

Windchill Web Browser Comparison

Technical Brief

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About This Document

Windchill 10.0 users enjoy a rich, dynamic, and interactive desktop application-like experience through a standard web browser. This document discusses the role of a web browser in the Windchill application and its impact on end-user productivity and system adoption. Comparative performance and feature information for the web browsers supported by Windchill are discussed to help companies choose the right web browser(s) for their organization.

Supported Releases and Products

- Windchill® 10.0
- Windchill PDMLink® 10.0
- Windchill ProjectLink™ 10.0
- Pro/INTRALINK® 10.0
- Arbortext Content Manager™ 10.0
- Pro/ENGINEER® Wildfire® 4.0
- Creo™ Elements/Pro 5.0

Audience

This document is intended for managers, system administrators, developers, solution architects, and system implementers. It assumes that the reader has some working knowledge of the technology and concepts associated with the following:

- Information Technology
- Operating systems, web browsers, web servers, application servers, storage, networking, and hardware platforms
- Windchill capabilities
- Pro/ENGINEER and Creo Elements/Pro 5.0
- Capabilities

Challenge

Windchill users demand optimal system performance so that they can productively develop, optimize, manufacture, and maintain great products. However, a commonly overlooked component in the Windchill architecture, the web browser, may be slowing Windchill users down and impeding system adoption within some companies.

Windchill users can increase productivity and will enjoy using Windchill more if they are able to use newer web browsers that are designed and optimized for the advanced technology that gives Windchill 10.0 users a rich, dynamic, and interactive desktop application-like experience.

There are high expectations when it comes to fast system response times while using a web browser to access a site on the internet. The experience of interacting with popular web site pages that subtly and dynamically change in

response to our actions and choices are made possible by exciting web technologies such as AJAX and JavaScript. These technologies, while ubiquitous today, did not exist or were in their infancy when some of today's most popular browsers like Microsoft Internet Explorer 6 and 7 were first released in 2001 and 2006. Consequently, the richness of the user experience with today's popular and modern web applications like Windchill, can be dampened by slow system response times when using out-of-date browsers rather than advanced web technologies like Firefox, Google Chrome, and Microsoft Internet Explorer 9.

A company's choice of web browser can greatly impact end-user productivity, as well as the organizational adoption of Windchill. Additionally, even if Windchill administrators or implementers are aware of the productivity gains and the satisfaction users would experience using a newer web browser with Windchill, they may lack sufficient data to justify the costs of upgrading or introducing support for a newer web browser to the organization or to Windchill users at a minimum.

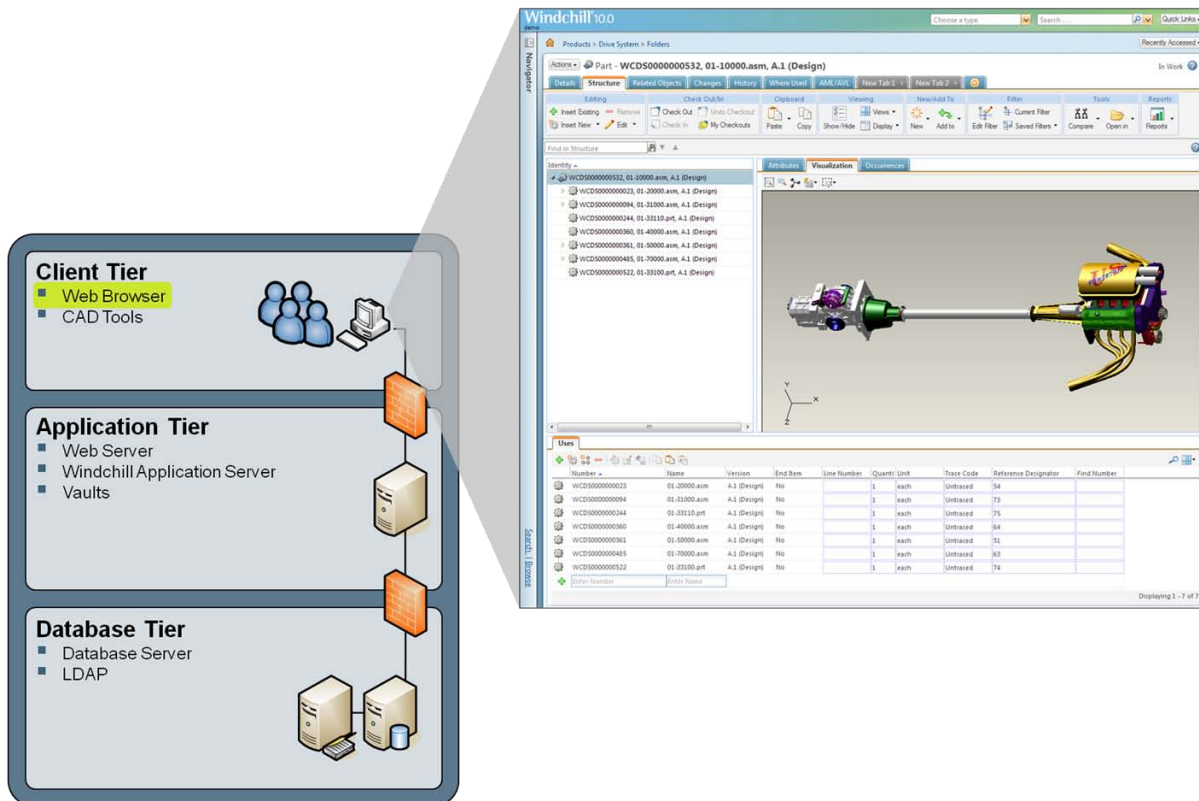
In summary, the challenges associated the web browser that a company selects are:

