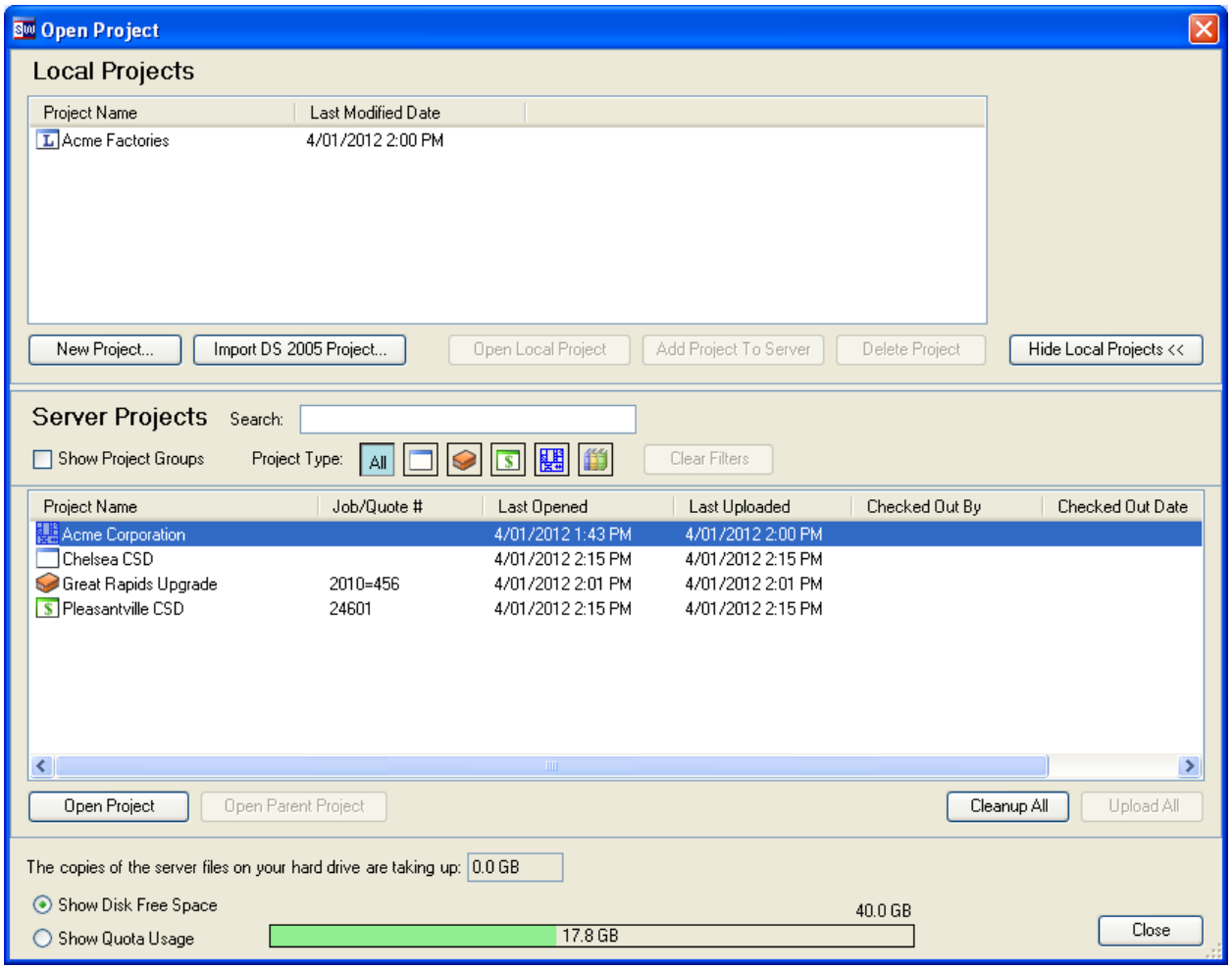
To move a local project to the server:

- From the OPEN PROJECT dialog, select the Local Project from the LOCAL PROJECTS list and click the ADD PROJECT TO SERVER button.
- Or, if the Project is open, select the FILE→ADD PROJECT TO SERVER menu command.
- Once moved to the server, the files will no longer be on the local workstation. You will need to open the project and/or download all the files from the Server Project list to retrieve local copies again.

Working with Server Projects

There are a few additional options you should be aware of when opening and closing projects from the Server.

When Smartware Studio first opens, you will usually be presented with the OPEN PROJECT dialog:



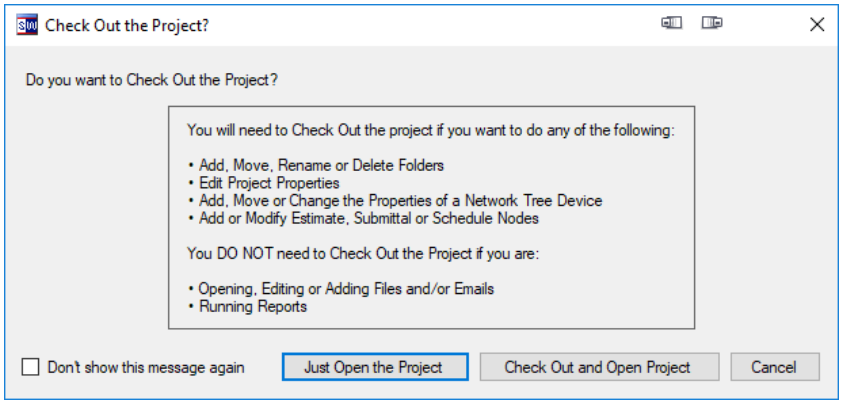
Opening a Server Project

To open a project from the server:

- On the OPEN PROJECT dialog, select the project from the Server Projects list and click the OPEN PROJECT button
    - You can also double-click the project name in the Server Projects list.
- Type characters into the SEARCH box to filter the list of Server projects to just those that contain the characters or keywords.

- Select one of the *Project Type* icon buttons to filter the list of Server projects to just those of that type.
- Click any of the column headings to sort the list by that column. For example, sorting by the *Last Opened* date will show you your most recently used projects.

When you open a Server project, you will be asked if you want to Check Out the project.



- You can also choose to Check Out the project at any time after you open it by selecting FILE→CHECK OUT PROJECT.

Checking Out a Project

If you want to create or edit folders in the Project View, or make changes to the Network View tree, then you will need to Check Out the project.

The project can only be checked out to one person at a time. This prevents two people from making changes to the tree structures at the same time and allows someone to make these types of changes to a server project while not connected to the network.

- Nobody else can check out a project while it is checked out to you. They can, however, add or edit files in that project while you have it checked out.
- If a project is checked out, the username, computer name and date checked out will be displayed in the Open Project dialog.
- You will be prompted to check in the file (by default) when you close it.

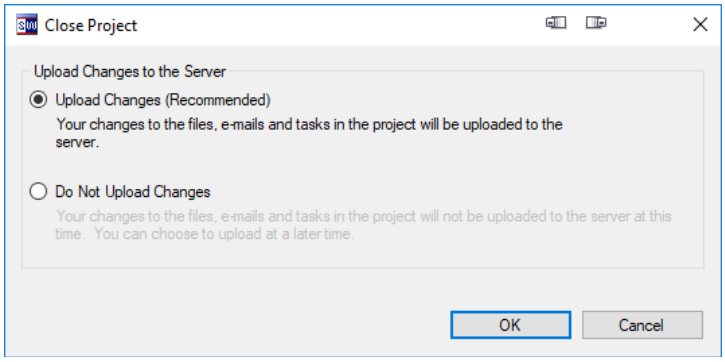
***Note**: If you are only working with the files or emails in a project – including adding or editing them – then you **do not** need to check out the project.*

You can check out a project in a few ways:

- Unless you've disable it, you will be prompted to check out the project when you open it.
- By selecting FILE→CHECK OUT PROJECT when the project is open.
- If you want to check out a project for later editing without opening it, right-click on the project in the Open Project window and select CHECK OUT PROJECT.

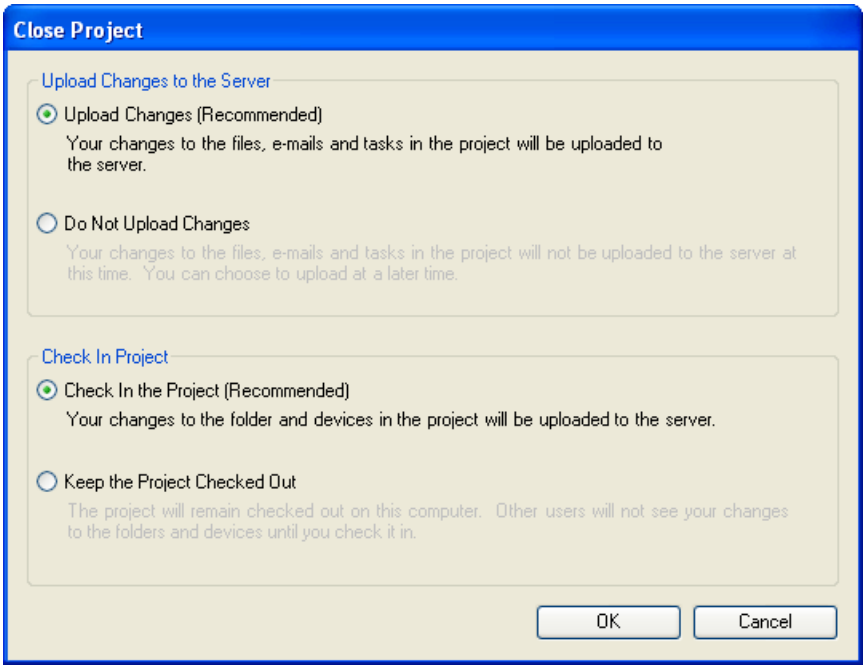
Closing a Project

When you close a Server Project, you will be prompted to upload your changes:



- Unless you have a poor or slow connection, it is recommended that you upload your changes whenever you close your project.
- There are several methods for uploading the changed files later. Refer to the section *Uploading Files* in the later chapter *Working with Files*.

If you had the project checked out, you will also be prompted to check it back in:



- If you keep the project checked out, you can continue to edit it the next time you open it, even if you are not connected to the server at that time.
- If you want to check out a project for later editing without opening it, right-click on the project in the Open Project window and select CHECK OUT PROJECT.

Recent and Favorite Projects

You can quickly access recently opened projects.

- The FILE→RECENT PROJECTS menu shows a list of the most recent projects you opened, including local, server and remote projects. Selecting the project name opens it in a separate instance of Studio.
- You can specify the number of projects to show on the menu from the TOOLS→OPTIONS form on the *Workstation* tab.

You can also create your own list of favorite projects that can be accessed from the FILE→FAVORITE PROJECTS menu. To add a project to your favorites:

- To add a project to your favorites, right-click on the project in the Open Project list and select ADD TO FAVORITES.
- To add the currently opened project to your favorites select FILE→FAVORITE PROJECTS→ADD CURRENT PROJECT TO FAVORITES.

You can manage your list of Favorites by selecting FILE→FAVORITE PROJECTS→MANAGE FAVORITE PROJECTS. This will open the Favorites folder, which contains a *Studio Shortcut File* (*.stcmd*) for each favorite. You can delete these files or add others.

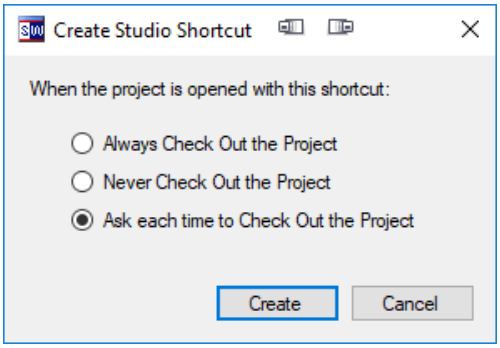
- Refer to the next section *Studio Shortcuts to Projects* for more details.

Studio Shortcuts to Projects

A Studio Shortcut file is a file that, when double-clicked, starts Smartware Studio and opens a specific project, folder, file or remote server.

- To create a Studio Shortcut to open a project, right-click on the project in the Open Project list and select CREATE STUDIO SHORTCUT.

You will be asked whether or not the shortcut should automatically check out the project when it's opened, or whether you should be asked each time:

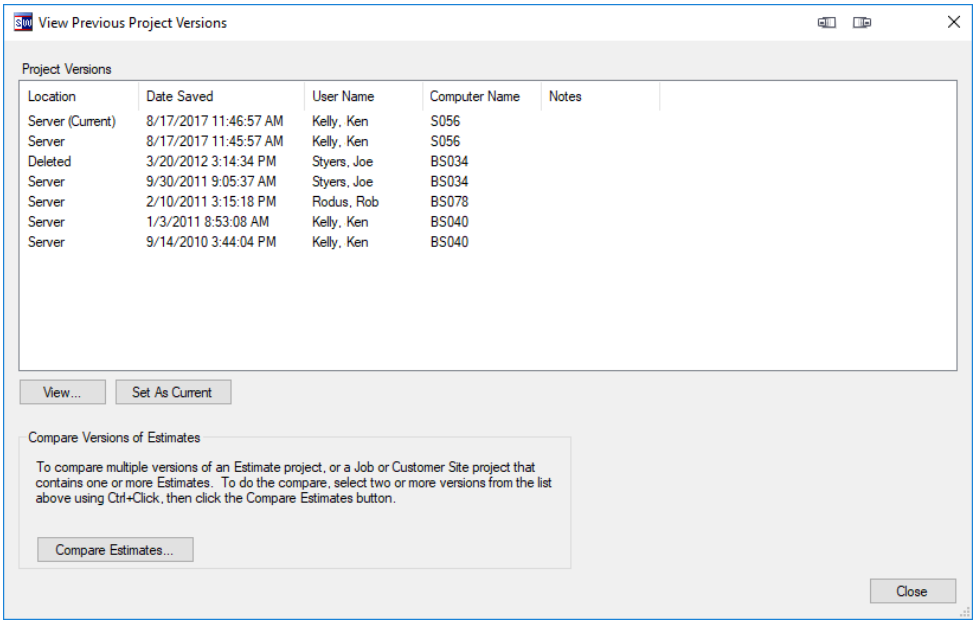


- You can save the shortcut (a *.stcmd* file) anywhere, such as your desktop, for easy access.
- You can email the shortcut file to another user in your organization. Refer to the later chapter, *Working with Email*.

Project Previous Versions

There might be times when you want to view an older version of a project. Each time a project is checked in on the server, a copy of the previous version is kept. In addition, for projects that you edited, there may also be additional auto-saved backups available on your local machine.

To view the list of previous versions of a project, from the OPEN PROJECT window select a Server Project, then right-click → VIEW PREVIOUS PROJECT VERSIONS:



To view a previous version of the project, select the version you wish to see and click the VIEW button.

- The project will be opened in a read-only mode.
- You will not see any files. To access previous versions of files, open the current version of the project, right-click on the file and select PREVIOUS VERSIONS.
- The SET AS CURRENT will copy the selected previous version and make it the current version, essentially undoing any changes made in the versions in between.
    - This option should be used carefully. If you revert to a previous version and there were new folders that had files, these files will not be accessible.

Project Nodes

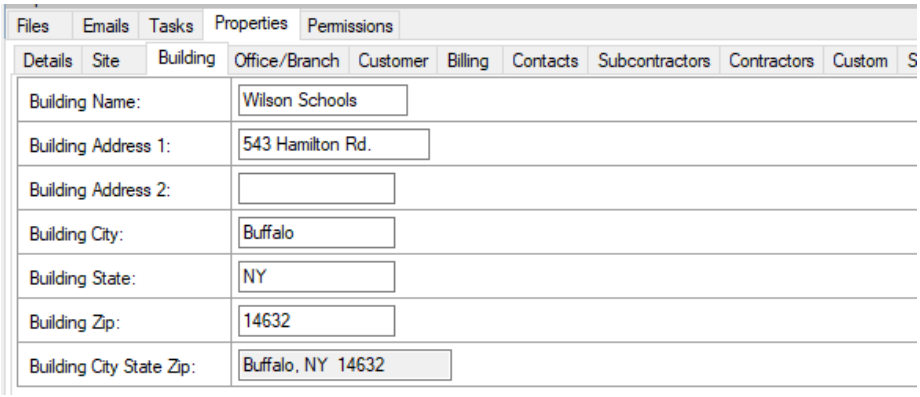
The root node at the top of the Project Tree is based on the type of the project. It can be a *Customer Site*, *Job*, *Designer* or *Estimate* node. These types of nodes are referred to collectively as *Project Nodes*.

You can also create Job, Designer or Estimate nodes inside of other Customer Site or Job projects. These Project Nodes function similarly.

- The later section on *Organizing Server Projects* has more detail on recommended project structures and other options.

Project Properties

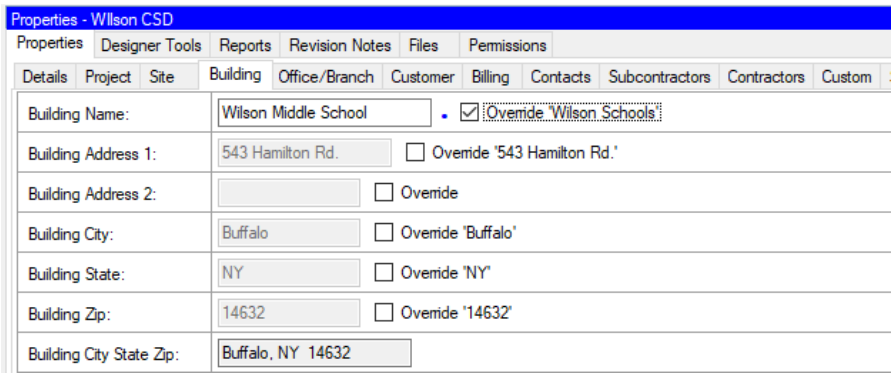
All Project Nodes have an extensive set of fields on their *Properties* tab, such as information about the Customer, the Building, the Contacts and the Subcontractors for the Project. These *Project Properties* can be used for easy reference and when generating reports, documents and submittals for your projects.



- As with all properties, the project needs to be checked out in order to edit them.
- For convenience, users who do not have a license for the Estimating module can still edit an Estimate's Project Properties.
- The Project Properties are generally text strings. For a more database-driven version of this type of information, consider the *Studio Management Module*.

Overriding Project Properties

When a Job, Estimate or Designer project is embedded in another project, such as a Customer Site project, the values will be *inherited* (copied) from the parent project. You can override these values on a one-by-one basis.



- Check the OVERRIDE box to make the value editable. Unchecking the box returns the value to be a copy of the parent project's value for that field.

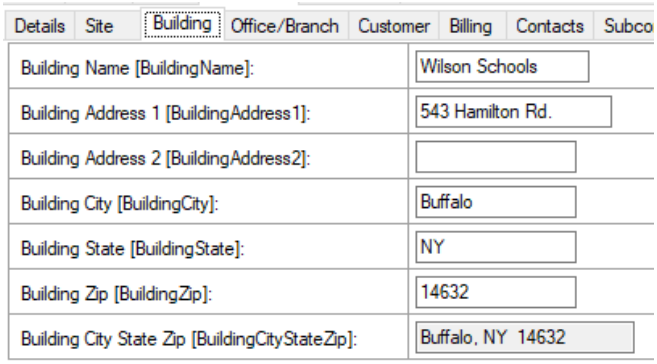
Using Project Properties in Reports and Templates

In various places in Studio you can create reports and templates that have placeholders for values such as the project name or number.

- These values are generally in a form such as <*SiteName*>.

Each property has a specific *Property Name*, which does not include spaces and may differ slightly from the label on the Properties tab.

- To show the name of all the properties, select VIEW→PROPERTY NAMES.



- The Property Name appears in brackets next to the label.

The properties on the *Details* tab include some that overlap between different types of projects:

- The fields <*ProjectName*> and <*ProjectNumber*> are available for all projects, but they map to different properties of different project types:
  - Job and Design projects have both properties
  - Customer Site projects have a *Project Number* property. The *Project Name* property is set to the *Name* property.
  - For Estimate projects, the *Project Name* and *Project Number* are set to the *Estimate Name* and *Quote Number* properties, respectively.
- The *JobName* and *JobNumber* properties are not normally available in the Designer and Estimate node and will carry down from a Job node if the Designer or Estimate node is within a Job.

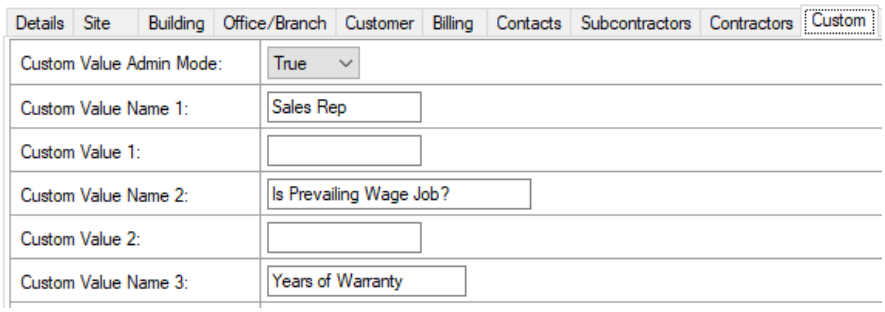
Custom Project Properties

The Project Properties include a *Custom* tab that allows you to add up to 60 custom Project Properties. You can create your own names and labels for these to build a custom form.

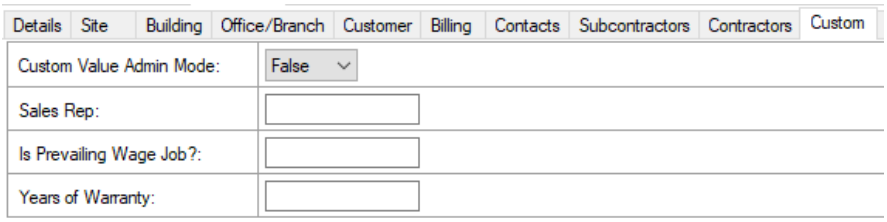
For each custom property (1 to 60), there are actually two properties:

- *Custom Value N*, which is the value of the property (always a string).
- *Custom Value Name N*, which is the name of the corresponding property.

There is another property, *Custom Value Admin Mode*, that is used to define the custom properties. Set this to *True* to show both sets of properties are shown with their actual property names.



When you are done defining the fields, set the Admin Mode to *False* and only the *Custom Value* fields that have a *Custom Value Name* field are shown. That custom name is used as the label.



The Custom Values are available as part of the Header table when using the reporting tools. Each value will have two different field codes.

- If, for example, *Custom Value Name5* is “Sales Rep”, then the value of *Custom Value 5* will be available using either field code <*CustomValue5*> or <*SalesRep*>.
    - The second field code is the name without spaces.
- You can also specify an explicit field code as part of *CustomValueName5*. If it was “Sales Rep <EmpSales>”, then the field codes would be <*CustomValue5*> or <*EmpSales*>, but the label on the Custom tab would still show as “Sales Rep”.

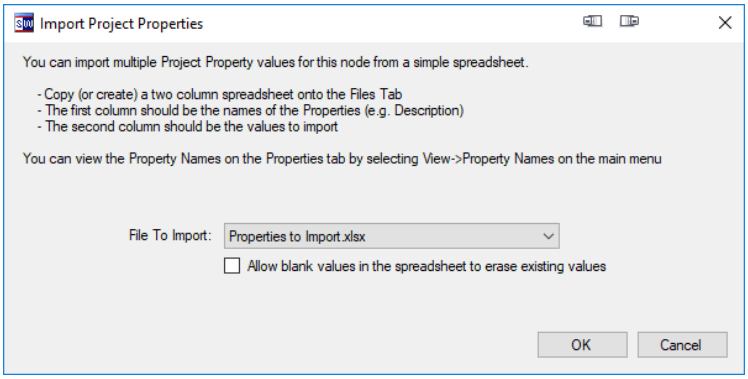
You can also specify that you want the value's textbox to be multi-lined.

- In the *Custom Value Name* field (e.g. *Custom Value Name 1)*, include the code "[M]" at the end of the name (e.g. "Salesperson's Notes [M]"). The associated Custom Value field will then be displayed as multiple lines.
    - If using a custom Property Name, add the [M] after it (e.g. "Salespersons's Notes <SalesNotes>[M]").

Importing Project Properties

You can import a set of Project Property values (e.g., *Customer Name, Project Manager*) from a simple spreadsheet onto any Project Node.

- Create a simple to column spreadsheet with the property Names and Values and save it to the *Files* tab of the project node.
- Right-click on the node and select IMPORT→IMPORT PROJECT PROPERTIES.



- Select the file in the list and click OK to import.

Other Project Tasks

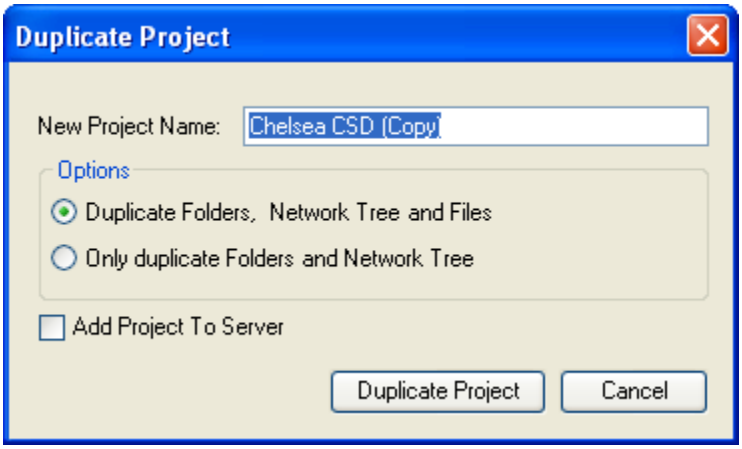
Some other common tasks that you can do with all types of projects include Duplicating Projects and Deleting Projects.

Duplicating Projects

You can make a complete copy of an entire project, including its folders, files and all associated properties. For Estimate projects, this includes all the settings and values in the Estimate.

To duplicate a project:

- In the Open Project dialog, right-click on the name of the local or server project and select DUPLICATE PROJECT.



- By default, all the files will be duplicated along with the Project and Network view folders and items. You can also choose to ONLY DUPLICATE FOLDERS AND NETWORK TREE.

Regardless of whether the project was local or on the server, the duplicated project will be created as a Local Project. You can then upload it to the server as you would any local project.

- You can also select the ADD PROJECT TO SERVER checkbox to do this automatically.

Deleting Projects

Deleting a project will remove the project, its folders and all the files within. You should ensure that a project is truly not needed anymore before deleting it.

To delete a local project:

- Select the project in the Local Project list and click DELETE PROJECT. You can also right-click on the project name and select DELETE PROJECT.

To delete a server project:

- Right-click on the project in the Server Project list and select ADMIN→DELETE SERVER PROJECT.

- When server projects are deleted, they are actually *marked as deleted* on the server. They can be restored by an appropriate administrator from the ADMIN→SERVER CONFIGURATION tool (until the deleted project is *purged*). Refer to the *Setup and Administration Guide* for more information.
- You can control who has the ability to delete server projects by setting the appropriate Project Permission for each project type. Refer to the *Setup and Administration Guide* for more information.

Download All Files

There may be cases where you want to download all of the files in a project ahead of time to use offline.

- To download all the files in a project, right-click on the project and select DOWNLOAD ALL FILES.

New Project Templates

It is a good practice to have a standard organization and structure to the various types of projects that you create with Smartware Studio. To help make it easy to manage and use these structures, you can create one or more projects of any type that will serve as a *template* for new projects to be created.

Creating a New Project Template

A *New Project Template* is just a server project that has been flagged as such. There are no other restrictions or requirements. To mark a project as a New Project Template:

- In the Open Project list, right-click on the server project and select ADMIN→MAKE PROJECT A NEW PROJECT TEMPLATE.
- You can control who has the ability to mark projects as templates by setting the *Set Project Group and Templates* Project Permission for each project type. Refer to the *Setup and Administration Guide* for more information.

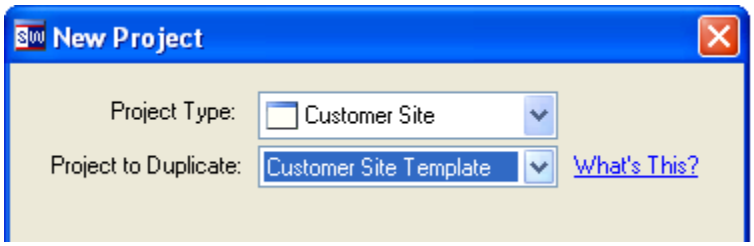
You can remove the project from the New Project Template list:

- In the Open Project list, right-click on the server project and select ADMIN→UNMARK PROJECT AS NEW PROJECT TEMPLATE.

To view all the projects that are marked as New Project Templates, set *the Project Template* option to *Only Show Templates*.

Using a New Project Template when Creating a New Project

When you create a new project, you will be given a list of New Project Templates available to use:



- If you choose one of the template projects, it will be duplicated to create the new project.
- You must be connected to the server to see and use New Project Templates.

Organizing Server Projects

While you can organize your project information any way you like, there are some best practice suggestions that will help improve your performance and experience with Smartware Studio.

- For each customer site, create a distinct Customer Site project. The Network Tree for the site, along with all the controller software files, should be stored in the Customer Site.
- Jobs, Estimates and Designer Projects can be created in two ways – embedded in a Customer Site or Job, or as a Stand-Alone Project.

Embedding Projects in a Customer Site or Job

You can add a Job, Estimate or Designer Project node as a folder in a Customer Site or Job project, either from the Toolbox or by right-clicking on the node and selecting the Add menu. That embedded Job, Estimate, or Designer node will have essentially all the functionality as a new project of that type.

With embedded projects:

- All the information about the embedded project, including all its files, is part of the *parent* project in which it was created. You will need to check out the entire parent project to make modifications to parts of the embedded project, preventing anyone else from modifying the structure of any part of the parent project or its other embedded projects.

- As the size of a project (the number of folders or files) grows, the time it takes to open or download it grows proportionally. There is therefore incentive to not let any one project grow too large.

While embedded projects may be convenient, especially with local projects or projects in their initial stages of development, long-term organization is best served by using *Project Shortcuts*.

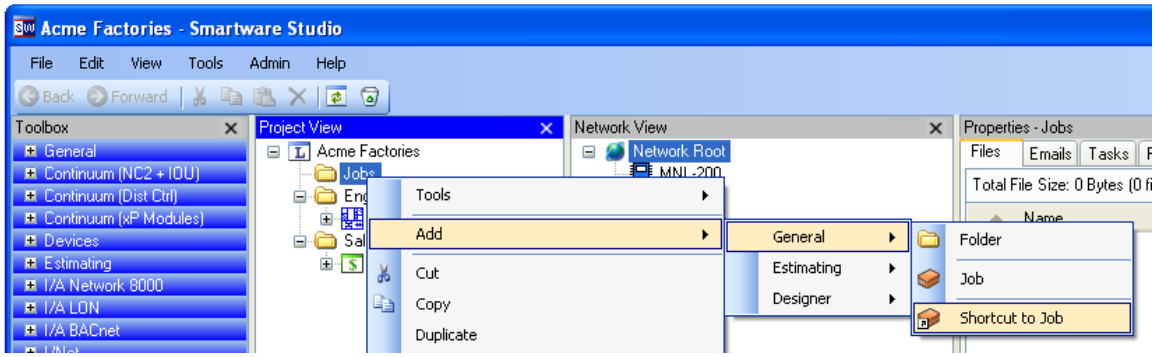
Project Shortcuts

A Project Shortcut is an item in the project tree of one project (the *parent* project) that represents a link to another server project (the *child* project). When you double-click the shortcut in the parent (or right-click it and select OPEN), the child project is opened in a separate instance of Smartware Studio.

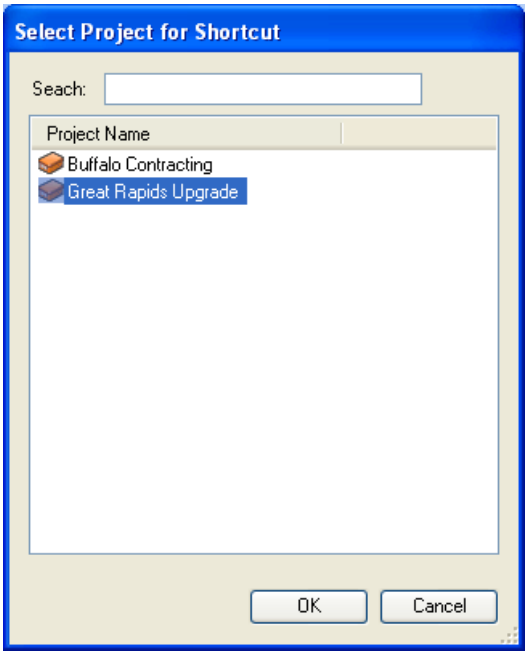
- You cannot create links to local projects (until they become server projects).
- You can, however, create shortcuts to server projects within local projects.

You create a shortcut to a project as you would any type of item:

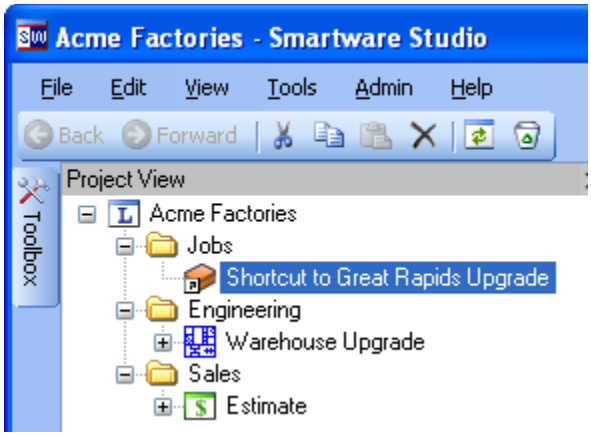
- Right-clicking a node in the tree and selecting the shortcut item from the ADD menu (such as ADD→GENERAL→SHORTCUT TO JOB); or
- Dragging a shortcut from the Toolbox stencils (General, Estimating or Designer) onto an existing node in the tree.



You will then be prompted to select the project to which to link:



The link will be displayed in the tree with a default name:



The information about which project the shortcut links to is stored in the shortcut and is not related to the name of the shortcut in the Project View.

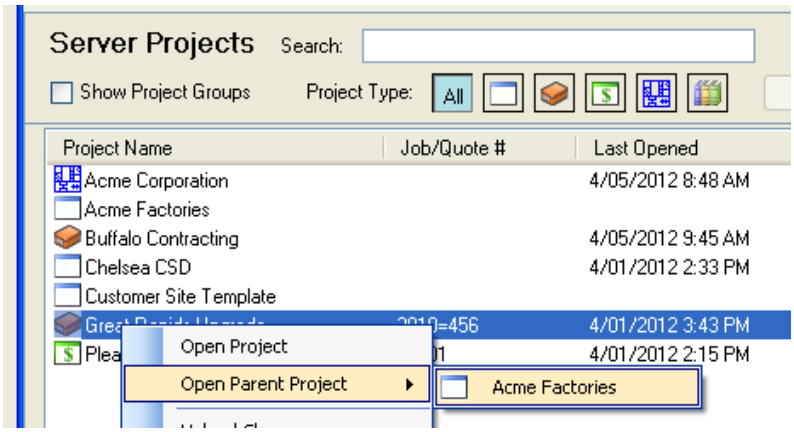
- You can rename the shortcut to anything you want.
- On the other hand, if you rename the linked project (by checking out and editing that project), the shortcut in this parent project will not change automatically.

The advantages of using shortcuts include:

- Greater granularity for editing project structures – if someone has a child project checked out, someone else can still check out the parent project.
- Each project is smaller, with fewer files, and will therefore load faster.

When a shortcut is embedded in a server project, it also establishes a link from the child project back to the parent. If you select a child project in the Server Projects list, you can see a list of all if the parent projects that contain a shortcut to it and select one to open.

- Right-click on the project in the Server Projects list and select OPEN PARENT PROJECT.

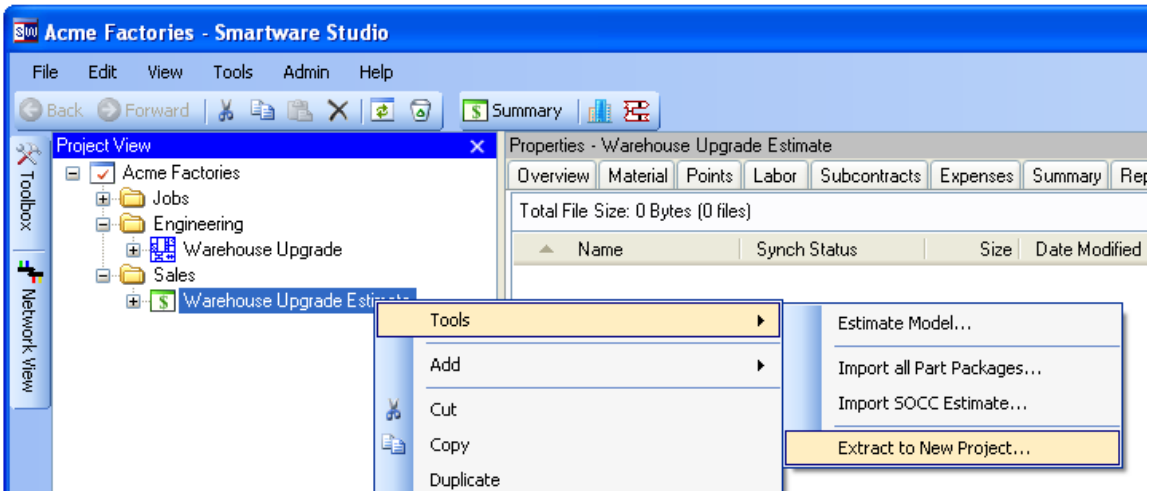


Extracting Embedded Projects to Stand-Alone Projects

If you have Jobs, Estimates or Designer projects embedded in a Customer Site or Job project, it is easy to extract them from that parent project and make it a separate stand-alone project. This allows you to build projects earlier using the quicker embedding methods, then structure them later as the more efficient shortcuts.

To extract an embedded project to a new stand-alone project:

- Right-click on the embedded Job, Estimate or Designer node and select TOOLS→EXTRACT TO NEW PROJECT



- All the folders and the files from the embedded project will be removed from the original parent project.
- You will have the option of replacing the removed project node with a shortcut to the new project.
- The parent project and the newly created project must both be server projects.

Server Project Groups

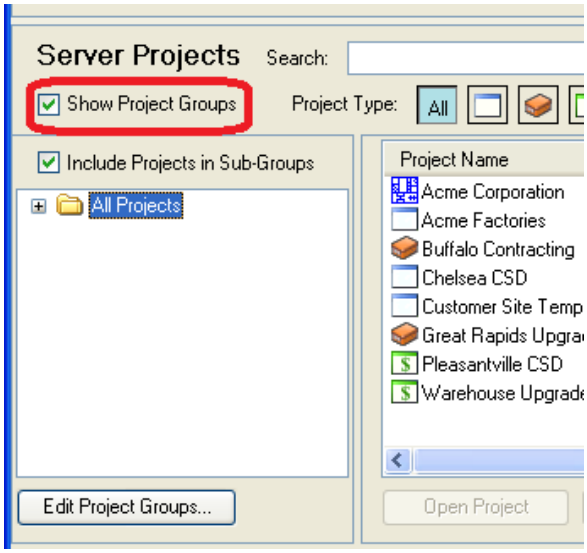
As another method of organizing projects, you can create Project Groups. Project Groups are essentially another tree of virtual folders that you can name and define as you see fit (e.g., each folder can be a department, a sales territory, a calendar year, etc.). Each server project can then be associated with one or more of these folders. When a user browses the Project List, they can view the Project Group tree and filter the list to just those projects in a specific folder or sub-tree.

Creating and Editing Project Groups

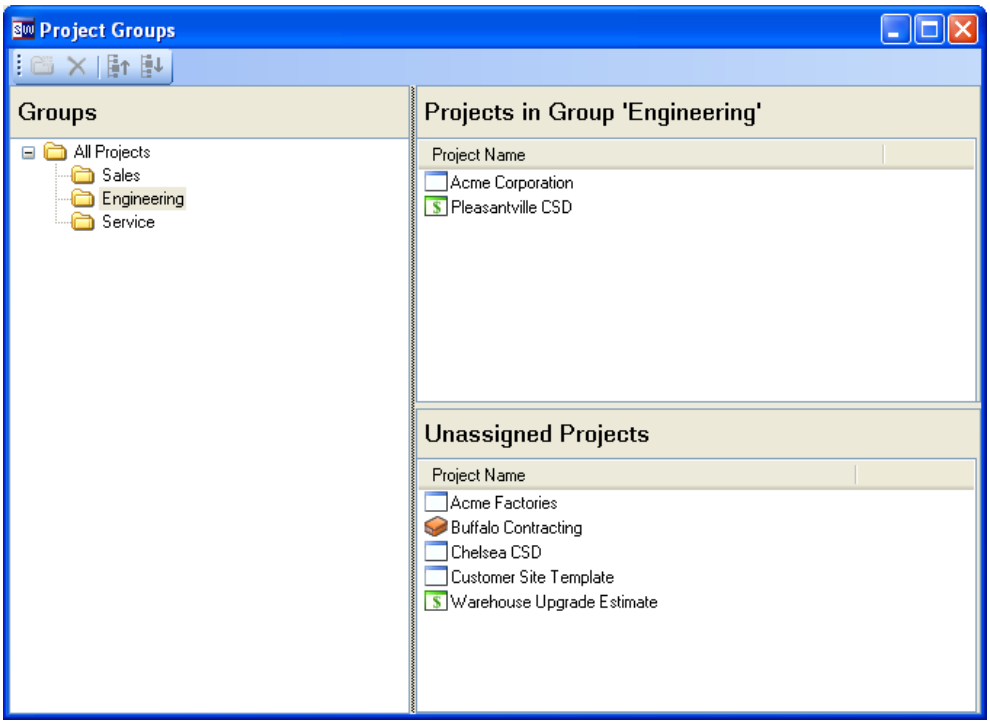
The Project Group tree is global to all users. To edit them, you must be connected to the server, and if permissions are enforced, have the appropriate permission to change them.

To view and edit the Project Group tree:

- On the Open Project list, check the SHOW PROJECT GROUPS checkbox. This will cause the Project Tree to be shown to the left of the project list.



- Click the EDIT PROJECT GROUPS button to bring up the Project Groups editor.



- To add a new group to a folder, select the folder and click the ADD GROUP button (the folder icon) in the toolbar, or right-click the folder and select ADD GROUP.

- To delete a group, select the folder and click the DELETE GROUP button in the toolbar, or right-click the folder and select DELETE GROUP. None of the actual projects will be deleted or affected.
- To rename a group, select the folder and hit F2, or right-click the folder and select RENAME GROUP.
- To reorder the groups at a specific level, select a folder and click on the MOVE UP or MOVE DOWN icons in the toolbar.
- To move a folder to a different parent folder, select it and drag it onto the new parent folder.
- The root folder, *All Projects*, is fixed and always shows all the projects in the system. You cannot associate or disassociate projects with or from this group or rename it.

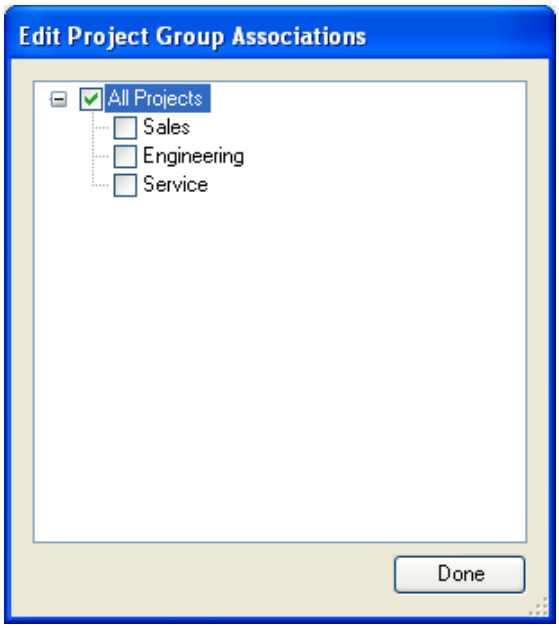
Assigning Projects to Groups

There are several ways to associate projects with groups.

While in the Project Group editor, as you select a group folder in the tree on the left side, the upper-right pane will show the list of projects associated with the group. The bottom-right panel will show a list of all the projects that are not currently associated with any groups.

- You can drag a project from either list to any group in the tree to associate it with that group.
- You can drag a project from the bottom list (Unassigned Projects) to the top list (Projects in Selected Group) to associate that project with the selected group.
- You can select a project in the top list and press Delete to disassociate it with the selected group.
- Using this interface, you can only associate a project with a single group.

When you first add a local project to the server, you will be given the option to associate the project with one or more groups:



- You can also edit the Project Group Associations at any time by right-clicking on the project in the Server Project list and selecting ADMIN→EDIT PROJECT'S GROUP ASSOCIATIONS,

Browsing for Projects in Groups

When the Project Group tree is shown in the Open Project list, it acts as another way to filter the list of projects. If there are any other filters (Project Types or keywords), they are applied as well.

- If you select the root (*All Projects*), all the projects are shown.
- If you select a group, only those projects assigned to that specific group will be shown.
- If you select a group and check the INCLUDE PROJECTS IN SUB-GROUPS checkbox, the projects in the selected group *and any sub-groups* will be shown.
- If you choose two or more folders, you will have an option whether to show projects that are in *any* of the folders or only those that are in *all* of the folders.

3. Working with Folders and View Items

The Project View and the Network View are used to contain a tree-like structure for storing information. The *items*, or *nodes*, in the trees include:

- *Folders*, which are the most generic type of item. They generally just hold files and emails.
- *Job Folders*, which is a slightly more specific type of folder that is also used as the root of a Job Project.
- *Network Devices*, which can only be used on the Network View, and each of which represent a real-world device such as an HVAC controller or an Ethernet router.
- *Shortcuts* to other server projects.

***Note**: The terms item, node, tree node, or sometimes generically folder, are used to refer to any of these items in the tree or view. They are all essentially interchangeable in this guide.*

There are also Project View items that are only used by certain modules:

- *Estimate Nodes* represent the root of an Estimate and contain a number of special tabs for storing estimate-specific information, such as subcontracts and expenses.
- *Areas* and *Systems* are used within estimates to describe the structure of the estimate and to store the parts, points and labor detail for each system.
- *Designer Project Nodes* represent the root of a Designer project and contain special tabs and commands for the Designer Tools.
- *Designer Systems Folder*s and *Designer Schedule Folders* are special folders used only within a Designer project to store the Visio drawing files and Excel schedules.

Refer to the *Designer Module User's Guide* and the *Estimating Module User's Guide* for more information about those items.

Property Tabs for Items

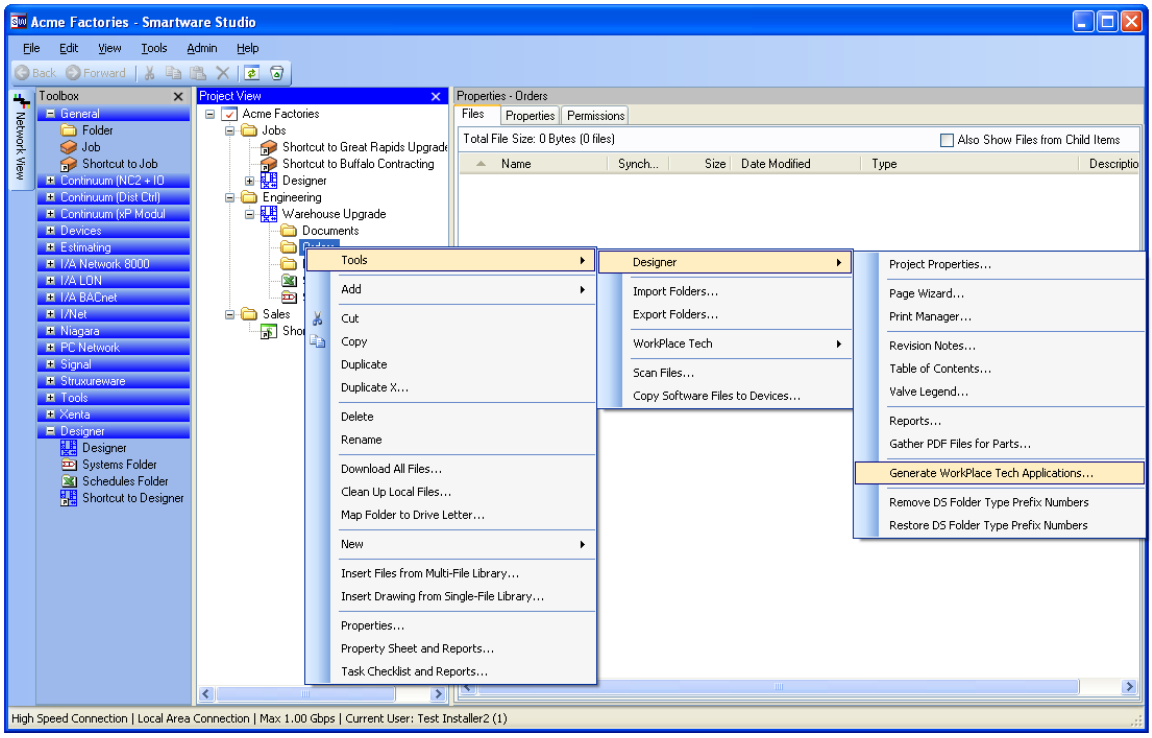
All of these items in the tree have four common tabs that are shown on the right side of the Studio window as you select them: *Properties, Files, Emails* and *Tasks*.

Some, such as the Network Devices and the various Estimate and Designer items, contain additional tabs. For example, the Designer Project node has a Designer Tools tab, the Estimate nodes have Parts, Points and Labor tabs, and some Network devices have tabs for bus configurations and additional Properties sub-tabs for address and communications properties.

Building the Project View Tree

The Project View is designed to look and feel as much like Windows Explorer as possible, so many of the actions you will do should be familiar and intuitive.

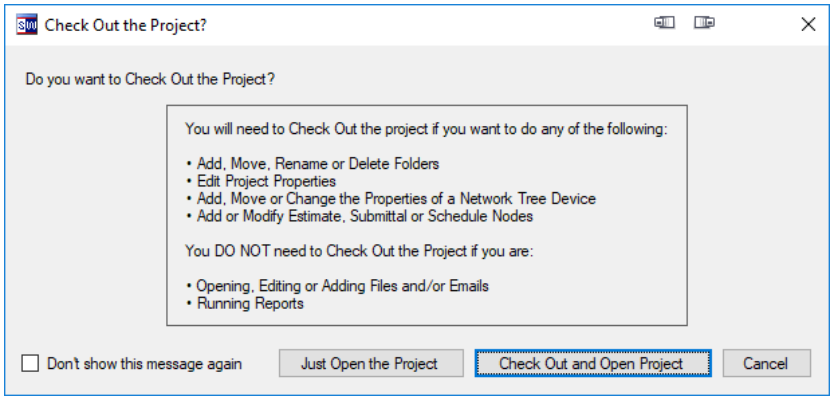
Most of the tasks are made available by right-clicking the node and choosing from the popup menu. The menu commands available may vary from item to item,



- The first level of the menu will be the same for all types of items, though some commands are only available if the project is checked out and others only if you are connected to the network.
- The commands on the TOOLS sub-menu will vary for each type of item.
- The Toolbox on the left contains all the different types of items that can be added to the trees.

