

PTC®



Learn.



Create.



Collaborate.



Succeed.

Practical Guide

PTC&FIRST Robotics Competition



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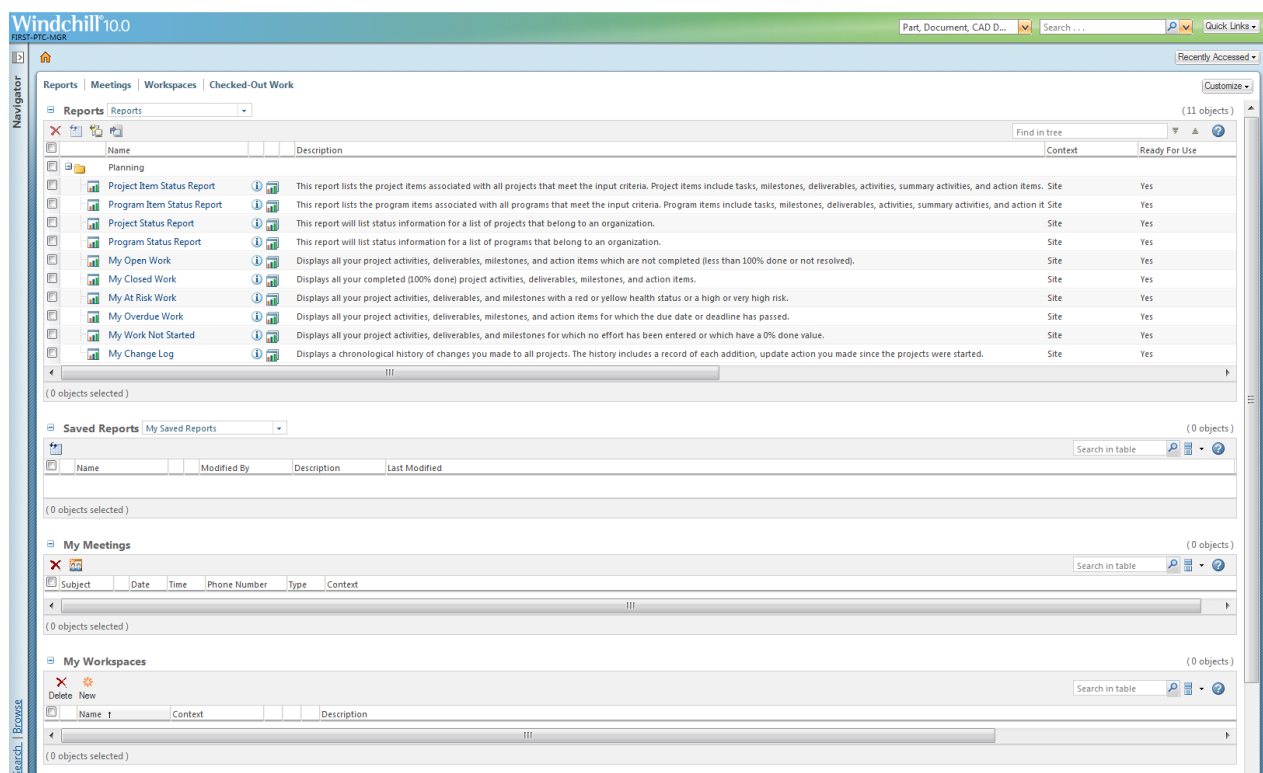
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Thank you for your interest in using PTC software for the 2011-2012 FIRST Competition. This guide will help you get started with Windchill 10 PDM/ProjectLink with your FIRST team, as well as, Creo (for CAD design) and Mathcad Prime (for engineering calculations).

Getting started with Windchill ProjectLink

Congratulations, you have successfully registered your team for a collaboration workspace in Windchill 10 PDM/ProjectLink. Whether you are the Project Manager or a team member, you will be able to utilize and take advantage of all the capabilities of Windchill 10 PDM/ProjectLink. Before we begin, it would be a good idea to provide an introductory overview of the tool that will be your design environment throughout the FIRST competition.

Note: Windchill ProjectLink is accessed through the Internet. Internet Explorer and Mozilla Firefox are supported with Windchill PDM/ProjectLink 10.0.



Windchill PDM/ProjectLink is a tool that enables organizations to more easily execute projects, and allows effortless collaboration among members of extended FIRST teams. It facilitates innovation by providing a web-based product development platform with all the tools necessary to bring globally dispersed design teams together as if working in the same room.

With Windchill PDM/ProjectLink, it has never been easier to engage the whole FIRST team. Teams are offered the opportunity for faster, smarter robot development that yields better products on time and within budget.

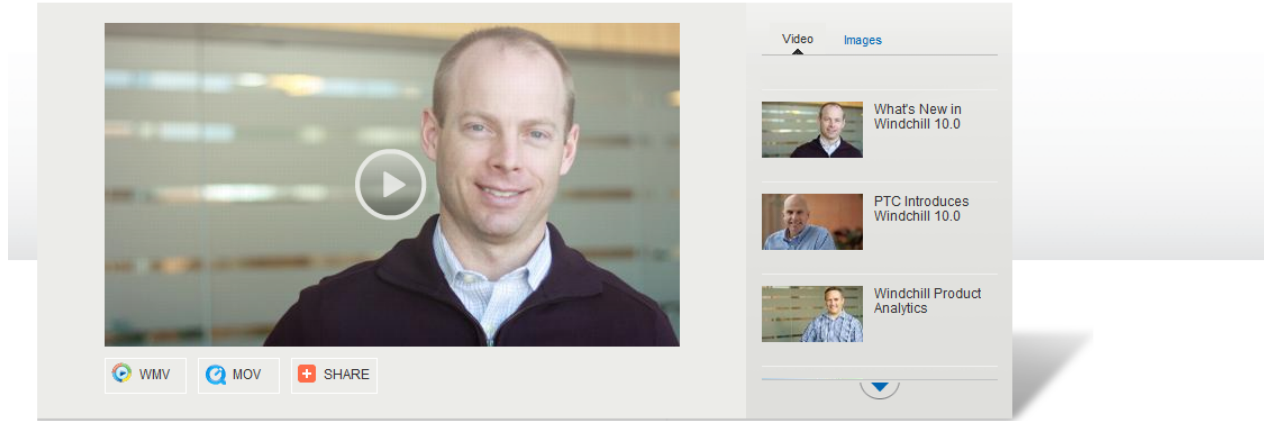
Windchill PDM/ProjectLink provides the proven solution manufacturers need to support product development collaboration, and project management and execution during every step of the product lifecycle.

- Simple, easy-to-use interface and light weight visualization enables effective collaboration with cross-functional internal teams – as well as suppliers, manufacturing partners, and customers

- Powerful collaboration facilitated through discussion forums, automated change notices, subscription, notification, and project management tools
- Connected with Creo, Autodesk Inventor and Solidworks
- Optimize critical processes such as: product development, collaboration, project management and execution

For more information on Windchill PDM/ProjectLink 10.0, please review the information [here](#).

Windchill 10.0



Extends PLM with Product Analytics and Quality Lifecycle Management, Delivers Acclaimed User Experience

Windchill 10.0 is the most significant Windchill release in PTC's history with powerful new capabilities for configuring, validating and controlling product structures and service information. Plus, a new user experience and improved system administration make Windchill easier than ever to use and maintain, allowing broader adoption and greater value realization.

Do More with Structured Product and Service Information Management	+
Know More through Comprehensive Product Analytics and Quality	+
Get More from Enhanced Usability, Maintainability, Upgradeability	-

- Dramatically improved user experience
- Quick learning curve and expands adoption among casual users
- Modern and pleasing user experience drives productivity and satisfaction for experienced users
- Easier upgrades, enhances administrative support, and robust new system monitoring tools improve maintainability and lower the total cost of ownership

"Windchill 10.0 represents a sea change in usability. The amount of user research that PTC did was prodigious and impressive. And clearly they successfully applied

MAP YOUR BEST ROUTE TO PRODUCT DEVELOPMENT SUCCESS

By Jim Happelmann, President & CEO of PTC

[DOWNLOAD BOOK](#)

Related Resources

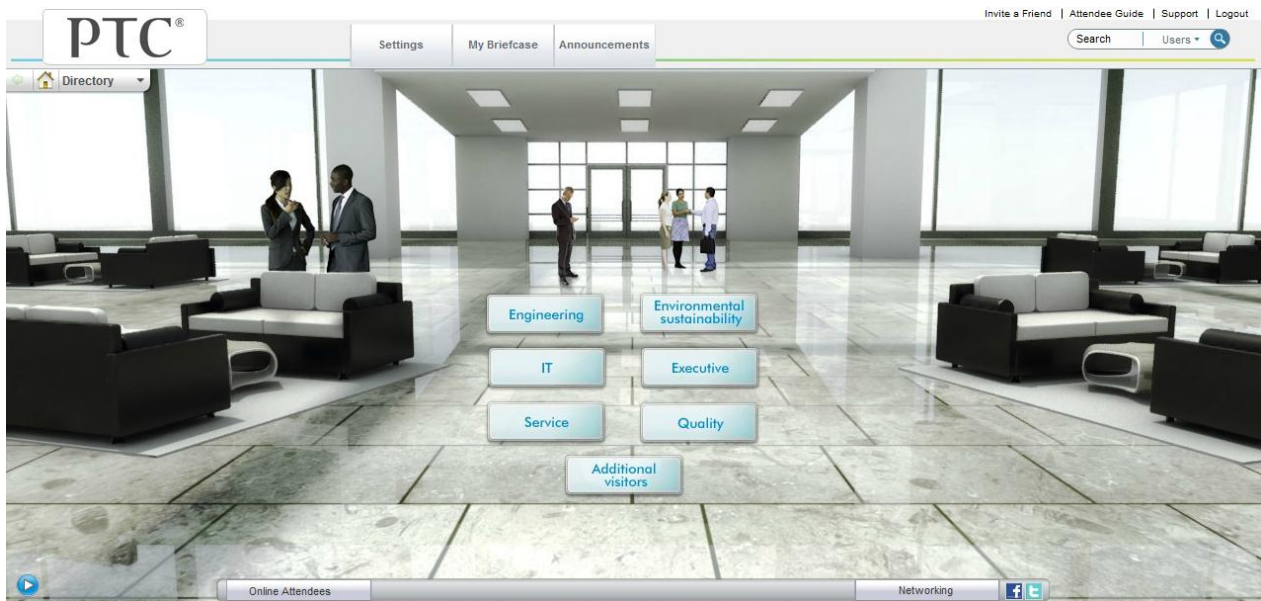
- ▶ Data Sheets
- ▶ News
- ▶ Additional Resources

Active Maintenance Customers

Do you want to better manage the complexities of product development?

[Download Windchill 10.0 Now!](#)

In addition, you can watch videos about [Windchill PDM/ProjectLink](#) from the Engineering section.



Roles in your Project

In your project, there will be two main [roles](#) for all team members. Roles help to group people who have similar duties for the team. The roles are controlled by the Project Manager for your project. The Project Manager is your team leader that registered your team within Windchill PDM/ProjectLink. 10.0

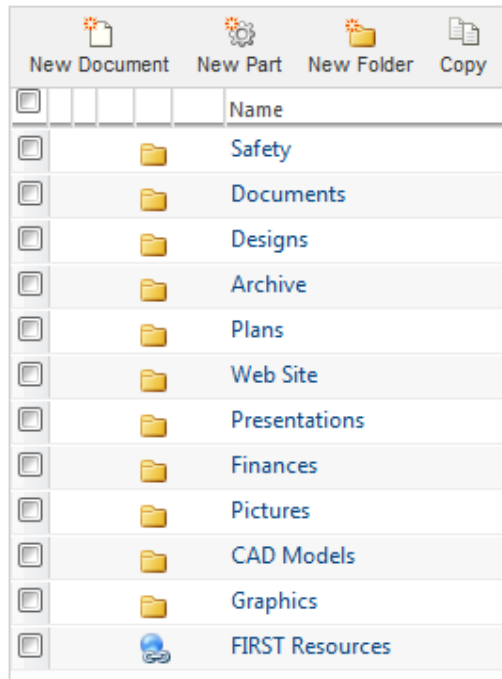
Here are definitions for the defined roles.

- **Project Manager**
 - The Project Manager is the individual responsible for managing the overall project and deliverables, ensuring that all project team members have the necessary resources required to complete the project, and reporting the status to the rest of the design team. It is the Project Manager that would invite all team members to the project.
- **Project Team Members**
 - The Project Members are all other users invited to the project by the Project Manager. This includes the FIRST team members, industry partners and guests. Only these members are able to access the project and are given different access rights and roles.

FIRST Project Content

Your project has been created with several default folders to inform and support your FIRST team. The default folders in your projects are:

- **Designs** – This is the main folder that you will save your models and documents to.
- **FIRST Resources** – This link will direct you to a public library of FIRST resources for your team. Within the library, you will find links to important web sites, kit of parts and the getting started page for FIRST.



Training Resources

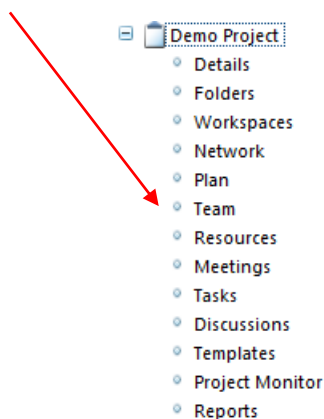
Project Manager

As stated above, the Project Manager is the manager of the project. They are the individuals that control the administrative and activity in the project. Before you can manage the project it is important to understand the layout and navigation of your project. To help understand the layout of the project, please review the [Layout and Navigation](#) section in the appendix.

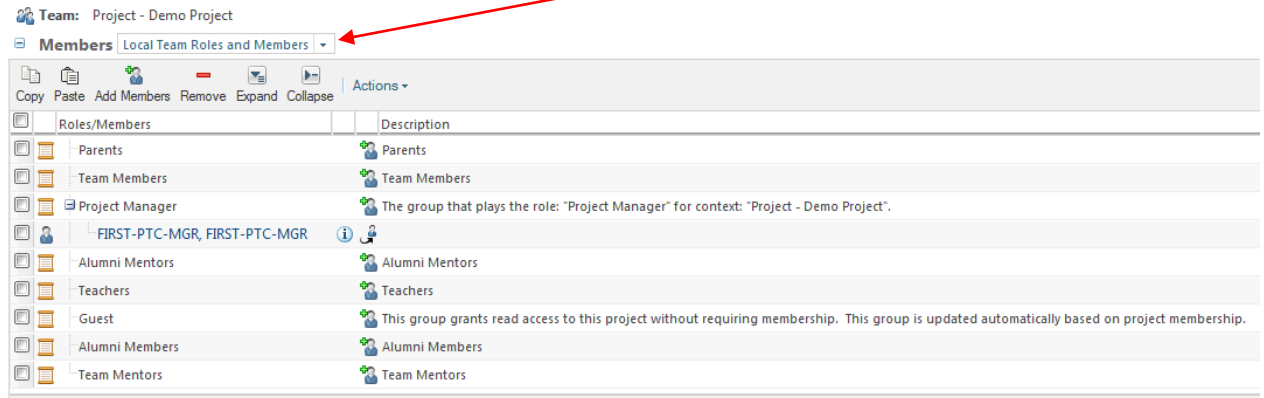
Inviting your team to the Project


After you have an understanding of the layout in Windchill ProjectLink, it is important to invite your team members to the project.

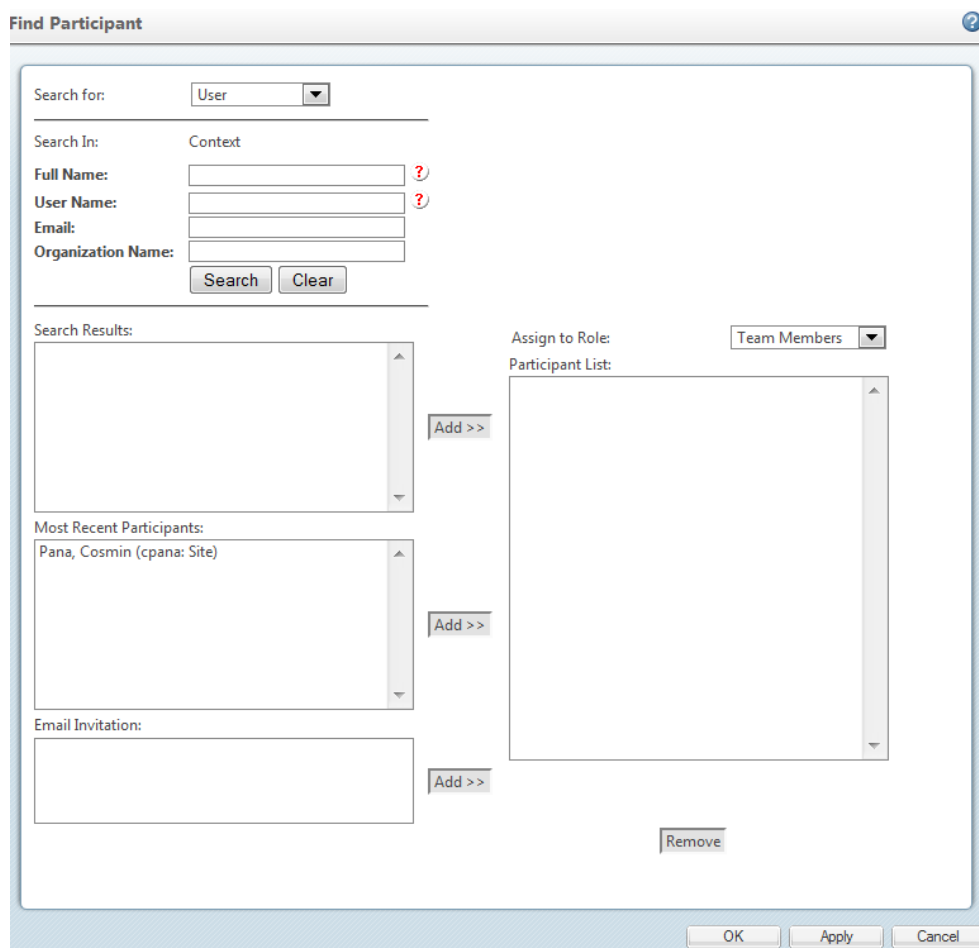
1. Click **Team** on the Project tab. The **Members** page appears.



- In the Members page, make sure you set the **Current View** to **Local Team Roles and Member**.



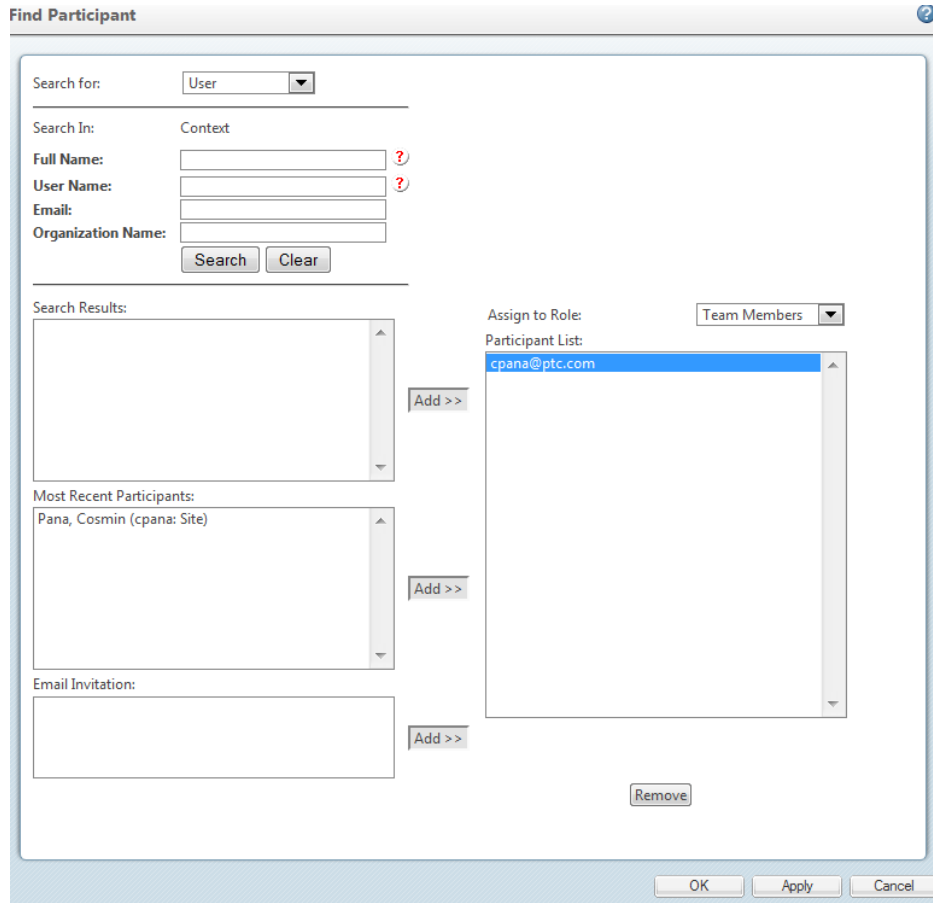
- Beside the role called **Team Members**, click the **Add User Icon** . This will open the **Add Members** dialog.



- Enter the team members email address in the **Email Invitation** field, then click **Add** to move the address into the add list.

Email Invitation:

- Once all the addresses have been added click OK to invite them to the project.



- An invitation email will be sent to each individual you added, requesting they join the project. In the invitation, the users will be provided a link to create an online PTC.com account. Once they have successfully created their account corresponding with the email address you used, they can access the project.

Windchill Invitation

[FIRST-PTC-MGR, FIRST-PTC-MGR](#) has invited you to the project [Demo Project](#) [Join Project](#)

Project Name: [Demo Project](#)

Start Date: Oct 21, 2011
EEST

Project Owner: [FIRST-PTC-MGR, FIRST-PTC-MGR](#)

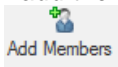
Estimated End Date: None

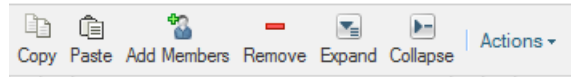
Host Organization: FIRST

Your Role: Team Members

Project Description: None

- On the Members page, you will see all your team members listed under the assigned role. The list will display if they have joined the project or not. For those that have yet to join, you can correspond with them to have them join.

Note: If you are inviting other members outside of your FIRST team, you can add them to the Mentors role of simple add a new role of your choosing by select the Add Roles icon  from the Team table.



8. Click **Folder** on the Navigator **Project** tab to return to the project folders.

Maintain a secure and controlled collaborative design environment

Only team members invited to a project can access the project, all others would not be aware of the project existence. Even when invited, the Project Manager can manage the security access of the project. Security access can be granted to a folder or a document (including CAD data) that would determine what type of capabilities a user can perform on that folder or file. The security access rights are; Full, Read, Download, Modify, Modify Content and Change Permissions.

If outside sources are invited to a project, the design team can set access rights on certain folder that they do not want those sources to see.

To help understand how to manage security of a folder or document, please review the [Managing Security](#) section in the appendix.

Team Members

To ensure your team can maximize the capability of Windchill ProjectLink for the FIRST competition it is good to understand the layout and navigation of your project. To help understand the layout of the project, please review the [Layout and Navigation](#) section in the appendix.

Register for an account

To access your team’s project, each team member is required to have a ptc.com account (an account is linked to an email address). In the invitation sent from the project manager to join the project, users can follow instructions to register for an account.

Windchill Invitation

[FIRST-PTC-MGR, FIRST-PTC-MGR](#) has invited you to the project [Demo Project](#). [Join Project](#)

Project Name: Demo Project	Start Date: Oct 21, 2011 EEST
Project Owner: FIRST-PTC-MGR, FIRST-PTC-MGR	Estimated End Date: None
Host Organization: FIRST	Your Role: Project Manager
Project Description: None	

Alternatively, users can access the following URL to create their user account.

- <http://www.ptc.com/appserver/common/account/student.jsp>

Collaborating

One of the key benefits of Windchill ProjectLink is the ability to collaborate with others on the team, regardless of where they are located. To capture discussions among the team members, users will be able to utilize the project discussion forum to post their questions or comments. This information is tracked and maintained for reference, as well as, enabling others users to post replies. This means of communication is vital to a design project versus conventional email, as it tracked throughout the design project.

In addition, team members can schedule design meetings. These meetings can be scheduled directly from Windchill ProjectLink and can include the following information; agenda, meeting location or phone number, participants and potential data to be referenced in the meeting. Emails will be routed to the desired team members with instructions on joining the meeting.

Lastly, team members can route their work to other team members for review. This capability will send emails to the specific team members requesting them to review and provide feedback.

The top screenshot shows the 'Meetings' section of the Windchill ProjectLink interface. It includes a 'Cancel Meeting' button and a 'New Meeting' button. Below these is a table with columns for Subject, Date, Time, Host, Status, and Type. A single entry is shown: 'Demo Meeting' on '2011-10-24' at '1:00 AM EEST', hosted by 'FIRST-PTC-MGR, FIRST-PTC-MGR', with a status of 'Scheduled' and a type of 'Standard'.

The bottom screenshot shows the 'Discussions' section. It includes buttons for 'Delete', 'Expand', 'Collapse', 'New topic', and 'Subscribe'. Below these is a table with columns for Topics/Postings, Actions, Subscribe/Unsubscribe, Created By, and Date. The table lists five topics: 'Analysis', 'Design', 'General', 'Manufacturing', and 'Specifications', all created on '2011-10-21 03:06 PM'.

Below is a list of short tutorials that will provide an introduction to collaborating with other in Windchill ProjectLink.

- [Discussing Projects](#)
- [Discussing Documents](#)
- [Subscribing](#)
- [Routing Documents](#)
- [Create a Meeting](#)
- [Edit Meetings](#)

Managing CAD Models

Besides documents, Windchill PDM/ProjectLink can manage CAD data as well. This is controlled and managed by connecting the CAD application (Creo, Autodesk Inventor or Solidworks) to the project.

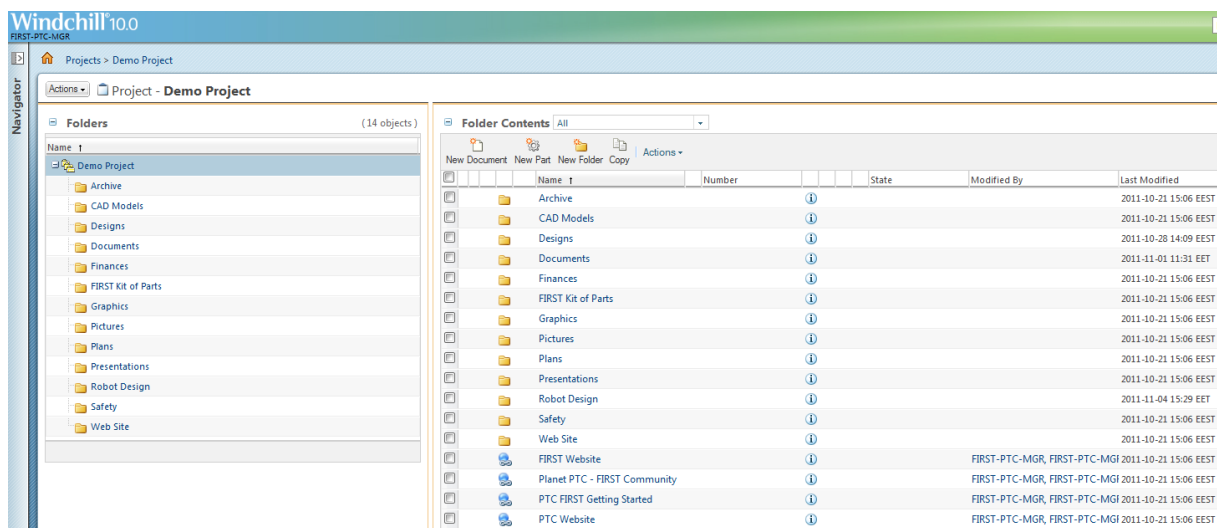
Note: For the 2011-2012 FIRST season, Windchill PDM/ ProjectLink will support Creo, Inventor 2010 & 2011 and Solidworks 2011.

With Creo, PTC has integrated web-connectivity into the design application, allowing seamless connection with your project. Once connected, data will be stored as individual items in your project, while Windchill ProjectLink maintains their internal relationships; such as assembly components and models used in a drawing. The critical information stored in the CAD data; such as parameters will be indexed and searchable from Windchill ProjectLink.

Through the connected session of Creo users are able to check-in/check-out CAD data from Windchill ProjectLink in order to continue the design or make modifications. These changes or revisions are managed in Windchill ProjectLink, so that users can go back in time and monitor the design evolution or start from a past iteration to start a new design. Team members will be able to observe which team member has checked-out the data and its current status.

Like any document stored in Windchill ProjectLink, team members will be able to perform various operations such as; route stored Creo data for review/approval, use the data in a discussion or generate an activity.

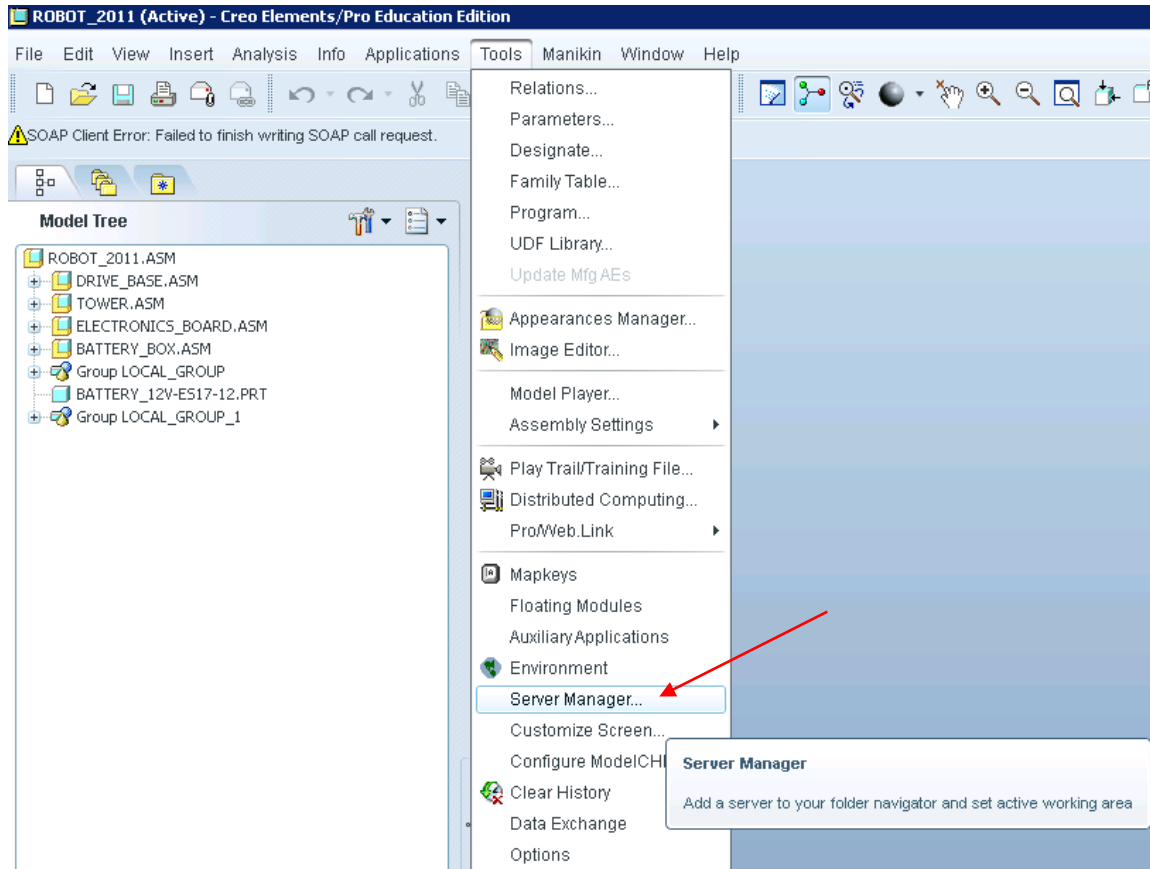
Note: To find out how to access the team's copies of Creo and Mathcad, please review section **Start with Creo and Mathcad**



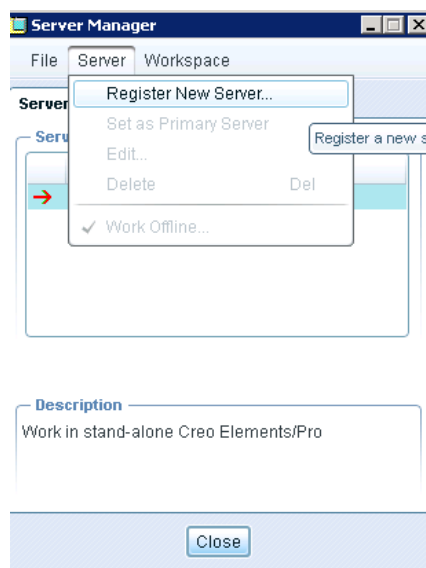
Below is a list of short tutorials that will provide an introduction to managing CAD models in Windchill ProjectLink.

Registering a Project from Creo

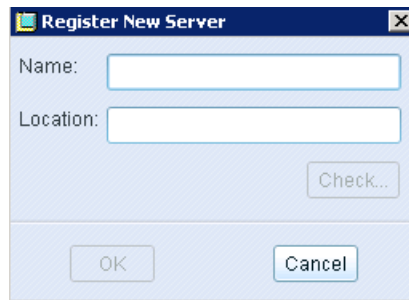
- **Start Creo**
- Click **Tools** pull-down menu → **Server Manager**. The **Server Manager** dialog will display.



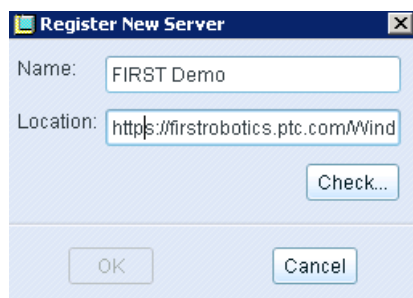
- Click the **Server** menu option from the **Server Manager** dialog and select **Register New Server**. The **Register New Server** dialog will display.



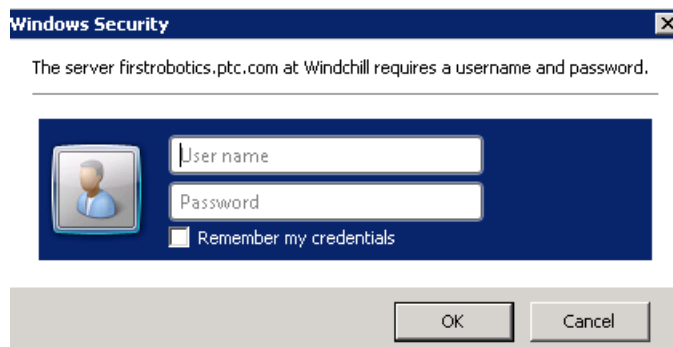
- Enter the following information into the **Register New Server** dialog.



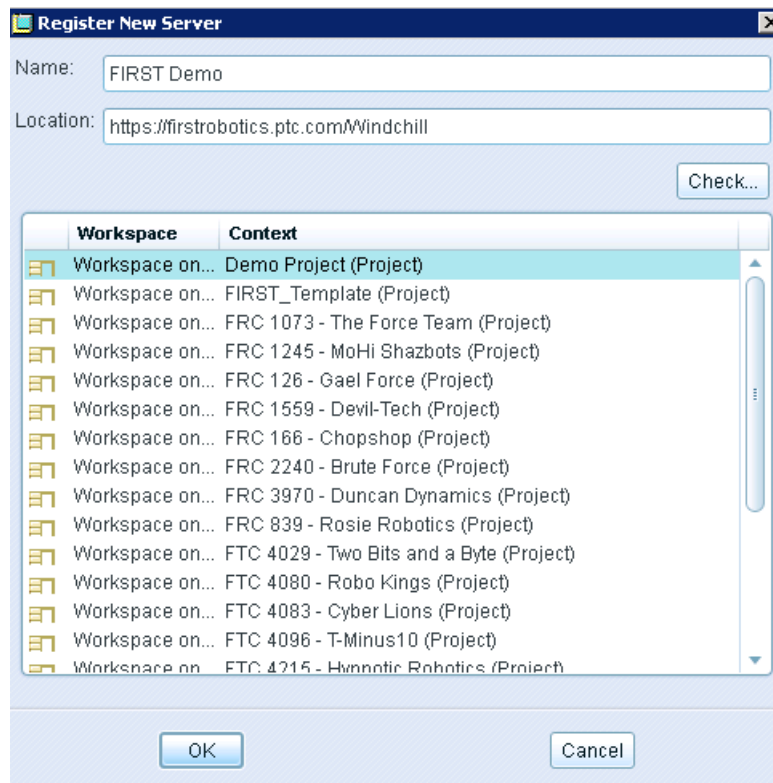
- **Name** – <Your Own Name>
- **Location** - <https://firstrobotics.ptc.com/Windchill/>
- Once you enter the information, click the **Check** button.



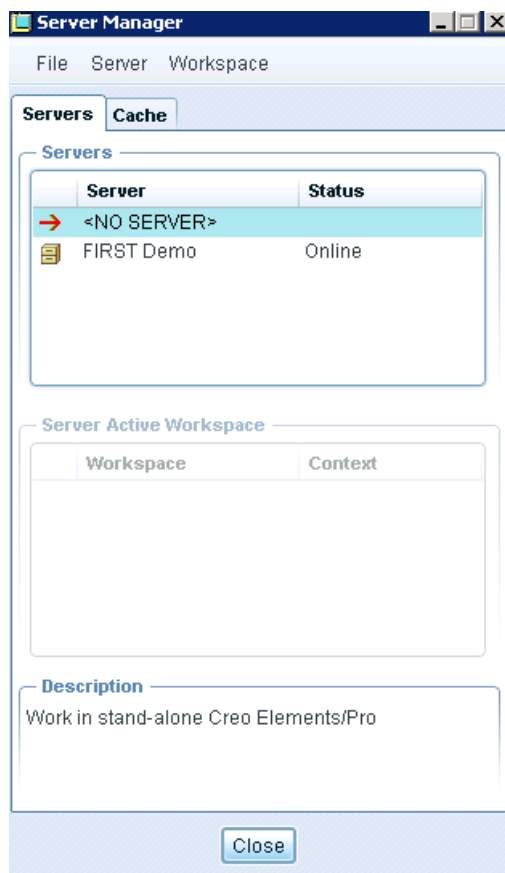
- You will be prompted for your user name and password. Enter the information and click **OK**.



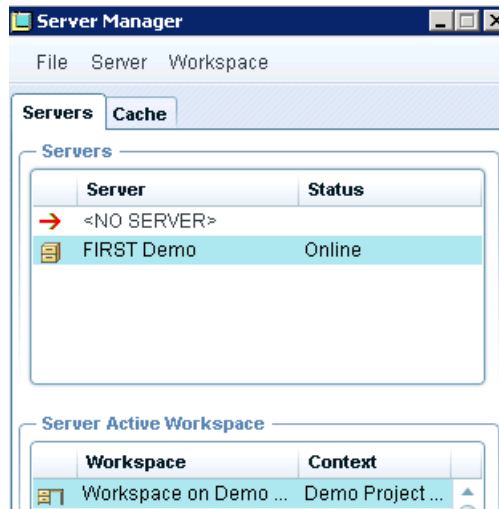
- From the **Workspace** list, choose a workspace from the list of available workspaces. If you are a member of only one team, you should only see one in the list. If you have more than one, choose the workspace corresponding to the desired project. The name of the project is listed under Context. Click **OK**.



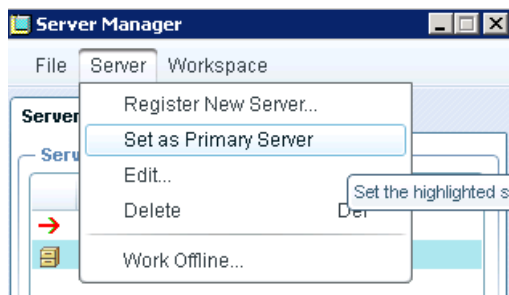
You will notice that the new server has been added to the list of available servers.



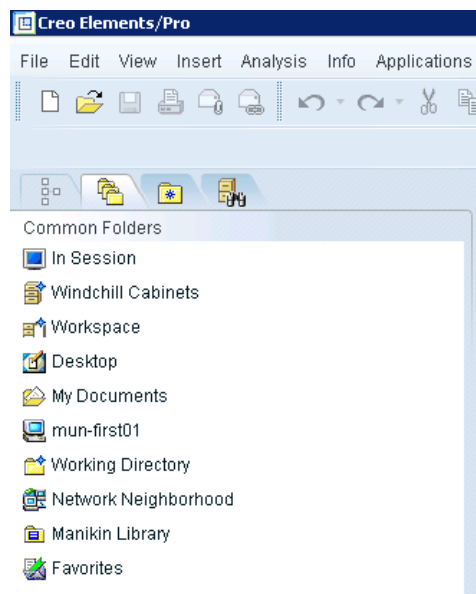
- Select the new server from the list.



- To set the new server as the primary server, click the **Server** menu and choose **Set as Primary Server**.