- Windchill performance is slower with out-of-date browsers like Microsoft Internet Explorer 6 and 7 and, to a lesser extent, Internet Explorer 8.
- Windchill end-user productivity is dampened when using out-of-date browsers.
- Windchill end-user satisfaction is lower when using out-of-date browsers.
- Windchill customers, implementers, and administrators may not be aware of how much faster newer web browsers like Firefox 3.6/4.0, Google Chrome, and Internet Explorer 9 are compared to popular but out-of-date browsers.
- Justifying the cost of upgrading or introducing support for a newer web browser to the organization or to Windchill users only is difficult without comparative performance data that points to the productivity benefits of using Windchill with newer web browsers.

Solution

The Role of the Web Browser in Windchill 10.0

Windchill provides users access to the application through a standard web browser at the client tier of Windchill's multi-tier architecture. Access is also provided to Windchill through a web browser embedded within Creo Elements/Pro 5.0, Pro/ENGINEER 4.0, and the Windchill Workgroup Managers. Windchill 10.0 is certified for use with Microsoft Internet Explorer and Mozilla Firefox with plans for adding support for Google Chrome in a future maintenance release of Windchill.

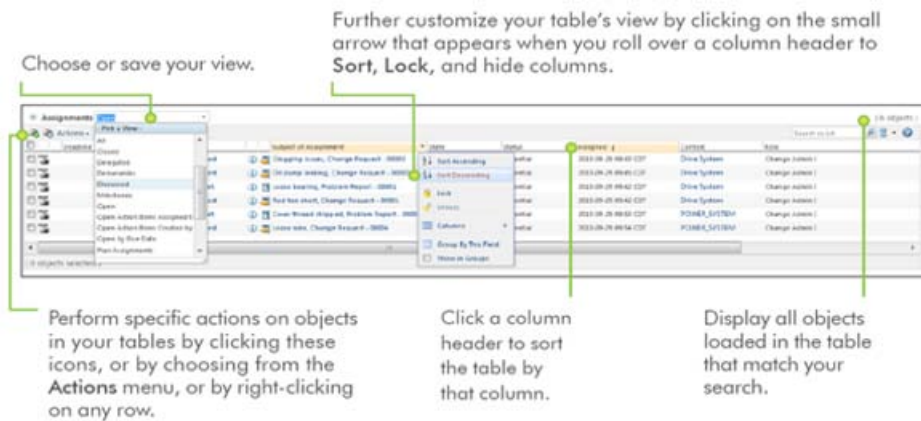


The productivity of a Windchill user depends on the performance and usability of Windchill. Windchill 10.0 provides an entirely new user experience that is intuitive and readily adopted by users.

Some of the elements throughout Windchill 10.0 that maximize user experience are:

- The new Navigator, which allows users to work without losing their place or context.
- The ability to directly access, view, and edit information stored in tables.
- Auto-suggest fields, which are available from select areas of Windchill.
- The Right-click menu options which display relevant context sensitive actions right from where you are.