Checking Out a Project

For Server Projects, in order to make any changes to the Project View tree, such as adding, moving or renaming folders, you will need to *check out* the project when you open it:



- You can also check out a project once it is open by selecting the FILE→CHECK OUT PROJECT menu command.
- Refer to the previous chapter for more details on checking projects in and out.

Adding Items to the Project View Tree

To create a new folder or item:

- Right-click on the folder in which you want to add the new item and select ADD from the context menu. You will be offered a choice of different types of items (e.g., Folder, Job Folder, etc.) that can be added. These will change depending on the type of item; or
- Open the Toolbox, open a stencil (e.g., *General* stencil), and drag one of the folder types onto another folder in the tree. You can also double-click the item in the Toolbox, and it will be added to the currently selected item (if allowed).

Selecting Folders

- To select a folder, simply click on it. The Properties tabs (such as *Files* and *Emails*) will be updated immediately with the files and data for that folder.
- To expand or contract a folder to view or hide its sub-folders, click on the plus or minus sign to the left of its name. You can also right-click on the node and select EXPAND ALL or COLLAPSE ALL.

Moving and Reordering Folders

You can move the folders around in a number of ways:

- To move a folder from one parent folder to another, simply click on it and drag it into the new parent folder.
- To cut and paste a folder from one parent folder to another, right click on the folders and select CUT and PASTE as you would in Windows.
- To reorder a folder within a set of sub-folders, click on it and slowly drag it until a thin line appears between the two folders in which you want to insert it.
- To reorder the folders automatically based on their names, right-click on the parent folder and select REORDER from the context menu.
    - You can reorder BY NAME (purely alphabetical) or BY NAME AND NUMBER, which sorts names such as *Folder2* and *Folder10* in proper numerical order.

Copying and Duplicating Folders

You can Copy and Paste folders as you would in Windows:

- To create a new copy of a folder in the same parent folder, right-click on the folder and select DUPLICATE. You will be prompted with any options in the same way as if you had selected COPY then PASTE.
- To create two or more copies of a folder, right-click on the folder and select DUPLICATE X. To rename the duplicated folders more easily, right-click on the parent folder and select PROPERTY SHEET AND REPORTS. Refer to the later section on *Renaming Folders* for more detail.

You can copy and paste multiple selected nodes from the project or network trees at one time.

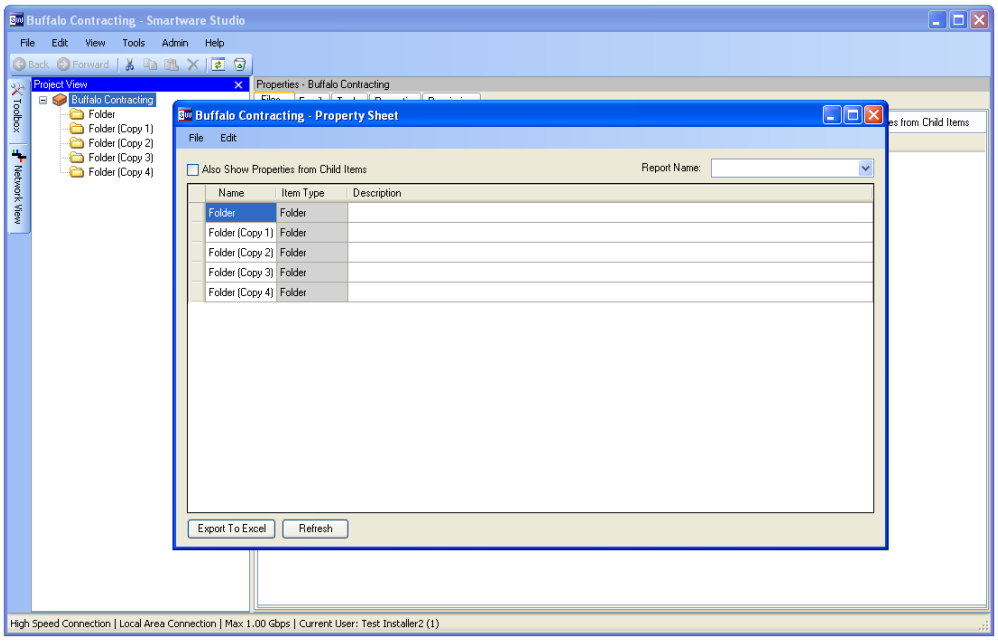
- From any node, right-click and select COPY CHILD ITEMS. You will be given a list of all the child nodes. You can use SHIFT+CLICK and CTRL+CLICK to select any combination of them.
- Click COPY SELECTED ITEMS to copy the list of nodes to the clipboard.
- Use the PASTE command to paste all of the nodes onto a different node. All of the nodes must be valid children of the destination node. If not, the PASTE command will not be available.

Renaming Folders

To rename a folder:

- Right-click on it and select RENAME from the context menu; or select the folder and hit the F2 key.

To rename multiple folders more easily, right-click on the parent folder and select PROPERTY SHEET AND REPORTS:



- This spreadsheet view allows you to enter the new names quickly. Pressing ENTER or hitting the down arrow after each entry will automatically move you to the next.

You can also copy and paste a column of values from Excel into the property sheet.

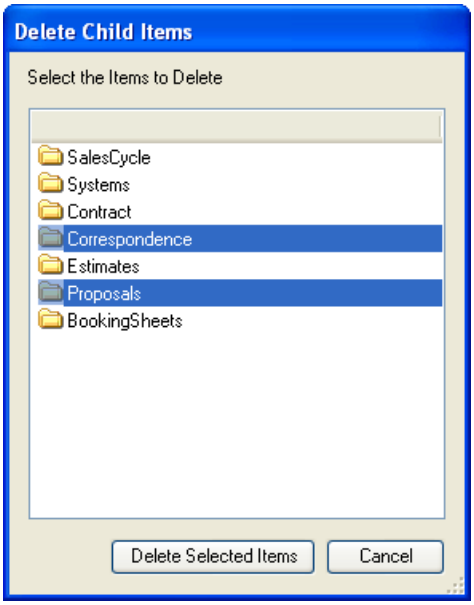
- Select a range from a single column in Excel and select COPY.
- Select a similar range in the property sheet (or the topmost cell in the range) and select EDIT→PASTE (or press CTRL+P or CTRL+V)

Deleting Folders

When you delete a folder, you will also delete its sub-folders and all the files, emails and tasks associated with it.

- To delete a folder, right-click on the folder and select DELETE from the context menu.
- You can also select a folder and press the DELETE key.

To delete multiple folders quickly, right-click on the parent folder and select DELETE CHILD ITEMS from the context menu. This will present the folders in a multi-selectable list:

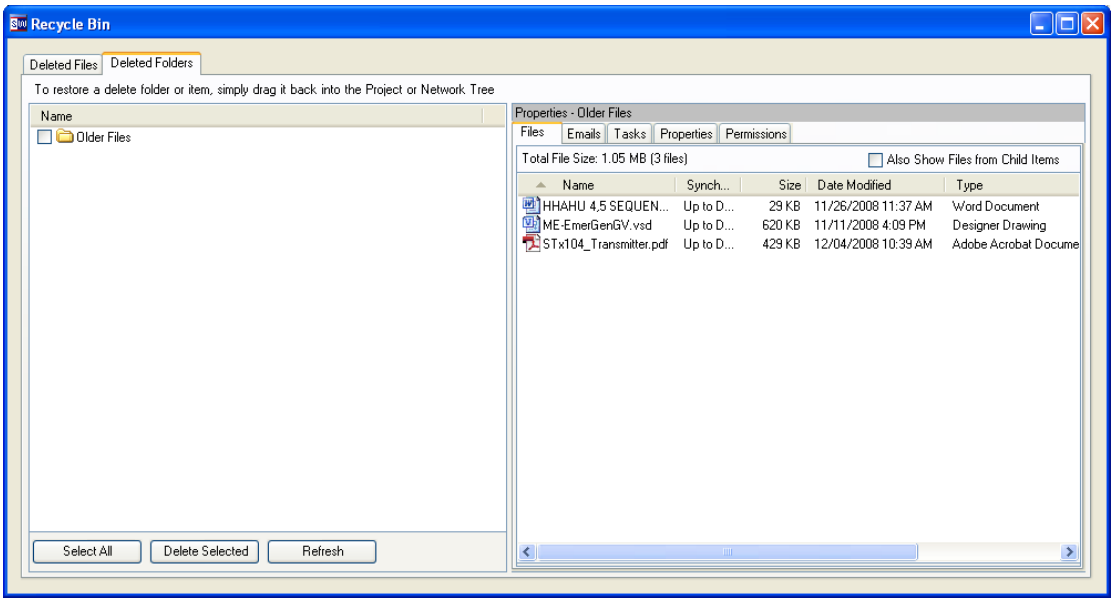


- You can select multiple items (CTRL+CLICK to select individual folders; SHIFT+CLICK to select a range of folders) and then click DELETE SELECTED ITEMS to delete them.

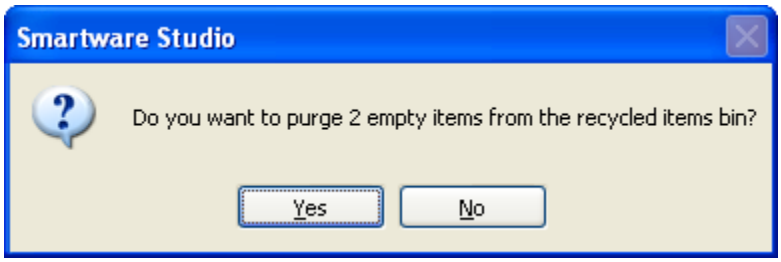
Restoring Deleted Items

Deleted folders and the files contained in them can be recovered for some time by clicking the VIEW→RECYCLE BIN menu command or clicking on the RECYCLE BIN icon in the toolbar.

There are two tabs on the Recycle Bin. Select the DELETED FOLDERS tab to restore deleted folders or items:



- To restore a deleted folder and its data back to the Project View, simply drag it from the Recycle Bin back to the tree.
- You can also copy and paste files and emails directly from the node in the Recycle Bin.
- You will be prompted to permanently delete empty folders when you check the project back in.



Exporting Folders and Files

There are a number of ways to export folders and files from Studio to use in other Studio project or Windows applications.

Exporting Folders and Files to Windows

There may be times when you want to export a folder structure and its files to use or distribute outside of Smartware Studio.

To export an entire folder structure and its files to Windows:

- Right-click on the topmost folder you want to export and select TOOLS→EXPORT FOLDERS AND FILES from the context menu.
- Browse to the folder where you want the exported folder to be saved and click EXPORT. You can also paste the folder path from Windows Explorer's address bar into the EXPORT TO box.

Exporting Folders and Files to a Zip File

You can create a zip file containing all the files in a folder and all the folders beneath it. The resulting zip file will retain the structure and names of the folders

- Right-click on a folder containing files and select SEND TO→ZIP FILE.
- The file will be saved on the *Files* tab of the *parent* of the folder you are zipping (i.e., one level above in the tree).

Exporting Project Tree Nodes as a Studio Export File (.stexp or .stzip)

You can export any project tree node to a Studio Export file. These files retain all the Studio properties of the node, such as:

- For an Estimate or Design System node, all its properties such as Parts, Points, and Labor
- For an Estimate node, the entire Estimate including its Systems and Settings.
- For a Device Node, all the part and network properties.

These export files can be used to recreate these nodes on other projects. One example is to store an estimated System node in a Multi-File Library.

- Refer to the later chapter on *Multi-File Libraries (MFLs)* for more details.

You can choose whether to include any files on any of the *Files* tab of the nodes in the export.

- To *exclude* files and create a *.stexp* file, right-click on any item in the Project or Network View and select EXPORT→EXPORT TREE NODES.
- To *include* files in the export and create *.stzip* file, right-click on any item in the Project or Network View and select EXPORT→EXPORT TREE NODES AND FILES.
    - The file will be saved on the *Files* tab of the *parent* of the folder you are exporting (i.e., one level above in the tree).

Importing Folders and Files

There are a number of ways to import folders and files into a Studio project.

Importing Folders and Files from Windows

Very often you will want to bring in files and folders that already exist on a file server. Smartware Studio can import all the data with one command.

To import an entire folder structure and its files from Windows:

- Right-click on the parent folder where you want the new folder to be created and select TOOLS→IMPORT FOLDERS AND FILES from the context menu.
- Browse to the folder you want to import and click OK.

All the data will be brought into the project. Depending on the number of files, this could take a few minutes.

- If you import a folder using the pre-defined *Jobs* folder as the parent folder, the newly created folder will be converted to a Job Folder automatically.

Importing Project Tree Nodes from a Studio Export File

When you import a tree node (or nodes) that were exported into a Studio Export file (*.stexp* or *.stzip*). The imported nodes will have the same properties and data as the nodes at the time they were exported.

To import the tree nodes:

- Copy the file to the *Files* tab of the folder onto which you want to create the imported folders. The imported node will be created as a new child of this folder.

- Double-click on the file to import the nodes.
    - You can also select IMPORT→IMPORT TREE NODES.
- Refer to the earlier section on *Exporting Project Tree Nodes* for more details on creating Export files.

Other Folder Tasks

There are a number of other things you can do with folders and their files.

- Right-click on the folder to see most of these options.

Sending Files in an Email

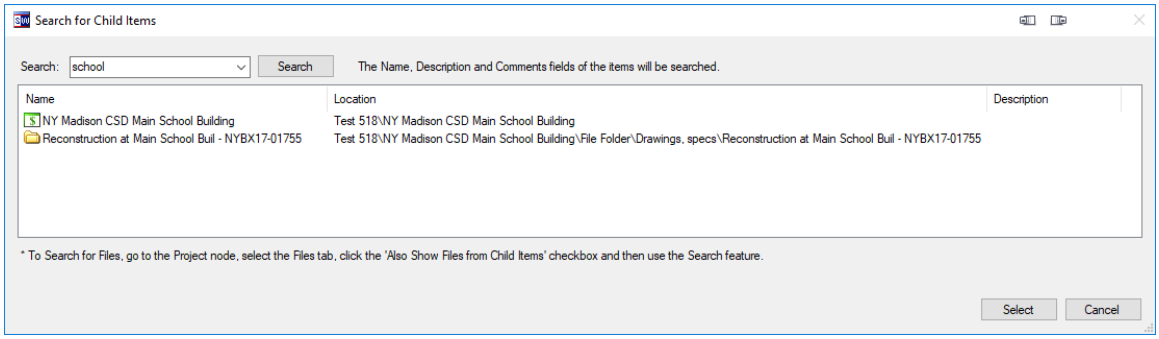
You can create an email that includes all the files in a folder and all its children as attachments.

- Right-click on a folder and select SEND TO→MAIL RECIPIENT.

Searching for Nodes

You can search the Project or Network tree for nodes containing specific text.

- Right-click on any node in a tree and select SEARCH.



- Enter one or more keywords and click the SEARCH button. A list of all nodes anywhere in the tree below the selected node that contains any of the keywords in its *Name* or *Description* property, *Folder ID Number* or the text on its *Comments* tab will be shown.
    - *Folder ID Number* can be visible by selecting VIEW→FOLDER ID NUMBERS menu option.
- Double-click a node (or select in a click SELECT) to have that node selected in the tree.

Creating Studio Shortcuts to Folders

You can create a *Studio Shortcut* to any folder in a project. A Studio Shortcut to a folder is a small file, similar to a Windows shortcut, which when opened or double-clicked will start Studio and automatically open up the associated folder.

- The Studio Shortcut file has as *.stcmd* file extension. This file can be saved and opened from anywhere on your network, inside Studio itself, or as an email attachment.
- To create a Studio Shortcut, right-click on the folder and select CREATE STUDIO SHORTCUT. The file will be saved on the *Files* tab of the folder.
- To create a Studio Shortcut and start an email with it as an attachment, right-click on the folder and select SEND TO->MAIL RECIPIENT AS STUDIO SHORTCUT.

Sharing a Folder with a Cloud Account

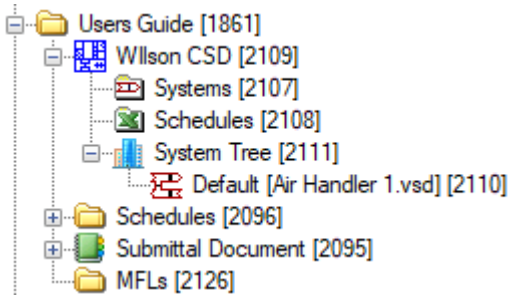
Studio can be configured to synchronize selected files with a Cloud Account. The only type of account currently supported is Box.

- To share a folder, right-click on it and selected SHARE WITH→[*Box*]: [*Application Name*]
  - *BOX* and *APPLICATION NAME* will vary depending on the Cloud Services you've setup.
- For more details, please refer to the *Setup and Administration Guide* chapter on *Cloud Accounts*.

Viewing Folder ID Numbers

Every node in the Project and Network trees have a unique ID number which is used in some parts of studio (when creating windows folder names and when storing information in the SQL database). There may come a time when it might help to see these ID numbers.

- To view the Folder IDs on the tree, select VIEW→FOLDER ID NUMBERS. The ID numbers will appear in brackets after the names.



- When using the Search feature, you can also search for nodes by *Folder ID Number*.

Using a Folder with Other Windows Applications

The folder structure you see when viewing a project does not correspond to how the folders and files are stored in Smartware Studio. Therefore, there is no corresponding drive letter or path for navigating the Project View from outside of Smartware Studio.

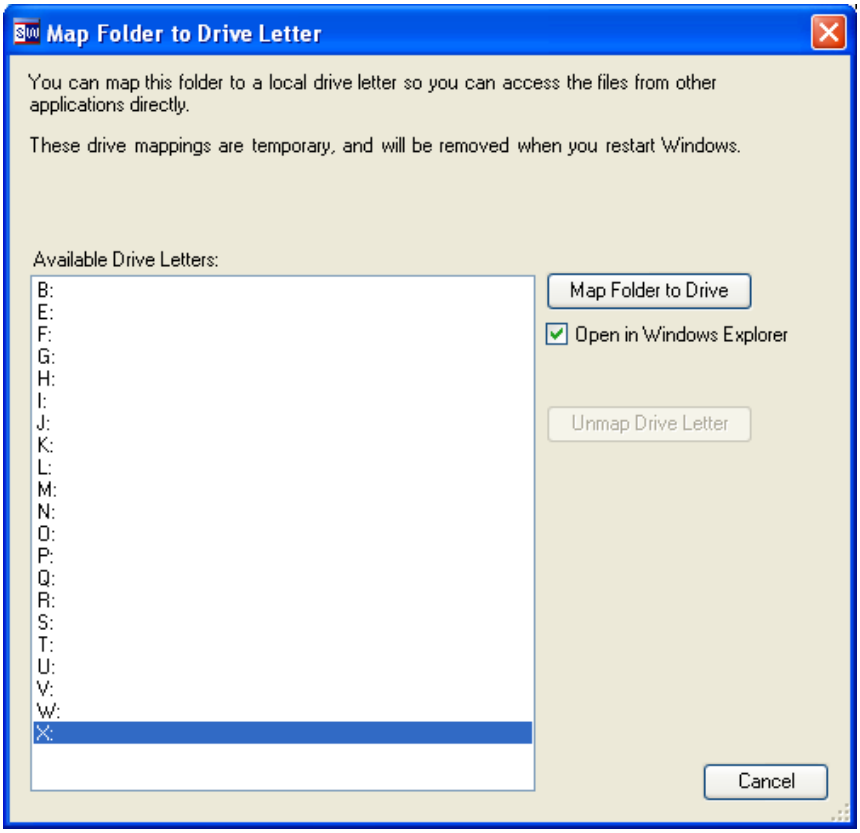
However, there may be times when you want to provide Windows or other programs access to a single folder, such as in order to open or save a file. In this case, you can temporarily map a Windows drive letter to a folder in an open project, or just open a folder's location in Windows Explorer.

- To open a Studio project folder in Windows Explorer, right-click on a node or the empty area of the *Files* tab and select OPEN FOLDER IN FILE EXPLORER.

If you want to map the folder to a drive letter:

- Right-click on the folder you want to map and select MAP FOLDER TO DRIVE LETTER in the context menu.

You will be given a list of the available drive letters:



Select a drive letter and click MAP FOLDER TO DRIVE. The drive letter will now be available to Windows and other programs.

- These drive mappings are temporary and will be removed when Windows restarts.
- These drive mappings may be removed automatically when the project is closed in Smartware Studio.

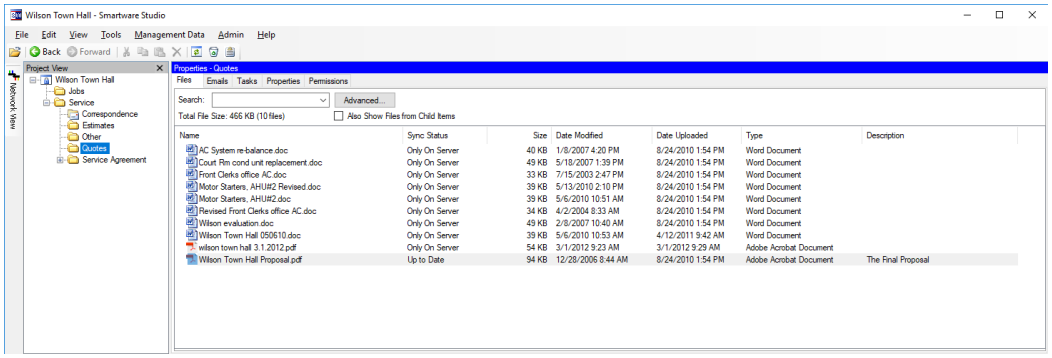
If you want to open the folder immediately, check the OPEN IN WINDOWS EXPLORER box before mapping the folder.

4. Working with Files

Every Folder (actually, all items including Network Tree items) can be used to store all types of files.

The Files Tab

When you select a folder (or other item) the *Files* tab in the Properties panel will show a list of the files in that folder.



- You can right-click on a file in the file list to see a menu of actions, such as OPEN, OPEN WITH…, RENAME, COPY and PASTE
- To see a list of files in a folder *and all its sub-folders*, click the ALSO SHOW FILES FROM CHILD ITEMS checkbox.
- There is a column called *Description* that is used to add additional comments to a file record (outside of the file itself). Right-click on the file and select PROPERTIES to bring up the form for editing the description.
- The VIEW menu has options for showing additional columns, such as *Version Number*.
- You can open multiple files at the same time by multi-selecting them (using CTRL+SELECT or SHIFT+SELECT), right-clicking, and select OPEN.

Adding Existing Files to a Folder

You can add existing files to the project from Windows by:

- Dragging and dropping one or more files from Windows Explorer or another program.
- Selecting the files in Windows, selecting COPY and then right-clicking in the Files Tab and selecting PASTE from its context menu.

A copy of the file will be added to the Smartware Studio project. The original files will not be removed from Windows, even if you have done a CUT and PASTE operation.

Moving Files between Folders

You can move a file around between folders in the project.

- Dragging and dropping the file from a file list onto another folder will move the file into that folder.
- You can also right-click on the file and select CUT or COPY from its context menu, then right-click on a folder and select PASTE from its context menu.

Copying Files Back to Windows

You can copy one or more files from the project to Windows by:

- Dragging and dropping one or more files from the Files Tab to Windows Explorer or another program.
- Selecting the files in the Files Tab, Windows, right-clicking and selecting COPY from the context menu, and then right-clicking in a folder in Windows and selecting PASTE from its context menu.

A copy of the file will be sent to Windows. The original files will not be removed from Smartware Studio, even if you have done a CUT and PASTE operation.

Creating New Files from Blank Templates

Just as in Windows, if you want to create a new blank Word or Excel document from scratch, you can do so directly in Studio.

- Right-click in the empty are of the Files list or right-click on the folder and select from the NEW menu (such as NEW→MICROSOFT EXCEL DOCUMENT)

The list of possible templates is customizable. Refer to the *Setup and Administration Guide* chapter *Libraries, Templates and Distributions*, in the section *Customizing the 'New' Files Menu* for full details.

Adding Descriptions and Comments to a File

You can add a description to a file to show more information about it. This description is stored in the Smartware Studio database, and not in the file itself.

- Right-click on a file and select PROPERTIES from the menu.
- Fill in the DESCRIPTION field.

Setting the Document State

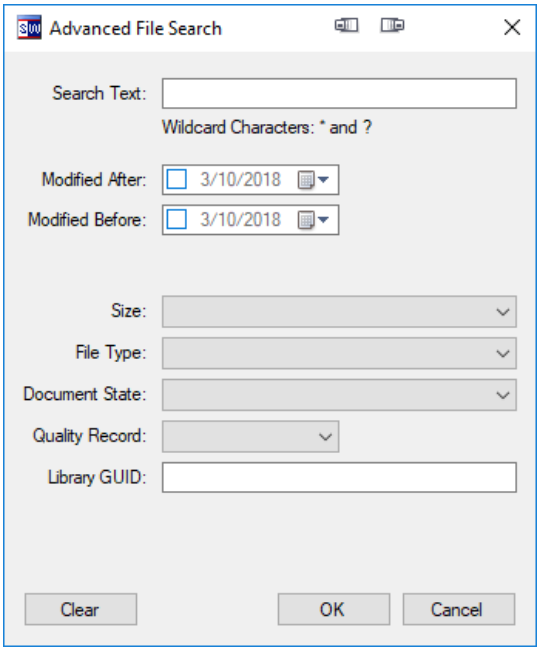
There is a property associated with all files called *Document State*. You can select one of the pre-defined values (Draft, Approved, As-Built, etc.) or use your own custom values.

- To set the Document State, right-click on a file and select PROPERTIES.
- To show the Document State as a column on the Files list, select VIEW→FILE DOCUMENT STATE.
- You can search for files based on Document State in the Files list's ADVANCED Search and the SEARCH FILES feature in ADMIN→SERVER CONFIGURATION AND TOOLS on the *Files* and *Projects* tab.

Searching Files

The *Files* tab has a SEARCH box which lets you filter the list by one or more keywords (the file name and description is searched, but not the file contents).

There is also an ADVANCED Search dialog to search by the last modification date, the file size and the file type.



- To search an entire Project Tree, select the root node and click the ALSO SHOW FILES FROM CHILD ITEMS.

Adding Windows Shortcuts to Files or Web Sites to a Folder

In Windows a shortcut to a file or a web site is actually a file itself (.lnk or .url files). If you add one to a Studio folder's file list, you can double-click it to open that linked file or web page.

- You can copy and paste or drag and drop the shortcuts from a Windows folder or desktop. Since the shortcut is a reference to a file, only users who can access that file from the same location will be able to open it.
- You can copy and paste the web site links from the Favorites menu of a web browser.

How Files are Stored Locally and on the Server (Synch Status)

For a local project, all the files are stored in folders that Smartware Studio maintains for each project.

For server projects, the master copy of the file is stored on the File Server. When the project is open, Smartware Studio gets a list of the files in each folder as needed, along with other information such as the file size and date modified.

When you need to access a specific file (e.g., to Open it or copy it to Windows), Smartware Studio downloads the latest version of the file to your workstation and then opens or copies it from there. This ensures that no two people are ever trying to modify the same file at the same time, or that one is changing a file while another is viewing it. This also allows the files to be used when you are not connected to the server, assuming that the file has been downloaded to the local machine at some earlier time.

The File Synch Status

When viewing the files for a server project, you will see an extra column labeled Synch Status. This column indicates how the local version (if any) of a file compares to the current version of the file on the server. The possible statuses are:

New File	The file was added to this project on this workstation, and the project has not yet been uploaded. The file will be uploaded to the server when the project is closed (if the machine is currently connected) or the next time the connection is available.
Only on Server	The file has never been downloaded to this workstation. It will be downloaded automatically if you choose to open it. You can also download it explicitly.
Up to Date	The file on the local workstation is the same version that is on the server.
New Version Available	The file has been downloaded to the local workstation, but there is a newer version on the server. The newer version will automatically be downloaded if you open or otherwise access the file.
Changed/Needs Uploading	The local copy of the file that was downloaded to the workstation has been modified. The changes will be uploaded to the server (as a new version) when the project is closed.
CONFLICT: File Changed Both Places	The local copy of the file that was downloaded to the workstation has been modified, but somebody else has uploaded a new version to the server since your copy was downloaded. Refer to the section on *File Conflicts* for more details.

Downloading Files

To open or otherwise work with a file on your workstation, Smartware Studio will download a copy from the server to the local machine. This happens automatically when the file is accessed.

Once it has been downloaded, the file will still be accessible and editable on the local machine if the project is accessed when not connected to the server (e.g., on a laptop taken onto a job site).

If a set of files will need to be accessed in an off-line scenario (or in a situation where the connection speed will not be ideal), you will need to download these files explicitly when you are connected.

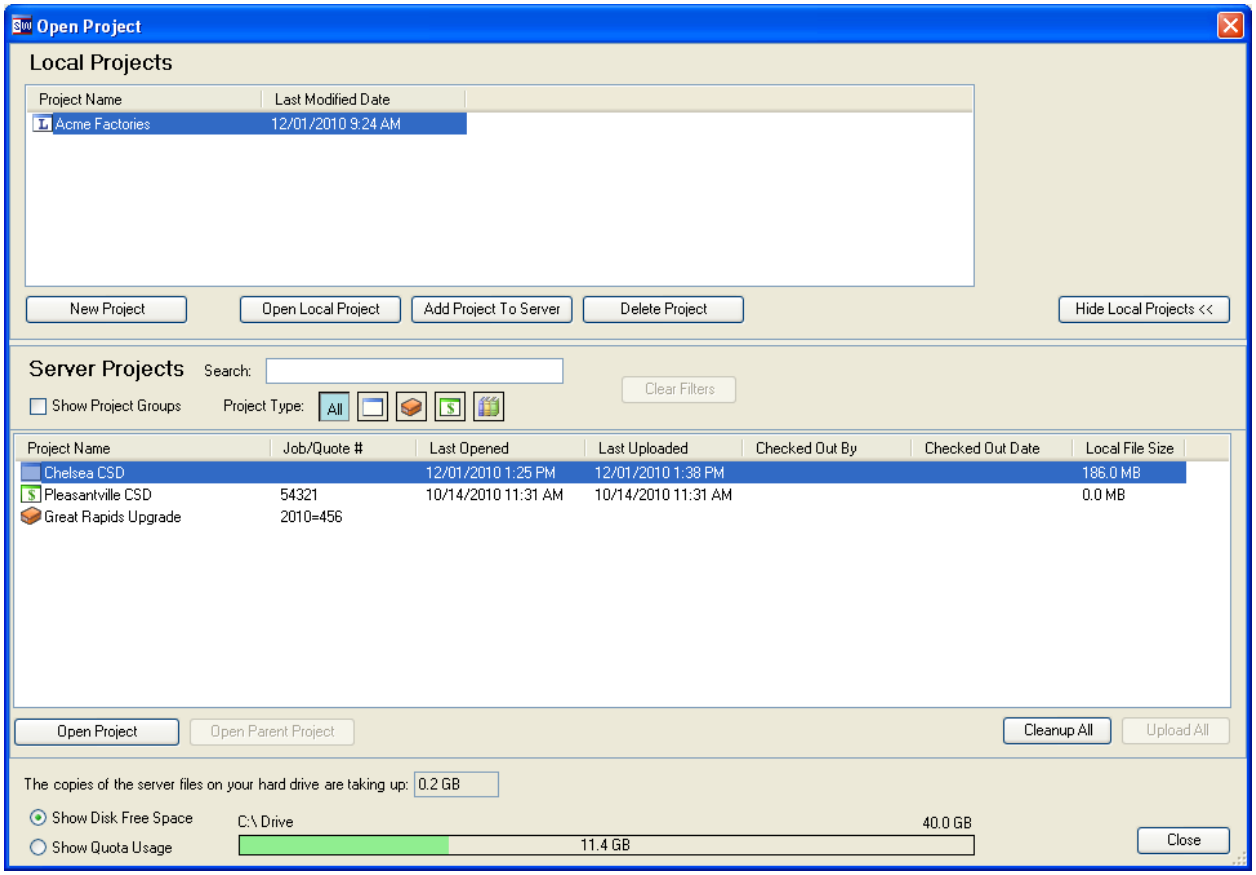
- To download a single file, right-click on the file and select DOWNLOAD LATEST from the context menu. This happens automatically if you open a file.
- To download multiple files from a list, multi-select the files, right-click on the selected group, and select DOWNLOAD LATEST from the context menu.
- To download the files in an entire folder (and all its sub-folders), right-click on the folder and select DOWNLOAD ALL FILES.
- To download all the files in an entire project, right-click on the project in the Server Projects list in the Open Project dialog and select DOWNLOAD ALL FILES.
- When downloading entire folders or projects, you will be told exactly how much data will be downloaded and asked to confirm your action (in case the amount of data is exceptionally large).

Managing and Cleaning Up Local Files

Since every file you access or explicitly download is stored on the workstation's local hard drive, it is likely that a large amount of data will accumulate on the machine. This is especially true if you work with a large number of projects or a large number of files.

Since the latest version of all files is stored on the server, you can safely remove the local copies of any files you no longer need, knowing that they will be downloaded again if a future need arises.

To view how much local space is being used, go to the OPEN PROJECT dialog.



The total size of all the local files for each project is shown in the last column.

- To determine which projects are using the most space, click on the LOCAL FILE SIZE column in the Server Projects list to sort by that column.
- The total size of all the local files in all the projects is shown in the bottom section.
- To clean up a local project and delete all the local copies, right-click on the project in the Server Projects list in the OPEN PROJECT dialog and select CLEAN UP LOCAL FILES.
- To clean up all the local files for all the server projects, click the CLEANUP ALL button beneath the Server Projects list.
- To clean up a selected portion of the local files in a project, open the project, right-click on any folder and select CLEAN UP LOCAL FILES. This will clean up only the local files in that folder and its sub-folders.

Setting a Local File Quota

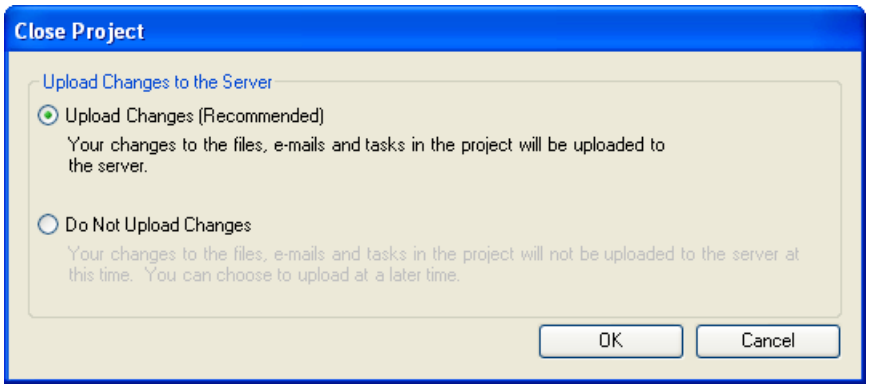
To help alert you that you may need to clean some projects, you can set a Quota for the amount of space you consider reasonable.

- To set the quota, click the SET QUOTA… button on the OPEN PROJECT dialog.
- The QUOTA USAGE meter will indicate how much of your quota space is being used by the local files.
- The meter will turn yellow and then red as you near the quota.
- The quota space is not reserved, does not prevent the space from being used by other application and may not actually be available on your hard drive.
- The quota is soft and will not be enforced. It is therefore possible to exceed the quota without any warning other than the meter turning red.

Uploading Files to the Server

If you add or change files in a server project, Smartware Studio will want to automatically upload these new and modified files to its file server, making them available to all other users as the latest version of the file.

When you close a project while connected to the server, you will be prompted to upload your changes as the default action:



You should always upload your changes when you close a project unless your connection speed would make it prohibitive. In that case, you should explicitly upload your changes then next time you have a good connection.

Uploading Files

If you don't upload the changes when you close the project, you can upload them explicitly whenever you want:

- You can determine which projects need to be uploaded by viewing the OPEN PROJECT dialog. For the projects that need uploading, the FILES LAST UPLOADED date in the server project list will be shown in red.
- To upload the changes in a project from the OPEN PROJECT dialog, right-click on the project and select UPLOAD CHANGES from the context menu.
- To upload the changes for all projects that need to be uploaded, click the UPLOAD ALL button beneath the server projects list in the OPEN PROJECT dialog.
- To upload all the changes in a project while it is open, choose the FILE→UPLOAD CHANGED FILES TO SERVER menu command.
- To upload a single folder's files, right-click on the folder and select UPLOAD CHANGED FILES TO SERVER.
- To upload one or more individual files, right-click on them and select UPLOAD CHANGES.

Ignoring Changes to a File

If you have modified a file but do not want your changes to be saved to the server, you can tell Smartware Studio to ignore your changes.

- Right-click on the file and select IGNORE CHANGES.
- The most recent version from the server will be downloaded and all your changes will be lost.

Other File Tasks

There are a number of other common tasks you can do with files stored in Studio.

- Right-click on the files to see most of these options.

Creating a Zip File

You can create a zip file containing one of more files.

- Select one or more files, right-click and select SEND TO→ZIP FILE.

Converting to PDF and Printing

You can quickly convert a Word, Excel or Visio file into a PDF using the installed application.

- Select a file or files, right-click and select SEND TO→PDF FILE.
- Multiple files are generated into separate PDF files. To generate a merged PDF file, you can use the Submittal Generator. Refer to the later chapter, *The Submittal Generator*, for more details.
- To print a file or files immediately, right-click and select SEND TO→PRINTER.

Emailing Files

To open a new email and add one or more files as attachments:

- Select a file or files, right-click and select SEND TO→MAIL RECIPIENT
- A *New Message* window from your default mail client (e.g. Outlook) will be opened.

Creating Studio Shortcuts to Files

You can create a *Studio Shortcut* to a specific file in a project. A Studio Shortcut to a file is a small file, similar to a Windows shortcut, which when opened or double-clicked will start Studio in the background and then open up the file.

- The Studio Shortcut file has as *.stcmd* file extension. This file can be saved and opened from anywhere on your network, inside Studio itself, or as an email attachment.
- To create a Studio Shortcut, right-click on the file and select CREATE STUDIO SHORTCUT. The file will be saved on the Files tab of the folder.
- To create a Studio Shortcut and start an email with it as an attachment, right-click on the folder and select SEND TO->MAIL RECIPIENT AS STUDIO SHORTCUT.

When the shortcut is opened, Studio is opened in an invisible mode, opens the project, downloads the file if necessary, and then opens the file. It then waits until the file is closed so it can offer to upload any changes to the server.

Using the Studio Clipboard Folder

There is a pre-defined folder called *Clipboard* that can be used to help transfer files from other applications into Studio. This folder is permanent and available even when Studio is not running.

- You can open the folder in Windows Explorer by selecting VIEW→CLIPBOARD or clicking the new CLIPBOARD icon in the toolbar.
- The Clipboard folder automatically contains a Windows shortcut to itself. You can copy and paste this file into various location in Windows to create the shortcut to the Clipboard folder
- The Clipboard folder is automatically added to your My Documents folder as *Smartware Studio Clipboard* (or *Studio360 Clipboard*) when you open the clipboard for the first time through the toolbar or VIEW→CLIPBOARD menu command.
- You can map the Studio Clipboard Folder to a drive letter for easier access outside of Studio. Go to TOOLS→OPTIONS on the WORKSTATION OPTIONS tab.

Using Visio Viewer

If you don't have Visio, you can use *Microsoft Visio Viewer 2010* (a free download) to view Visio files. To use, download and install the Visio Viewer and then check the *Open Visio Files with Microsoft Visio Viewer 2010 (no editing or Design360 functionality)* box in the TOOLS→OPTIONS 3RD PARTY SOFTWARE tab.

Note: *This tool cannot edit Visio files, nor can it be used with the Designer Module for tools that require Visio files to be scanned such as reporting and printing.*

Sharing a File with a Cloud Account

Studio can be configured to synchronize selected files with a Cloud Account. The only type of account currently supported is Box.

- To share a file, right-click on it and select SHARE WITH→[*Box*]: [*Application Name*]
  - *BOX* and *APPLICATION NAME* will vary depending on the Cloud Services you've setup.
- For more details, please refer to the *Setup and Administration Guide* chapter on *Cloud Accounts*.

Creating an Outlook Reminder for a File

There may be times where you want to create an Outlook reminder on your calendar related to a file in your Studio project.

- Right-click on the desired file and select SEND TO→OUTLOOK REMINDER. An Outlook reminder will be created with a copy of the selected file.
- For files within a Server Project, you can also select SEND TO→OUTLOOK REMINDER AS STUDIO SHORTCUT to include the Studio shortcut file that can open the actual file from the server through Studio (but only for Studio users on your network).

Deleting and Restoring Files

When a file is deleted by a user, what happens depends on whether the project is local or being stored on the server. The file can end up in the

- *Windows Recycle Bin* (generally available on your Windows desktop);
- *The Studio Recycle Bin* (available from the Studio toolbar or by selecting VIEW→RECYCLE BIN in Studio); or
- Both

Deleting Files from a Local Project

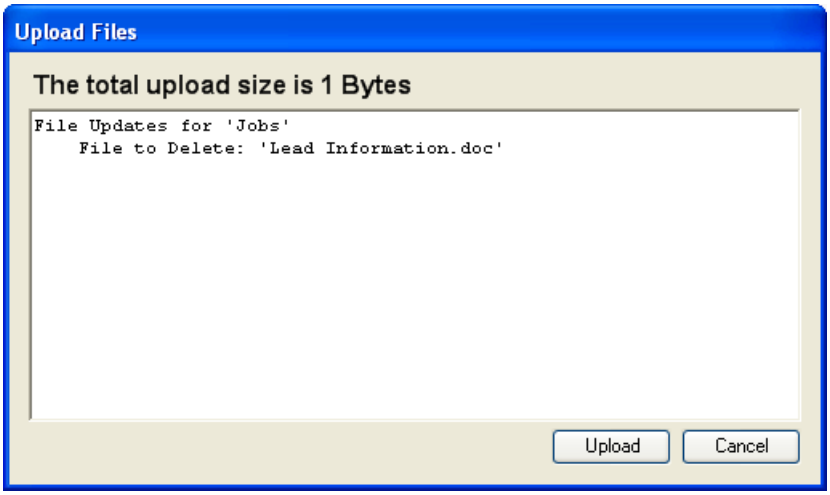
For Local Projects, deleted files are sent directly to the local workstation's Windows Recycle Bin. They are not stored in the Studio Recycle Bin.

Deleting Files from Server Projects

For Server Projects, deleting a file on a workstation is a signal that the file should be deleted from the server and all other workstations.

If the deleted file is new (i.e. it was added since the project was open and before any uploads to the server), it will be treated as a local file and only be sent to the Windows Recycle Bin.

If the file has been uploaded to the server at least once, a copy will be sent to the Windows Recycle Bin on the local workstation. During the next upload, Studio will indicate that the file be deleted:



Once the upload is complete, the file is marked as deleted on the server. The next time any user opens the project or downloads the files in that folder, the deleted file will no longer appear. If another user happens to have modified the file, they will receive a message about the conflict.

You can use the Permissions model to limit who has the ability to delete files from certain project types or folders. Refer to the *Setup and Administration Guide* for more detail.

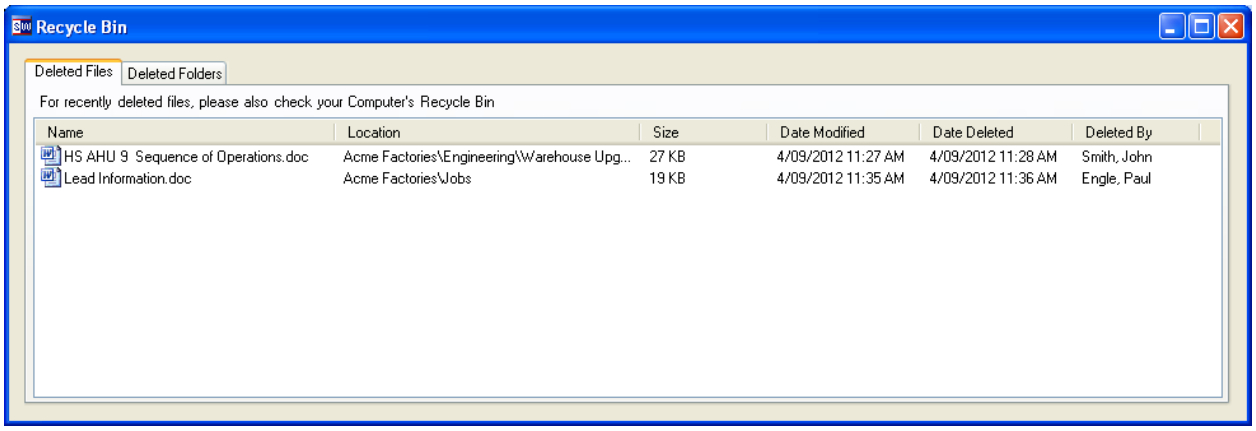
Restoring Deleted Files from the Server

Deleted server files are not actually deleted initially but are instead marked as deleted. Any user can restore a deleted file, regardless of who deleted it, from the Studio Recycle Bin.

To restore a deleted file:

- Open the Studio Recycle Bin by clicking the toolbar icon or by selecting VIEW→RECYCLE BIN.

- Select the *Deleted Files* tab



- If you right-click on the file, you will see the option to open the file, restore it to its original location, or delete it permanently.

Purging Deleted Files

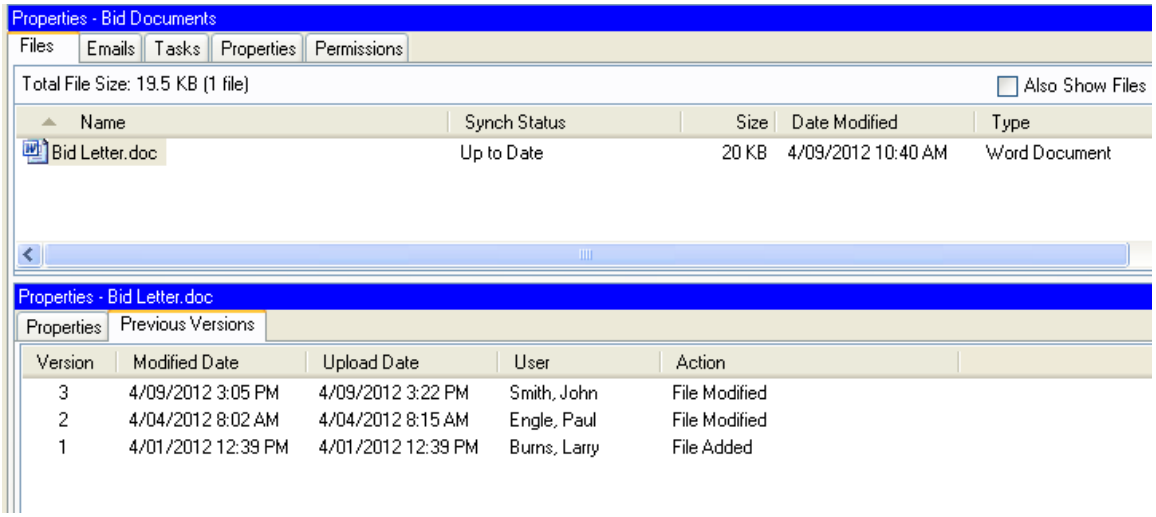
Deleted files may not be available forever. An administrator can purge a range of deleted files to reduce the amount of server space being used. Refer to the chapter *Administering Smartware Studio* in the *Setup and Administration Guide* for more detail.

Previous Versions of Files

When you upload a new version of a file in a Server Project, Smartware Studio does not delete the previous version immediately. Instead, depending on the settings for your server, it makes one or more of the previous versions available as well. This allows you to "go back in time" in case a file has been modified in a negative way by a user or if you want to see who made certain changes and when.

- To see a list of the Previous Versions of a file that are available, right-click on the file and select PREVIOUS VERSIONS. You must be connected to the server to see the list.
- Local Projects do not maintain previous versions of files.

The list numbers the versions sequentially:



- To view a previous version, right-click the version in the list and select VIEW.
- To make a previous version the current version, right-click the version in the list and select MAKE CURRENT.

If there was a conflict with the file (refer to the next section on *File Conflicts*), the conflicted version would be shown in red if the conflict was not resolved. The Action column would also indicate what the conflict was and how it was resolved.

Previous versions of files may not be available forever. An administrator can purge a range of older versions of files to reduce the amount of server space being used. Refer to the chapter *Administering Smartware Studio* in the *Setup and Administration Guide* for more detail.

File Conflicts

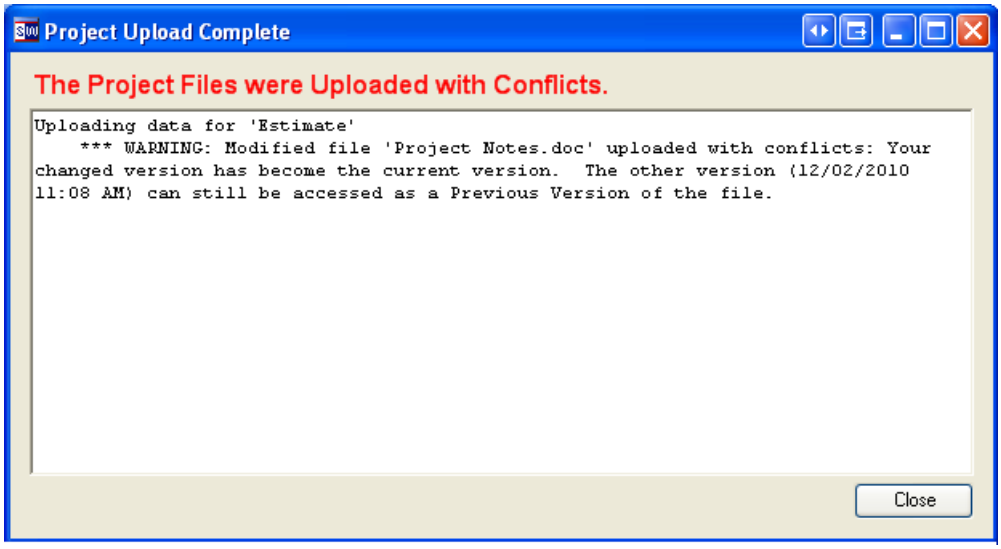
One of the most important features of Smartware Studio is its ability to ensure that one person doesn't inadvertently overwrite the changes of another when they both modify the same file.

Consider the following scenario:

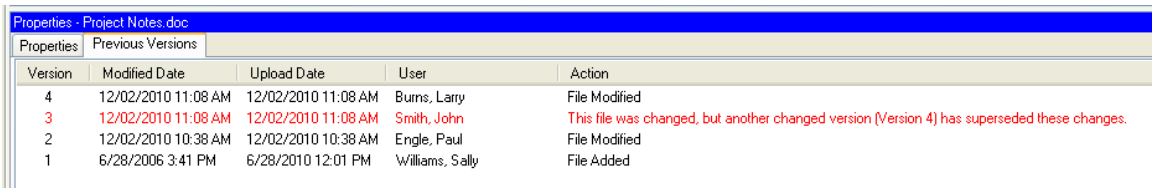
- A file exists in a Server project. The latest version is Version 2.
- Person A (John Smith) opens the file, automatically downloading Version 2 to their workstation.
- Person B (Larry Burns) also opens and downloads Version 2.

