

Browsium Ion Administration Guide 2.0



Bonding Browsers to Business
<http://www.browsium.com>



Administration Guide

This manual is designed for IT administrators to install, configure, and deploy Browsium Ion. For more information about Browsium Ion or to contact support, please visit <http://www.browsium.com>.



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Section One

Introduction

In this section you will learn:

- ✓ Why Browsium Ion is your one-stop Web Application Continuity framework
- ✓ What components make up the Browsium Ion system
- ✓ How you can seamlessly integrate Browsium Ion into your enterprise

1. Introduction

Many organizations would like to upgrade to Internet Explorer® (IE) 8 or 9 and Windows 7, but can't. That's because they depend upon web applications which were designed for IE6, and the various changes in layout, rendering, scripting and security designs of IE8 and IE9 prohibit those applications from functioning properly without extensive and expensive modifications or upgrades.

Browsium Ion ("Ion") allows enterprises to upgrade to modern technologies like Windows 7 and IE8 or IE9 while maintaining compatibility with existing legacy, often IE6 dependent web applications—all without changing a single line of server code.

But Ion provides more than just IE6 compatibility for the web applications you are running today – it helps ensure *Web Application Continuity* as your business moves forward. *Web Application Continuity* provides solutions to manage, maintain, and operate your web applications regardless of the underlying browser lifecycle. Your web applications are built to serve the business for years, but the rate of browser innovation has accelerated to the point it outpaces the standard IT technology system lifecycle.

Ion decouples the browser/web application dependencies that exist today, and enables your organization to deploy technologies when you want, without breaking existing line-of-business applications. More importantly, Ion is seamless to users, integrated into the Browser and is more easily managed than virtualization solutions.

1.1. Browsium Ion Client Add-on for Internet Explorer

Ion delivers Web Application Continuity by delivering the ability to use and control multiple browser modes, fully customize the browsing environment, and rollback web plugin support to legacy versions all inside IE8 or IE9. Ion lets organizations enjoy the features and better security of the latest platforms and migrate their legacy IE6 (or IE7, etc.) applications on their own timeframes and budgets.

More importantly, Ion is a solution that makes sense.

Ion makes sense to users because it's seamless. It lets them work in the ways they're used to, unlike virtualization approaches that require special training or hardware. In fact, many users never notice they're using Ion.

Ion certainly makes sense to IT administrators because it's been designed with them mind. Ion is easy to deploy and manage using the same tools and techniques they use for IE. There's no server component, so Ion works well for in-house and remote workers alike. With minimal overhead, and support for 32 and 64-bit versions of Windows, Ion runs everywhere IT administrators need it to. Finally, its opt-in design offers a greatly reduced attack surface when compared to running a legacy operating system and browser.

With Ion integrated into your business, the security and functionality benefits of Windows 7 and IE8 or IE9 are no longer out of reach.

1.2. Browsium Ion Explained

Browsium Ion is markedly different from any other web application compatibility offerings, so to understand what Ion is, it's easiest to start by identifying what it is not: Ion is *not* virtualization, it is *not* a repackaged standalone version of Internet Explorer, *nor* is it a solution that enables running multiple versions of the Internet Explorer browser on the same Windows installation. Installing Ion on your system does *not* modify the default system browser registry values or settings.

Ion is controlled by a hierarchical system of Profiles and Rules, defined using the Ion Configuration Manager. Understanding this system is the key to understanding Ion. The Configuration Manager provides tools to sidestep compatibility issues by delivering different versions of registry settings or ActiveX controls to the web applications that need them. And with the custom ActiveX, File and Registry settings feature, you can manage browser extensions that are otherwise incompatible with a particular version or architecture of Windows or Internet Explorer.

Ion works by managing the way your natively installed version of Internet Explorer renders content. When invoked automatically by a Rule or manually controlled using the Admin Toolbar, Ion ensures web applications load the needed version of an add-on, inject the proper JavaScript code, and carry forward legacy IE environment and security settings – all without modifying the Windows and Internet Explorer installations or reducing the security posture of the system. Ion renders legacy web applications and content directly inside a tab in IE8 or IE9, running the application just as it would in a 'standalone' version of Internet Explorer. Ion defers ancillary functions like browser settings and file system tasks to the installed version of Internet Explorer. This approach requires fewer resources than does running a full instance of Internet Explorer and reduces the attack surface while still loading legacy components.