- Non-intrusive confirmation notifications that inform you of completed actions and automatically disappear so you are able to keep your place or context.
- The ability to dynamically remember visited pages and searches for reuse.
- Pervasive visual representation of product information.
- The Drag and Drop feature that includes dragging documents from Windows explorer directly into Windchill.
- Easy customization of tables and pages:
 - Adjusting column widths
 - Rearrange tabs an information page
 - Sorting one or more columns
 - Drag and drop columns



Key Characteristics of the Web Browser for Windchill 10.0

The characteristics that are unique to Windchill 10.0, specifically product support and performance, are discussed in detail with supporting data and identification of related PTC documentation or resources, where appropriate. For more information regarding security and web browser features, refer to your company's corporate policies, the web browser vendors, leading web security and web technology organizations, and experts.

According to Dean Hachamovitch, corporate vice president of Windows Internet Explorer at Microsoft, "The goal of any browser should be to make Websites look and run their best so users will enjoy working with the content and keep coming back to the site for more." That is true for Windchill as well, but the web browser must also meet a host of business-critical requirements, including:

- Windchill Support
- Windows Platform support
- Creo Elements/Pro 5.0 Embedded Browser Configuration Options Support
- Performance

The key characteristics for the web browsers are summarized in the following table:

	Microsoft Internet Explorer				Mozilla			Google
	IE 6 ¹	IE 7	IE 8	IE 9 ²	Firefox 3.5 ³	Firefox 3.6	Firefox 4.0 ²	Chrome ²
Release Date	Aug-01	Oct-06	Mar-09	Mar-11	Jun-09	Jan-10	Mar-10	Mar-11
Release Schedule							Every 16 weeks	Every 6 weeks
Windchill 10.0 Web Browser Support⁴								
Stand Alone Browser	No	Yes	Yes	Planned ²	No	Yes	Planned ²	Planned ²
Workgroup Manager Browser ³ (Embedded)	No	Yes	Yes	Planned ²	Yes	No	No	No
Windows Platform Support for Web Browsers⁵								
Windows XP	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Windows Vista	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Windows 7	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Performance	<i>Refer to Corresponding Section Below</i>							

Notes:

1. Microsoft Internet Explorer 6.0 is included in this table to communicate that it IS NOT supported by Windchill 10.0.
2. Windchill 10.0 support for Internet Explorer 9.0, Firefox 4.0, and Google Chrome is planned for a future maintenance release of Windchill. Refer to the Windchill Future Platform Support Summary and Windchill 10.0 Platform Support Matrices for the latest information.
3. Creo Elements/Pro 5.0, Pro/ENGINEER Wildfire 4.0, and Windchill Workgroup Manager support from both Internet Explorer and Mozilla browsers. The version of the Mozilla browser engine used is Gecko 1.9.1, the same used by Firefox 3.5. Gecko 1.9.1 is automatically installed during the installation of Creo Elements/Pro 5.0 and the Windchill Workgroup Manager. You are not required to install any additional software other than Creo Elements/Pro 5.0 or the Windchill Workgroup Manager in order to use Mozilla.
4. Refer to Windchill 10.0 Platform Support Matrices for the latest information.
5. Refer to respective web browsers vendors for the latest information about Windows Platform Support.

Web Browser Release Date

“Web Browser Release Date” indicates the ability of the browser to support modern, state-of-the-art web technologies. “Next Planned Release Date” indicates the vendor’s ability to innovate, improve, and keep up with advances in current web technologies and standards.

The most up-to-date web browsers work best with Windchill 10.0. Web browsers that are optimized to support JavaScript and AJAX give Windchill 10.0 users a rich, dynamic, and interactive desktop application-like experience.

Note: For the most up-to-date information on Web Browser Release Date and Next Planned Release Date, refer to the websites of the respective vendors.

Windchill 10.0 Web Browser Support

When choosing a web browser for Windchill, it is crucial that you ensure that your company is using a browser that is supported by PTC. By supported, it is meant that PTC develops and tests Windchill with the specified web browsers and will accept and investigate any issues found using these browsers. Conversely, PTC does not develop and test Windchill with web browsers that are not supported and will not necessarily accept or investigate any issues found using unsupported browsers.

Note: Windchill 10.0 DOES NOT support Microsoft Internet Explorer 6.0. Microsoft also recommends that if you are running Microsoft Internet Explorer 6.0, that you upgrade to a newer version.

Windows Platform Support for Web Browsers

While PTC supports several web browsers and versions, not all of the supported browsers may be available on the client operating systems of your Windchill users.