- The new server has been successfully set as the primary server. Click the **Close** button to close the Server Registry dialog.
- In the Creo **Folder navigator** tree, you will notice two new links
 - The new registered server – Windchill Cabinets.
 - The workspace for the registered project.

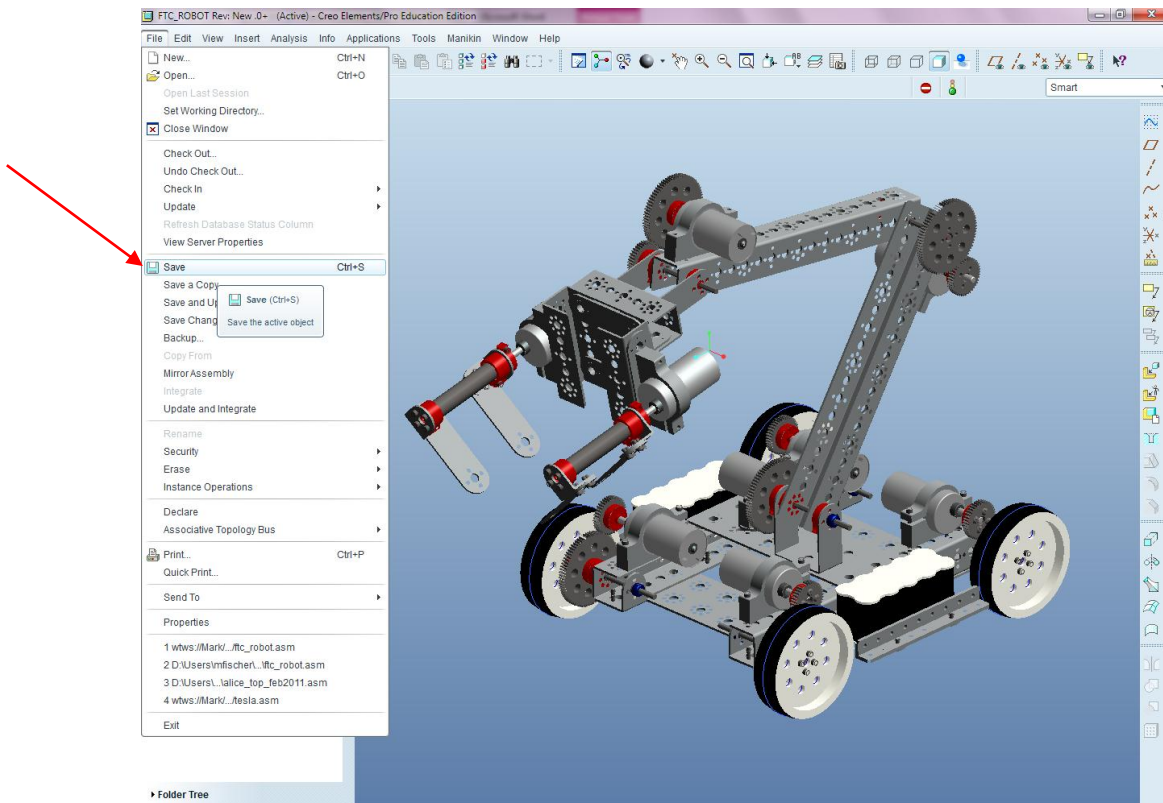


- Now follow the **Saving Creo Files to a Project** to find out how to save your data on the server.

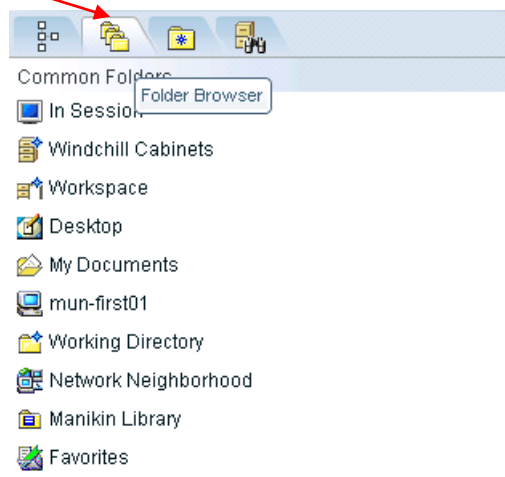
Saving Creo Files to a Project

For new models created or opened from your local machine, the following process will outline the methods to upload the files.

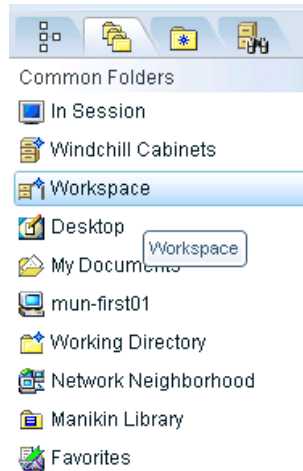
- With a model open in Creo, click the **File** menu and select the **Save** button to save the model to your workspace.



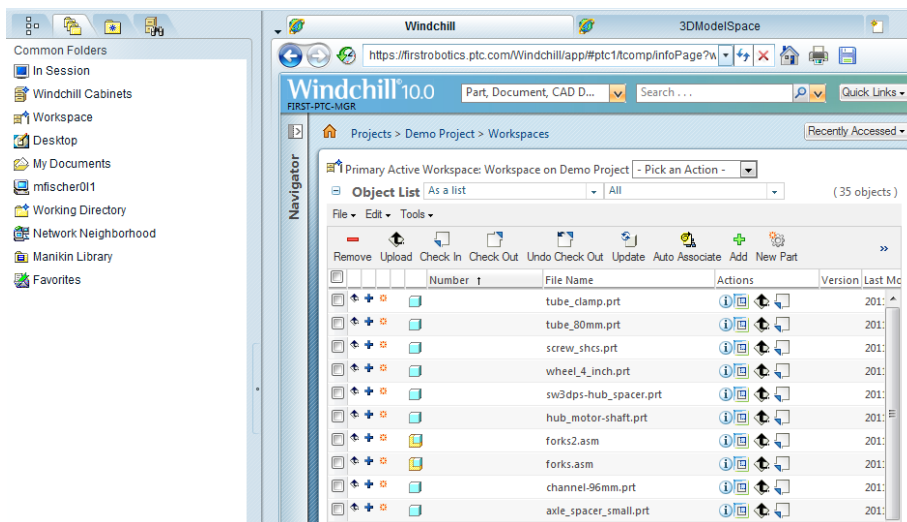
- Click the **Folder Browse** tab to show the Folder navigator.



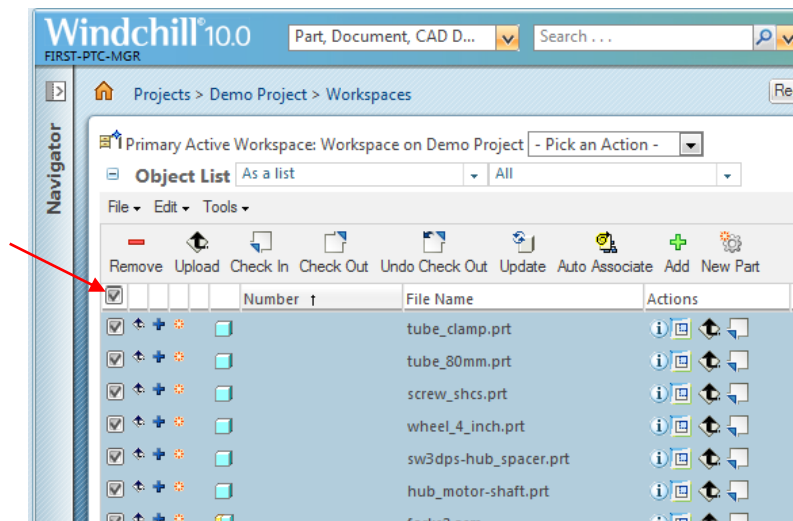
- Click on the **Workspace** link in the **Folder Navigator**.



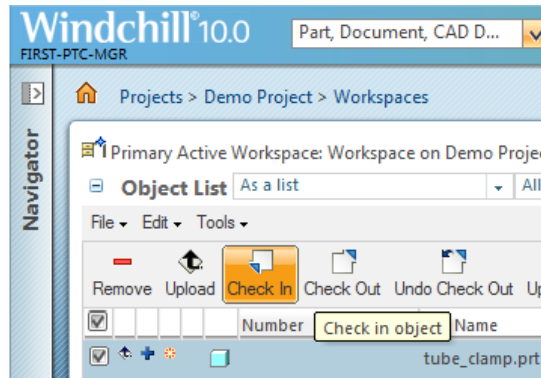
- The embedded browser will open and show the contents of the workspace.



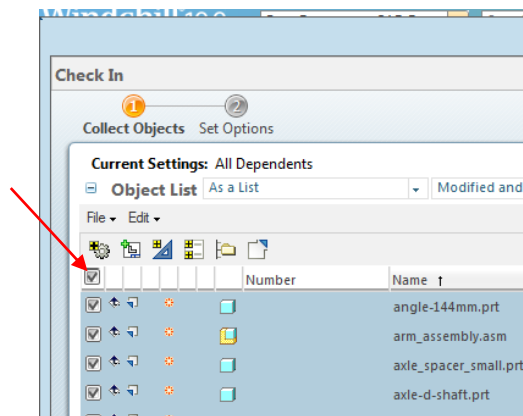
- Click the **Select All** box to select all the items in the workspace. If you want only a few items, select the items individually.




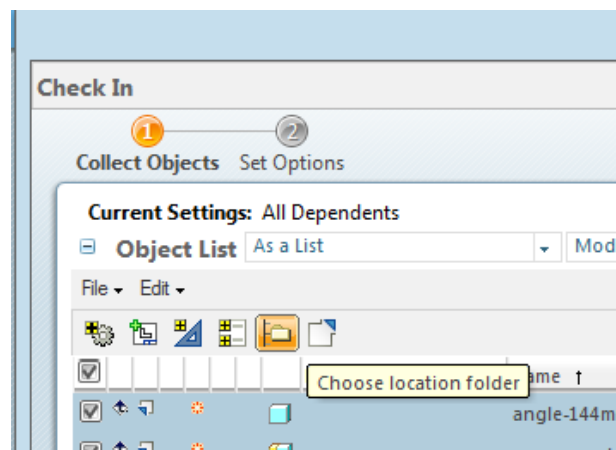
- Click the **Check-in** icon from the table to save the models to the server from the workspace. A new **Check-In** page will be displayed.



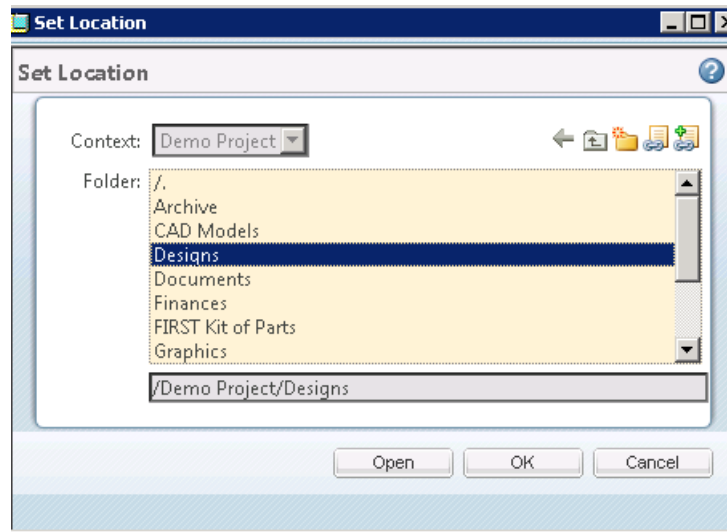
- In the Check-in Page, click the **Select All** box to select all the items that will be checked in. If you want only a few items, select the items individually.



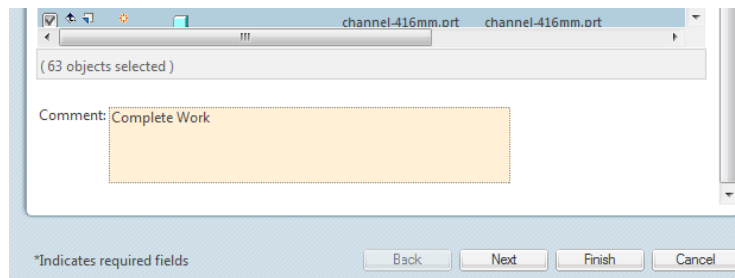
- Click the **Choose a Location** icon  to choose set the directory the items will be saved to in the team's project. The **Choose a Location** dialog will appear.



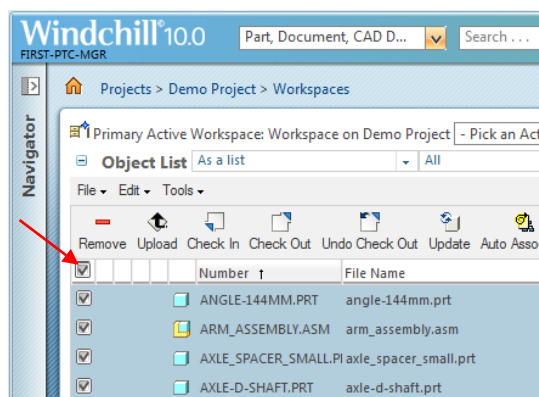
- From the **Set Location** dialog, choose the **Designs** folder from the folder list to save your models to. Click **OK** to close the dialog.



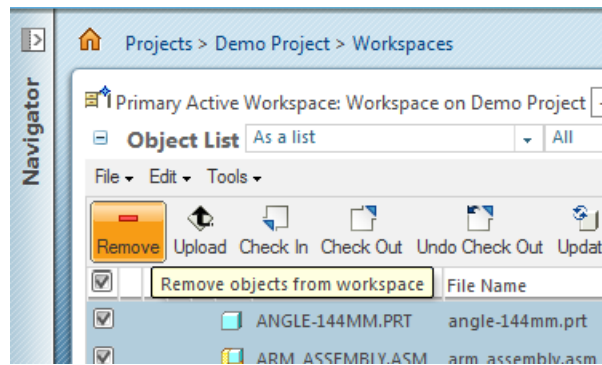
- In the **Check-In** Page, add a few comments in the comments field. Click **Finish** to start the check-in process.



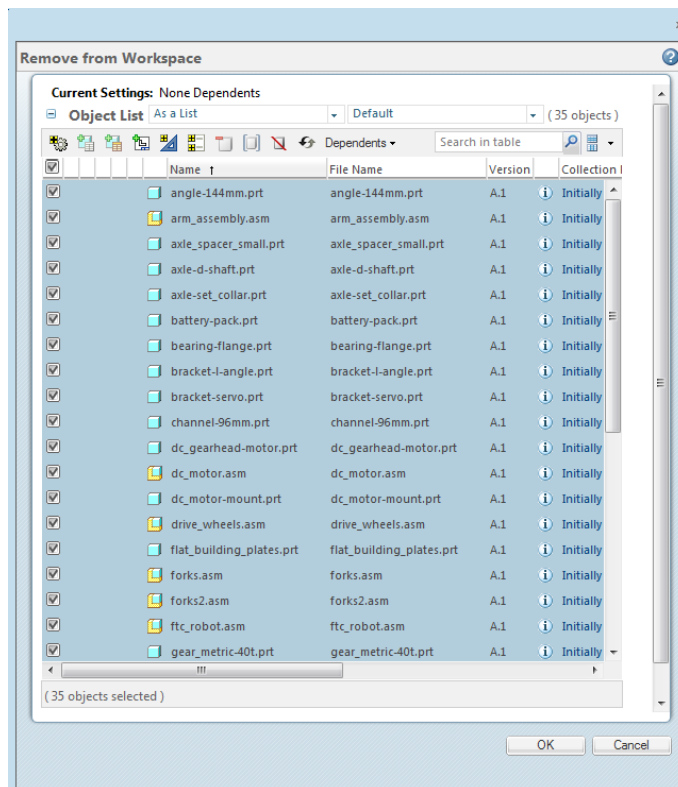
- Once the check-in process is complete, you can remove the objects from the workspace **if they are not needed anymore**.
- Click the **Select All** box to select all the items in the workspace. If you want only a few items, select the items individually.



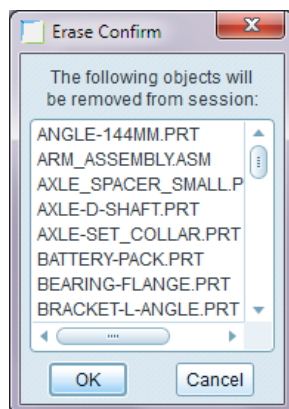
- Click the **Remove** icon to delete the objects from the workspace. The **Remove from Workspace** page appears.



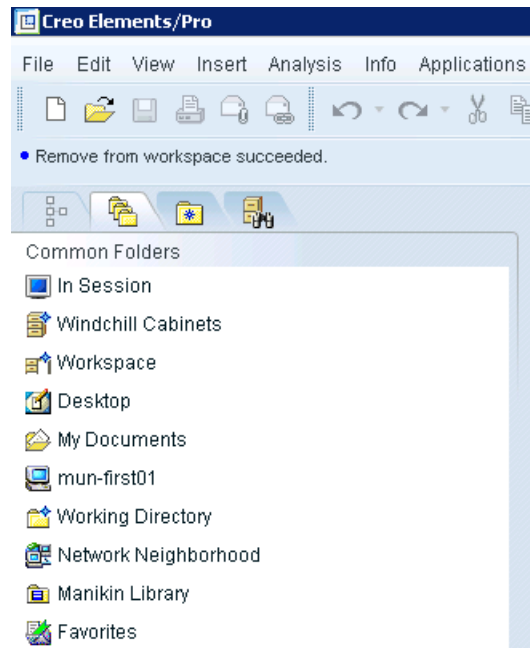
- Select all items and click **OK** from the Remove from Workspace page to remove the objects. The **Erase Confirm** dialog appears.



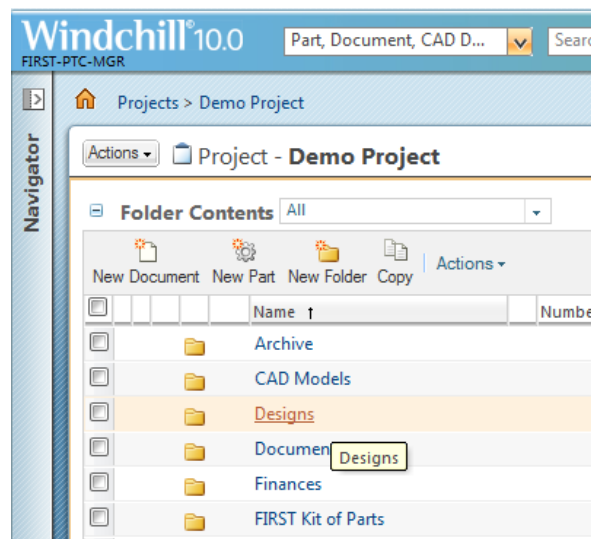
- Click **OK** from the **Erase Confirm** dialog. This will erase the models from the workspace and from the session of Creo.



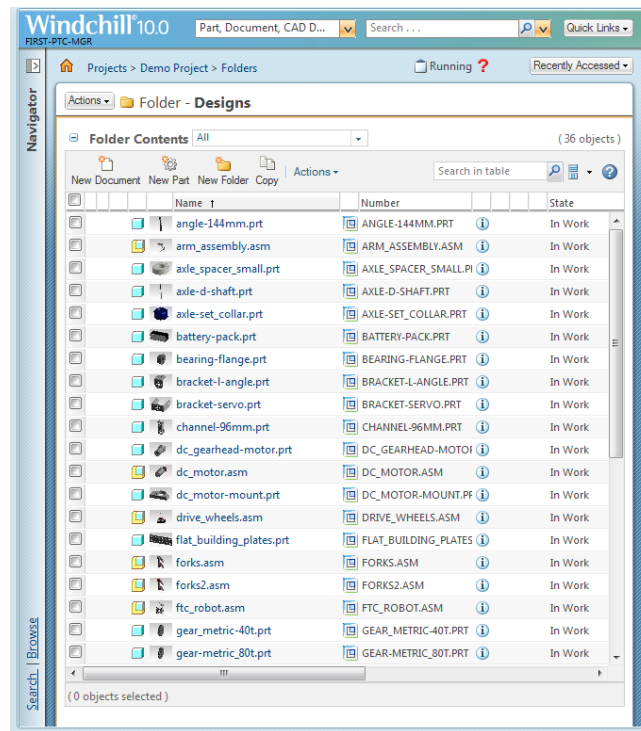
- Click on the **Windchill Cabinets** link in the **Folder Navigator**.



- The embedded browser will open and show the contents of your team's project. Click on the **Designs** folder to show the uploaded models.



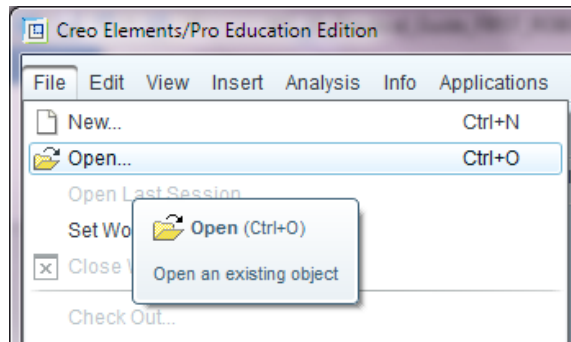
- In the Designs folder you will see all the uploaded files and the created viewable for the files.



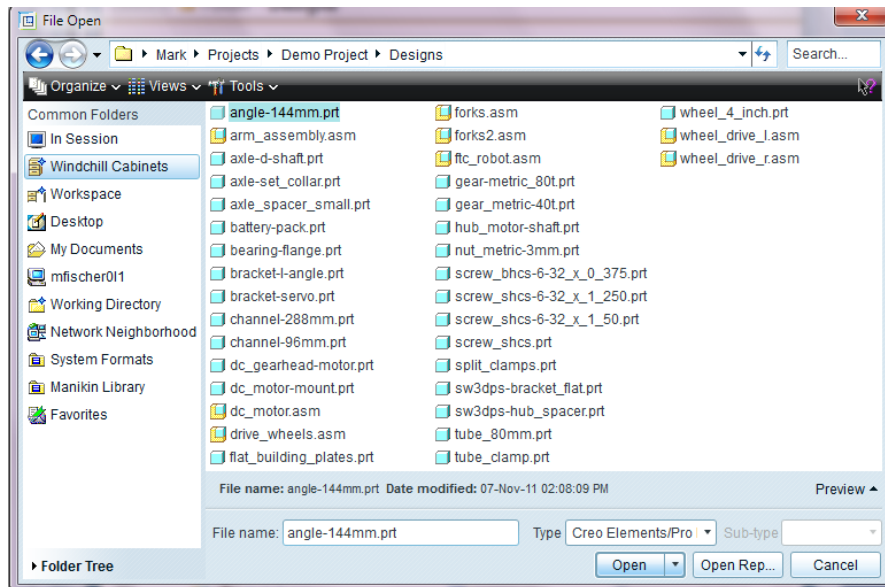
- Now follow the **Retrieving Creo Files from a Project** to find out how to retrieve models and use the models stored on the server.

Retrieving Creo Files from a Project

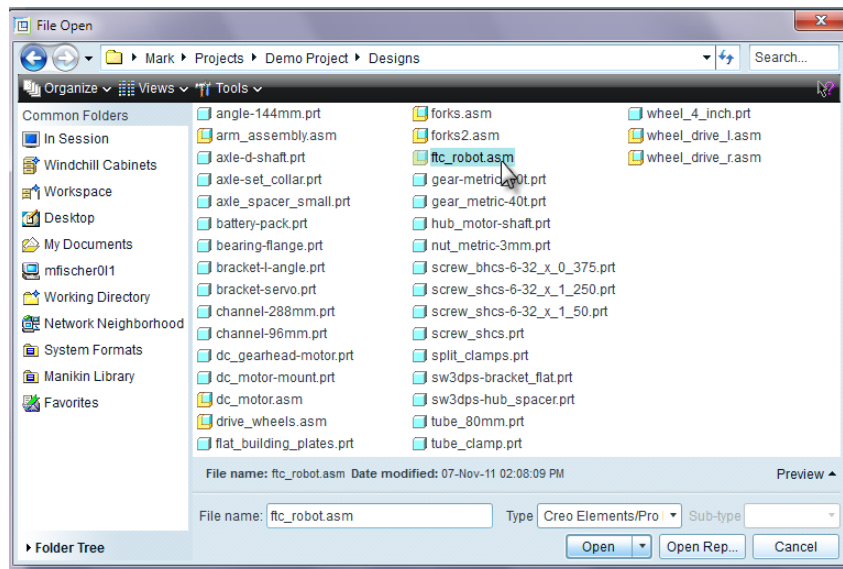
- Click **File** → **Open** from Creo. The **File Open** dialog opens.



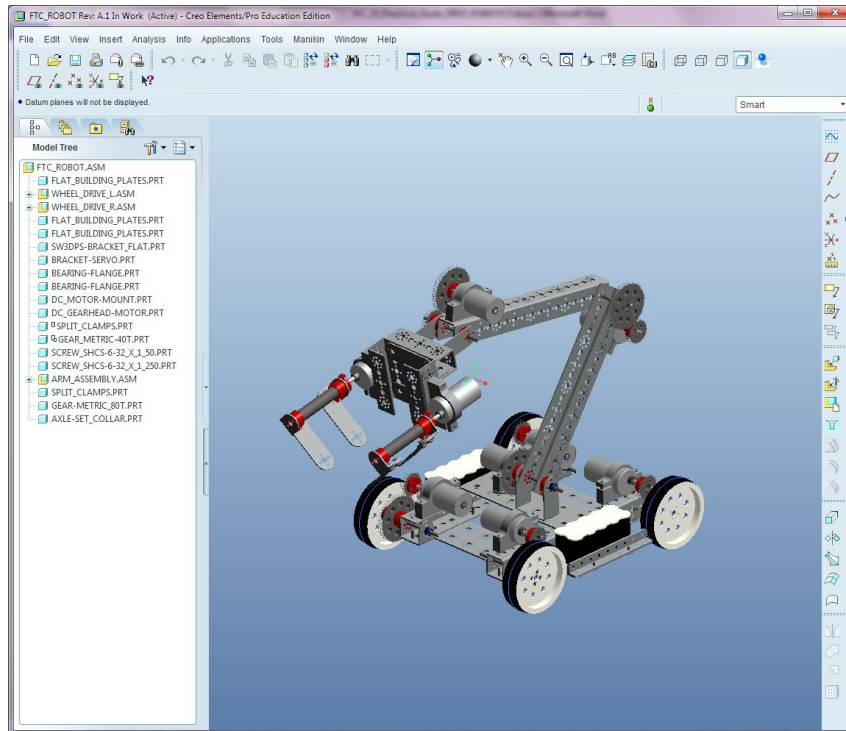
- In the **File Open** dialog, click the **Windchill Cabinets** folder, then navigate to the **Designs** folder in your project.



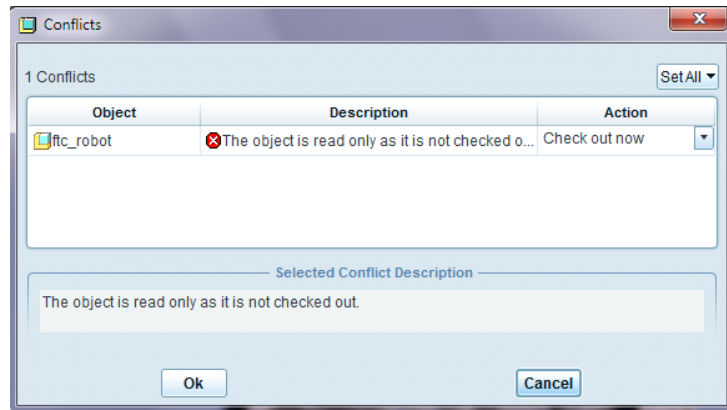
- Within the **Design** folder, select an object you would like to open. Click **Open**.



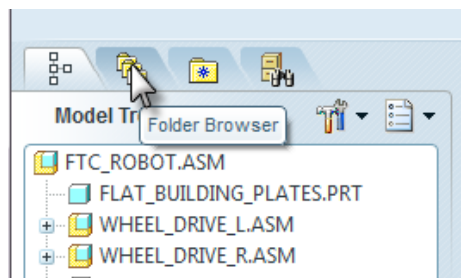
- The graphics version of models will be retrieved from the server and opened in Creo Elements/Pro.



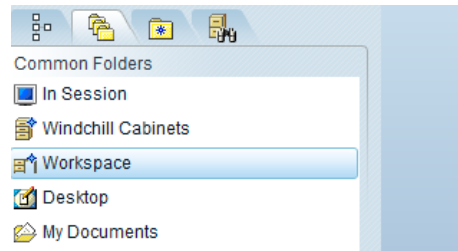
Note: This graphics version allows you to view the models without checking the data out of the server. If you modify anything in the model, you will be prompted to check out the models from the server in the **Conflicts** dialog. Click **OK**.



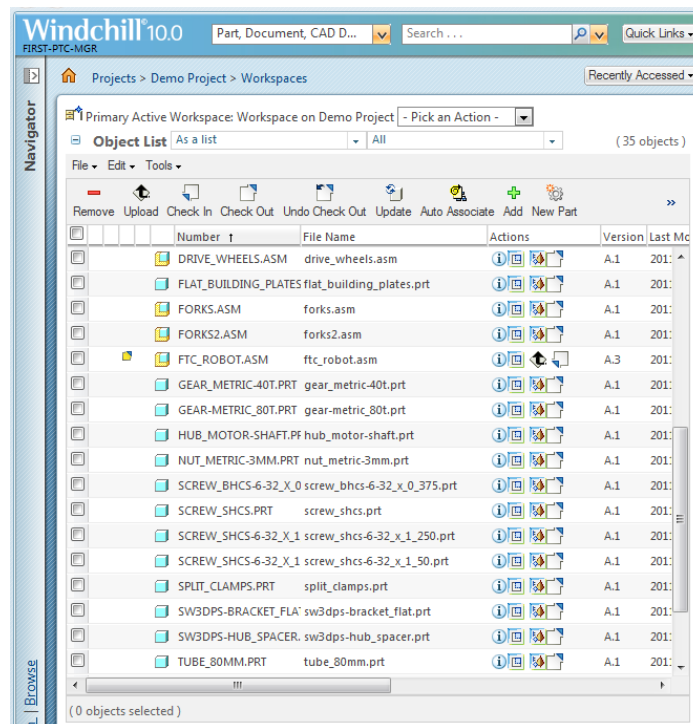
- Click the **Folder Browse** tab to show the Folder navigator.



- Click on the **Workspace** link in the **Folder Navigator**.

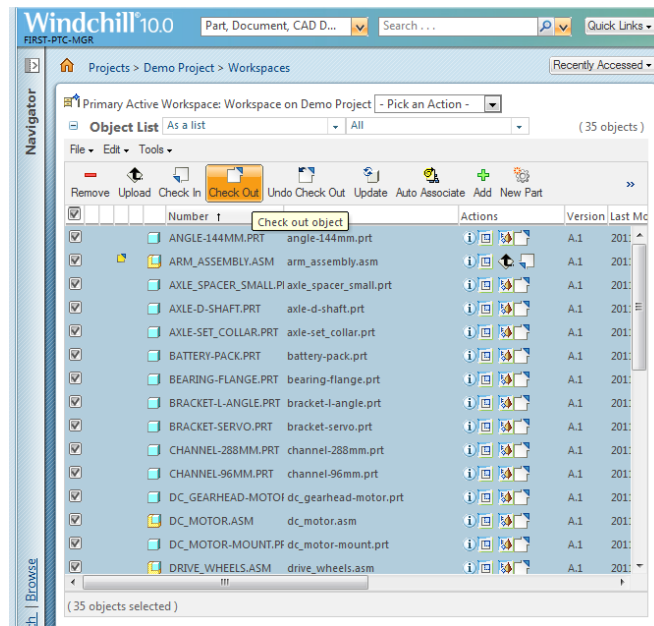


- The embedded browser will open and show the contents of the project. You will notice that the item you checked out will be shown as checked out with a yellow and black check mark. In this example, only the assembly model is checked out, while the parts are not.

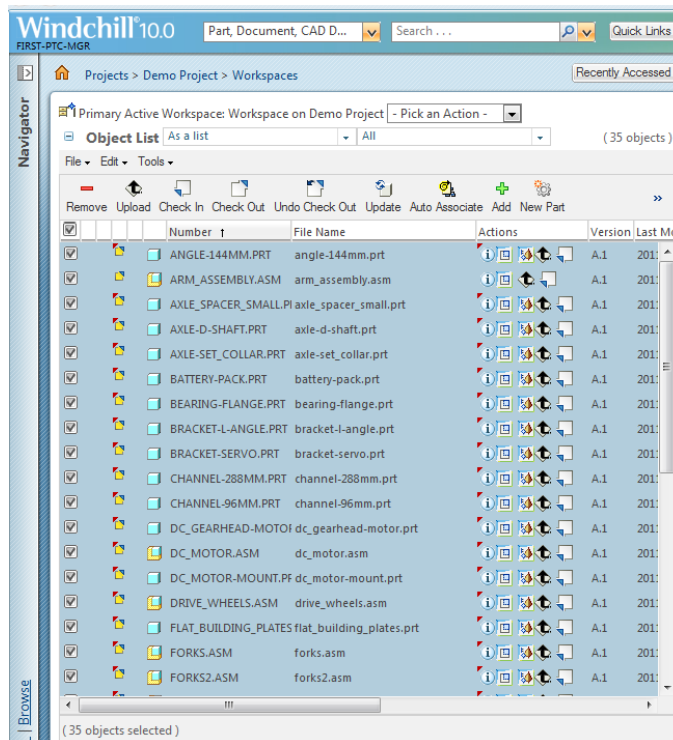


Note: In the workspace, the non-checked out models are the graphic versions (read only) models. If you indent to edit these models, they are required to be checked out.

- To check-out the rest of the models of the assembly, click the **Select All** box to select all the items in the workspace. If you want only a few items, select the items individually.
- Click the **Check-out** button from the table to check out the models from the server to the workspace.



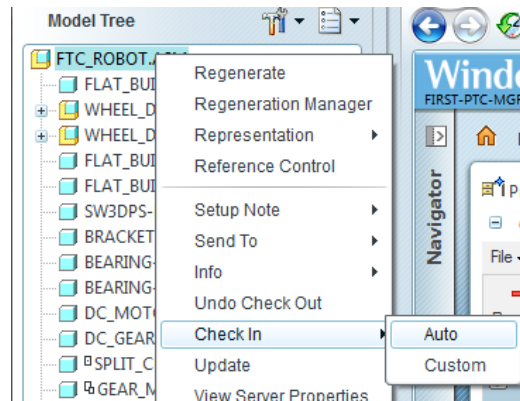
- The Workspace page will update showing all items as checked-out. This will be reflected in the project, indicating that you have checked them out and are working on them.



- Make all the necessary changes in Creo.

Note: Since the models were check-out from your team project, it is not required to set the folder, as they already have a defined folder designated in the project.

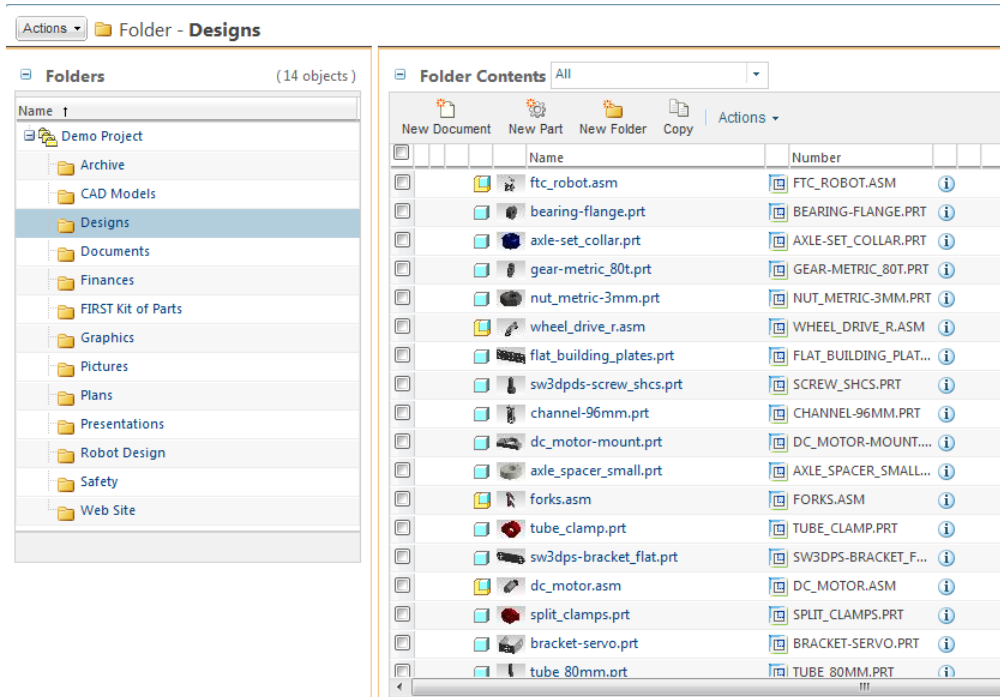
- To check the models back into the project, first save the objects to your workspace. Since the models were opened from the project, they already have a designated location. Therefore, the check-in process can be streamlined.
- Right click on the checked-out object in the model tree and select **Check In > Auto**.



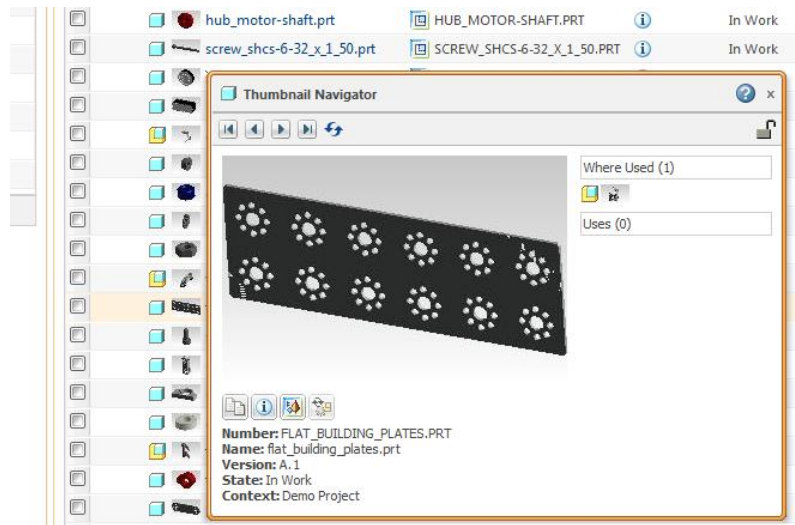
- This will automatically check in your files to the project. Erase the models from the workspace to keep the workspace clean.

Viewing the files in your Project

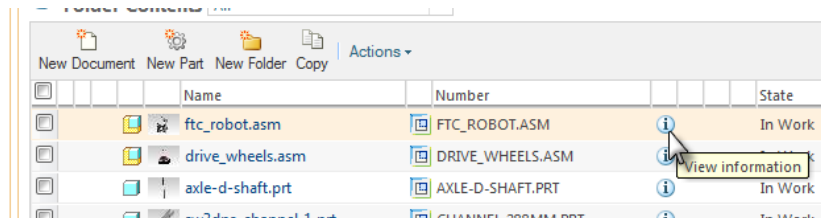
- Navigate to your team project via <https://firstrobotics.ptc.com/Windchill> Access your team project.
- The embedded browser will open and show the contents of your team's project. Click on the **Design** folder to show the uploaded models.



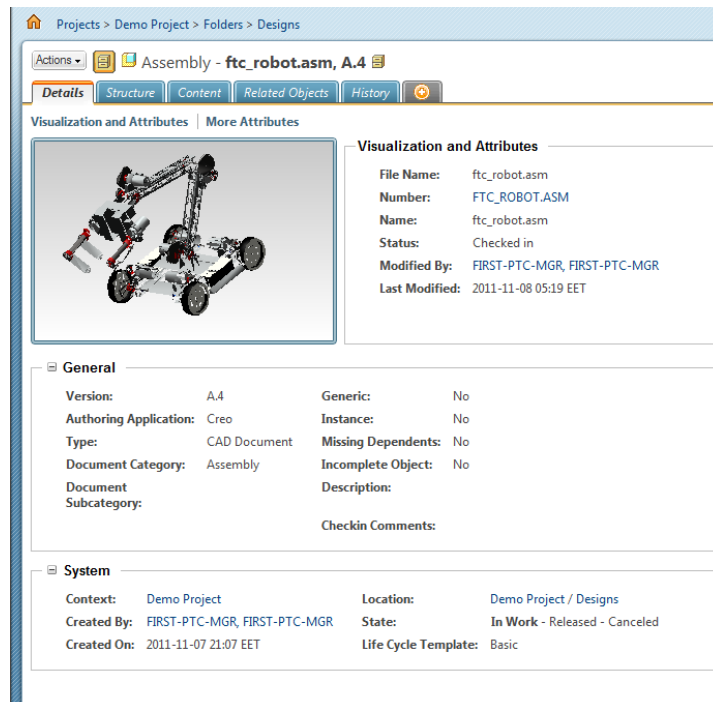
- Move your mouse over one of the images of a CAD model. This will open a preview window showing the object. Since the object has been published, you can actually spin the object in the preview window. Clicking on the preview image will open up Creo View Express.