More specifically, Ion acts as a broker between the installed browser and the requested web content. Ion uses software isolation to display content with defined browser engine components and settings on an opt-in basis. In other words, Ion intervenes when – and only when – it is told to.

1.2.1. Browser Engines

Browser engines are the foundation of Ion. When a user requests a page that matches an Ion rule, Ion displays the content using an alternate browser engine specified by that rule. The following browser engines are available in Ion 2.0:

- IE Quirks
- Adaptive IE Quirks (combination of IE Quirks and IE7 Standards)
- Emulate IE7
- Emulate IE8
- Emulate IE9
- IE7 Standards
- IE8 Standards
- IE9 Standards
- IE Edge

1.2.2. Profiles

Profiles are groups of settings and configurations for a browser engine as well as the specific environment settings, options/values and add-ons required for your web application. Profiles let you specify the configuration and settings needed to run your web application properly, even if that configuration varies from the default IE installation or settings. By providing this type of ‘side by side’ rendering environment, Ion ensures web applications run as expected, even when the default system settings and applications are upgraded.

Profiles are easy to create and customize for your specific web application needs. To get started with Profiles, simply select the browser engine required for your web application and Ion will create a Profile using that browser engine and commonly required default settings. From there you can add Custom File associations (to fix issues like running multiple versions of Java inside IE or load older CRM/ERP application controls), define HTTP Headers (to ensure web applications operate correctly), as well as a range of other options.

While Profiles are highly customizable, they also inherit system settings that are not explicitly changed. This streamlines management by ensuring you don’t need to recreate every policy setting and control point; simply manage the ones you need to set for compatibility.

Information on the specifics of each browser engine available in Ion 2.0 can be found in the [Profiles List](#) section.

1.2.3. Rules

Rules are actions triggered by a pattern match. Rules provide very granular control over the conditions which bring them into play, and can work broadly against entire zones or target specific elements on a page. See the [Rules Manager](#) section to learn more about all of the URL components and conditionals available for rulemaking.

1.3. Ion Configuration Manager

The Ion Configuration Manager is the main interaction point for IT administrators using the Ion system. Designed to work efficiently in your business and deploy using your existing technology systems, the Ion Configuration Manager can be utilized in ways that best meet the needs of your organization. Using a distributed architecture approach, each web application team – or business unit – can use the Ion Configuration Manager to create Rules and configurations for their specific needs; alternatively, a single administrator can manage all the Rules, Profiles and Settings.

If you choose the distributed approach, you can merge configurations so users will have the combined set of rules and configurations needed for Line of Business application compatibility. Using the Ion Configuration Manager, define the sites that need a specific engine and Profile, define and deploy the necessary Rules and those sites will then be loaded in an IE8 or IE9 tab and rendered using the Ion add-on technology. By running inside the Internet Explorer 8/9 process, Ion provides a seamless and natural browsing user experience. Your users won't need to know they are viewing sites through Ion – things will just work.

This is the power of Ion: You control the behavior. Only the sites you configure with the Ion Configuration Manager are displayed using the Ion add-on. You can then easily export Rules and configurations settings to Group Policy or distribute them as flat files (in an easy to read XML format) to ensure interoperability with virtually any software management infrastructure.

1.4. Browsium Ion Integration with Internet Explorer

Unlike any other web application compatibility solution available today, Browsium Ion is fully integrated inside Internet Explorer. Ion is a clean and user-friendly solution that enables a single browser to access both legacy web applications and the latest standards-based web technologies. Integration with Internet Explorer increases user efficiency and reduces help desk calls by eliminating user confusion when working with multiple browsers or virtualized systems.

In addition to being a better solution for end users, Ion offers many benefits for the IT administrator. As an integrated component of Internet Explorer, Ion reduces installation and patch management overhead, by using Internet Explorer's local settings and configurations.