Highlights of Windows Platform Support for Web Browsers:

- Internet Explorer 9.0 is not supported on Windows XP.
- Internet Explorer 7.0 is not supported on Windows 7.
- Firefox and Google Chrome are supported on all versions of Windows supported by Windchill.

Creo Elements/Pro 5.0, Pro/ENGINEER Wildfire 4.0, and Windchill Workgroup Manager Support

Windchill users can access the system through a web browser embedded within Creo Elements/Pro 5.0, Pro/ENGINEER 4.0, and the Windchill Workgroup Manager. You can choose between Mozilla and Internet Explorer for the Creo Elements/Pro 5.0 embedded browser while Pro/ENGINEER Wildfire 4.0 and the Windchill Workgroup Manager support only Internet Explorer.

By default, Creo Elements/Pro 5.0 and Pro/ENGINEER Wildfire 4.0 will use whatever version of Internet Explorer is available on a Windows client. Therefore, it is necessary that a compatible version of Internet Explorer be installed on the client where Creo Elements/Pro 5.0 or Pro/ENGINEER Wildfire 4.0 is installed.

PTC bundles the compatible Mozilla browser with Creo Elements/Pro 5.0 and automatically installs the Mozilla browser as part of the installation of Creo Elements/Pro 5.0. You are not required to install any additional software other than Creo Elements/Pro 5.0 in order to use the Mozilla, the Creo Elements/Pro embedded browser.

For the most up-to-date matrix of supported browser, refer to the following:

Platform Support: Pro/ENGINEER & Creo Elements/Pro 5.0
http://www.ptc.com/view?im_dbkey=77552

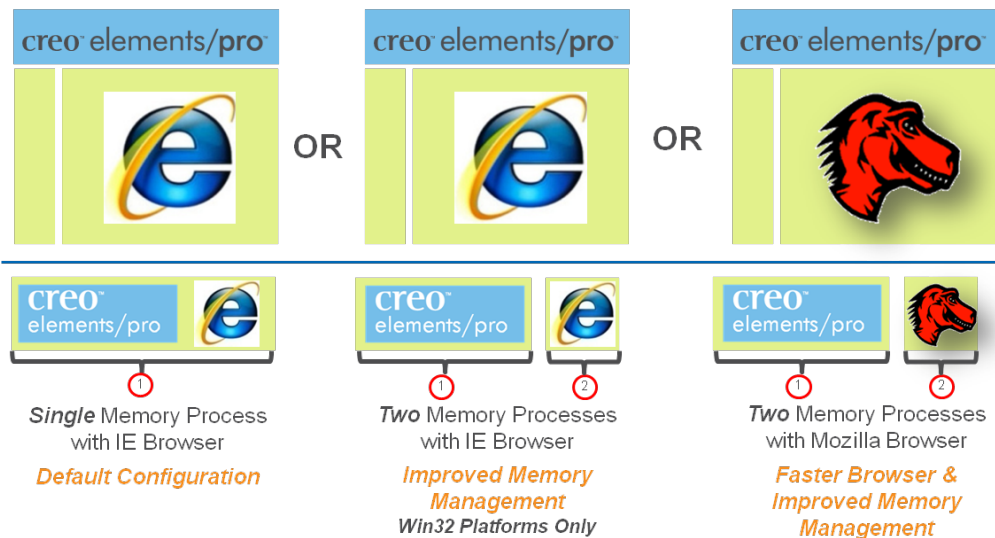
Platform Support: Pro/ENGINEER Wildfire 4.0
http://www.ptc.com/view?im_dbkey=52592

Creo Elements/Pro 5.0 Embedded Browser Options

There are three embedded browser configuration options for Creo Elements/Pro 5.0:

- Internet Explorer browser with Creo as a single process
- Internet Explorer browser with Creo as separate processes
- Mozilla browser with Creo as separate processes

creo™ elements/pro™ Embedded Browser Options



The default is an Internet Explorer browser engine, while a Mozilla-based browser engine is available. In some cases, the Mozilla-based browser engine performs better, particularly when running embedded Windchill applications. For more information about performance and memory usage for the Creo Elements/Pro 5.0 Embedded Browser Options, see the section titled Performance and Memory of Creo Elements/Pro 5.0 Embedded Browser Options. The appearance of the browser in Creo Elements/Pro remains the same.