- Click the **View Information** icon beside a particular object. The objects information page will be displayed.



- From the Information page you will notice the number of iterations that have been made to the object. At any time, you can open or check-out any iteration.



Note: At any time, you are having issues or have questions, please send your question to firstsupport@ptc.com.

Windchill ProjectLink not only manages Creo data, it also manages other CAD data. For the FRC competition, PTC has provided a plug-in for Autodesk Inventor 2011 and Solidworks 2011 allowing it to connect directly with your project. Like with Creo Elements/Pro, you will be able to check-in/out data directly from your project and let Windchill ProjectLink manage the data. In order to connect Autodesk Inventor and/or Solidworks to Windchill ProjectLink, you first have to download the Workgroup Manager for Autodesk Inventor and Solidworks (WGM).

The WGM is located in the [Windchill ProjectLink Software Download](#) page. You will be required to accept/decline the license agreement.

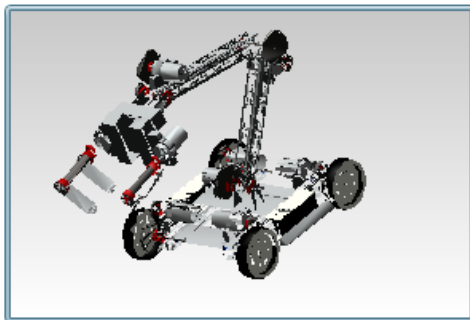
- [Installing Windchill CAD Workgroup Managers](#)

Note: Teams using other CAD applications not available for this season (e.g. Catia, UG-NX, etc) can also manage their data in Windchill ProjectLink. The Work Group Manager for these applications will not be provided; therefore, teams should zip their data files and submit these files to the project as a document.

View and Markup

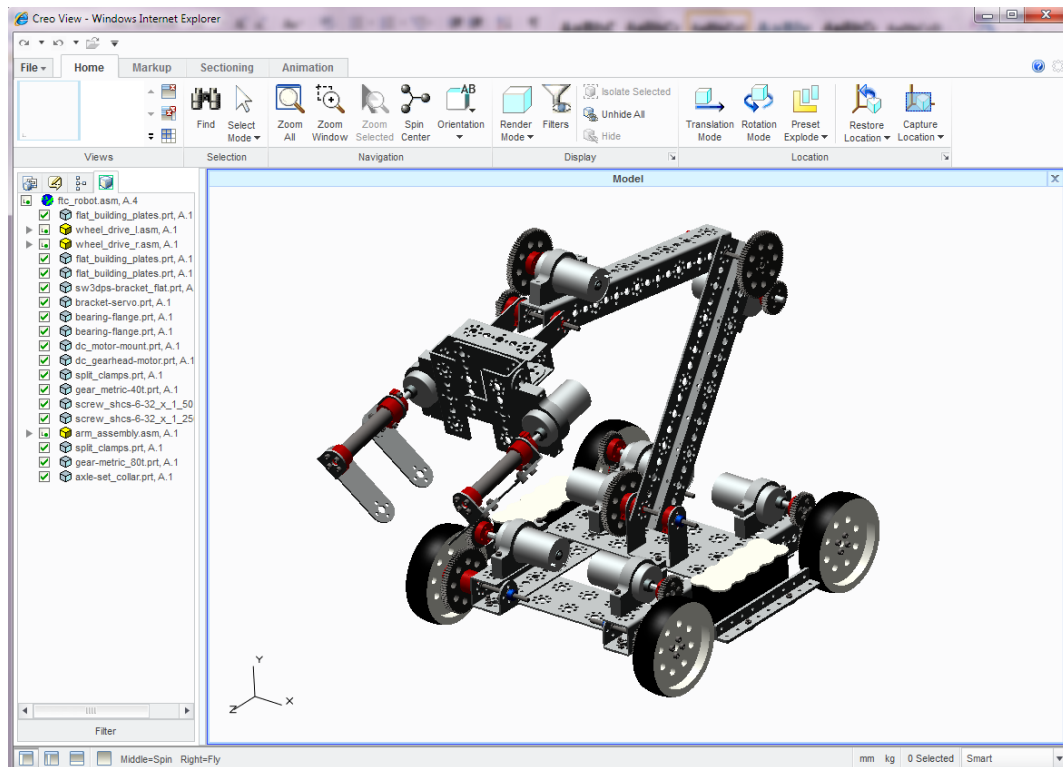
All CAD data stored in Windchill ProjectLink via the CAD WGM will be published to enable web-based viewing. Team members will be able to visualize the project design without requiring them to have Creo Elements/Pro or another CAD application installed.

Using either the document information page dynamic thumbnail or initiating the embedded viewer, users will be able to analyse and interrogate the models. During the interrogation, users will be able to perform operations such as; performing measurements, create sections, create explode states, create annotation markups, control model display and review mass properties. All annotated markups can be stored back in to Windchill ProjectLink for future reference.



Visualization and Attributes

File Name: ftc_robot.asm
 Number: FTC_ROBOT.ASM
 Name: ftc_robot.asm
 Status: Checked in
 Modified By: FIRST-PTC-MGR, FIRST-PTC-MGR
 Last Modified: 2011-11-08 05:19 EET



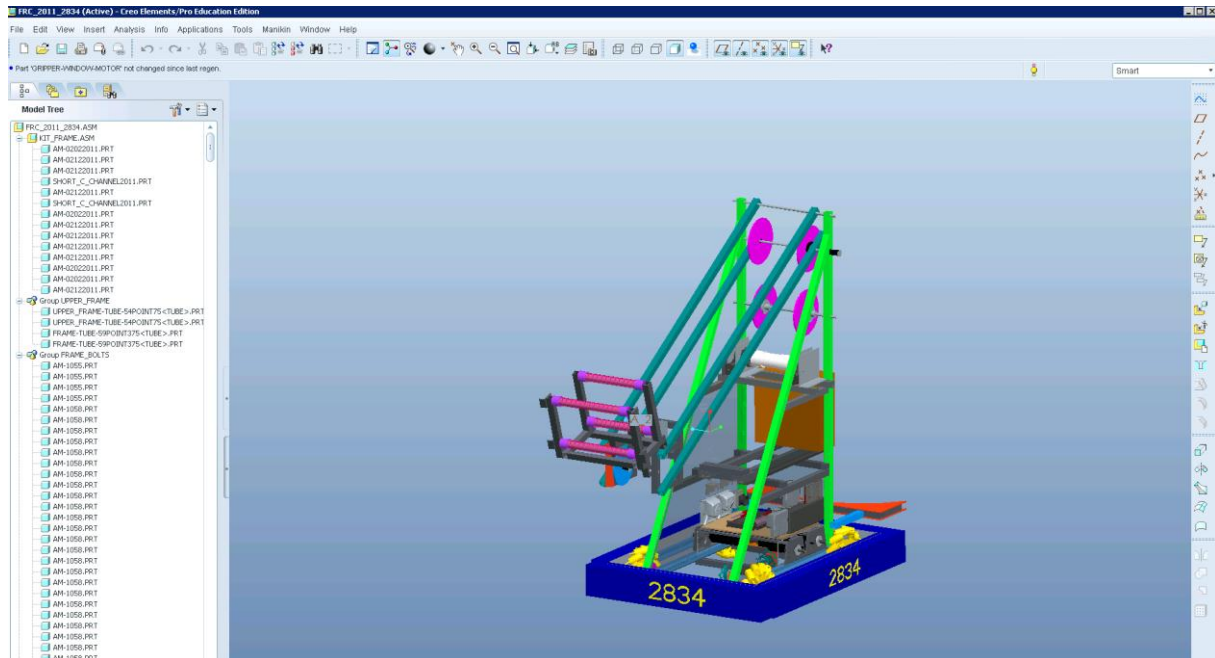
Below is a list of short tutorials that will provide an introduction to viewing CAD models in Windchill ProjectLink.

- [Launching and Using Creo View Express](#)

Getting started with Creo and Mathcad

As part of the sponsorship with FIRST, PTC has provided all team members access to Creo and Mathcad.

Creo:

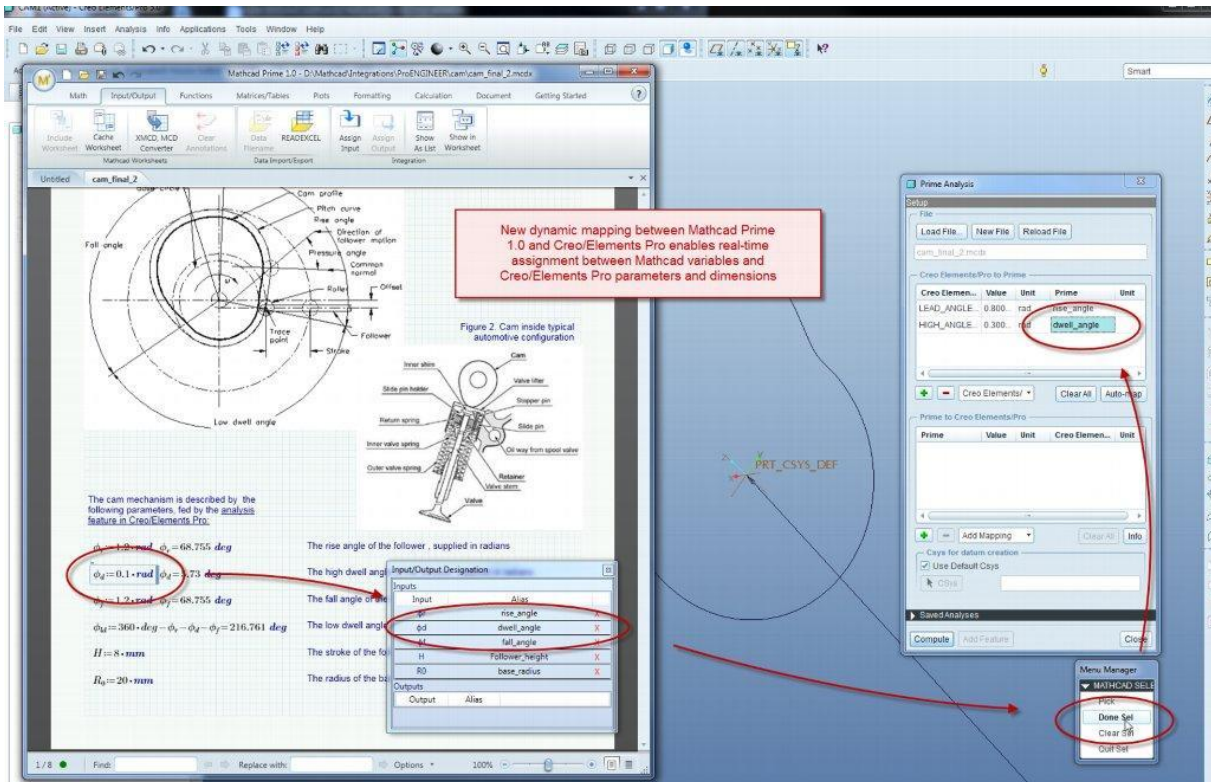


Creo is the standard in 3D product design, featuring industry-leading productivity tools that promote best practices in design while ensuring compliance with industry and company standards. Integrated Creo CAD/CAM/CAE solutions allow you to design faster than ever, while maximizing innovation and quality to ultimately create exceptional products.

Benefits

- Unsurpassed geometry creation capabilities allow superior product differentiation and manufacturability
- Fully integrated applications allow you to develop everything from concept to manufacturing within one application
- Automatic propagation of design changes to all downstream deliverables allows you to design with confidence
- Complete virtual simulation capabilities enable you to improve product performance and exceed product quality goals
- Automated generation of associative tooling design, assembly instructions, and machine code allow for maximum production efficiency

Mathcad:



Mathcad drives innovation and offers significant personal and process productivity advantages for product development and engineering design projects. Unlike proprietary calculating tools and spread sheets, Mathcad lets engineers design and document engineering calculations simultaneously with comprehensive applied math functionality and dynamic, unit-aware calculations.

Benefits

- Easy to learn and use - no special programming skills required
- Increases productivity, saving engineers time and reducing errors
- Improves verification and validation of critical calculations
- Promotes calculation best practices and reuse of calculation content
- Complete documentation of calculations supports standards compliance

Accessing Creo and Mathcad

- Download Mathcad Prime 1.0 and Creo Elements/Pro 5.0 Schools Edition: www.ptc.com/go/softwareforfirst

Meeting Platform Requirements for Creo

Before installing Creo Schools Edition, your computer must meet the requirements in the next two tables. For platform details, see <http://www.ptc.com/WCMS/files/77552/en/proewf5.pdf>

Operating System	Service Pack	Processor
Windows XP Professional and Home Edition 32/64-bit	Base OS, Service Pack 1 and 2	INTEL Pentium/Xeon family or AMD Processors
Windows Vista Business, Ultimate, Enterprise 32/64-bit	Base OS, Service Pack 1, 2 and 3	INTEL Pentium/Xeon family or AMD Processors
Windows 7 Professional, Ultimate, Enterprise 32/64 bit	Base OS, Service Pack 1	INTEL Pentium/Xeon family or AMD Processors

Platform	Minimum Requirement
Main Memory	512 MB (1 GB or higher)
Available Disk Space	2,5 GB (Creo)
Swap Space	500 MB (Recommended 2048 MB or higher)
CPU Speed	Pentium III 700 MHz (Recommended 2.4 GB or higher)
Graphics Cards	Cards must support OpenGL. For supported graphics cards, see http://www.ptc.com/WCMS/files/77552/en/proewf5.pdf If your graphics card does not support OpenGL, see the section Configuring Graphics Acceleration.
Browser	Microsoft Internet Explorer 6.0 SP1 or later, Mozilla
Network	Microsoft TCP/IP, Ethernet network adapter
Monitor	1280 X 1024 (or higher) resolution with 24-bit or greater color
File Systems	NTFS
Mouse	Microsoft approved 3-button mouse
Distribution Media	DVD drive

Installing Creo Schools Edition

This edition of Creo is the same edition being used in secondary schools around the world. In addition, this is the same application used by over 50,000 commercial customer globally; including Toyota, Motorola, SONY, John Deere, Volkswagen, Hasbro, Nike to name a few.

For standalone installation, you will be required to install and generate a license for each machine you will be installing it on. Please follow the instructions in the installation guide to assist you with the installation of Creo. This guide will take you through the step-by-step process of installing Creo Elements/Pro Schools Edition.

- [Creo Schools Install Guide](#)

Installing Mathcad Student Edition

Like Creo Elements/Pro Schools Edition, the Mathcad Student Edition is a standalone edition. You will be required to install and generate a license for each machine you will be installing it on. Different from Creo, you will be required to obtain a Product Code to successfully install Mathcad. To obtain these codes, please send an email to firstsupport@ptc.com, requesting your team's product codes.

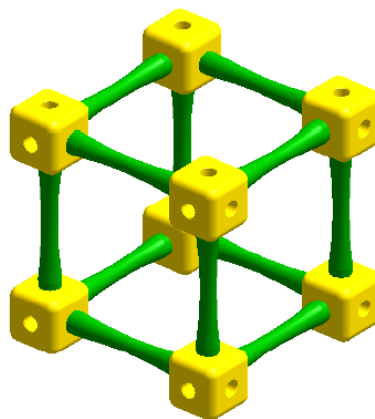
Training for Creo Elements/Pro

PTC has developed two modules to help you in learning the Creo Elements/Pro fundamentals. The topics covered in each module will include:

- User Interface
- Orientation
- Part Modeling
- Assembly Modeling
- Drafting
- Rendering

The second modules build off the experience learned in the first. PTC recommends that you complete both modules before you move onto the next task.

1. Complete the [Introductory Primer for Creo Elements/Pro](#) module



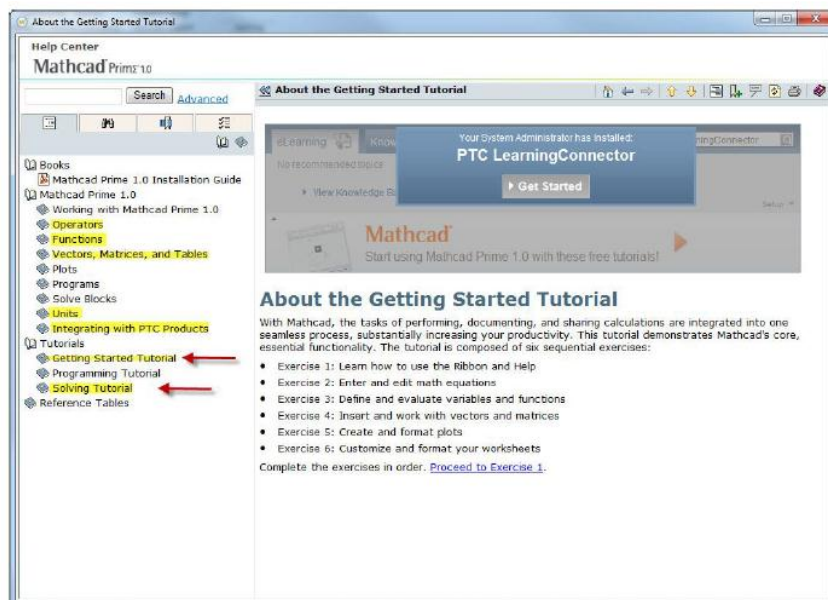
2. Complete the [Advanced Primer for Creo Elements/Pro](#) module



Training for Mathcad

To help get started PTC recommends that you make use of the training materials available under the Getting Started tab in Mathcad Prime to familiarize yourself with using Mathcad Prime.

Click Getting Started Tab > Tutorials



In order to prepare yourself for the use of Mathcad in this Aviation Curriculum, we recommend that you explore the Getting Started resources in the following order:

1. Tutorial
 - a. Getting Started Tutorial Exercises (1 – 6)
 - b. Solving Tutorial Exercises (1 – 2)
2. Mathcad Prime 1.0
 - a. Operators
 - b. Vectors
 - c. Units
 - d. Integrating with PTC Products
 - e. Functions (Optional)

For additional training on Mathcad, PTC has prepared a number of focused tutorials to assist in your learning.

- **Mathcad Prime Live Scratchpad Module:** This tutorial introduces the user to the basics of entering and evaluating numerical expressions in Mathcad Prime. Mathcad's unit handling capabilities are introduced and explained in brief. (Level = Novice Users, All Ages)
- **Programming with Mathcad Prime Module:** This tutorial introduces the user to the basics of defining functions and programs in a Mathcad Worksheet. Mathcad's basic Programming capabilities are introduced and applied. (Level = Intermediate Users, All Ages)
- **Better Communication with Mathcad Prime Module:** This tutorial presents an extended example of using Mathcad Prime to solve a system of linear equations in Algebra 1. Mathcad regions such as the Text Box, the Plot Region, and the Math Region are discussed. Users learn to use Mathcad Boolean, Evaluation, and Assignment equality symbols. Basic document formatting skills are discussed. (Level = Novice Users, Secondary School)
- **Using Mathcad for Parametric Equations:** This tutorial introduces the user to using Mathcad Prime to model and solve problems involving motion. Mathcad's ability to work with parametric equations are emphasized. (Level = Intermediate Users, Secondary School)

Download the [Mathcad Prime 1.0 Primer Tutorials](#).

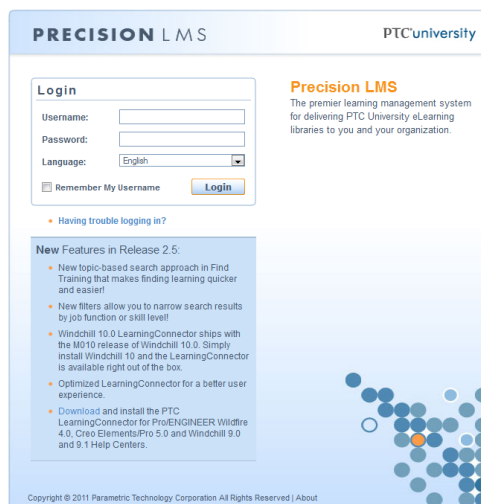
Web-Based Training Portal

For FIRST teams, PTC has provided free web-based training for Windchill ProjectLink, Creo Elements/Pro and Mathcad through PrecisionLMS. A special site has been created for users to access and learn the various applications.

Teams are required to register to access the portal - [Register for the Precision LMS for Schools Portal](#)

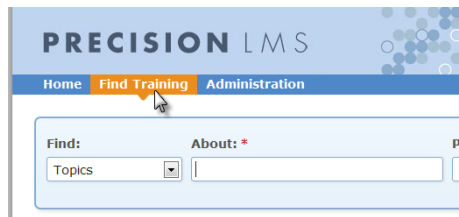
PTC will process your registration and will send an invitation email indicating that you have been added to the portal. Once added, you can access the site from the following link:

- www.ptc.com/go/plms4schools



Enter your **username** and **password** and click **Login**. This will open the **Home Page**.

On the Home Page, select the Find Training tab. This will allow you to search for given courses.



You can search for courses in one of three ways:

- 1. Topics:**
Have a question you need answered quickly? Choose Topics to get right to the detailed subject you're looking for.
- 2. Courses:**
Looking to take a full training course targeted to your job or skill level? Choose Courses to search or browse through multiple types of courses including Introduction, Advanced, Role-Based, etc.
- 3. Assessments:**
Looking to test your knowledge or skill? Choose Assessments to search or browse through standard and custom assessments

PTC recommends that you complete the following Creo Element/Pro courses.

- **Introduction to Creo Elements/Pro 5.0 - Fundamentals**
- **Introduction to Creo Elements/Pro 5.0 - Productivity Tools**

PTC recommends that you complete the following Mathcad Prime 1.0 courses.

- **Mathcad Prime 1.0 - Application Orientation**

Support for FIRST Teams

Teams can direct their questions to PTC through the support form:

- www.ptc.com/go/academic-support

PTC has also established discussion forums for users to post questions and comments. PTC monitors these forums regularly and will promptly respond to your inquire.

- [FRC Forum](#)
- [PTC Schools Edition Forum](#)

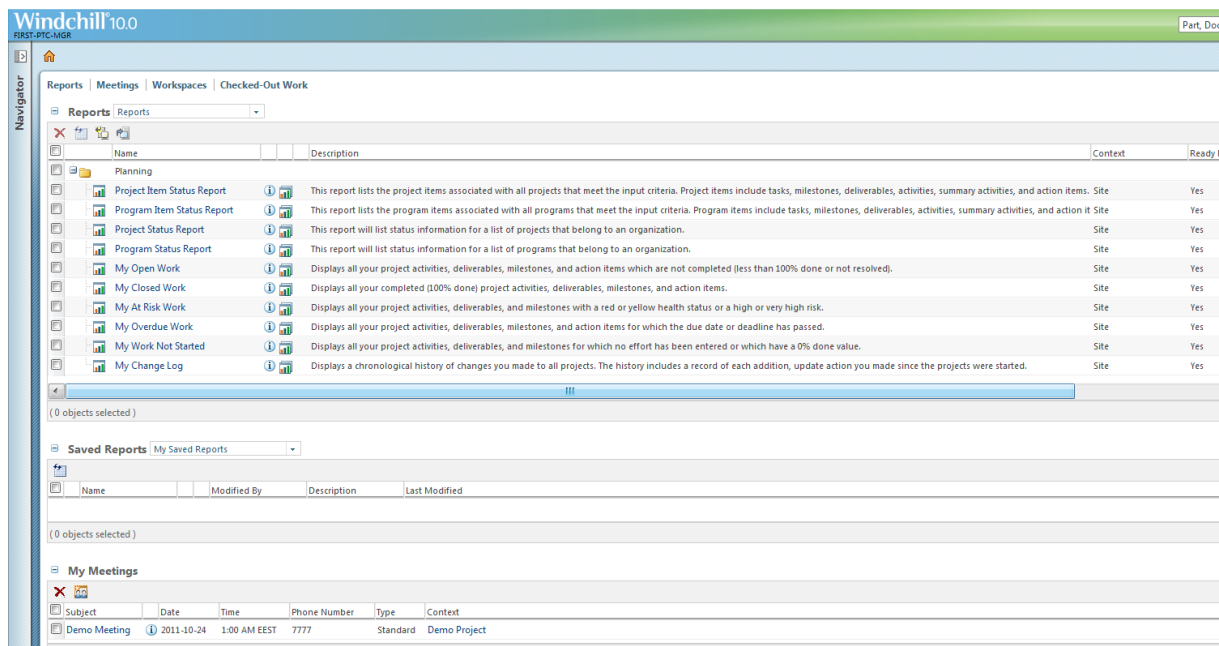
Appendix

Layout and Navigation

The Home Tab Options

Upon successfully logging on to Windchill ProjectLink, users have access to **Home** and **Project** tabs. Administrators may access other tabs that correspond to organization and system level capabilities.

Note: The screens capture the interface and navigation experience for a team member who is not an administrator.

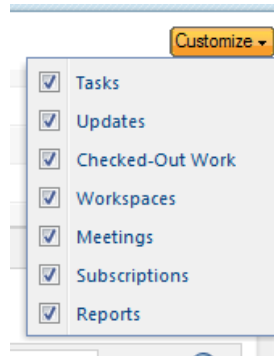


From the **Home Main** page, the following pages are available:

- **Overview** - Provides a snapshot of the information customized and relevant to the logged on user at that current time. This page consists of several table views.
- **My Tasks** - Provides a view of all objects for which you are responsible, either as an owner, an assignee, or as a resource, and a list of available actions that can be performed on the item. The My Tasks table on the home page displays work objects for which you are responsible, either as an owner or assignee. This table is meant to be a quick reference of your assignments and may not be comprehensive. The Tasks tables available on the context-specific Tasks pages may contain all tasks in the context, not only the ones for which you are responsible. The view you choose on the table constrains the tasks you see.
- **Updates** - Provides a view of all objects that you have recently created or modified, and a list of available actions that can be performed on the item.
- **Subscriptions** - Provides a list and interface to various object subscriptions. Subscribing to an object means the user receives an e-mail notification when certain events or actions affect that object. For example, such an event occurs when a document is checked in or the status of a milestone changes.
- **Reports** - Displays a report table that allows a variety of reports to be run across projects in which users participate. Only items for which the logged in user is the owner display in the results.
- **Checked-Out Work** - Provides a list of all objects such as parts and documents that you currently have checked out, and a list of available actions that can be performed on the item.

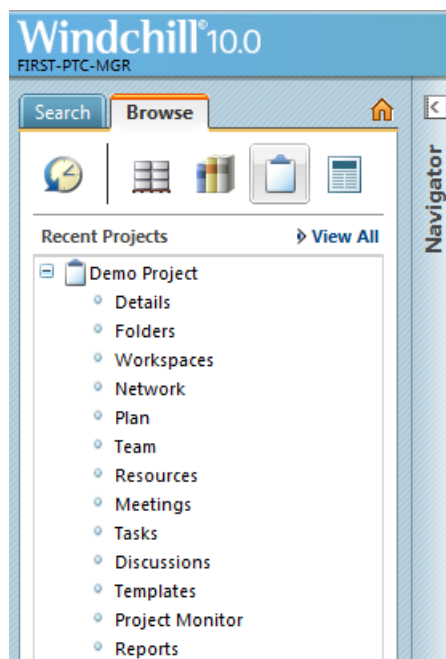
- **My Workspaces** - Provides a list of any workspace created to exchange CAD data with its native application. If CAD data has not been used, the Workspaces option may not appear.
- **My Meetings** - Displays the meetings across all projects to which users received invitations or created.

You can customize what tables to appear on the Home Main Page by clicking on the Customize button in the right side of the page. From here you can select the tables by checking and unchecking the boxes in front of them.

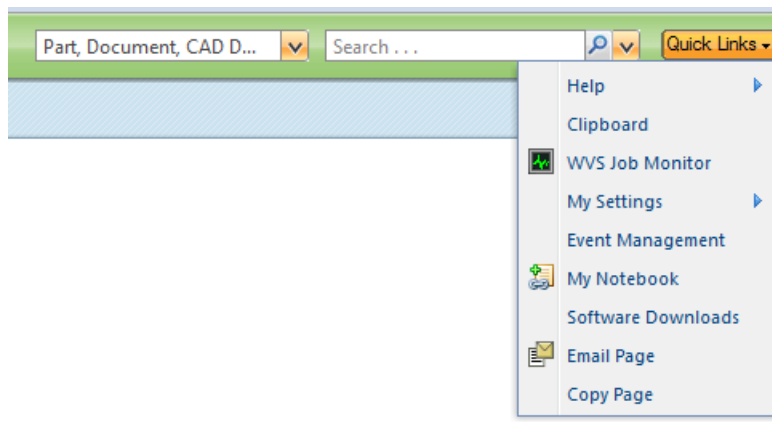


The **Navigator** allows you to find and browse for files stored in Windchill. The Navigator contains two tabs: the [Browse](#) tab and the [Search](#) tab. The [Browse](#) tab allows you to navigate to various contexts you have access to, such as your Projects or Products. The [Browse](#) tab also contains [Recently Visited](#), which displays your recently accessed contexts and workspaces. The [Search](#) tab allows you to search for objects in Windchill by entering your own advanced search parameters, or by using a saved or historic search.

Click anywhere on the Navigator bar to expand or collapse it. Click Search or Browse to open the Navigator to that tab.



We will investigate the **Software Downloads**, option under the **Quick Links** button. Several important visualization and enabling software components are installed from this area.



Downloadable Software Components

From the **Quick Links** tab, select the **Software Downloads** page link to download any plug-ins necessary for additional functionality, such as:

- Plug-ins for CAD systems to upload CAD files
- Heavy visualization tool to observe viewable files and perform extensive visual collaboration
- Microsoft Project Integration
- Windchill Desktop Integration

Accept the terms of the License Agreement to proceed on to the subsequent screens.

A section of the **Software Downloads** page is presented below. The selections available to you as a user are governed by PTC's agreement with FIRST.

Software Downloads

Setup and Installation

Bootstrap Loader Installation If your network does not allow Windchill applets to communicate with Windchill servers, this pack
Creo View Installation Request the online installation of the Creo View visualization client.

Windchill Desktop Integration Install this tool to manage your Windchill documents in Microsoft applications such as Microsof
Windchill Desktop Integration (64-bit) Install this tool to manage your Windchill documents in Microsoft applications such as N

Project Management Integrated interfaces that exchange data with project management authoring tools. ?

PTC Plug-in for Microsoft Project Exchange plan information between Windchill ProjectLink and Microsoft Project.

Supported Versions: Microsoft Project 2003, 2007 and 2010

Supported Operating Systems: Windows XP, Windows Vista and Windows 7

Supported File Types: .MPP

Supported Information: Tasks, Summary Tasks, Milestones, Resources, Constraints, Cost, Effort, Duration, Status

Technical Illustration

Arbortext IsoView Install Arbortext IsoView to allow viewing of IsoDraw illustrations through Creo View.

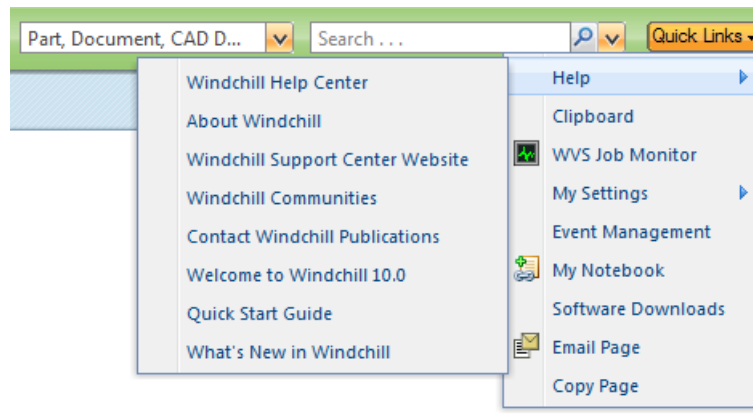
Windchill Workgroup Managers

Windchill Workgroup Manager Install to connect the following applications to Windchill: Mathcad, NX, SolidWorks, AutoCAD, .
 Zuken.


When you select a linked item, the system initiates the installation process associated with that software component.

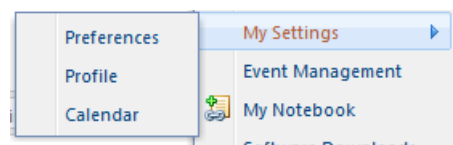
Tutorial and Online Help Access


The section of the Windchill page, shown below, displays various options, under the buttons **Quick Links->Help**



The following options, available in any context, provide the following functionality:

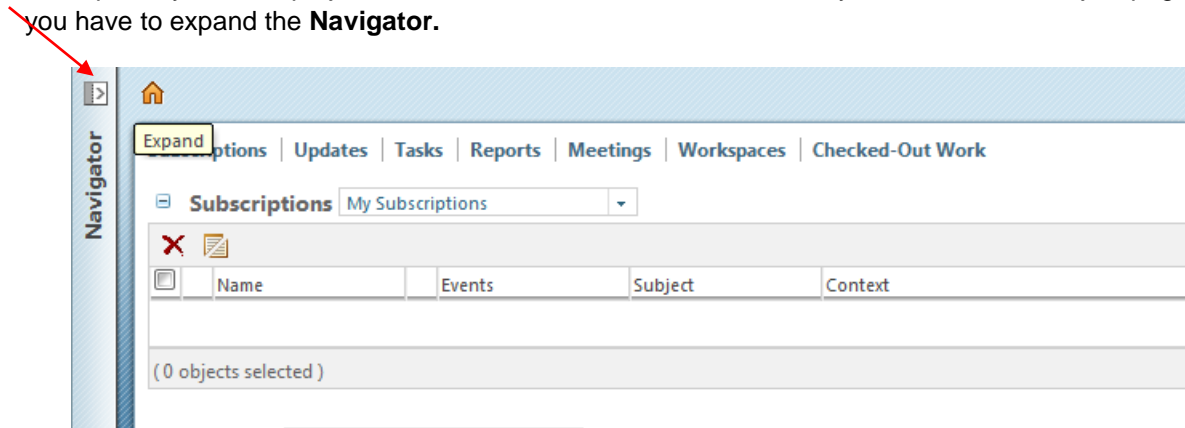
- **Event Management** - utility provides a way for you to check and act on log messages generated in your authoring application or Windchill sessions.
- **Clipboard** – Allows a user to view items saved to the clipboard.
- **Help** - Provides definitions and detailed information on the functionality of Windchill.
- **E-mail Page** - Allows a user to e-mail a link to the page they are currently viewing, along with comments to desired recipients.
- **Notebook** - The notebook is a way to organize your information. You can use the Notebook and My Notebook tables to upload files into Windchill, create links, and organize your information into folders and subfolders.
- **Copy Page** - Allows the ability to paste the current URL to the clipboard for easy creation of links to the selected value.
- **WVS Job Monitor** - allows you to view the status of different types of WVS jobs. The Job Monitor can be accessed from various locations in Windchill by clicking on the WVS Job Monitor icon , or from the Business Administration section of the Utilities page.
- **Copy Page** - Allows the ability to paste the current URL to the clipboard for easy creation of links to the selected value.
- **Search** - Provides high-level search functionality. For details, refer to the tutorial titled "Searching Projects."
- **My Settings** - Allows the ability personalise your Preferences, Profile, Calendar



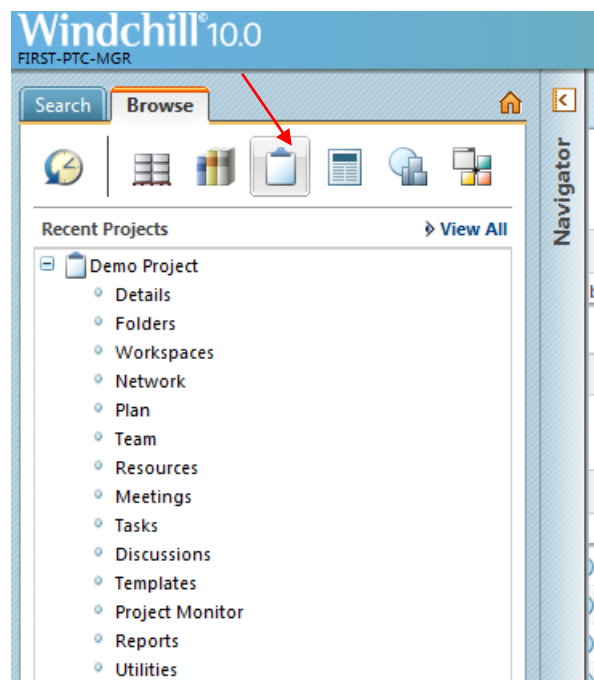
- **Preferences** - allows users to view and set preferences, such as display and search options, to enhance their Windchill experience, and allows administrators to view and set preferences for various application contexts, such as projects, products, or organizations.
- **Profile** - The team member details page is accessible by clicking the view information icon  from the Members table for a particular context. The page displays details about an individual team member.
- **Calendar** – From this page you can personalise your Calendar

The Project Tab Options

In addition to a **Home** page, all users have access to a **Project** tab, as shown below. The Project page is the primary area for project collaboration and execution functionality. To access the Project page you have to expand the **Navigator**.



After the Navigator was expand, you have to click on Recent Projects icon, and then the following options will appear to access you project, like in the screenshot below.



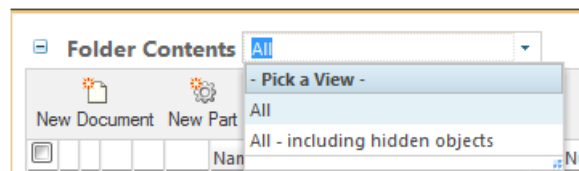
The following options are available under the **Project** tab:

- **Projects List** - Displays the projects with which the user is currently involved, either as the project manager or as a team member (participant).
- **Details** - Displays the information specific to a particular project such as the budget, start date, status, and estimated finish date. (Action Tab Actions Project - Demo Project - Information pages contain a list of applicable actions in a menu just below the object identification line)
- **Folders** - Provides access to information about a specific project, including folders, documents, parts, CAD documents, and links. This is the central repository for objects and files relevant to the project.

- **Workspaces** - Allows transferring and interoperability with CAD data and its native application. This tab is only available when CAD data is used within a project.
- **Plan** - Displays information about the activities, summaries, sub projects, and milestones associated with the current project. An overall project timeline is displayed for a quick project status check view and overall progress snapshot.
- **Team** - A project team is a list of the members of a particular project. If the user is the project manager for a project, the team can be modified from this page.
- **Resources** - Resources are necessary to the completion of the project or program, such as a person, facility, piece of equipment, or particular material. They normally have cost, time, or technical restraints associated with them, and can be tracked as part of the budget by associating resources with activities and milestones. Resources may be physical (plants, work centers, tooling, process materials) or represent a specific skill.
- **Meetings** - Windchill meetings allow you to schedule conferences with team members and displays all meetings created in the current project.
- **Tasks** - Displays work objects for which you are responsible, either as an owner or assignee. Displays all resolved and unresolved action items, completed and uncompleted deliverables, activities, summary activities, tasks, and project management tasks.
- **Discussions** - Allows the user to start discussions about certain topics that relate specifically to the active project.
- **Reports** - Displays a report table that allows the user to run predefined conditional reports on the current project.

Display Filtering and User Preferences Capabilities

Display configuration and list filtering options reside throughout the Windchill interface areas. The Current View drop down list is displayed on almost every main page, and aids in focusing on specific work.



Other general interface capabilities available in Windchill include wizards that are often used in multi-step operations, and object action lists which are initiated by selecting the **Actions** link or by choosing items from the object drop-down action list.