- Person A modifies and saves the file. He uploads his changes, which become Version 3.
- Person B modifies and saves his version of the file. He uploads his changes, which become Version 4.

The problem that would occur in a normal file server situation is that Person B has overwritten the changes that Person A has made. Smartware Studio, however, tracks the versions of the files that are downloaded to each machine, so when Person B uploads their version, they will receive this message:



As indicated, all three versions are stored on the server. This is apparent in the Previous Versions list:



The important things to note are:

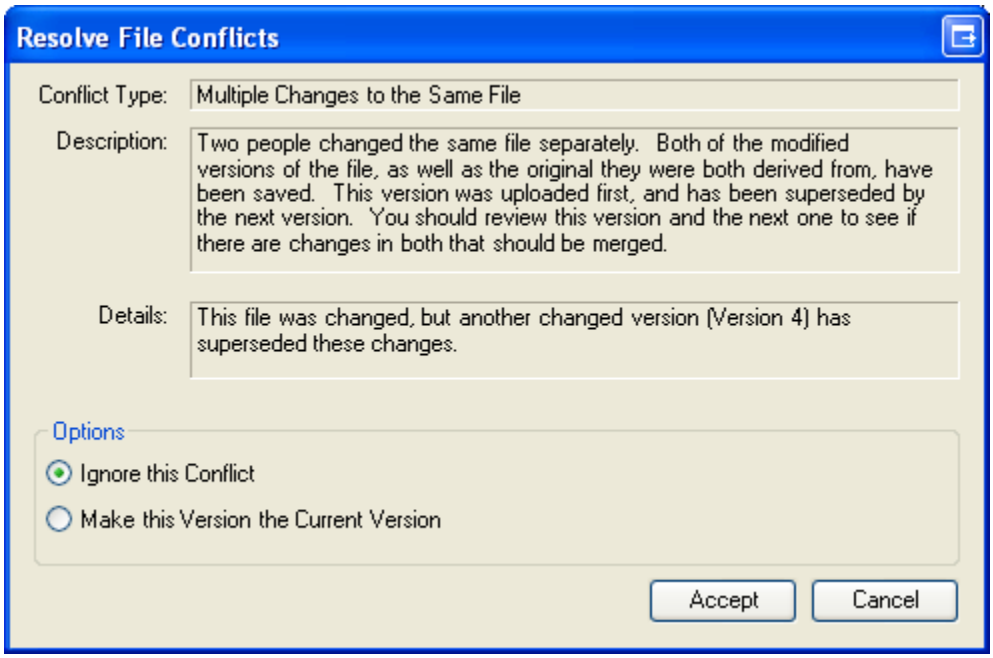
- Person A's changes (Version 3) are still available to view.
- Person B's changes (Version 4) are considered the current version.
- If nobody does anything else, Version 4 will remain the current version until the next person modifies and uploads the file.

The best way to resolve this conflict is for the two people to speak and determine what changes were made, whether either set of changes can be ignored, or if the changes need to be merged by hand.

There are therefore three ways to resolve this conflict:

1. Do nothing, leaving Version 4 as the latest and losing Version 3's changes.
2. Make Version 3 the latest (creating a copy as Version 5), overwriting and losing Version 4's changes.
3. Merge the changes manually to create Version 5. Versions 2, 3 and 4 are all available on the server to help make this possible.

To review and resolve the conflict, right-click on the conflicted version shown in red in the Previous Versions list (in our example, this would be Version 3):



Locking and Signing Files

You can put an exclusive lock on a file to prevent other users from changing it while it's locked.

- To lock a file, right-click on it and select LOCK FILE. To unlock the file, right-click it and select UNLOCK FILE.
- When locked by you, the file will have a check mark icon next to it. When locked by someone else, the file will have a padlock icon. Right-click on the file and select PROPERTIES to see who has the lock and on what workstation.
- When a file is locked to a person and a specific workstation, only that person can upload new versions of the file. All other users will have the file marked as read-only the next time they open it while connected to the network.

- If someone else has already begun editing a file and it is then locked by another person, the first person's changes are not lost. However, they will not be able to upload their changes until the file is unlocked. If the second person uploads a new version in that time, the first person's changes will trigger a file conflict to be resolved.
- A user with the Account or IT Administrator right has the ability to unlock any file regardless of who has locked it. When they right-click on a locked file, a menu item UNLOCK (ADMIN) will be available.
- This feature is unrelated to checking out a project.

You can also electronically "sign" a file for the purposes of tracking approvals of documents.

- You can Sign any file that has been uploaded to a server project. Right-click on the file (or files) and select SIGN FILE. You will be prompted to add an optional comment to the signature.
- When a file is signed, a small pencil icon will appear next to the file. The file will also be treated as if it has been locked. The file will be read-only when opened and attempts to upload changes will be rejected.
- Signatures are not permanent. Any user can remove a signature and edit the file again. To unsign a file, right-click the file (or files) and select UNSIGN FILES. The history of the signing and unsigning, along with all comments, will remain.
- To view the history of Signatures on a file, right-click the file and select SIGNATURES. A new tab will be shown next to the file's *Properties* and *Previous Versions*.
- Multiple people can sign the same file.
- You must be connected to the server to sign, unsign or view the signature history for a file.

Subscribing to File Notifications

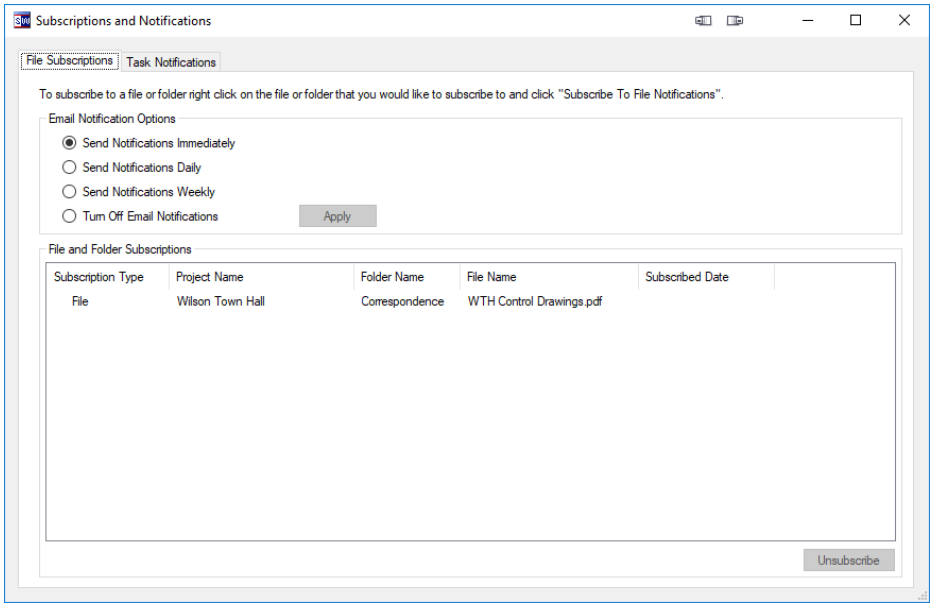
The *Notifications Service* allows you to "subscribe" to Files and Folders in a project and receive an email when files have been changed or added.

- This feature requires that the Notifications Service be set on you server. Refer to the *Setup and Administration Guide* chapter on the *Studio Windows Service* for more information.

To subscribe to changes to a file or folder, right-click on the file or folder in an open server project and select SUBSCRIBE TO FILE NOTIFICATIONS.

- When you subscribe to a file, you'll be notified when it's changed, deleted, locked or signed.
- When you subscribe to a folder, you'll be notified when any file in it is modified, when files are added or removed, or when emails are added.
- Right-click on a subscribed file or folder again to select UNSUBSCRIBE TO FILE NOTIFICATIONS.

You can maintain your subscriptions by selecting VIEW→ SUBSCRIPTIONS AND NOTIFICATIONS:



- To choose how often you'll receive notifications, choose from the options (*Immediately*, *Daily* or *Weekly*).

5. Working with Email

In addition to files, every folder (actually, all items including Network Tree items) can also be used to store email.

The Emails Tab

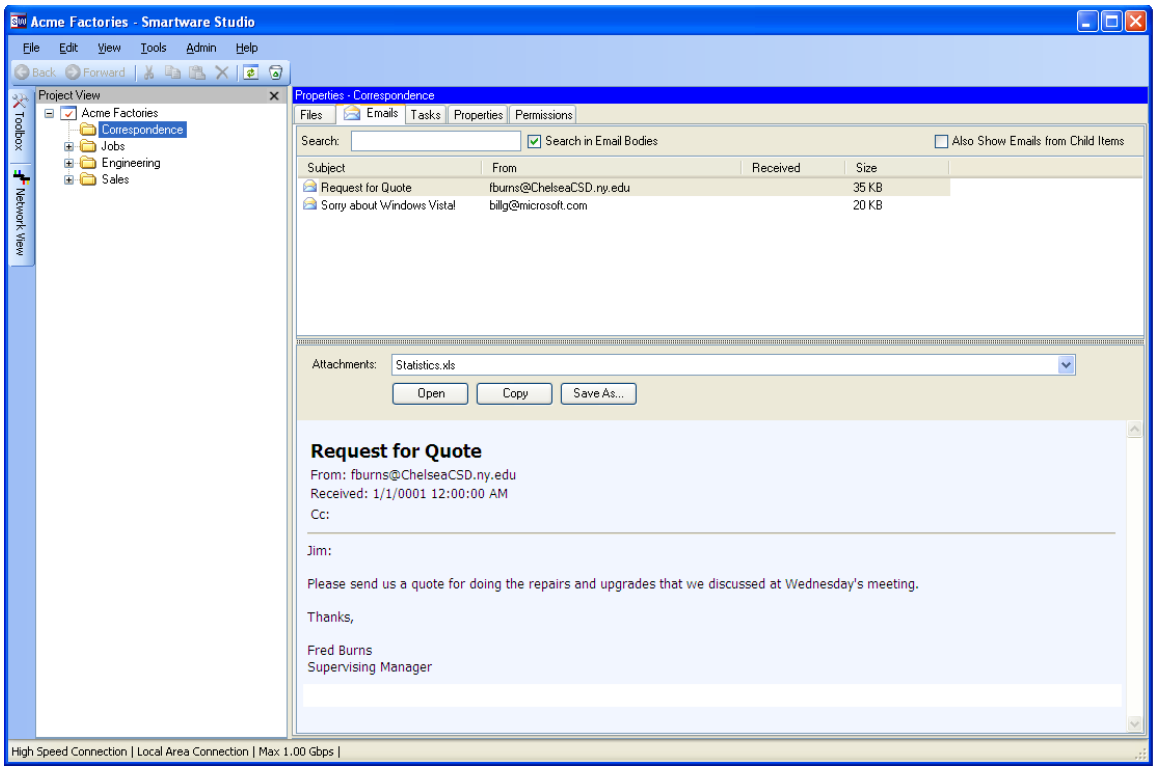
When you select a folder (or other item), you can select the Email tab in the Properties panel to see a list of the emails in that folder.

- Some items in the tree may not have the Emails tab visible by default. If not, you can show it by selecting VIEW→EMAILS TAB.
- If there are any emails stored with the folder, the Emails tab will automatically be visible and show an envelope icon next to the tab name.

It is common to create a folder named *Correspondence* in a Customer Site project to store all the emails, or to create one Correspondence folder per Job.

Viewing Emails and Attachments

To view the content of an email, select it in the list:



- To print the email, right-click the email in the list and select PRINT or PRINT PREVIEW.
- To view the contents of an attachment, select in from the list and click OPEN.
- To extract an attachment, select it in the list and click COPY (and Paste it to your desktop or other Windows folder) or click the SAVE AS button.

Searching for Emails

There are some additional ways to find a specific email in a project:

- If you have multiple folders with emails stored in the them, select the root of the project, go to the Emails tab, and check the Also Show Emails from Child Items.
- Enter one or more keywords in the Search box, which will search the subject lines. Check the Search in Email Bodies checkbox to also search the body of each message.

Forwarding Emails

You can use Microsoft Outlook to forward an email directly from the Smartware Studio project to someone else.

- Right-click on the email in the list and select OPEN. The email will open in an Outlook window with all options (Forward, Reply, etc.) available.

Copying Emails into Smartware Studio

You can copy emails directly from Microsoft Outlook into your Smartware Studio project. When you do, the format of the message will generally include most of the formatting and the attachments.

To copy an email from Outlook (not all methods are available in all versions of Outlook):

- Select the email in Outlook and from the Edit menu select COPY. Right-click in an empty area of the Smartware Studio email list and click PASTE.
- Right-click on the email in Outlook and select COPY, then right-click in an empty area of the Smartware Studio email list and click PASTE.
- Drag the email from the list on Outlook and drop it in the email panel in Smartware Studio.

Depending on the version of Outlook and your security settings, Outlook may prompt you for explicit permission to copy the email.

Forwarding Emails into a Smartware Studio Project

If properly configured, you can assign a unique email address to each Correspondence folder in each project (e.g. *ChelseaCSD@studio.yourcompany.com*). You can then forward or carbon copy emails to this address from any email program and they will automatically be routed to the appropriate project and folder.

Note: *This feature requires some additional setup and configuration that requires advanced IT experience. Refer to the chapter* The Email Forwarding Service *in the* Smartware Studio Setup and Administration Guide.

The email addresses for the projects will be based on a sub-domain address defined by your Administrator. If your company's normal email address is *@yourcompany.com*, the Smartware Studio email address will be something like *@studio.yourcompany.com.*

Specifying an Email Alias for a Folder

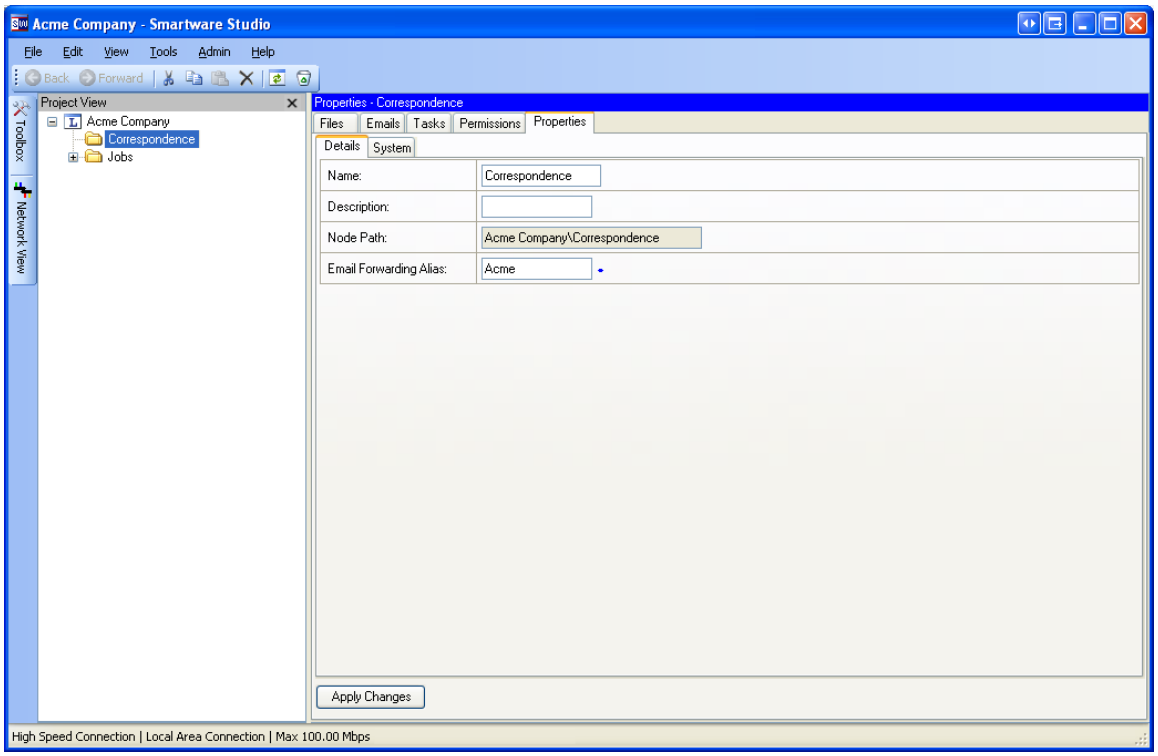
Any folder in any project in Smartware Studio can be configured with an email address to receive emails through the service.

- All the email addresses will end with the sub-domain name created by your Administrator (e.g., *@studio.yourcompany.com*).

To create a new email address, specify the EMAIL FORWARDING ALIAS property of the folder.

- With the project checked out, create and select the *Correspondence* folder in the project tree.
- On the right side, select the PROPERTIES tab.

- On the DETAILS sub-tab, fill in the EMAIL FORWARDING ALIAS.



- The full email address for this folder will be *Acme@studio.ourcompany.com*

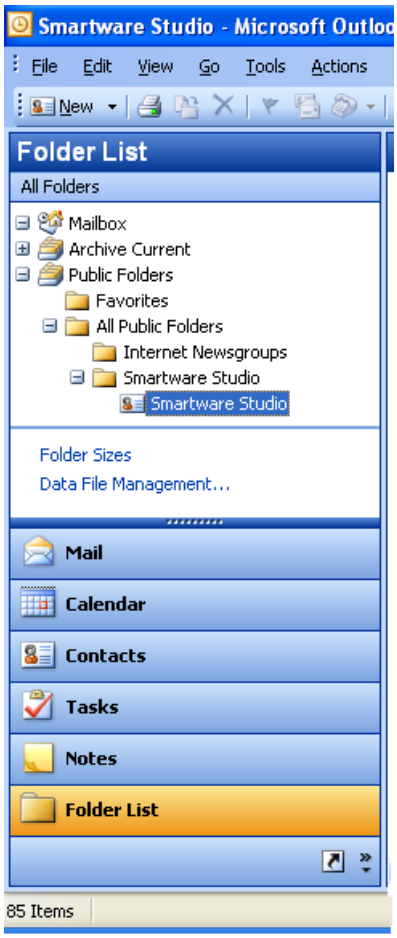
Accessing a Shared Contact List in Microsoft Outlook

Your Administrator can generate a Contact List with all the aliases in the system and make this contact list available through Microsoft Outlook.

To make the shared contact list available in Outlook, do the following:

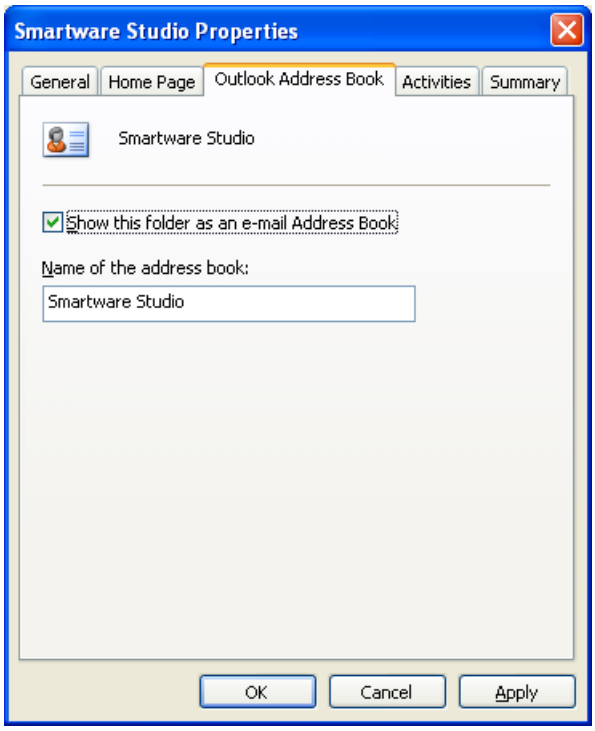
- Go to the Folder List pane by:
    - Selecting the GO→FOLDER LIST menu command, or

- Clicking on the FOLDER LIST panel in the Navigation Pane



- Navigate to the *Public Folders→All Public Folders→Smartware Studio* folder.
- Right-click on *the Smartware Studio* contact list and select PROPERTIES from the menu.

- Select the OUTLOOK ADDRESS BOOK tab

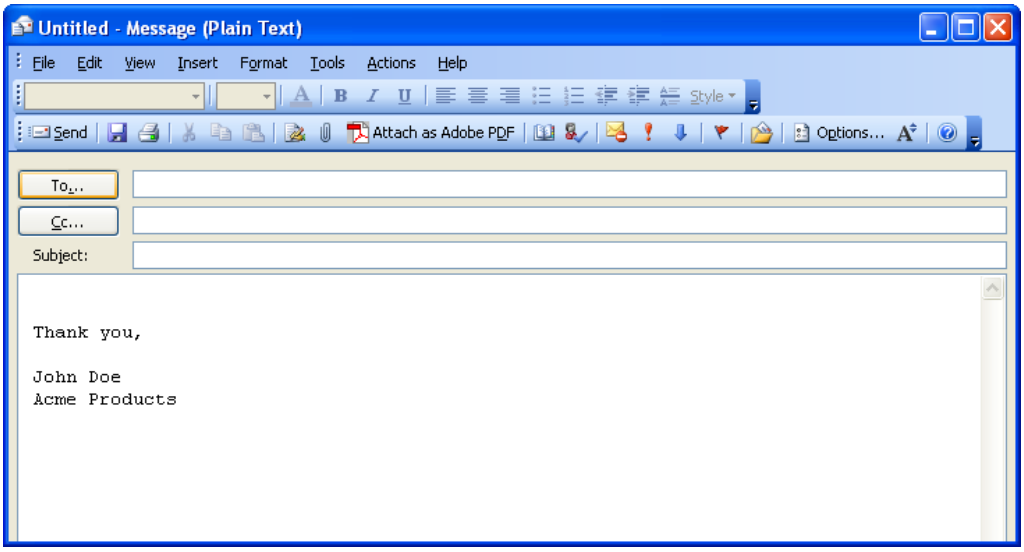


- Check the SHOW THIS FOLDER AS AN EMAIL ADDRESS BOOK checkbox

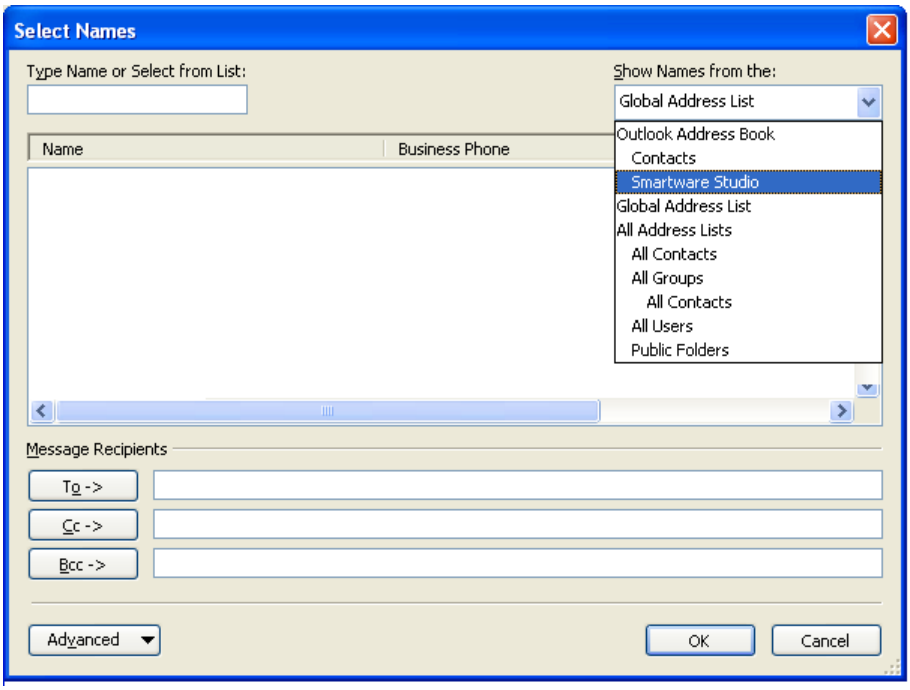
Selecting an Email Address from the Smartware Studio Contact List

Once the shared folder has been configured, you can access the contact list whenever you are composing, forwarding or replaying to an email.

- When composing an email, click on the TO… button next to the field for entering the sender's email address:



- In Outlook's Select Names dialog, drop down the Show Names from the list and select the shared folder:



The complete list of defined aliases for Smartware Studio projects will be displayed for you to browse and search.

6. The Network Tree

The Network Tree is designed to help you model various types of physical device networks, including

- HVAC Controller Systems
- PC Networks

Once created, it provides a number of significant features:

- Organized storage of Software Files for each device
- Storage of device passwords
- Generation of Automation Overview diagrams
- Generation of Device Reports
- Tools for specific software tools, such as Schneider Electric's *WorkPlace Tech*.
- Tools for specific devices, such as Niagara R2 backups.

Viewing the Network Tree

The Network Tree is a part of all Smartware Studio projects. If not already visible, you can make it visible by:

- Selecting EDIT→NETWORK VIEW
- Clicking the NETWORK VIEW tab on the left side of the Smartware Studio window

Checking Out the Project

When you open a server project in Smartware Studio, you will be asked if you want to check out the project.

- If you are only going to work with the files on the network tree (including adding, editing or modifying the files) you do not need to check out the project.
- If you are going to add, remove or move the devices in the network tree you must check out the project.
- If you are going to change the properties of the devices in the network tree, such as the network addresses, you must check out the project.

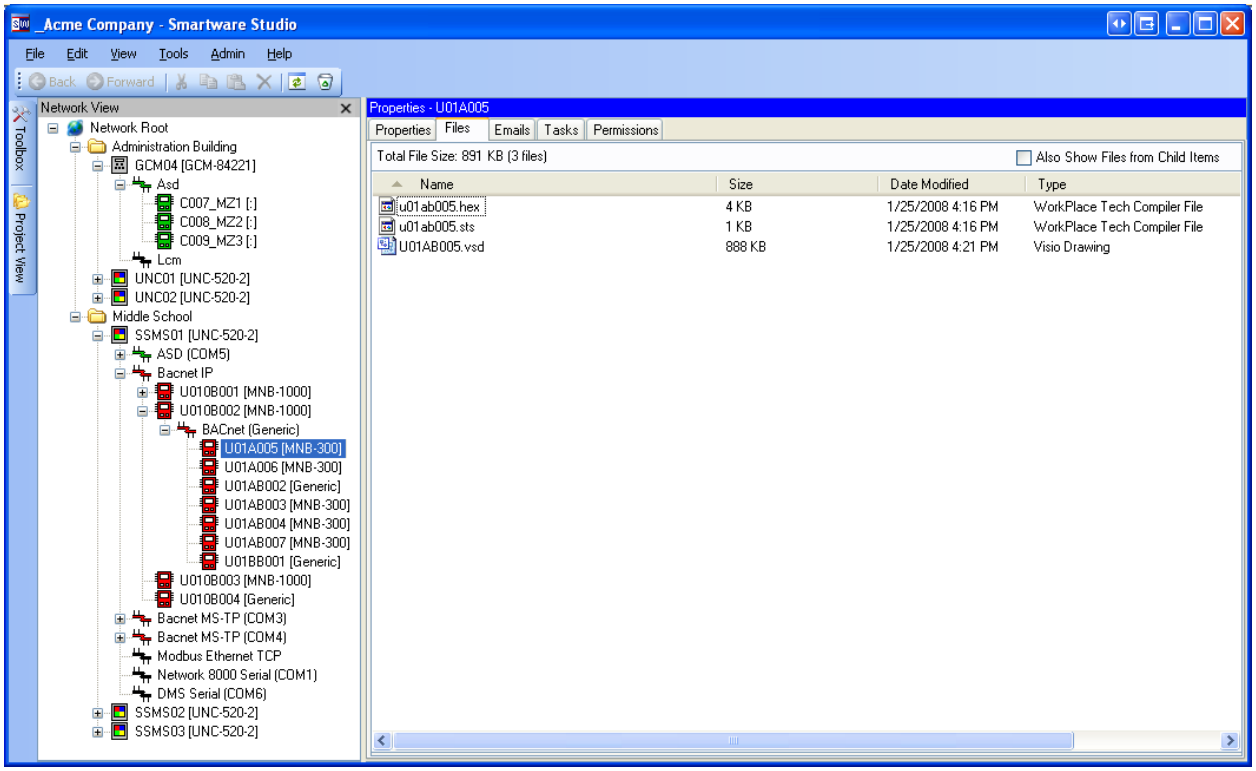
Refer to the earlier chapter on *Smartware Studio Projects* for more information.

The Structure of the Network Tree

The Network Tree includes three types of items:

- Devices
- Buses
- Folders

Here is sample tree with all three types of items:



- The *Network Root* can contain Devices and Folders.
- *Folders* can be added to Devices and other Folders.
- *Buses* exist underneath Devices but cannot be added directly. They either exist automatically or are turned on or off from the Device's property tabs.
- *Devices* can be added to Folders or compatible Buses.

Each type of item and each type of Device can have different information and functionality. You can access these from:

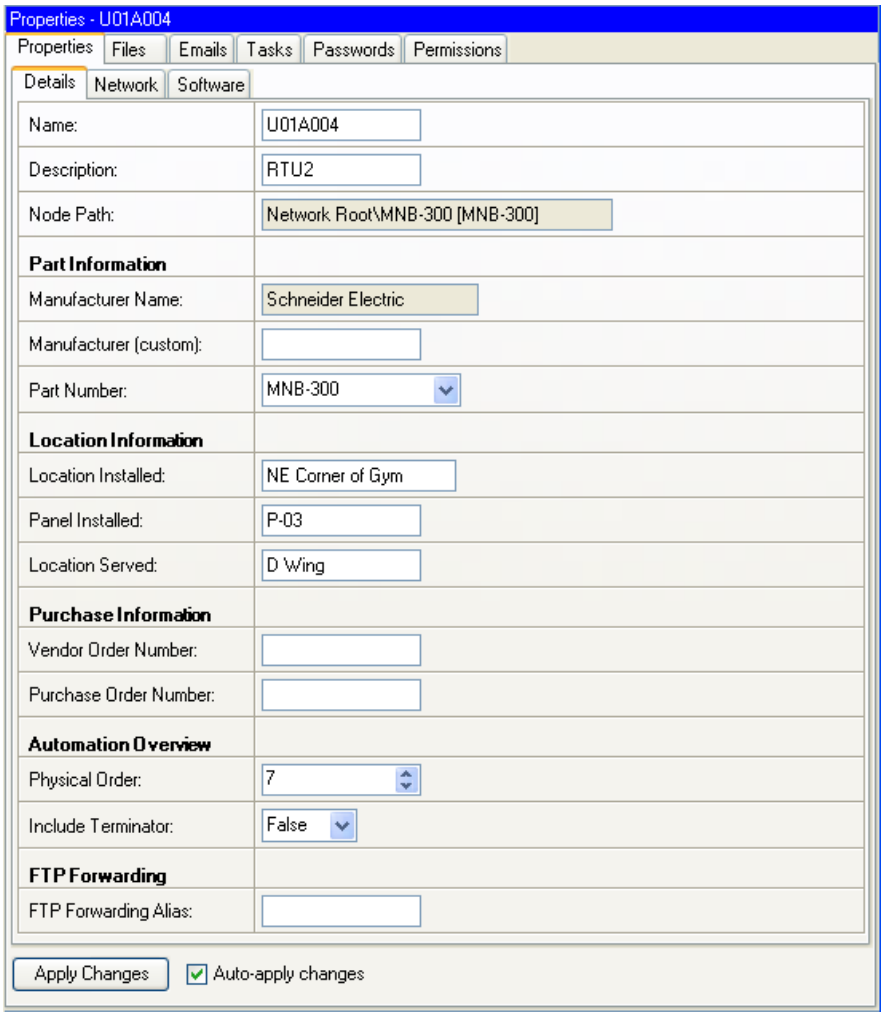
- The specific *Property Tabs*.
- The *Context Menu* (right-click the item in the tree)

For example, a Niagara UNC device has additional tabs for BUS CONFIGURATION and STATION BACKUPS. Buses have a context menu command for TOOLS→DUPLICATE AND DISTRIBUTE SOFTWARE FILES. The specific tabs and commands for each type of device are described in more detail in the next two chapters.

Device Properties

While the exact list of properties will vary from device to device, most share a similar list on three tabs: *Details*, *Network* and *Software*.

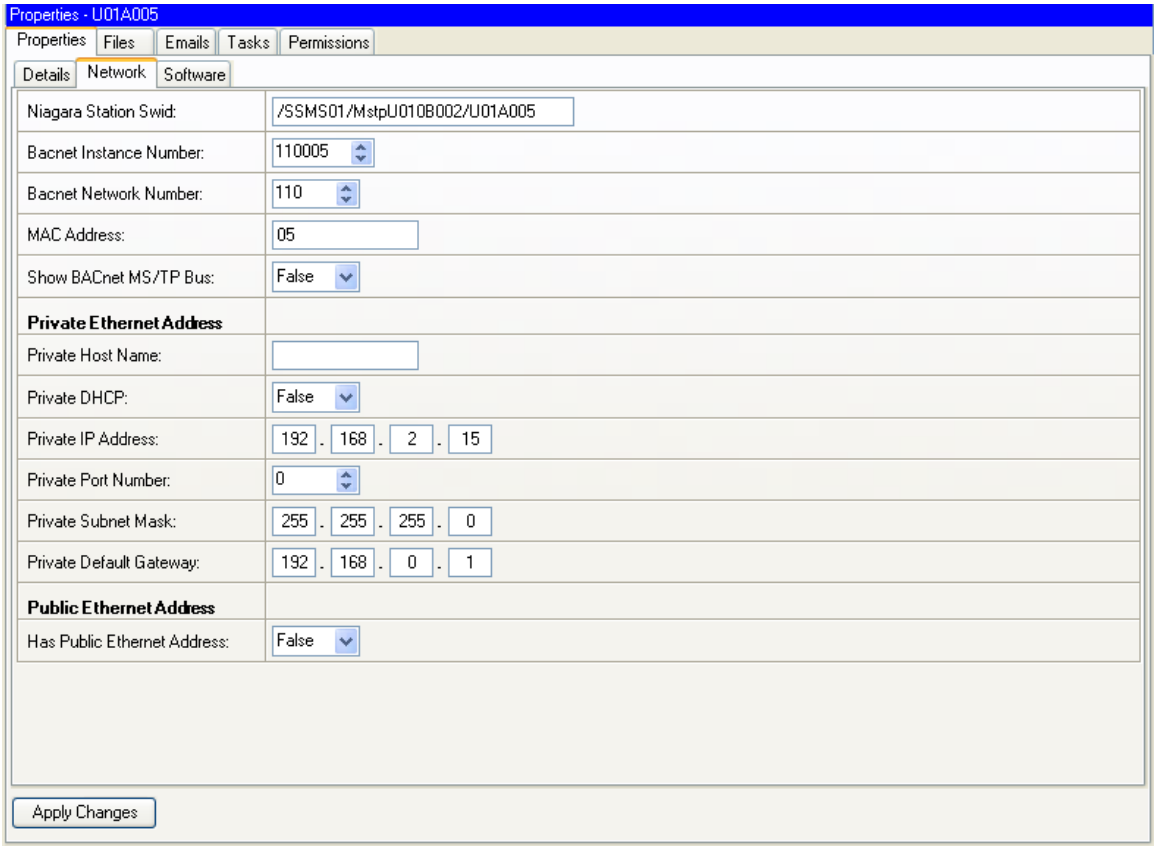
The *Details* tab contains general properties:



- The *Physical Order* and *Include Terminator* properties are used to control the generation of the *Automation Overview* diagrams described later in this chapter.
- The *FTP Forwarding Alias* property allows you to create an alias for automatic forwarding of files to this device's file list from an external folder or FTP site.

Refer to the chapter *The Email Forwarding Service* in the *Smartware Studio Setup and Administration Guide* for more information.

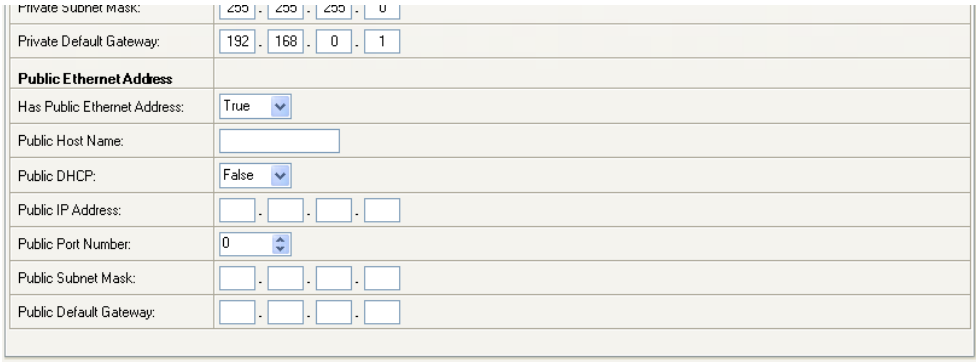
The *Network* tab contains properties related to the device's network addresses:



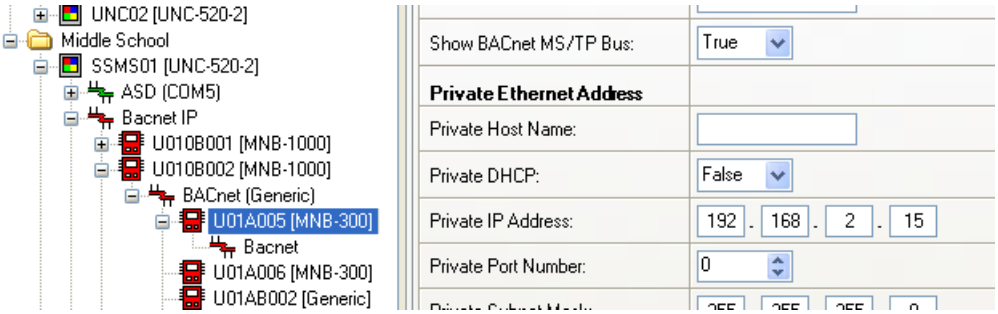
- These properties will vary from device to device.
- Some of these properties are filled in when the Network Tree is built automatically from global controller backups (e.g., GCM, Niagara UNC) or from scanned software files (e.g., WorkPlace Tech).

Some properties, when accepted, will make other properties of buses appear.

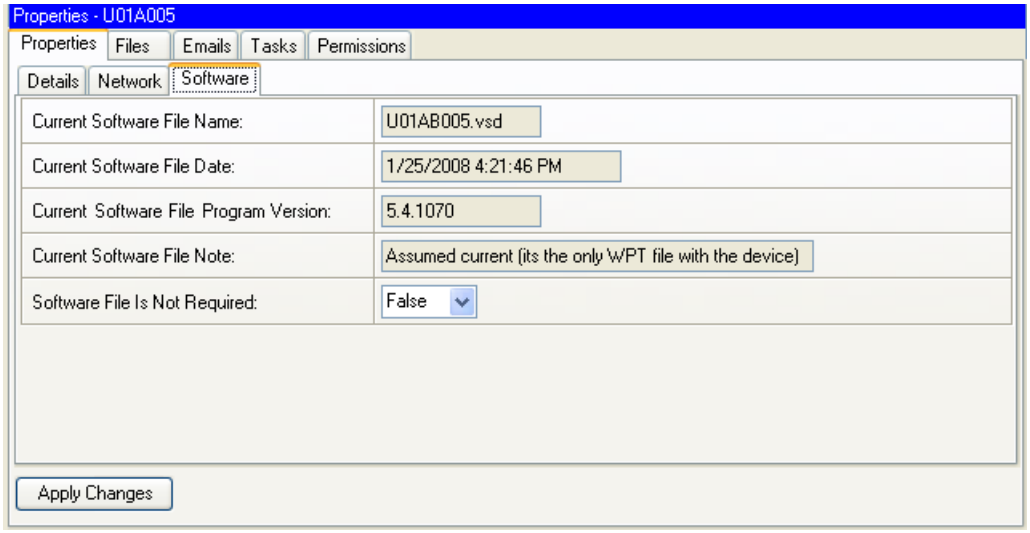
- For Ethernet devices, if you change *Has Public Ethernet Address* to True, the specific properties for the public address (in addition to the default private address properties) will appear.



- On a generic BACnet device, if you change *Show BACnet MS/TP Bus* to True, the bus will appear beneath the device node.



The *Software* tab contains properties related to the software files stored with the device:



- Device Software Files are described in more details in the later chapter.

Building the Network Tree

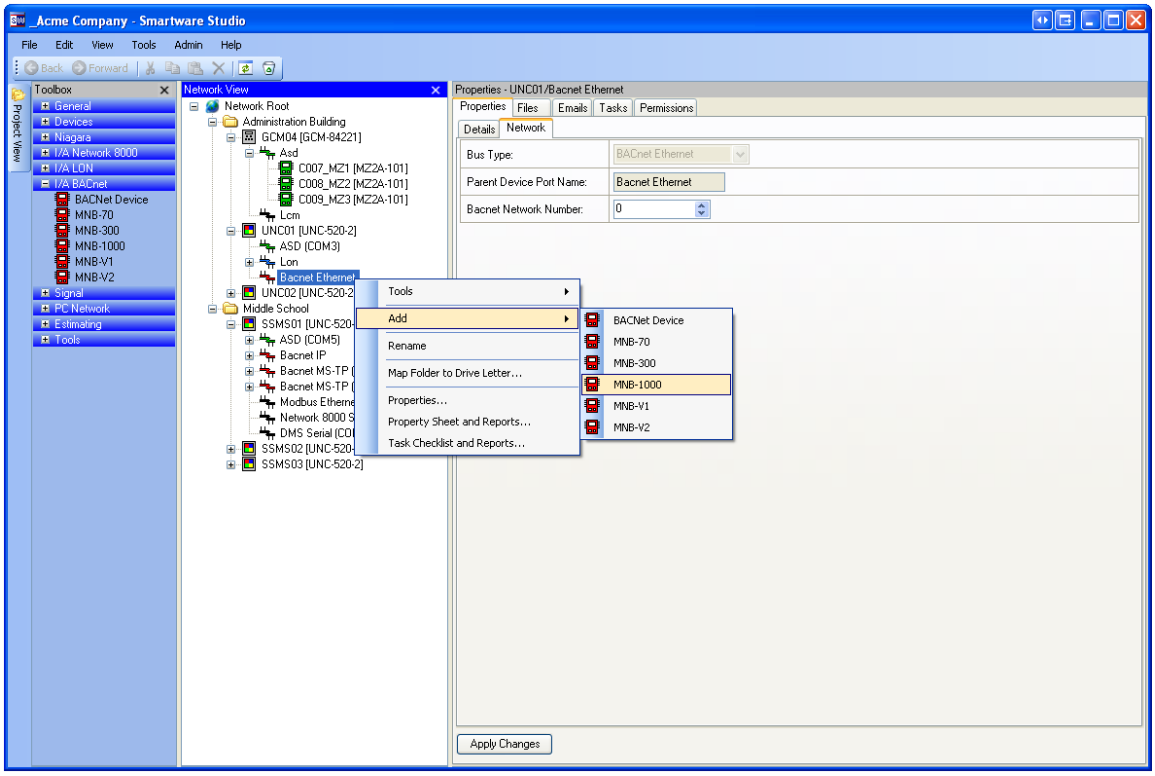
The Network Tree is generally built in a combination of two methods: *manually* or *automatically*.

- When you build a portion manually, you add devices from the toolbox to the appropriate folder or bus. You can then configure the devices to show the appropriate buses beneath them, adding devices to these sub-networks as needed.
- Some global controllers (such as the EcoStruxure AS, Continuum bCX1, the GCM, and the Niagara R2 and Ax JACEs) have utilities that allow you to import a backup of the controller which contains enough information about the devices on its bus to build the network tree and fill in some of their properties. Refer to the later chapter on *Network Tree Devices* and the specific device description for more information.

Remember, if you are going to edit the Network Tree structure, the project must be *checked out.*

Adding Devices to the Network Tree

You can add a device to the Network Tree in one of two ways:



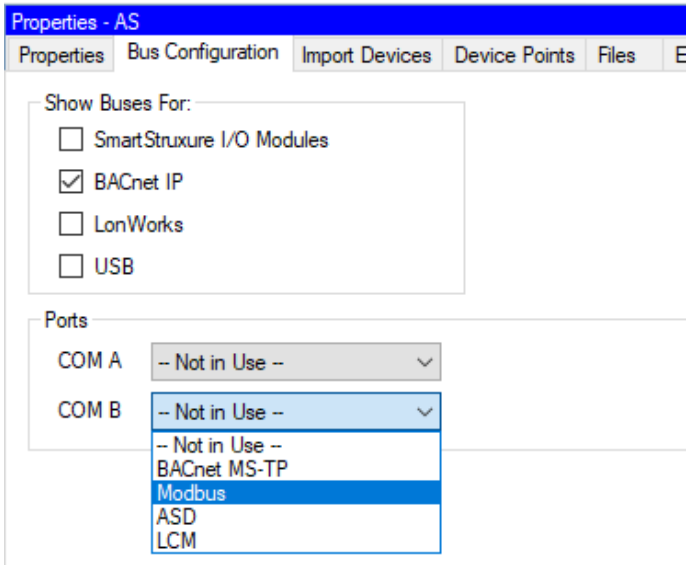
- Open the *Toolbox*, select the appropriate stencil with the device you want, and drag it onto the parent folder or bus. Only compatible devices can be put on a bus.
- Right-click on the parent folder or bus and select the ADD menu. A list of compatible devices will be shown.

If you want to quickly add more than one device of the same type, you can do the following:

- Add the first instance of the device.
- Right-click the new device and select DUPLICATE X to add the additional instances.
- Right-click on the parent folder or bus and select PROPERTY SHEET AND REPORTS to quickly rename the new instances. Refer to the later section, *Property Sheets and Reports*, in this chapter for more detail.

Configuring Device Buses

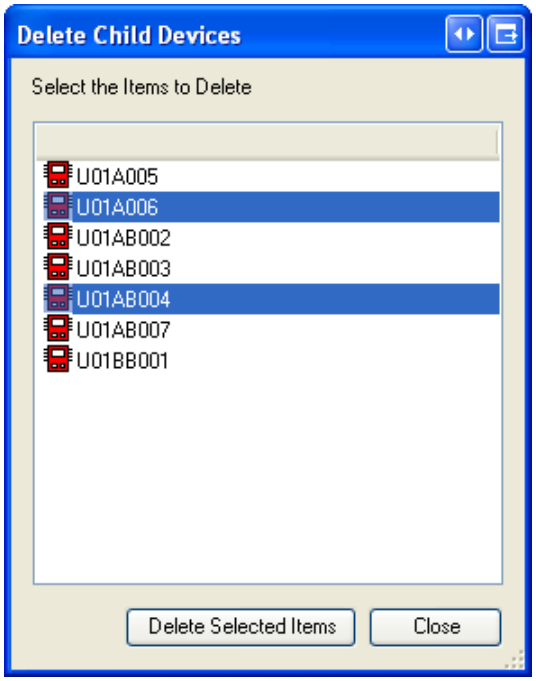
Many devices can be configured to enable and use different buses on different ports based on software drivers or licensing. For these devices, there will generally be *a Bus Configuration* tab to allow you to show or hide the appropriate buses on the Network Tree.



- In this example from a Schneider Electric EcoStruxure Automation Server, you can choose to show the *I/O*, *Bacnet IP*, *LonWorks* and/or *USB* buses individually. You can also configure each of the two COM ports to use *BACnet MS-TP*, *Modbus*, *ASD* or *LCM*.
- If you turn off a bus that already has devices, they will be moved to a marked temporary bus so you can move them to where they belong.

Deleting Multiple Devices from the Network Tree

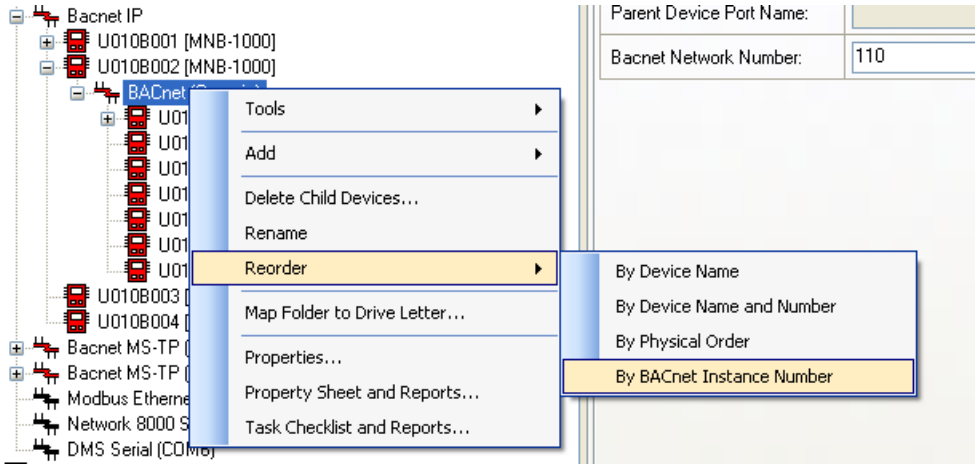
To remove multiple devices from a bus or folder on the Network Tree at once, right-click on the parent folder or bus and select DELETE CHILD DEVICES. This will present the devices in a multi-selectable list box:



- You can select multiple items (CTRL+CLICK to select individual folders; SHIFT+CLICK to select a range of folders) and then click DELETE SELECTED ITEMS to delete them.

Reordering Devices

To reorder the devices based on their names or addresses, right-click on the parent folder or bus and select REORDER from the context menu.



You can reorder:

- BY DEVICE NAME (purely alphabetical)
- BY DEVICE NAME AND NUMBER (which sorts names such as *RTU2* and *RTU10* in proper numerical order.
- BY PHYSICAL ORDER (based on the *Physical Order* property on the Details tab; used by the Automation Overview diagrams described later in this chapter)
- By Device Address (e.g. BACnet Instance Number)

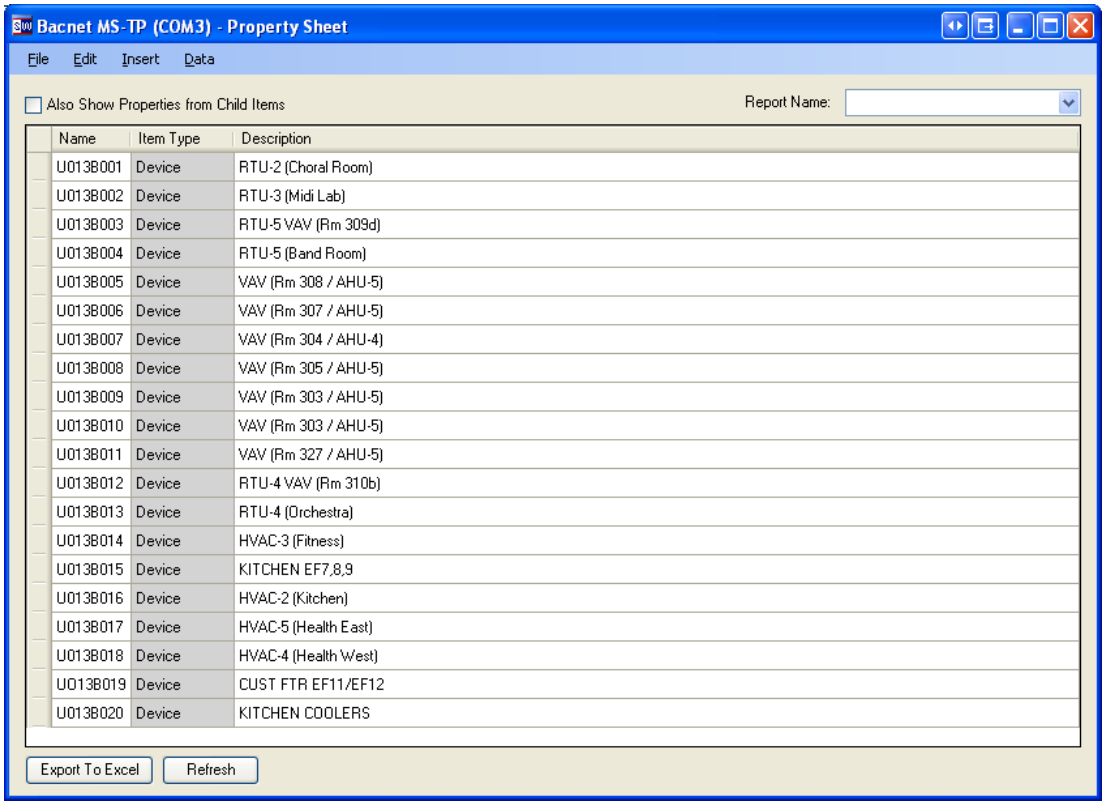
Property Sheets and Reports

Property Sheets and Reports is a utility that can be used to:

- Quickly rename a set of devices
- Quickly view and edit the same property across a set of devices
- Generate and export a report of device properties

A Property Sheet is essentially a spreadsheet, with each row representing a single object (e.g., device) in the network tree, and each column representing a specific property (e.g., *Name, Description, and BACnet Instance Number*).