Internet Explorer Group Policy Options (GPOs) 'cascade' down and are respected by Ion, so you only need to manage one set of settings. In cases where a Group Policy setting controls a feature not supported by the rendering engine specified by a rule, Ion simply ignores the setting. This ensures consistency across IE8 and IE9 systems running Ion, and avoids limitations or issues that may arise in future versions of Internet Explorer.



Section Two

Installation

In this section you will learn:

- ✓ About the Browsium Ion System Components
- ✓ Software Requirements for Browsium Ion
- ✓ How to Install Browsium Ion
- ✓ How to Configure Command Line Switches for Network Distribution

2. Installation

Browsium Ion is simple to install – administrators need both the Browsium Ion Configuration Manager and the Ion Client Add-on, while end users only need the Ion Client Add-on installed. The Browsium Ion Client Add-on requires Administrator permission to install, but can run using standard user permissions so system access can remain tightly controlled. This section provides details on the specific pieces of the Ion system as well as information on how to manage the Ion Client Add-on installation in a corporate environment.

2.1. Ion Components

The Ion system is comprised of two main parts, an administrative interface for defining Rules and configurations, and a client add-on for Internet Explorer.

- **Ion Administration Tools (Ion-AdminSetup.exe)**

Combined into the Ion Configuration Manager, these are a set of applications that allow for the management and configuration of Ion settings for users and PCs. Since these items are not meant for end users, this package should not be installed broadly – installation of this package should be limited to System Administrators and Web Application/Business Unit owners.

 - **Ion Configuration Manager**

The Ion Configuration Manager (**Browsium.Continuity.Manager.exe**) is single management interface for the Ion system. This application provides the central point for creating, configuring and managing Projects, Profiles and Rules.
 - **Ion Admin Toolbar**

In addition to the Ion Configuration Manager, the Browsium Ion Admin Toolbar is installed as part of the administration tools. The Admin Toolbar provides an easy-to-use mechanism to test any available Profile configurations against an application without needing to build a single Rule. Profiles can be swapped 'on the fly' to maximize testing capabilities.
- **Ion Client Add-on (Ion-ClientSetup.msi)**

The Ion Client Package is responsible for loading Ion configuration data and displaying custom Browser Engines and Profiles to end-users. The client package should be installed on all machines in your organization. The package consists of three core components:

 - **Ion Client Controller & Framework**

The Ion Controller (**Browsium.Continuity.Controller.exe**) is the main part of the client add-on infrastructure used by Ion to handle Client Engine loading, rules implementation and redirection. The Client Framework consists of a background process/listener, protocol handler and browser plugins. Without this component, the add-on cannot function properly so it must be installed and enabled on all end-user systems that require Ion rendering.
 - **Ion Client Engines**

The Ion system can include any built-in IE browser engine needed by your application directly inside a tab in Internet Explorer. The Client Engine(s) are pluggable modules that connect into the Client Framework. The design of the Ion system ensures you are *not* running multiple browsers on your system at one time – the IE browser installed on your Windows PC remains the only browser installed. Ion v2.0 provides support for the IE

Quirks, Adaptive IE Quirks, IE7 Standards, IE8 Standards, IE9 Standards, Emulate IE7, Emulate IE8, Emulate IE9, and IE Edge Engines.

- **Ion Client Add-On for Internet Explorer**
Ion installs an add-on to facilitate communication between Internet Explorer and the Ion Client Framework and Client Engines.

2.2. Software Requirements

The following minimum system specifications are required to run the Ion system.

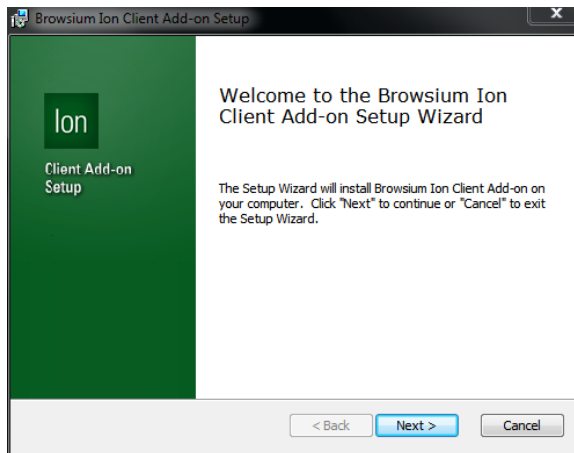
- Microsoft Windows System
 - Windows XP SP2 or later (32-bit only)
 - Windows Vista (32- and 64-bit systems are supported)
 - Windows 7 (32- and 64-bit systems are supported)
 - Windows Server 2003 or later (32- and 64-bit systems are supported)
 - Windows Server 2008 or later (32- and 64-bit systems are supported)
- Microsoft Windows Internet Explorer 8 **or** Microsoft Windows Internet Explorer 9
- .NET Framework Version 2.0 Service Pack 2
- 1GB system memory
 - 2GB system memory when used on Terminal Services