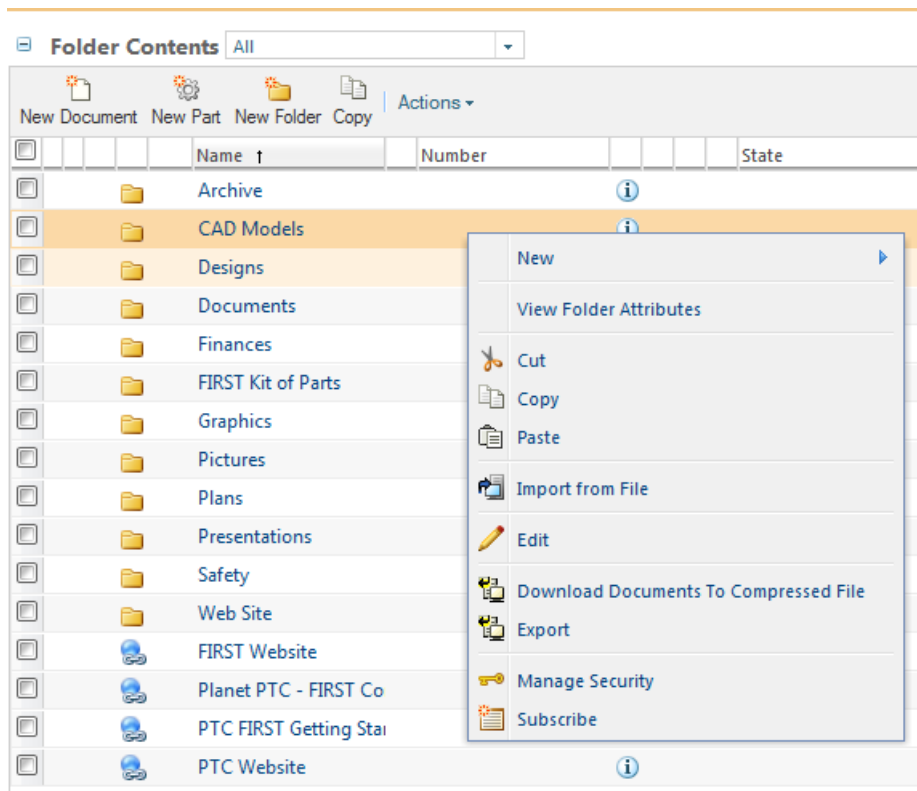
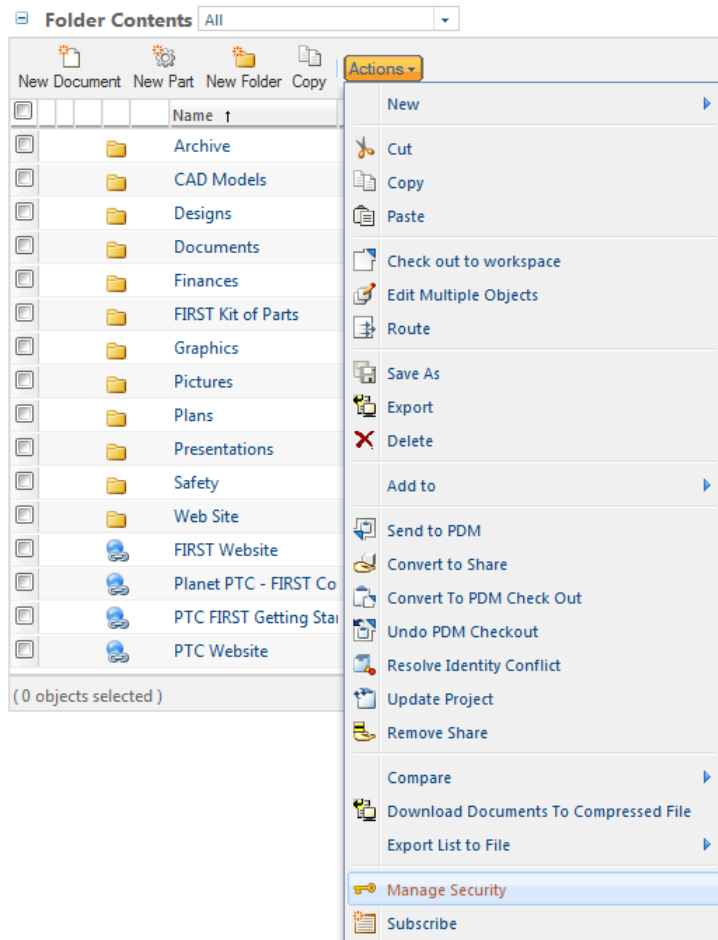
Managing Security

Managing security to projects and documents is an important feature that Windchill provides. Managing security is easy to accomplish and allows you to manage the way in which project members including members in offices around the world handle a project. Managing security is critical to ensuring the integrity of your business data.

Navigating to the Folder Actions Drop-down Menu

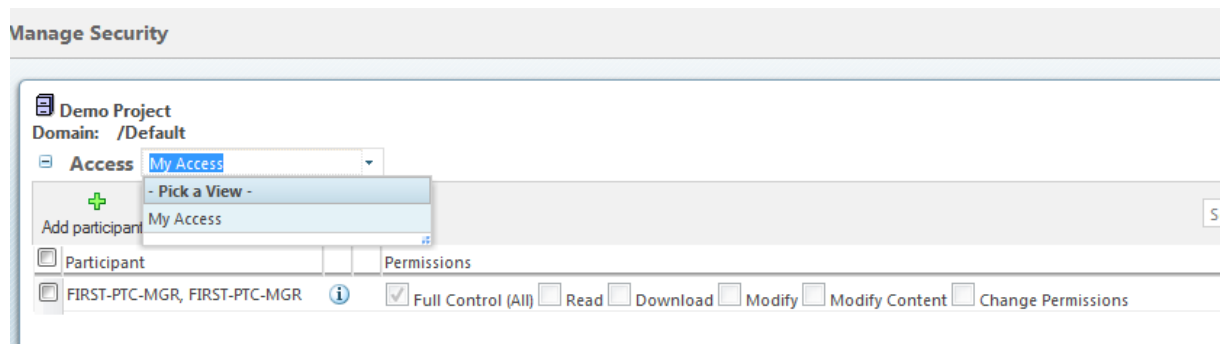
Managing security settings are specified for the groups affiliated with a selected object in your project.

1. Click the **Actions** option folder tab. This will expand the **Folder Actions Drop-down Menu** or right mouse click in the context of the project. Select the **Manage Security** option.



Displaying Participants

The initial list of [participants](#) displayed in the table is determined by the view drop-down list selection that is active when you open the window containing the table:



- **My Access** -- Populates the table with you as a participant and displays your access control information.
- **Team Access** -- Populates the table with the groups containing the team members of the current context and displays the associated permissions for each participant. This view is useful when you want to change the permissions for those members in one or more team roles. The view shows the system groups associated with team membership. These groups include the following:
 - A group for each role included in the team. For example, the Members group (used for users who need general access to all actions in the context), the Guest group (user-defined groups and users that are not active team members and need only read access to context information), and corresponding groups for the other team roles.
 - The Team Members group, which contains all participants in the team excluding those members in the Guest role.

The participants can be users, groups, or organizations.

- **All Defined Access** -- Populates the table with the users, groups for which access control permissions have been defined and displays the associated permissions for each participant. This view is useful when you want to view all participants who currently have access control permissions defined for a single object. The participants listed are those who are actually named in either a [policy access control rule](#) or in an [ad hoc access control rule](#). If a dynamic role is used as a participant in defining policy rules, the system group containing the team members of the role for the current context is listed as the participant rather than the dynamic role. By default, the All Defined Access view groups the Access table by the Applies To column. A policy access control rule can either apply to the participant listed or all users except the listed participant. For more information about rules applying to all users except the selected participant, see [Selecting All Except Principal](#).

The identity information displayed in the Participant column is dependent on the Detailed Participant Identification preference in the Security category. By default a simple format is used. If you change the default setting, additional information is displayed to help distinguish participants with the same name. For more information, see [Setting Security Preferences](#).

Access Control Types

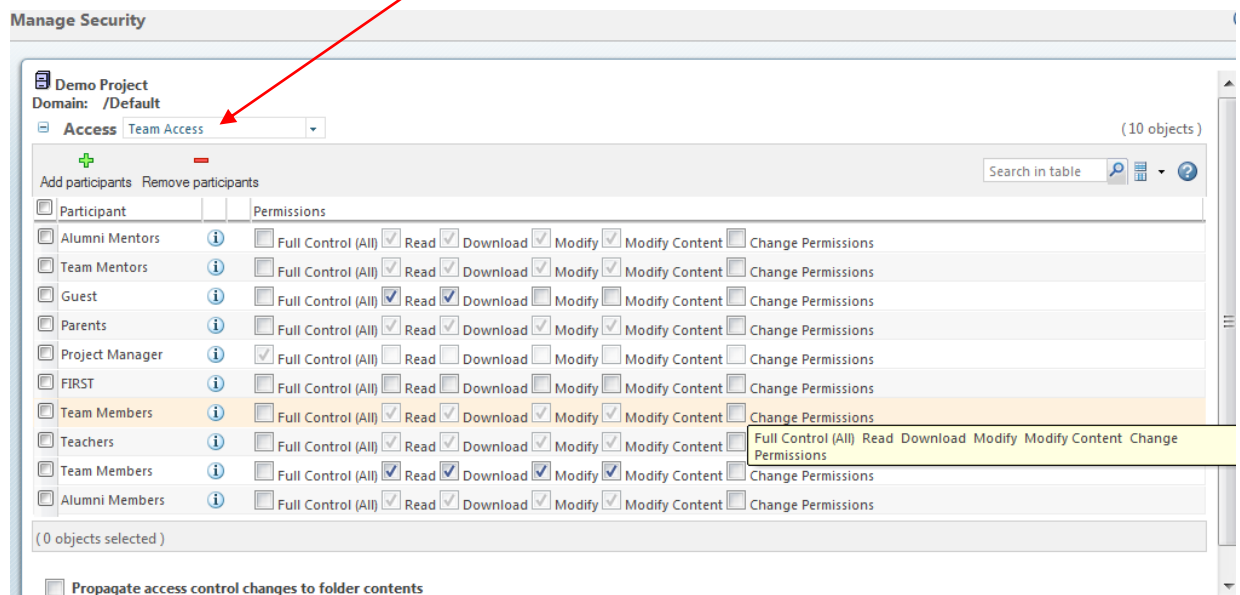
Before we set access controls, let's define access control types for an understanding of what the controls mean to your project members.

- **Full Control (All)** - A participant (user, group, or organization) granted the Full Control (All) permission is granted all permissions currently defined and any defined in the future. Therefore, if new permission types are defined, you do not have to write rules that specifically grant them to participants with full control access.
- **Read** - The right to know the existence of an object and to view the object and its attributes. Additionally, if the object has content, you can view an object's content information such as the file path to a local file or the location of external storage. This permission does not allow you to view the actual contents of the file.
- **Download** - The right to download local files that are the primary content or are attachments of an object. This right is applicable to objects with content, such as documents or drawings.
- **Modify** - The right to change the attributes of an object, as well as other characteristics that are part of the object definition but are not controlled by the Modify Content or Modify Identity permissions. For versioned objects, a user must have the Modify permission on the latest iteration of each version of a target object to update the attributes common to all versions that are not part of the object's identity. Modify permission on a version of a target object is required to modify that version's attributes.
- **Modify Content** - The right to modify any local file, URL, or external storage for the primary content and attachments of an object with content. This includes modifying content information and adding, replacing, or deleting content.
- **Change Permissions** - The right to change the ad hoc permissions that others have. Users, groups, or organizations granted the Change Permissions permission are allowed to change the ad hoc permissions of others to the permissions they themselves have or to a subset of the permissions they have.

Setting Security Access

When you have displayed the **Manage Security** menu, you can set the controls for your project groups.

1. Select the desired Access – **Team Access** in this case.



2. Select the desired options for the appropriate groups.
3. Click **OK**. Access controls are set and the **Manage Security** menu closes.

For folders only: You can select **Propagate Access Control Changes** to all folder contents. However, the access control of any items in the folder that are currently checked out will not change.

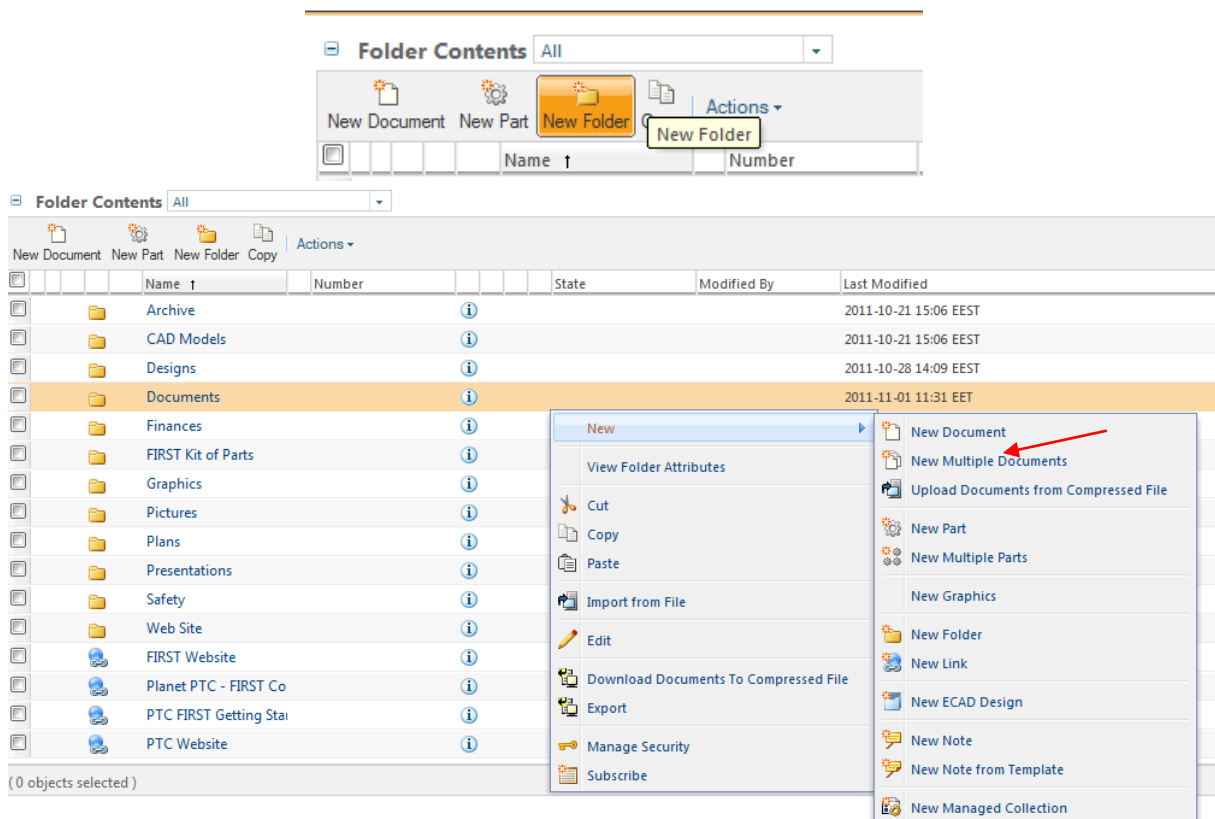
Propagate access control changes to folder contents

Create Folders

In Windchill, folders are created in projects to display related documents, CAD documents, parts, and links.

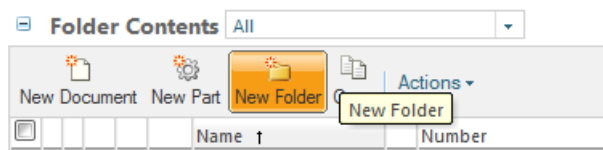
Accessing Create Folder Icon

The first action you need to take in order to create a folder is to navigate to the **Create Folder** icon on the **Folders** page or right click with the mouse button in the context of the project like in the screenshot below.



Let's navigate to the **Create Folder** icon.

1. Click Folders and check the box next to the folder you want to create the folder in.
2. Click Create Folder icon. The Create Folder page appears.



Populating Create Folder Fields

On the **Create Folder** page, you name the folder, define the location, and set the security controls for the project members. Let's define folder details.

1. Type **Robot Design** in the Name field. Click **Next**.

The screenshot shows a web browser window titled 'New Folder - Mozilla Firefox'. The address bar shows the URL: <https://firstrobotics.ptc.com/Windchill/ptc1/folder/create?ContainerOid=OR%3Awt>. The page title is 'New Folder'. There are two numbered steps: '1 Set Attributes' and '2 Set Access Control'. The 'Set Attributes' section is expanded, showing a form with a 'Name' field containing 'Robot Design' and an empty 'Description' field. At the bottom, there are buttons for 'Back', 'Next', 'Finish', 'Apply', and 'Cancel'. A note at the bottom left says '* Indicates required fields.'

2. Set the appropriate security access for the various project members.

The screenshot shows the 'Set Access Control' step of the 'New Folder' form. The 'Access' dropdown is set to 'Team Access', and it indicates '(10 objects)'. There are buttons for 'Add participants' and 'Remove participants', and a search box labeled 'Search in table'. Below is a table with columns for 'Participant' and 'Permissions'. The table lists various roles and their permissions:

Participant	Full Control (All)	Read	Download	Modify	Modify Content	Change Permissions
Alumni Mentors	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Team Mentors	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Guest	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parents	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Project Manager	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FIRST	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Team Members	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Teachers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Team Members	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Alumni Members	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

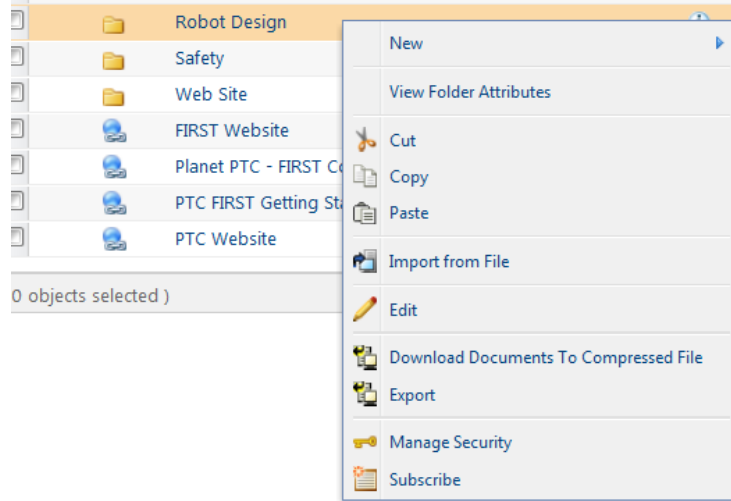
At the bottom, there are buttons for 'Back', 'Next', 'Finish', 'Apply', and 'Cancel'. The 'Next' button is highlighted.

3. Click **Finish** to complete the creation of the project folder. You may also click **Apply** to complete this folder and continue to create another one.

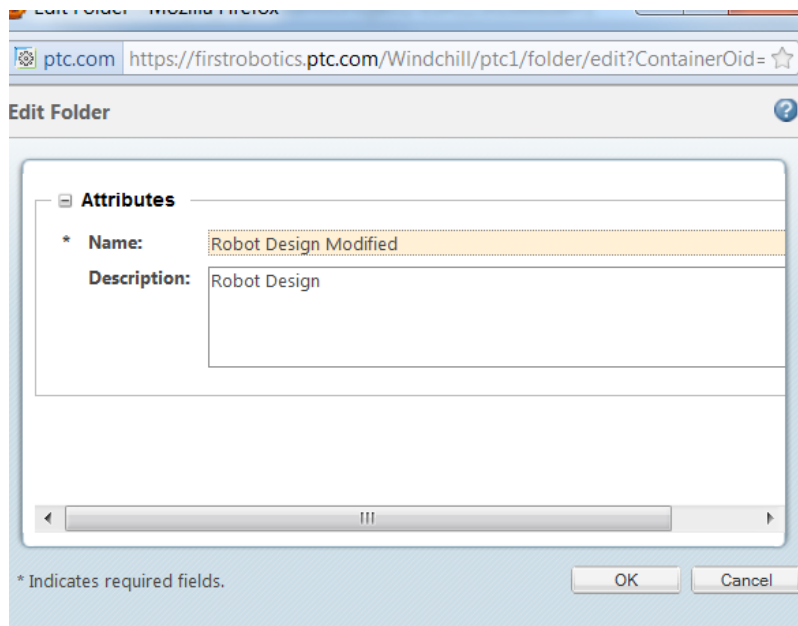
Note: the All Members group is a pre-defined container of all team members and allows global management of access control with a project.

Rename a Folder

If you want to rename a folder, just right click with your mouse button over the desired folder and select the **Edit** option:



In the Edit window, you can change the name and the description of the folder. After you have made all the modifications you can click on the OK button to propagate the changes.



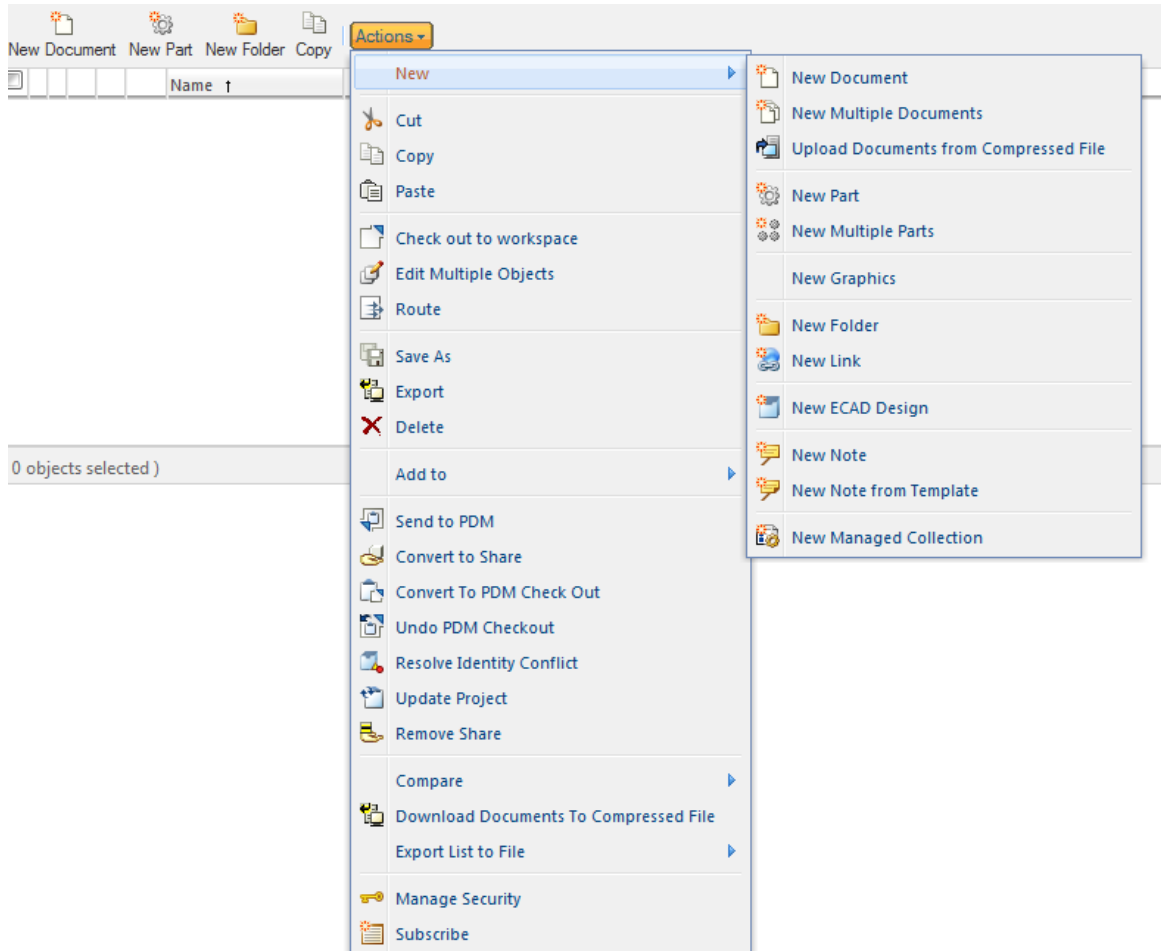
Create Document

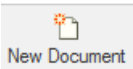
Windchill PDM/ProjectLink allows you to create documents by uploading files from your existing local directories.

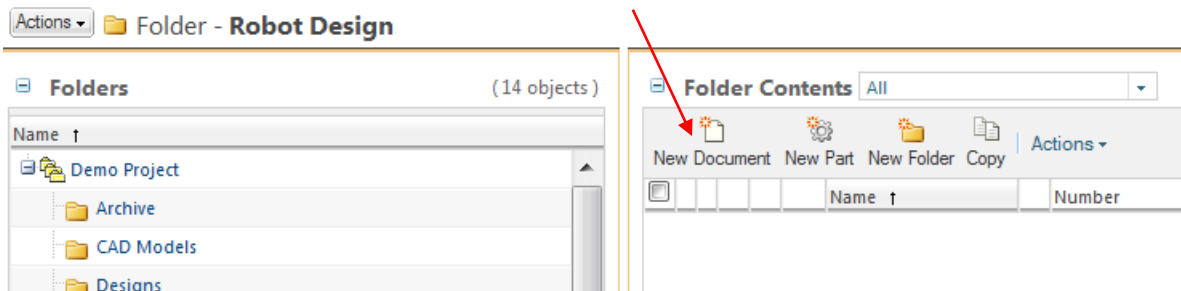
Accessing Create Document Icon

The first action to create a document is to open the **Create Document** wizard, by clicking on the **New Document**

Document icon  or accessing the **Actions Folder Ribbon -> New->New Document**



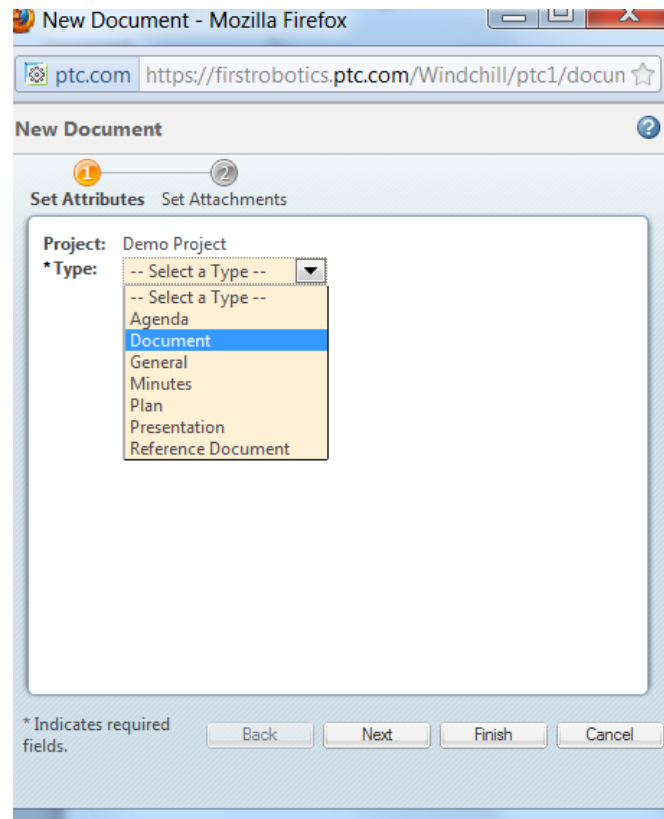
1. Click **Create Document** icon  on the **Folder** page toolbar.



Creating a Document for a Specific Location

We will create a file to the Robot Design folder in your project. With the **Create Document** wizard open, follow these steps:

1. Determine the new document **Type** from the pull-down list. This sets the classification for the file. Choose **Document** then click **Next**.



2. Click **Browse** and search for the document you want created in the selected folder.

New Document - Mozilla Firefox

ptc.com https://firstrobotics.ptc.com/Windchill/ptc1/document/create?ContainerOid=OR%3

New Document

1 2

Set Attributes Set Attachments

Project: Demo Project

*Type: Document

Template: -- Select a Template --

*Primary Content Source: Local File

*Local File Path: D:\FIRST servers documents\FIRST Doc Browse...

File Name: FIRSTROBOTICS WC 10 Quick Start Guide.docx

Attributes

Number: (Generated)

* Name: FIRSTROBOTICS WC 10 Quick Start Guide

Description:

* Location: Autoselect Folder (/Demo Project) Select Folder /Demo Project/Robot Design

* Life Cycle Template: (Generated)

Team Template: (Generated)

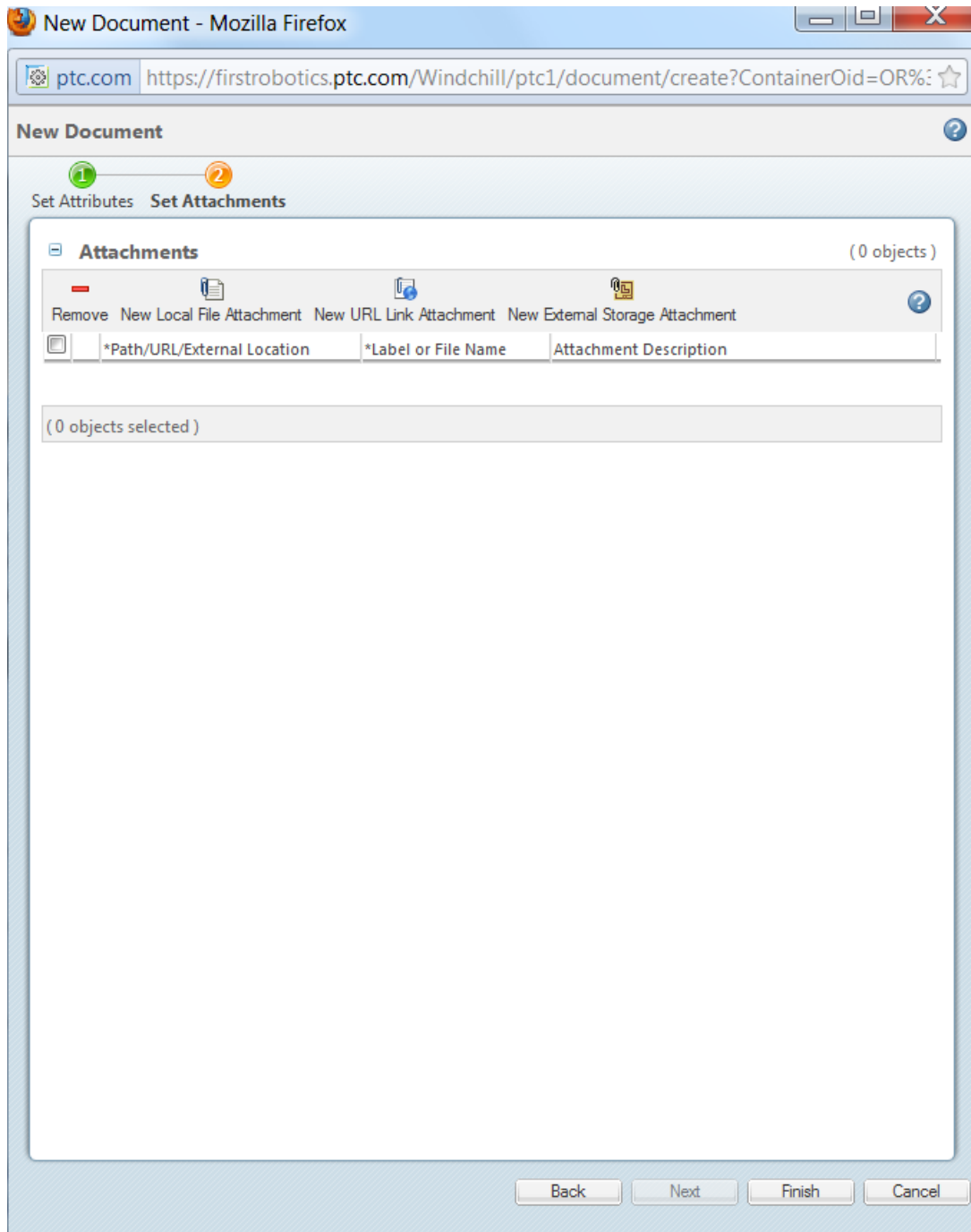
Keep checked out after checkin

* Indicates required fields.


Back Next Finish Cancel


*Tip: If you would like to lock the document for editing after you have created it, **check the Keep checked out** after checkin checkbox or the Check out and download checkbox if you have created the document from a template.*


3. Type a name in the **Name** field, in the Attributes Section.
4. Type a **Description**.
5. Specify a location. The location confirms the folder to which the file uploads.
6. If you click **Next** and not **Finish** button, you will access the **Set Attachments** page. You can attach content to a selection of Windchill objects, including documents, change objects, and notes. Attachments can be a local file, a URL link, or an externally stored source of content.



Attachment Type - Description

 Local File - attachments are files that you upload from your local machine to Windchill. For example, this can be a Microsoft Word document, a text file, or a graphic.

 URL - URL attachments are hyperlinks to content stored on a website outside of Windchill. For example, this can be a wiki page or product help site.

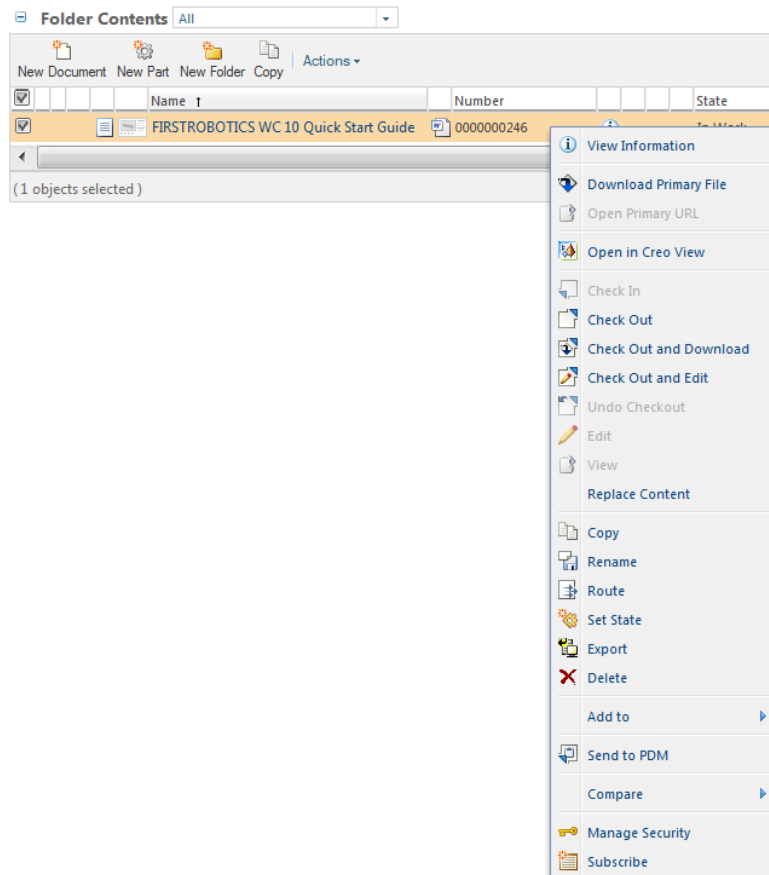
 Externally Stored Content - External content attachments are items that cannot be attached as local files or URL links because they are physical objects or places.

For example, this can be a three-dimensional item such as a product model or prototype, or highly sensitive data stored in a secure location. An externally stored content attachment describes the content and refers the user to its location.



7. Click **Finish**.













Editing Documents















Users frequently need to edit documents contained in a project to capture changes and iteration history, while preventing other project team members from overwriting their changes. You can **right click** with your **mouse button** on the document you want to **Edit** and the Actions List for the managing the document will appear.










Folder Content Actions

Icon	Action	Description
	Add to ► Add to Baseline	Opens the Add to Baseline window, allowing you to add the most recent version of the object to a baseline. A baseline is a snapshot of an evolving collection of product data objects. You can search for an existing baseline or create a new baseline in which to include the object. For more information, see About Managed Baselines . Note This action is available only for products or libraries.
	Add to ► Add to Hot Links	Add a link for each selected row to the Hot Links folder in the Notebook under the Home tab.

	Add to ► Add to Managed Collection	Opens the Add to Managed Collection window, allowing you do add the object to a managed collection. Note that a managed collection cannot contain a package but a package can contain a managed collection. For more information, see About Managed Collections .
	Add to ► Add to Workspace	Opens the Add to Workspace window, allowing you to add the selected object to a specified workspace. For more information, see Workspace Page Functionality .
	Check In	Opens the check-in window for the object, allowing you to check in the object that you have checked out. The check-in operation saves the modifications you have made to the object in the system and also iterates the object, for example, from A.1 to A.2. For more information, see Checking In an Object .
	Check Out	Checks out the object to you, locking it to prevent modification by others. You can then undo the checkout or check in the modifications you have made to the object. For more information, see Checking Out an Object
	Check out to workspace	Opens the Check Out and Add to Workspace page, allowing you to collect and configure an entire set of objects for checkout. For more information, see Checking Out Objects from the Workspace .
	Compare ► Compare Information	Allows you to select a different object of the same type and compares the object information.
	Compare to CAD Structure	Opens a window where you select a CAD structure with which to compare the selected part and its structure.
	Compare to Part Structure	Opens a window where you select a part structure with which to compare the selected part and its structure. For more information, see Comparing Structures .
N/A	Convert To PDM Check Out	Check out to a project an object that is currently shared to that project from a product or library. Note This action is available only for products and libraries.
	Copy	Places a copy of the selected object on the Windchill clipboard so that it may be pasted elsewhere as a new object or a reference. For more information, see About Copying an Object . Note To perform this action, you must select the check box for each object that you want to copy.
	Cut	Move objects to the Windchill clipboard temporarily, until transferred to another location within a context using the paste action. Objects are permanently removed from their original locations when the paste action is complete.
	Delete	Opens the Delete window, allowing you to remove the object and related objects from the database. For more information, see About Delete .
	Download Documents to Compressed File	Create and download a compressed file (ZIP) containing selected documents and folders. Both document content and the folder structure are added to the compressed file.
N/A	Edit Multiple Objects	Edit multiple documents at once. For more information, see Editing Multiple Documents .
	Export	Opens the Export window, allowing you to compress the content and metadata of the object into a JAR file in order to move the information to another site or portal. The JAR file resides on your local file system prior to being moved. For more information, see About Export and Import .
N/A	Export List to File	Export the information in the Folders table to a file that can be accessed offline in programs such as Microsoft Excel. You can export this list in CSV, HTML, TEXT, XLS, XLSX, XLS Report, or XML format. Once you have selected a format, a window will open, showing the

		progress of the file. When the export is complete, the file will either automatically open in your browser, or a window will appear allowing you to choose whether to open or save the file. This depends on your browser settings.
N/A	Manage Security	<p>Opens the Manage Security window from which you can view the current permissions on the object for any user, group, or organization that you can access. If you have the required permissions, you can change the current ad hoc access control permissions that are in place for the object. For more information, see Access Table.</p> <p>If security labels are enabled for your site, clicking the Security Labels tab allows you to view and set the security label values for each label defined for the object. For more information, see Security Labels Table.</p> <p>Note To modify security for a specific object, select the action from that object's right-click actions menu or select the object in the folder browser and use the table-level action. Using the table-level action without selecting an object modifies the permissions of the folder selected in the Folders table.</p>
	Move	Opens the Move window, allowing you to transfer all versions of a selected object, and other related objects to another context and folder location. For more information, see About Move .
	New ► New Document	Create a new document in the folder. For more information on documents, see About Document Management .
	New ► New Document from Template	Create a new document based on a template that provides a standard format. For example, your administrator can create a template for meeting minutes or specifications.
	New ► New Folder	Place a new folder in the table or within another folder. The folder appears at the top of the list, or if you select the check box next to the folder name before clicking New Folder, the new folder appears above the selected folder.
	New ► New Link	Create a link in the folder to an object that resides in another location.
	New ► New Managed Collection	Creates a collection of objects that can be used to gather related objects into a cohesive set for inclusion in a package or to be routed for review or approval. For more information, see About Managed Collections .
	New ► New Multiple Documents	Create several documents at once, rather than creating one document at a time. The documents must contain primary content from local files and must all be created in the current context.
	New ► New Multiple Parts	Create several parts at once, rather than creating one new part at a time. Its action is available in Windchill PDMLink and Windchill ProjectLink only.
	New Note	Create a new note in the folder.
	New ► New Note from Template	Select a note template that provides standard format for notes.
	New ► New Part	Create a part in the folder. This action is available in Windchill PDMLink and Windchill ProjectLink only.
	Paste	Transfer the last objects cut or copied to the Windchill clipboard into the selected folder. Note Before pasting copied objects, you must select the check box of the folder into which you want to paste the objects.
	Route	(Windchill ProjectLink only) Opens the Route window, allowing you to move an object through an automated process, such as a review or approval routing. For more information, see Routing an Object .
	Save As	Opens the Save As window, allowing you to create a new object based on

		the current object. The attributes and relationships that can be carried forward to the new object vary by object type. Note This action is available only for parts, documents, and CAD documents.
	Send to PDM	Opens the Send to PDM window, allowing you to check in the current object and related objects from a project to a product or library. For more information, see Sending Objects to PDM .
	Set State	Opens the Set State window, allowing you to change the life cycle state of the object, for example, from In Work to Released. For more information, see Setting the State of an Object .
	Subscribe	Opens the Subscribe window, allowing you to subscribe to certain events. For more information, see Subscribing .
	Undo Check Out	Releases your hold on the object, making it available for others to check out. Modifications you made to the object are not maintained. For more information, see Undoing a Checkout .
	Undo PDM Checkout	Undoing a PDM checkout reverses the check-out operation on an object from PDM to a project. Modifications you made to the object are not maintained. For more information, see Undoing a PDM Checkout .
	Update Project	Update any object shared to the project. This allows the most recent iteration of the object to be downloaded from the project to a user's workspace.
	Upload Documents from Compressed File	Add documents and folders to Windchill from files and folders contained in a compressed file (ZIP or JAR). For more information, access the online help available from the Upload Documents from Compressed File window.

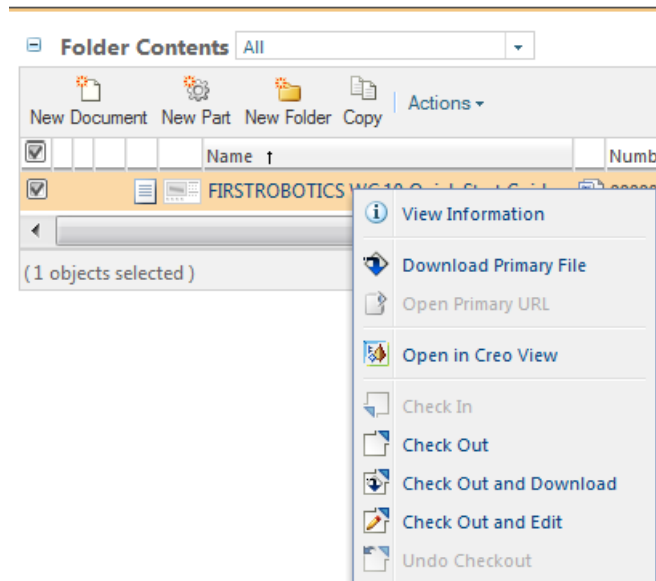
Checking out Documents

To edit a document, you must first check it out to prevent others from making simultaneous, overriding changes.