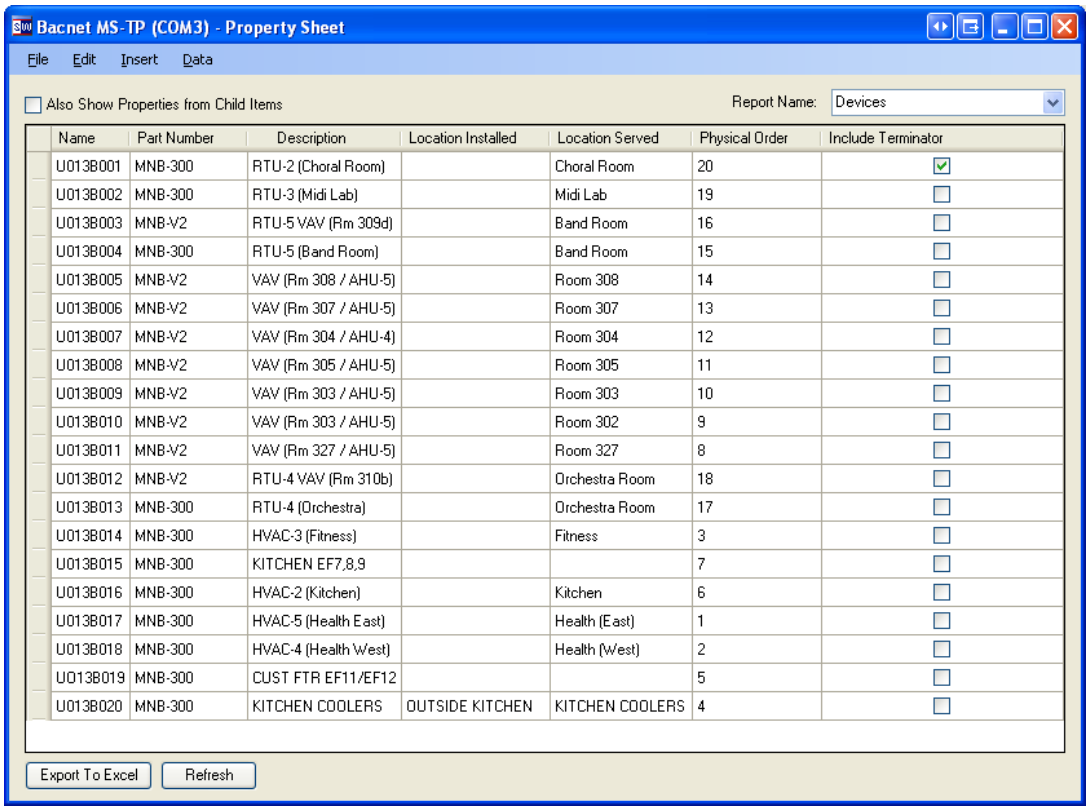
To create a Property Sheet, right-click on a parent node of the items you want in the report and select PROPERTY SHEET AND REPORTS. For example, to generate a Property Sheet of the devices in a single bus, select the menu command from the bus:



- You can edit any of the properties with a white background. Gray background columns are read-only.
- The default Property Sheet report includes just the basic *Name* and *Description* properties that all items share. This is a quick way to rename a set of items or update their descriptions.

Property Sheet Reports

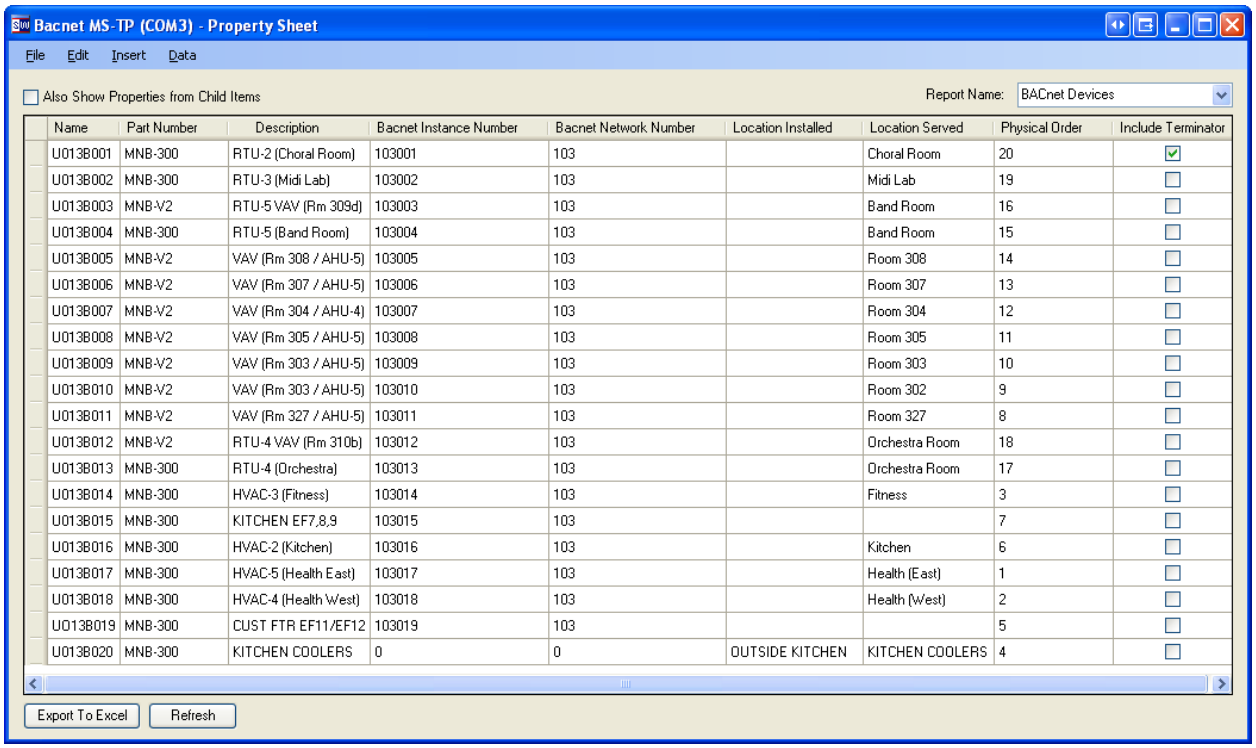
To view additional properties, select a specific Report from the list in the upper-right corner. For example, here is the same list using the *Devices* report:



Name	Part Number	Description	Location Installed	Location Served	Physical Order	Include Terminator
U013B001	MNB-300	RTU-2 (Choral Room)		Choral Room	20	☑
U013B002	MNB-300	RTU-3 (Midi Lab)		Midi Lab	19	☐
U013B003	MNB-V2	RTU-5 VAV (Rm 309d)		Band Room	16	☐
U013B004	MNB-300	RTU-5 (Band Room)		Band Room	15	☐
U013B005	MNB-V2	VAV (Rm 308 / AHU-5)		Room 308	14	☐
U013B006	MNB-V2	VAV (Rm 307 / AHU-5)		Room 307	13	☐
U013B007	MNB-V2	VAV (Rm 304 / AHU-4)		Room 304	12	☐
U013B008	MNB-V2	VAV (Rm 305 / AHU-5)		Room 305	11	☐
U013B009	MNB-V2	VAV (Rm 303 / AHU-5)		Room 303	10	☐
U013B010	MNB-V2	VAV (Rm 303 / AHU-5)		Room 302	9	☐
U013B011	MNB-V2	VAV (Rm 327 / AHU-5)		Room 327	8	☐
U013B012	MNB-V2	RTU-4 VAV (Rm 310b)		Orchestra Room	18	☐
U013B013	MNB-300	RTU-4 (Orchestra)		Orchestra Room	17	☐
U013B014	MNB-300	HVAC-3 (Fitness)		Fitness	3	☐
U013B015	MNB-300	KITCHEN EF7,8,9			7	☐
U013B016	MNB-300	HVAC-2 (Kitchen)		Kitchen	6	☐
U013B017	MNB-300	HVAC-5 (Health East)		Health (East)	1	☐
U013B018	MNB-300	HVAC-4 (Health West)		Health (West)	2	☐
U013B019	MNB-300	CUST FTR EF11/EF12			5	☐
U013B020	MNB-300	KITCHEN COOLERS	OUTSIDE KITCHEN	KITCHEN COOLERS	4	☐

- If you want to report on items from more than one parent, start with an item higher up in the tree and check the ALSO SHOW PROPERTIES FROM CHILD ITEMS checkbox.
- When you select a specific Report, only the items of that type will be included. For example, if you run a report from a Niagara UNC with multiple bus types and select the *Lon Devices* report, the report will be filtered to include only Lon Devices.
- In general, a report will show all the properties that all the items of that type have in common. More specific reports show more properties.

Here is the *BACnet Devices* report for the same items. Note the addition of the *Bacnet Instance Number* and *Bacnet Network Number* properties:



Name	Part Number	Description	Bacnet Instance Number	Bacnet Network Number	Location Installed	Location Served	Physical Order	Include Terminator
U013B001	MNB-300	RTU-2 (Choral Room)	103001	103		Choral Room	20	☑
U013B002	MNB-300	RTU-3 (Midi Lab)	103002	103		Midi Lab	19	☐
U013B003	MNB-V2	RTU-5 VAV (Rm 309d)	103003	103		Band Room	16	☐
U013B004	MNB-300	RTU-5 (Band Room)	103004	103		Band Room	15	☐
U013B005	MNB-V2	VAV (Rm 308 / AHU-5)	103005	103		Room 308	14	☐
U013B006	MNB-V2	VAV (Rm 307 / AHU-5)	103006	103		Room 307	13	☐
U013B007	MNB-V2	VAV (Rm 304 / AHU-4)	103007	103		Room 304	12	☐
U013B008	MNB-V2	VAV (Rm 305 / AHU-5)	103008	103		Room 305	11	☐
U013B009	MNB-V2	VAV (Rm 303 / AHU-5)	103009	103		Room 303	10	☐
U013B010	MNB-V2	VAV (Rm 303 / AHU-5)	103010	103		Room 302	9	☐
U013B011	MNB-V2	VAV (Rm 327 / AHU-5)	103011	103		Room 327	8	☐
U013B012	MNB-V2	RTU-4 VAV (Rm 310b)	103012	103		Orchestra Room	18	☐
U013B013	MNB-300	RTU-4 (Orchestra)	103013	103		Orchestra Room	17	☐
U013B014	MNB-300	HVAC-3 (Fitness)	103014	103		Fitness	3	☐
U013B015	MNB-300	KITCHEN EF7,8,9	103015	103			7	☐
U013B016	MNB-300	HVAC-2 (Kitchen)	103016	103		Kitchen	6	☐
U013B017	MNB-300	HVAC-5 (Health East)	103017	103		Health (East)	1	☐
U013B018	MNB-300	HVAC-4 (Health West)	103018	103		Health (West)	2	☐
U013B019	MNB-300	CUST FTR EF11/EF12	103019	103			5	☐
U013B020	MNB-300	KITCHEN COOLERS	0	0	OUTSIDE KITCHEN	KITCHEN COOLERS	4	☐

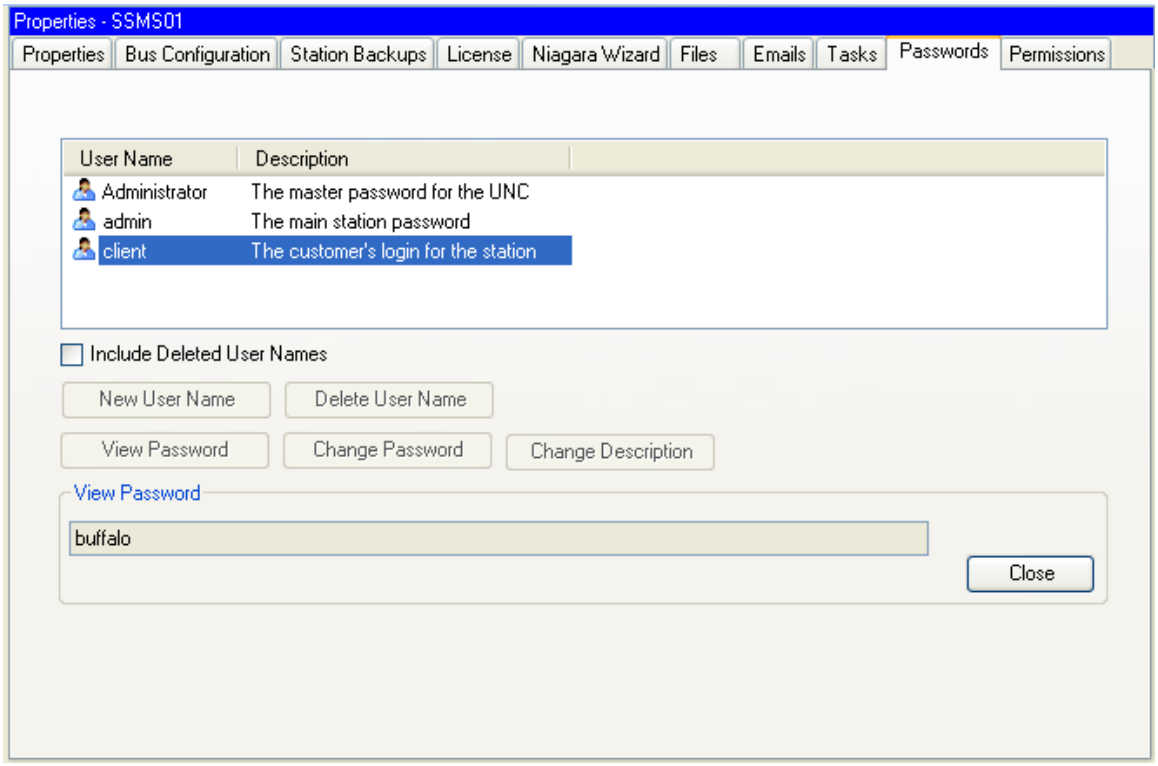
Importing and Exporting Property Sheet Data

You can move data into and out of the Property Sheets in a number of ways:

- To export the entire Property Sheet to Excel, click the EXPORT TO EXCEL button or select FILE→EXPORT TO EXCEL.
- If you want to paste data from an external spreadsheet into the Property Sheet:
  - Highlight the cells in the external spreadsheet
  - Select COPY
  - In the Property Sheet, click in the first cell to paste into and select the entire cell (not just the text).
  - Select PASTE
- If you want to fill the same value down into multiple cells, highlight all the cells and select EDIT→FILL→DOWN (or CTRL+D). The top value will be copied into the other cells.

The Passwords Tab

For a server project, each device has a Passwords tab that can be used to store the User Names and Passwords for accessing the device:



- The passwords are stored and encrypted in the server's database and are never stored on a local workstation. This guarantees that a lost machine won't reveal these passwords, but also requires that the workstation be connected to the server in order to view a password.
- You can store multiple User Name and Password combinations on the same device.
- Password storage is not available for local projects until they are moved to the server.

Password View History

There is an Administrative tool for viewing the logs of Device Password views and changes:

- If you are an administrator, you can access it from ADMIN→SERVER CONFIGURATION AND TOOLS menu, on the Device Passwords tab.
- Reports can be filtered by user, date and project, and can be exported to Excel.

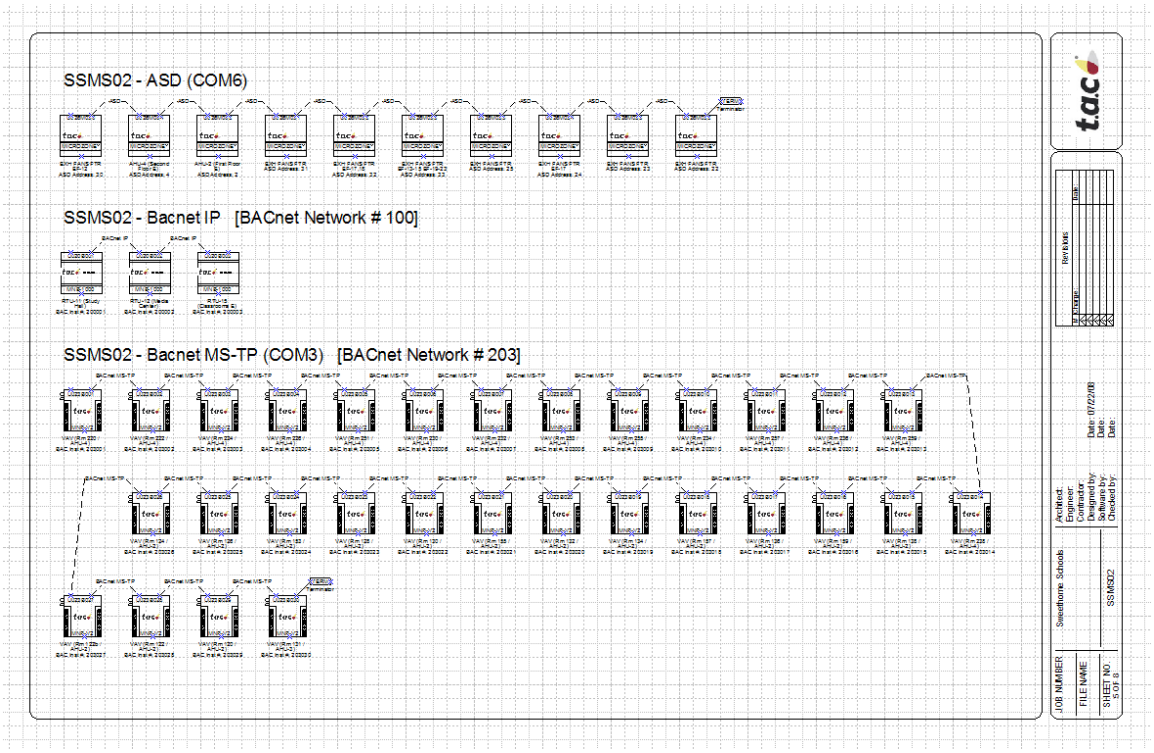
Password Monitoring Emails

An Administrator can also configure the Studio Windows Service to send an email to a list of people when any password is viewed or changed.

- Refer to the *Setup and Administration Guide* chapter on *The Studio Windows Service*.

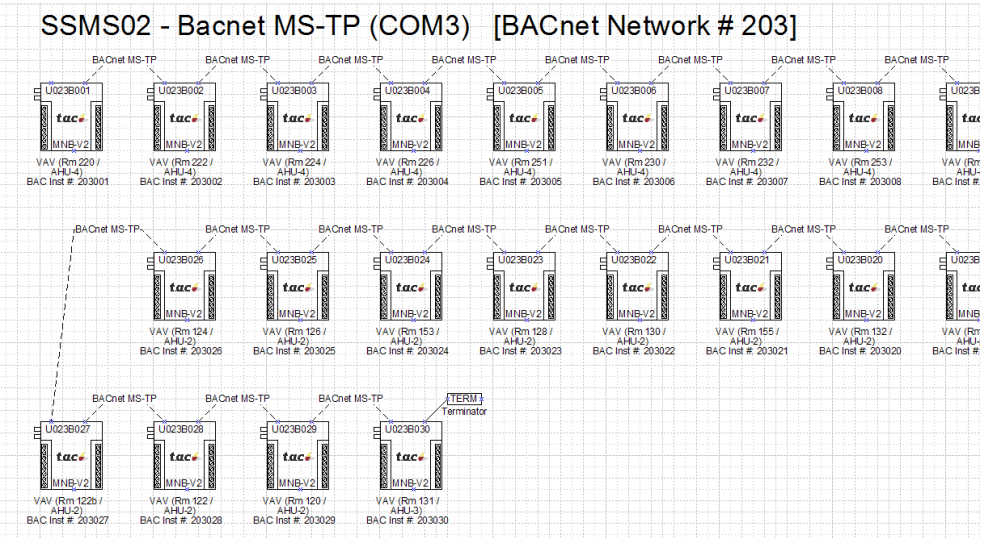
Automation Overview Diagrams

Once you've created a Network Tree you can generate an Automation Overview diagram, which is a Visio drawing showing how the devices on each bus are organized and ordered.



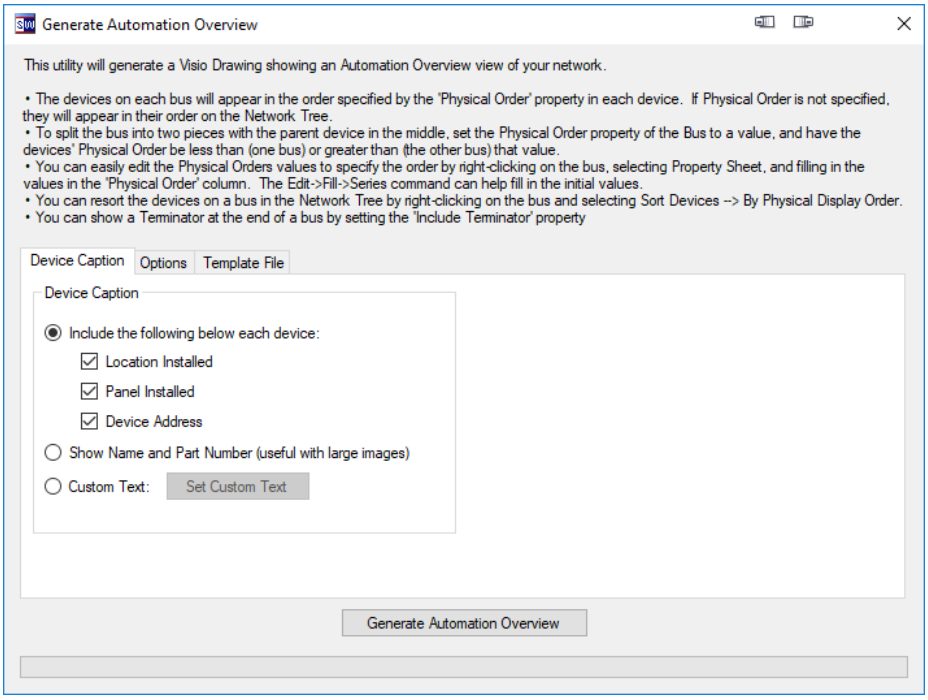
- Each bus is shown in a separate group.

- You can specify what information is shown below each device.



Generating an Automation Overview Diagaram

To generate the diagram, right-click on the Network Root, a Folder, or a Device in the Network Tree and select TOOLS→GENERATE AUTOMATION OVERVIEW.

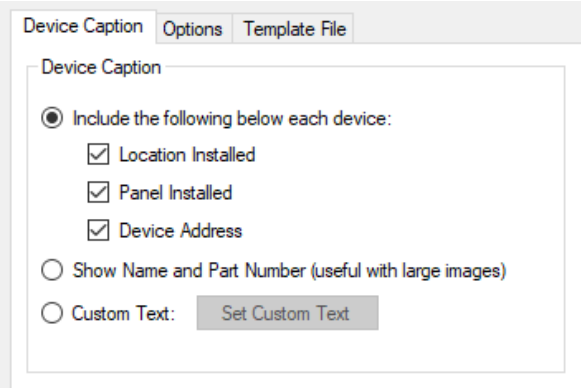


- Click GENERATE AUTOMATION OVERVIEW to generate an updated version of the Automation Overview. The Visio file will automatically be saved on the Device or Folder that you selected.

- You must have Visio installed on your workstation to generate the diagrams
- The devices on a bus are ordered by the *Physical Order* property of the device. You can edit these values on the *Properties* tab of each device or as a group by using a *Property Sheet* (refer to the earlier section on *Property Sheets and Reports*).
- To show a Terminator at the end of a bus, set the *Include Terminator* property on the *Details* tab of the last device to *True*.

Device Caption

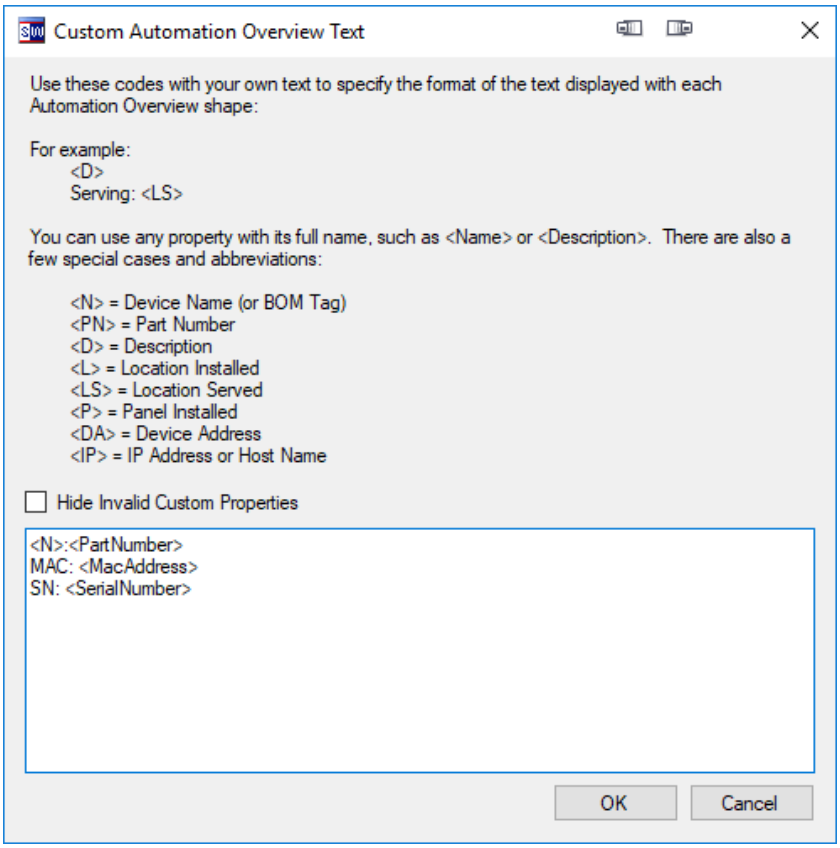
By default each device on the diagram includes the Name and Part Number in the shape. You can adjust what additional values are shown beneath them.



There are three variations:

- Show *Location Installed*, *Panel Installed* and/or *Device Address*.
    - The Device Address is formatted automatically depending on the device and its address properties.
- Show *Name* and *Part Number*
    - This format is useful when generating the Overview using large images, as the Name and Part Number values will no longer be shown in the shape in this case.
- Custom Text
    - Click Custom Text to create your own formats

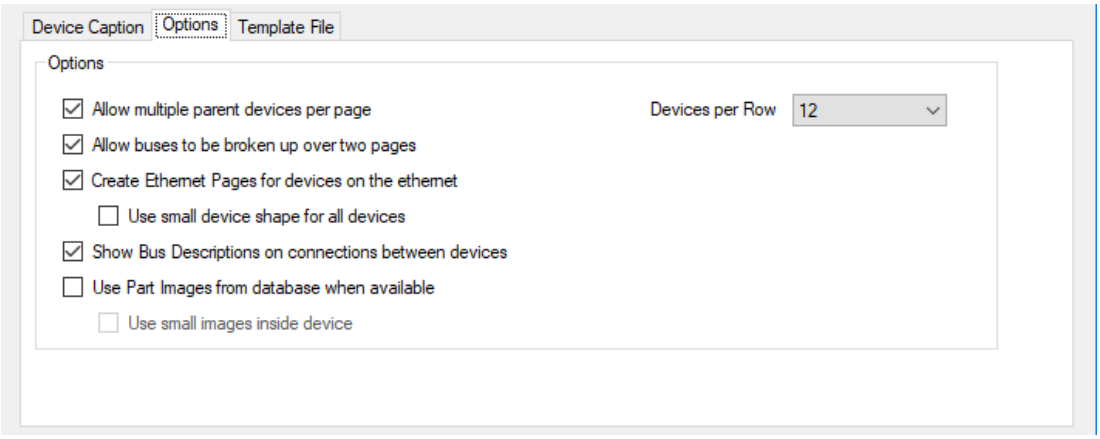
The Custom Text option allows you to include any available property of the devices, along with other text:



- You can show any property of the device by enclosing it in angle brackets, such as <Name> or <SerialNumber>
- There is a special property, <IP>, which displays the private or public Host Name or IP Address (with Port Number)
- For devices that have IP addresses and no other defined device address, the <DA> (Device Address) property will automatically show the same value as <IP>.
- If you misspell a property name or other specify a property that might not be available on all devices, an error message will show under the device. You can choose to just show nothing by checking the HIDE INVALID CUSTOM PROPERTIES checkbox.

Automation Overview Options

The *Options* tab allows you to further customize how the Automation Overview appears:



- You can now control the spacing between devices in a row by changing the *Devices per Row* parameter.

You can use images in place of the square blocks for each device.

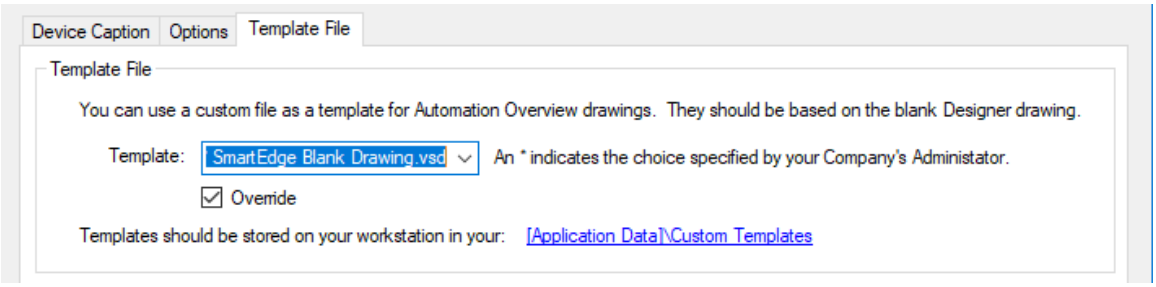
- Each part in the Part Database can have a selected Automation Overview image. The images for parts in the master database must be specified by Smartware. If there are images you'd like to see added, please email them with the associated part numbers to partsupport@smartwaretech.com.
- To associate a Part Image with a Company part in the Parts Database, edit the part and go to the *Panel Shape and Image* tab to select the image.

Check the USE PART IMAGE FROM DATABASE when available to use the images.

- The default action is to replace the entire square with the image, which hides the *BOM Tag* and *Part Number* normally shown.
    - To have the image appear smaller, but with this text, also check the USE SMALL IMAGES INSIDE DEVICE checkbox.
    - You can also adjust the text below each shape to include these fields.

Custom Template File for Automation Overview Pages

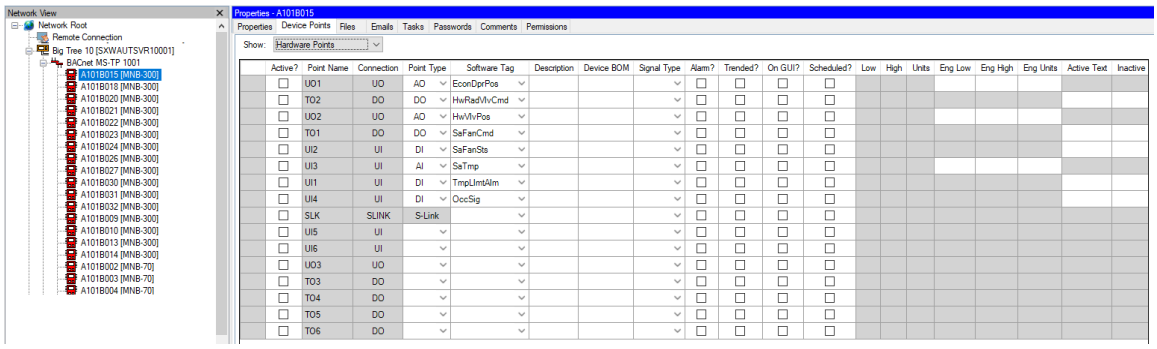
By default, the Automation Overview diagram is created using your default Designer Drawing template. You can select a different one on the *Template File* tab:



- The company administrator can define a template to be automatically selected for all users, in the same manner as other Designer templates, on the ADMIN→LIBRARIES, STANDARDS AND TEMPLATES *Template Files* tab.

Device Points

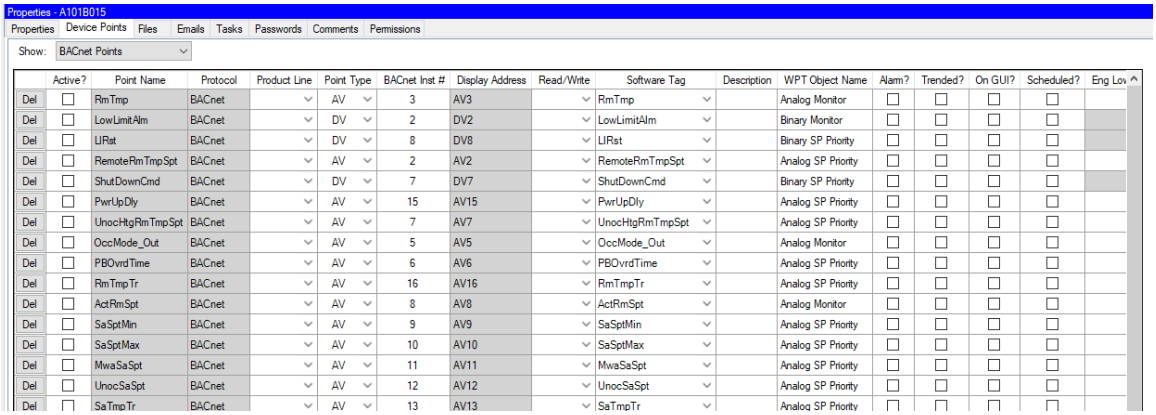
Device nodes have a Device Points tab that can be used to store detailed information about the hardware and software points for that controller.



The *Show* box lets you choose between the types of points:

- *Hardware Points* for the controller.
  - These are automatically populated for devices where that information is available in the Parts Database.
- *Software Points* from the software application associated with the controller.
  - These can be imported from WorkPlace Tech or Excel files.
- *BACnet Points*, *Lon Points*, etc.
  - A subset of Software Points that include only the points from that protocol. Additional address properties will be shown in these views.

Here is a sample of BACnet points imported from a WorkPlace Tech Application file:



	Active?	Point Name	Protocol	Product Line	Point Type	BACnet Inst #	Display Address	Read/Write	Software Tag	Description	WPT Object Name	Alarm?	Trended?	On GUI?	Scheduled?	Eng Lov
Del	☐	RmTmp	BACnet		AV	3	AV3		RmTmp		Analog Monitor	☐	☐	☐	☐	
Del	☐	LowLimitAlm	BACnet		DV	2	DV2		LowLimitAlm		Binary Monitor	☐	☐	☐	☐	
Del	☐	LIRst	BACnet		DV	8	DV8		LIRst		Binary SP Priority	☐	☐	☐	☐	
Del	☐	RemoteRmTmpSpt	BACnet		AV	2	AV2		RemoteRmTmpSpt		Analog SP Priority	☐	☐	☐	☐	
Del	☐	ShutDownCmd	BACnet		DV	7	DV7		ShutDownCmd		Binary SP Priority	☐	☐	☐	☐	
Del	☐	PwrUpDly	BACnet		AV	15	AV15		PwrUpDly		Analog SP Priority	☐	☐	☐	☐	
Del	☐	UnocHtgRmTmpSpt	BACnet		AV	7	AV7		UnocHtgRmTmpSpt		Analog SP Priority	☐	☐	☐	☐	
Del	☐	OccMode_Out	BACnet		AV	5	AV5		OccMode_Out		Analog Monitor	☐	☐	☐	☐	
Del	☐	PBOvrdTime	BACnet		AV	6	AV6		PBOvrdTime		Analog SP Priority	☐	☐	☐	☐	
Del	☐	RmTmpTr	BACnet		AV	16	AV16		RmTmpTr		Analog SP Priority	☐	☐	☐	☐	
Del	☐	ActRmSpt	BACnet		AV	8	AV8		ActRmSpt		Analog Monitor	☐	☐	☐	☐	
Del	☐	SaSptMin	BACnet		AV	9	AV9		SaSptMin		Analog SP Priority	☐	☐	☐	☐	
Del	☐	SaSptMax	BACnet		AV	10	AV10		SaSptMax		Analog SP Priority	☐	☐	☐	☐	
Del	☐	MwaSaSpt	BACnet		AV	11	AV11		MwaSaSpt		Analog SP Priority	☐	☐	☐	☐	
Del	☐	UnocSaSpt	BACnet		AV	12	AV12		UnocSaSpt		Analog SP Priority	☐	☐	☐	☐	
Del	☐	SaTmpTr	BACnet		AV	13	AV13		SaTmpTr		Analog SP Priority	☐	☐	☐	☐	

Viewing Aggregate Point Counts

For devices that have multiple buses, you can view all the points on all the devices beneath it to get an estimated point count for a device, building or site (assuming that the devices' points lists have been populated or imported).

- Click SHOW POINTS FROM CHILD ITEMS to see the aggregate list.
- The *Show* box will offer any of the protocols available in the network.

If you then export the list to Excel, you can sort them by point type and subtotal them to get aggregate point counts by type.

Importing from WorkPlace Tech Application Files

You can import the point information available in a WorkPlace Tech application file (.vsd).

- Copy the WorkPlace Tech Visio file to the Files tab of one or more controller.
  - Refer to the section *Copy Software Files to Devices* in the chapter *Network Tree Software Files* for information about helpful tools when working with a larger number of files.
- Click the IMPORT FROM WPT button to import the points on that device.
- To import from multiple files, right-click on a bus or higher-level device and select TOOLS→SCAN FILES.
  - Refer to the section *Scanning Files* in the chapter *Network Tree Software Files* for more information.

Exporting to Excel

To generate an Excel version of the point list, click the EXPORT TO EXCEL button.

- Only the points currently shown will be exported.
- You can choose from different report Templates (such as Point List).

Importing from Excel

You can import the point data from an Excel file.

- You can generate a template with the correct column names by choosing *the Point List for Import* template and clicking EXPORT TO EXCEL.
- With the file on the Files tab, click IMPORT FROM EXCEL.
- Select the appropriate worksheet, if necessary, and the list of importable columns will be shown.
- Click the OK button to import the point data

7. Network Tree Software Files

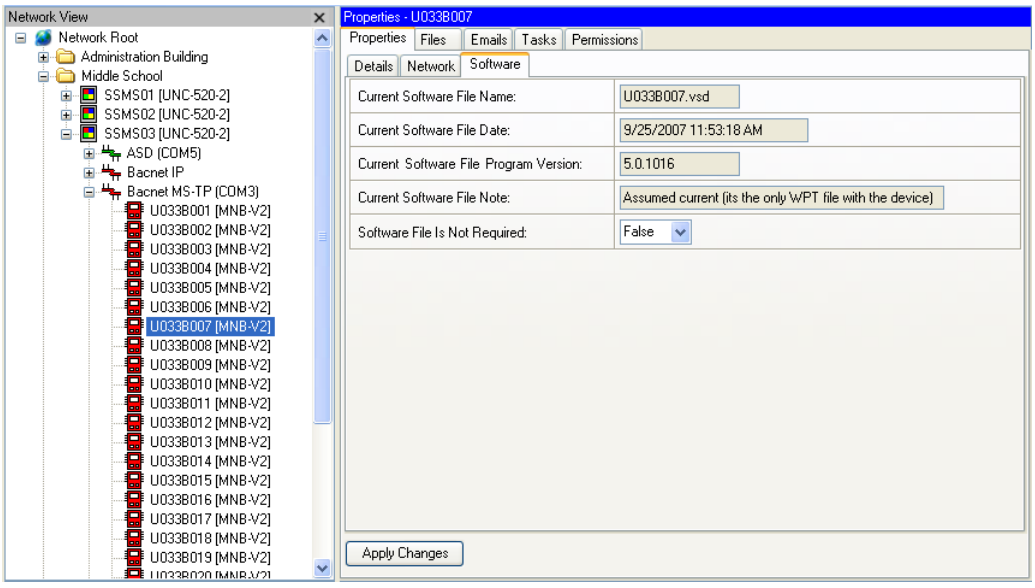
The Smartware Studio Network Tree is ideal for storing the software files and backups that are associated with the devices in the network. These files often include:

- Source Files (in Visio, text, custom binary or other formats)
- Compiler Files
- Backups from the Field (in zip, xml, binary or other formats)
- Documentation and Notes

You can store any number or type of file on the Files tab of the device. Each device is programmed to know the name or file extension of its source files, and in some situations (such as with Visio files, which are used by a number of different applications) will scan the file to confirm or determine its contents. You can then run a report of the devices and their latest software file to ensure that all the devices are properly backed up or to determine what backups need to be obtained.

The Software File Properties

All devices have a sub-tab named *Software* on its Properties tab.



The first four properties show what the device has determined to be its *Current Software File*.

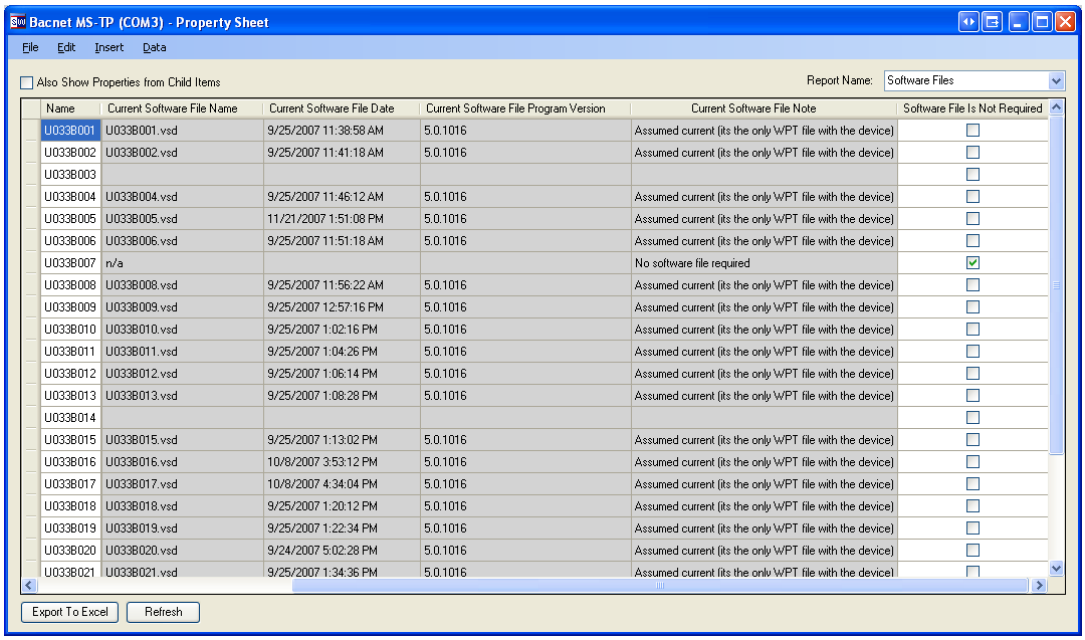
- The file's *Name* and *Date* are shown.
- If it's applicable and known, the *Program Version* (e.g., WorkPlace Tech 5.0.1016) that was used to create the source file. Having this value filled in may require that the file has been *scanned*. Refer to the later section, *Scanning Files*, for more detail.
- The *Note* lets you know if Smartware Studio has determined there to be a good backup and how it came to that conclusion.

Software Files Report

You can easily run a report to show all the devices on a bus or in a building showing the information about the software files and backups in the system.

To run the Software Files Report:

- Right-click on the bus, folder or global controller device that contains the devices on which you want to report.
- Select the PROPERTY SHEETS AND REPORTS menu command.
- In the REPORT NAME list select *Software Files*.



If Software File Is Not Required

In cases where a software file is not required for a device, you can set the *Software File Is Not Required* field in the Properties tab or in the Property Sheet. Doing so changes the File Name to "n/a" and the Note to "No software file required." This fills in the spot on the report to make it easier to find the devices that are missing their backups in the Software Files report.

Scanning Files

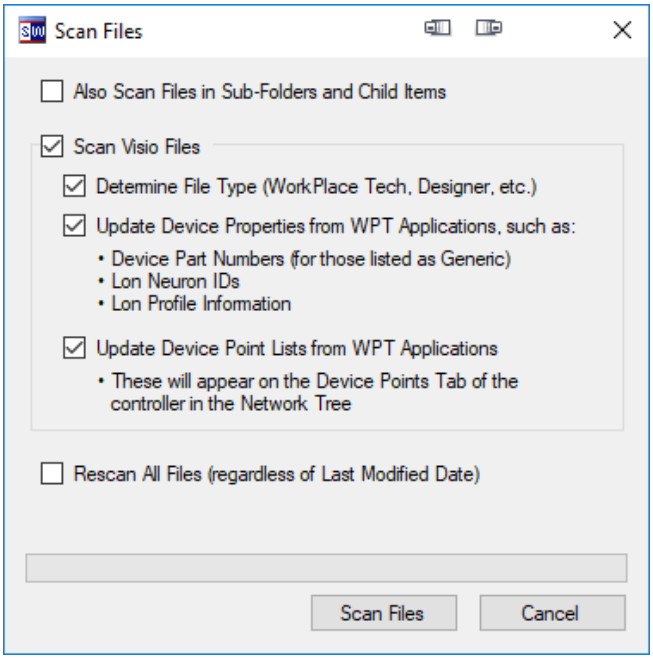
In some cases, Smartware Studio can glean additional information by opening up a software file and reading some information or *scanning* it. Doing so allows Smartware Studio to determine:

- The correct type of the file and what program (and version) is used to open and edit it (e.g. WorkPlace Tech for Visio files)
- Detailed properties, such as device addresses and point configurations.

If Smartware Studio is taking an action that requires the file to be scanned (e.g., launching WorkPlace Tech), it will be scanned automatically.

You can explicitly scan the files for a device or a set of devices:

- Right-click on a device, bus or folder that contains the devices with files you want to scan.
- Select the TOOLS→SCAN FILES command.



- If you selected a folder, bus or global controller, check the ALSO SCAN FILES IN SUB-FOLDERS AND CHILD ITEMS checkbox to include the files in child items in the scan.
- For WorkPlace Tech Visio files, you can optionally choose to have the address and other values read from the file saved to the Properties tab of the device by checking the UPDATE DEVICE PROPERTIES FROM WPT APPLICATIONS checkbox.

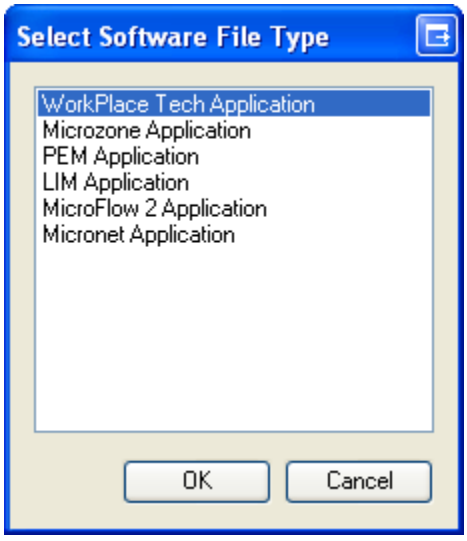
Copy Software Files to Devices

After you first create a network tree for an existing network, you will likely have a set of software files somewhere on your server, laptop or USB drive that you want to copy onto the devices. Smartware Studio includes a utility to make it easier than dragging and dropping each file one by one.

To distribute an existing set of software files among the corresponding devices on the network tree:

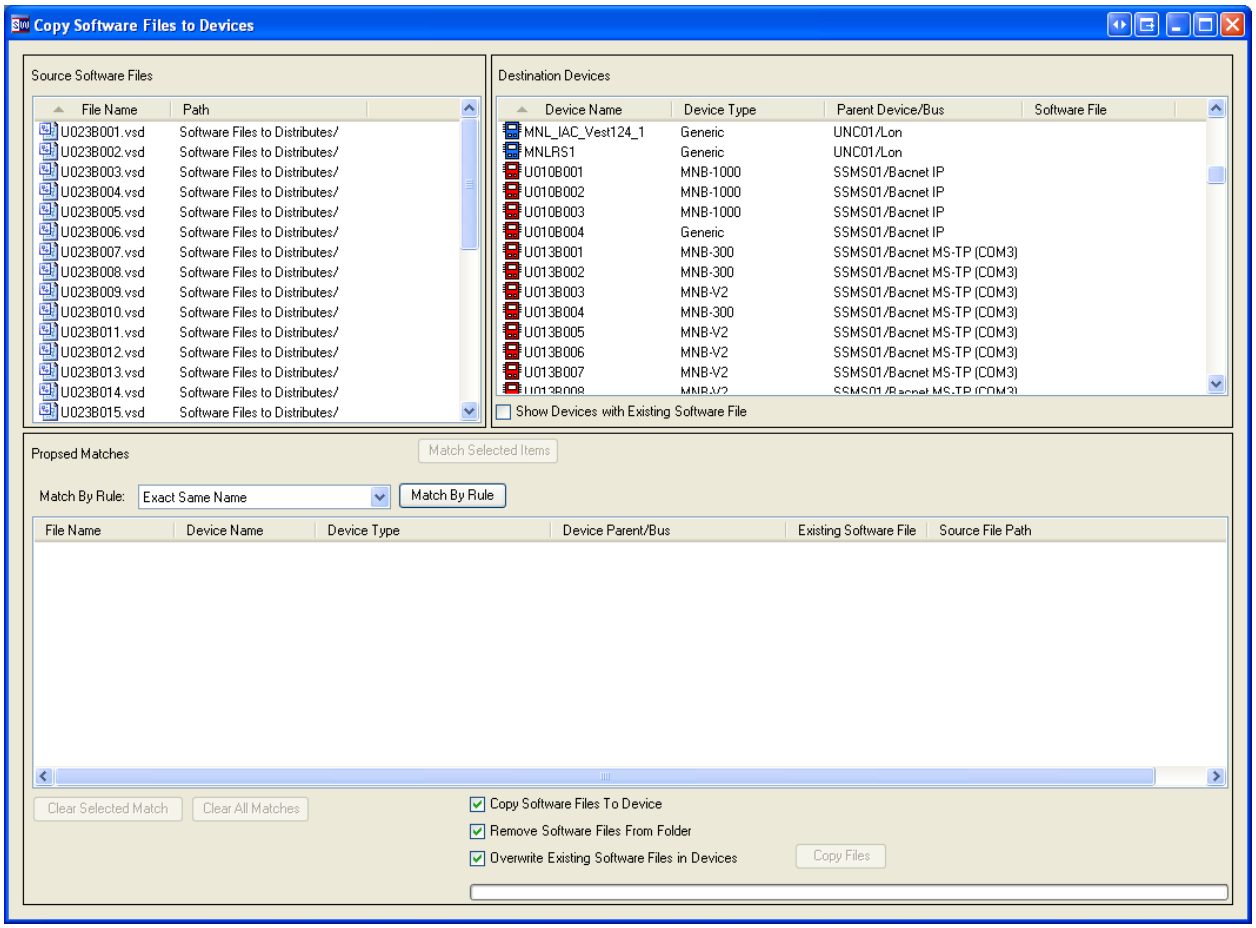
- Create a folder on the Network Tree (or Project Tree)
- Copy all the software files to distribute from the outside location into this folder.
- Right-click on the folder and select TOOLS→COPY SOFTWARE FILES TO DEVICES.