Note – While Browsium Ion can be installed on systems with less than 1GB of memory, users may experience performance issues.

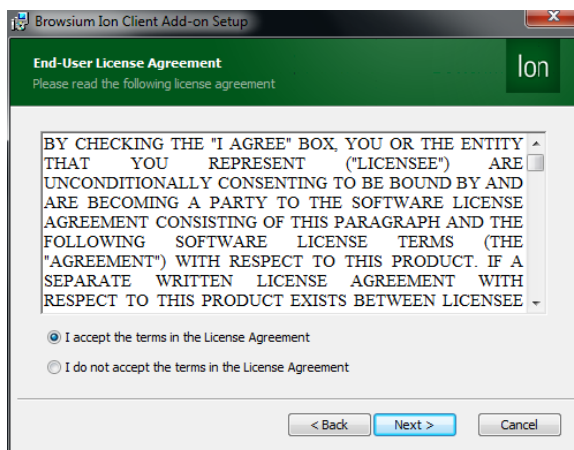
2.3. Installing the Browsium Ion Client Add-on

This section covers manual installation of the Browsium Ion Client Add-on. Network and command line installation settings and options can be found in the [Available Command Line Switches for the Installer](#) section. You will need Administrator rights to run the Client Installer. Once installed, the Ion Client Add-on can run under any user account and does not require special user permissions or elevation.

1. To start the Client Installer process, simply double-click on the Ion-ClientSetup.msi file provided by Browsium. To properly complete the installation process you will need an account with Administrator rights. The first screen provides a basic introduction. Click Next to get started.

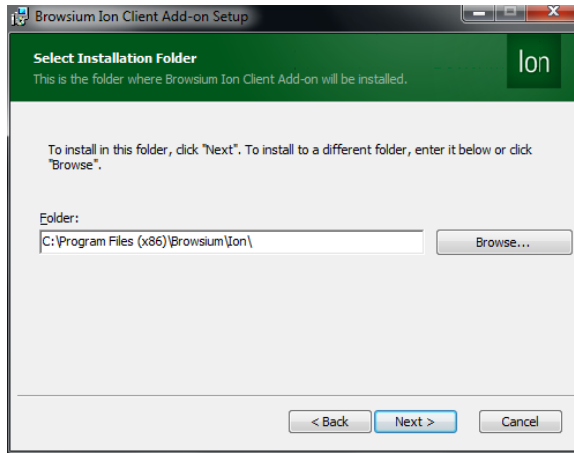


2. The next screen contains the End User License Agreement (EULA) for Browsium Ion software. You will need to read and agree to the terms of the EULA in order to proceed.



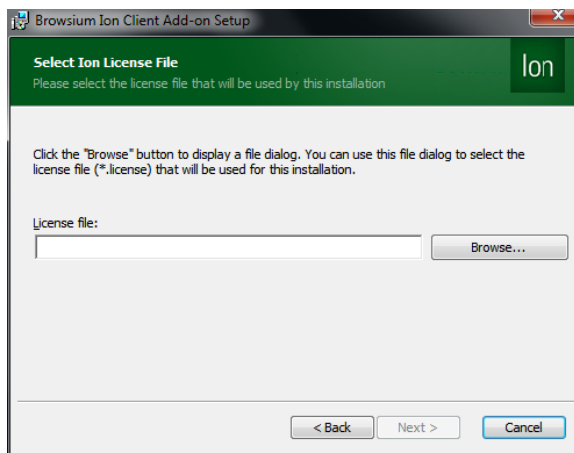
3. This page allows you to specify where to install the Ion Client Add-on program files.