There are three checkout options, **Check Out and Download**, **Check Out and Edit** and **Check Out**, which are available from the **Actions** list for the document.

- Use the **Check Out and Edit** option for immediate editing work.
- Use the **Check Out and Download** option to store the file on your system to perform editing work.
- If you are going to edit the file later, but you want to prevent others from locking out the document, choose **Check Out**.

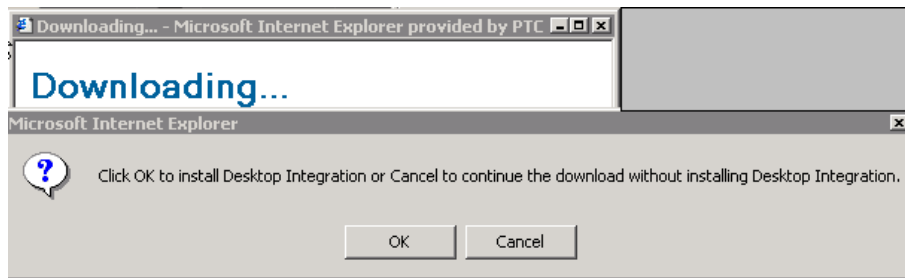
Note: If you do not see these options or the pencil icon, it means that you do not have write access to edit files.



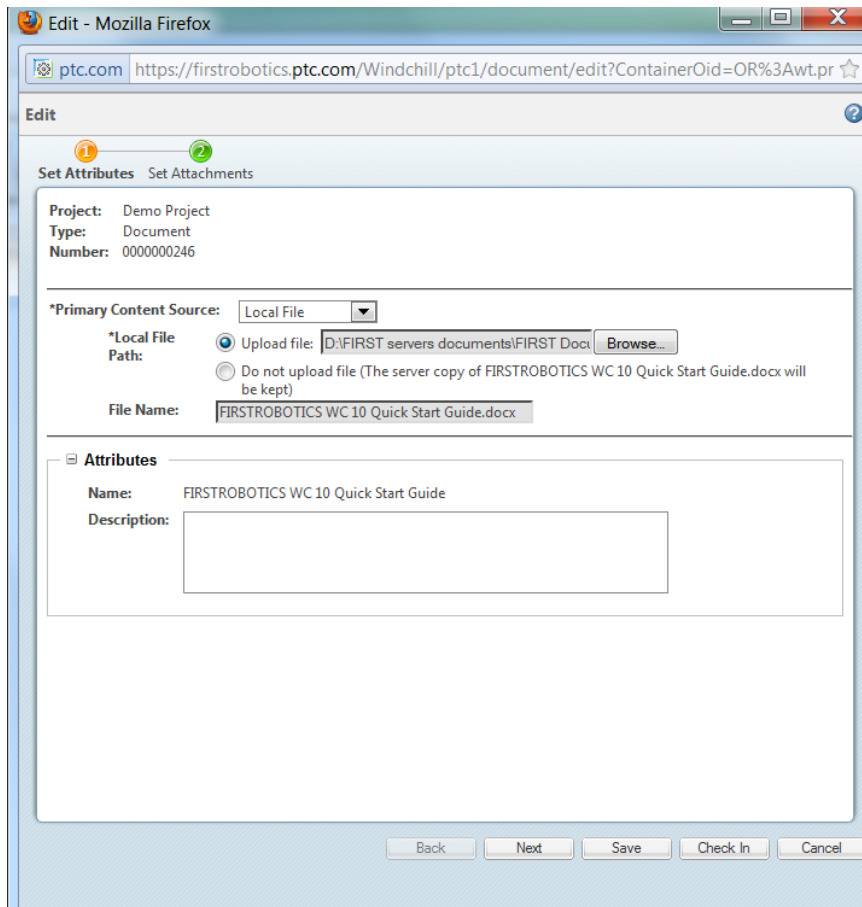
In this example, a **Check Out and Edit** is performed. This accomplishes the following tasks:

1. Check out the document so that no other project team member can modify and upload it.
2. Visually mark the document with a red checkmark icon to denote its checked out status.
3. Download the document file to the user's temporary computer directory area.
4. Open the file in the document's native application, ready for editing.


During the download process, you may see the following prompt:

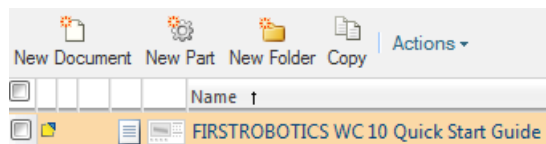


In this example, **Cancel** was selected. Once the document opens in its native application (in this case, Microsoft Word) and changes are made, choose **Save** and select a new storage location to place the modified file on the disk.



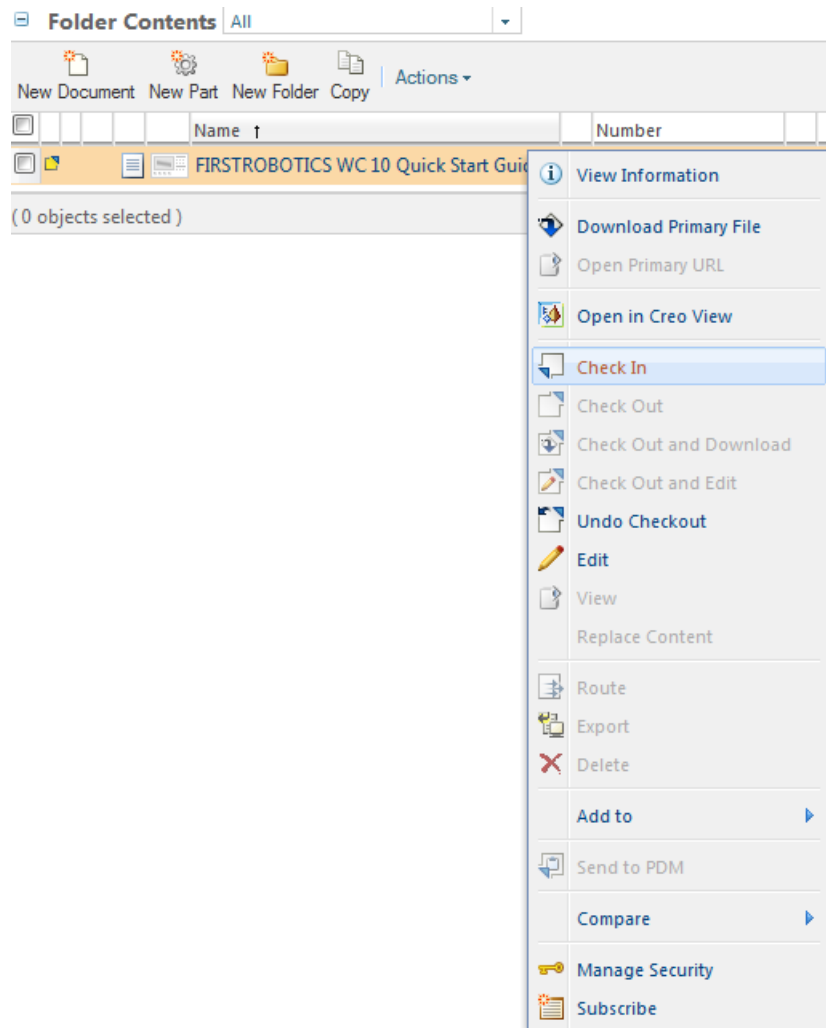
Checking Edited Documents back into the Project

When a document is checked out , it appears as shown in the screenshot below, for all project team members. In this example, the document is titled **FIRSTROBOTICS WC 10 QUICK START Guide**.

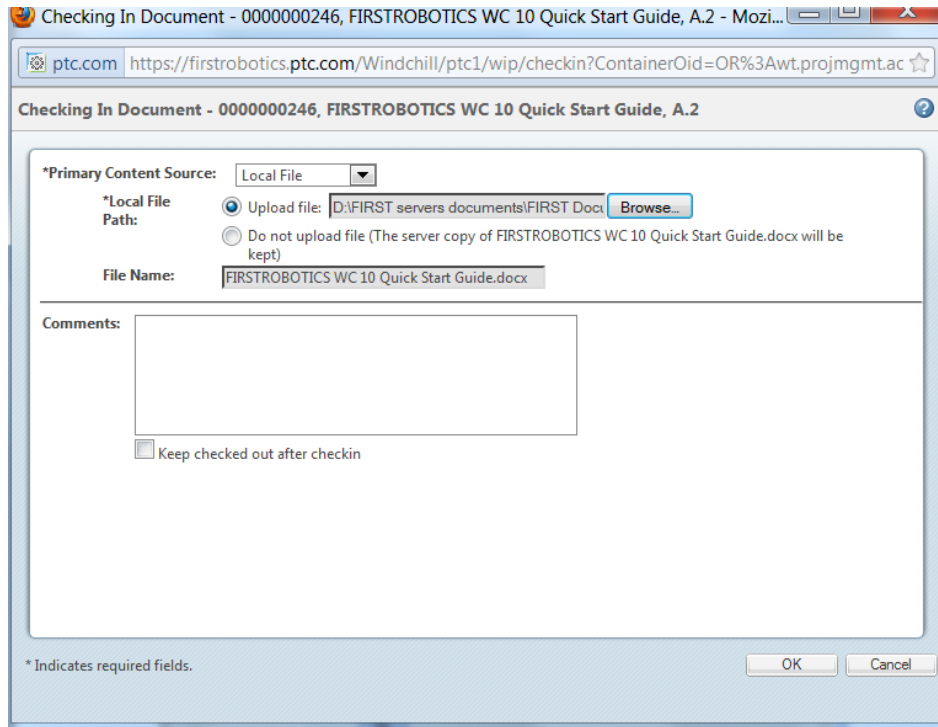


Now we'll check the document back into the project.

1. Select the **Actions** link for the document or **right click** on the document that you want to check in. The **Document Actions** pull-down menu displays. Note that **Check In** is an available option. **Undo Checkout** is also available, which can be used to unlock a file for other users to edit. In this example, we'll use **Check In**.



2. Select **Check In** from the **Document Actions** pull-down menu to display the **Check In** dialog box, shown in the graphic below. Click **Browse** and select the file that was just saved to disk. This file appears in the **File to Upload** box. You can also enter any relevant comments to associate with this iteration in the **Comments** area.




3. Click **OK**. The document now appears without the yellow checkmark. All team members have access to the latest version of the document, and the **Last Modified Date** column displays the new time stamp, as shown in the graphic below.

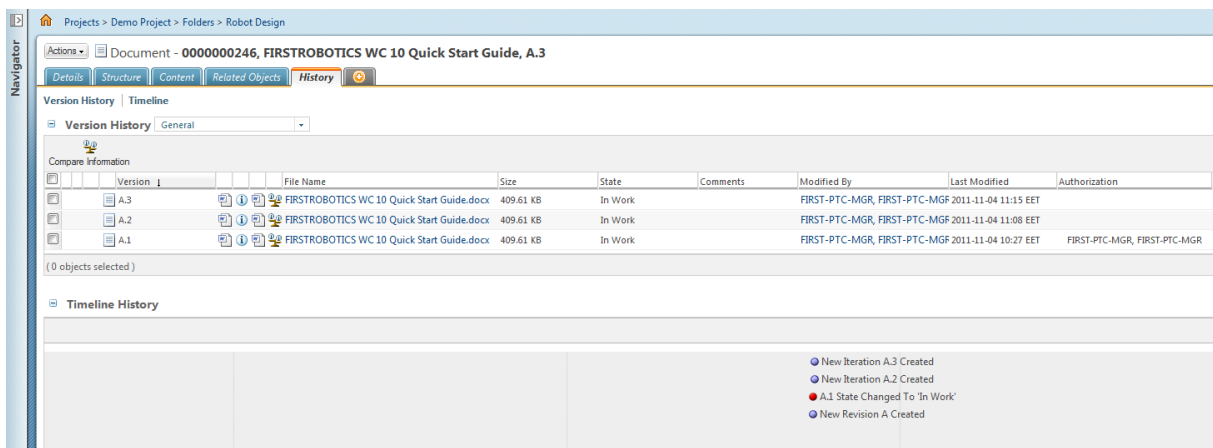


Displaying the Iteration History

You can access new and older versions of a document using the **Iteration History** table.

Navigate to the **Information** page for the document. To do this, you can either select the details icon  next to the document name in the **Folders** table or choose **View Information** from the **Actions** menu for the document and next select the **History Tab**.

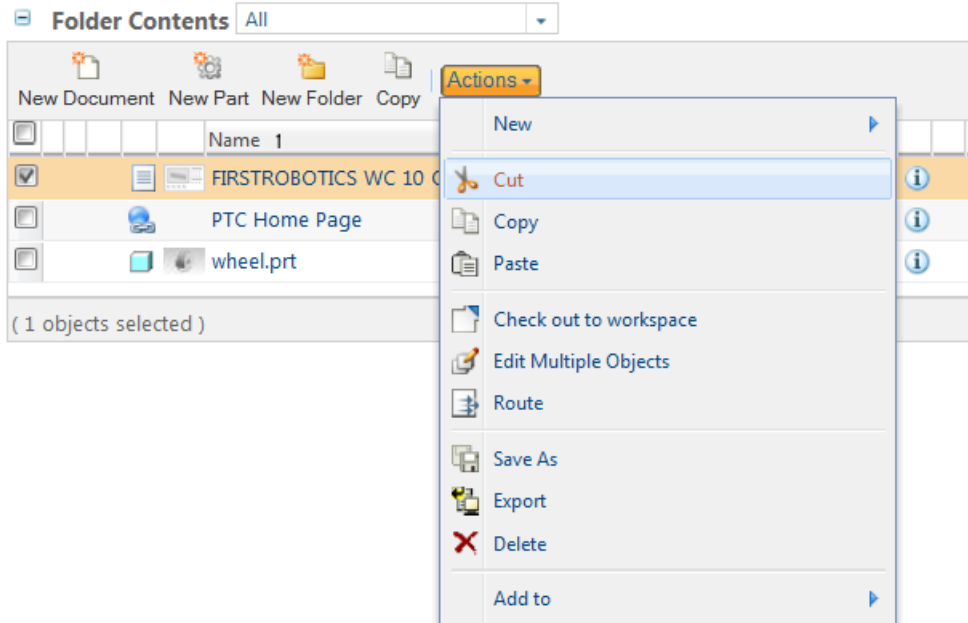
The iteration history is shown in the graphic below.



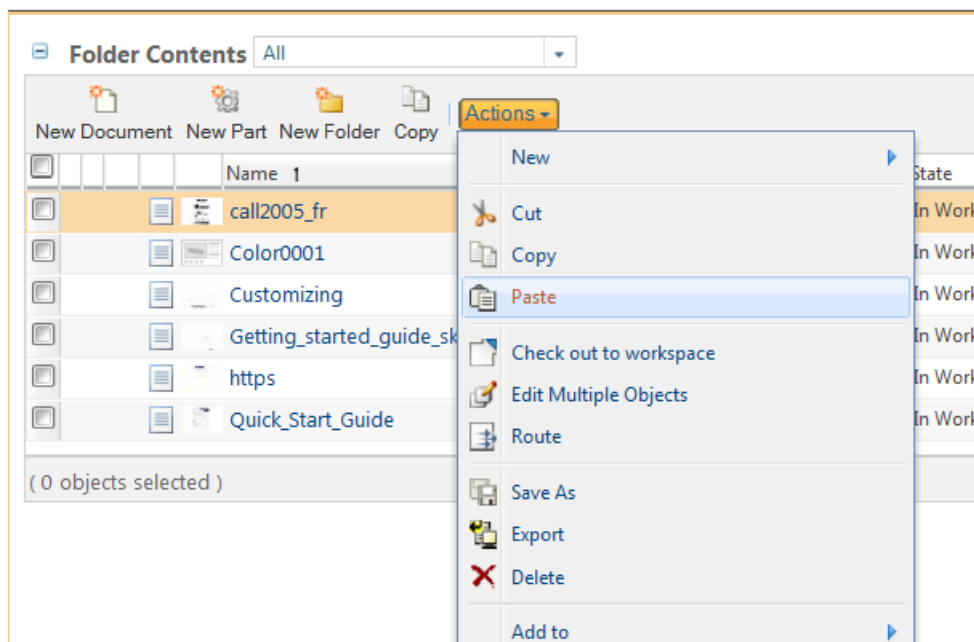
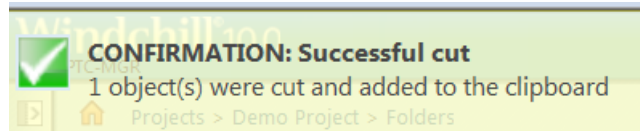
How to move a file to another folder

In this scenario, the **FIRSTROBOTICS WC 10 Quick Start Guide** will be moved from the **Robot Design** folder to the **Documents** folder. This procedure is applicable for CAD documents also.

1. Access the Robot Design folder and select the document to be moved. Then click on the **Actions** button and select the **Cut** option.



2. Then after you will see a confirmation message at the top of your browser. Then you can go to the Documents folder and Paste the document there by selecting **Actions->Paste** option.

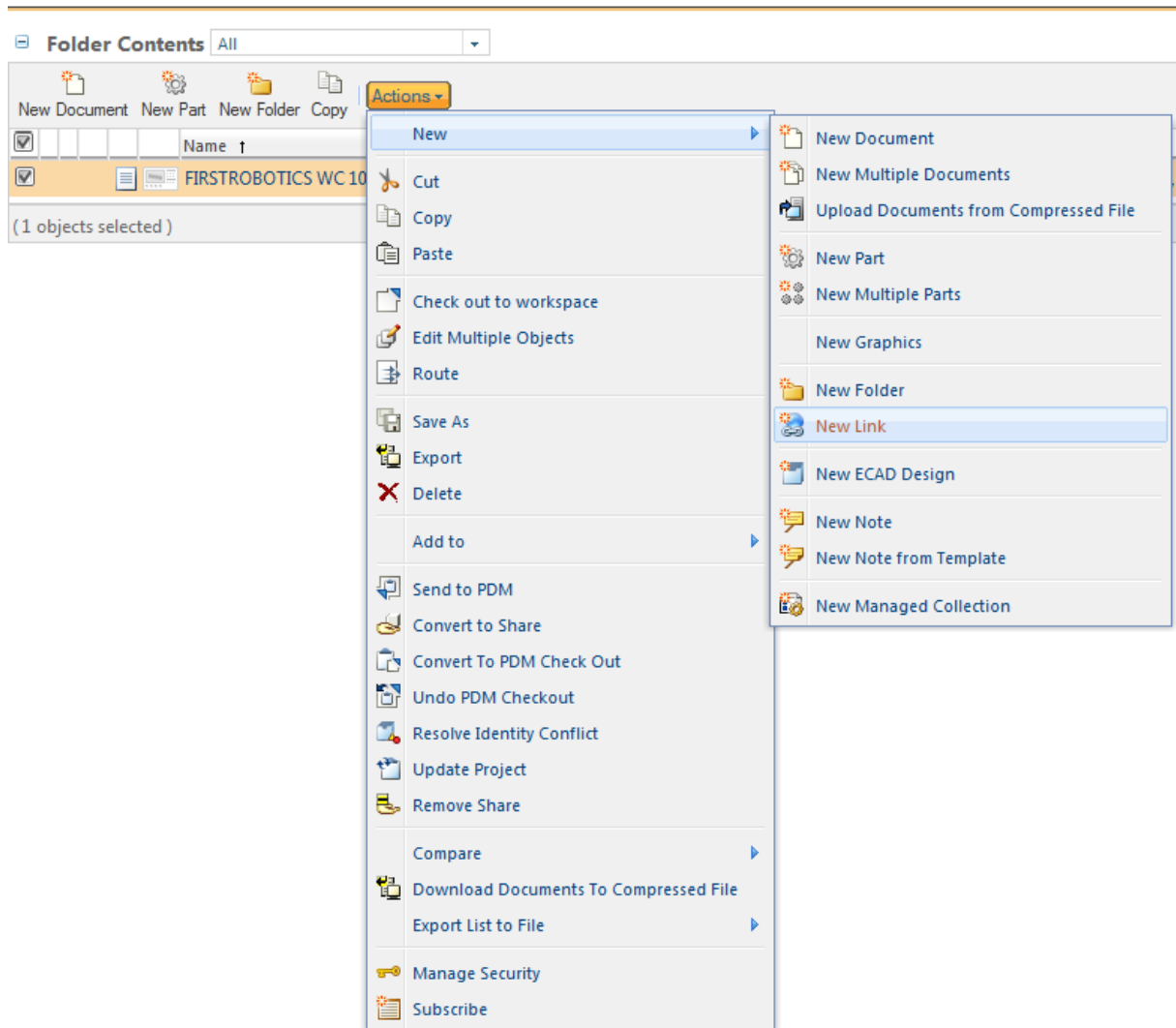


Creating Links

Links are objects that can be created and maintained within the file infrastructure of the **Folders** page. Links can be created and maintained within the file infrastructure of the Folders page.

Link Creation

To create a new link, use either the **Create Link** option available from the **Actions** linked list at the folder tabs level, like in the screenshot below.



The **Create Link** wizard appears.

The Create Link Wizard

The image below shows the fields presented when creating a link:

The screenshot shows a 'New Link' dialog box with the following fields:

Name	Value
* Link Name:	PTC Home Page
* URL	www.ptc.com
Description:	PTC Home Page
Location:	Robot Design

* Indicates required fields.

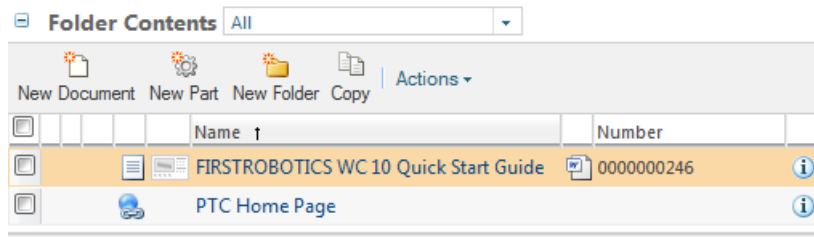
Buttons: OK, Apply, Cancel

Enter the following information:

1. **Link Name** - Enter a name for the hyperlink to display on the **Folders** page.
2. **URL** - Enter the URL address (http:// will be prefixed to the address if not entered).
3. **Description** - Enter a description of the link. This field is optional.
4. **Location** - Confirms where the hyperlink resides and, by default, displays the folder to which the Create Link action was applied.

Click **OK** to complete the creation of the hyperlink, or click **Apply** to create the link and clear the form so that you can create another link.

After you create the link, the **Folders** page reflects this new entry.

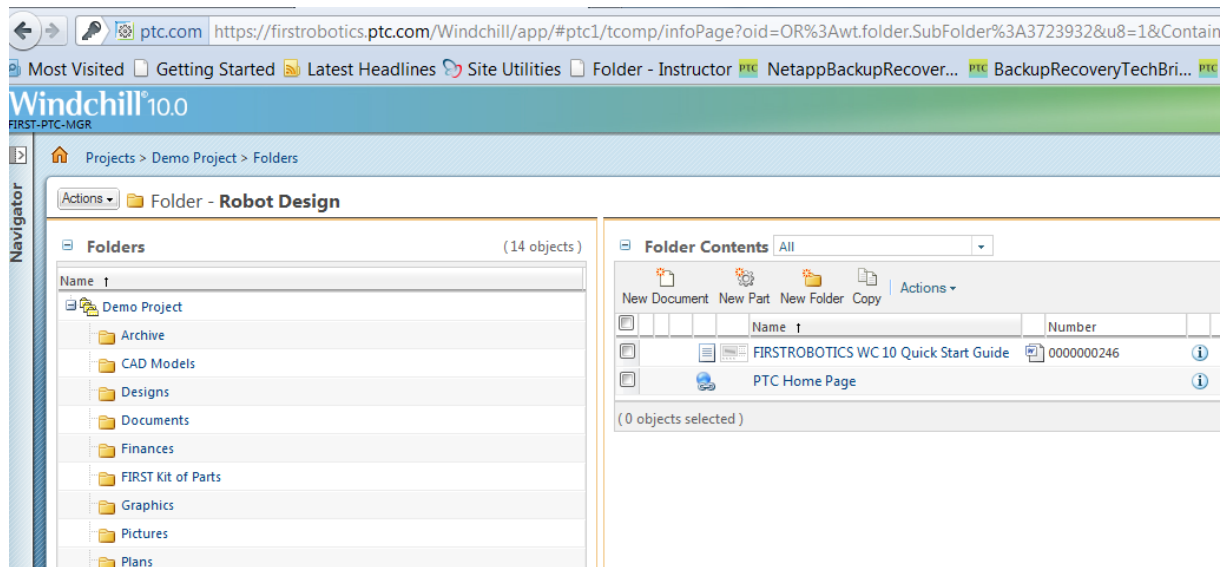


Viewing Details


Windchill PDM/ProjectLink allows you to view the details of the associated objects to your project.

Accessing the Details Page

You can view the details of any object associated with your project, for example, parts or documents.



You can navigate to the details page of a document in two ways:


- Click  adjacent to the document
- Right Click on the document – **View Information**

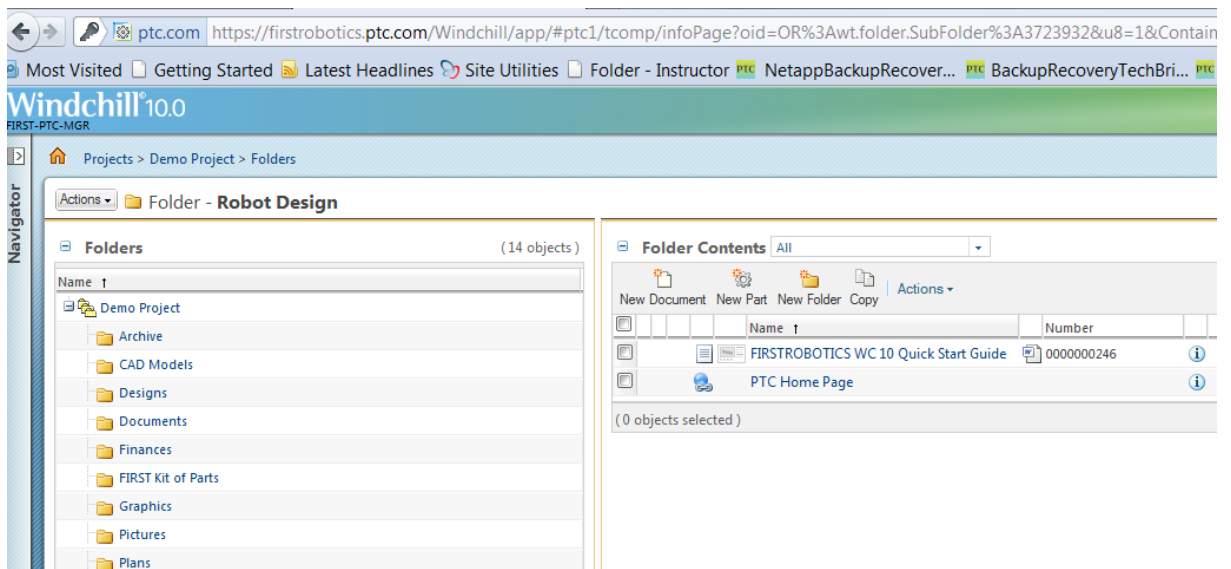
The details for the object are displayed in four tables on the **Details** page.


- Details
- Structure
- Content
- Related Objects
- History
- Collaboration

Displaying Information for Selected Object

Let's display the details for the selected object, **FIRSTROBOTICS WC 10 Quick Start Guide** document:

1. Click **on the icon**  next to the Name of the document for which you want to display details. In this example, we want to look at the details for the **FIRSTROBOTICS WC 10 Quick Start Guide** document. The **Document Information** page appears.



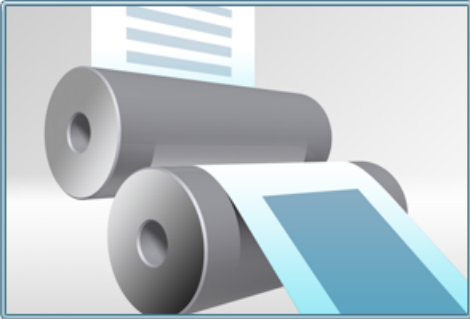
2. A window displays the six sections of information pertaining to the document's attributes. Keep in mind that you can add new sections to this view, by selecting **New Tab** icon . These are explained on the next pages of this tutorial.

Projects > Demo Project > Folders > Robot Design

Document - 0000000246, FIRSTROBOTICS WC 10 Quick Start Guide, A.3

Details | Structure | Content | Related Objects | History | Collaboration ×

Visualization and Attributes | [More Attributes](#)



General

Name: FIRSTROBOTICS WC 10 Quick Start Guide

Status: Checked in

Primary Content: FIRSTROBOTICS WC 10 Quick Start Guide.docx ⓘ 📄

Modified By: FIRST-PTC-MGR, FIRST-PTC-MGR

Last Modified: 2011-11-04 11:15 EET

System

Description:			
Format Name:	Microsoft Office Word document	State:	In Work - Released - Canceled
Context:	Demo Project	Location:	Demo Project / Robot Design
Life Cycle Template:	Basic	Team Template:	
Created By:	FIRST-PTC-MGR, FIRST-PTC-MGR	Modified By:	FIRST-PTC-MGR, FIRST-PTC-MGR
Created On:	2011-11-04 10:27 EET	Last Modified:	2011-11-04 11:15 EET

Details Page - Object Attributes

The first section on the details page displays object attributes including object location, state, version, filename, status and other attributes. **State** is defined by the workflow assigned to the document by routing or by setting it manually.

Projects > Demo Project > Folders > Robot Design

Document - 000000246, FIRSTROBOTICS WC 10 Quick Start Guide, A.3

Details | Structure | Content | Related Objects | History

Visualization and Attributes | More Attributes

General

Name: FIRSTROBOTICS WC 10 Quick Start Guide
 Status: Checked in
 Primary Content: FIRSTROBOTICS WC 10 Quick Start Guide.docx
 Modified By: FIRST-PTC-MGR, FIRST-PTC-MGR
 Last Modified: 2011-11-04 11:15 EET

System

Description: Microsoft Office Word document
 Format Name: Microsoft Office Word document
 Context: Demo Project
 Life Cycle Template: Basic
 State: In Work - Released - Canceled
 Location: Demo Project / Robot Design
 Team Template:
 Created By: FIRST-PTC-MGR, FIRST-PTC-MGR
 Modified By: FIRST-PTC-MGR, FIRST-PTC-MGR
 Created On: 2011-11-04 10:27 EET
 Last Modified: 2011-11-04 11:15 EET

Structure Page

The Structure tab within the document info page contains tools for displaying and editing the document structure. The tab is divided into two sections. The actions toolbar and the document structure panes. The areas are described below.

Projects > Demo Project > Folders > Robot Design

Document - 000000246, FIRSTROBOTICS WC 10 Quick Start Guide, A.3

Details | Structure | Content | Related Objects | History

Editing: Insert Existing, Remove, Insert New, Edit
 Check Out/In: Check Out, Check In
 Clipboard: Paste, Copy
 Viewing: Views, Display
 New/Add To: Add to
 Tools: Download Primary Files

Find in Structure

Identity

000000246, FIRSTROBOTICS WC 10 Quick Start Guide, A.3

Attributes

Document Attributes

Number: 000000246
 Name: FIRSTROBOTICS WC 10 Quick Start Guide
 Version: A.3
 Type: Document
 Primary Content: FIRSTROBOTICS WC 10 Quick Start Guide.docx
 Latest Iteration: Shortcut to Content
 State: In Work - Released - Canceled
 Status: Checked in
 Modified By: FIRST-PTC-MGR, FIRST-PTC-MGR
 Last Modified: 2011-11-04 11:15:21 EET

Actions Toolbar

The actions toolbar appears just below the document's identity and Actions menu. The actions in the actions toolbar are divided into sections called action sets. The following table provides an overview of the actions available in each actions set.

Action Set	Actions
Editing	Includes actions to modify the document structure, including revising, inserting, deleting documents, and editing document attributes.
Check Out/In	Includes Check Out, Check In, and Undo Checkout actions. Use these actions to reserve or release the right to modify documents. Also provides the My Checkouts action to display documents checked out to you.
Clipboard	Includes Cut and Paste actions that allow you to modify the document structure.
Viewing	Includes actions that allow you to change the information that is displayed in the document structure .
Filter	Includes actions allowing you to view and modify configuration specifications used to display the document structure.
Tools	Includes actions that allow you to compare structures or open structures in other applications such as Product Structure Explorer or Creo View.
New/Add To	Includes actions that allow you to add selected documents in the structure to baselines or packages.

Document Structure Panes

The area below the actions toolbar on the document information page is divided into panes. Either two or three panes appear depending on the Display option you have selected using the right-click actions menu. The left-most pane displays the document structure.

The other panes contain information about the document that is selected in the document structure pane. When a different document is selected the information in the other panes will reflect the new selection. Information contained in the panes is organized under tabs. The following table describes the tabs and the information they contain:

Tab	Description
Attributes	Displays important attribute information about the document. .
Uses	Displays the documents that are used by the document selected in the structure pane. In a three pane display the Uses tab is in the bottom pane. From this tab, you can perform actions such as inserting new and existing documents and modifying attributes on the parent/child association between documents.

Content Page

The first section displays the Primary content of the document and the attachments associated to that document. Here you can Add/edit/remove/download attachments.

The screenshot shows a web interface for managing content. At the top, there is a breadcrumb trail: **Projects > Demo Project > Folders > Robot Design**. Below this, the document title is **Document - 0000000246, FIRSTROBOTICS WC 10 Quick Start Guide, A.3**. A navigation bar includes tabs for **Details**, **Structure**, **Content** (which is active), **Related Objects**, and **History**. The main content area is divided into two sections: **Primary Content** and **Attachments**.

Primary Content section:

Label or File Name	Format	Last Modified	Modified By
FIRSTROBOTICS WC 10 Quick Start Guide.docx	Microsoft Office Word document	2011-11-04 11:15 EET	FIRST-PTC-MGR, FIRST-PTC-MGR

Attachments section:

Download selected files [Add/edit/remove attachments](#)

<input type="checkbox"/>	Label or File Name	Format	Attachment Description	Last Modified	Modified By
(0 objects selected)					

Related Objects Page

If the document is referenced or references any other objects, or if it is part of a structure, those documents and structures will display in this tab in the Where Used, References Documents, Referenced By Documents, and Parts tables.

Windchill 10.0
FIRST-PTC-MGR

Projects > Demo Project > Folders > Robot Design

Document - 000000246, FIRSTROBOTICS WC 10 Quick Start Guide, A.3

Details | Structure | Content | **Related Objects** | History

Where Used | References Documents | Referenced By Documents | Parts

Where Used

Expand Collapse Copy

Number	Version	Name	Context
(0 objects selected)			

References Documents Default

Remove Copy Paste Paste Selection Associate New Add

Number	Version	Name	Context	State	Last Modified	Comments
(0 objects selected)						

Referenced By Documents Default

Number	Version	Name	Context	State	Last Modified

Describes Parts Default

Actions

Number	Version	Name	Context	State	Last Modified

History Page

The second section on the details page displays historical information, including a graphical timeline and all previous iterations and revisions of the document appear on this tab in the Timeline and Version History tables. This is useful for project participants to view past iterations. As a document is checked in and out, its iteration number updates. Each iteration is listed in a new row in the **Version History** table.

Version	File Name	Size	State	Comments	Modified By	Last Modified	Authorization
A.3	FIRSTROBOTICS WC 10 Quick Start Guide.docx	409.61 KB	In Work		FIRST-PTC-MGR, FIRST-PTC-MGF	2011-11-04 11:15 EET	
A.2	FIRSTROBOTICS WC 10 Quick Start Guide.docx	409.61 KB	In Work		FIRST-PTC-MGR, FIRST-PTC-MGF	2011-11-04 11:08 EET	
A.1	FIRSTROBOTICS WC 10 Quick Start Guide.docx	409.61 KB	In Work		FIRST-PTC-MGR, FIRST-PTC-MGF	2011-11-04 10:27 EET	FIRST-PTC-MGR, FIRST-PTC-MGR

Collaboration Page

On this page you have three sections to help you in the collaboration process of your project.

The **Project Status** table is available on the information page of an object that is interoperable. The table provides information about how an object has been shared, checked out, or copied between PDM and a project. The table displays status information about the object for each project to which it has been added. Your ability to view that information depends on your individual user access. This means that if an object has been checked out to multiple projects, you can only see information about versions that exist in contexts to which you have appropriate [permissions](#).

Version	Status	By	On	Folder	Project
(0 objects selected)					

Name	Events	Subject
(0 objects selected)		

Topics/Postings	Actions	Subscribe/Unsubscribe	Created By	Date
General				2011-11-04 02:07 PM

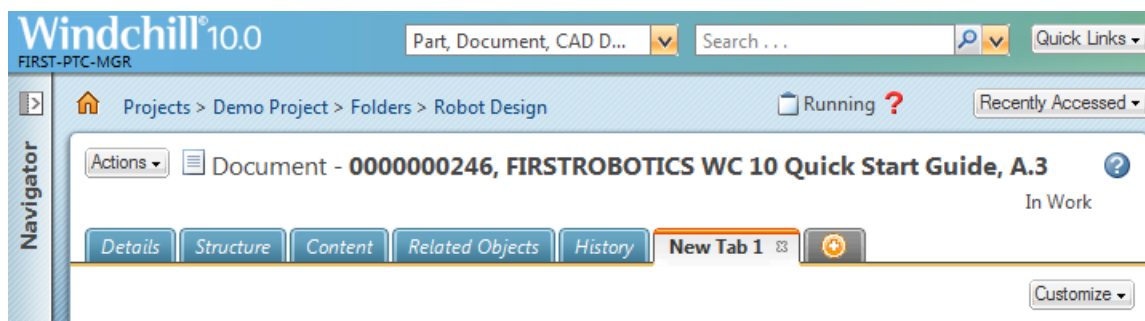
The **Subscriptions** table lists existing subscriptions.

From the Discussions table, you can create, view, and manage discussion topics and postings.

New Tab (Page)


By default each information page displays, on one or more tabs, the commonly used information associated with the object type. You can customize how your information page tabs display for each instance of a specific object type in Windchill in the following ways:

- Creating, reordering, and removing tabs
- Adding, removing, and reordering information tables on tabs
- Restoring default settings



Tabs: Creating, Reordering, and Removing

Each object has one or more tabs available by default. Use the following procedure to create additional tabs to meet your needs:

1. To create a new information page tab, click the new tab icon  located to the right of the existing tabs.
2. Once the tab is created, you can rename it by right-clicking the tab name and selecting **Rename Tab**.
3. If you choose, you can then drag-and-drop your tabs to change their order.
4. You can remove a tab by either clicking the close icon to the right of the tab name, or by right-clicking the tab name or selecting **Delete Tab**.

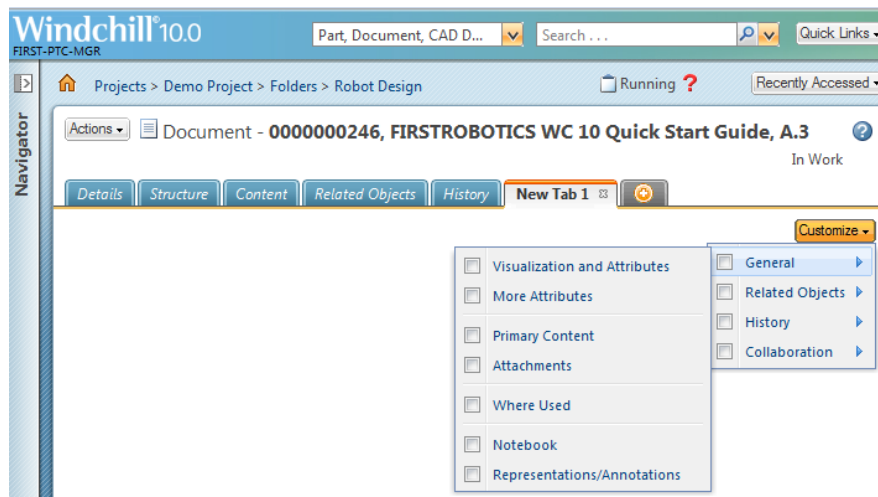
Information Tables within Tabs: Adding, Reordering, and Removing



Depending on the settings your administrator has placed in Windchill, some tabs may be pre-populated with tables that you cannot add or remove. The tab names for these administrator-defined tabs appear in italics. However, tabs that you have created using the preceding procedure are fully customizable with regards to adding, removing, and reordering available tables.

1. To add or remove an information table, open the **Customize** drop-down menu in the upper right corner of a new tab pane. A list of available tables appears, with any currently displayed tables already selected.

Note

The list of available information tables varies depending upon the object you are viewing and your Windchill capabilities.