You will be prompted for the type of software files to work with. You can only work with one type at a time:



- If necessary, the files may be scanned. This might take a minute or two.

After scanning, the software files to distribute and the devices without software files are shown in two lists:



- The left list (SOURCE SOFTWARE FILES) shows all the files in the folder you selected.
- The right list (DESTINATION DEVICES) shows all the devices in the network tree that are compatible with the selected software type and that do not currently have software files.
- To include devices that may already have software files, check the SHOW DEVICES WITH EXISTING SOFTWARE FILE checkbox

The goal now is to pair up the source files with the appropriate device and then copy the files to the devices. You can pair up files in two ways:

- Select a file in the left list and a device in the right list and click the MATCH SELECTED ITEMS button. The new match will appear in the lower list and the selected items will be removed from the upper lists.
- Choose a rule for the MATCH BY RULE setting (e.g., *Exact Same Name*) and click the MATCH BY RULE button. All matches that can be made using the rule will appear in the lower list (and will be removed from the upper lists).

You can undo a single match by selecting it in the lower list and clicking CLEAR SELECTED MATCH. You can undo all the matches and start older by clicking CLEAR ALL MATCHES.

When all the matches have been made, choose the appropriate options and click the COPY FILES button. The files will be copied to the devices and optionally removed from the source folder.

Duplicating a Single Software File among Multiple Devices

Here is another common scenario:

- You have a set of devices (e.g. VAV) on a bus that will all use the same software file.
- Each device needs its own copy of the source file to upload to the device, as the source will be updated and resaved with the specifics of the device address when the device is commissioned.

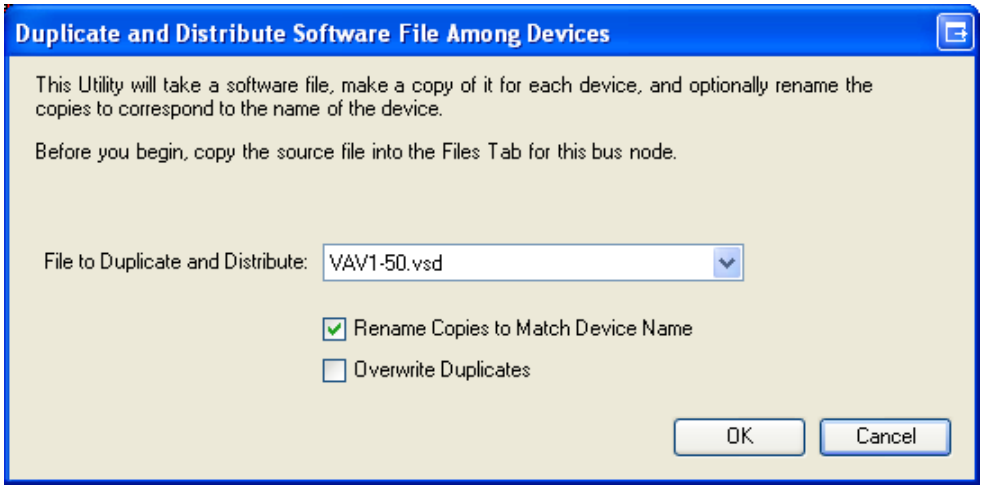
You therefore want to:

- Copy the source file to each device individually
- Possibly rename each copy to match the device's name.

There is a utility that will do just that. To use it:

- Copy the source file onto the Files tab for the bus that contains all the devices.

- Right-click on the bus and select the TOOLS→DUPLICATE AND DISTRIBUTE SOFTWARE FILE command.



- If there are custom versions of the software already on one or more devices, uncheck the OVERWRITE DUPLICATES checkbox unless you want them overwritten.

Working with WorkPlace Tech

While most files can be opened individually in their host application (e.g., double-click an Excel spreadsheet (.xls) file and it opens up in Excel), WorkPlace Tech works somewhat differently.

WorkPlace Tech uses its own Project (.wtp) file to group together a set of Applications, which are Visio (.vsd) files. The project file does not really contain any required information, it just organizes the files. Different software programmers will group their applications together in different ways, such as by function (Exhaust Fans) or by area (C Wing), that do not necessarily correspond to how Smartware Studio encourages you to organize the devices on the network tree.

The best way to store the WorkPlace Tech files in Smartware Studio is to put each individually Application (.vsd) File on the Files tab of the corresponding device in the network tree. This makes it clear and simple for software programmers and technicians to store and find the latest version of the file for each device.

To facilitate this organization, Smartware Studio allows you to open one or multiple WorkPlace Tech Application files directly from the network tree. When you do, the following occurs:

- All the relevant Application Files are downloaded from the server, if they aren't already.

- The Application Files are copied to a temporary folder.
- A WorkPlace Tech Project (.wtp) File is created from scratch for the selected Application Files.
- WorkPlace Tech is launched and told to open this temporary project.

You can then work with the applications in WorkPlace Tech as normal, editing and saving the files as needed. When you shut down WorkPlace Tech, Smartware Studio detects the shutdown and compares the files in the temporary folder to the originals on the devices on the network tree. If any files have been changed or added, they will be copied back to the appropriate devices.

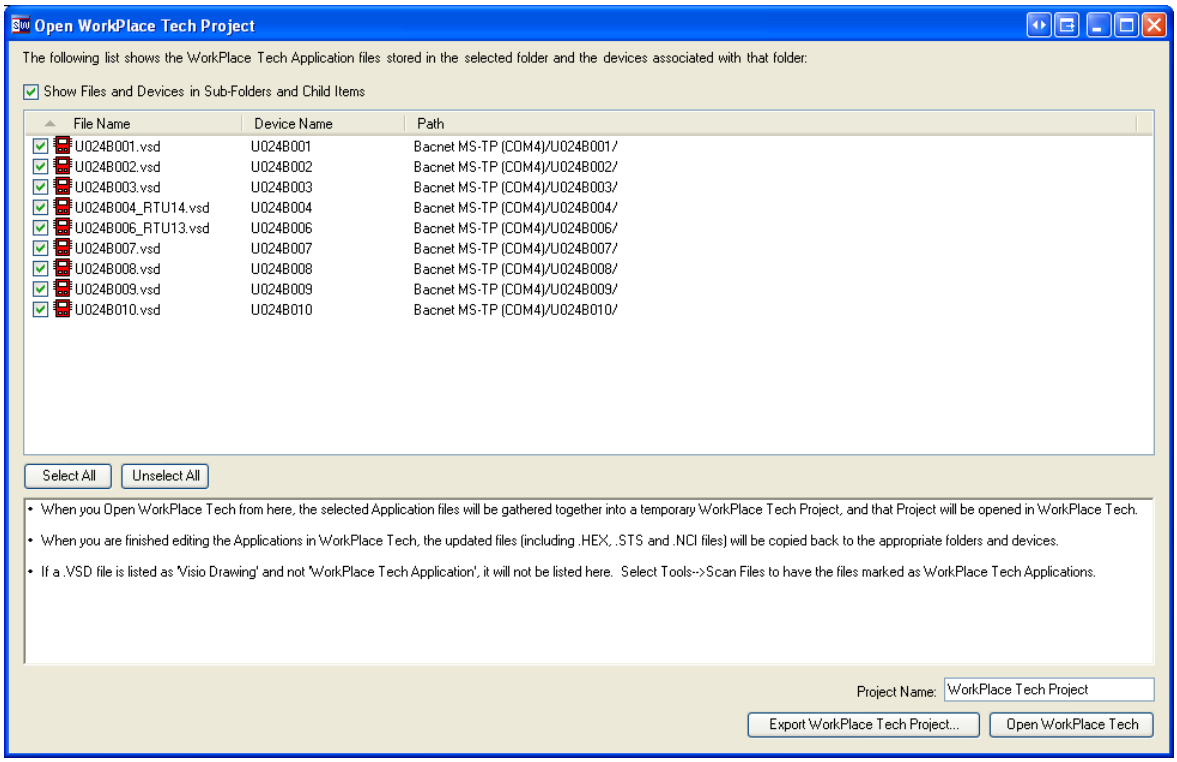
Opening WorkPlace Tech

To create and open a temporary WorkPlace Tech project with one or more Application Files, do one of the following:

- Right-click on a device, bus or folder containing devices and select the TOOLS→OPEN WORKPLACE TECH menu command.
- Double-click on a single WorkPlace Tech Application (.vsd) File in the Files tab of a device.

If there are any Visio files in any of the devices that have not been scanned, they will be scanned now to determine if they are WorkPlace Tech Application Files. Refer to the earlier section on *Scanning Files* for more detail.

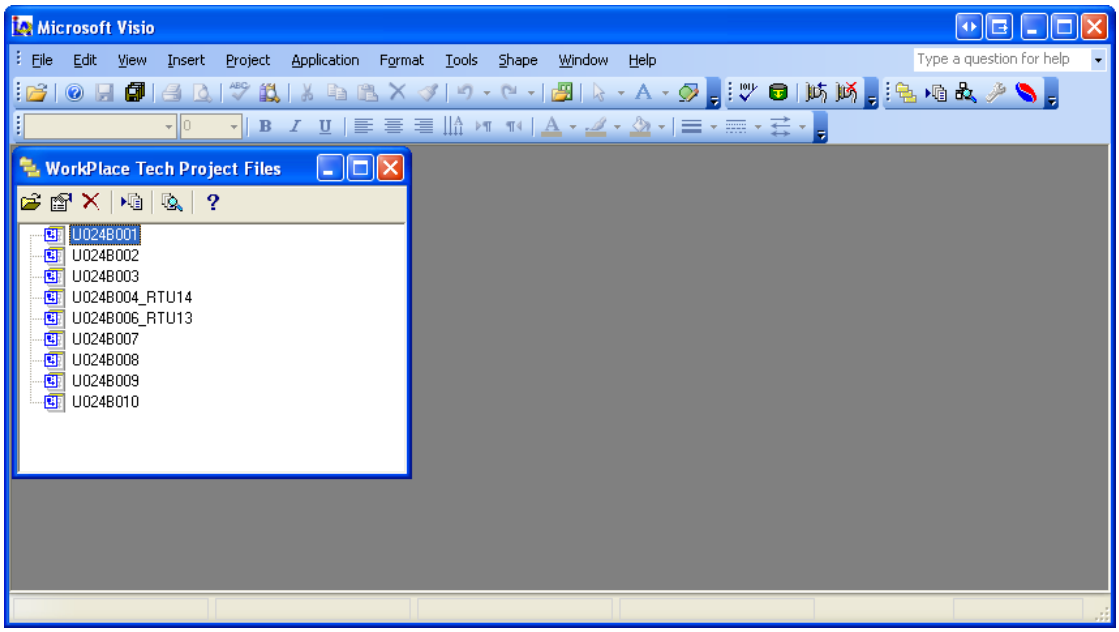
You will then be shown a list of all the devices under the selected node in the tree that have WorkPlace Tech files:



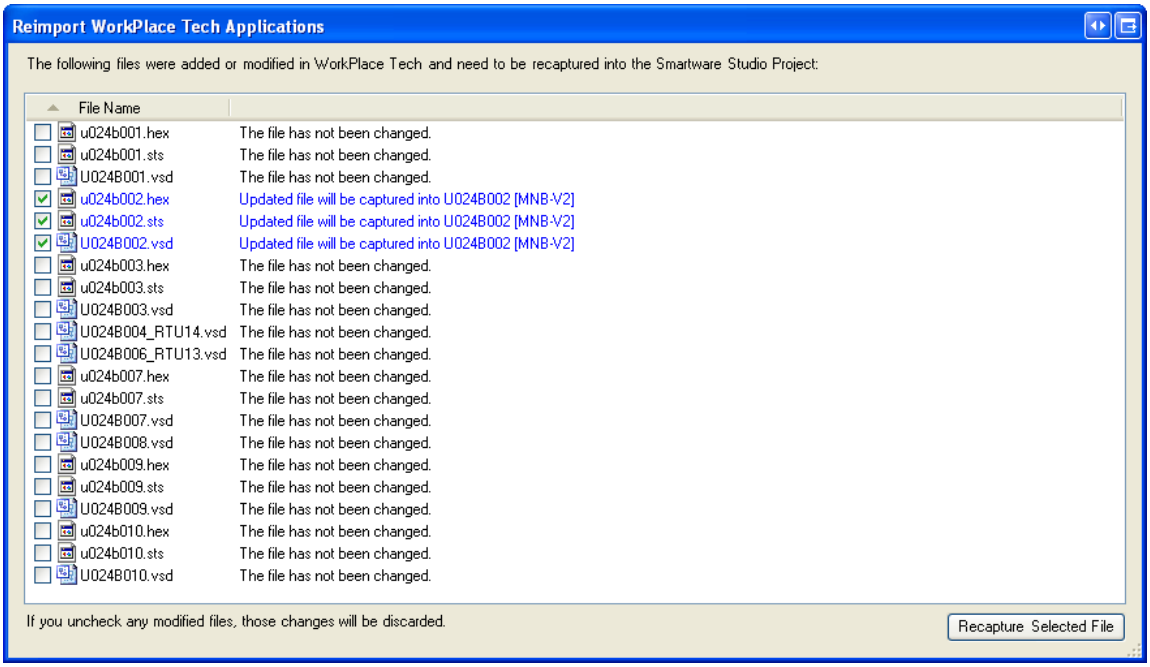
- To include any child devices in the list, check the SHOW FILES AND DEVICES IN SUB-FOLDERS AND CHILD ITEMS checkbox.
- You can specify a different PROJECT NAME as needed.

Select the files you want to be included in the WorkPlace Tech project and click the OPEN WORKPLACE TECH button.

WorkPlace Tech will then open with the temporary project and selected Application Files:



Leave Smartware Studio and its project open while you work with WorkPlace Tech. When you are done, shut down WorkPlace Tech as you normally do. Smartware Studio will detect the shut down and present a list of the files that have changed:



- Click the RECAPTURE SELECTED FILES button to copy the changed files back onto the corresponding devices in the network tree.

Comparing WorkPlace Tech Application Files

It is often beneficial to be able to compare and contrast two different versions of WorkPlace Tech Application files in order to find differences between blocks, connections and properties.

To compare two different WorkPlace Tech Application files:

- Press SHIFT+CLICK to select two (and only two) WorkPlace Tech files in the *Files* tab, right-click the selected files, and select COMPARE WORKPLACE TECH FILES.
- You can compare a version exported from a controller with a formatted version that may or may not be current. The results will indicate how to update the formatted version to match the current.

Creating a New WorkPlace Tech Application File

You can create a new, blank WorkPlace Tech Application File from the New menu on the device or its Files tab:

- Right-click the device item in the Network Tree or in the blank area of the Files tab and select NEW→WORKPLACE TECH 5.X APPLICATION.

The path to the blank WorkPlace Tech Application template file is determined automatically for WorkPlace Tech version 5.7 and 5.8. If WorkPlace Tech is not located in its default location, you may need to point to this file explicitly by going to the TOOLS→OPTIONS menu, selecting the *3rd Party Software tab*, and browsing for the correct folder location.

Creating New Application Files within WorkPlace Tech

If you create a new Application File while in WorkPlace Tech, Smartware Studio will recapture that file as well. Where it saves it depends on what part of the network tree you selected when you chose to open WorkPlace Tech.

- If you selected a bus or folder with child devices, the new file will be saved on that selected bus or folder.
- If you selected a single device or WorkPlace Tech file, it will be saved on that device.

In either case, Smartware Studio will indicate where it will be saved as it's brought back in. You will likely want to create a device node on the network tree and relocate the file to its Files tab.

Exporting the Temporary WorkPlace Tech Project

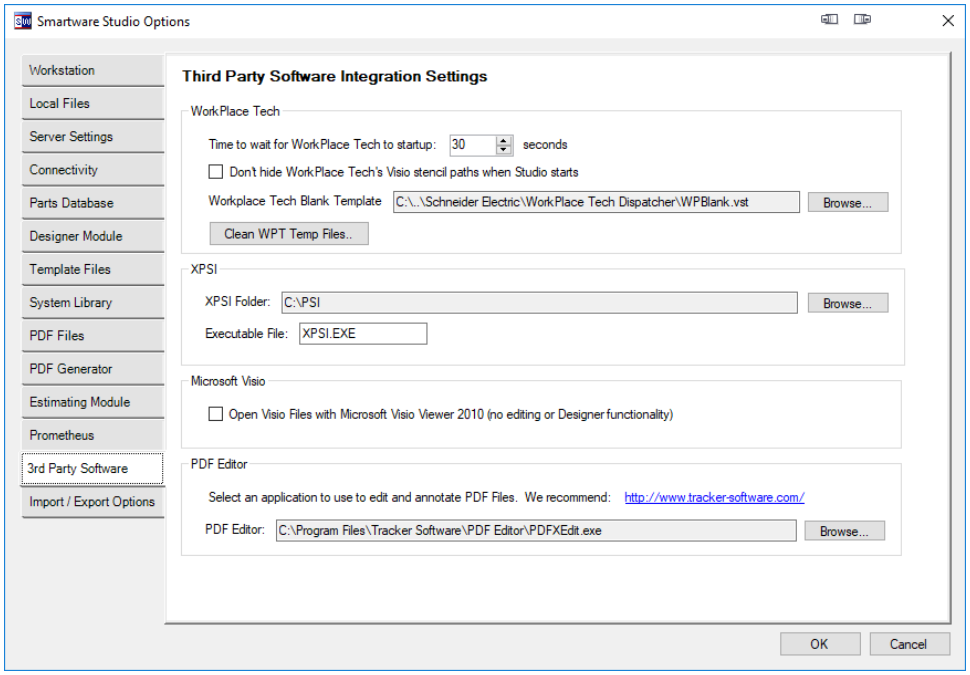
If the need arises, you can choose to export the temporary WorkPlace Tech Project and collected Application Files that Smartware Studio creates.

- From the Open WorkPlace Tech dialog, choose the Application Files and click EXPORT WORKPLACE TECH PROJECT.
- Specify the PROJECT NAME, which will also be used for the folder name.
- You will be prompted to browse to the folder in which to save the project.
- This project folder can then be copied to an external location and opened by itself without Smartware Studio.

***Note**: When you export the project, Smartware Studio makes the copies but does not monitor for any changes. Any modified Application files will have to be copied back to Smartware Studio manually.*

Configuring the WorkPlace Tech Settings

There are a few options you can set to help Smartware Studio work with WorkPlace Tech. You can access these from the TOOLS→OPTIONS dialog on the *3rd Party Software* tab.



- By default, Smartware Studio will wait 30 seconds for WorkPlace Tech to finish its startup tasks. On slower machines this may not be enough time and you might

receive error messages that direct you to this dialog. Increase the TIME TO WAIT FOR WORKPLACE TECH TO STARTUP value as necessary.

- When working with the Designer module, the appearance of the WorkPlace Tech Visio stencils in the Visio Shapes menu can make it harder to find the Designer stencils, so Studio removes the WorkPlace Tech stencil path from Visio's search list when Studio starts up and restores the path as needed. To disable this behavior, check the DON'T HIDE WORKPALCE TECH'S VISIO STENCIL PATHS WHEN STUDIO STARTS checkbox.
- As noted in the earlier section *Creating a New WorkPlace Tech Application File*, if WorkPlace Tech is installed in a non-standard location, you may need to point Studio to the location of the blank application file.
- Studio creates a number of temporary and backup versions of the WorkPlace Tech files that it does not immediately delete in case they need to be recovered. They are stored with your local project data. You can clear these immediately with the CLEAN WPT TEMP Files button.

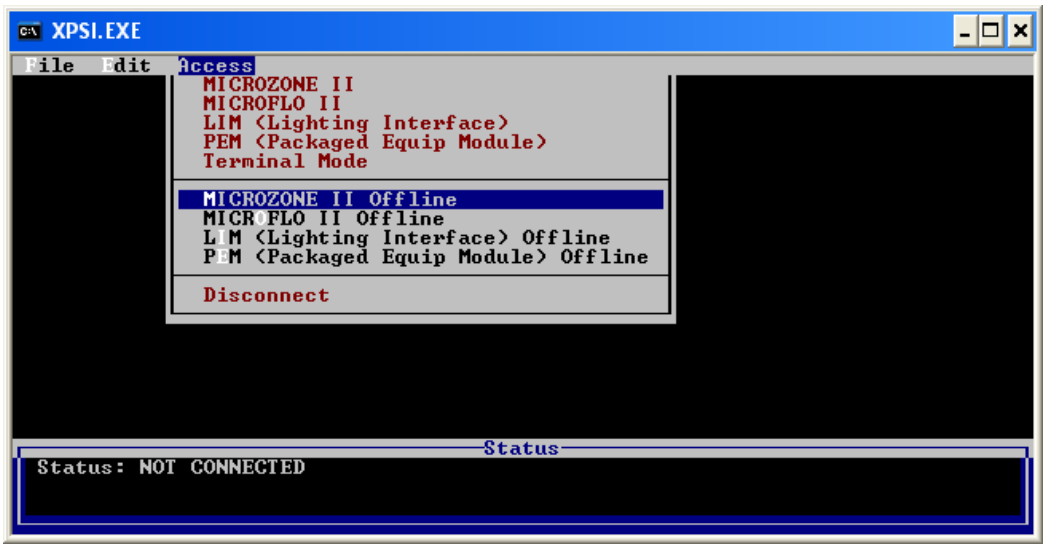
Working with XPSI

Devices in the Schneider Electric Network 8000 product line use an older DOS-based program called XPSI. While the program is often used to manipulate the software file in the controller while directly connected to it, it can also be used to edit an offline, binary version of the software file. Smartware Studio makes it easier to edit such an offline file stored with a device in the network tree.

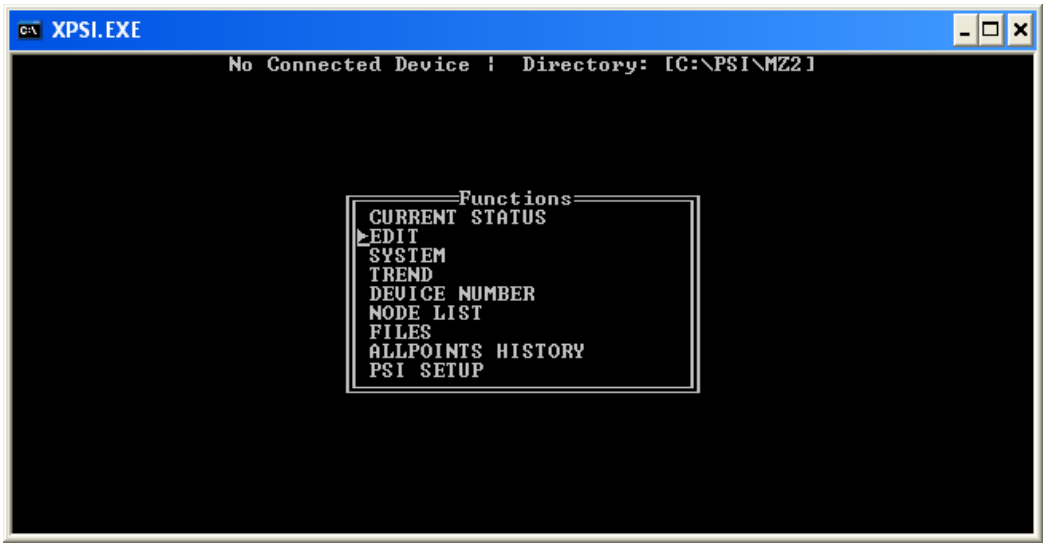
When you double-click a Network 8000 backup file (i.e., an .MZ2 file for a MicroZone II or a .PEM file for a PEM-1), the following occurs:

- The file is copied into the appropriate sub-folder of the XPSI application folder.
- XPSI is launched

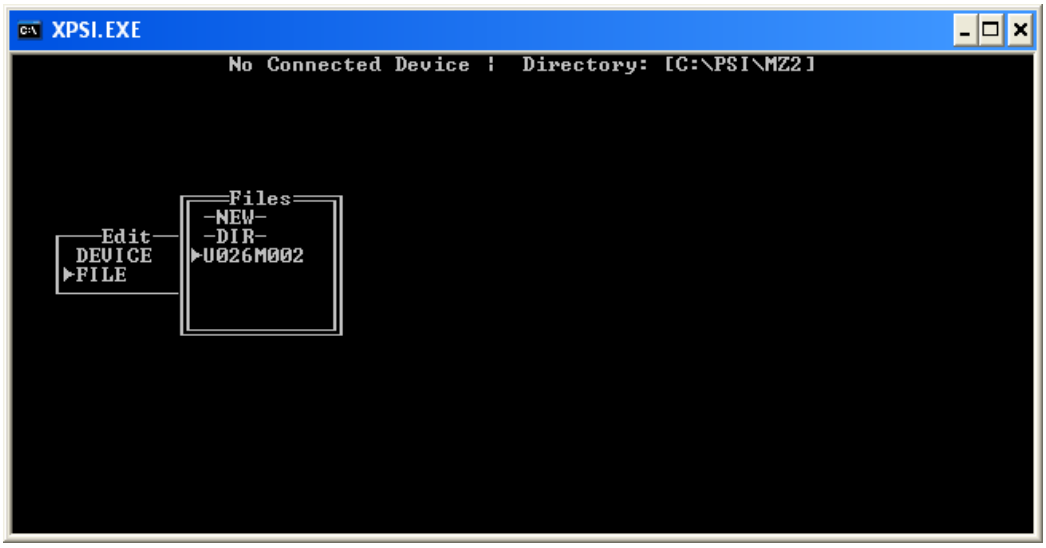
To edit the file, go to the ACCESS menu and select the appropriate OFFLINE command for the type of device (e.g. MICROZONE II OFFLINE):



From the FUNCTIONS menu, select EDIT:

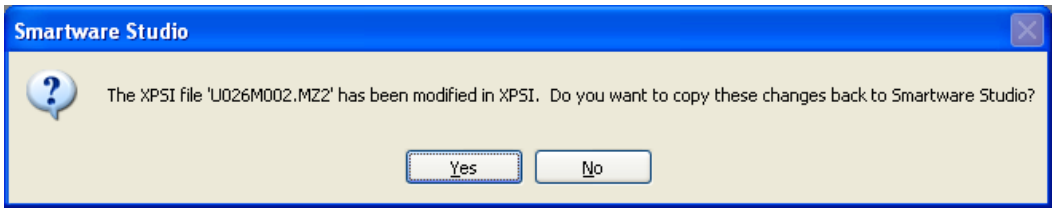


Then from the EDIT menu select FILE:



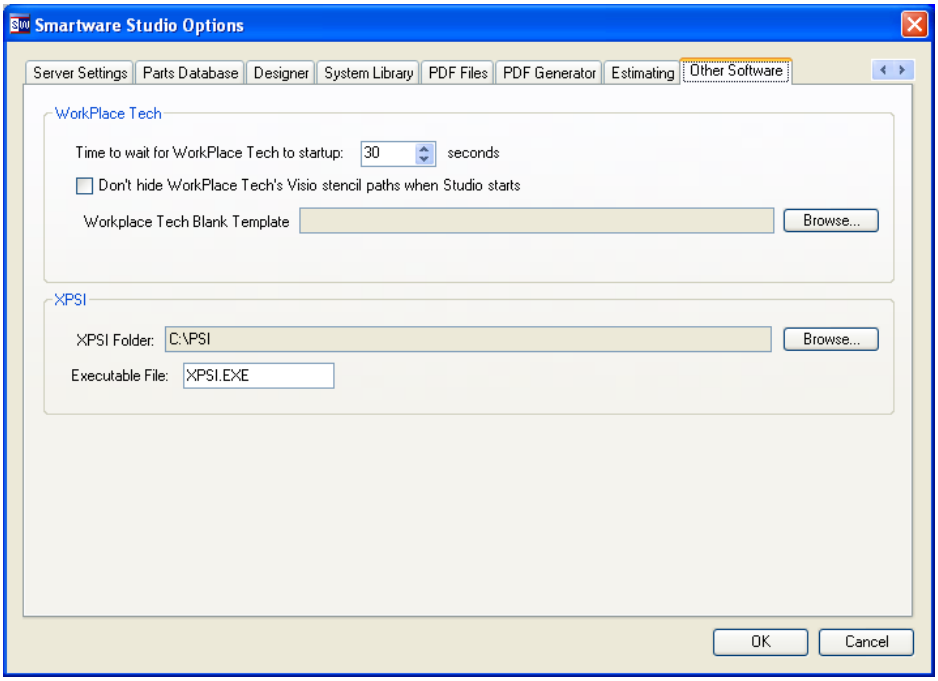
Finally, select the software file and begin editing. When you are done, save the file and exit XPSI.

If you made any changes, Smartware Studio will detect these changes and offer to copy the file back into Smartware Studio:



Configuring the XPSI Program Settings

To launch XPSI, Smartware Studio needs to know where the program is located. To modify these settings, select the TOOLS→OPTIONS menu command and go to the *3rd Party Software* tab:



- By default Smartware Studio looks in *C:\PSI* for the application *XPSI.EXE*.

8. Network Tree Devices

There are many different types of devices in the world, and Smartware Studio models the specifics of each by providing sets of items that can be added to the Network Tree. As described in the earlier chapter on the *Network Tree*, all devices share certain common properties and functionality, while others provide advanced and sophisticated utilities.

Most of the properties are self-explanatory and can be understood by reviewing the properties tab of the device.

This chapter will highlight the advanced features and utilities available on certain types of devices, specifically:

- Schneider Electric EcoStruxure (a/k/a SmartStruxure or Struxureware)
- I/A Network 8000 GCM Devices
- Niagara R2 and Ax Devices
- Continuum Devices
- PC Network Devices

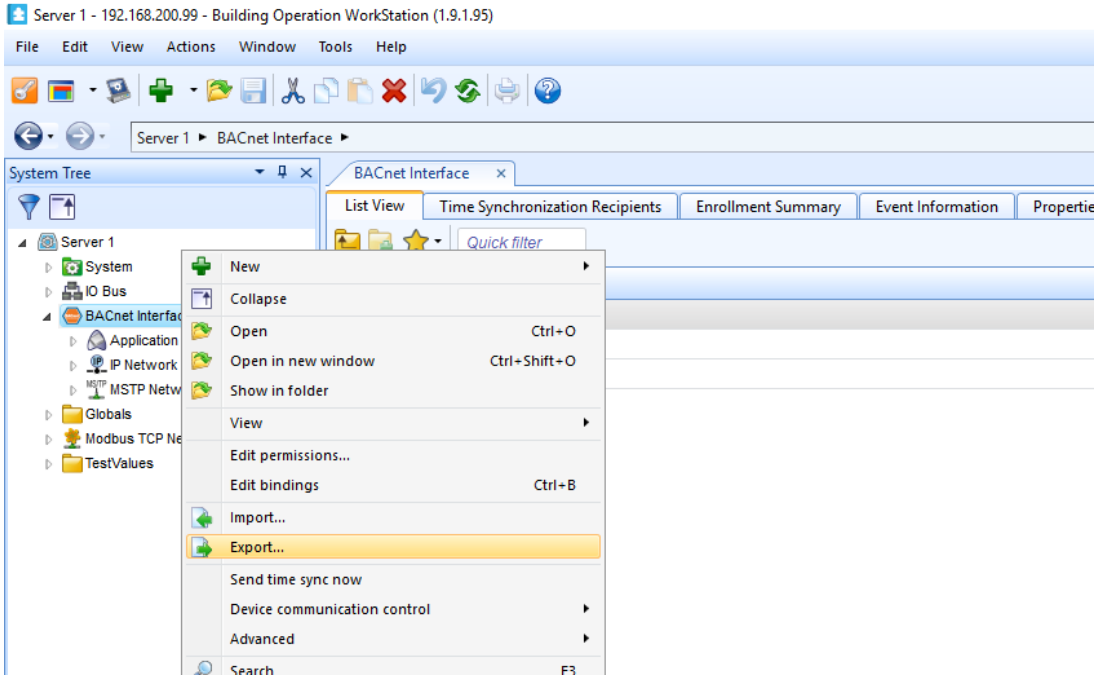
EcoStruxure Devices

You can import devices from the EcoStruxure station onto the network tree.

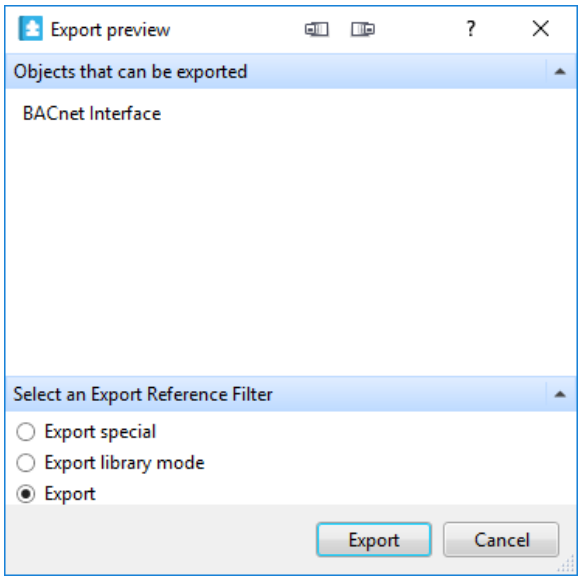
Importing Devices from Xml Files

To bring devices from an EcoStruxure station onto the network tree:

- In the *EcoStruxure WorkStation* software, right-click on a network or interface node, such as *BACnet Interface* or *Modbus TCP Network*, and select EXPORT.

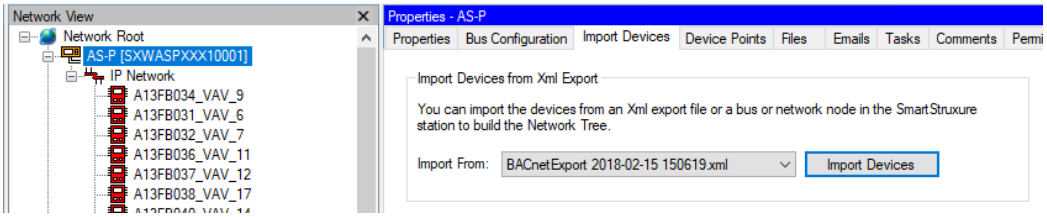


- In the *Export Preview*, choose the *Export* option and click EXPORT.



- Save the xml file and copy it to the *Files* tab of the Automation Server (AS) node in the Network Tree.
- Go to the *Import Devices* tab, select the xml file, and click IMPORT DEVICES.

.



- The buses will be automatically configured, and the devices added.
- EcoStruxure xml exports do not contain any device address information.
- Not every bus type is supported for importing. If you need additional types of import, please contact our technical support team.

Niagara Ax Devices

The Niagara Ax devices contain two additional tabs:

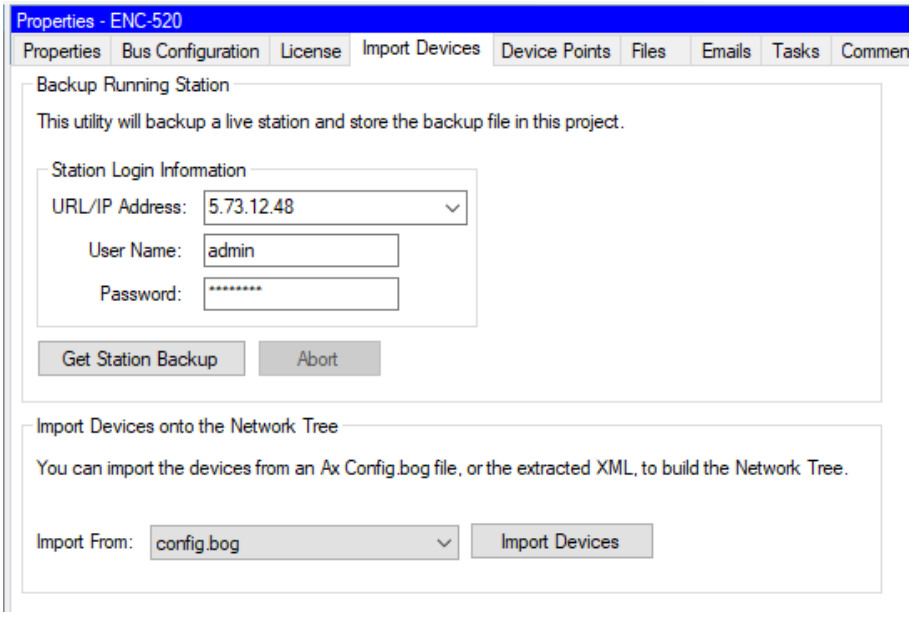
- License Properties
- Importing Devices

The *License Properties* tab allows you to view and import the basic properties in the license file onto the Properties/Licenses tab.

Importing Devices

You can import the list of devices from a Niagara Ax (aka G3) station backup onto the Network Tree.

- Add an ENC-520 or ENC-410 from the Niagara stencil, or a JACE 603 (AX) or JACE 645 (AX) from the Tridium stencil.
- Copy *the config.bog* file onto the device's FILES tab.
- Select the IMPORT DEVICES tab. If not already selected in the Import From list, select the *config.bog* file.



- Click IMPORT DEVICES to find all BACnet, Lon, ASD and Modbus devices and add them to the appropriate buses of the device.
- If you are on the same network or VPN, you can also use the *Backup Running Station* tool to download the config.bog file directly to the *Files* tab.

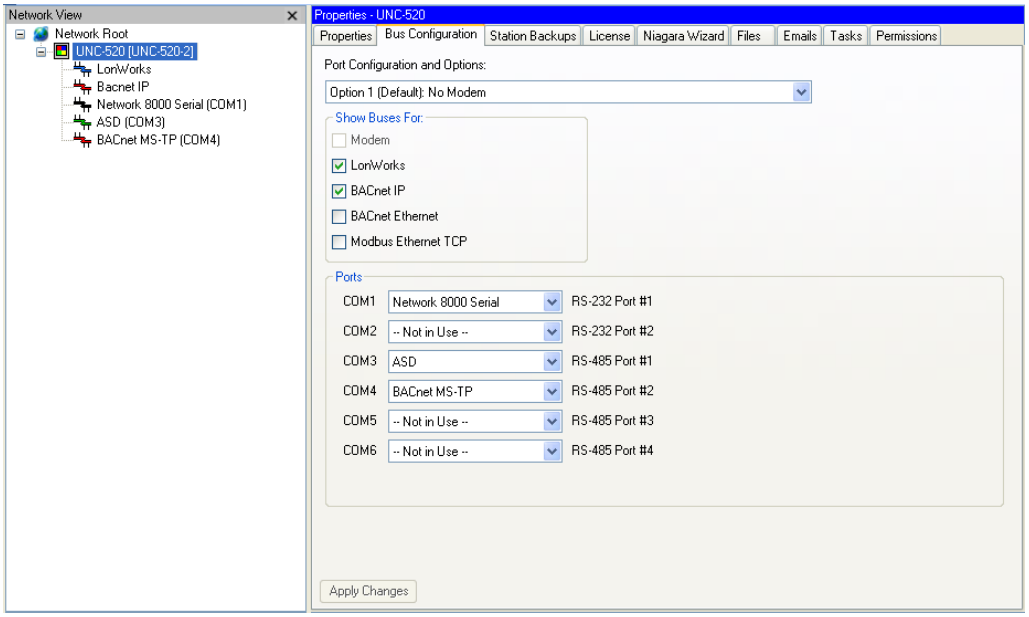
Niagara R2 Devices

There are a number of additional properties, tools and utilities associated with the Niagara R2 Devices, including:

- Bus Configuration
- Station Backups and Conversions
- License Properties
- View Station Tree
- Import and Re-synch Devices

Bus Configuration Tab

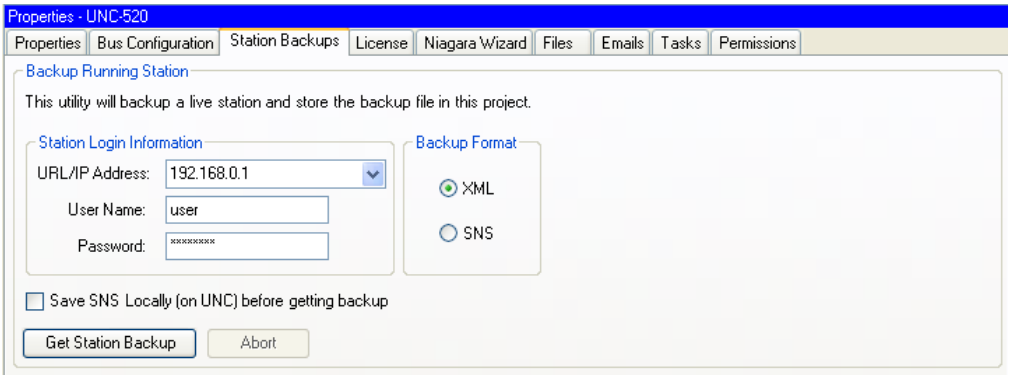
The *Bus Configuration* tab allows you to select the options (depending on the model of the UNC/JACE) and configurations of the communication ports. Doing so causes the appropriate buses to appear on the UNC device in the Network Tree.



Backing Up a Station

If the Niagara device is accessible over your network and it has the *WebUI* service installed, you can use Smartware Studio to back it up directly.

Select the *Station Backups* tab:



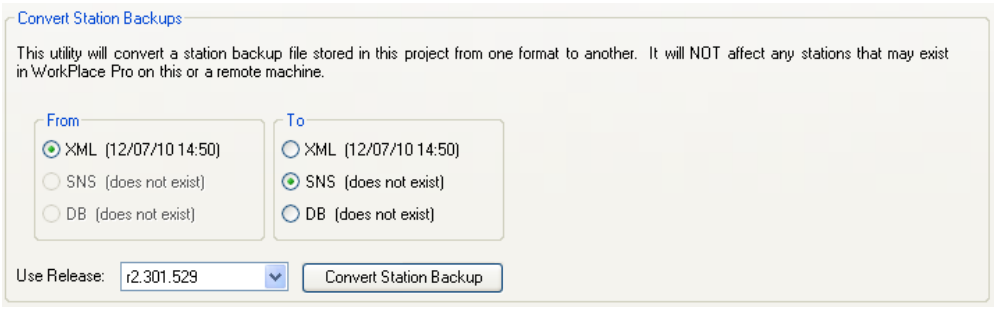
- If not already specified in the device's properties, fill in the IP ADDRESS of the device, along with the USER NAME and PASSWORD of the station.
- Select the download format: XML or SNS.

- Optionally check the SAVE SNS LOCALLY (ON UNC) BEFORE GETTING BACKUP checkbox.
- Click the GET STATION BACKUP button. The backup will download and be saved as *config.xml* or *config.sns* on the device's Files tab.

Converting a Station Backup to a Different Format

If *WorkPlace Pro* is installed on the same workstation, you can use the *Convert Station Backups* utility to convert the downloaded backup from one format to another. This utility directly accesses the WorkPlace Pro Admin tool but saves the effort of copying the backup to and from the *Niagara* folder on your workstation.

Select the *Station Backups* tab to view the *Convert Station Backups* section:



- You can only convert files that are currently on the device's Files tab. The converted file will be saved there as well.
- You can only convert using versions of Niagara that are installed on your workstation.

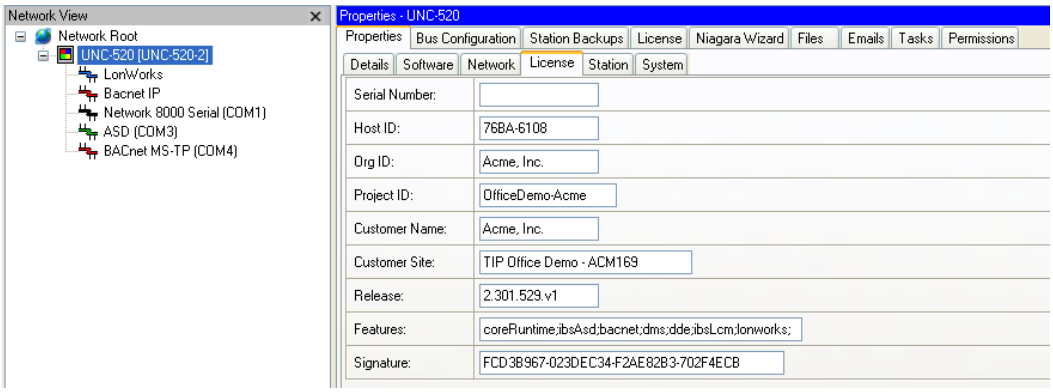
Studio assumes that Niagara is installed in the *C:\Niagara* folder. If it is installed in a different location, you can specify it explicitly by doing the following:

- From the HELP menu, select ABOUT SMARTWARE STUDIO (or STUDIO360).
- With the About box open, press CTRL+ALT+SHIFT+I to open the *Smartware Studio.ini* file.
- Add the following section and entry (substitute your own root Niagara path):

```
[Niagara]
R2RootFolder=E:\Niagara
```

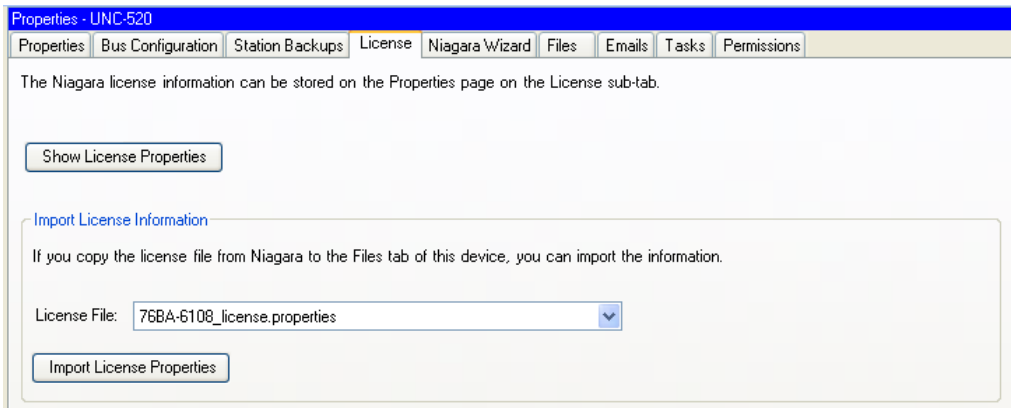
License Properties

For reference purposes it may be useful to store the License Properties of a Niagara device on the Network Tree. These values are available on a separate Properties tabs:



You can import these values directly from the license file.

- Copy the license file to the Files tab of the device.
- Select the *License* tab from the top-level list of tabs.



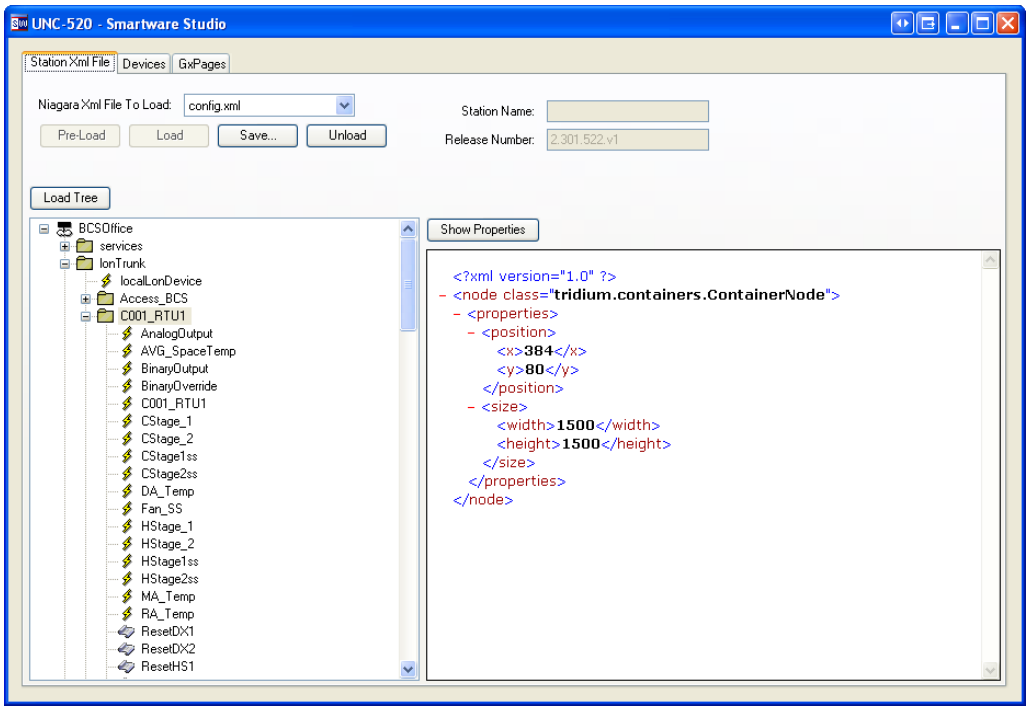
- Click the IMPORT LICENSE PROPERTIES button.

View Station Tree

Once you have a backup of the station in the XML format (*config.xml*), you can use this view and its data to help build the Network Tree.

- Use the *Backup Utility* or otherwise get the *config.xml* file onto the devices Files tab.
- From the *Niagara Wizard* tab, click the OPEN NIAGARA STATION WIZARD button.

- Click the LOAD button, and then click LOAD TREE.



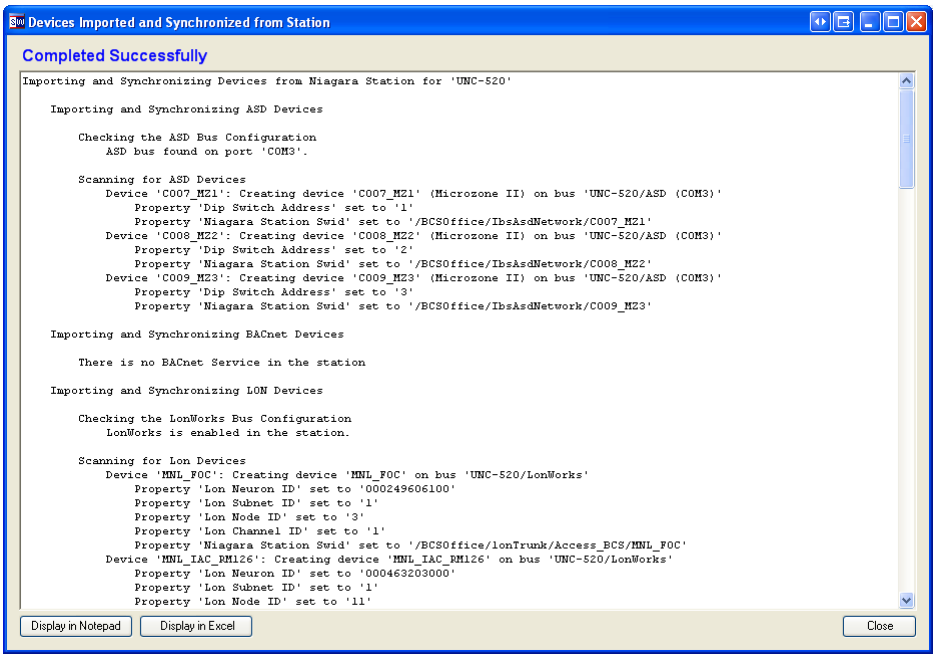
- This is a read-only view of the station backup.