The table below shows the Pro/ENGINEER Embedded Browser Configuration Options:

Option	Setting	Value
Creo Elements/Pro (xtop) with IE as single process	windows_browser_type	ie_in_process
Creo Elements/Pro (xtop) with IE as separate processes	windows_browser_type	ie_in_sep_process
Creo Elements/Pro (xtop) with Mozilla as separate process	windows_browser_type	mozilla_based_browser

You can use the configuration option `windows_browser_type` to specify the web browser engine used in the Creo Elements/Pro browser.

Note: For more information, see the Performance and Memory of Creo Elements/Pro 5.0 Embedded Browser Options section below.

Windchill Workgroup Manager Browser Options

There are two browser configuration options for the Windchill Workgroup Manager

- Windchill Workgroup Manager with Internet Explorer as embedded browser as a single process
- Windchill Workgroup Manager with Mozilla as embedded browser as a separate process

These options are set using the Windchill Workgroup Manager configuration file (`wgmclient.ini`). The table below displays the Windchill Workgroup Manager browser client-side settings:

Option	Setting	Value
Windchill Workgroup Manager with IE as embedded browser	windows.browser.type	ie_in_process
Windchill Workgroup Manager with Mozilla as embedded browser	windows.browser.type	mozilla_based_browser

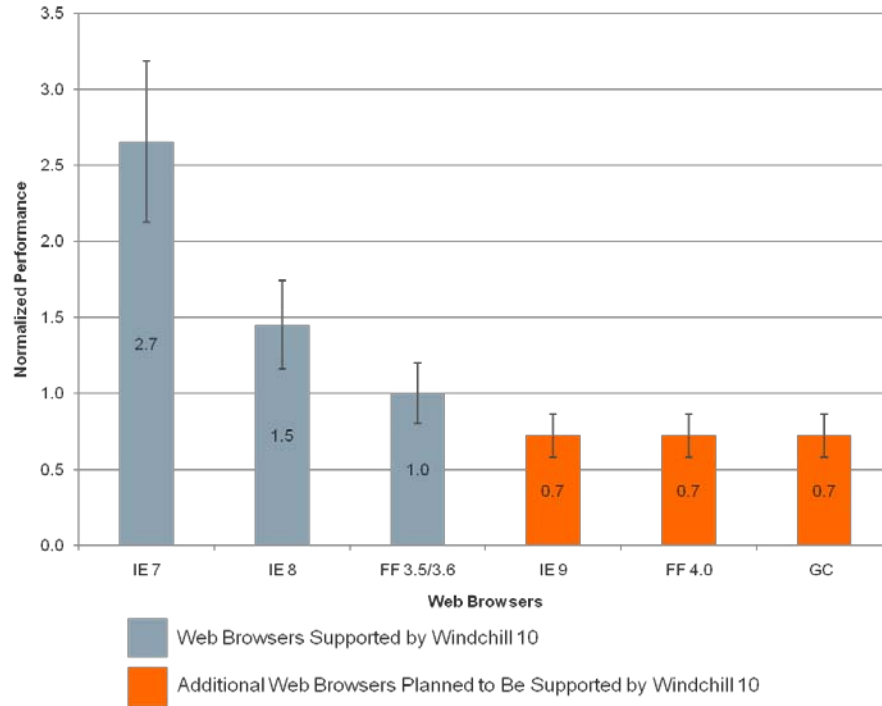
Performance

The productivity of a Windchill user is directly related to the performance of Windchill. Because Windchill is accessed through a browser, the performance of the browser has a direct impact the productivity of Windchill users as well. Windchill 10.0's rich, dynamic, and interactive desktop application-like experience is made possible by advanced web technologies such as GWT, Ext JS, Spring MVC, and various AJAX/JavaScript toolkit versions with JavaScript.

Using the newest versions of supported browsers with Windchill will help increase performance, user productivity, and user satisfaction.

This section discusses some of the performance differences in currently supported or planned supported web browsers for Windchill 10.0. This information will help companies understand the impact that a browser can have on Windchill user productivity. Also, the following data may help some companies choose the browser that is best for them, and help justify their choice to others within their organization.

**Windchill Web Browser Performance Comparison
Normalized for Seven Operations & Various
Datasets**



The chart above shows a performance comparison of currently supported web browsers and planned supported web browsers with Windchill 10.0. Each bar is the summation of the normalized response times for the seven test areas, which were tested for a variety of datasets (see below for details).