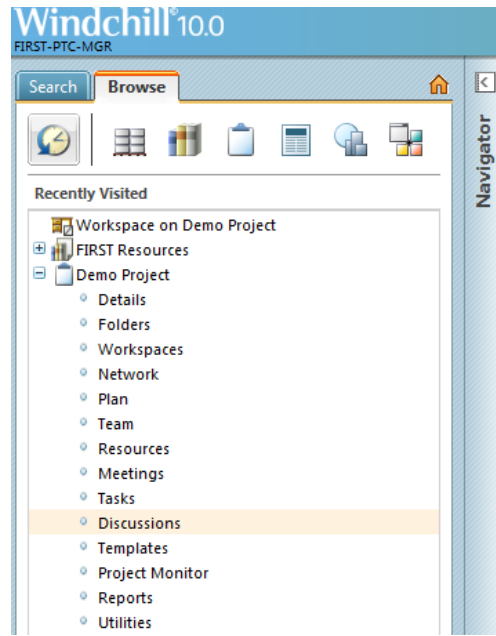


2. Select the checkbox for each table you want to display. Clear the checkbox for each table you want to remove.
3. To reorder tables, drag-and-drop the table name at the top of the tab to the desired order (drag-and-drop table names to the right to move the table up, or drag-and-drop the table name to the left to move the table down).
4. Minimize the table by clicking the collapse icon  to the left of the table name. Click the expand icon  to expand the table again.

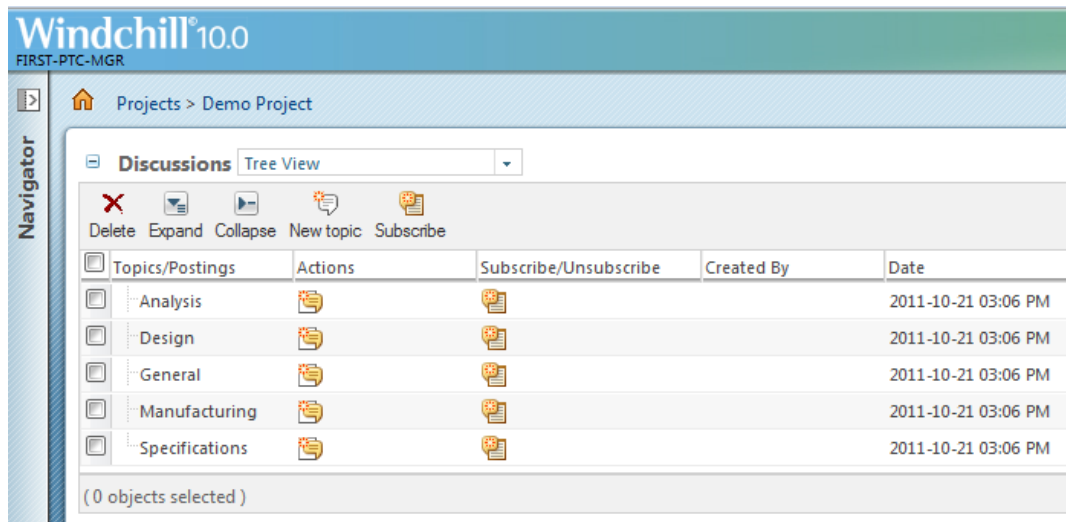
Discussions Page

Windchill ProjectLink lets you participate in discussion forums that relate to your project. Team members can reply to existing postings or start new discussions about a different area within the same project.

1. Click the **Discussion** option in the **Navigator Pane**.




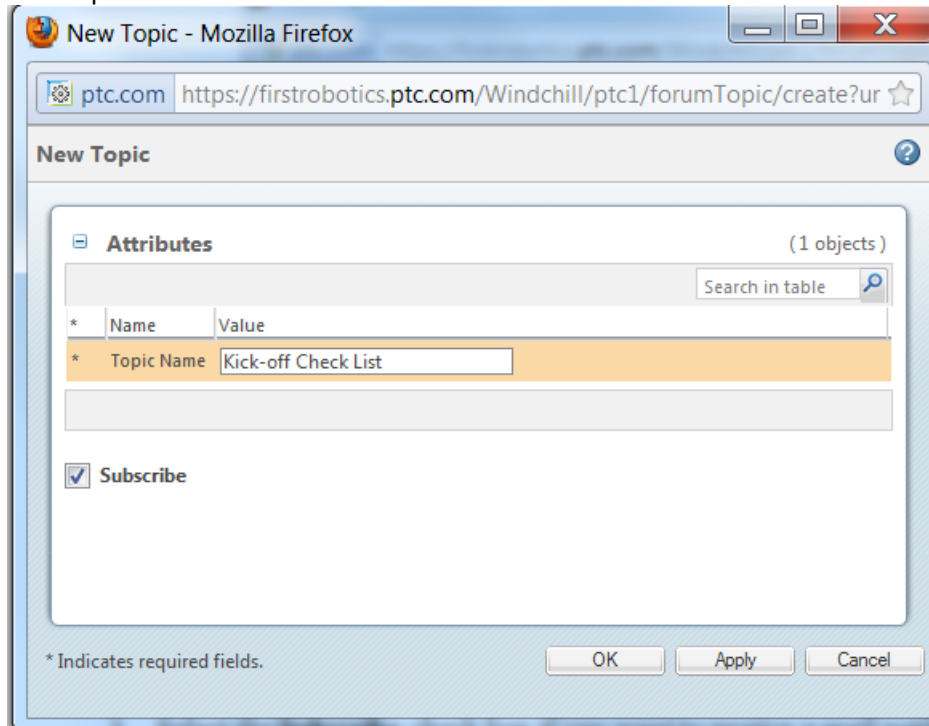
2. The **Discussions** page, allows you to create and view file-specific discussions, and reply and subscribe to postings for the project.



Creating a Topic

Now that you have the **Project Discussions** page displayed, you can create a discussion topic.

1. Click **New Topic** icon  to create a topic for the discussion. The **New Topic** page appears.
2. Type a topic name in the **Topic Name** field.
3. Select the **Subscribe** check box if you want to receive e-mail notifications when postings are made to this topic.



The screenshot shows a 'New Topic' dialog box in Mozilla Firefox. The title bar reads 'New Topic - Mozilla Firefox'. The address bar shows 'ptc.com https://firstrobotics.ptc.com/Windchill/ptc1/forumTopic/create?ur'. The main content area is titled 'New Topic' and contains an 'Attributes' section with '(1 objects)'. Below this is a table with columns 'Name' and 'Value'. The first row is 'Topic Name' with the value 'Kick-off Check List'. The 'Subscribe' checkbox is checked. At the bottom, there are 'OK', 'Apply', and 'Cancel' buttons. A note at the bottom left states '* Indicates required fields.'


Name	Value
* Topic Name	Kick-off Check List

4. Click **OK** to complete the topic.

Creating a Posting

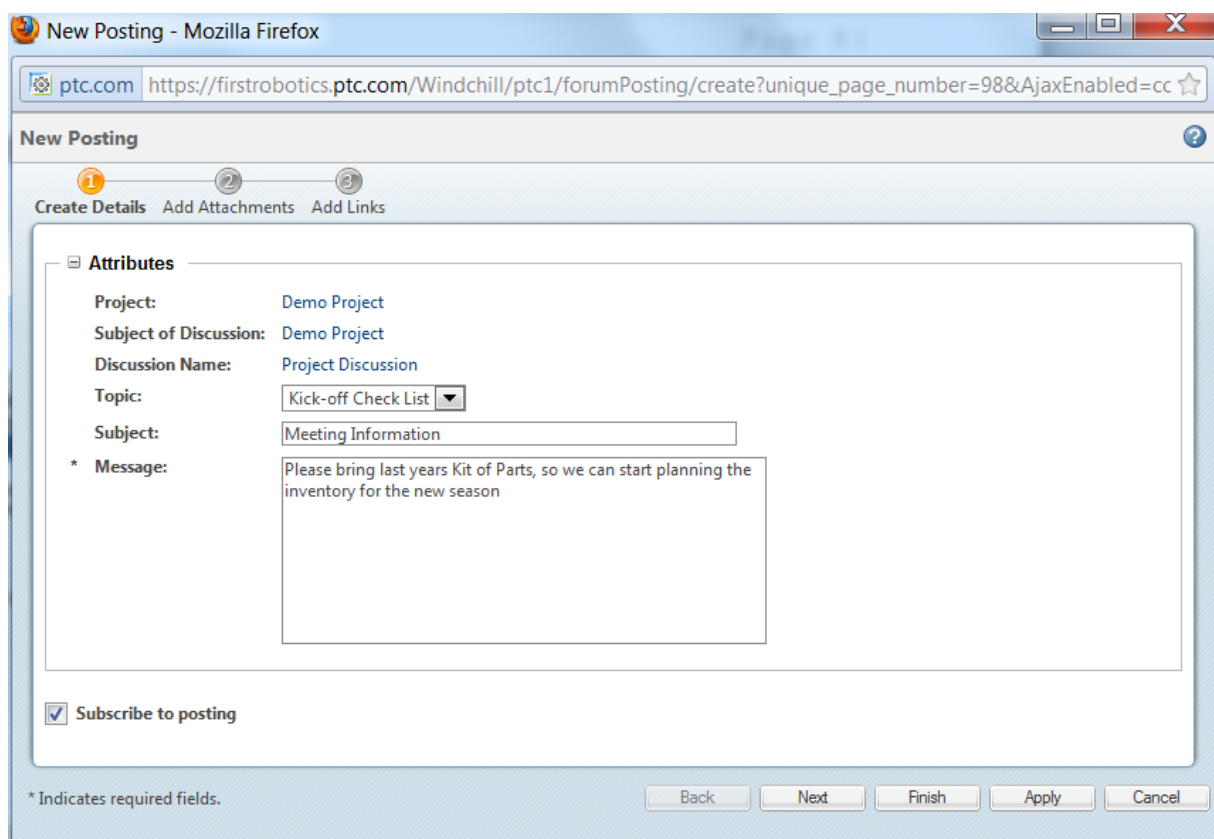
Once you have the **Project Discussion** page displayed, you can create a posting to a topic.

Let's create a discussion topic and subscribe to it:

1. Click **Create Posting**  next to the topic to which you want to add a posting. In this case, we are adding a posting to the **Kick-off Check List** topic.



2. The **Create Posting** window displays. In this example, the desired posting information has been entered.



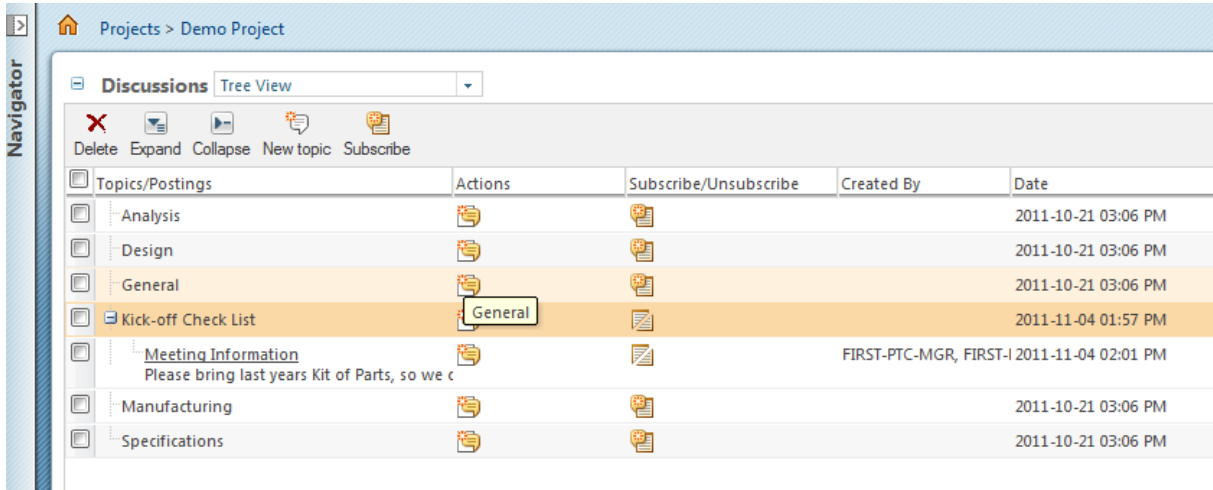
The following steps are necessary to create a posting:

1. Select a topic from the **Topic** drop-down list. In this case, we selected **Kick-off Check List**.
2. Type a subject name in the **Subject** field. In this case, we typed **Meeting Information**.
3. Type your message in the **Message** box.
4. Optionally, click **Next** to add attachments and links. **Step 2 Add Attachments** gives you the option to attach external files that may be valuable to someone reading this posting, but may not be required for the overall project. **Step 3 Add Links** gives you the option to add links to Web pages or any other system that can be accessed through a URL.
5. Click **Finish** to complete the creation of the posting or **Cancel** to abandon the creation of the discussion posting.

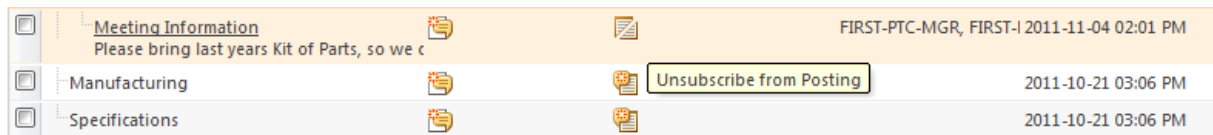
Unsubscribing from Discussions

As we learned previously, when you have subscribed to a discussion forum, you receive e-mail notifications each time a new posting is added to the discussion. If you are not interested in receiving e-mail notifications, you can unsubscribe from the discussion.

1. Open the **Project Discussions** page.



2. If desired, click **Unsubscribe** to unsubscribe to this posting.



3. You are no longer subscribed to this discussion.

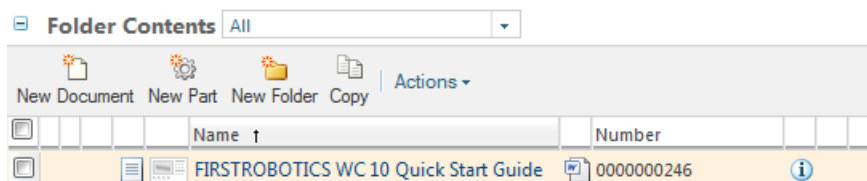
Discussing Documents

Windchill ProjectLink provides a way to create and participate in discussion threads for project files such as documents, CAD models, and parts. You create discussion threads and postings, as well as subscribe to specific discussion topics through the **Discussions** section on the **Collaboration** page of the desired file.

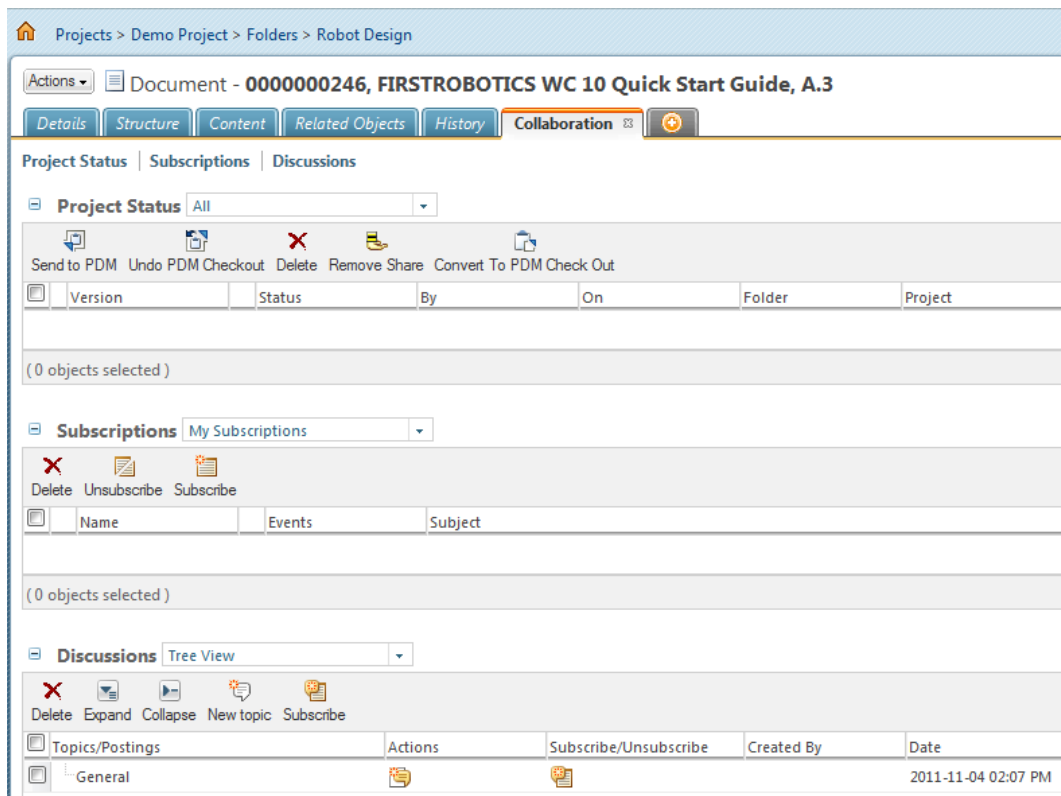
Navigating to the Folders Page

Because we plan to create a discussion topic and a related posting for a document, you need to access the **Document Actions** section from the Collaboration page. Discussions can be created for other object types, such as parts and CAD models.

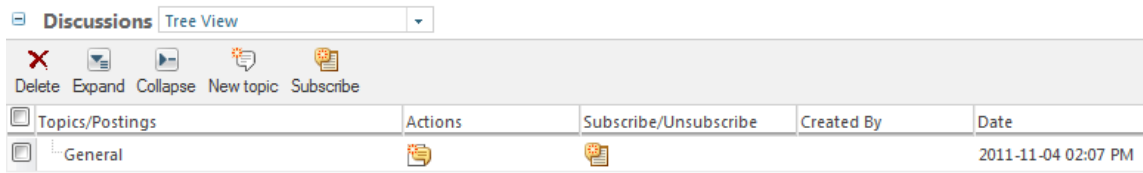
1. Click **View Information** adjacent to the document you want to discuss.



2. From the Information page, click the **Collaboration** tab option and go to the Discussions Section.



3. The **Discussions** table, allows you to create and view file-specific discussions, and reply and subscribe to postings.



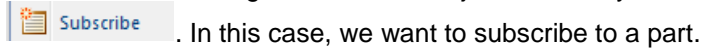
Follow the instructions listed for [Creating Topics](#) and [Creating Postings](#) to create file specific discussion details.

Subscribing

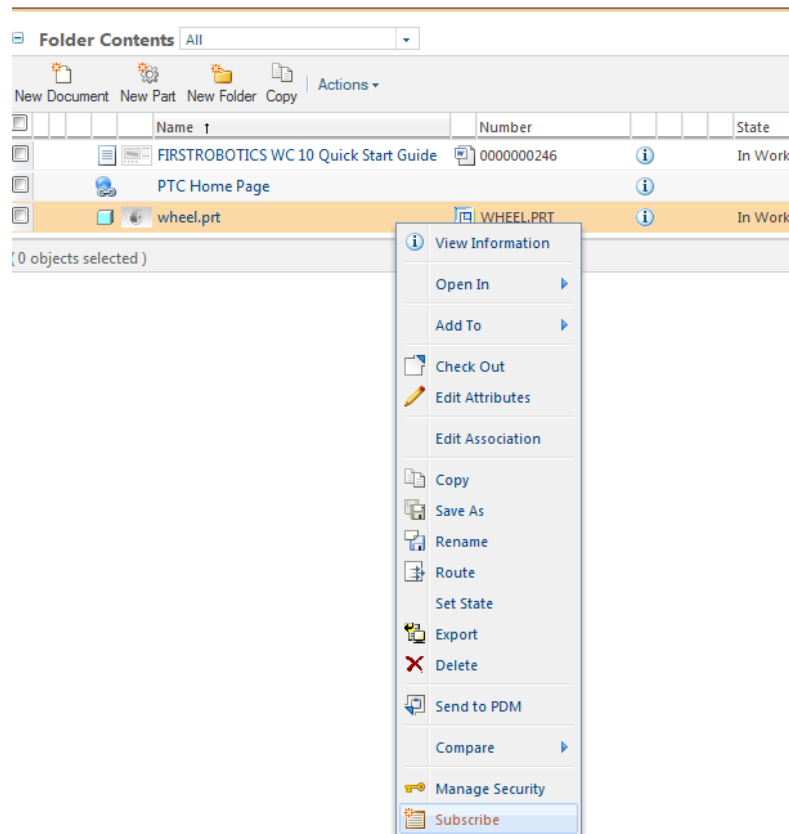
You can request to be notified of updates to project parts, documents, discussion forums, and plan activities in Windchill ProjectLink.

Navigating to the Create Subscription Page

1. Select the **Actions** link or mouse right click for the object to which you want to subscribe



. In this case, we want to subscribe to a part.



2. Select **Subscribe**. The **Create Subscription** window appears.

Selecting Events

To create the subscription, you work in the **Select Events** wizard. Let's select the events for which you want to be notified. There are different events to select from depending on the item you subscribe to.

1. Select any or all of the following events: **Check in, Check out etc..** In this example, we select **Check in**.

Subscribe - Mozilla Firefox

ptc.com https://firstrobotics.ptc.com/Windchill/ptc1/subscription/createSubscription?ContainerOid=OR? ☆

Subscribe

Identify Events Select Subscribers Define Subject and Expiration

* Subscription Name: wheel.prt
 Subscribe to all versions

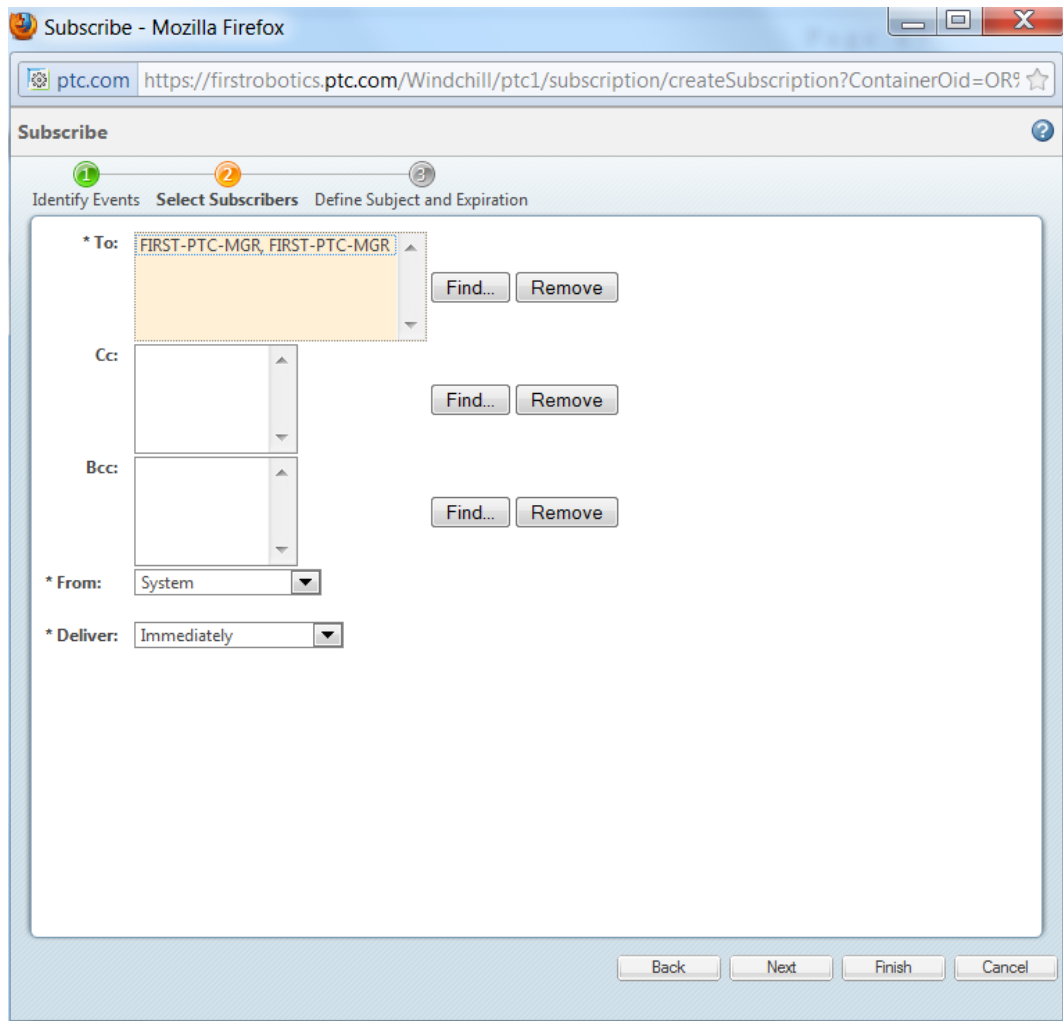
* Types: CAD Document

* Events:
 Check In from Project Move
 Check Out/Check In New One-off Version
 Copy Publish Successful
 Delete Publish Unsuccessful
 Edit Access Control Revise
 Edit Attributes Save Representation
 Edit Content Share
 Edit Identity Workflow State Change
 Markup
 Life Cycle State All

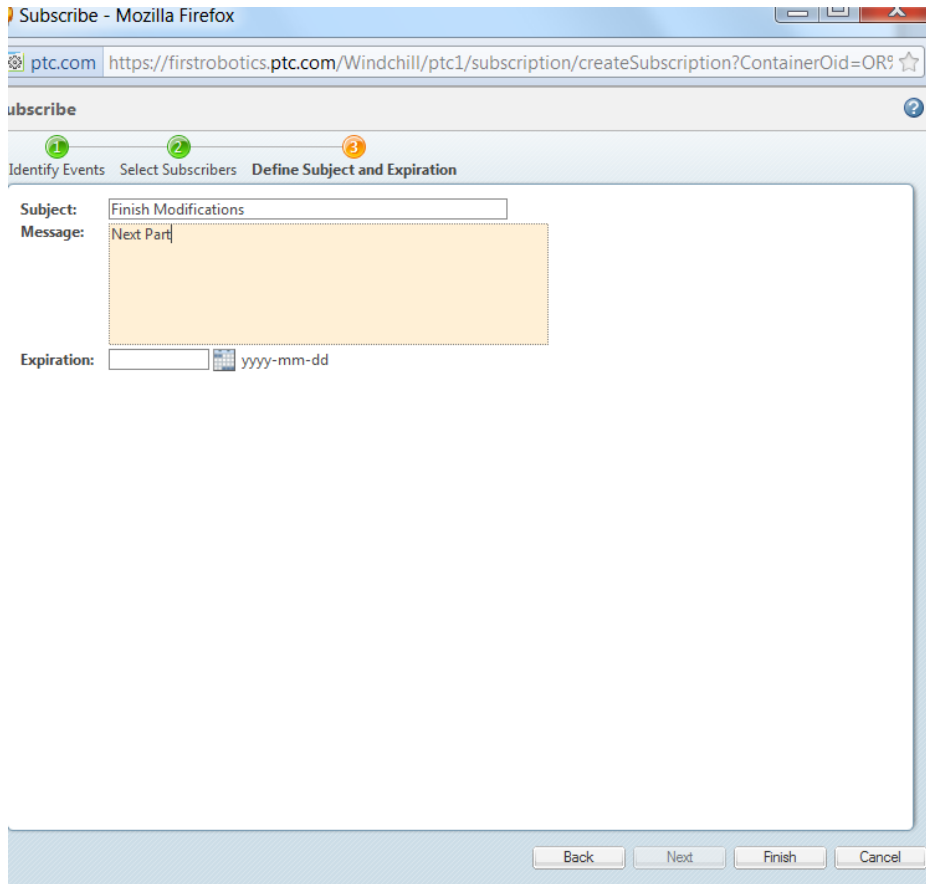
* Indicates required fields.

Back Next Finish Cancel

2. Click **Next**. Select the **Subscribers**, by adding the user to the list.



3. Click **Next**. Define the recipient's email notification with a subject and message that grabs attention.

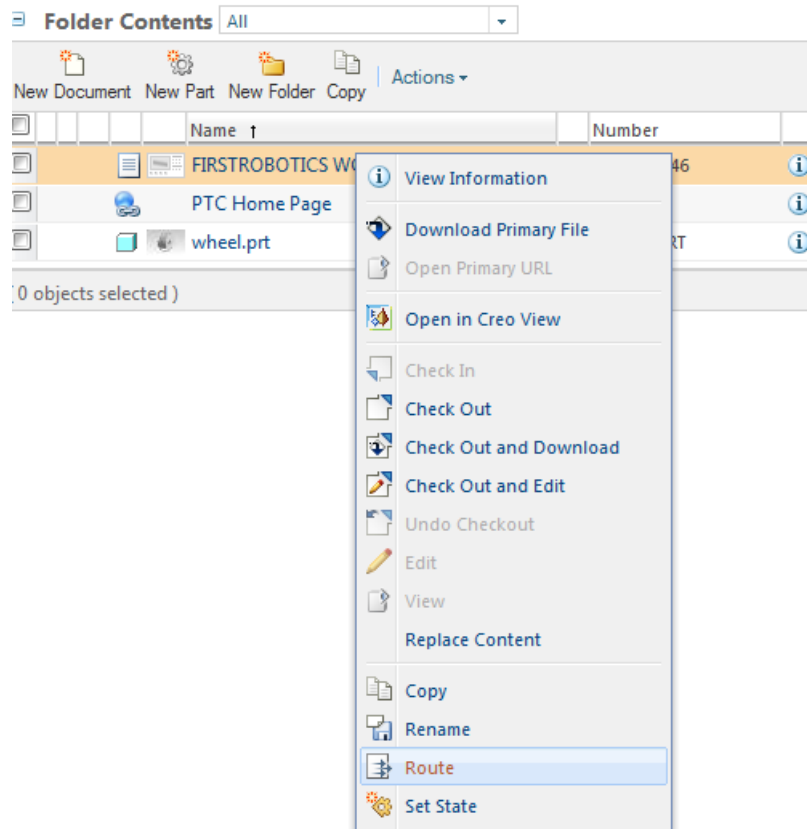


4. Click **Finish**.

Routing Documents

Selecting a Document to Route

To route a document, either use the **Route** option using the mouse right click **Document Actions** pull-down menu or selecting the **Actions** link at the document level.

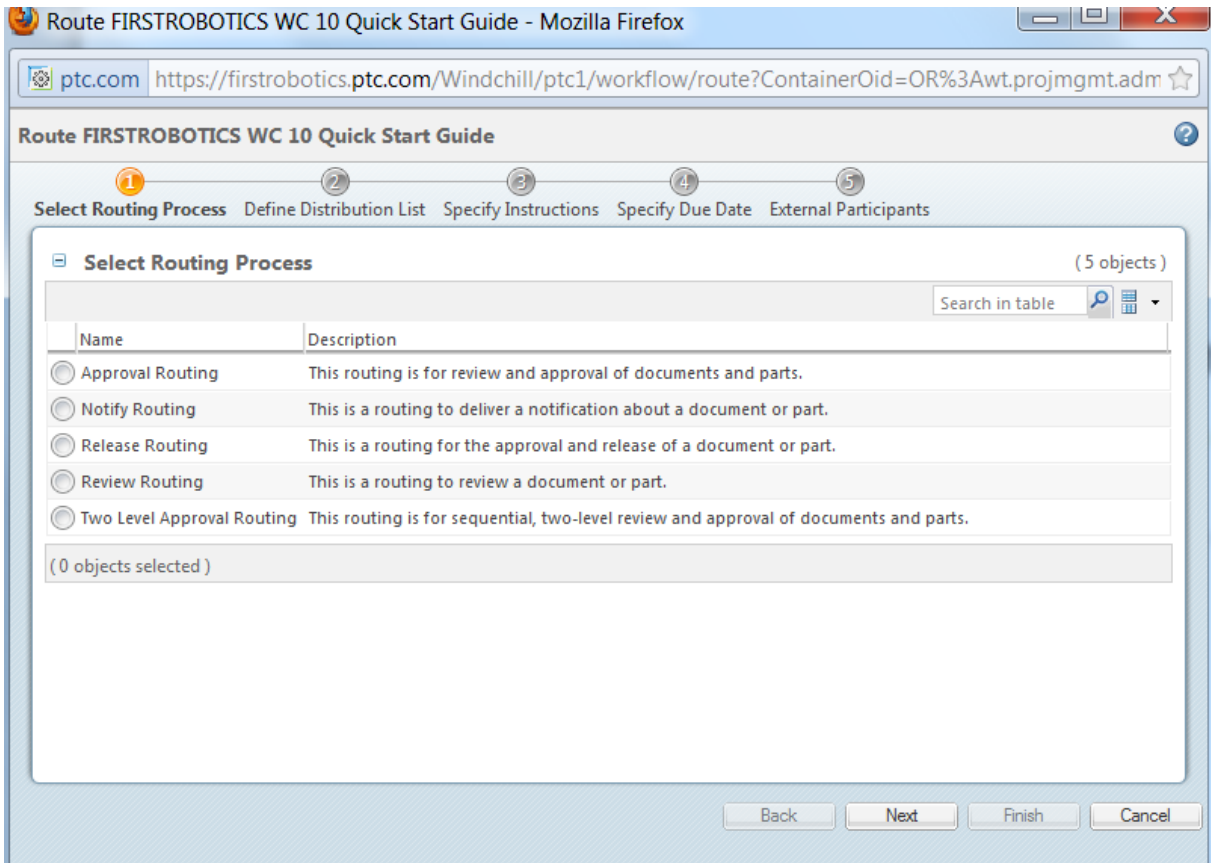


Note: Only users with proper access control authorizations are able to route a document.

The Route Wizard

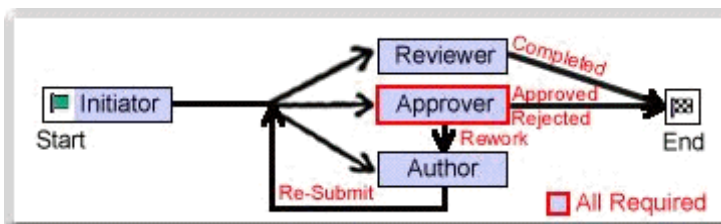
After a document is selected to route, the **Route** wizard displays the following steps:

1. Select Routing Process
2. Define Distribution List
3. Specify Instructions
4. Specify Due Date
5. External Participants

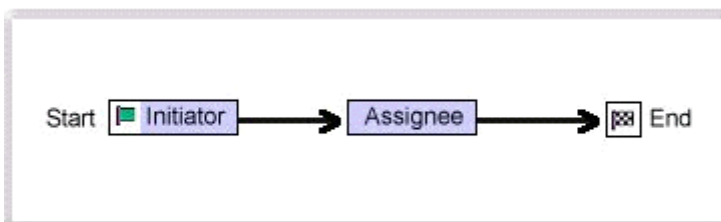


By default, there are four available routing processes. If more appear, or they are named differently, the Organization Administrator may have made these modifications to adapt to the business needs of the users. The flowchart for each of these processes is displayed in the following graphics, to visually represent the workflow of a routing:

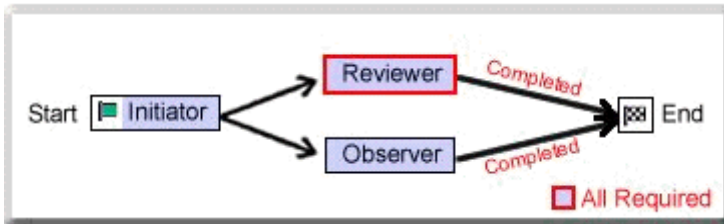
Approval Routing



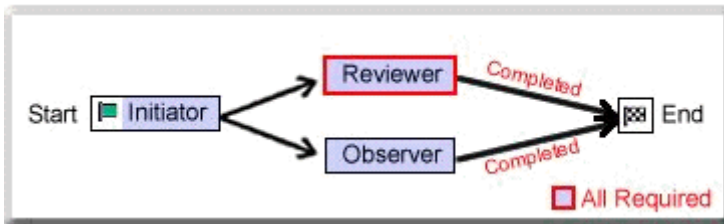
Notify Routing



Release Routing



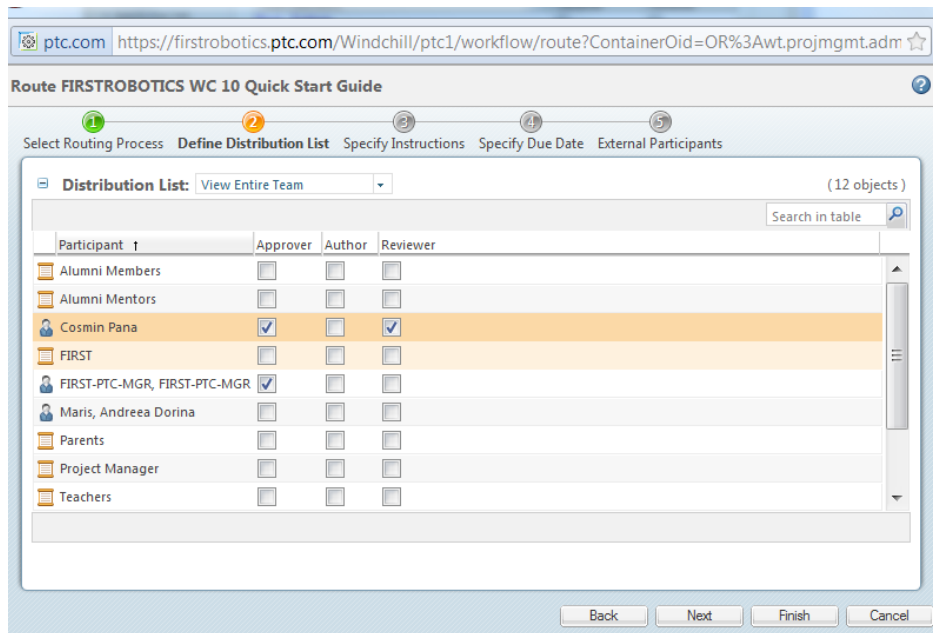
Review Routing



Select one of the above routings to continue on to the next step of the wizard.

Defining the Distribution List and Specifying Instructions

Once a route process is chosen, the project team members desired for the particular type of route can be selected. Note that some members listed may be roles or groups mapped to multiple users.



Click **Next** when the members are selected. In the next step (**Specify Instructions**), you can create a customized message to be sent with the e-mail notification automated by the route initiation.

Specify Due Date - Specify either the due date or duration for each applicable routing activity (not all routing activities include a due date or duration).

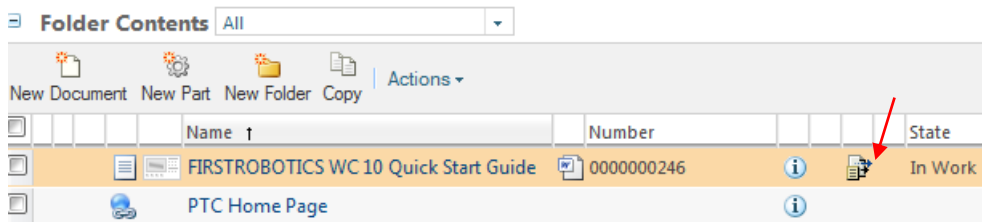
Optionally, you can also select Notify assignee to have an email reminder sent to the routing process participants who must complete tasks. Notifications are sent based on the specified number of days before the due date.

Select Notify routing initiator to have an email sent to you if the routing process tasks have not been completed.

External Participants

If you would like to notify someone not specifically included under the Define Distribution List step, you can enter one or more email addresses under this step. An email is sent once the routing process is complete.

Click **Finish** to return to the **Folders** page. An icon displays to indicate that a route process has been applied. You can click this icon for additional information about the route status.



Create a Meeting

Windchill ProjectLink allows you to conduct meetings with teams and individuals. You can collaborate on parts and, or, documents in real-time using the meeting capability.

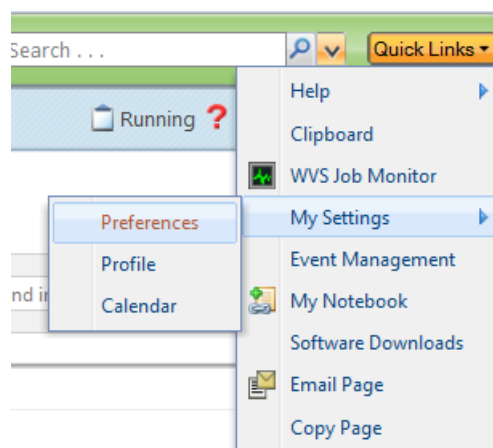
Meeting Types

The main type of meeting is:

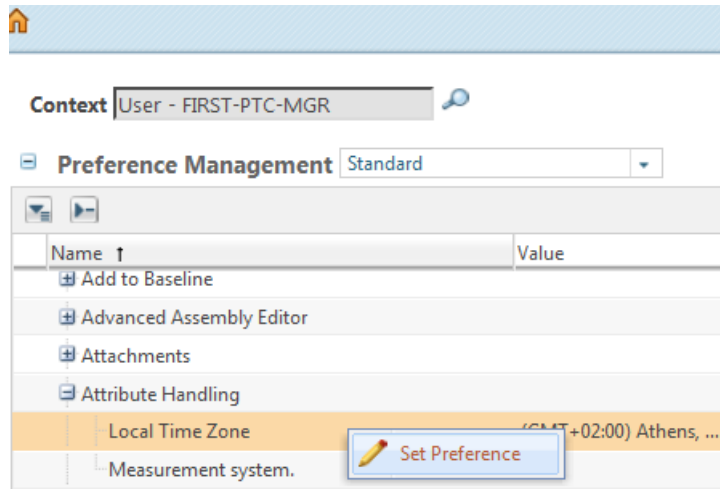
Standard - Traditional meeting with the ability to define a meeting by composing a meeting invitation, inviting all desired participants and attaching pertinent project files with optional teleconferencing information.