Import and Resync Devices

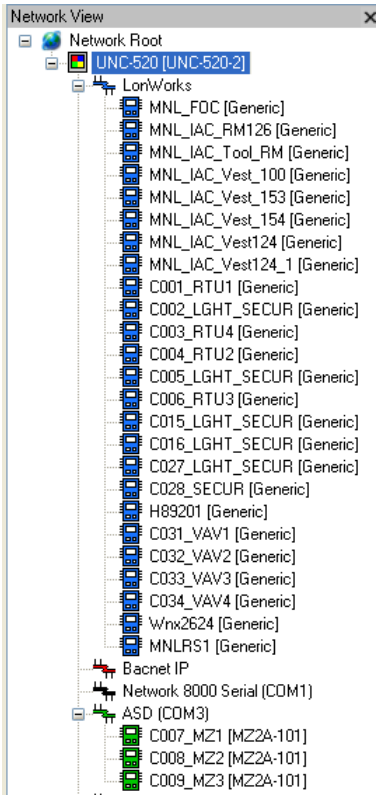
The most powerful use of the station backup is to use the data to add the devices to the Network Tree.

- Use the *Backup Utility* or otherwise get the *config.xml* file onto the devices Files tab.
- From the *Niagara Wizard* tab, click the OPEN NIAGARA STATION WIZARD button.
- Click the LOAD button.
- Go to the Devices tab and click IMPORT AND RESYNCH DEVICES.

The output window will indicate what devices were found on the *Asd*, *Lon* and *BACnet* buses:



The devices will appear on the appropriate buses on the network tree:

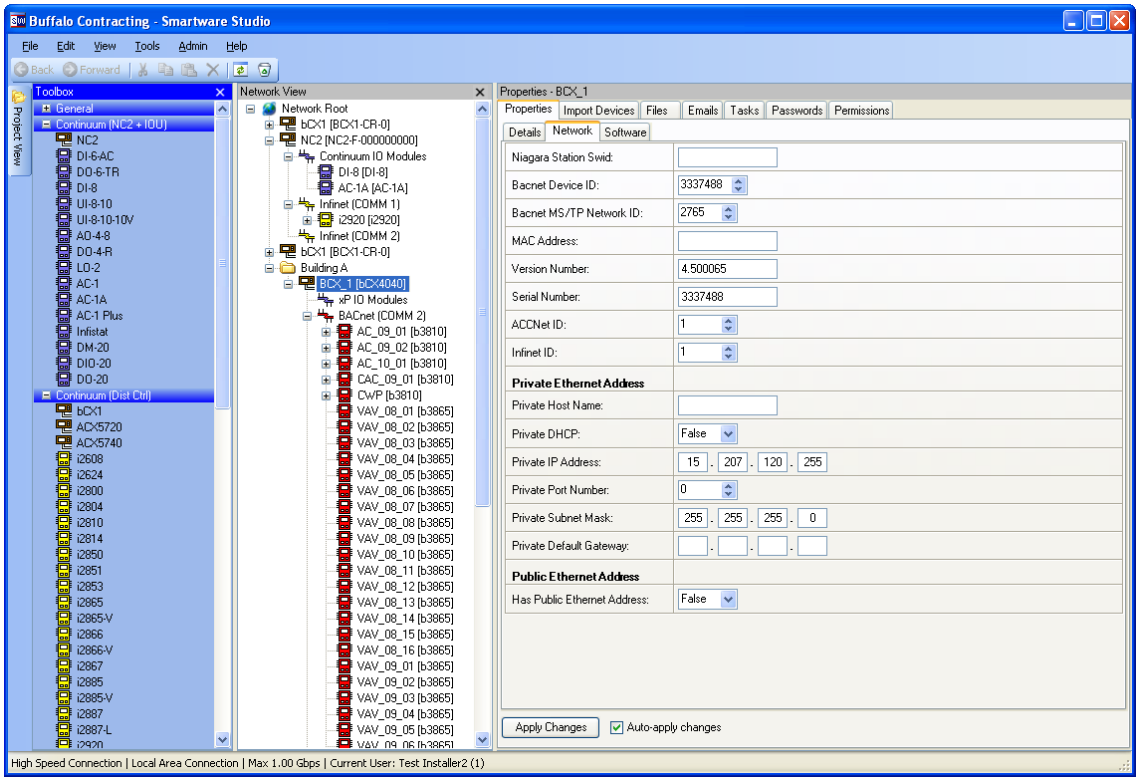


Continuum Devices

There are three stencils in the toolbox for the devices in the Continuum product line:

NC2 + IOU	*NC2, I/O Modules (DI-8, etc.), AC-1s, DIO-20, etc.*
Dist Ctrl	*bCX1, ACXs, i2xxx, b3xxx, b4920*
xP Modules	*xPDI8, xPUI4, xP Display, etc.*

These Network Tree items show the appropriate buses for communications and I/O Modules, and the Properties tabs show the specific Network properties for the addressing.

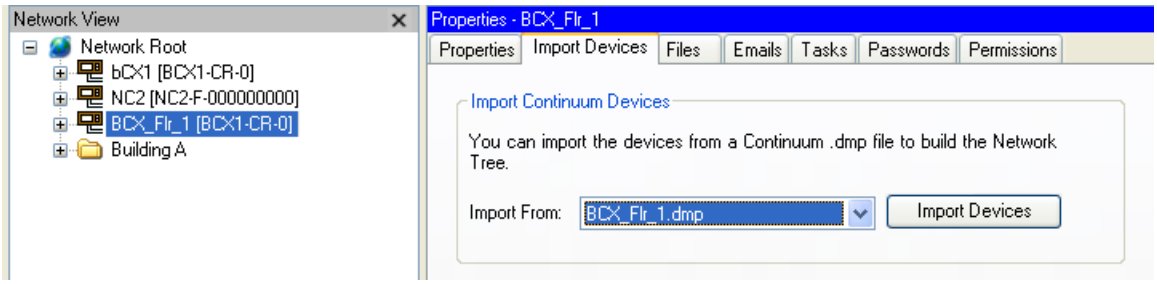


Importing Devices from .DMP files

If you have a backup from an NC2, bCX or network in the form of a .DMP file, you can use this file to build a portion of the network tree with many of the addressing values.

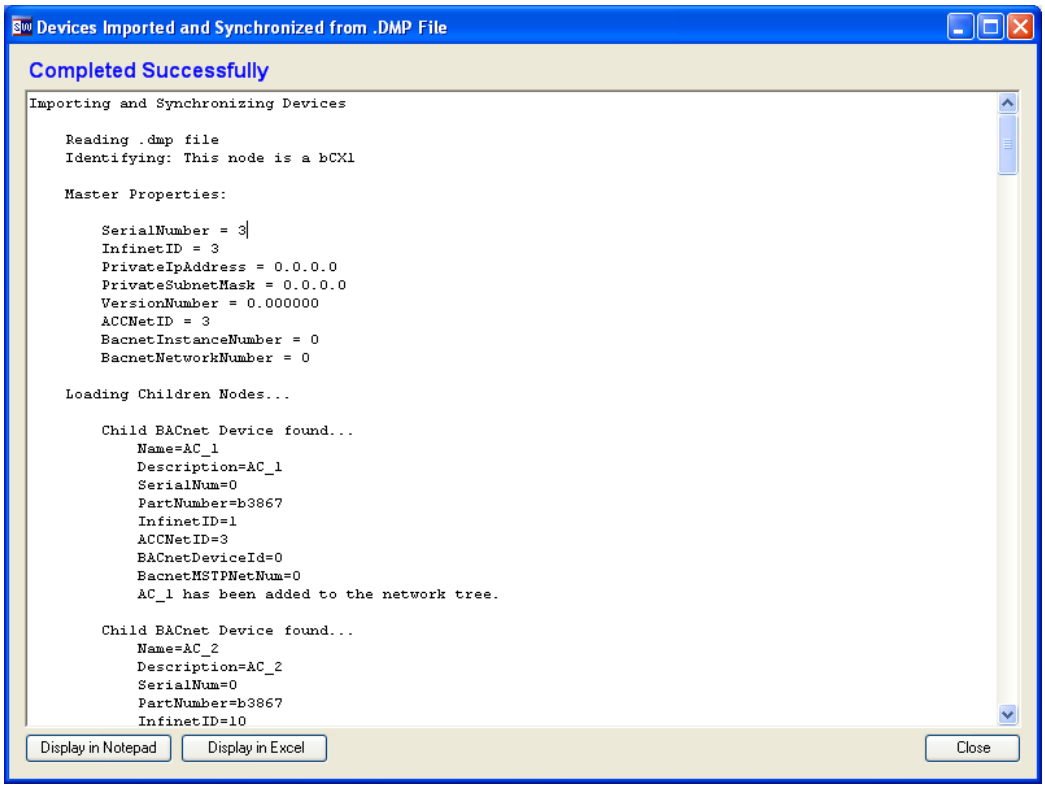
- Add an NC2 or bCX1 item to your network tree. If the backup file contains a larger portion of the network, add a Folder to the network tree.
- Drag or copy the .DMP file onto the Files tab of the device or folder.

- Go to the *Import Devices* tab

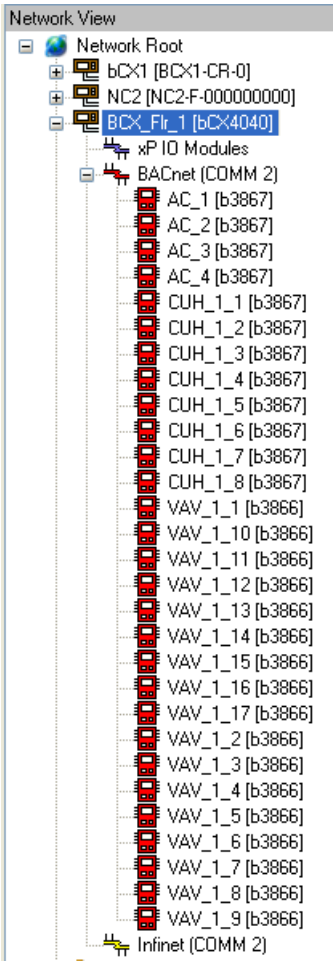


- The .DMP should already be selected. Click the IMPORT DEVICES button.

The output window will indicate what devices were found and their properties:



The devices will appear on the appropriate buses on the network tree:



I/A Network 8000 GCM Devices

The Network 8000 GCM (Global Control Module) and its derivatives are designed primarily to communicate with and provide global logic to a set of field devices on its ASD bus.

On the Network Tree, the device automatically includes an ASD bus.

- Depending on the variation of the GCM, it also includes an LCM bus (GCMs), a Lon bus (LNCs) or a generic third-party bus (SIMs).

An active GCM includes a database of blocks and attributes that are used by the GCM to interact with the devices on its buses. If you capture this database from a GCM, you can use the information to automatically populate the devices on its buses in the network tree. The information can also prove useful in engineering and programming situations where it would otherwise be necessary to use another program to get at the data.

Backing Up the GCM Block Database

Although a GCM can be backed up using several older tools (such as Signal or Eclypse), Smartware Studio requires that the block data be captured directly using the free *Smartware Network 8000 Communications Utility*.

- You can download the utility and the instructions on how to use it from the Smartware web site:

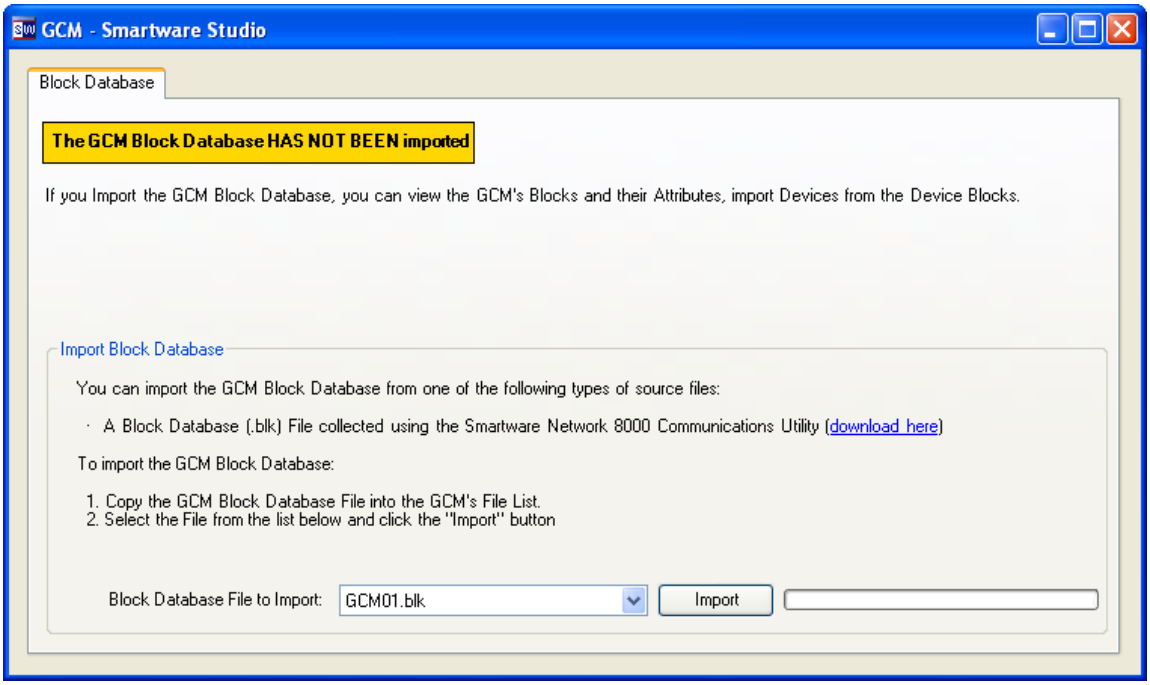
  http://www.smartwaretech.com/Nw8kConversionService.aspx

- The resulting backup will be in a custom Block (.BLK) format.

Importing the GCM Block Database

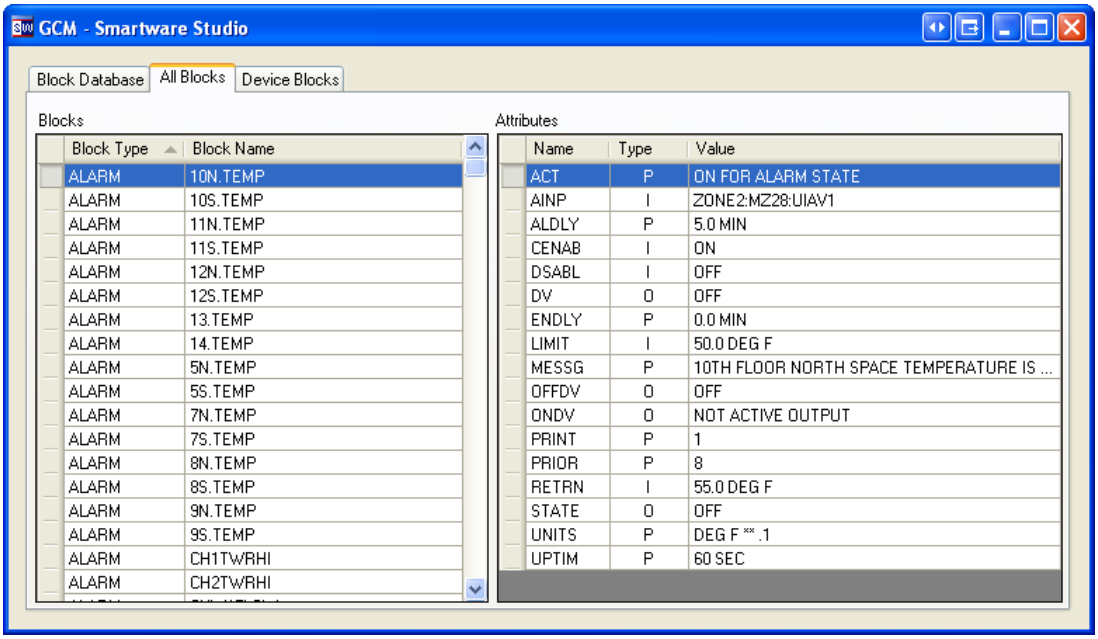
To import the block data into the GCM device:

- From the *I/A Network 8000* stencil in the toolbox, add a GCM object to the Network Tree.
- Copy the block database (.BLK file) to the Files tab of the GCM.
- Select the Blocks tab on the GCM and click the OPEN GCM BLOCK DATABASE WIZARD button.



- The .BLK file name should appear in the BLOCK DATABASE FILE TO IMPORT list. Click the IMPORT button.

- The LOAD BLOCK DATA button should appear. Click it to load the block database onto two additional tabs: *All Blocks* and *Device Blocks*.

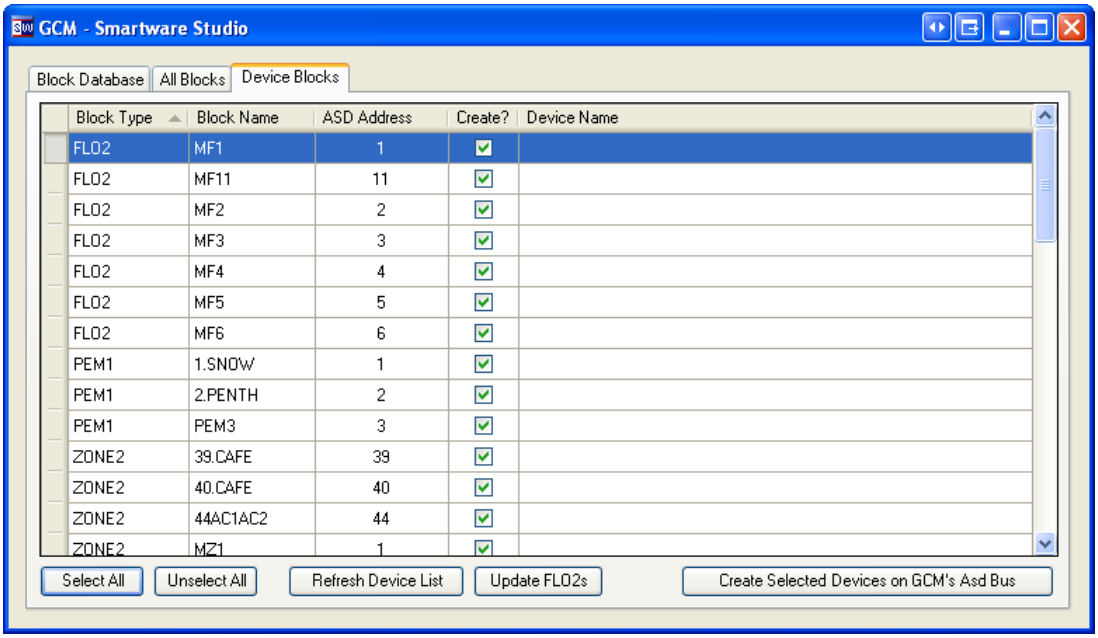


- The *Network Number* and *GCM Number* properties will be filled in on the GCM's Network tab.
- The *All Blocks* tab shows a list of all the blocks in the GCM. As you select a block, the Attributes list on the right side will update to show the values of the inputs, outputs and parameters of the block.

Automatically Building the Network Tree from the GCM Database

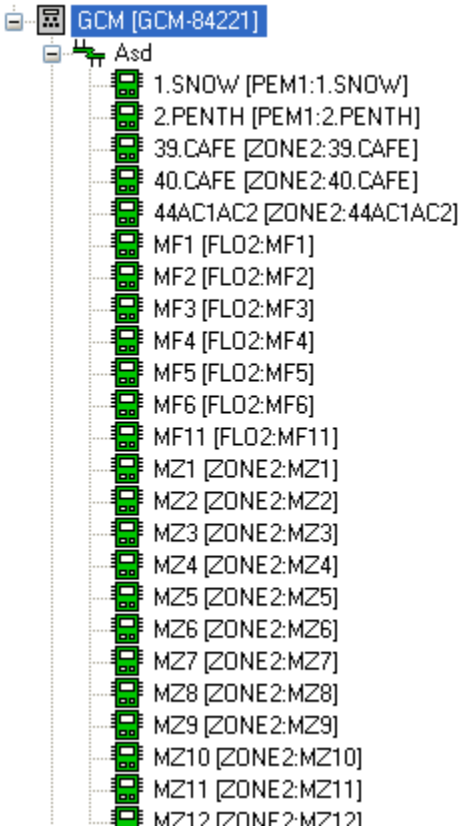
Once imported, you can use the block information in the GCM to populate the devices beneath it on the Network Tree.

- Select the *Device Blocks* tab. A list of the blocks that represent devices (e.g. ZONE2, PEM1, FLO2, LIM and SIM) will be shown with their ASD Address.



- Select the devices to import. In most cases, you will want to SELECT ALL.

- Click THE CREATE SELECTED DEVICES ON GCM'S ASD BUS button. The devices will be created on the GCM's *Asd* bus.



LNC Devices

An LNC (LON Network Controller) Device is a GCM that also has a *Lon* bus. Lon devices are represented by SIM blocks, which contain certain amount of information about how the inputs and outputs are mapped to the Network Variables (NVs) of the devices. The block database does not, however, contain information about the Lon Profile and SNVT types.

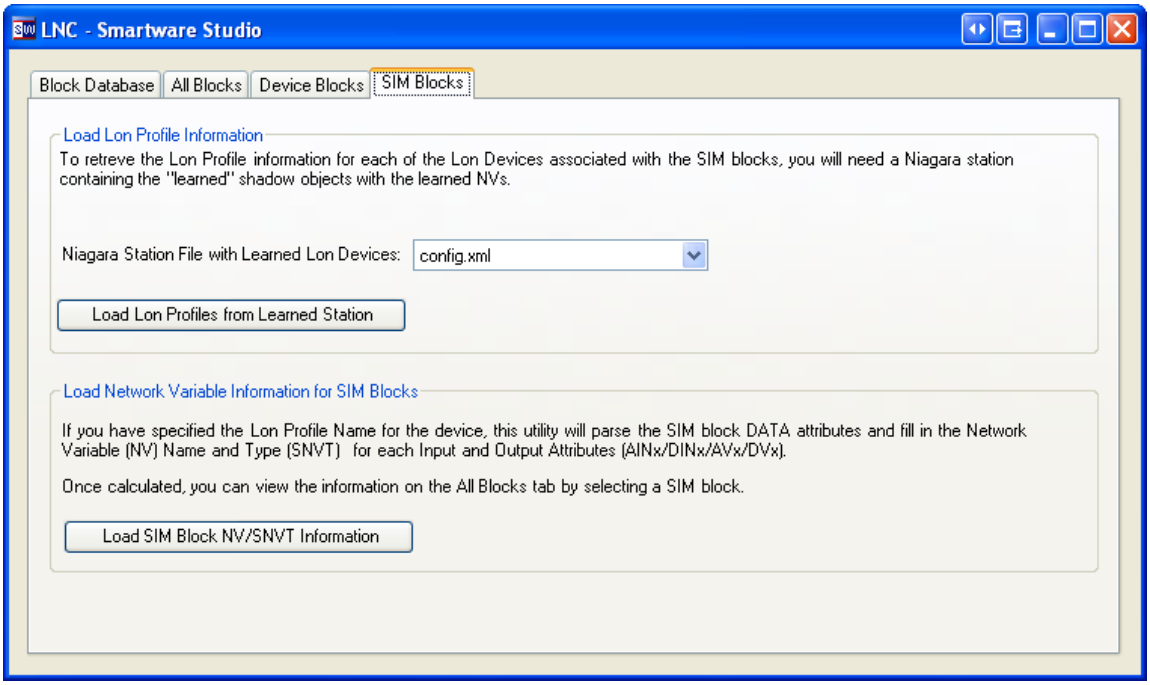
- You can import the block database and populate the Network Tree in the same way as a regular GCM. In fact, if there are SIM blocks in the database you will be warned that you must use the LNC device object instead of the GCM.
- Once imported, the *Device Block*s tab will show the *Lon Subnet ID* and *Node ID* for each SIM device.

If you want to import additional information about the profiles and SNVTs, you can use WorkPlace Pro to create a Niagara R2 station from the Lon bus and import that as well. This temporary station will include the shadow objects for the Lon Devices.

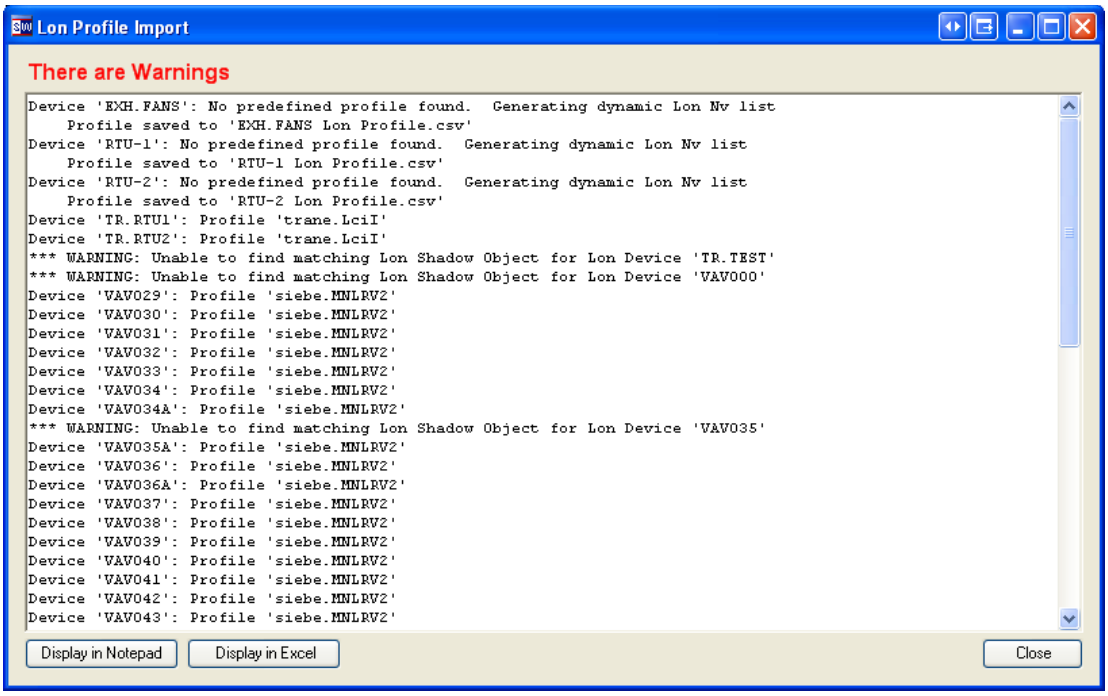
To generate the temporary station, follow this generate procedure:

- Disconnect the Lon bus from the LNC.
- Connect the Lon bus to a laptop running WorkPlace Pro.
- Use the *LonDeviceManager* in the *LonWorksService* to "learn" a station that contains a shadow object for all the Lon Devices. You must also learn all the Network Variables. Refer to the *Niagara LonWorks Integration Guide* for more information.
- Save the generated station as a *config.xml* file.

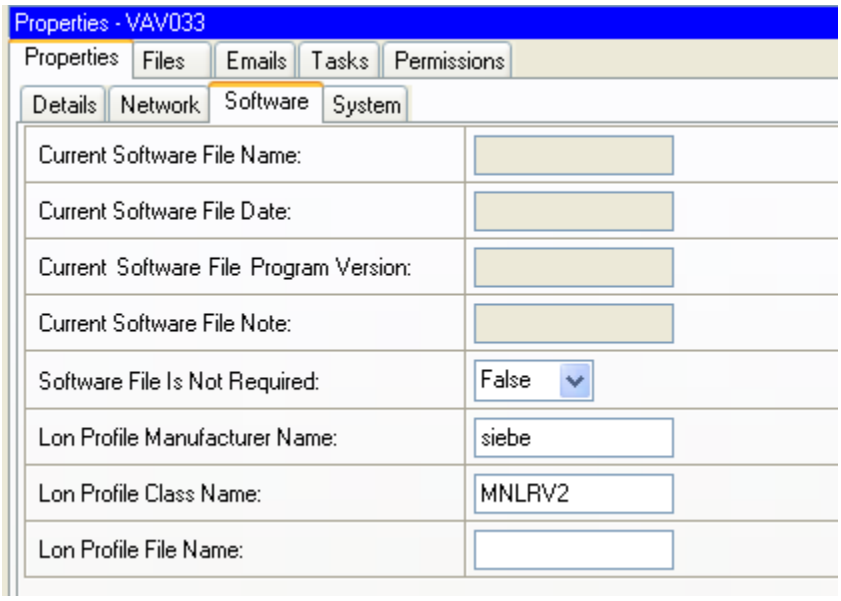
Copy the *config.xml* file to the LNC's File tab and open up the LNC Block Database Wizard. The LNC contains a separate tab named *SIM Blocks*.



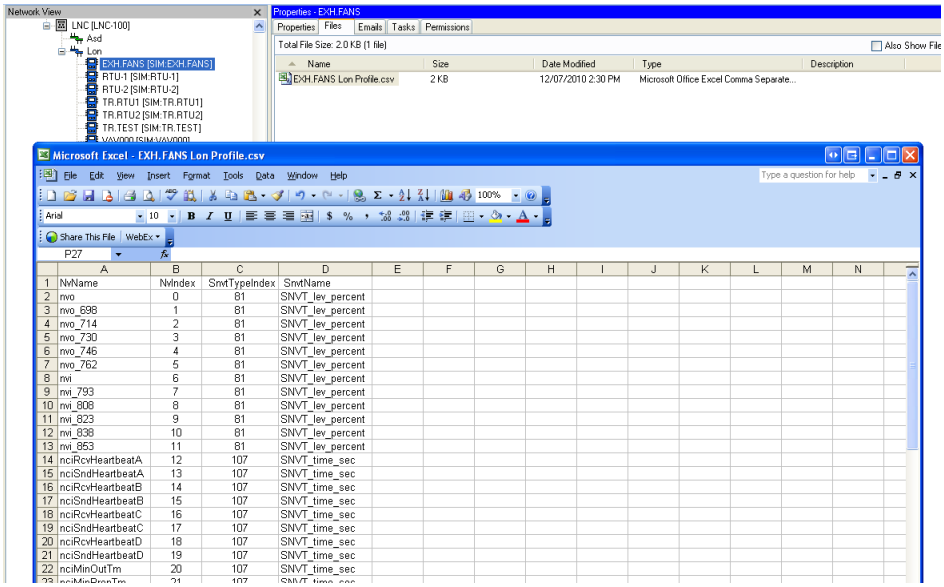
Click the LOAD LON PROFILES FROM LEARNED STATION button. Smartware Studio will match up the shadow objects in the *config.xml* file with the devices in the network tree based on the *Lon Node IDs* and extract the profile and SNVT information. Any exceptions or missing information will be reported:



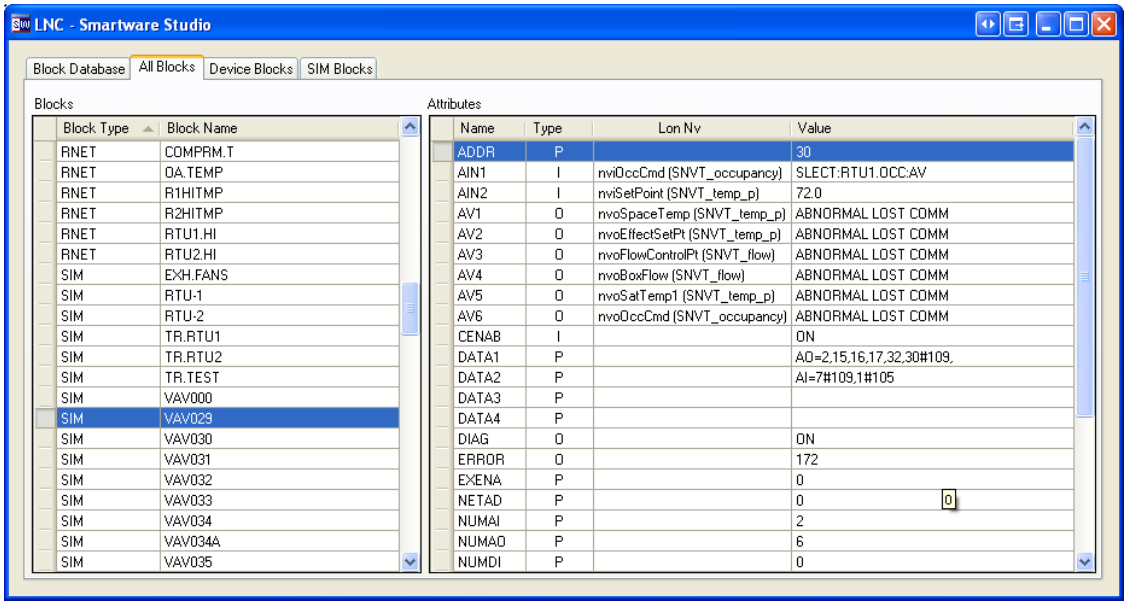
- If a shadow object is not found, it often represents a device that has been decommissioned in the field but not removed from the LNC.
- For *LonMark* devices, the profile is extracted and will be available on the Software tab of the device.



- For LonWorks devices without a profile, the SNVT information is gathered into a text file named *[Device] Lon Profile.csv* that is stored on the device.



After loading the profile information, click the LOAD SIM BLOCK NV/SNVT INFORMATION button to load the profile information into the devices for viewing. Go to the All Blocks tab and select a SIM block. The attributes that map to NVs will show their name and type.



PC Network

The PC Network stencil contains shapes for modeling the portion of a network dedicated to servers (file, web, mail, etc.) and workstations, along with the associated internet routing equipment.

The stencil contains shapes for a variety of devices:

Computers	*Workstation, Server, Laptop*
Peripherals	*Printer/Fax/Copier, Modem, External Storage Device, VOIP Phone*
Routing Devices	*Ethernet Router, Firewall, Wi-Fi Access Point*
Remote Devices	*Software Remote Connection*

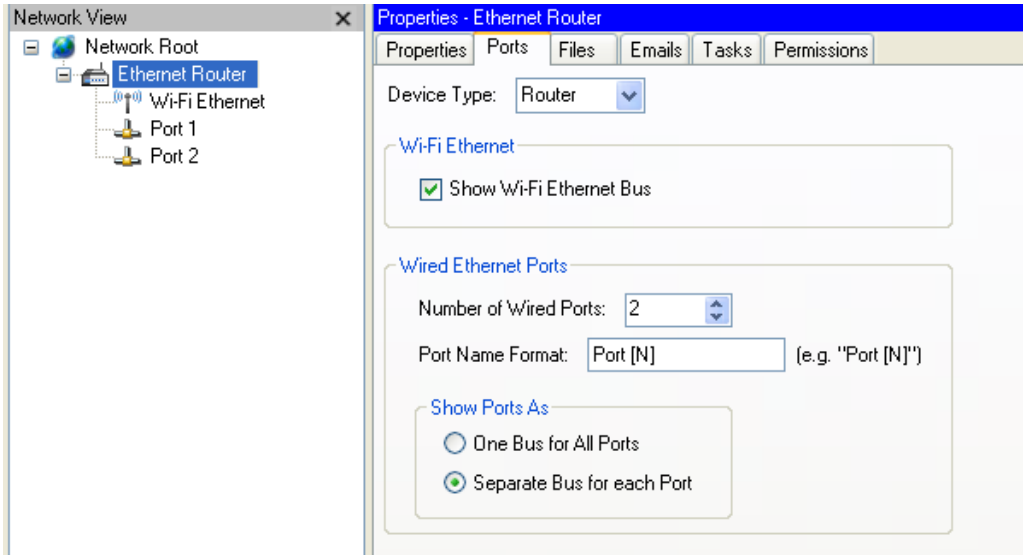
The various devices have different buses:

Ethernet, Usb, Serial Port, Parallel Port

The Ethernet Router

There are a number of different types of Ethernet routing devices, including switches and hubs. The *Ethernet Router* shape is used to represent most of them.

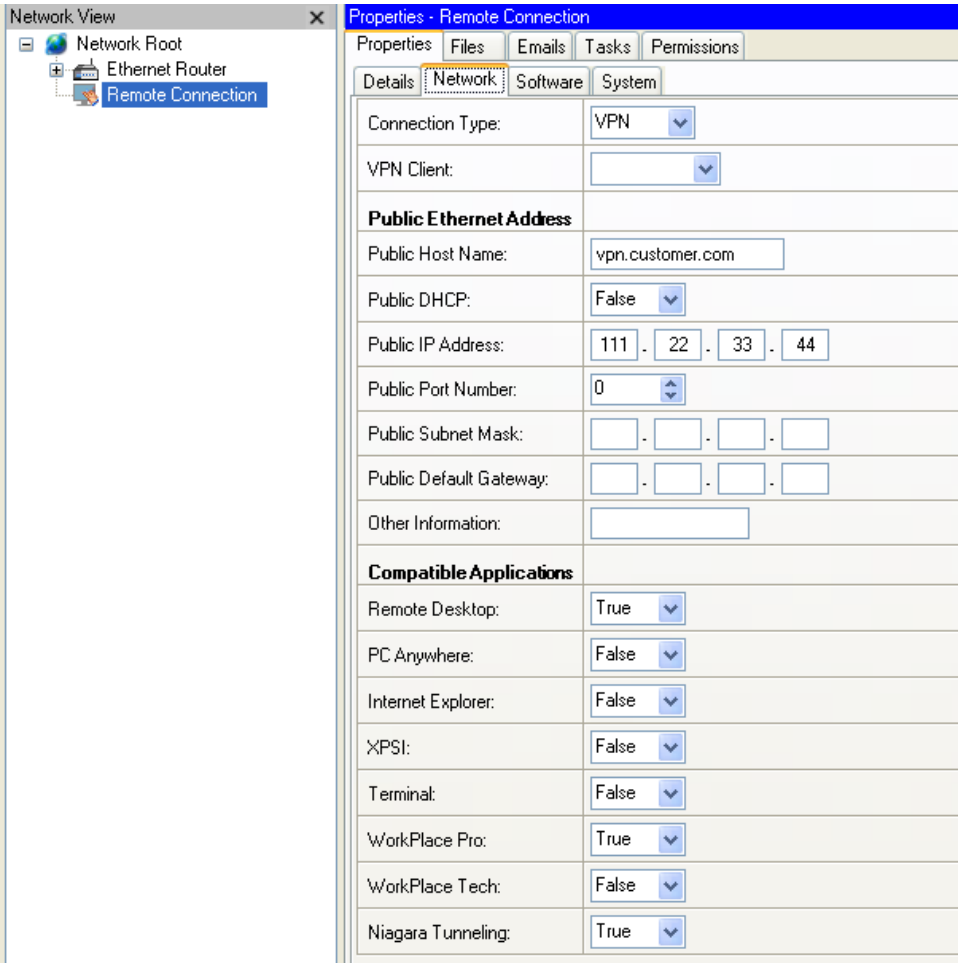
You can adjust the shape to represent a variety of port configurations. The *Ports* tab shows these properties:



- Select the appropriate options to make one or more buses show on the router.
- You can rename the Router or any of the buses to better describe the devices and connections.

Remote Connection

The Remote Connection object is useful for storing the addresses, passwords and files needed to create a VPN or other type of remote connection to an external system.



Security Devices

The Security and Security Expert stencils contain the devices for modeling the portion of your network that is dedicated to the security and safety of your system.

- The *Security* stencil contains generic devices, such as card readers and IP cameras.
- The *Security Expert* stencil contains devices from the Schneider Electric Security Expert line.

9. The Submittal Generator

The Submittal Generator is designed to assemble the various documents of a submittal into a single, well organized PDF file. In fact, it can be used to create any type of composite PDF made up of any of the following:

- Drawing Pages from a Designer Project
- Product Information PDFs (sometimes called cut sheets) for all the parts referenced in a Designer or Estimate project.
- Reports generated for a Designer or Estimate Project
- Reports generated from a Schedule
- Word, Excel, or Visio files
- Other PDF Files

The generated PDF can include any of the following features:

- A PDF Bookmark Tree, shown on the left side of the viewed PDF, that serves as an outline and navigation tool for the viewer.
- A Title Page with Table of Contents
- Sections and Sub-Sections, each with their own title page and Table of Contents
- Page Numbering on Table of Contents, bookmarks, and headers and footers.
- Custom headers and footers with text and images

The Submittal Document

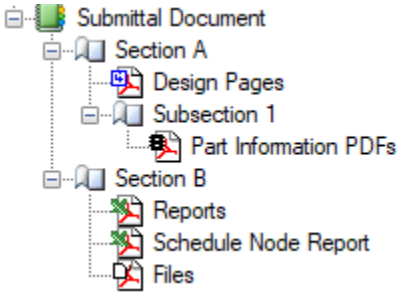
The Submittal Generator is stored on your Project Tree. To start, add a *Submittal Document* node to a folder or other node.

- Right-click on the folder and choose ADD→SUBMITTAL→SUBMITTAL DOCUMENT or drag out a *Submittal Document* object from the *Submittal* stencil in the Toolbox.
- The project needs to be checked out to add or modify the Submittal Document. Select FILE→CHECK OUT PROJECT if the project wasn't checked out when it was opened.

Adding Submittal Nodes

You can create the structure of your document by adding one or more *Submittal Nodes* to the document.

- Add *Design Pages*, *Part Information PDFs*, *Reports*, *Schedule Node Reports* or *Files* nodes to add pages and documents to the Submittal.
- Each node becomes a section of the Submittal, and therefore part of the Bookmarks tree and Table of Contents.
- You can also add *Section* nodes to make sub-sections containing any other type of node,



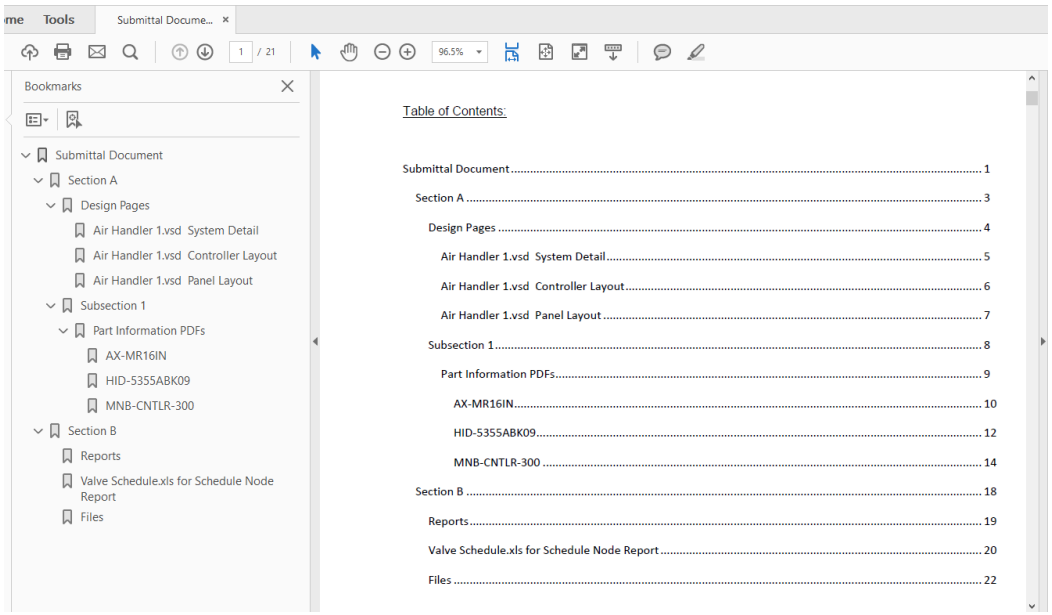
- Most of the nodes have a tab called *Submittal Pages* where you can configure the pages or reports that are included.
- All of the other configuration settings for the nodes can be changed on the *Properties* tab of the Submittal Document nodes.
- You can mark any node or section as *Excluded* to keep it from being generated with the document.
    - Right-Click on the node and select TOOLS→EXCLUDE FROM SUBMITTAL or change the *Is Excluded from Submittal* property to *True*.
- The different types of nodes are described in detail in later sections.

Generating the Submittal PDF

To merge all the files and reports together into a single PDF:

- Go to the *Submittal Document* tab of the Submittal Document and click GENERATE PDF or right-click on the Submittal Document node and select TOOLS→GENERATE PDF; or
- You can also generate any portion of the document by selecting any node in the document and selecting TOOLS→GENERATE PDF.
- The PDF will be saved on the *Files* tab with the date and time in the file name.

The resulting PDF will have a Bookmark tree and, if configured, a title page with a Table of Contents:



- You can disable the Bookmark Tree generation from the Submittal Document's *Properties* tab.

Page Numbers

You can choose to have the page number stamped onto each generated page. These options are set on the Submittal Document's *Properties* tab:

- Use the <Page> tag in the Header Text properties, as explained in the next section.
- Set *Include Page Numbers on PDF Bookmark Tree* to *True* if you want the page numbers to be added explicitly to the Bookmark Tree text.

The other submittal and section nodes have a few other options on their Properties tab:

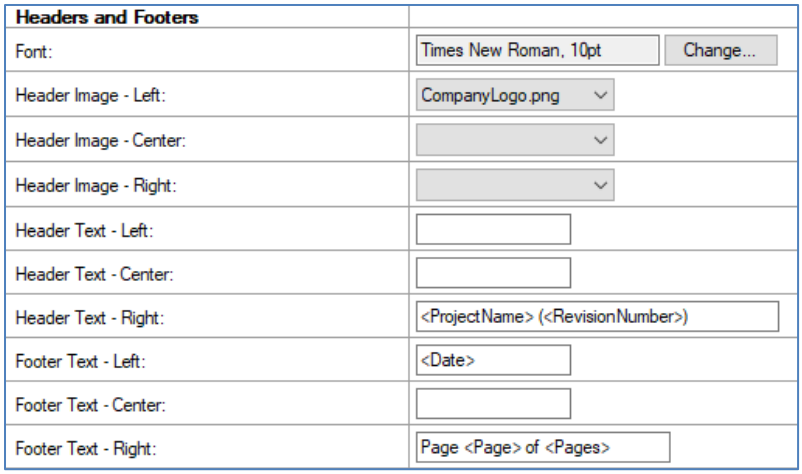
- You can exclude an entire node from the Bookmark tree by setting its *Include Page Numbers on PDF Bookmark Tree* property to *False*.
- For each node or section, you can choose to set *Pad to Even Number of Pages* to *True*. This ensures that the next section begins on the same side page (e.g., right side) as the current section. This can be useful in creating documents that format well for double-sided printing.

- For nodes that generate many individual pages, you can choose to set *Exclude Pages from Bookmark Tree* and /or *Exclude Pages from TOC* to *True* to reduce their detail and size.
    - In some cases, you may need to *Reset Page Numbering*.

Custom Headers and Footers

The Submittal Generator allows you to define a custom header and footer, such as a company name or logo.

The Submittal Document Node's *Properties* tab lists six available fields that allow you to specify the text for the left, center, and right portions of the Header and Footer.



The three additional fields labeled *Header Image*, are dedicated to adding an image to the header only.

- To include an image as a header, copy the desired image you would like to use to the *Files* tab of the Submittal Document Node. Once added, it will automatically be available in the property field drop-down.

For greater customization, you can include the following field codes individually, or in combination, to automatically populate once the Submittal Document is generated:

- <Page> The current Page Number
- <Pages> The total number of Pages
- <Date> Today's Date
- Page <Page> of <Pages> Current of Total Pages in document

You can specify many additional properties of your project through the use of report field tags, such as <*ProjectName*> and <*RevisionNumber*>. These values come from the

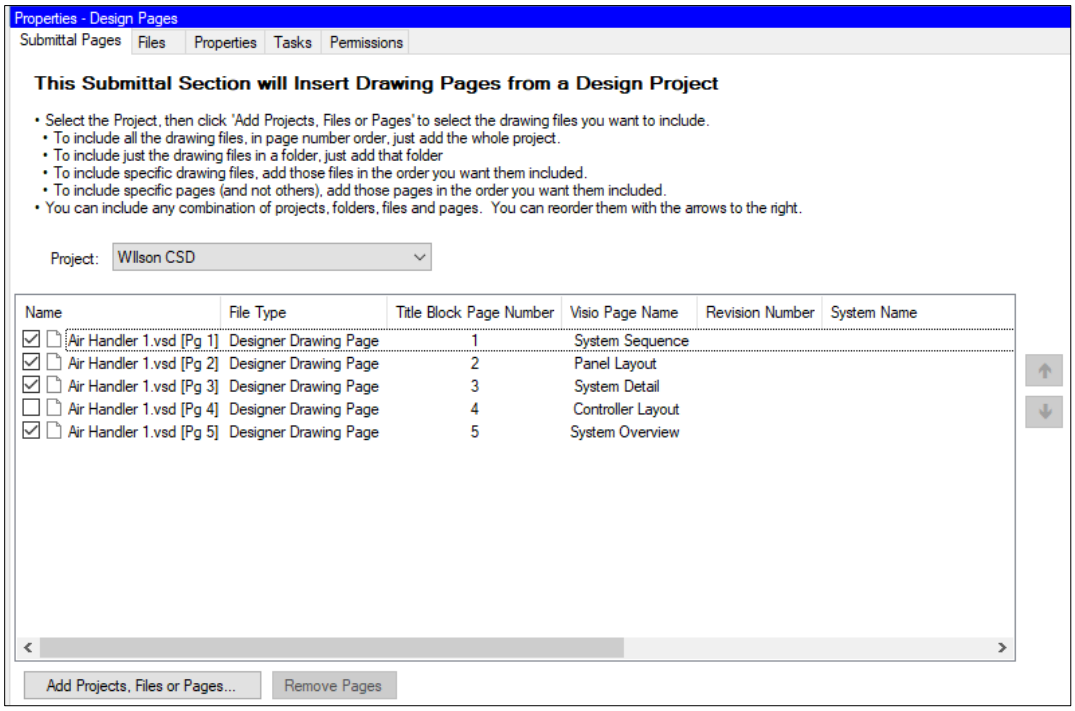
project node (*Customer Site*, *Job*, *Estimate*, or *Design Project)* that the Submittal Document is contained in.

- To view your project's property names on the *properties* tab, use the VIEW→PROPERTY NAMES menu item. Property names will be visible in brackets next to each property.

Note: *The 'Total Pages' value will be incorrect if you use the 'Reset Page Numbering' property in any of the individual sections of the document.*

Design Pages

A *Design Pages* node generates a set of Visio drawing pages from a Designer project.