The chart includes data about supported and non-supported web browsers. PTC tests both supported and non-supported browsers to understand performance on currently supported browsers and to evaluate the potential benefits of supporting other browsers (Internet Explorer 9 and Google Chrome). The seven test operations were selected because they included UI components and product behaviors that are common in Windchill.

The table below provides more details about the seven test areas:

Categories	Test Area	Datasets in Test
A. Table Listing	<ol style="list-style-type: none"> Workspace Listing Performance Commonspace Listing Performance 	<ol style="list-style-type: none"> 2k, 4k, 8k, 16k 2k, 4k, 8k, 16k
B. Common Page Operations	<ol style="list-style-type: none"> Refresh Performance Scrolling Performance Sorting Performance 	<ol style="list-style-type: none"> 1k, 2k, 4k, 8k, 37k 1k, 2k 1k, 2k, 4k, 8k, 37k
C. Structure Operations	<ol style="list-style-type: none"> Structure Display Performance Structure Expansion Performance 	<ol style="list-style-type: none"> 1k, 2k, 4k, 8k 1k, 2k, 4k, 8k

Optimizing Windchill Client Performance

Windchill 10.0 delivers an exciting, engaging, and productive user experience, but how fast that experience will be, is directly related to the following:

- Web browser
- Operating system
- System Tuning
- Client hardware (CPU and RAM)

PTC has created the following to help you maximize client performance with Windchill 10.0:

- Windchill Browser Comparison Guide (this guide)

Windchill 10.0 will be supporting versions of Microsoft Internet Explorer, Firefox and Google Chrome. Which one is best for your company?

Provides comparative performance data for the supported web browsers for Windchill.

- Windchill Client Inspector

The Windchill Client Inspector (WCI) helps system administrators by automatically assessing and monitoring the compliance of Windchill client work stations against PTC recommended Windchill client configuration settings.

The Windchill 10.0 Client Inspector package includes a list of recommended client settings with references to related TANs and TPIs.

Maintenance Support customers can download the WCI from the [Software Download page](#).

- Windchill 10.0 Client Requirements Guide
http://www.ptc.com/view?im_dbkey=125512

This guide is new for Windchill 10.0, and provides minimum and recommended specifications for CPU, RAM, operating systems, and web browsers for CAD and non-CAD Windchill clients.

Benefits

This guide provides comparative performance data that Windchill customers, implementers, and administrators can use to understand the benefits of faster, newer web browsers like Firefox, Google Chrome, and Internet Explorer 9.

The data presented in this guide may be used to justify upgrading to a newer browser version or introducing support for a newer web browser to an organization.

Lastly, when the information presented in this guide is used in conjunction with the Windchill resources that PTC provides for client system performance tuning and client hardware specification recommendations, users will enjoy an exciting, engaging, and productive user experience with Windchill 10.0.

Additional Information

There is no shortage of information about web browsers available on the internet. You can find information from each of the web sites of each of web browsers providers as well as articles, blogs, etc. that provide details about the web browsers as well as side-by-side comparisons on the basis of Interface, speed, standards support, privacy and security, add-ins, etc. You can find additional information about the web browsers using the following references:

- Windchill Future Platform Support Summary:
http://www.ptc.com/view?im_dbkey=69784
- Windchill Software Matrices (refer to *Client Platform Support*)
https://www.ptc.com/view?im_dbkey=124477
- Windchill 10.0 Client Requirements Guide
http://www.ptc.com/view?im_dbkey=125512
- Windchill Client Inspector Deployment and Administration Guide
https://www.ptc.com/view?im_dbkey=119034
- Windchill Quick Start Guide
https://www.ptc.com/view?im_dbkey=125022
- Windchill Installation and Configuration Resource Page
http://www.ptc.com/appserver/wcms/standards/support_resource_page.jsp?&im_dbkey=90970&icg_dbkey=917
- Windchill CAD Workgroup Manager Resource Page
http://www.ptc.com/appserver/wcms/standards/textmultiimgfilelinkfull.jsp?im_dbkey=95496&icg_dbkey=867
- Microsoft Internet Explorer
<http://windows.microsoft.com/en-US/internet-explorer/products/ie/home>

- Mozilla Firefox
<http://www.mozilla.com/en-US/firefox/new/>
- Gecko
https://wiki.mozilla.org/Gecko:Home_Page
- Google Chrome
<http://www.google.com/chrome/intl/en/more/index.html>

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