When you have specified the desired location, click Next.

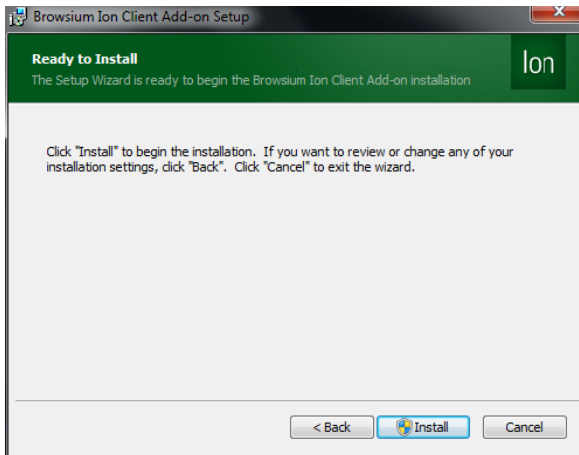


4. Next you will need to provide the location of your license file. The license file can be found in the folder with the Ion installation files you received from Browsium. The license will be needed for all client installations, and can be specified using command line switches for easy installation by software distribution systems or scripting.

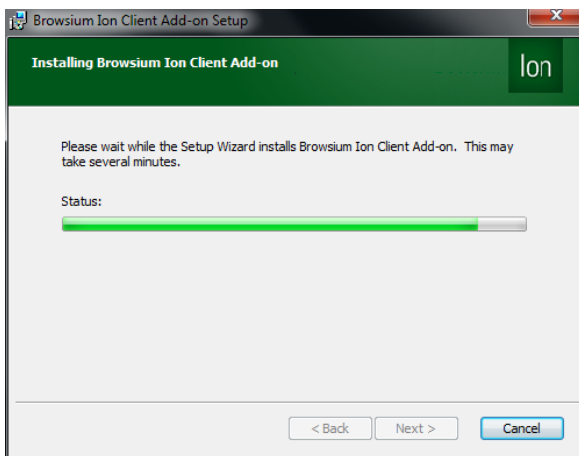
If your organization does not have a license file for Ion, you may obtain a 60-day evaluation license from <http://www.browsium.com>.



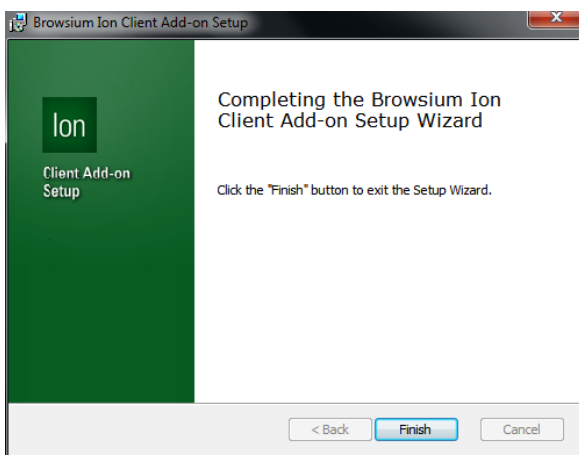
5. Now you are ready to install the Ion Client Add-on. Simply click Install to proceed.



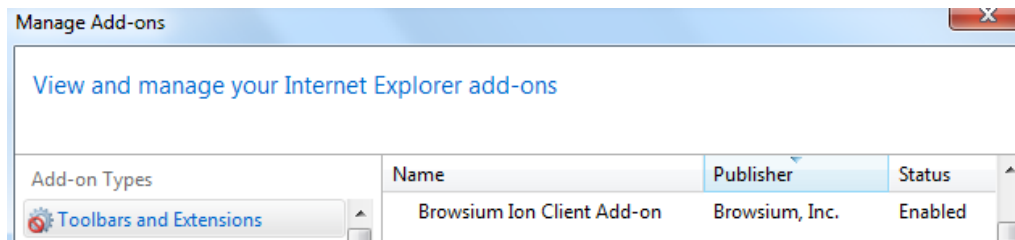
During the process you will see a progress bar:



When the Client installation process has finished, you will see the following screen indicating success.