Set the correct time zone to be displayed when creating a meeting

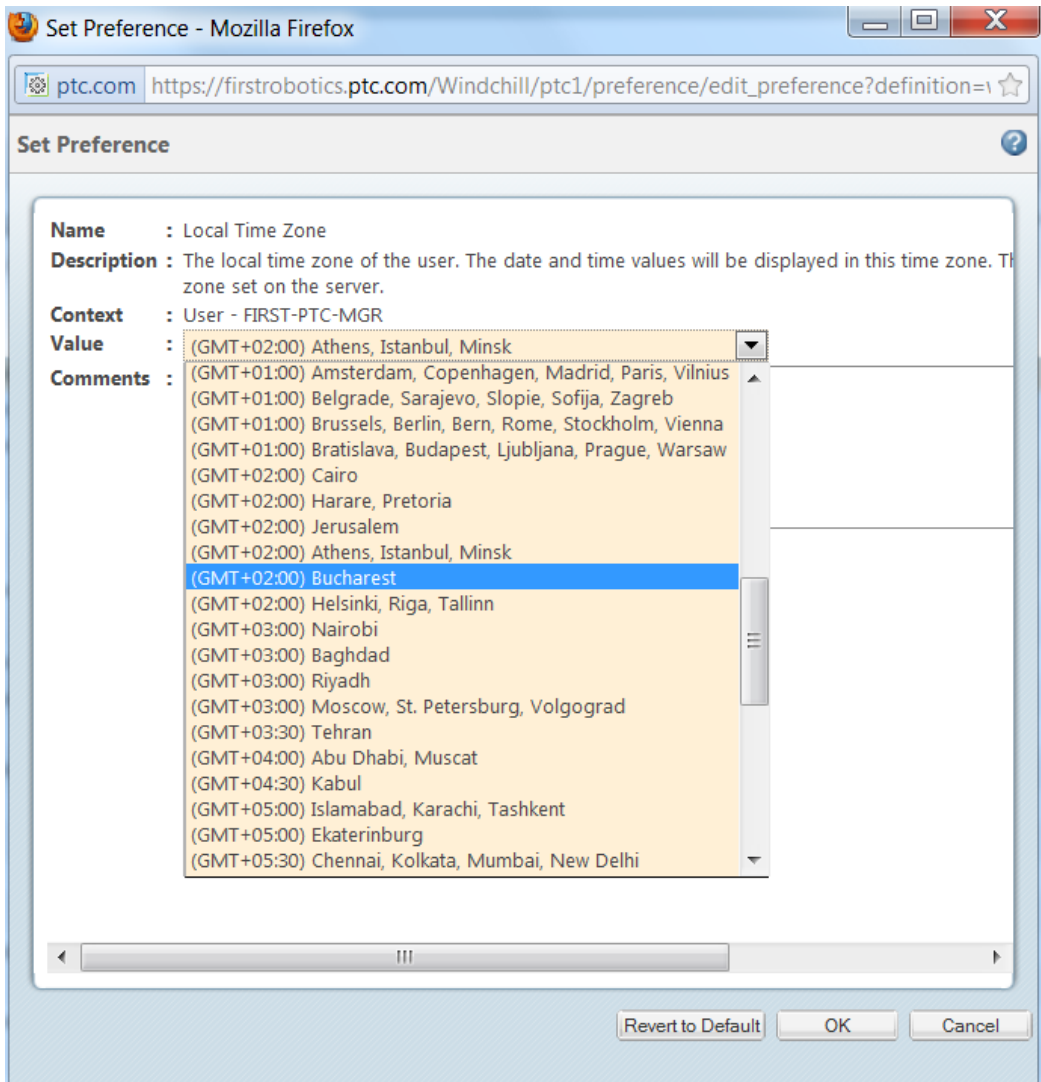
You will have to access **Quick Links - >My Settings - > Preferences**



From the Preferences Page, access Attribute handling->Local time zone and specify the time zone by right click to edit.

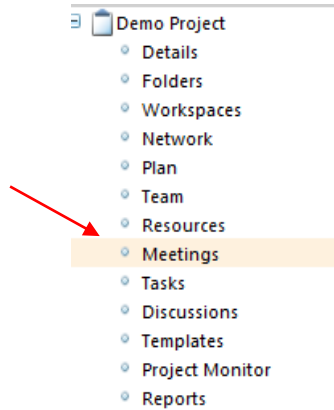


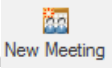
The **Set Preference Window** will appear and you will have to select the desired time zone for you and then click **OK**.

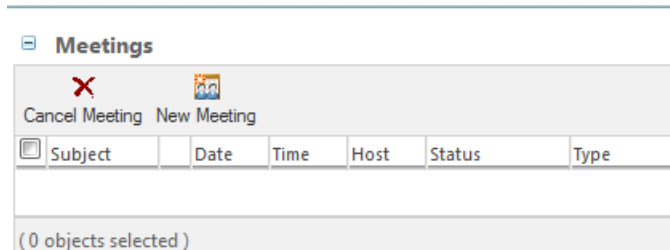


There are five steps to create any meeting type; however, you do not have to complete them all. A meeting can be successfully created as long as you define the required fields: **Meeting Name; Type; Date; and Time**. Optionally, you can set meeting duration in minutes.

a) Click the **Meetings** button on the **Project** page to navigate to the project's meetings. If there are meetings already set up you will see them by meeting details **Name, Date, Time, Host, Status,** and **Type**.



b) Click **Create Meeting** icon . The **Create Meeting** wizard initiates. You fill in the required fields (identified by an asterisk) – **Meeting Subject, Date and Time, Duration, Phone Number, Location**



New Meeting - Mozilla Firefox

ptc.com https://firstrobotics.ptc.com/Windchill/ptc1/meeting/create?unique_page_number=260&AjaxEnabled=row&wizardAc

New Meeting

1 2 3 4

Set Attributes Select Participants Identify Meeting Objects Set Agenda

Project: Demo Project

Type: Standard

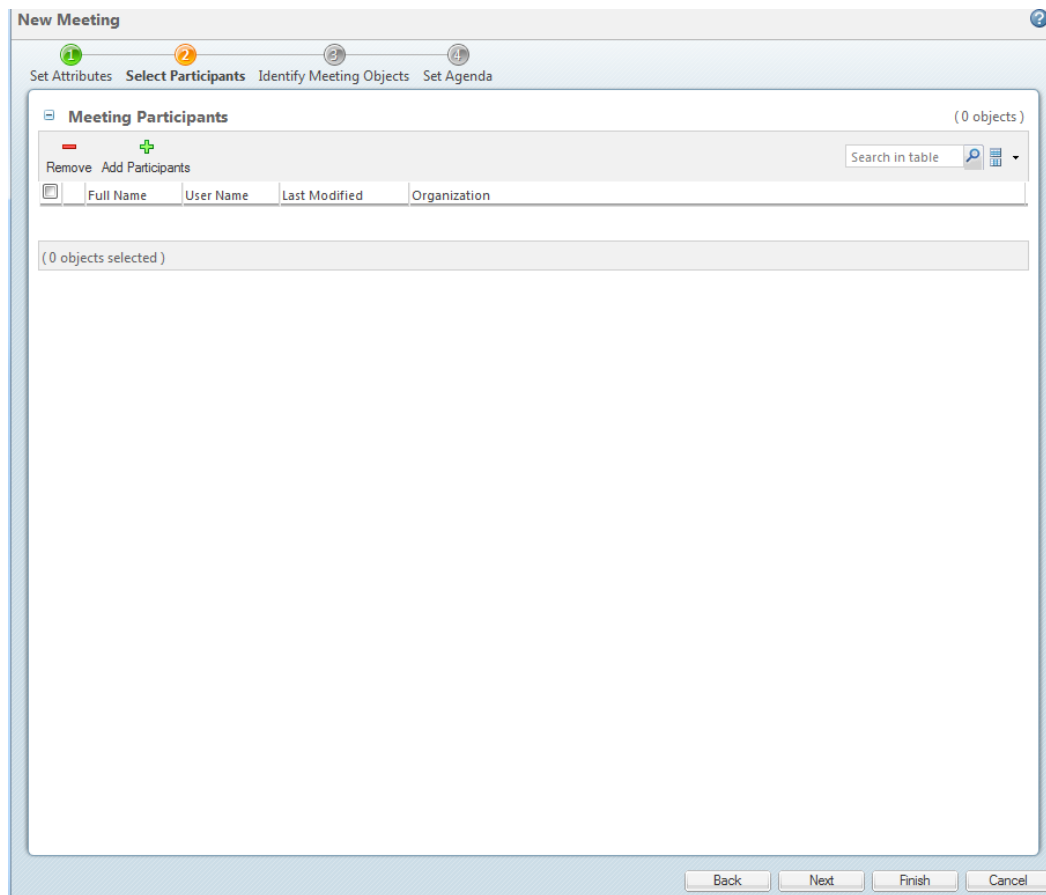
Attributes

- * Subject: Demo Meeting
- * Date and Time: 2011-10-24 1 AM 00 EEST
- * Duration (minutes): 60
- Teleconference Phone Number: 7777
- Teleconference Information:
- Meeting Location: US

* Indicates required fields.

Back Next Finish Cancel

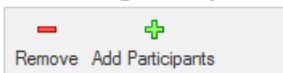
c) Click **Next**. The **Select Participants** wizard initiates.



Add Participants

Now you need to add the meeting participants. Participants can be added as individual users (**Users**),

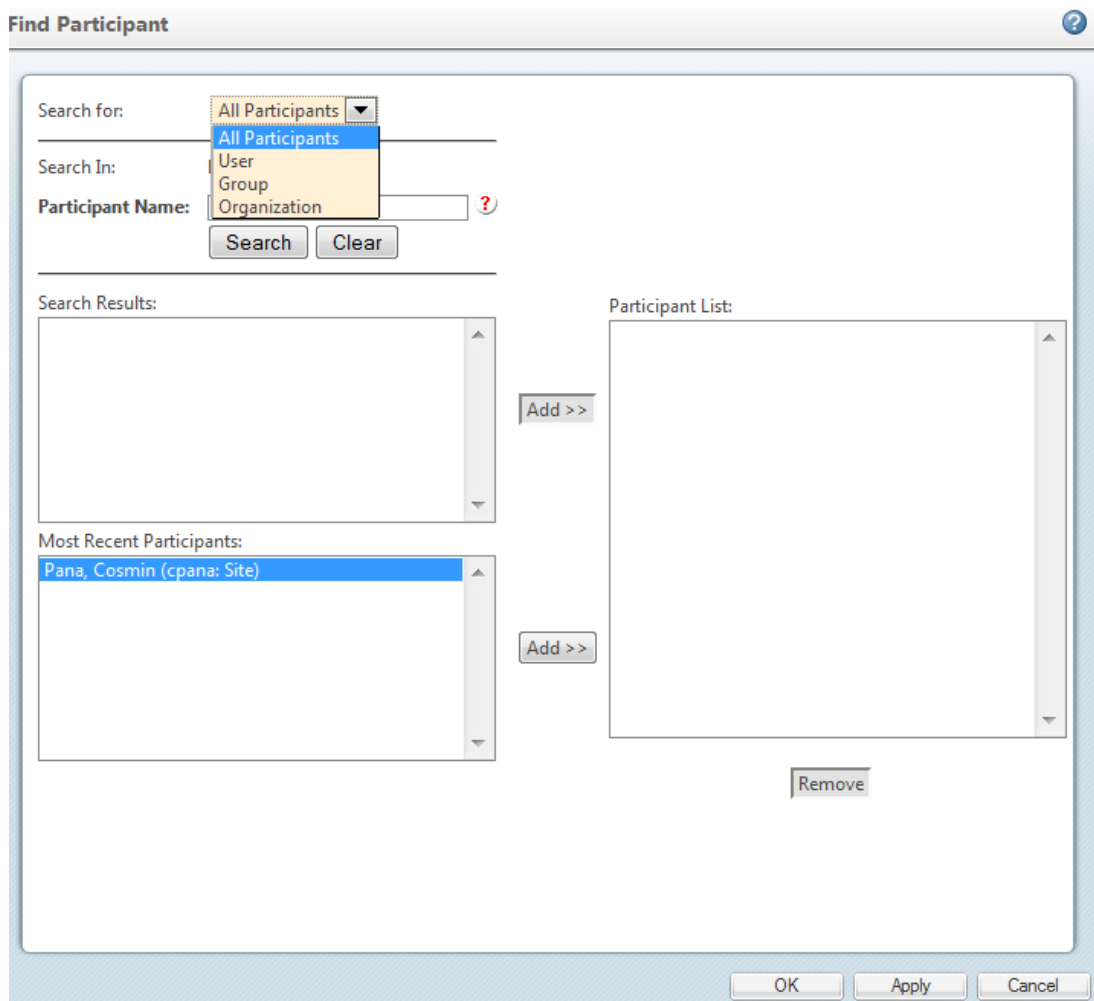
 Meeting Participants



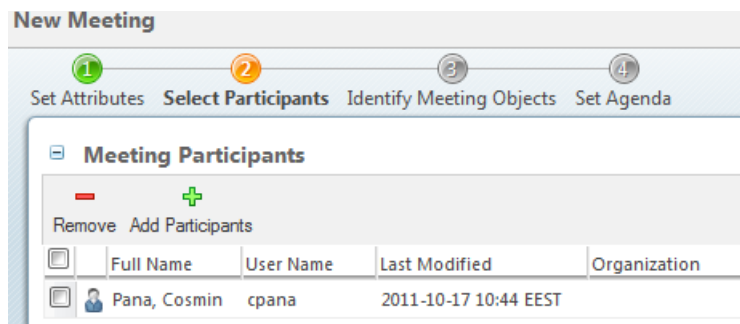
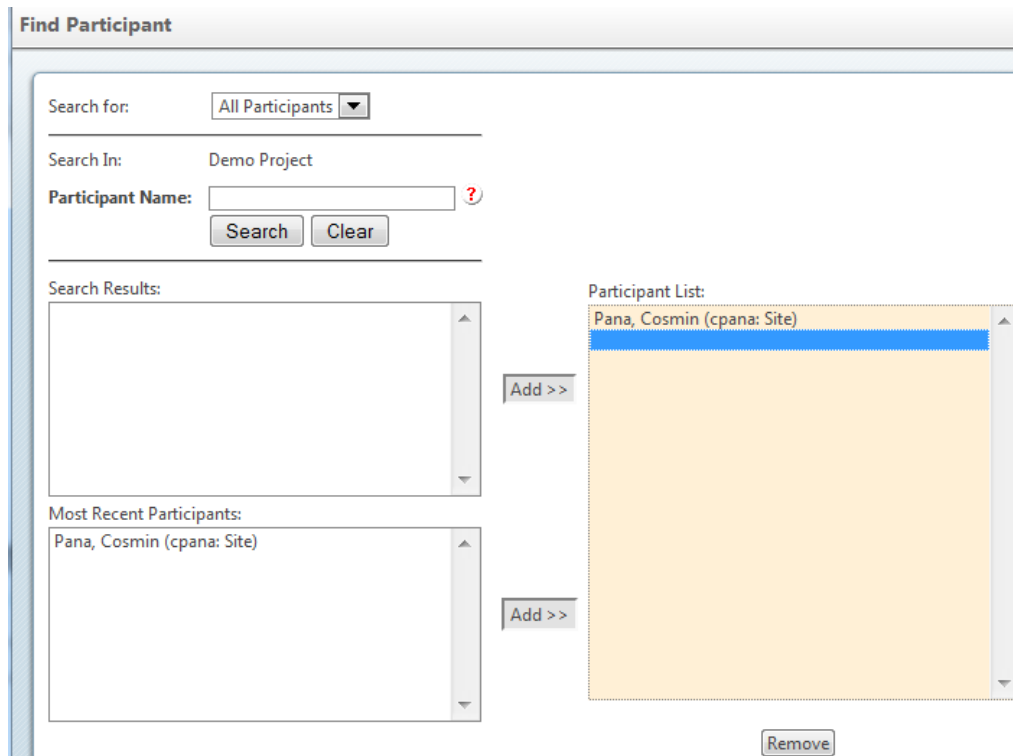
or through selection of defined roles (**Groups**),

Let's add participants.

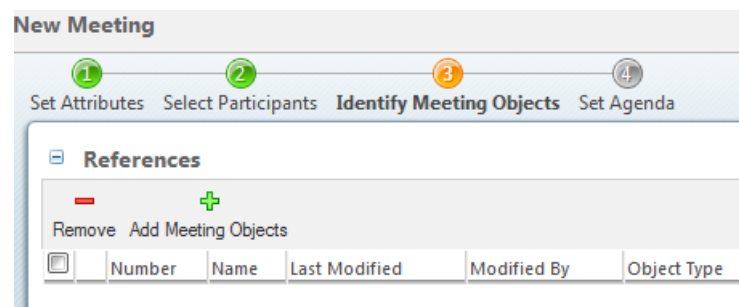
1. Select **Users** or **Groups** from the drop-down menu.
Users and Groups are identified by e-mail address because that is how they will be notified when invited to a meeting.



2. Click **Search**. The system returns all of the individual participants (**Users**) or defined roles (**Groups**) in your project, from which you select additions to the **Meeting Participants** list.
3. Highlight the participants or roles you want to add to the meeting.
4. Click **Add**. The selected participants are added to your meeting. The **Remove** button can be used to remove a participant from the list.



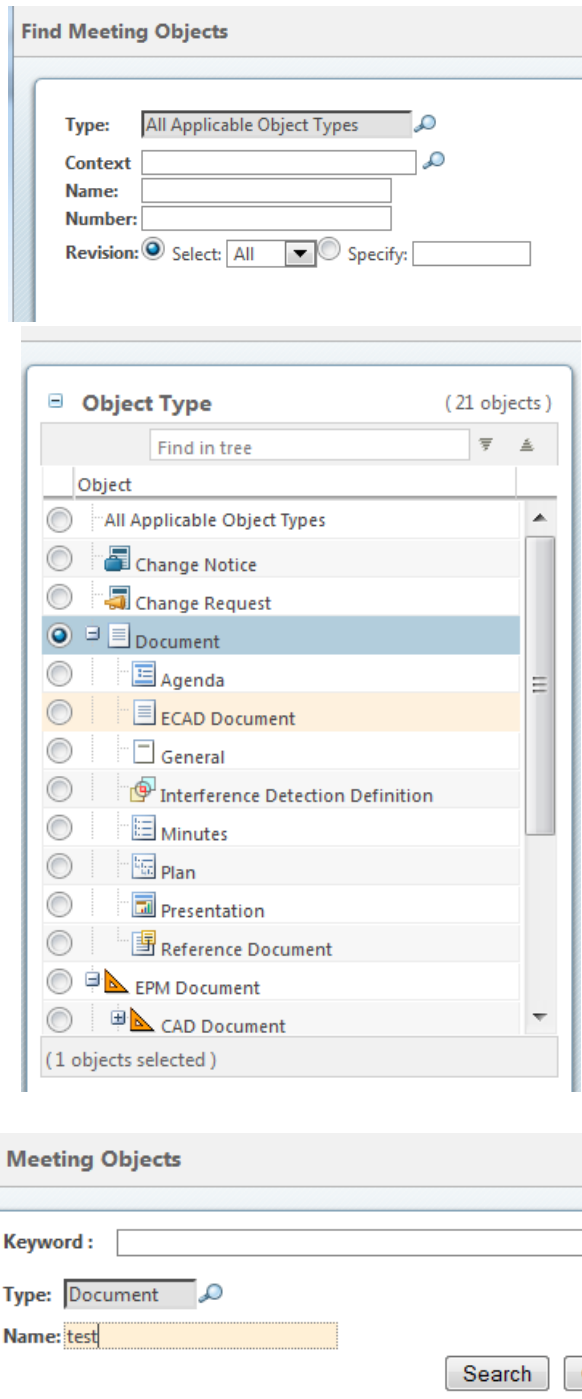
d) Click **Next**. The **Identify Meeting Objects** wizard initiates so you can add related parts and documents to your meeting.



Add Parts and Documents

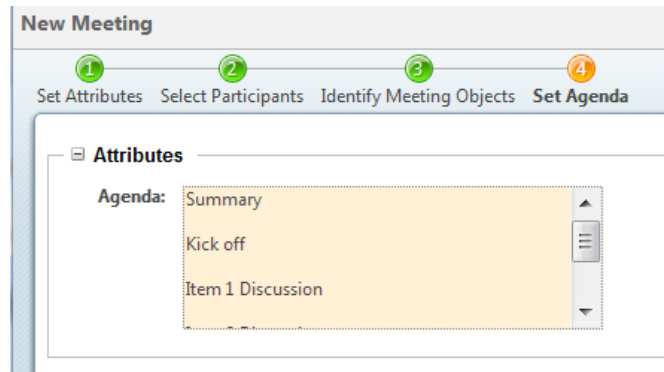
You can add parts and documents that are related to your meeting through the **Identify Meeting Objects** wizard. These parts and documents can be discussed in real-time during the meeting.

1. Select **Parts** or **Documents** from the drop-down list.



2. Click **Search**. A list of the entire project's uploaded parts or documents displays.
3. Highlight the parts or documents you wish to add to the meeting.
Note: You can use the wildcard characters * and ? to narrow the search, or leave the field blank to search for all parts and documents.

4. Click **Add**. The parts or documents display in the Identify **Meeting Subject Objects** window.
- e) Click **Next**. The **Agenda** wizard initiates. Note: Setting an agenda is optional. If you wish, enter a brief agenda for the meeting.



You may select **Finish** at any time to complete the meeting creation process or **Cancel** to end the meeting creation process. If you have selected the Finish button an invitation will be sent to the participants:

Meeting Notification
Subject: [Demo Meeting](#)
Meeting date: 2011-10-24 EEST
Meeting time: 1:00 AM - 2:00 AM EEST
Meeting type: Standard meeting.
Call information: 7777
Location: US
Teleconference information: None
References:
 None

[View Information](#)

Invitees:
[Pana, Cosmin](#)

Agenda:

Complete Meeting Setup

When you complete the required and optional steps, you are ready to create the final meeting.

1. Click **OK** from the page you are on. The **Project** page displays and lists the meeting you just created, as well as any other meetings related to the project.

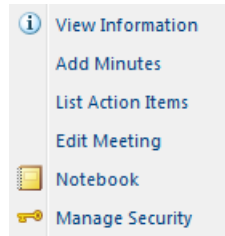
Meetings

Cancel Meeting New Meeting

Subject	Date	Time	Host	Status	Type
<input type="checkbox"/> Demo Meeting	2011-10-24	1:00 AM EEST	FIRST-PTC-MGR, FIRST-PTC-MGR	Scheduled	Standard

Edit Meetings

A Windchill ProjectLink meeting organizer can easily update the meetings they have created. You use the **Edit Meeting** page to change meeting parameters to accommodate the needs of a project team. You have to right click on the Meeting that you want to modify.

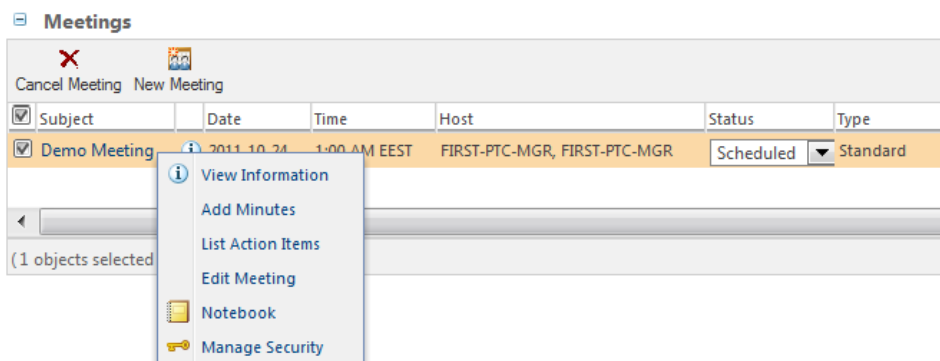


Parameters that can be changed include the meeting name, schedule, agenda, participants, required documents, or telecommunications.

Accessing the Update Meeting Page

In this lesson, you learn how to access the **Update Meeting** page.

1. From Windchill ProjectLink, click the **Project** tab.
2. Click the **Meetings** page link from the **Project** bar on the left from the Navigator Ribbon. If meetings have not been created, the **Meetings** page reads "No Items to Display."
3. Click **Actions** in the **Actions** column for the meeting you selected. The **Meeting Actions** pull-down menu window displays.



4. Click **Edit Meeting** to display the page.

Updating the Duration of a Meeting

In this lesson, you access the **Update Meeting** page and change the meeting duration from zero (0) minutes to 60 minutes.

1. Enter **60** in the **Duration (minutes)** field to change the meeting duration time.

2. Click **OK**. The **Edit Meeting** page closes.

After you update the meeting parameters, you can view your changes from the **Meetings** table on the **Projects** page.

Installing Windchill CAD Workgroup Managers

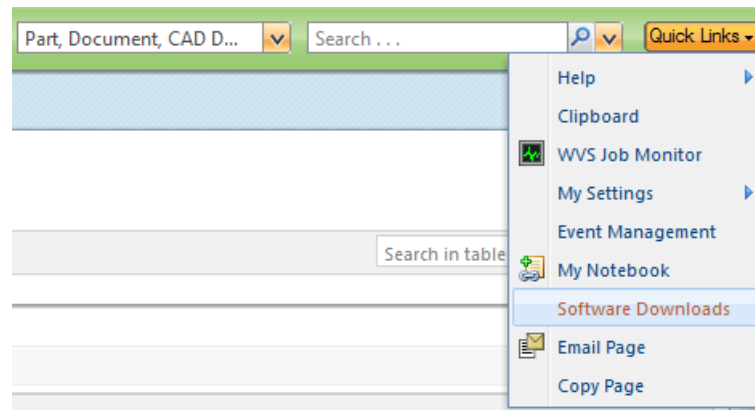
This part of the tutorial demonstrates how to install a Windchill CAD workgroup manager for your CAD application. Installing the workgroup manager allows you to upload and download designs to and from Windchill solutions using your CAD application.

Navigate to the Software Downloads Page

In order to use this integration, you must install a workgroup manager that is compatible with your CAD system. In this tutorial, we will download the Workgroup Manager for AutoCAD.

Workgroup managers can be downloaded from the **Software Downloads** page in the **CAD Integrations** section.

1. Make sure your CAD application is not running. If it is running, close it now.
2. On the **QuickLinks** tab, click **Software Downloads**.

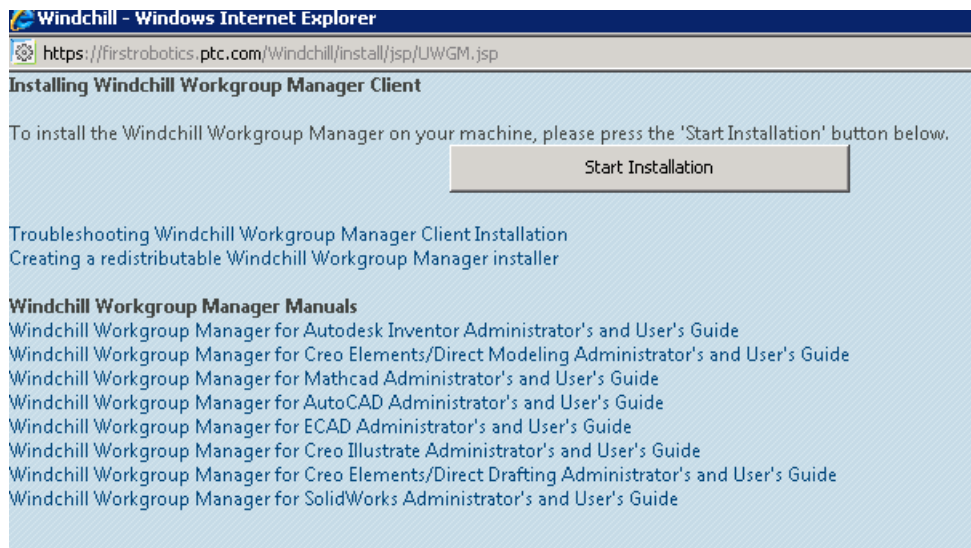


3. Review the Additional License Agreement Terms, and then click **Accept**.
4. On the **Software Downloads** page, locate the **Windchill Workgroup Managers** section and click the **Windchill Workgroup Manager**.

Windchill Workgroup Managers

Windchill Workgroup Manager Install to connect the following applications to Windchill: Mathcad, NX, SolidWorks, AutoCAD, AutoCAD Electrical, AutoCAD Mechanical, Autodesk Inventor, CATIA V5, Arbortext IsoDraw, Creo Elements/Direct Modeling, Creo Elements/Direct Drafting, Creo Schematics, CADD5, Altium, Cadence, Mentor Graphics, and Zuken.

5. Click the **Start Installation** to download the WGM and begin the installation.



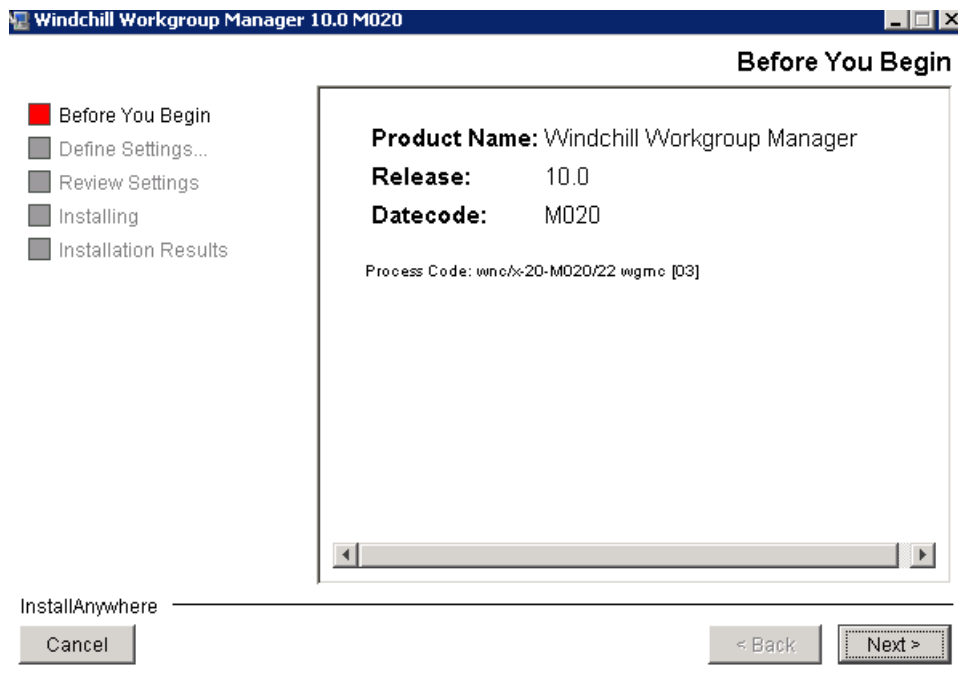
Install the Workgroup Manager

Complete the installation as follows:

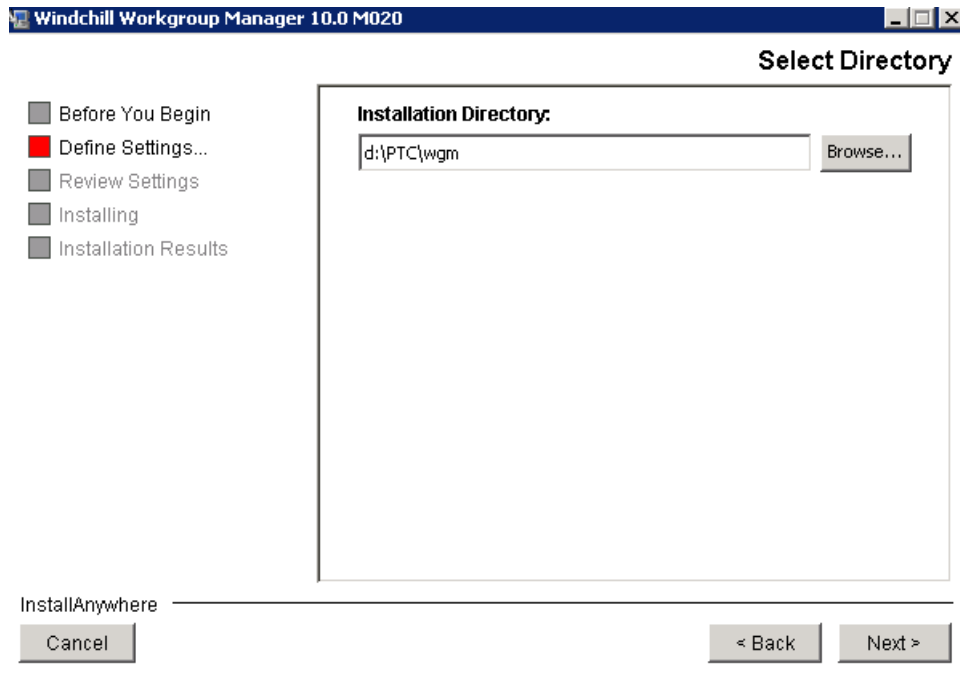
1. Once the WGM has been downloaded, the installer should automatically start. Click **OK** to proceed.



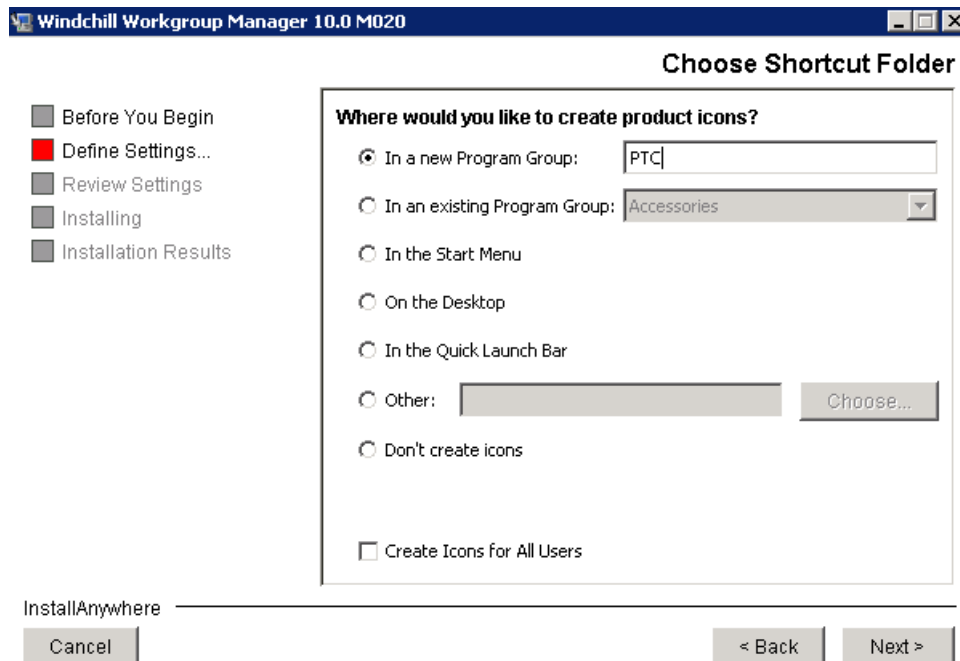
2. Before you begin the installation, review the general information in the dialog. Click **Next**.



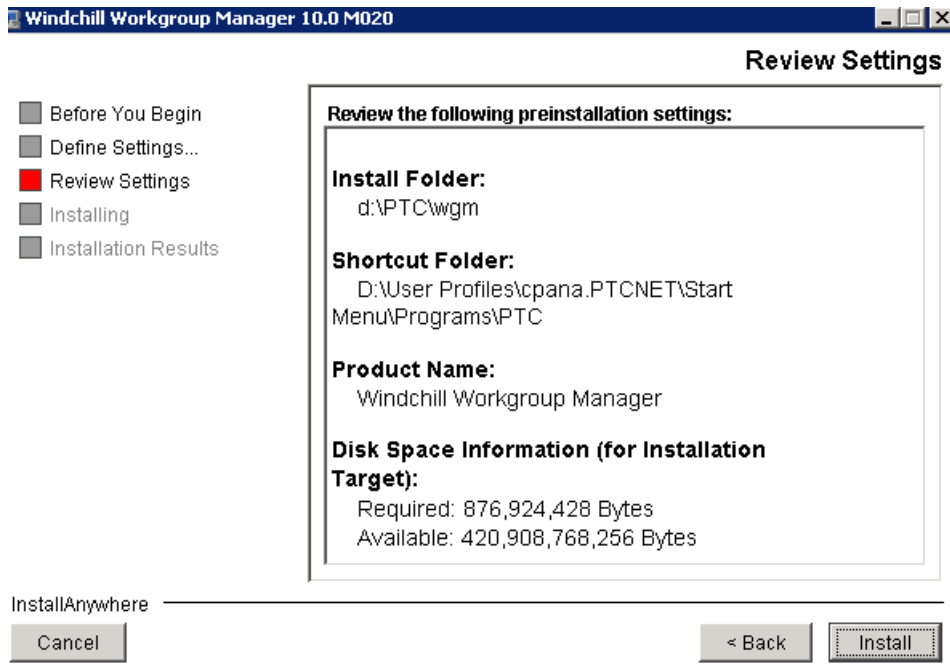
3. Browse or type the default **installation directory** for the WGM. Click **Next**.



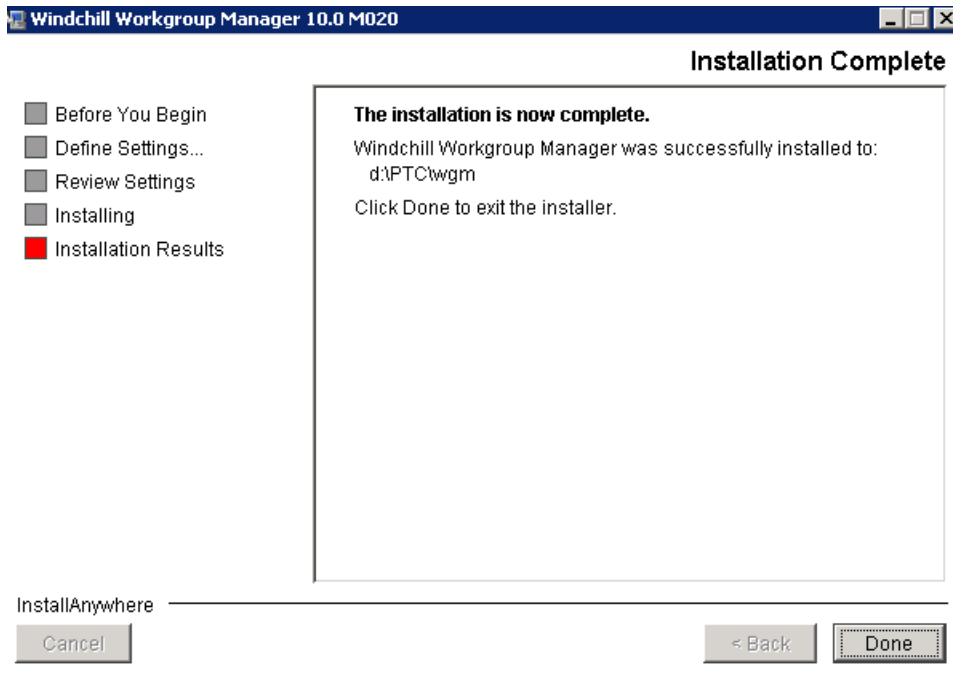
4. Define the **Default Shortcut Folder**. PTC recommends using the default option. Click **Next**.



5. Click **Install** to begin the installation.



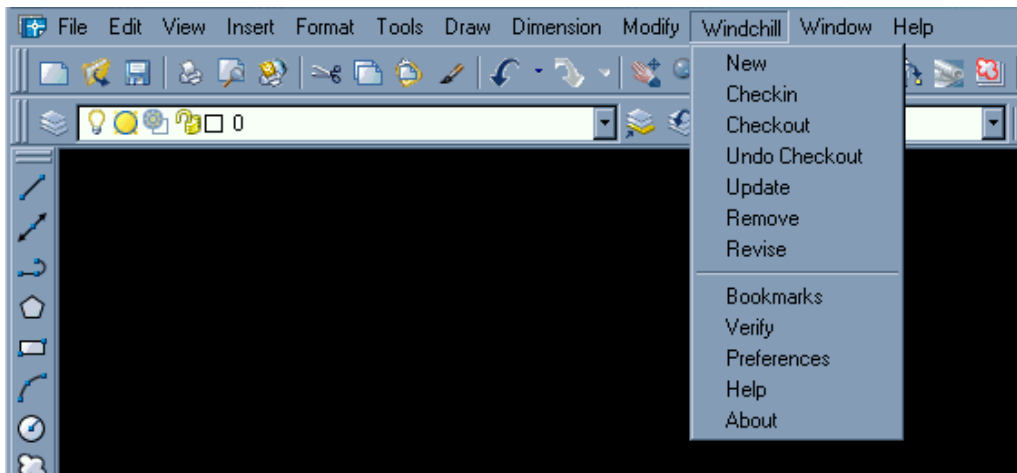
6. Once the installation is complete, click **Done**.