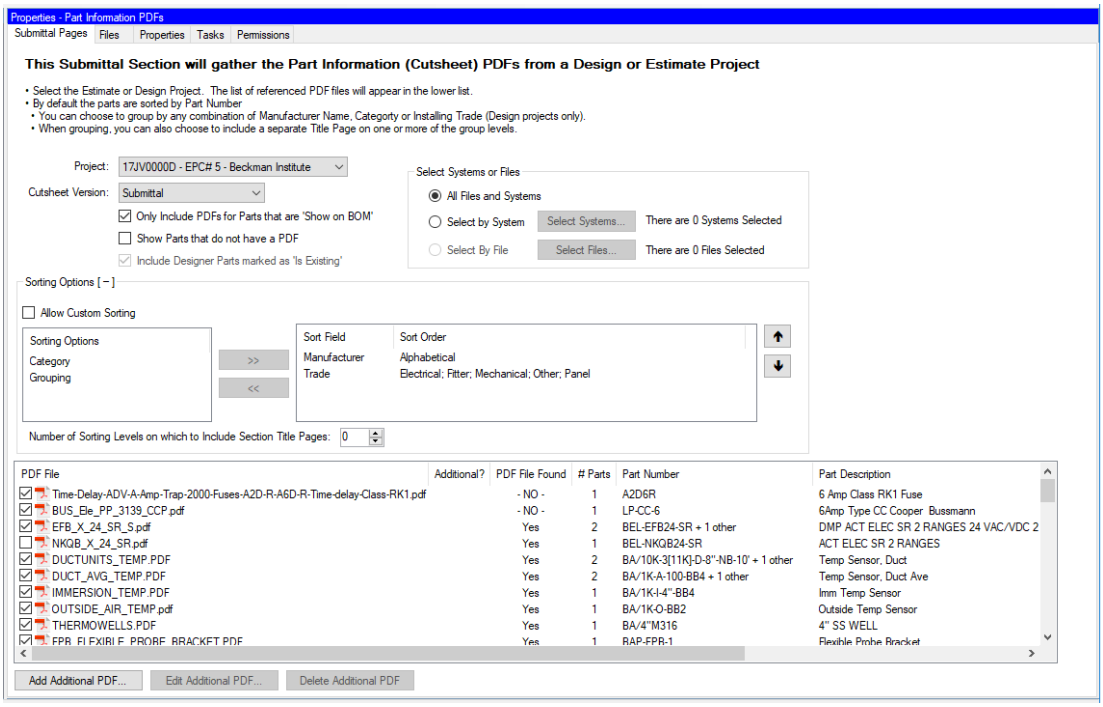
- To begin, select a Designer project from the list.
- Click ADD PROJECTS, FILES OR PAGES to add individual pages, entire files or the entire project's pages to the list.
- You can temporarily exclude a page or file by unchecking the box to the left.
- You can reorder the pages with the arrows on the right.

There is one additional option on the *Properties* tab:

- Set *Show Revision Number on Index for Individual Pages* to *True* to show the Revision Number for each page on the Bookmark tree and the Table of Contents.

Part Information PDFs

The *Part Information PDFs* node gathers the product information sheets from a Design or Estimate project.



To begin, select a Project. The list on the bottom of the form will show all the different PDF files associated with project's parts.

- If multiple parts reference the same PDF file, the file will only appear in the list once.
- The *# Parts* and *Part Number* columns will note which parts reference each PDF.
    - If there are multiple Part Numbers, you can see the full list by right-clicking on the part and selecting SHOW PART NUMBERS.

Filtering the Parts to Include

There are a number of options to control which parts are included:

- You can filter to a subset of the systems in the project by clicking the *Select by System* option and clicking SELECT SYSTEMS.
- For Designer projects, you can also choose Select by File and click SELECT FILES.
- Check *Only Include PDFs for Parts that are 'Show on BOM'* to filter out parts that aren't marked *Show on BOM*.

- For Designer projects, you can *Include Designer Parts marked Is Existing*.

PDF Versions

Each part in the Part Database can reference a number of different Product Information PDFs.

- The *Submittal* version is usually a data sheet with the product specifications or sales document.
- The *Installation* version is usually more detailed and technical.
- The *Programming* and *Reference* versions are usually longer technical documents.

You can choose any of the four versions. You can also choose *Submittal (or Installation)*, which will pick the Submittal version, or if it is not specified for the part, the Installation version as a substitute. The *Installation (or Submittal)* option does the reverse.

PDF Files

The PDF files are generally stored on your computer and downloaded from your company's server automatically.

- For more information on the location of these files, select TOOLS→OPTIONS→PDF FILES.

The Part Information PDFs node will also look on its *Files* tab for PDF files. This allows you to easily add any missing files. And, since it looks in the *Files* tab first, you can also store a version to override the one in the library without modifying the one in the library.

- The *PDF File Found* column indicates if the PDF Files List shows if the file was found. If the file is missing, it will be omitted from the generated document.

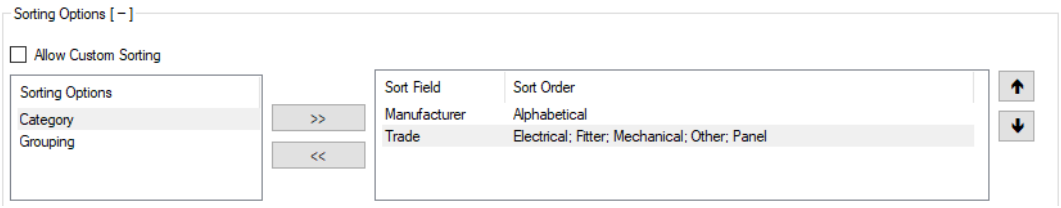
To create a custom version of a PDF to annotate:

- Right-click on the file and select EDIT COPY OF PDF.
    - If there is not already a custom version on the *Files* tab, this will make a copy of the version in the library and put it in the *Files* tab.
- The file will be opened in the PDF Editor configured in TOOLS→OPTIONS→3RD PART SOFTWARE.
    - There is a link to free PDF annotation software packages available for download from that form.

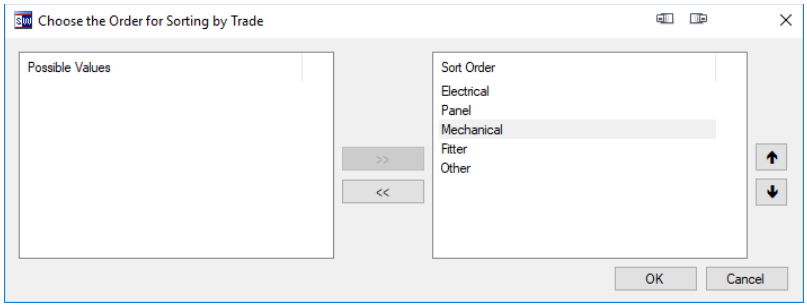
Sorting the PDFs

The PDFs can be sorted by any of the following fields:

- *Manufacturer* (alphabetically)
- *Trade* (using a custom order)
- *Category* (using a custom order)
- *Grouping* (using a custom order)



- Choose the fields from the *Sorting Options* list on the left side and click the >> button to add them to the *Sort Field* list on the right.
- Each sorting field becomes a separate level in the Bookmark Tree and on the Tables of Contents on Title Pages.
- For all the fields except Manufacturer, you can choose the order in which the values of that field are sorted. Double-click the field in the Sort Field list:



- If you check the *Allow Custom Sorting* checkbox you can manually order the PDF files using the up and down arrows on the right.

Title Pages

As with other nodes and sections, you can have a separate Title Page to separate the Part Information PDFs from the node from other documents in the Submittal.

- Refer to the later section on *Title Pages and Table of Contents* for more details.

Each sorting field creates another level of the document tree. This will nest them another level deeper in the Bookmark Tree. You can also choose to add another section Title Page before each sub-section, and if it includes a Table of Contents, it too will be another level deeper.

- Set the *Number of Sorting Levels on which to Include Section Title Pages* to the number of levels to include section Title Pages.

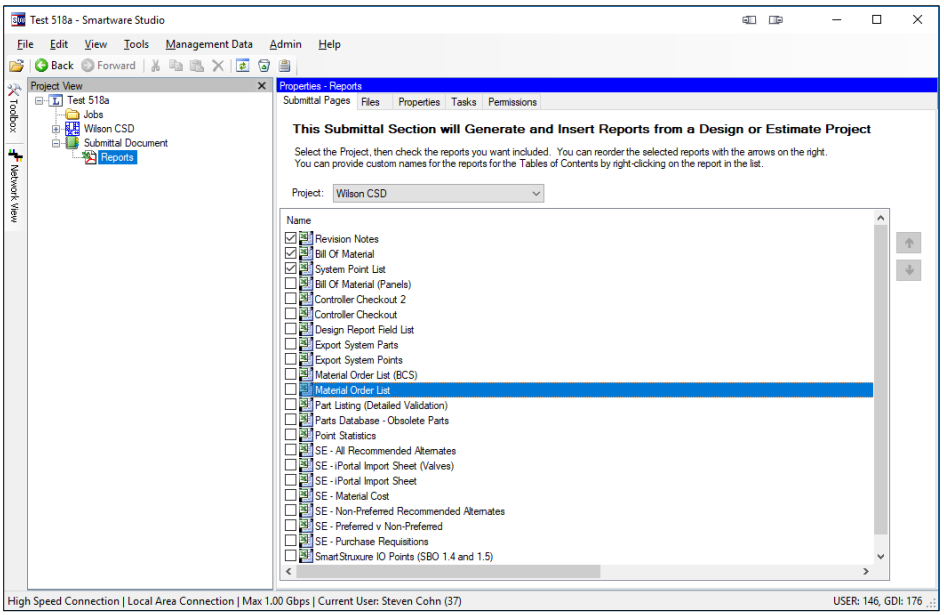
There are two other options that can be set on the Properties tab:

- *Suppress First Title Page*
- *Show Description after Part Number on Title Page*

Reports

The Reports node runs one or more reports from a Design or Estimate project and adds them to the Submittal. The reports are always rerun from the latest data whenever the Submittal is generated.

First, select the Design or Estimate project from the list.



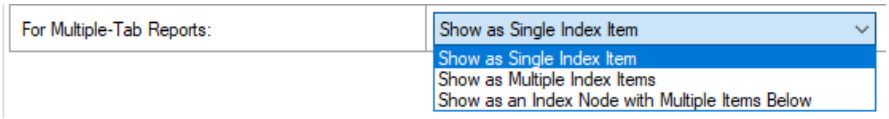
- You can also select *Generic Design Project* or *Generic Estimate Project* if you are building template projects.

Next, select the report you wish to run. Selected reports appear at the top of the list automatically, and you can reorder the reports with the arrows to the right.

You can provide a Custom Name for each report.

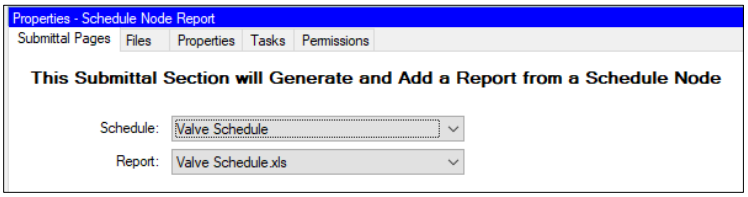
- This would be the text that's used in the Bookmark Tree and the Tables of Contents.
- Right-click on the report and select ADD CUSTOM NAME.

Some reports generate multiple tabs of output, such as the *Controller Checkout* report in a Design project. For those cases, there is an option on the Properties tab to control how the tabs affect the indexes in the Bookmark Tree and the Tables of Contents



Schedule Node Reports

The Schedule Node Reports node allows you to include reports from Schedule nodes in the Submittal



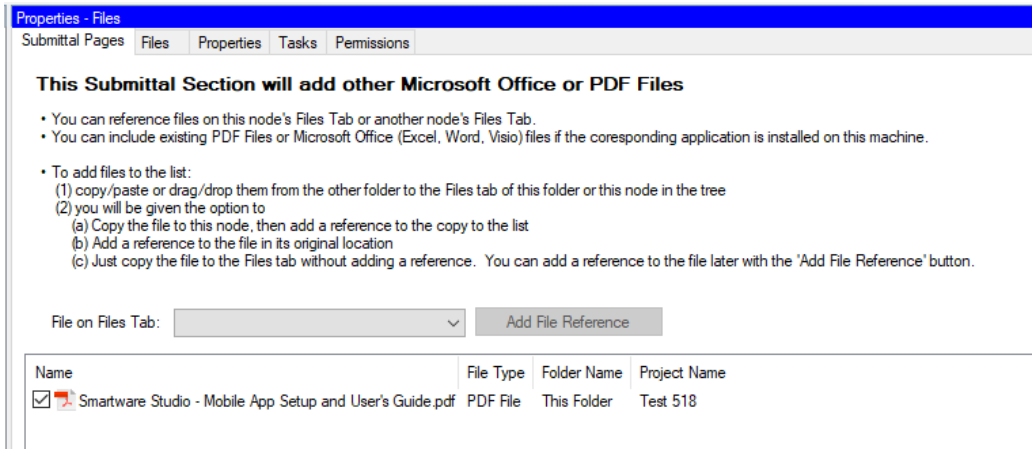
- Select a Schedule from the project and a report from the list.

Files

The Files node lets you add other files to the Submittal.

- You can include other PDF files.

- You can include Microsoft Excel, Word, or Visio files if the corresponding application is installed on the machine generating the Submittal.

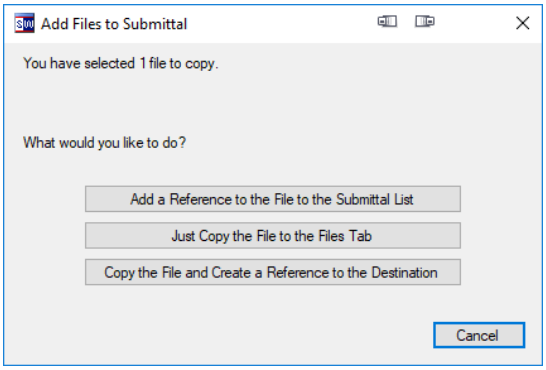


The Submittal Pages tab shows a list of the files that will be generated into the Submittal. They can be stored on this node, or on another node in the project.

To add a file, you can copy it to the *Files* tab and then select it from the *Files on Files Tab* list and click ADD FILE REFERENCE. The file will appear in the list.

- Use the arrows on the right to reorder the files.

To add a file from somewhere else in the project, right-click it and select COPY. Then right-click on the Files node in the project tree and select PASTE. You will be given some options:



- If you *Add a Reference to the File to the Submittal List*, the files is not copied or moved, and the Files node will look to that copy when a Submittal is being generated. If that file is moved from its existing location, the Submittal will no longer be able to include it.
- You can also choose to *Just Copy the File to the Files Tab*, which is the normal behavior, or do both and *Copy the File and Create a Reference*.

- You can also use CUT and PASTE or DRAG and DROP to create a reference to a file in another folder with similar options.

There is an option on the Properties tab to *Hide File Extensions on Indexes*, which removes the file extension when shown in the Bookmark Tree or Tables of Contents.

Sections

A section node allows you to organize your submittal into multiple levels. You can add sections under sections.

- The organization of sections into a tree structure is shown in the Bookmark Tree and in the Tables of Contents.
- You can give the section a more specific *Section Title* on the *Properties* tab.

Title Pages and Tables of Contents

You can include a Title Page for the entire Submittal document, as well as for the start of each section or sub-section. Each Title Page can include a Table of Contents of the pages in the section.

The Title Pages are created from one or more templates that can be customized to include your company logo or other information.

- You can access the folder where Title Page templates are stored on your computer by going to TOOLS→OPTIONS→LOCAL FILES→APPLICATION DATA to open the Application Data folder. The Title Page templates are in the *Reports\Title Pages* sub-folder.
- To create a custom template, you can duplicate one of the existing ones, rename it, and leave it in the same folder. Do not modify the provided templates, as your changes will be lost during an upgrade.

Adding a Title Page to the Submittal Document

To add a Title Page to the Submittal document, go to the Properties tab and select the *Title Page Template File Name* from the list.

There are two choices for the template. The first will be the default for sub-sections (if they don't specify their own). The second will be used for the main title page, leaving the first for the sub-sections only.

Each child submittal node, including Sections, allows you to override the template to choose a different value.

- To turn off the Title Page for a section, select the blank entry.
- Section nodes, like the Submittal Document node, can specify a different Title Page to use for sub-sections.
- Some submittal nodes have an option to *Suppress first Title Page*

Customizing a Title Page Template File

The easiest way to create a custom Title Page template is to review the pre-defined ones and choose one to copy. The template file can reference a few fields from the project:

- <*ProjectName*> and <*ProjectNumber*> come from the closest project node (Design, Estimate, Job or Customer Site) that the Submittal is contained within.
- <*Section*> refers to the Section Name property, or if not specified, the name of the section node,
- <*SectionPath*> shows a list of all the parent sections of the node
    - e.g., *Section A/Subsection 1*

Tables of Contents

As seen in most of the pre-defined templates, a tag of <*TOC*> is automatically replaced with a Table of Contents. The Table will include all the pages contained within the section.

The levels of text in the table are generated using specific named Microsoft Word *Styles*. Specifically, it uses *TOC 1*, *TOC 2*, *TOC 3* ... *TOC 9* (note that the space that is part of the name of the Style). These Styles define properties such as the size of the text, the indenting on the left and right, and how it uses dots or other characters to connect the entry with the corresponding page number. You can modify these Styles in the template to change these properties.

- Refer to the Microsoft Word help documents or search the internet for details on how to view and modify Styles. Be sure to select the specific version of Word you are using, as this feature has moved around.

10. Schedules and the Schedule Builder

There are many places where we need to work with a table of information. This data is often stored in Excel spreadsheet files or a database, but Smartware Studio projects can include *Schedule Nodes*, which allow you to store the data directly in the project.

Older Schedules in Smartware Studio

Before the Schedule Node was added to Smartware Studio, Excel spreadsheets were used to store and edit schedule-type data. These features include:

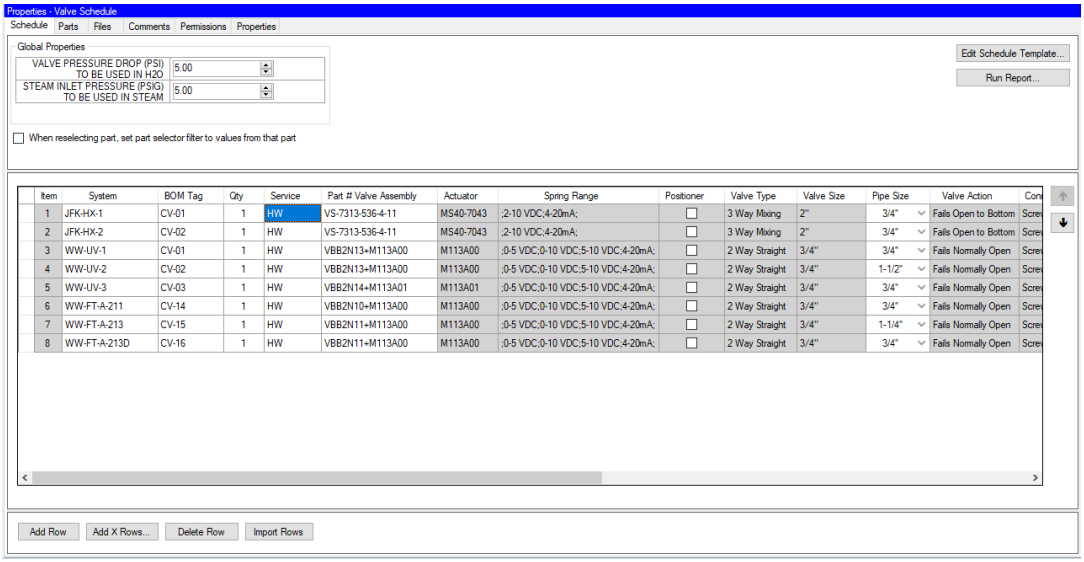
- Valve, Damper and Air Flow Schedules
- Controller Smart Charts

These older versions are still supported in most respects, though they are not being enhanced and updated to support the latest versions of Windows and Excel. Instead, new and more powerful versions have been created using the new Schedule Node, as described later in this chapter.

For more information on the older versions, refer to the associated chapters in the *Designer Module User's Guide*.

Schedule Nodes

Schedule Nodes let you store schedule data directly in a Studio project:



- Schedule Nodes can be added to most folders and nodes in a project.

A Schedule Node has two specific tabs:

- The *Schedule* tab, which has a spreadsheet-like table for entering a viewing the schedule data.
- The *Parts* tab, which for schedules that contain a schedule of parts, will automatically be populated with the part list.

When you put a Part Schedule node in certain places in a project, the list of parts will become part of the project data

- In the Designer Module, you can add a Schedule Nodes in the *Schedules* folder to have the parts added to the Project Database.
    - This is a newer option to putting the Schedule spreadsheet on the Files tab of the Schedules folder and acts very similarly.
- In the Estimate Module, a Schedule Node is essentially the same as a System Node
    - They can be added almost anywhere in the Area and System Tree or the Estimate.
    - They can be included and excluded as needed.

Unlike a regular spreadsheet, the columns of a schedule are defined explicitly, and each column can only contain a specific type of data (numeric, text, Part Number, etc.). The list of these columns and their properties is contained in the *Schedule Template*.

- There is a set of included pre-defined Schedule Templates
- You can modify an existing Schedule Template, or create one from scratch, to suit your specific needs.
- Schedule Templates can be updated to fix bugs or add additional functionality.
- You can easily distribute your custom Schedule Templates to all your users.

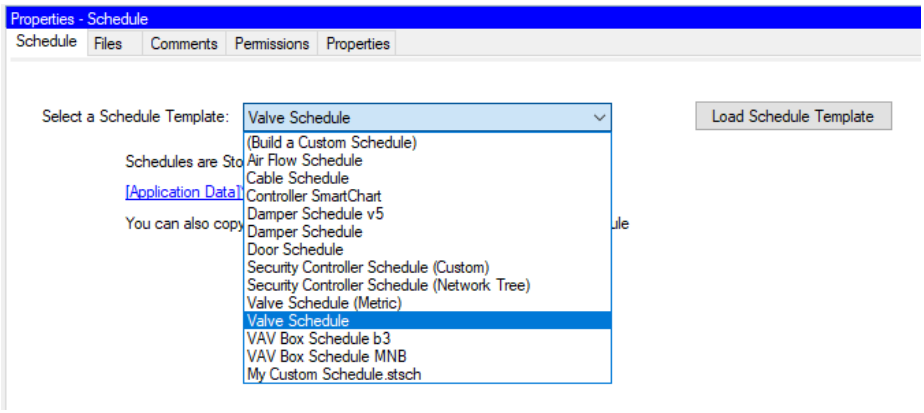
Refer to the later sections for more detail.

Creating a Schedule Node

A Schedule Node can be added in many places in a project.

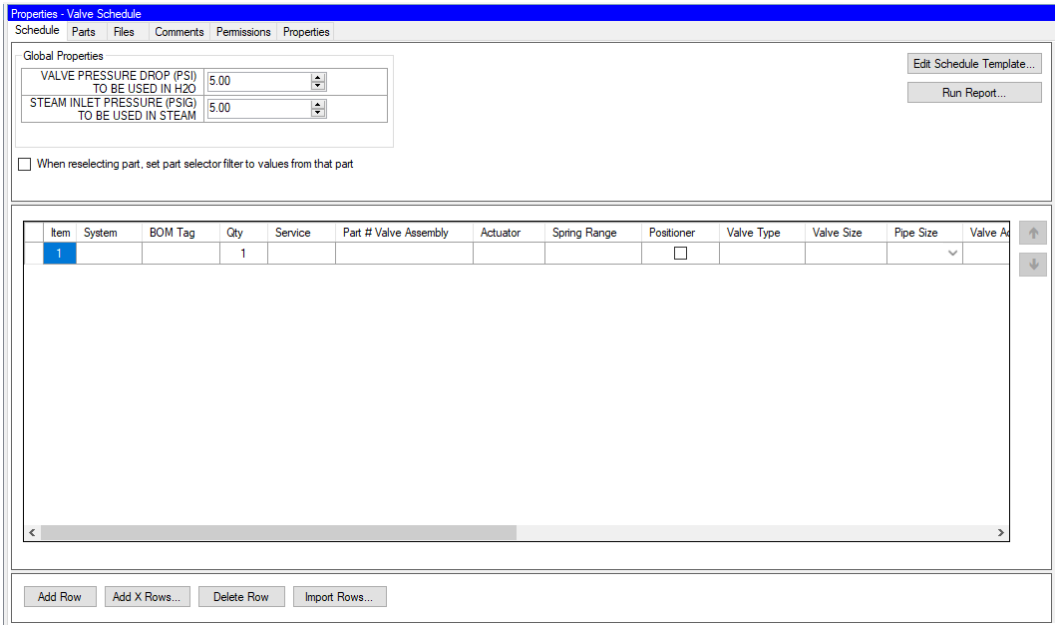
- Drag a Schedule Node from the *Schedules* stencil in the Toolbox
- Right-click on a node and select ADD→SCHEDULES→SCHEDULE

For a blank Schedule, the Schedule tab lets you choose which template you want to use:



- Select the template you want to use and click LOAD SCHEDULE TEMPLATE.
- If you have a custom template file (*.stsch* file), you can copy it onto the *Files* tab of the Schedule. It will then appear at the bottom of the list to select from.
- To create a new template from scratch, select "*(Build a Custom Schedule)*". Refer to the later section on *Creating Custom Schedule Templates*.

Once the template is loaded, the Schedule tab will show the Schedule columns and the other controls:



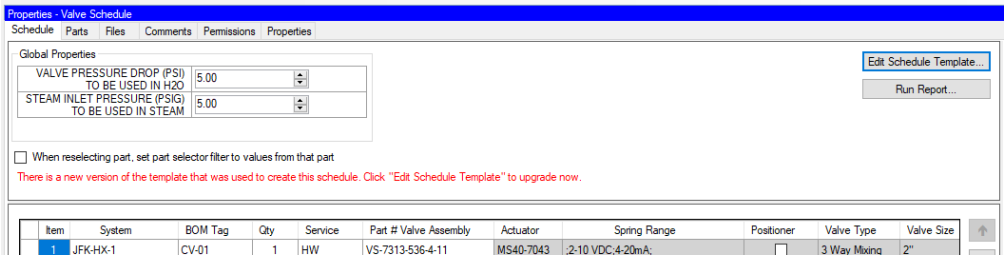
- The buttons on the bottom can be used to ADD or REMOVE rows. Refer to the later section on *Creating and Working with Schedule Rows*.
- Data is entered into the cells using various types of controls. Refer to the later section on *Editing Data in the Schedule*.

- Some templates (such as the *Valve Schedule*), have *Global Properties* that appear in the upper left corner. These values can be used in the calculated columns in the rows.

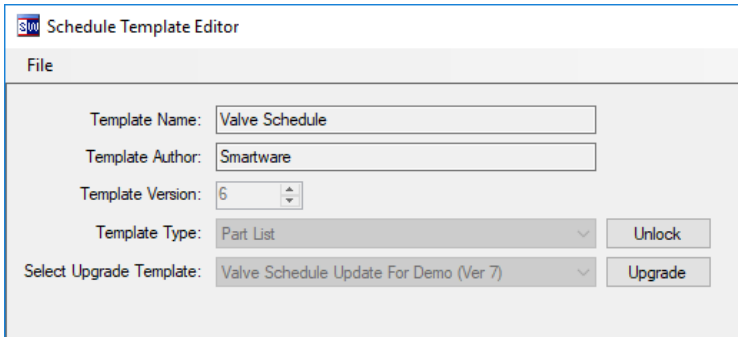
Updating a Schedule's Template

Schedule Templates have a version number, which allows there to be updates that can be applied to existing templates.

- For example, the Valve Schedule template may add an additional column and a new calculation, or an error in the calculation may have been detected.
- In these cases, a new version of the template file can be distributed, and the Schedule will indicate that there is an update.



Click the EDIT SCHEDULE TEMPLATE button. *The Schedule Template Editor* will appear. In the upper left area, you can select the updated template (if there is more than one).



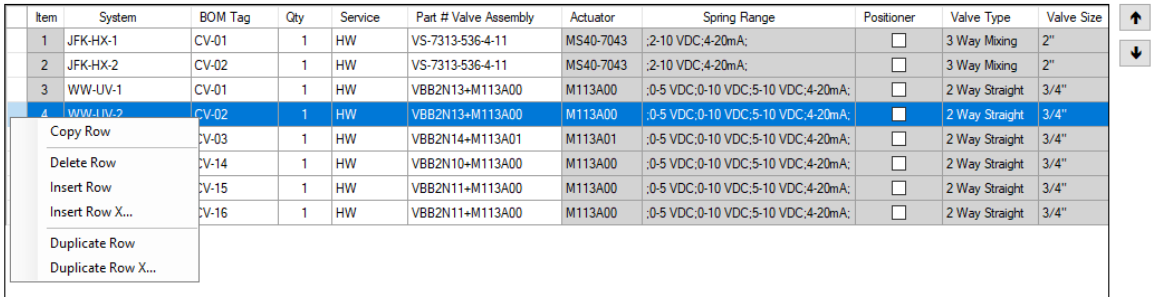
- Click the UPGRADE button to upgrade the template. The updated columns and calculations will show immediately. The button will only be visible if there is a new version available.

For information on how to make Custom Schedule Templates upgrade themselves, refer to the later section on *Distributing Schedule Templates and Reports*.

Creating and Working with Schedule Rows

To add new rows to the Schedule:

- Click the ADD ROW or ADD X ROWS button at the bottom of the schedule.
- Select a row (click the empty row header at very left of the row), right-click on it, and choose INSERT ROW or INSERT ROW X.



The row menu contains additional commands to COPY, DELETE and DUPLICATE rows.

- Select multiple rows (hold SHIFT or CONTROL while selecting the row header) to COPY or DELETE multiple rows.

Use the arrows on the right side to reorder the rows.

- Select multiple contiguous rows (hold SHIFT while selecting the row header) to MOVE those rows as a block.

You can also sort the Schedule by the values in a column by clicking the column heading.

Editing Schedule Data

You edit the data in the Schedule much the same way as you edit a spreadsheet.

- Some cells will bring up special selectors, such as Part Numbers

You can COPY and PASTE data from a single cell, a column of cells, or a rectangular group of cells.

- You can copy to and from different Schedule nodes, or with Excel, Word and other programs.
- When pasting a group of cells into a Schedule, the type of data in each column has to be compatible (e.g., not trying to paste text into a numeric column) or the paste will be rejected.

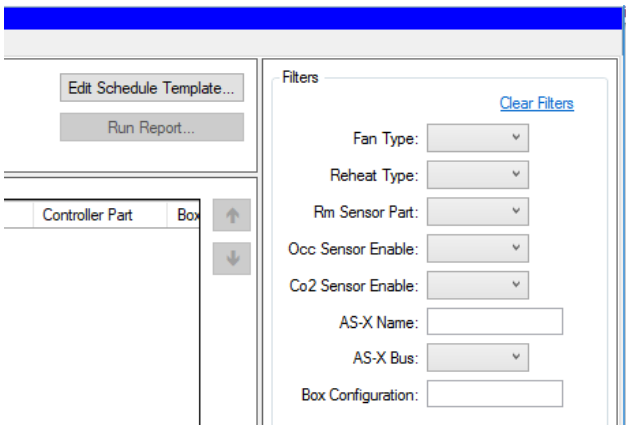
You can copy a single value down into one or more cells below it.

- To FILL DOWN, select two or more cells and press CTRL+D. The value from the topmost cell in each selected column will be copied into all the selected cells beneath them.
- If you select a group of cells, each column will be filled down separately.

You can also fill cells based on a pattern:

- FILL SERIES brings up a window that lets you fill the cells based on a pattern (e.g. "VAV#" to create VAV1, VAV2, etc.) You can specify the starting value, step value and ending value.

Some Schedule Templates are designed to show one or more filter controls to filter the rows that are shown based on the values in one or more columns:



- When reports are run on filtered data, only the visible rows are included in the report.

Network Tree Schedules

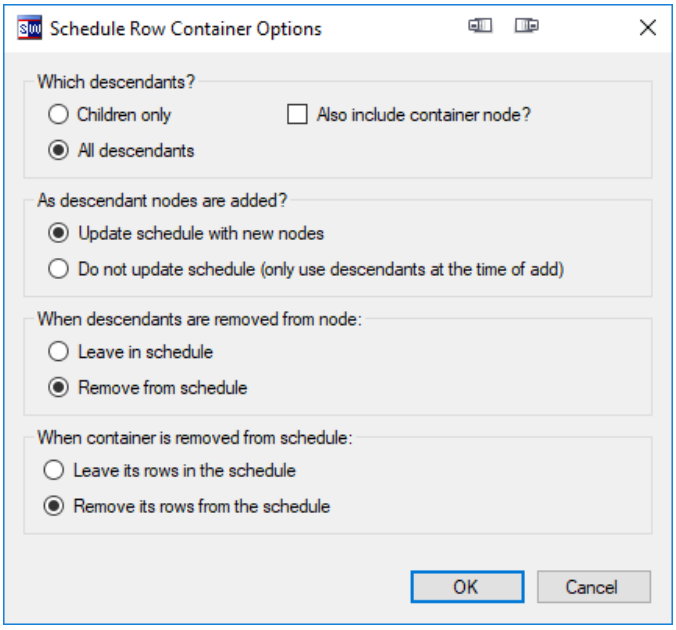
A few Schedule Templates are designed to show data from a set of controllers from one or more sections of the Network Tree. In these cases, you don't add or remove rows using the Add or Insert buttons and menu items. Instead, you add the devices and folders to the Schedule from the Network Tree.

One example is the *Security Controller Schedule (Network Tree)* template.

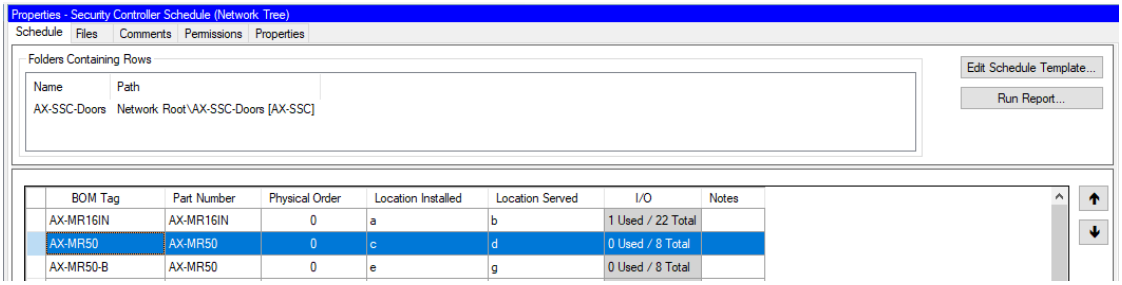
To add rows to this schedule:

- Right-click on a device or a folder in the Network Tree that contains the devices you want added to the schedule.

- Select TOOLS→ADD AS ROWS TO SCHEDULE→*MY SCHEDULE*
  - *MY SCHEDULE* will be the name of the Schedule Node
  - If there is more than one schedule, all will be shown on the menu.
- There are a number of options about how devices will be added and removed from the schedule as they are added and removed from the Network Tree:



After adding a folder to the Schedule, the top portion of the Schedule will show the *Folders Containing Rows*.



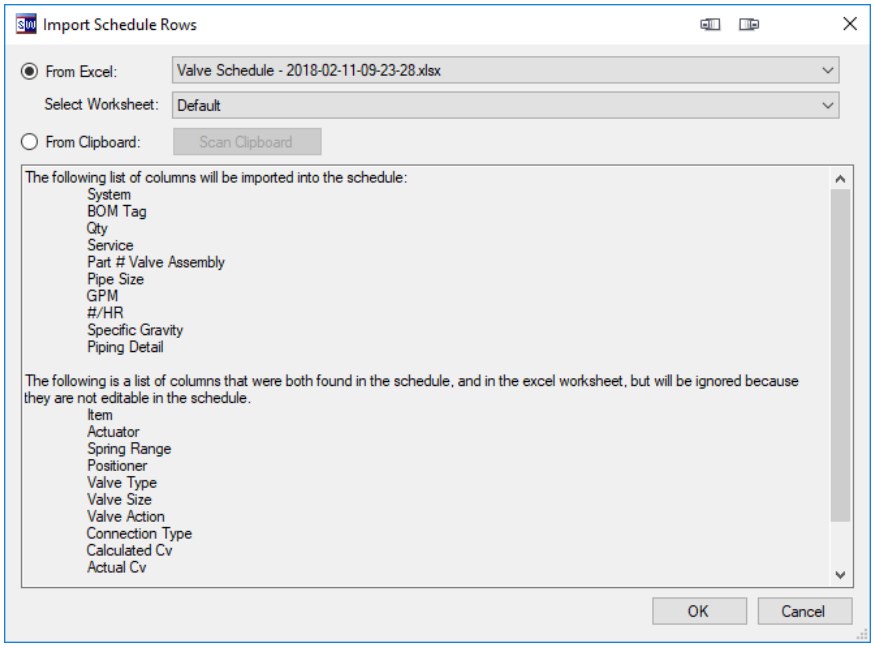
- Right-click on the folder name to EDIT the properties or REMOVE the devices from the Schedule.

The same folder and devices can be included in multiple schedules. If they are, any values with the same column name will be considered the same. Editing it in one schedule will change it in the other.

Once a device has been added to a schedule, the columns of the schedule are added to the device as a *Dynamic Property*. You can view these on the *Properties* tab of the device.

Importing Data into the Schedule

As noted in the earlier section *Editing Schedule Data*, you can copy and paste data into the Schedule from an Excel spreadsheet. For a more formal import, click the IMPORT ROWS button at the bottom of the schedule.



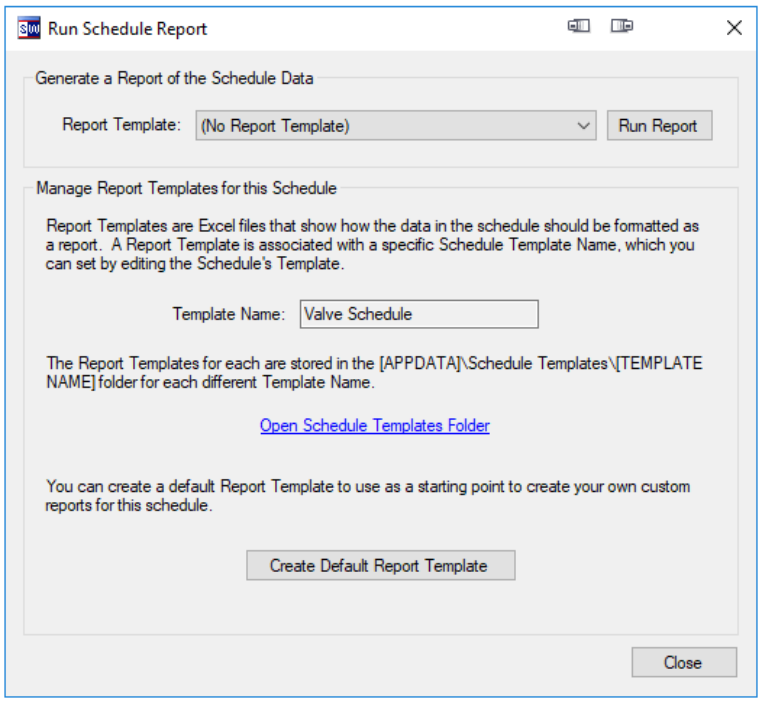
- You can copy the Excel file onto the *Files* tab of the Schedule to make it appear in the list.
- You can also copy the data from an open Excel spreadsheet.
    - In Excel select the rows, including the header row with the column names, and select Copy.
    - On the *Import Schedule Rows* form, select the *From Clipboard* option

When doing the import, new rows will be added to the schedule for each row in the spreadsheet or clipboard region.

- The column names in the spreadsheet are matched to the column names defined in the Schedule Template (as described in the later section on *Creating Custom Schedule Templates*).
- Other columns are ignored.
- You can generate a blank spreadsheet to use as an import template by running a *Default Report* for the schedule. Refer to the next section on *Reports*.

Reports

You can generate an Excel version of your data by running a Report. Click the RUN REPORTS button in the upper-right corner of the Schedule.



- You can choose from any of the *Report Templates* associated with the Schedule's Template (assuming it was created from one) or choose *No Report Template* to create a standard export of the Schedule data.
- Click RUN REPORT to generate the report.

You can make your own Report Templates with custom graphics, formatting and formulas.

- The CREATE DEFAULT REPORT TEMPLATE button can be used to create a report template file to use as a starting point. You can also duplicate and rename an existing one to modify as your own.
- Report Templates are stored in folders associated with the Schedule Template's *Template Name*. If you're creating a custom schedule, you'll want to give it a Template Name before creating custom reports. Refer to the later section on *Creating Custom Schedule Templates* for more detail.
- You can make and distribute custom reports for pre-defined Schedules (such as the Valve Schedule) as well as your own.
    - Refer to the later section on *Distributing Schedule Templates and Reports* for more details on distributing custom reports,

Schedule Charts in Designer Drawings

You can add a Visio version of the Schedule to your Designer drawings.

- Refer to the *Schedule Charts* chapter of the *Designer Module User's Guide* for full details.

Pre-Defined Schedule Templates

Studio includes a number of Schedule Templates to use, most of which provide additional features to the Design and Estimate modules.

- Some of the templates include a *Part Number* column. These schedules can be used in an Estimate or stored in the *Schedules* folder of a Designer project to automatically add these parts to those projects.

Valve and Mechanical Schedules

- Valve
- Valve (Metric)
- Air Flow
- Damper

For Belimo Valves, you can store a .BEL file from *SelectPro* on the *Files* tab of the Schedule node.

- You can edit the schedule in *SelectPro* by double-clicking it from the *Files* tab.
- The parts will automatically be copied to the *Schedule* and *Parts* tabs of the node when the file is updated.

Security Doors

- Cable
- Door
- Security Controller (Custom)
- Security Controller (Network Tree)

These three schedules work together to create a detailed listing of the doors, controllers and components for an access security project.

Controller Smart Chart

- Controller Smart Chart

The Controller Smart Chart is designed for *Typical Of* situations to detail the differences between the instances of the systems and controllers (e.g., Min Flow, Max Flow). Refer to the *Smart Charts* chapter of the *Designer Module's User's Guide* for more details.

Automated Engineering Tool (AET)

- VAV Box b3
- VAB Box MNB

These schedules allow you enter data to enter data for and generate reports to be used by the Schneider Electric Automated Engineering Tool.

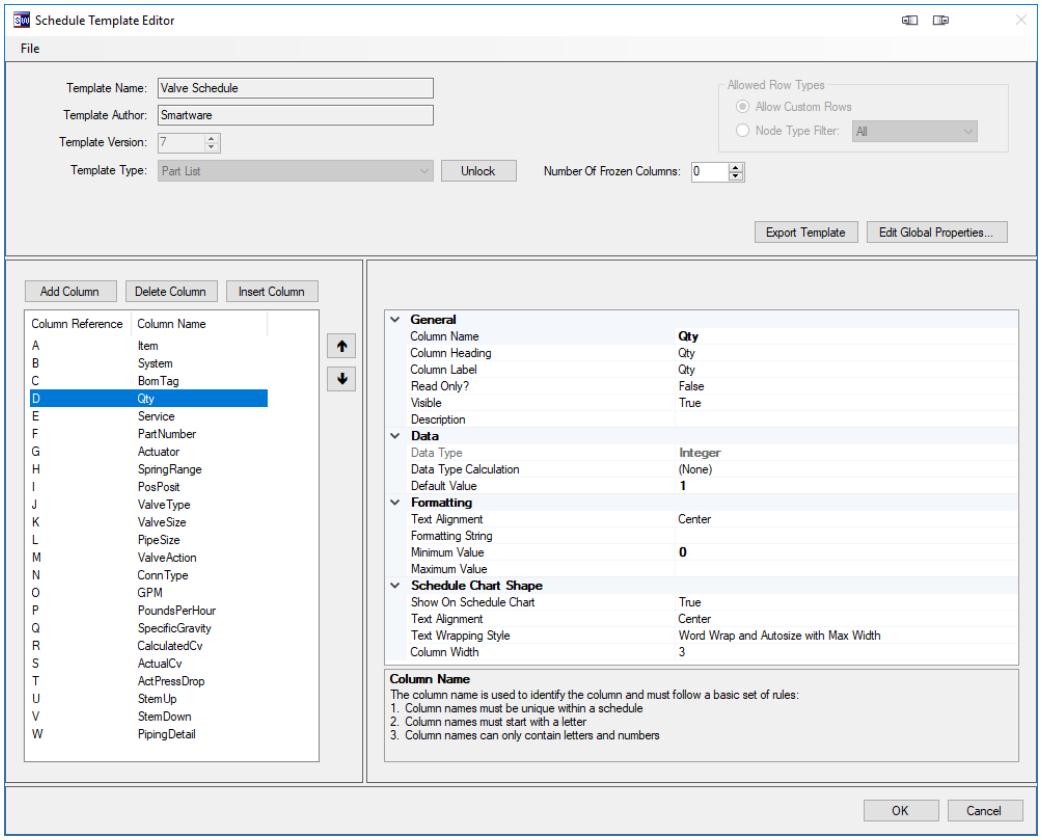
Creating Custom Schedule Templates

A schedule consists of two main parts: the *Schedule Data*, which are the values entered into the Schedule, and the *Schedule Template*, which defines the structure of the schedule and its columns and also contains other metadata, such as the *Schedule Name* and *Schedule Version*.

- To edit the Schedule Template, click the EDIT SCHEDULE TEMPLATE button in the upper right corner of the schedule.

The Schedule Template Editor

The Schedule Editor is divided into three main parts:



- The upper section is *the Schedule Header*, which contains the properties and metadata for the schedule.
    - Refer to the later section on *Schedule Header Properties* for more detail.
- The left side is the *Column List*
- The right side shows the *Properties* of the selected column,

Exporting a Schedule Template

Every schedule node has its own template, which may have been copied from a template file (if you selected one of the pre-defined schedules) but is its own copy. Any changes you make in the Schedule Template Editor will only affect that single schedule node.

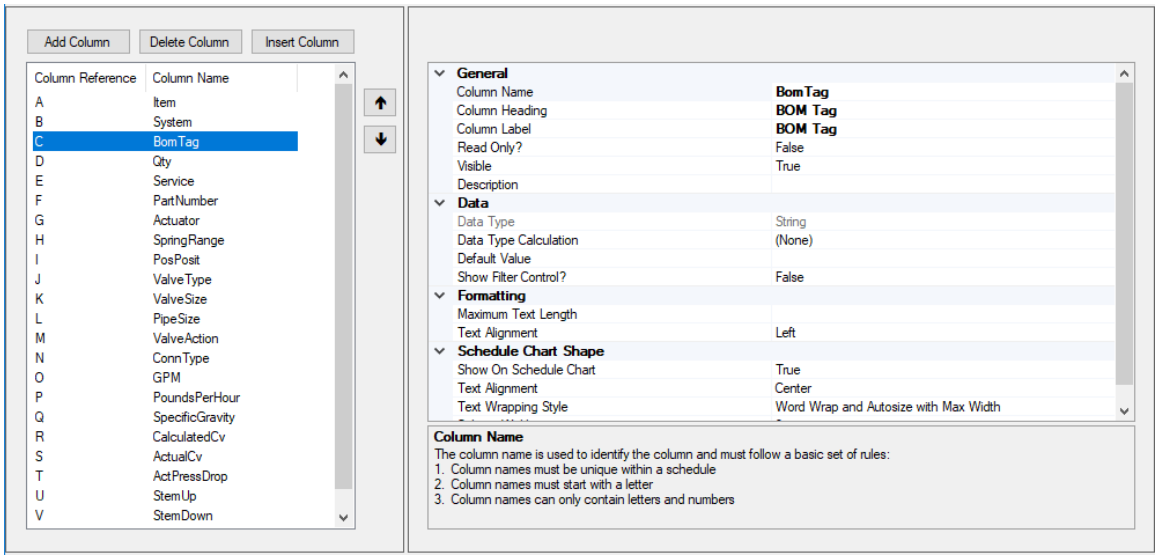
You can export the schedule template from a schedule into a file that can be used to create a new schedule with the same columns and properties.

- To export the schedule template, click the EXPORT TEMPLATE button or use the FILE→EXPORT TEMPLATE menu command.
- For more information on where to store the template files for reuse and sharing, refer to the later section on *Distributing Schedule Templates and Reports*.

Schedule Columns

Unlike a blank spreadsheet, the columns of a Schedule are explicitly defined and controlled. Each one can contain only a certain type of data (numeric, text), and there are many options to control what the user sees and how the information is displayed.

The bottom of the template shows the *Column List* on the left and the *Column Properties* of the selected column on the right.



- As with spreadsheets, each column is a assigned a letter reference that can be used to reference other columns in a formula. Column letters are reassigned if the columns are added, removed or reordered.
- To add a column, click ADD COLUMN. To insert a column above the selected column, click INSERT COLUMN.
- To delete the selected column, click DELETE COLUMN.
- Use the arrows on the right to reorder the columns.

There are a number of properties that are used to control how a column looks and behaves. Some of the basic properties are:

- *Column Name* – This is used as the identifier for the column in the schedule template. It must be unique within the schedule template and can only contain letters and numbers, and no spaces. The first character has to be a letter.
- *Column Heading* – The text that will be displayed at the top of the column in the schedule.
- *Column Label* – This is the text that appears to the left of the value when it's shown in the Dynamic Properties tab of a device in a Network Tree schedule.
- *Description* -- A user-friendly description of the column, which will be displayed when the user hovers their mouse over the column heading.
- *Read Only* – When set to *True* this column will not allow the user to edit the values in this column. They will be shown with a gray background to indicate this.
- *Visible* – Set this to *False* to hide the column and prevent it from being displayed. This is useful for creating intermediate calculations and for removing a column without deleting it.
- *Default Value* – The default value of this column when a new row is added to the schedule.
- *Minimum Value*, *Maximum Value*, *Minimum Date*, *Maximum Date* – You can use these to limit the user to a range of value they can enter.
- *Formatting String* – Specifies a custom formatting string for displaying the values in the column. Examples include *C2* (currency with 2-digits), #,###.## (as in 1,234.56), and *MM/dd/yyyy*. Search the internet for ".NET Formatting Strings" for full details on common and custom formats.
- *Show Filter Control* – If True, a text box or drop-down list will be shown in a separate panel to allow the user to enter a value to use to filter the rows that are shown and used in a report.

For String Columns:

- *Maximum Text Length* – This property is only available for columns that have been defined as strings. As its name implies this limits the number of characters that the user is allowed to enter in this string column. If the user enters more than the specified number of characters, then the schedule will truncate the user's string.
- *Text Alignment* – The alignment of the values in the schedule: *Left*, *Center* or *Right*.

The rest of the properties are discussed in the next few sections.

- Most of the column properties contain an explanation at the bottom of the properties window as you select them.

Column Data Types

Each column must specify what type of data it contains. The *Data Type* can be a basic type (*Integer*, *Boolean*, etc.) or special case types (*Auto Number*, *Device Detail List*, etc.).