To confirm the Ion installation has completed properly. Launch Internet Explorer, and look under Tools->Manage Add-ons, and ensure the Ion Plugin for Internet Explorer is listed and Enabled.



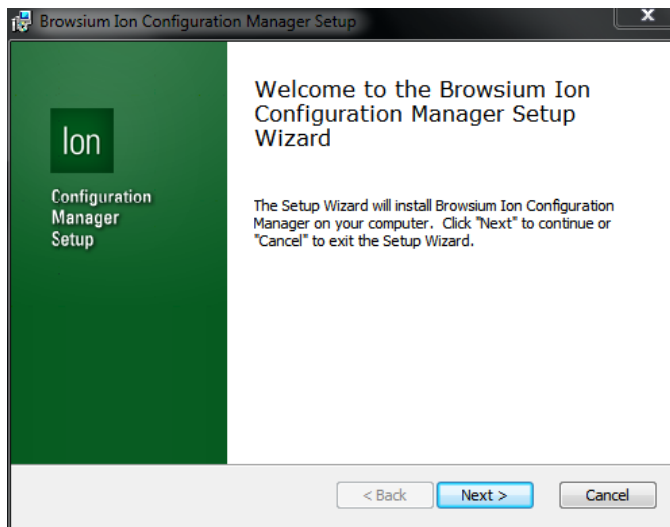
Note – Client PCs will only show the *Browsium Ion Client Add-on*. Administrator PCs running the Ion Configuration Manager will also show the *Browsium Ion Admin Toolbar*.

2.4. Installing Browsium Ion Configuration Manager

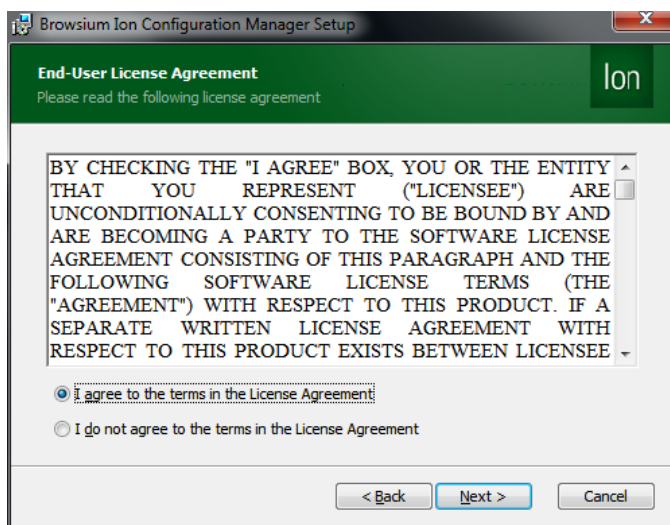
This section covers the installation process for the Browsium Ion Configuration Manager. The Browsium Ion Client Add-on should be installed on the system in order to create, edit or test Rules and Profiles using any available Client Engine(s).

The steps for installing the Ion Configuration Manager are as follows:

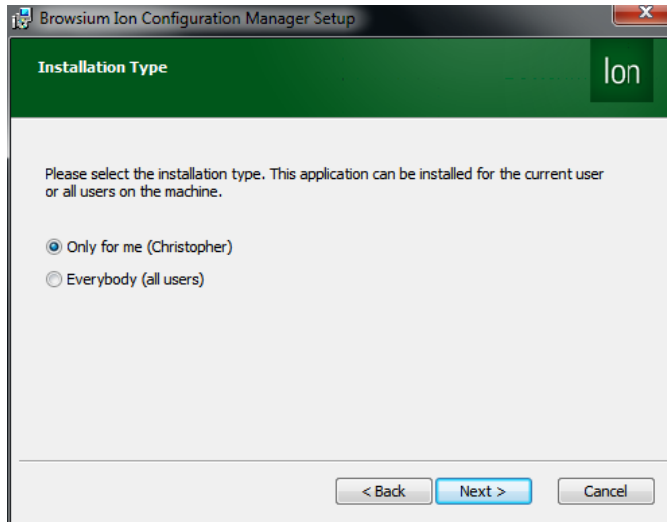
1. Locate the Ion Configuration Manager Installation file (***Ion-AdminSetup.exe***) and double click to run the program.