7. Log off and then log on to your computer to update the CAD application integration.

Confirm the Installation

Once the installation process has been completed, you should verify that the workgroup manager was installed.



1. Open your CAD application.
2. Confirm that a new **Windchill** menu has been added for the integration.

You are now ready to work with the defined CAD tool to store and work on data in your project.

Launching and Using Creo View

The Windchill ProjectLink Visualization tool, Creo View, allows users to view data from a variety of sources, without requiring access to the application that created the data.

Using Creo View, you can view and annotate documents, drawings, images, 3D models, and ECAD files. You can also measure and analyse 3D data, which can come from variety of different CAD systems. This functionality allows users to analyse the product design, annotate files to indicate review comments, obtain information about parts of a product structure, and collaborate dynamically with others regarding design or document content.

Launching the Viewer

From the Information Page for the specific model, you will notice a dynamic preview allow you to rotate, spin and zoom the model.

Visualization and Attributes

File Name: ftc_robot.asm

Number: FTC_ROBOT.ASM

Name: ftc_robot.asm

Status: Checked in

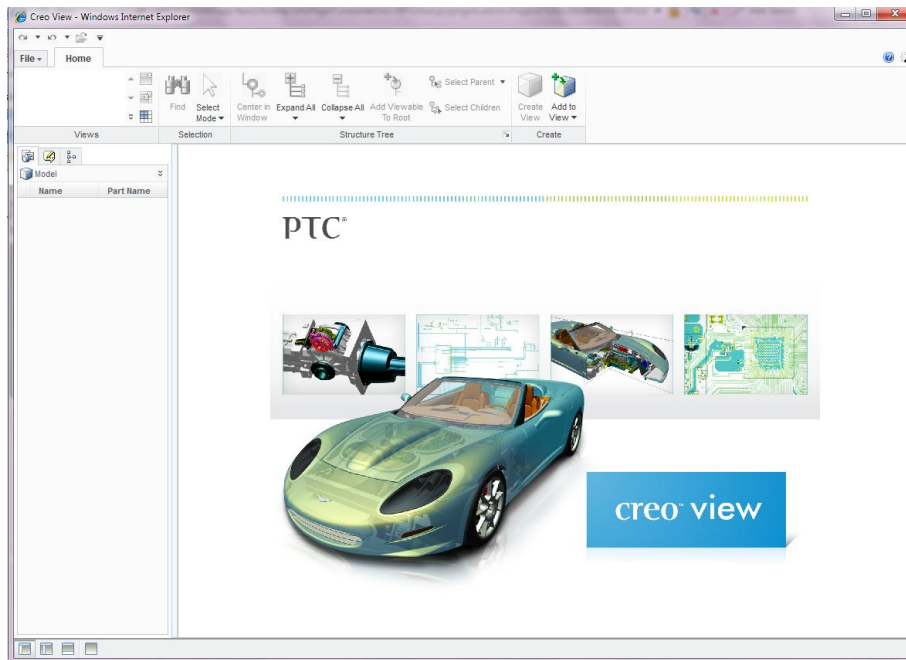
Modified By: FIRST-PTC-MGR, FIRST-PTC-MGR

Last Modified: 2011-11-08 05:19 EET

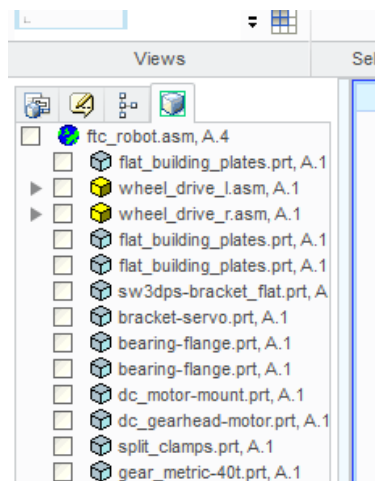
Holding your mouse over the thumbnail, use the following commands to orient the model:

- Hold the middle mouse button and move the mouse in any direction to fly around the model
- Roll the middle mouse scroll button to zoom in and out
- Hold the right mouse button and move the mouse in any direction to rotate the model.

To open Creo View Express, click on the Preview window. Creo View Express will be launched.

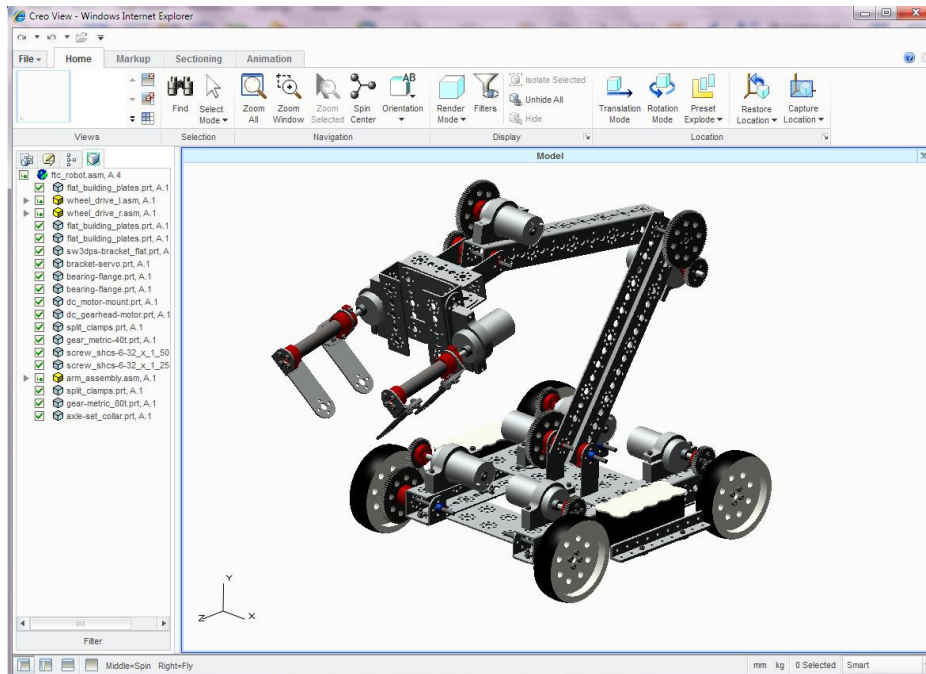


- Click the box beside the top level assembly to show the data file in Creo View.



Basic Viewing Features

We've opened the CAD model in Creo View. Now let's review some of the viewing features available in this tool.



Using Creo View, you can measure and analyze 3D data, which can come from a variety of different CAD systems. You can measure distance or dimensions within the viewer.

- When viewing 3D data, you can click to select and move components in the view. This is called *translating* the component. You might do this to examine individual components, or to temporarily move them out of the way if they are obscuring the view of other components. You can also spin or rotate components to view them from different perspectives. To do this, you toggle between translation and rotation modes using buttons on the toolbar.
- You can also show or hide components as needed. If desired, you can change the rendering of 3D components to appear as shaded, wireframe, or hidden lines removed.
- Creo View lets you use the mouse and keyboard to easily navigate in the viewer. There are two navigation modes: *fly-through* and *inspection*.
 - *Fly-through* mode allows you to interactively fly around a 3D component to view that object from different depths and angles. You can think of this like moving your head, where a slide to the left moves the head to the left, with the object in the view moving to the right. You use the middle mouse button (Alt + right mouse button for a two-button mouse) to fly.
 - *Inspection* mode is like holding an object in your hand and viewing it from different angles. This mode is the default. You use the right mouse button to spin the viewed object.
- Creo View allows you to view and create annotations for all file types. Annotation toolbar commands vary based on the type of file you are viewing. You can use annotation to indicate comments for review or collaboration, and to draw shapes in the view to highlight specific items as needed. Annotation sets appear along the left side of the Creo View window, either as filenames or thumbnails. Click an item in the annotation list to load that annotation set into the viewer. When you are finished creating annotations, you can upload the annotation set or markup to the server. Note: Creo View provides expanded viewing and annotation capabilities for PDF files, allowing you to annotate them and track comments and changes, or reply to specific comments.

- Creo View also provides powerful tools for measuring dimensions or distance between 3D parts. When measurement mode is active, you can hover the mouse over items in the view to highlight faces and curves that are available for measurement, then double-click to select a component, or single-click to select a surface for measurement. The measurement values appear in a callout in the viewer for the item or items you selected.

For more information and instructions on using Creo View, refer to the [Creo View Online Help](#).

- [About the User Interface](#)
- [Working with Creo View](#)
- [Creating Representations and Save Annotations](#)

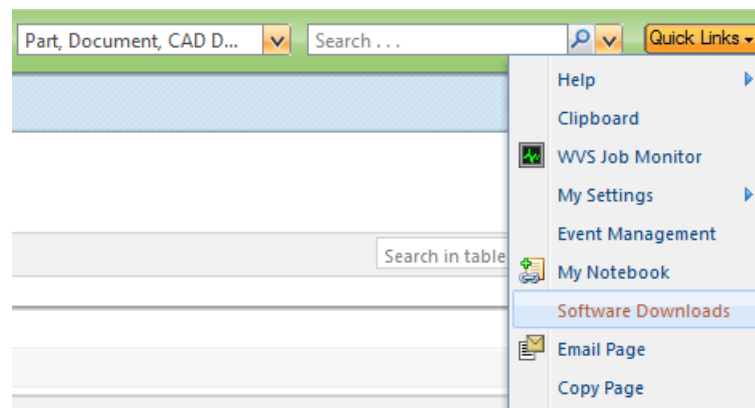
Installing Windchill Desktop Integration

This part of the tutorial demonstrates how to install the Windchill Desktop Integration to access your Windchill project from Windows Explorer. Installing Windchill Desktop Integration allows you to upload and download documents to and from Windchill using your Windows Explorer.

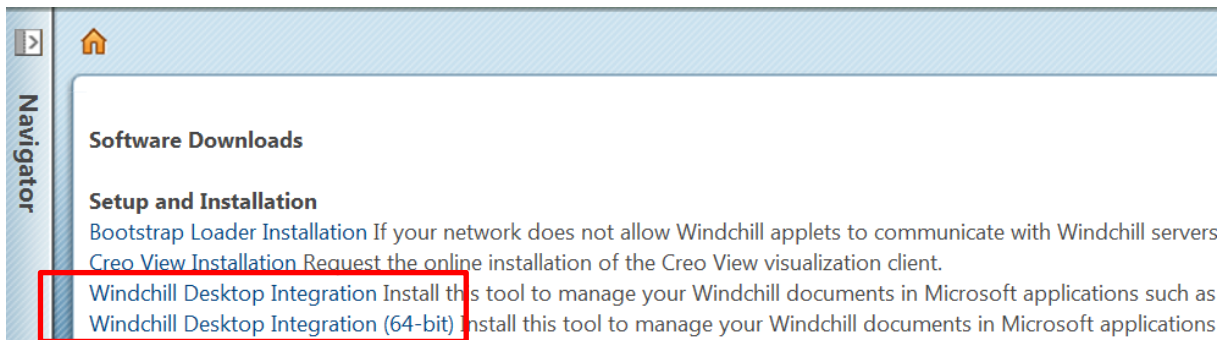
Navigate to the Software Downloads Page

In order to use this integration, you must install a Windchill Desktop Integration plugin that is compatible with your OS system version 32 or 64 bit. In this part of the tutorial, we will download the Windchill Desktop Integration for a 64 OS bit System, Windows 7.

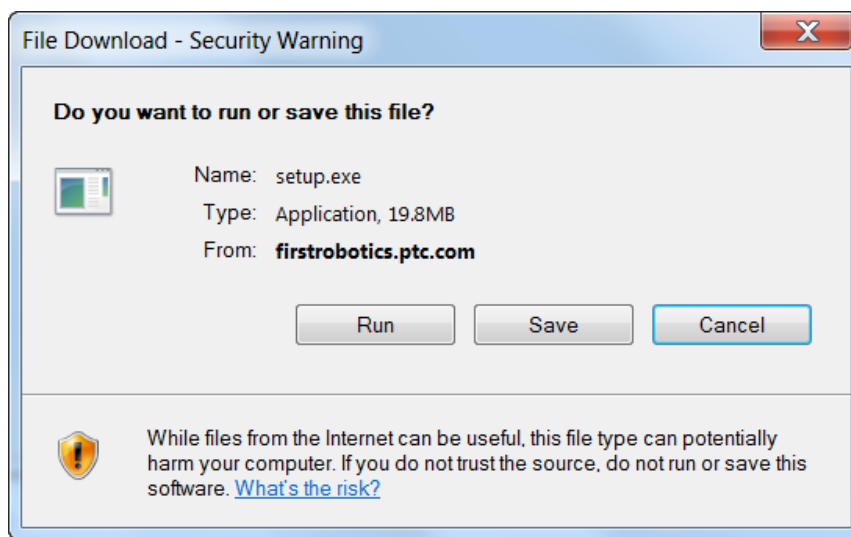
1. On the **Quick Links** tab, click **Software Downloads**.



2. Review the Additional License Agreement Terms, and then click **Accept**.
3. On the **Software Downloads** page, locate the **Windchill Setup and Installation** section and click the **Windchill Desktop Integration or Windchill Desktop Integration 64 bit**.



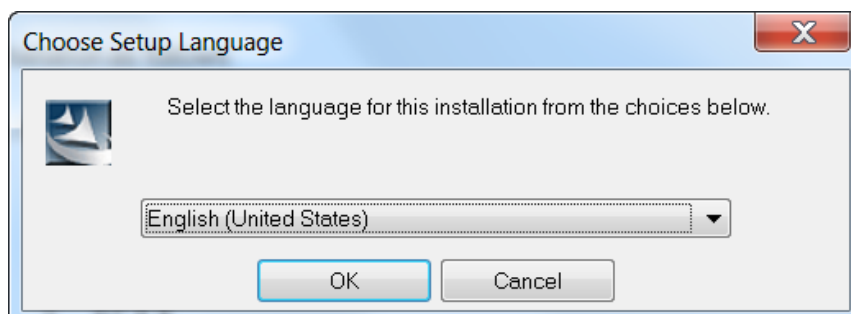
4. Click on the desired version and then **Start Installation** to download the WGM and begin the installation.



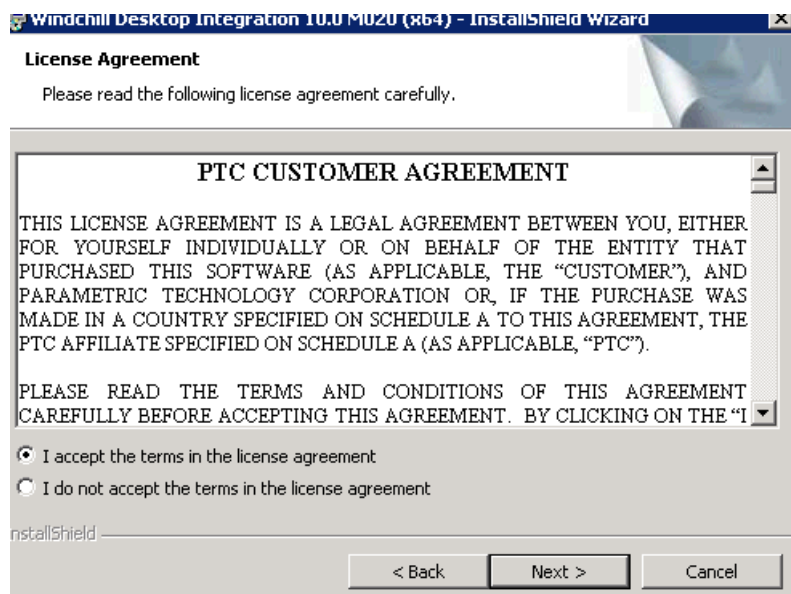
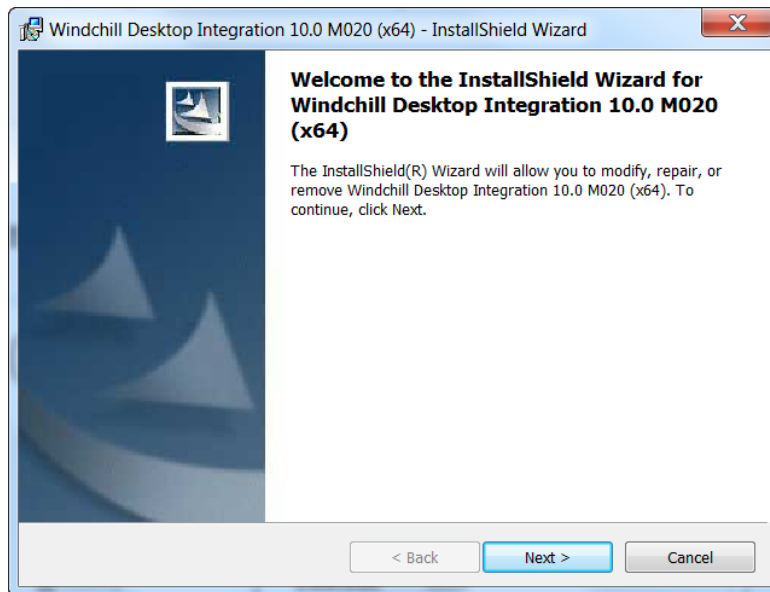
Install the Windchill Desktop Integration 64 bit

Complete the installation as follows:

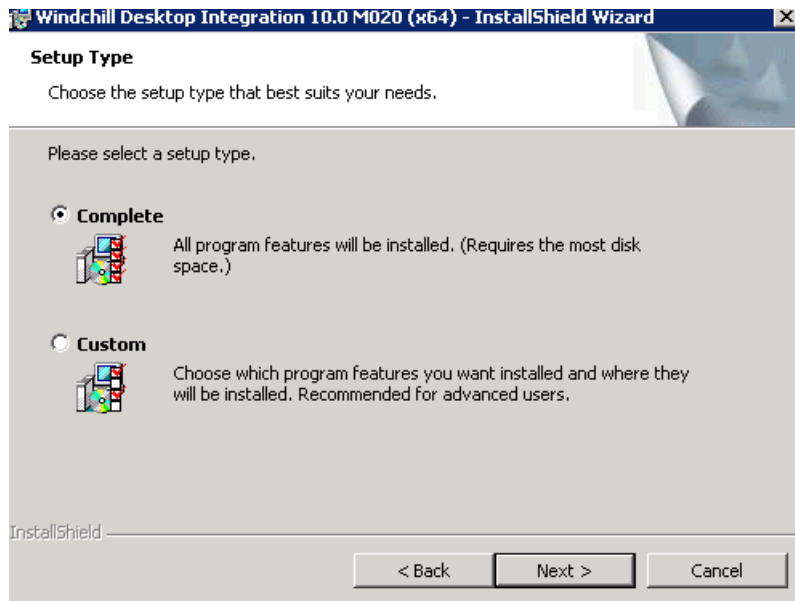
5. Once the WGM has been downloaded, the installer should automatically start. Click **OK** to proceed.



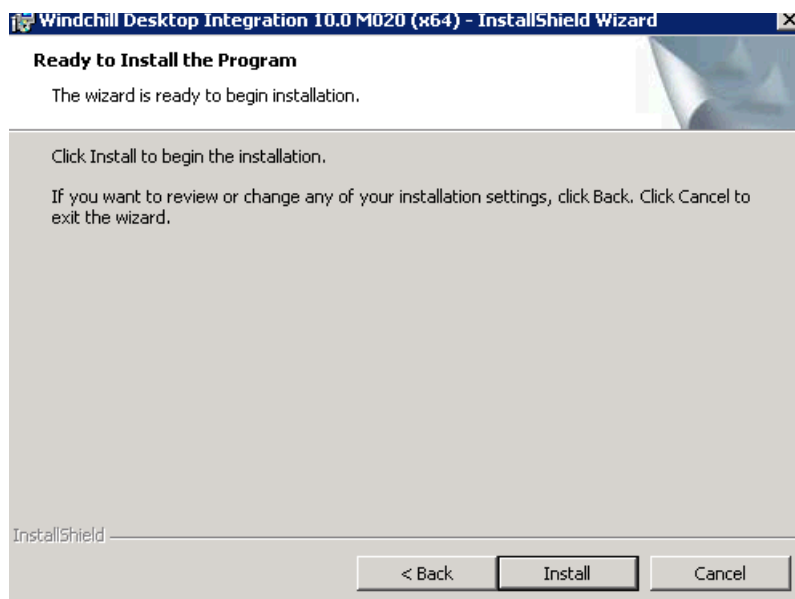
6. Before you begin the installation, review the general information in the dialog. Click **Next** and **Accept the agreement**.



7. Select the option **Complete**. Click **Next**.



8. Click **Install**

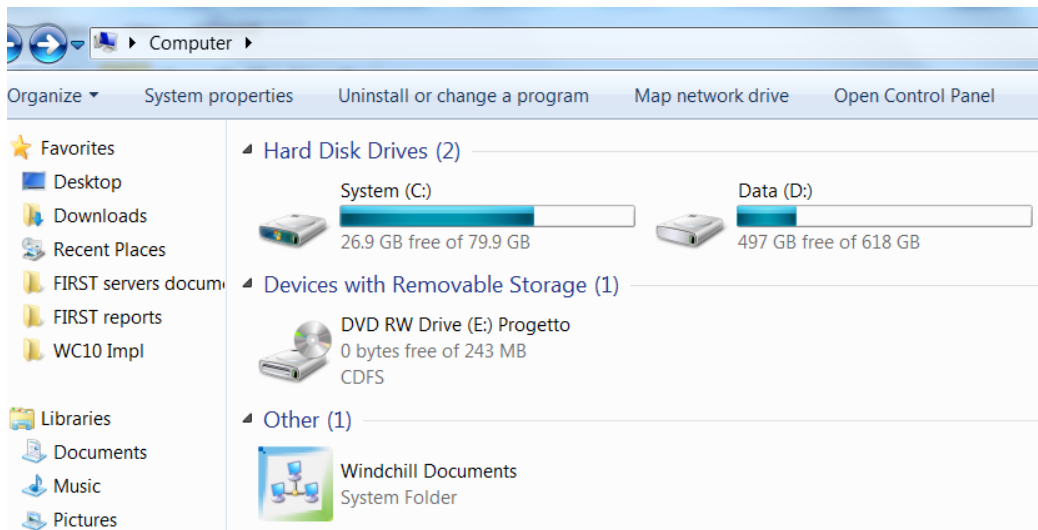


9. After the Installation has completed, go to My Computer and look for the Windchill Documents

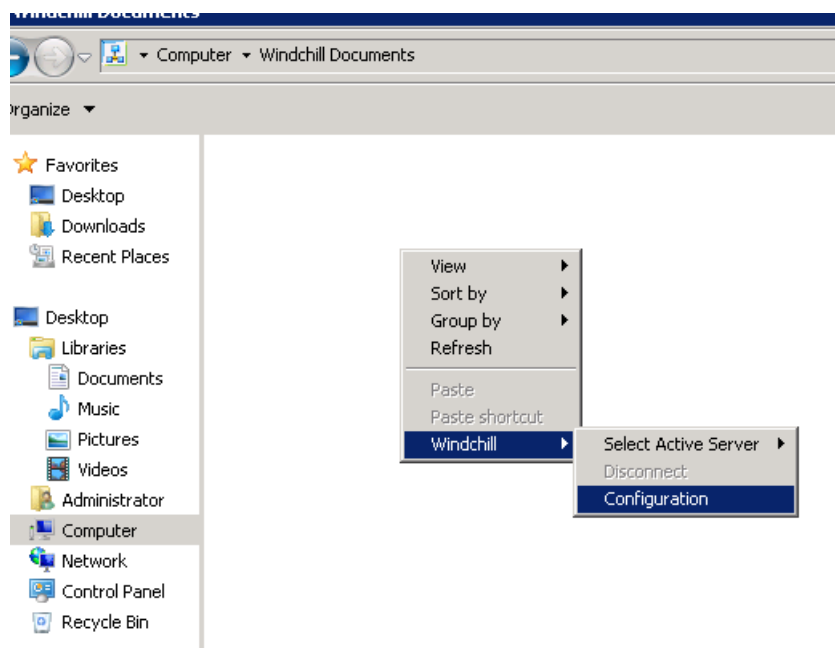


System Folder icon
FIRST Windchill Server.

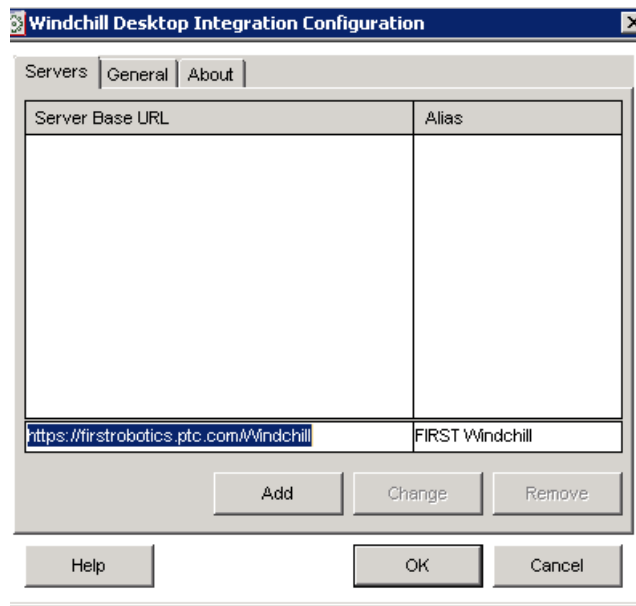
and then start to configure the access to the



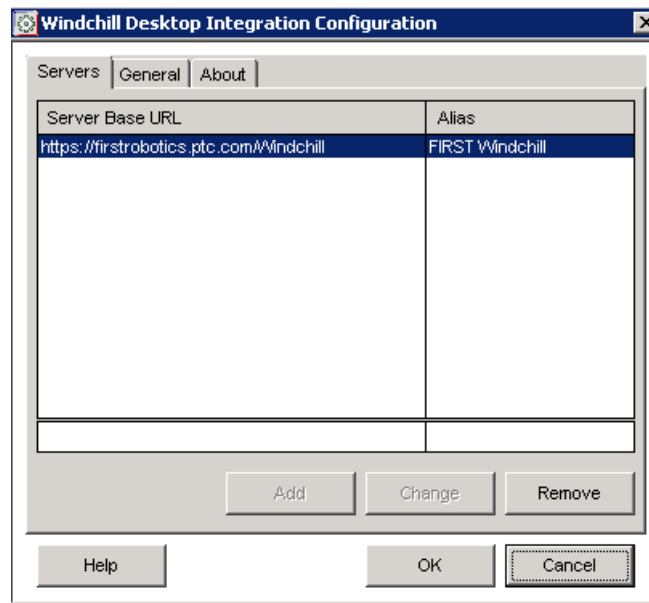
10. Double click on the Windchill Documents icon and then perform **Right click action with your mouse button** and select **Windchill->Configuration**.



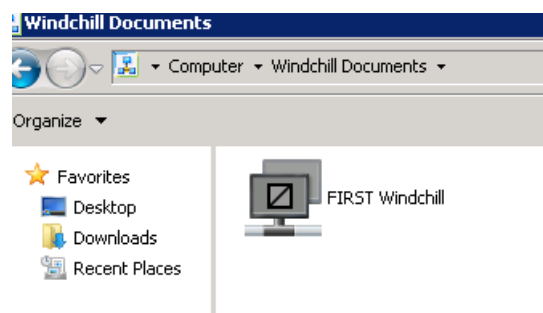
11. Complete the Server Base URL Area with **https://firstrobotics.ptc.com/Windchill/** and the Alias area with **FIRST Windchill** and then click the **Add** button.



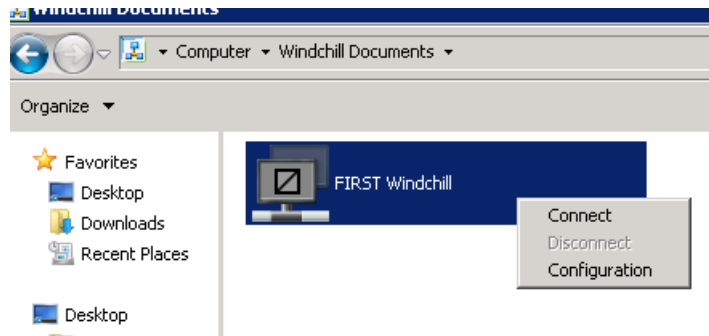
12. After those two areas have been completed click on the **OK** button.



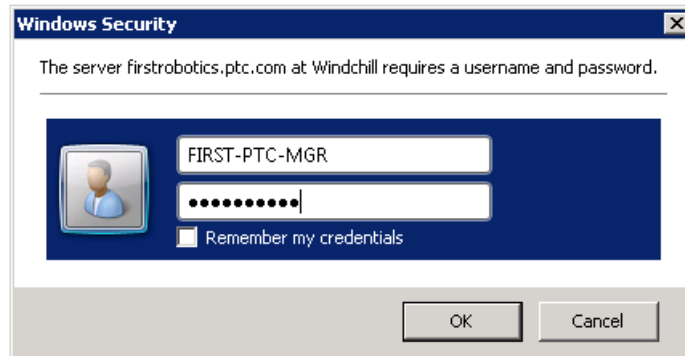
13. Then you will notice that a new icon has appeared with the name as the Alias defined in the step before.



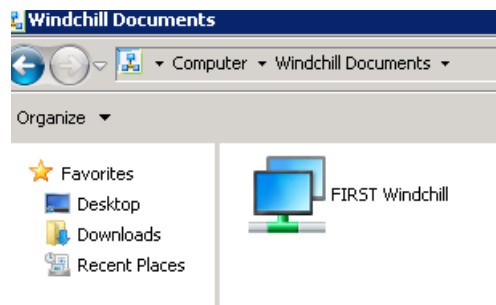
14. Right click on the **FIRST Windchill** icon and select the **Connect** option.

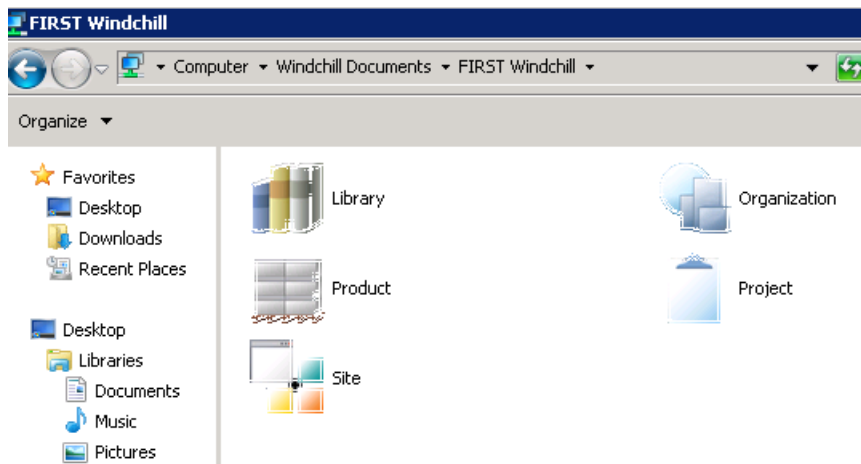


15. A window will pop-up asking you for your Windchill user credentials. Enter your Windchill username and password and you will be able to access your Windchill projects from Windows Explorer.



16. If the connection is successful the icon will change her color. Then double click on the **FIRST Windchill** icon and you will access Windchill through Windows Explorer.





Installing PTC Plug-in for Microsoft Project

This part of the tutorial demonstrates how to install the PTC Plug-in for Microsoft Project.

Windchill ProjectLink supports an optional Microsoft Project plug-in component to support seamless exchange of plan information, such as tasks and resources with Microsoft Project 2003, 2007 and 2010. Project or program members with permissions to create and edit plan objects can import and export plans between Microsoft Project and Windchill. They can also edit plan information within Microsoft Project and then save it to Windchill.

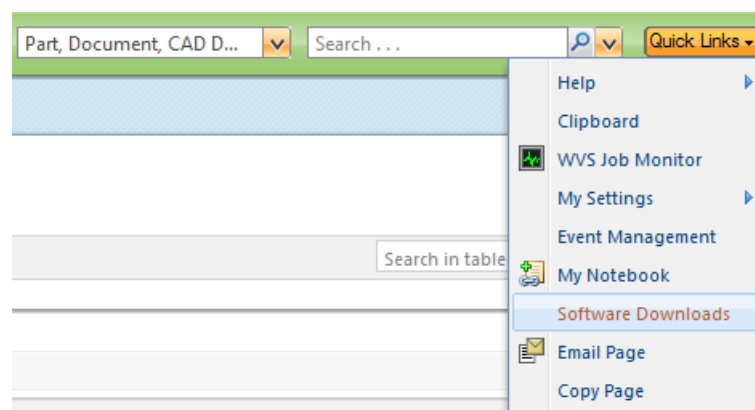
With the plug-in installed you can choose Save to PTC from the File menu in Microsoft Project. The plug-in also facilitates exporting and editing Windchill plan information by opening the plan directly in Microsoft Project.

Navigate to the Software Downloads Page

In order to use this integration, you must install a PTC Plug-in for Microsoft Project plugin.

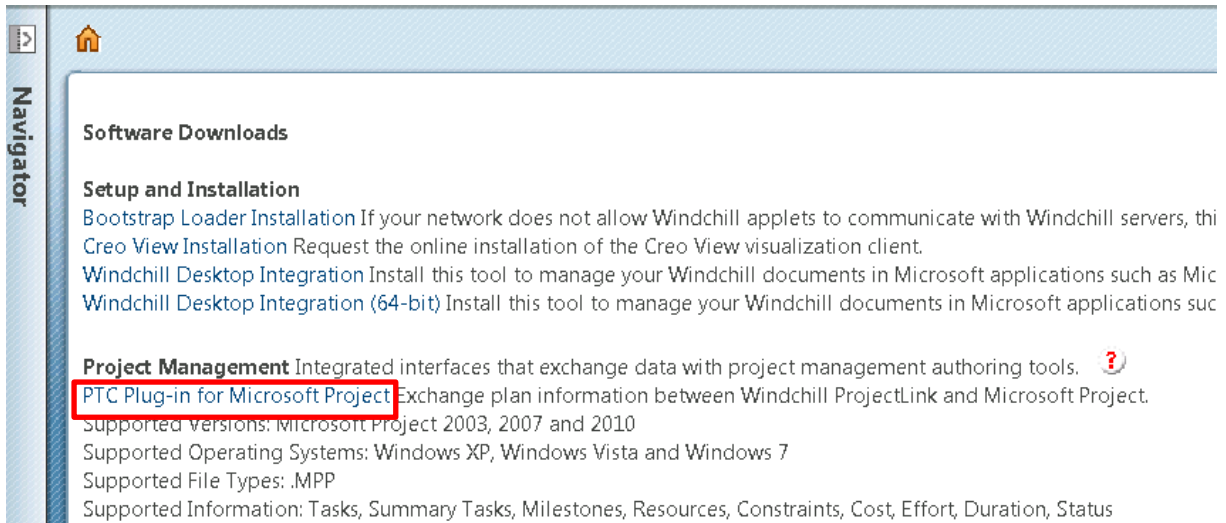
Workgroup managers can be downloaded from the **Software Downloads** page in the **Setup and Installation** section.

1. On the **Quick Links** tab, click **Software Downloads**.

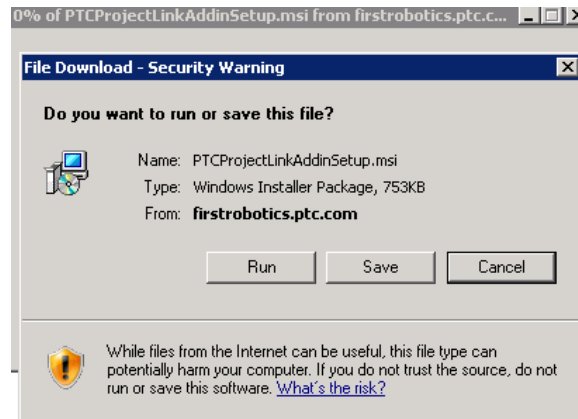


2. Review the Additional License Agreement Terms, and then click **Accept**.

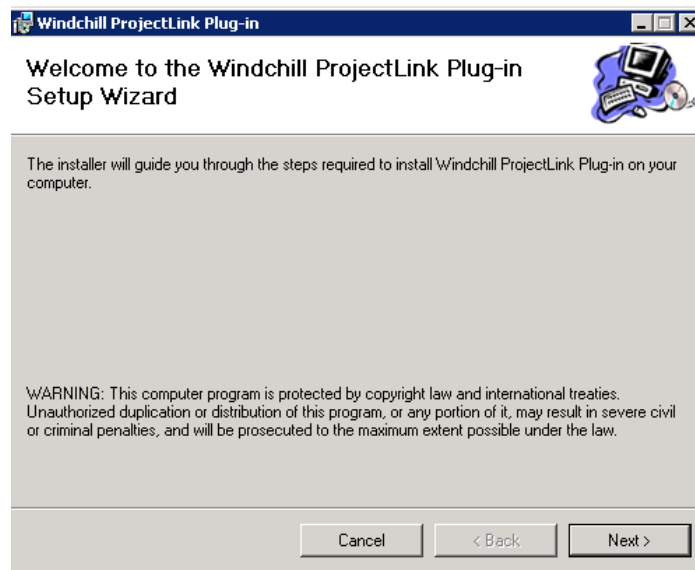
3. On the **Software Downloads** page, locate the **Project Management** section and click the **PTC Plug-in for Microsoft Project**.



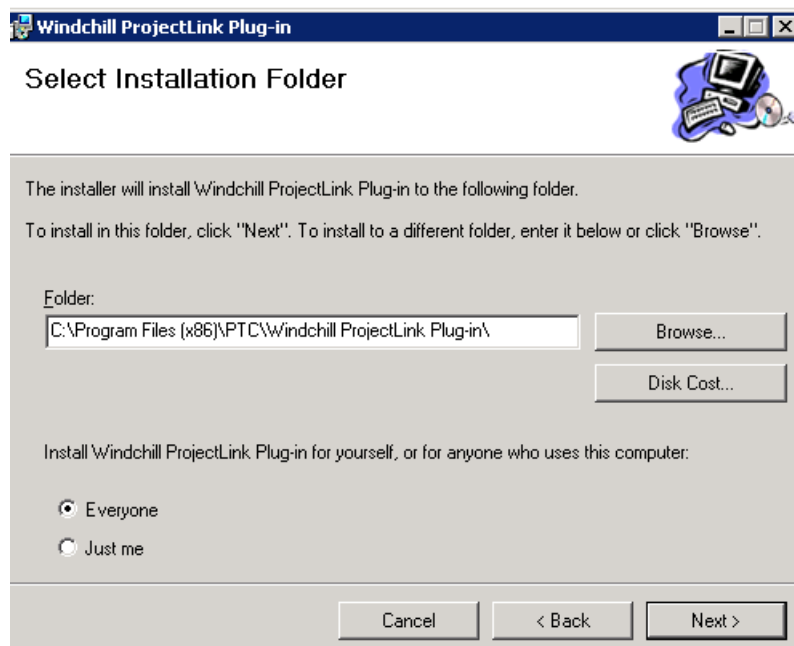
4. Then click on the **Run** or **Save** button.



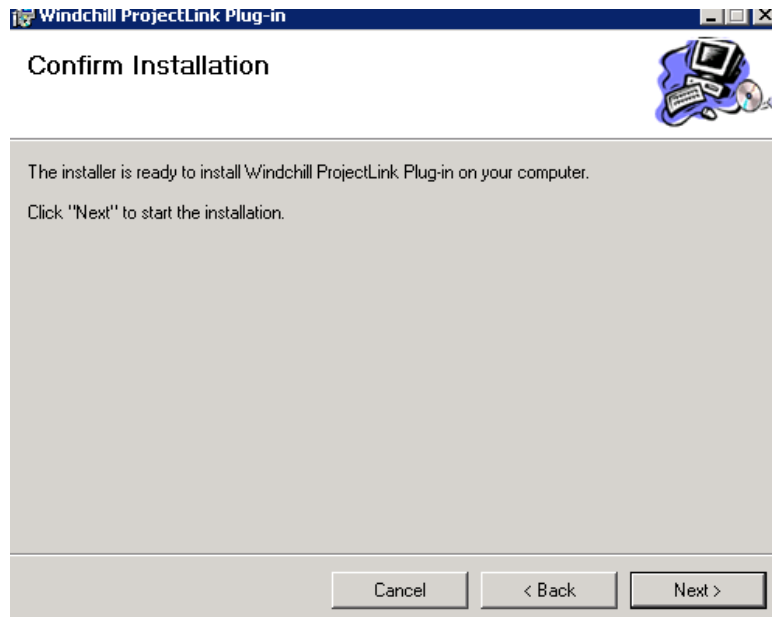
5. Click on the **Next** button to continue with the installation.



6. Select the installation folder for the plug-in or click on the **Next** button to continue with the default installation.



7. To Confirm the installation click **Next**



8. If the installation was successful you window will be similar to the one below. Click on the **Close** button to exit.