The Basic data types include:

- *Integer*
- *Double* – A real number
- *String* – A piece of text
- *Date*
- *Boolean* – A value that can be *True* or *False*

Other data types include:

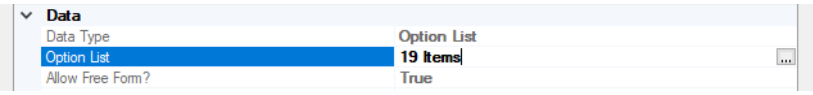
- *Option List* – A list of possible values for the use to choose from (such as *Slow*, *Medium* and *Fast*). Refer to the later section on *Option List Properties*.
- *Auto Number* – A read-only column that serves as a number for the row. You can have the schedule start from a number other than one by setting the *Default Value* property.
- *Part Number* – A String value column that lets the user select from the Part Number browsers and link other columns to the selected part's fields. Refer to the later section of *Part Number Properties*.
- *System Name* – If your schedule lives under an Estimate or a Designer node and you add a system name column to your schedule's template, the user will be given the ability to select a system from a list of systems belonging to the parent node.
    - If a system is selected, and there's a part number column, and the part number column's *Copy to Parts List* property is set to True, then instead of the parts being added to the schedule node, they will be pushed onto the system node's part list.
- *Device Detail List* – This column type allows the user to select a list of Device Detail images for the part number that the column is linked to.
    - Refer to the *Designer Module User's Guide* for more information on Device Detail Drawings.
- *Device Detail Reference* – If a Device Detail List column is included, this read-only column will be updated with the associated Reference tags when the Device Details drawing is generated.

- Refer to the *Designer Module User's Guide* for more information on Device Detail Drawings.

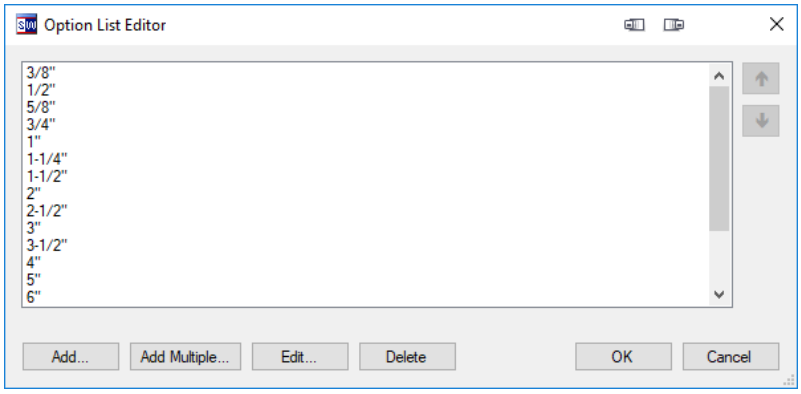
Option List Properties

When the Data Type is set to Option List, there are other properties available:

- *Allow Empty Value* – If *True*, the user will be able to select a blank (empty) value at the top of the list. If *False*, one of the values in the *Option List* will always be selected.
- *Allow Free Form* – If *True*, the user will be able to enter a custom value in addition to selecting from the items in the *Option List*. If *False*, only the values in the list will be allowed.
- *Option List* –used to set the values that will be available in the drop down list when the user edits the schedule data. Click the ellipsis button to the right side of the property grid entry to edit the values.



The Option List Editor lets you specify the items to be shown.



- Click ADD MULTIPLE to add more than one item at a time, or to paste the values from a spreadsheet.
- Use the arrow buttons to reorder the items.

Calculated Columns

The *Calculation Type* property allows you to specify a calculation to use to automatically fill in the values of the column or to associate the column with another Part Number field.

The calculations can include:

- *Calculation* – Lets you specify a custom *Formula*, similar to a spreadsheet formula.
    - The formula can reference other columns by their Column Reference (A, B, C) or Global Properties by their name (D1, I2, B1, etc.).
    - Columns are recalculated left to right, so you should only reference columns to the left of the one being calculated.
    - They can also use a wide range of functions and operators. Refer to the *Expression Language Guide* available from the HELP menu
- *Linked Part Field* – Points to a separate Part Number column and displays an associated value (e.g., *Description*, *Net Cost*) for the selected part in each row. Select the field to display from the *Part Field* property.
    - Different fields are available depending on the column's data type (e.g., *String* or *Double*)
    - Refer to the next section on *Part Number Properties* for more details.

You can also select options that indicate the column is a parameter (*Quantity, BOM Tag, Net Cost,* or *Is Non-Taxable*) to associate with a Part Number columns

- *Part Quantity Field* – The column's data type must be *Integer* or *Double*.
- *BOM Tag Field* – The column's data type must be *String*.
- *Part Non-Taxable Field* – The column's data type must be *Boolean*
- *Part Net Cost Field* – The column's data type must be *Double*.

Refer to the later section on *Part Number Properties* for more details.

Part Number Properties

A common use for a schedule is to create a list of parts (e.g., Valve Schedule). These parts can transfer to the Parts tab of the schedule node, which adds them to a Designer project or Estimate when used within them.

Schedules have a number of properties designed to work with Part Number columns.

Part Number Columns

A column intended to contain a Part Number should have its *Data Type* set to *Part Number*. It will then offer the user a button to open one of the part browsers, and other features based on the following properties:

- *Show Part Browser* – If *True*, the user will see an ellipsis button that will bring up a Part Selection form, similar to those available from the TOOLS→PARTS menu browsers.
- *Part Table* – Specifies the table of parts to select from (*All Parts*, *Valve Bodies*, *Actuators* or *Valve Assemblies*).
- *Part Find Filter* – Specifies the default filter to use when the part list is shown to the user. Use * and ? as wildcards, as in "VS*" for all parts beginning with 'VS'
- *Copy to Parts List* –When this property is set to *True* then the selected part will be added to the schedule node's *Parts* tab (or the specified system's *Parts* tab if there is a *System Name* column).
- *Show Accessory Button* –When set to *True* the accessory icon (small 'a') will be displayed in the part number cell if there are accessories available for the selected part. Clicking on the icon will allow the user to add accessory rows.
    - When you add accessory rows, they will be attached to the part row.
    - If you move the part rows around in the schedule grid, then the associated accessories will move along with it.
    - Deleting the part's row will also delete any associated accessory rows.

Columns Linked to Part Numbers

You can create read-only columns that show additional properties of the selected Part Number, such as the part's *Description* or a valve body's *Actual Cv* value. These columns serve as useful information to the user and help confirm they've selected the correct part.

To create a linked column:

- Set the *Calculation Type* property to *Linked Part Field*.
- In the *Linked Part Number Column* property, select the name of the associated Part Number column.
- Set the *Part Field* property to the name of the field in the Part Number's table that should be displayed. The available values depend on the data type of the linked column.

Associated Column Values

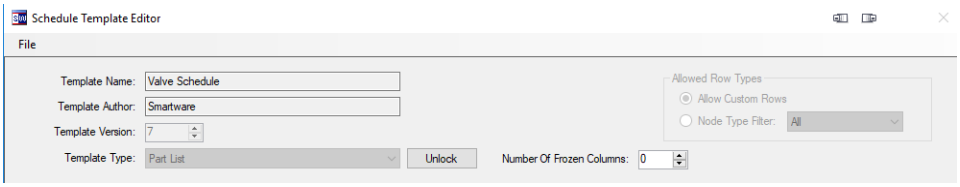
There are a few additional parameters (*Quantity*, *BOM Tag*, *Net Cost*, and *Is Non-Taxable*) that can be added to a schedule to associate with the Part Number. These parameters will be copied to the Parts tab along with the Part Number.

To associate these columns with the Part Number column:

- Set the *Data Type* to the appropriate type.
- Set the *Calculation Type* to one of the following:
  - *Part Quantity Field* – The column's data type must be *Integer* or *Double*.
  - *BOM Tag Field* – The column's data type must be *String*.
  - *Part Non-Taxable Field* – The column's data type must be *Boolean*
  - *Part Net Cost Field* – The column's data type must be *Double*.
- In the *Linked Part Number Column* property, select the name of the associated Part Number column.

Schedule Header Properties

The top portion of the Schedule Template editor contains the *Header Properties*.



Versioning Properties

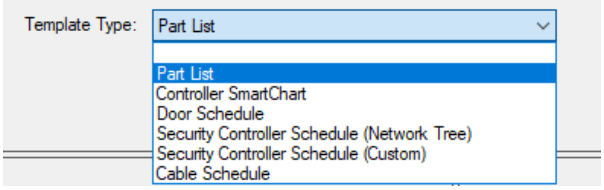
There are three properties that make it possible for schedules created using a template can be upgraded to account for new columns, new calculations, or bug fixes.

When looking for updates, the system compares the schedule's *Template Name* and *Template Author* fields to those in the schedule template library. If both are the same, it compares the *Template Version* numbers. If a higher version is available, the schedule will offer the user to upgrade the schedule, as described in the earlier section *Updating a Schedule's Template*.

- If you create a custom version of a pre-defined stencil (e.g., your own *Valve Schedul*e) and you want to be able to control the versioning and upgrading yourself, change the Template Author field to prevent it from being seen as an upgrade to the original template.

Other Header Properties

The *Template Type* property is used to enable advanced functionality in the schedule and is generally something set in the pre-defined templates. For example, a type of *Part List* tells the schedule to scan the rows for Part Number fields and transfer the data to its Parts tab.



- If you're making a custom version of an existing schedule, you'll probably want to keep this value the same as the original.

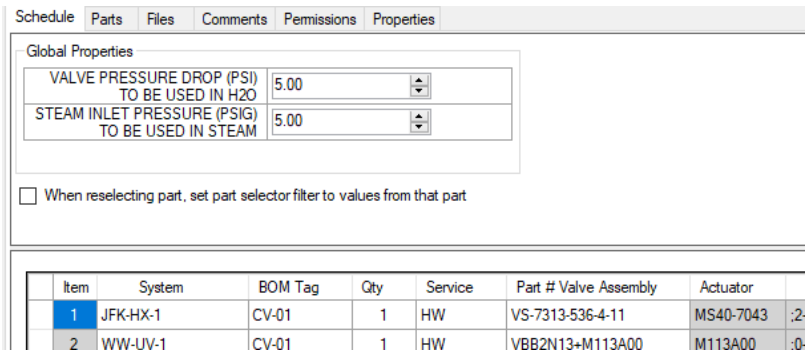
The *Allowed Row Types* property determines whether the rows of the schedule are Custom (*Allow Custom Rows*) and stored with the schedule or come from Network Tree device nodes (*Node Type Filter*).

- Refer to the earlier sections *Creating and Working with Schedule Rows* and *Network Tree Schedules* for more details on the differences.
- The *Node Type Filter* value allows you to restrict the types of nodes that can be added to the schedule (e.g. *Devices*, *BACnet Device*).

Set the *Number of Frozen Columns* property if you have a large number of columns in your schedule and want to freeze one or more of the left-most columns so that they stay fixed and visible when the user scrolls right to see additional columns.

Global Properties

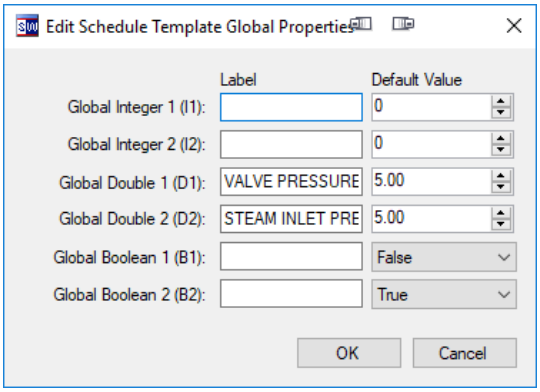
Global Properties are a fixed set of values that can be shown on the top of the schedule for the user to change.



These values can be used in the calculations in the schedule rows. If the user changes a global value, all the rows are calculated accordingly.

- For example, these values are parameters to the *Calculated Cv* column in the *Valve Schedule*.

To configure the global parameters, click THE EDIT GLOBAL PROPERTIES button:



- There are six global parameters – two each of three data types (Integer, Double, Boolean) – named *I1*, *I2*, *D1*, *D2*, *B1* and *B2*.
    - Use these names in the formula for a calculated column to reference the values.
- By specifying a value for a *Label*, that parameter will appear on the schedule editor.
- You can also specify a *Default Value* for each.

Distributing Schedule Templates and Reports

All the schedule template files are stored in a folder on the workstation. In this folder there are:

- The schedule template files (with a *.stsch* extension, as in *Valve Schedule.stsch*).
- Optionally, a folder with the same name containing the report templates for the schedule.

For example, they might be stored in the folder with this structure:

Valve Schedule.stsch
\Valve Schedule
Valve Schedule.xls
Our Valve Schedule.xls

If you create custom templates or modify existing ones, be sure to rename them and store them in a similar structure.

- If you click RUN REPORT, one of the options on the form will open the schedule's folder.
- Refer to *the Setup and Administration Guide* chapter on *Libraries, Templates and Distributions* for details on where to store the template files and reports so they can be shared by all the users in your company

Versioning for and Distributing Updated Schedule Templates

As detailed in the earlier section on *Schedule Header Properties*, there are three properties that control when and how a schedule is updated: Version Name, *Version Author* and *Version Number*.

To distribute an updated version of a template, you'll want to:

- Create a new schedule node and select the current version of the template.
- Make the changes you want to the columns and other properties in the Template Editor.
- Increase the *Template Version Number*.
- Click EXPORT TEMPLATE and save the *.stsch* file with a different file name (so as to not overwrite the current one yet).

You can test the upgrade process by again creating a new schedule node from the old version of your template. If everything is correct, it should detect your new version as an available update. Test the update on a schedule with data to make sure it's working properly.

Once it's working, you can rename it to use the same name as the original template.

To share this file with other users, copy it to the appropriate server folder so it will update on all users' machines. They will then see the option of the upgrade when working with existing schedules created from the template.

- Refer to *the Setup and Administration Guide* chapter on *Libraries, Templates and Distributions* for details on where to store the template files and reports so they can be shared by all the users in your company

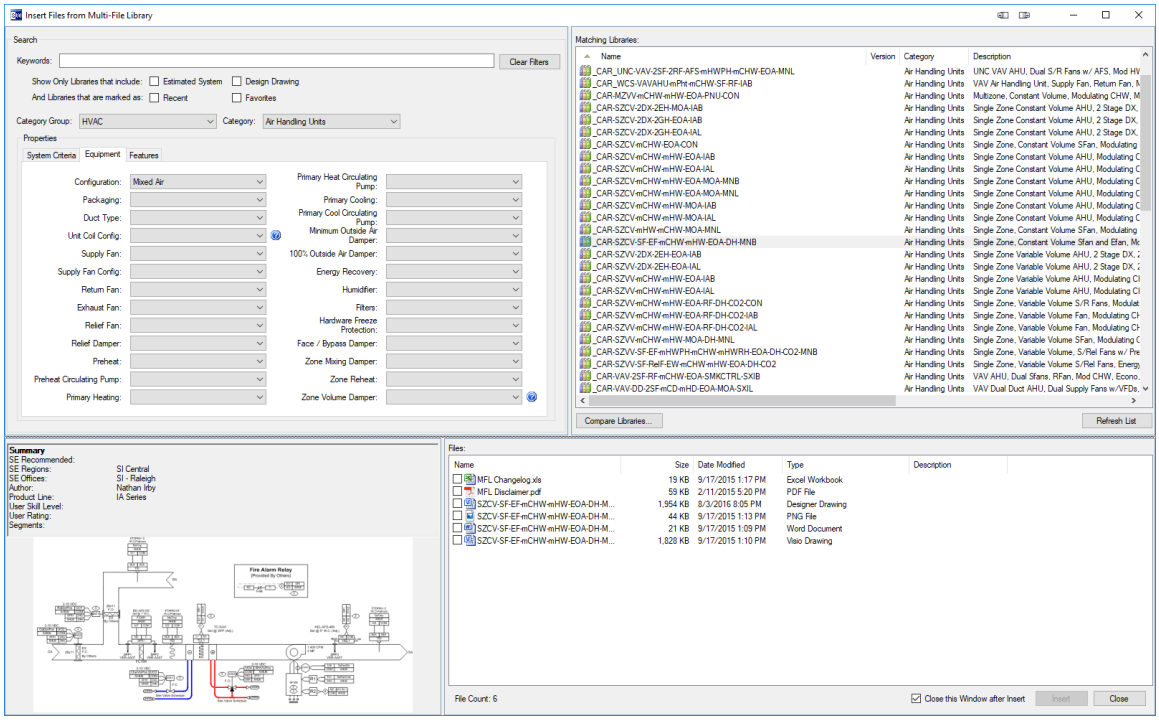
11. Multi-File Libraries (MFLs)

Multi-File Libraries (MFLs) are essentially zip files that contain a set of related documents, often for a single system such as an Air Handling Unit. These files might include Designer drawings, estimated system nodes, sequence documents, and graphic images.

- MFLs are distributed by Schneider Electric to your company's server, and then copied onto your workstation.
- You can create custom MFLs to use yourself or to be distributed to others in your company
- For more information on distributing custom MFLs, refer to the *Setup and Administration Guide* chapter *Libraries, Templates and Distributions*.

Inserting Files from an MFL

To browse and insert files from the Multi-File Library right-click in the blank area of the Files tab, or on a node in the Project or Network Tree and select INSERT FILES FROM MULTI-FILE LIBRARY.



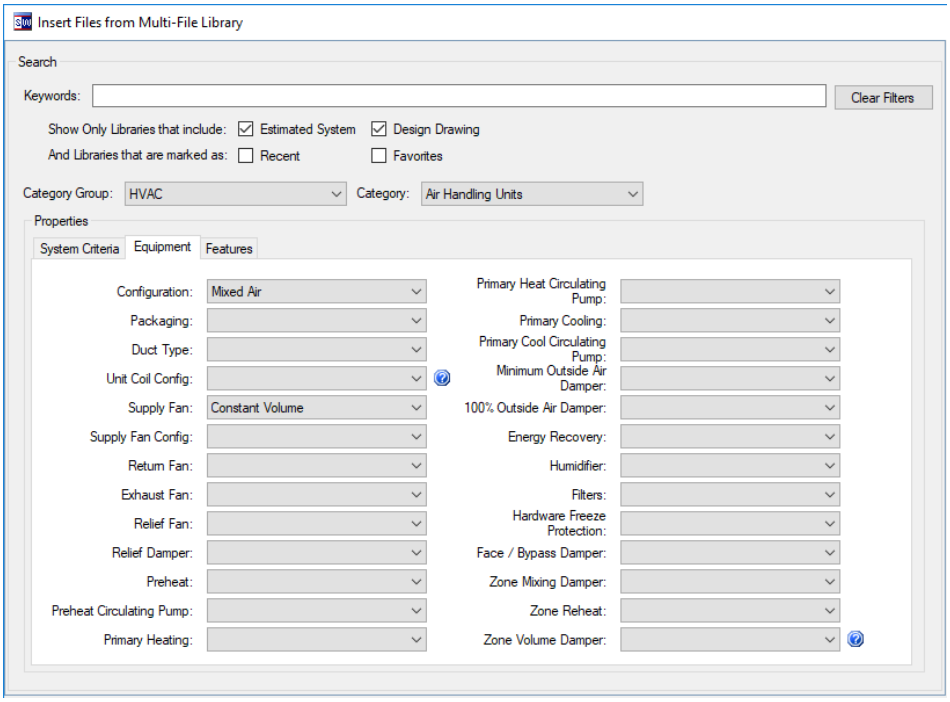
The MFL Browser has four sections:

- The upper-left section shows various controls that allow you to filter and search the MFLs.
- The upper-right section shows a list of the MFLs. If any of the filters are selected, only the MLFs that match will be shown.
- The lower-left section shows a summary of the properties of the selected MFL. If there is a preview image in the MFL, it is shown as well.
- The lower-right section shows a list of the files in the selected MFL.

To insert one or more files onto the current node in the project, check the boxes next to each file and click INSERT. Alternatively, you can simply DRAG AND DROP or COPY AND PASTE any file from the MFL's file list directly to a folder or project within Smartware Studio or Windows.

Filters

There are a number of ways to filter the MFL list:



- Specify one or more *Keywords* to search in the name and description of the MFL
- You can choose to Show Only Libraries that Include an Estimated System or a Design Drawing as one of their files.
- You can filter to the most *Recent* MFLs to find ones you've used recently.

- You can filter to only those that you have marked as a *Favorite*.
    - You can mark an MFL as a favorite by right-clicking on it and selecting MARK AS FAVORITE.

The MFLs are organized into *Categories*, such as Air Handler Units and *Hot Water Systems*. The Categories are also grouped together into *Category Groups*, such as HVAC and Fire

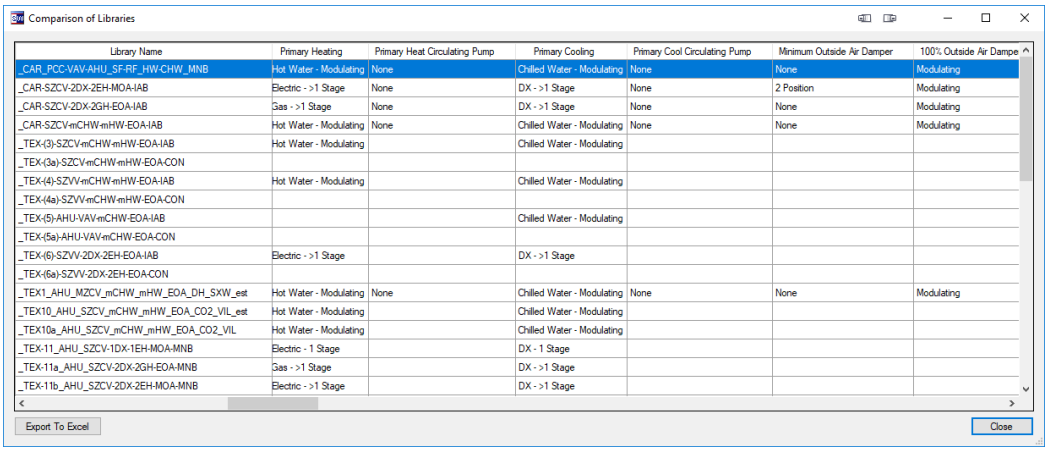
There are also three tabs of additional properties:

- *System Criteria* contains metadata fields such as Author and *ASHRAE Climate Zones*.
- The *Equipment* and *Features* tabs will change depending on the selected Category, and are related to hardware and software features of the system.

Comparing Libraries

Once you have filtered the MFL list down to a smaller number of matches, you can create a report that shows the specific property values for each of the systems to make them easier to compare.

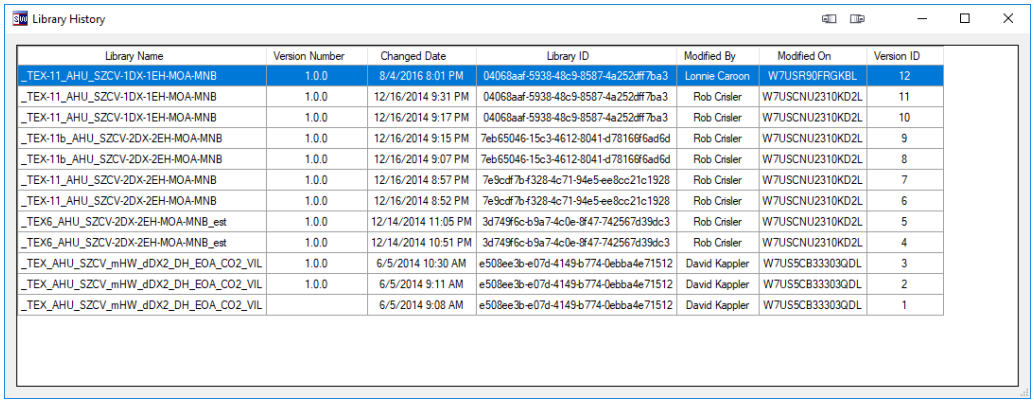
- Click the COMPARE LIBRARIES button beneath the MFL list.



Library History

Every file that is added to a library maintains a history of the libraries and versions it was part of. This makes it possible to track down all the places where a specific file was used (e.g. as a software application that was later found to contains an error), even if was duplicated, modified or added to a new library.

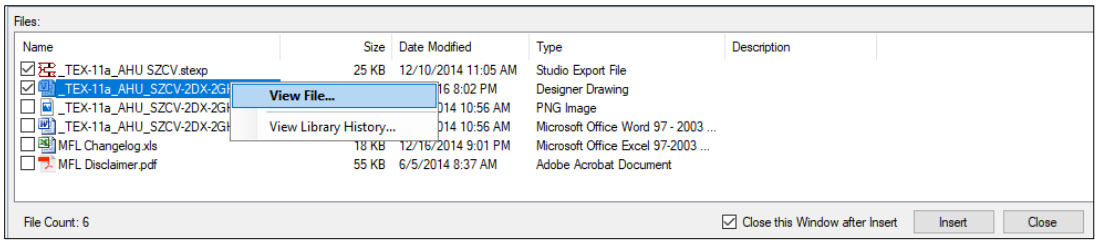
- To view the MFL's history, right-click on it and select VIEW LIBRARY HISTORY.



- Every MFL is given a unique ID. Every file carries the history of the files it was in and the dates the file was changed.
- To search all the projects in your server for instances of files that came from a specific library by ID or set of properties, go TO ADMIN→SERVER CONFIGURATION AND TOOLS, and on the *Files and Projects* tab, click the SEARCH FILES button.
    - Refer to the *Setup and Administration Guide* chapter *Managing Service Files and Projects* for more information.

Viewing and Inserting Files

To insert one or more files onto the current node in the project, from the lower-right section of the MFL browser, check the boxes next to each file and click INSERT. Alternatively, you can simply DRAG AND DROP or COPY AND PASTE any file from the MFL's file list directly to a folder or project within Smartware Studio.

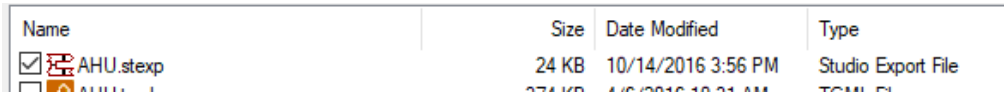


- After adding the files, the window will close. You can keep it open to add files from a different MFL by unchecking the CLOSE THIS WINDOW AFTER INSERT checkbox.
- To view a file without inserting it, right-click on the file and select VIEW FILE.
    - For a Studio export (.stexp) of a System node, viewing it will bring up the system in a Package Viewer to show all the parts, points and labor.
- To view the file's history of the MFLs and versions it was contained in, right-click and select VIEW LIBRARY HISTORY.

Inserting Project Tree Nodes from an MFL

Some MFLs contain files that represent a node that can be added to your project tree, such as a fully estimated System node that can be added to an Estimate. This node contains completed Parts, Points and Labor lists, and perhaps other values. Inserting this file adds a copy of this node to your Estimate.

- These files will be listed with the other files with the type *Studio Export File* and a file extension of *.stexp*.



- Refer to the earlier chapter on *Working with Folders and View Items* for more information about Studio Export Files.

For System nodes specifically:

- The *Comments* tab of the new System node will note the library's details.
- The price of the parts (*e.g. List Price* and *Discount Multiplier*) will automatically be updated to the values in the user's Parts Database.
- Some Systems are automatically locked to prevent inadvertent changes without them being noted. Such locked systems will appear with a small lock icon on its icon in the tree. To unlock the system for editing, right-click on it and select UNLOCK NODE.
    - A note will automatically be added to the *Comments* tab.

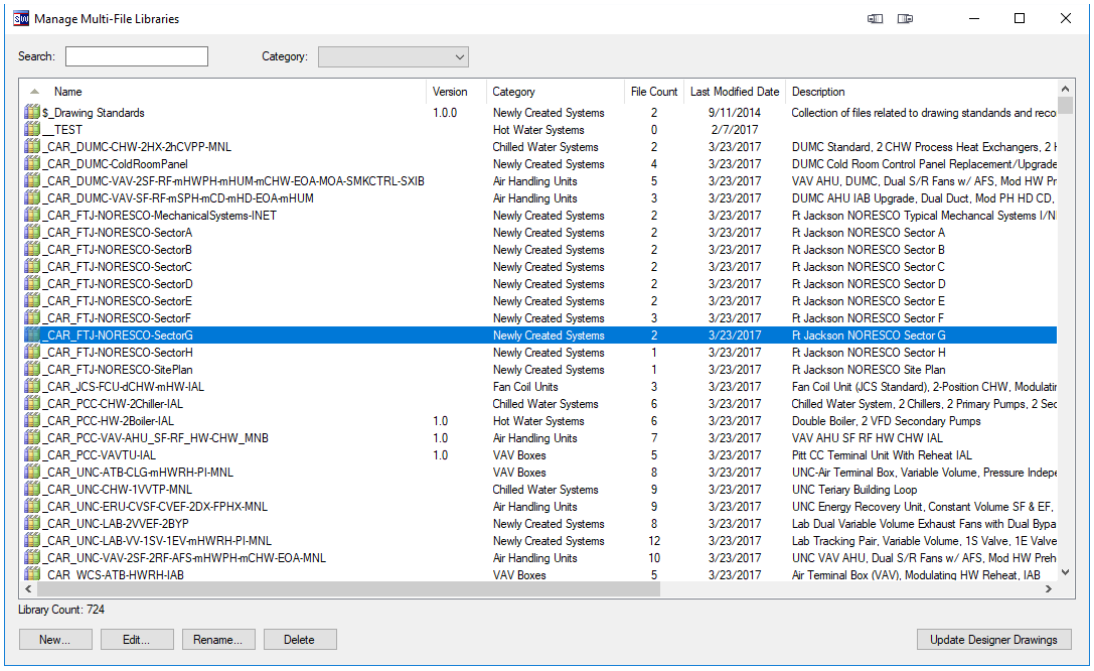
Creating and Editing MFLs

As well as working with MFLs supplied by your company or Schneider Electric, you can also make your own MFLs to organize your standard systems and share them with others in your organization. You can also duplicate and edit an existing library to add to it or customize it to meet your needs.

- For more information on distributing MFLs to your organization, refer to the *Setup and Administration Guide* chapter on *Libraries, Templates and Distributions*.

Managing MFLs

To manage your MFL library, select TOOLS→LIBRARIES→MANAGE MULTI-FILE LIBRARIES:



This list shows all the MFLs stored on the local machine. This will include local *copies* of any MFLs distributed by your company or Schneider Electric.

- You cannot directly edit or modify (intentionally or accidentally) the server versions of the MFLs from this list.
- You should try not to modify the local copy of an MFL that was distributed to you. If an update is made on the server, that new version will overwrite your changes. Instead, you should duplicate the MFL and edit your custom version.

Right-click on an MFL for most options (EDIT, RENAME, DUPLICATE, DELETE, VIEW HISTORY), or select the MFL in the list and use the buttons below the list.

- To create a new MFL, click the NEW button.

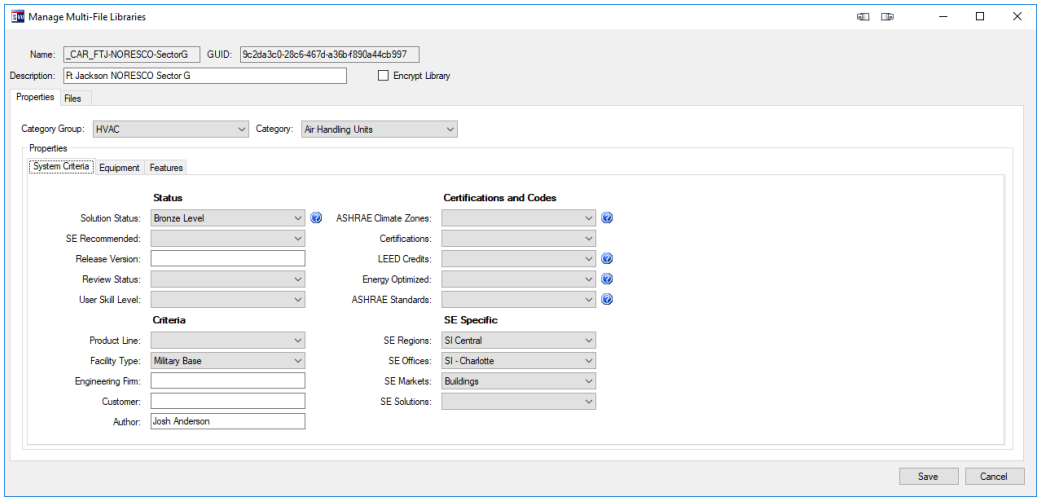
Creating an MFL from a Folder

You can also create an MFL from an existing folder, which will automatically add a copy of all files on that folder.

- Right click on a node containing files and select EXPORT→EXPORT TO MULTI-FILE LIBRARY.
- The MFL will be created in your local library, and you will be given the opportunity to edit its categories and properties.

Editing an MFL

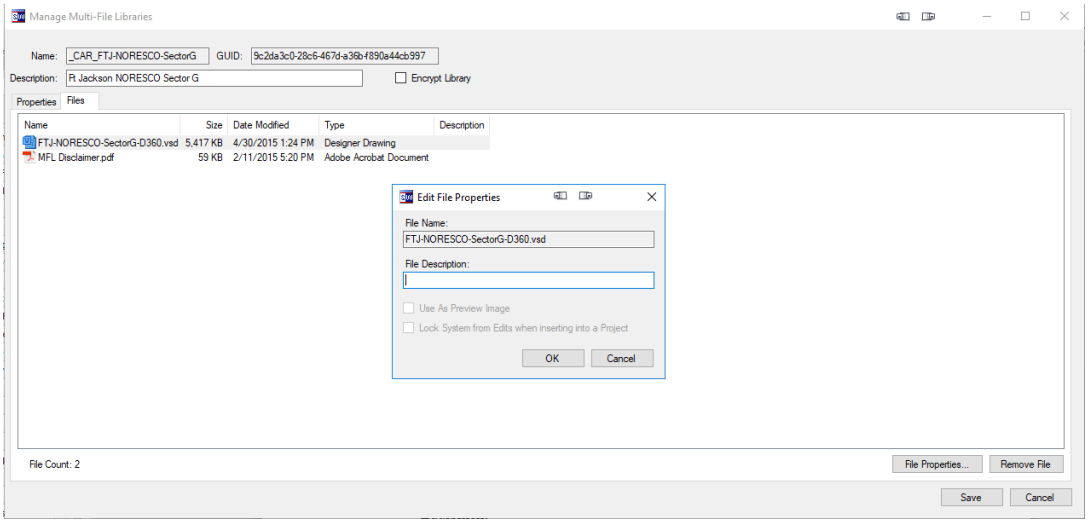
When editing an MFL, you will see a view that shows its Properties and Files:



- You can set any of the properties in the same manner as when using them to search.
- The *Release Version* property is shown when browsing the MFLs
- If you choose the ENCRYPT the library, it will become a password protected .zip file and will only be openable from within Smartware Studio. You *cannot* choose the password.
- The *Library ID* should generally not be changed manually.

Adding and Editing Files

Selecting the *Files* tab shows you a list of the files in the library:



- You can add files to the MFL by dragging them from Windows or another Studio project onto the files tab or doing a Copy and Paste.
    - To update an existing file, simply drag or paste a new version with the same file name.
- To remove a file, right-click it and select REMOVE FILE. You can also multi-select to remove multiple files at once.
- Select a file and click FILE PROPERTIES (or right-click and select FILE PROPERTIES) to edit the *File Name* and *Description*.

The Preview Image

When browsing for an MFL, a preview image is generally shown in the lower-left portion of the form.

- If there is only one image file, it is automatically shown.
- If there are multiple image files, you can specify which to show by right-clicking on the file, selecting FILE PROPERTIES, and checking the USE AS PREVIEW IMAGE checkbox,

Updating Designer Drawings

As MFLs that have Designer Drawings in them get older, more of the shapes in the drawings will need to be updated when the file is added to a new project. These updates will happen automatically the first time the first is opened, but eventually you may want to update the files in the MFLs themselves.

- To update the drawings in one or more MFLs, select them in the MFL list and click the UPDATE DESIGNER DRAWINGS button.

Adding Node Exports

MFLs can contain a *Studio Export* file (.stexp), which is a copy of a node from the Project or Network tree. A common case is a System node from an Estimate or Designer System Tree, which can then be inserted into a new Estimate.

- The export file can contain sub-nodes as well.
- If the project is not checked out, you will be prompted to do so.
- The data from the node's tabs (e.g., *Properties*, *Parts*, *Points*, *Labor*, *Comments*) will be part of the export, but *Files* will not.

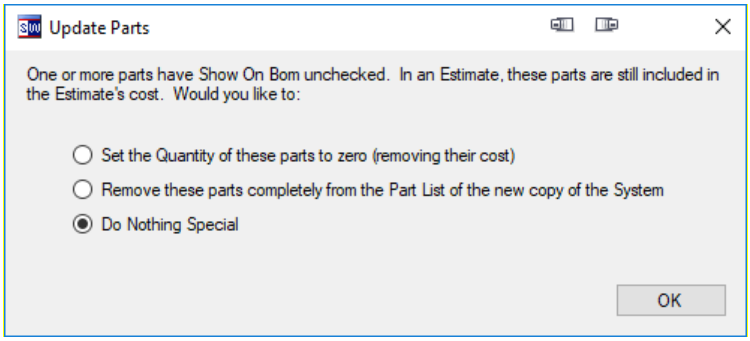
To add a node to an MFL as a Studio Export file:

- Copy/Paste or Drag/Drop the node onto the Files tab of the library when you are editing it.
- Right-click on a node and select EXPORT→EXPORT TREE NODES. This will create a .stexp on the *Files* tab of that node, which you can copy into the MFL.

When you export System nodes and add them to an MFL, there are a few special consideration and options:

- You will be given the option to remove pricing information from any parts in the export.
- For the purposes of tracking, you can flag the System such that when it is inserted into an existing Estimate, the system will be "locked" from edits until explicitly unlocked.
    - To flag the system to require explicit unlocking, select the file in the Files tab, click FILE PROPERTIES, and check the option for LOCK SYSTEM FROM EDITS WHEN INSERTING INTO A PROJECT.
    - Once added to the project, the locked system is read-only and will appear with a small lock icon. To unlock the system, the end-user must right-click on it and select UNLOCK NODE. A note will automatically be added to the *Comments* tab.

- If any of the parts have the *Show on BOM* option unchecked, you will be given a few additional options to ensure these are handled correctly:



Submitting User MFLs for Approval

Users who create their own MFLs can submit them to be reviewed and approved by an administrator.

- Create and edit the libraries from TOOLS→LIBRARIES→MANAGE MULTI-FILE LIBRARIES.
- Right-click on the Library to submit and SELECT SUBMIT LIBRARY FOR APPROVAL.
- Your Parts Database Administrator can then approve it, which will make it part of the library distributed by your company to all the users.
    - For more information on approving and distributing MFLs to your organization, refer to the *Setup and Administration Guide* chapter on *Libraries, Templates and Distributions*.

12. The Parts Database

The Studio Parts Database contains parts maintained Smartware and by your company Parts Database Administrator and distributed to all the users in your organization.

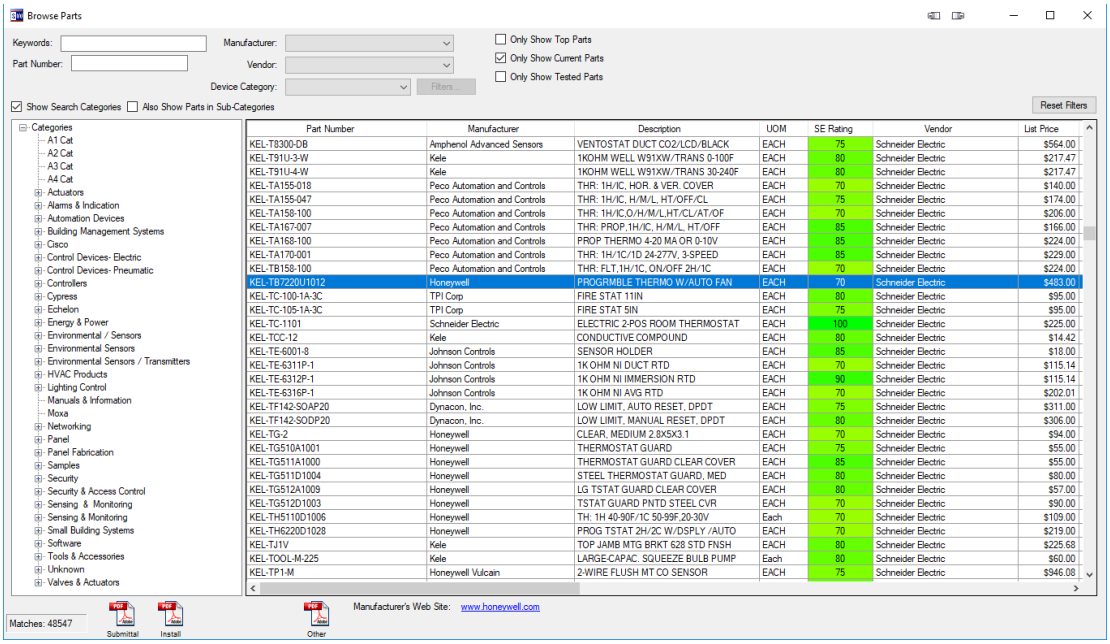
- You can browse these parts to find pricing and documentation.
- You can add your own User Parts to use only on your workstation.
    - These parts can also be submitted to your Parts Database Administrator for approval and inclusion in the main database.
- You can also create custom Part Packages for use in Estimates.

For full details on Parts and managing the Parts Database, refer to the *Setup and Administration Guide* chapter on *The Parts Database Manager*.

Browsing Parts

You can view the list of parts and search them in a wide variety of ways with the *Part Browsers*

To view all the parts, select TOOLS→PARTS→BROWSE ALL PARTS.



- You can filter by *Keywords*, *Manufacturer* and *Vendor*.
- You can scroll to a specific *Part Number*.
- You can *sort* by any column by clicking on the column heading.

- You can filter to just your Company's *Top Parts.*
- The list is normally filtered to only show *Current* parts. Uncheck the box to show obsoleted parts that are still in the database.
- If you right-click on the part, there are additional options, such as VIEW PART (to see more details about the part), AND COPY TO CLIPBOARD.
- When there are Part Information PDFs (cut sheets) available, the PDF icons appear in the lower left. Click them to view the PDF.
    - Parts can define *Submittal*, *Installation*, *Reference* and *Programming* PDFs.

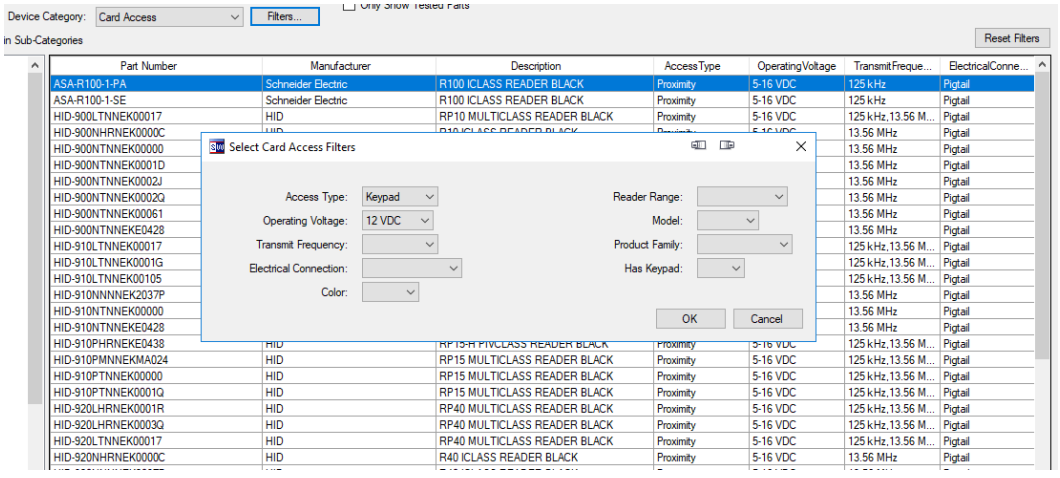
Search Categories

If you check the SHOW SEARCH CATEGORIES checkbox, the *Search Category Tree* is shown on the left side.

- Clicking on a category filters the list to just the specific category (and not any sub-categories).
- Check the ALSO SHOW PARTS IN SUB-CATEGORIES checkbox to have the list also include parts in the sub-categories.

Device Categories

Another filter property is *Device Category*. Each type of Device defines additional properties that are specific to that type of device. One category of device in the database is *Card Access*:



- To filter to a category, select in the list.
- To further filter by the properties in that category, click the FILTERS button next to the category.

Other Part Browsers

There are also special browsers for Valves and Actuators and for Sensors.

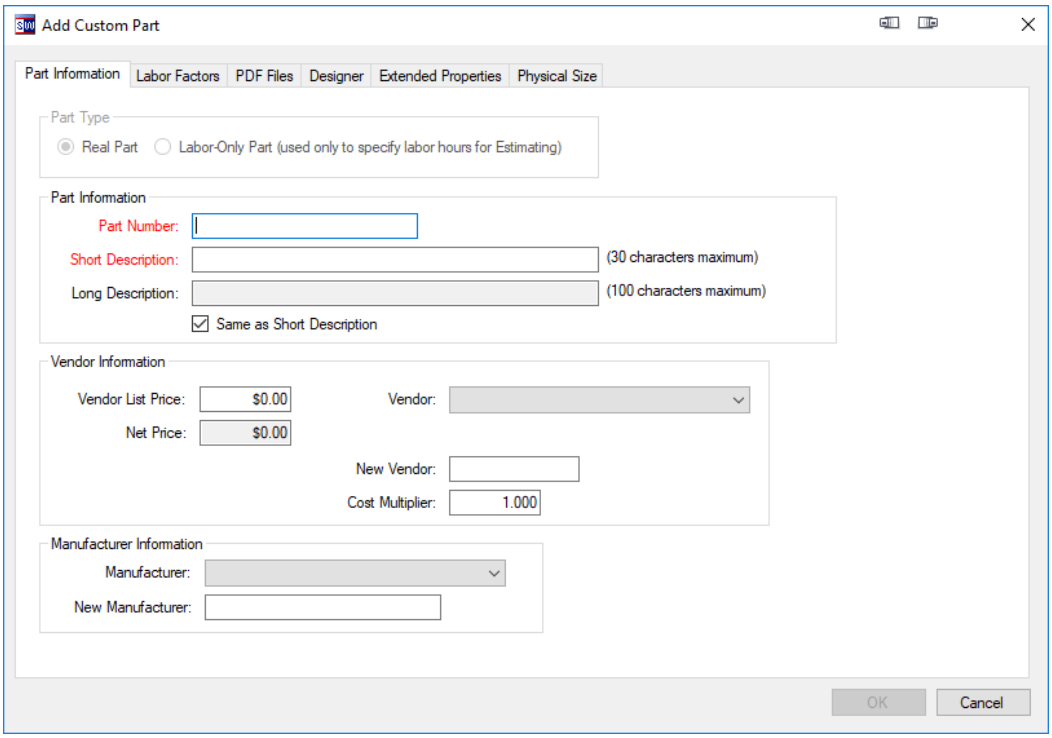
- TOOLS→PARTS→BROWSE VALVES AND ACTUATORS
- TOOLS→PARTS→BROWSE SENSORS

User Parts

Users can create their own parts to use in certain features, such as the Estimating Module.

- When browsing parts to add to a System, there is a tab called MY PARTS which shows their User Parts and allows them to manage them.
- User Parts can also be added and managed by selecting TOOLS→PARTS→MANAGE MY PARTS.

To create a new part, click the NEW PART button. The *Add Custom Part* form will be displayed:



- Most of the fields, other than *Part Number* and *Description*, are optional.
- You can specify labor factors on the LABOR FACTORS tab.

Submitting User Parts for Approval

If you think a part should be available to all users in the Company, you can submit them to the Part Database Administrator.

- To *submit* a User Part, select it in the list and either click the SUBMIT FOR APPROVAL button or right-click and choose the SUBMIT FOR APPROVAL menu item.
- Your Parts Database Administrator will need to go to the Parts Database Manager to *approve* the part and add it to the main database.
- You can un-submit and edit a part, or resubmit a rejected part, in the same manner.
- The status of the approval is shown in the User Parts list.
- When a part is approved, it will appear in the main Parts Database list. It will not, however, be deleted from the My Parts list unless your explicitly delete it.

Transferring the User Parts Database

Your User Parts are stored on your workstation in a file called *PzUser.mdb*. If you change computers, you will want to copy this file from the old machine to the one.

- To access the folder containing this file, go to TOOLS→OPTIONS and select the *Parts Database* tab.

User Part Packages

Part Packages are sets of parts with accompanying points and labor that can be added to an estimate as a unit. Users can create their own packages as well.

- When browsing packages to add to a System, there is a separate folder for User packages.
- For full details on creating and managing Part Packages, refer to the *Setup and Administration Guide* chapter on *The Parts Database Manager*.

To create and manage your own Part Packages, select TOOLS→PARTS→MANAGE MY PACKAGES.

13. Configuration and Options

There are numerous options to control how Studio looks and operates, as well as how it performs in different network conditions.

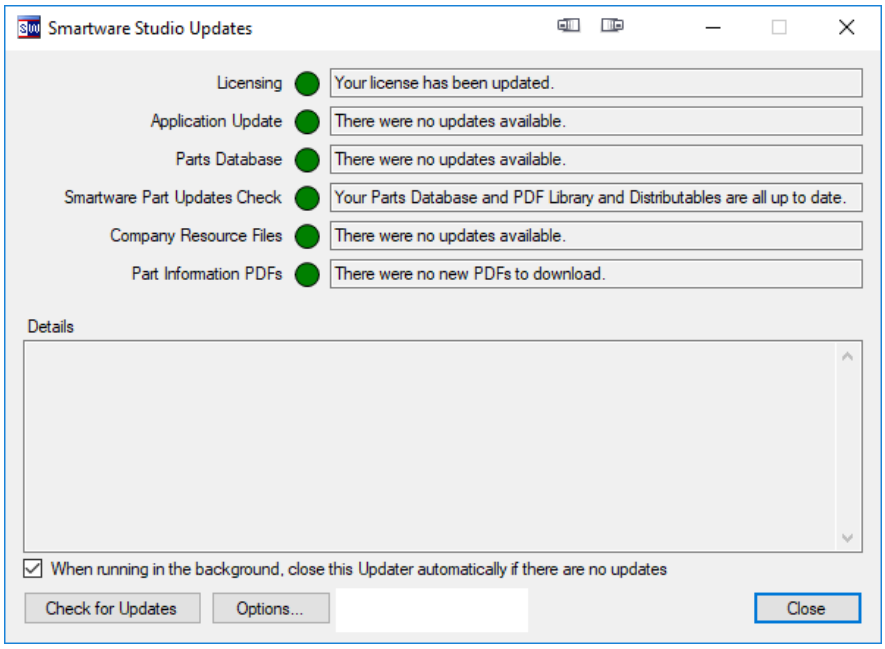
- For more details on most of these, refer to the *Setup and Administration Guide* chapter on *Configuring a Smartware Studio Workstation*.
- To change the options, select TOOLS→OPTIONS and review the various tabs.
    - The *Workstation* tab has the most common user options you might want to change.

Checking for Updates

Most of the updating for Studio occurs in the background. When Studio launches for the first time in a day, it will start its Updater automatically. When it's running, it will appear as an icon in your Windows System Tray.

If you wish to receive updates immediately (e.g., your Parts Database administrator has added new parts you wish to use), you can run them at any time.

- Select TOOLS→CHECK FOR UPDATES. The updates will run immediately:



Selecting Downloadable Files

You can control which of the downloadable resources (Part Information PDFs, Multi-File Libraries) are automatically copied to your workstation.

- Go to TOOLS→CHECK FOR UPDATES and click OPTIONS; or
- From TOOLS→OPTIONS, go to the *Local Files* tab and click DOWNLOAD OPTIONS.