2. Confirm you have read and agreed to the End-User License Agreement (EULA) by clicking '**I agree to the terms in the License Agreement**' and **Next** to continue with installation.

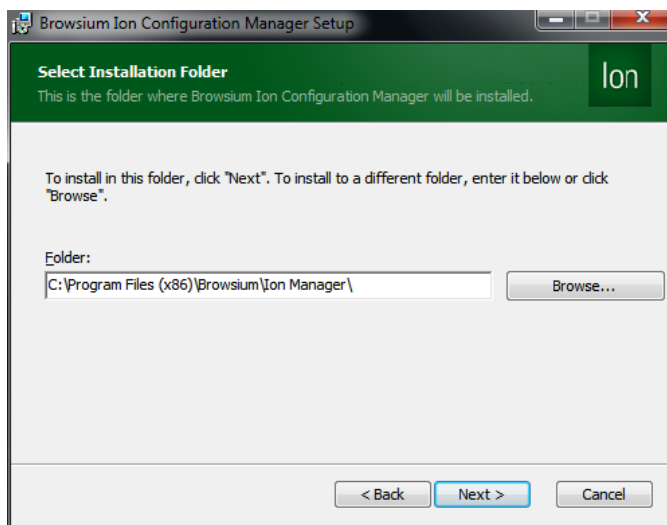


3. Select the installation type, either for a single user or for all users. The Configuration Manager should only be accessible to network and system administrators, so Browsium recommends setting the installation type to 'Only for me' on most systems.



Note — Customers installing the Configuration Manager on a remote desktop/terminal services or other shared resource configurations should select 'Only for me'. The Ion Configuration Manager is designed for use only by system or network administrators; selecting 'Everybody' will install Ion for all users. If installed in a shared resource configuration all users would have access to the application. Since the Ion Configuration Manager requires Administrator rights to run properly and standard users may create support tickets when they experience issues or error messages from the application.

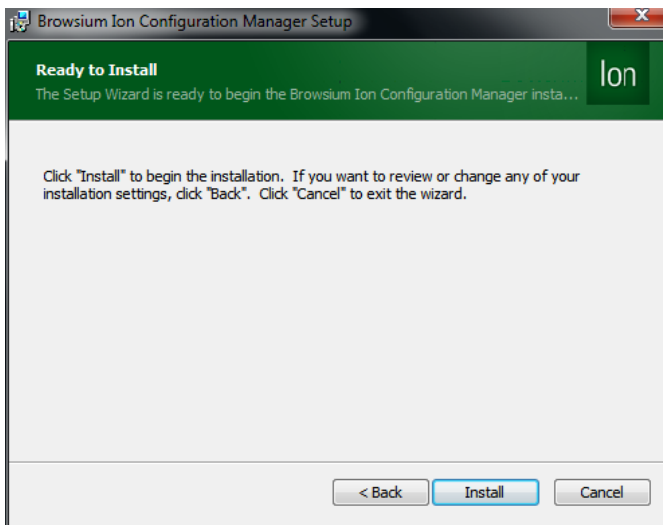
4. If the installation type is set to 'Only for me' then by default the installer places the required files in "%userprofile%\AppData\Local\Programs\Browsium\Ion Manager\"



If the installation type is set to **'Everybody'** then by default the installer places the required files in "\\Program Files\\Browsium\\Ion Manager" (32-bit systems) or "\\Program Files (x86)\\Browsium\\Ion Manager" (64-bit systems) on the system drive.

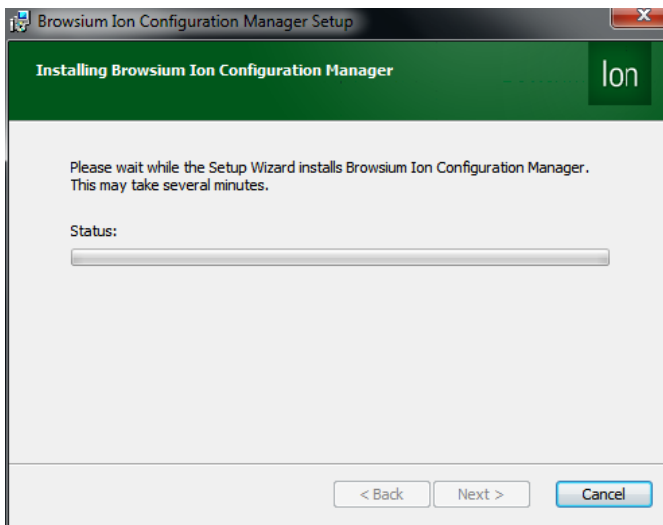
Select an installation location and click **Next**.

5. Now you're ready to install the Ion Configuration Manager. Click **Install**.

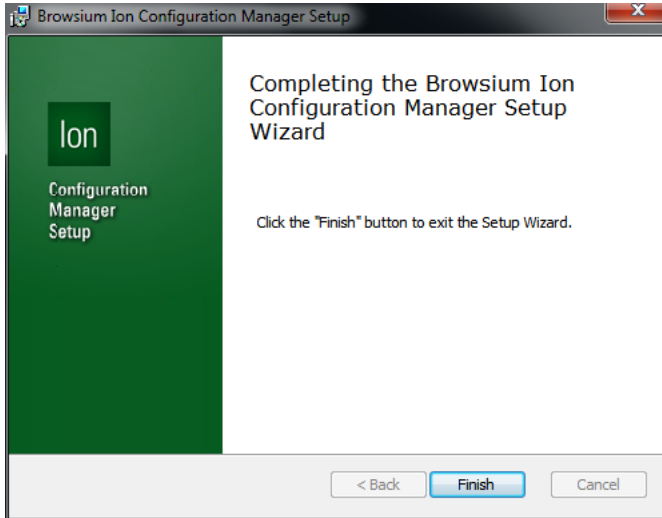


Note —The Ion Configuration Manager requires Administrator rights so the installer may generate a UAC prompt before installing.

6. During the installation process you will see a progress window



7. This screen will be displayed when the installation is complete and all necessary files have been configured. Click **Finish** and you are ready to begin working with the Ion system.



2.5. Available Command Line Switches for the Installer

Ion supports network-based installations for organizations that use software distribution systems or want to deploy via installation scripts and logon applications. Ion provides for several network-based installations options that are controlled by the following switches.

2.5.1. Installation Options

Switch	Description
<code>/j<u m> <Product.msi> [/t <Transform List>] [/g <Language ID>]</code>	Advertises a product – ‘m’ to advertise to all users, ‘u’ to advertise to the current user
<code></uninstall /x> <Product.msi ProductCode></code>	Uninstalls the product
<code>INSTALLDIR=<path></code>	Installs product to a specific directory, other than the default location.
<code>LICENSE_FILE=<filename & path></code>	References the name and location of the license.

2.5.2. Display Options

Switch	Description
<code>/quiet</code>	Quiet mode, no user interaction
<code>/passive</code>	Unattended mode - progress bar only
<code>/q[n b r f]</code>	Sets user interface level, where: n - No UI b - Basic UI r - Reduced UI f - Full UI (Default)
<code>/help</code>	Shows help information

2.5.3. Restart Options

Switch	Description
<code>/norestart</code>	Do not restart after the installation is complete
<code>/promptrestart</code>	Prompts the user for restart if necessary
<code>/forcerestart</code>	Always restart the computer after installation

2.5.4. Logging Options

Switch	Description
<code>/l[i w e a r u c m o p v x + ! *] <LogFile></code>	Install keeping a log file, where: i - Status messages w - Nonfatal warnings e - All error messages a - Start up actions r - Action-specific records u - User requests c - Initial UI parameters m - Out-of-memory or fatal exit information o - Out-of-disk-space messages p - Terminal properties v - Verbose output x - Extra debugging information + - Append to existing log file ! - Flush each line to the log * - Log all information, except for v and x options
<code>/log <LogFile></code>	Equivalent of /!* <LogFile>

2.5.5. Update Options

Switch	Description
<code>REINSTALL=ALL REINSTALLMODE=vomus</code>	Applies an update

2.5.6. Repair Options

Switch	Description
<code>/f[p e c m s o d a u v] <Product.msi ProductCode></code>	Repairs a product



Section Three

Introduction to the Ion Configuration Manager

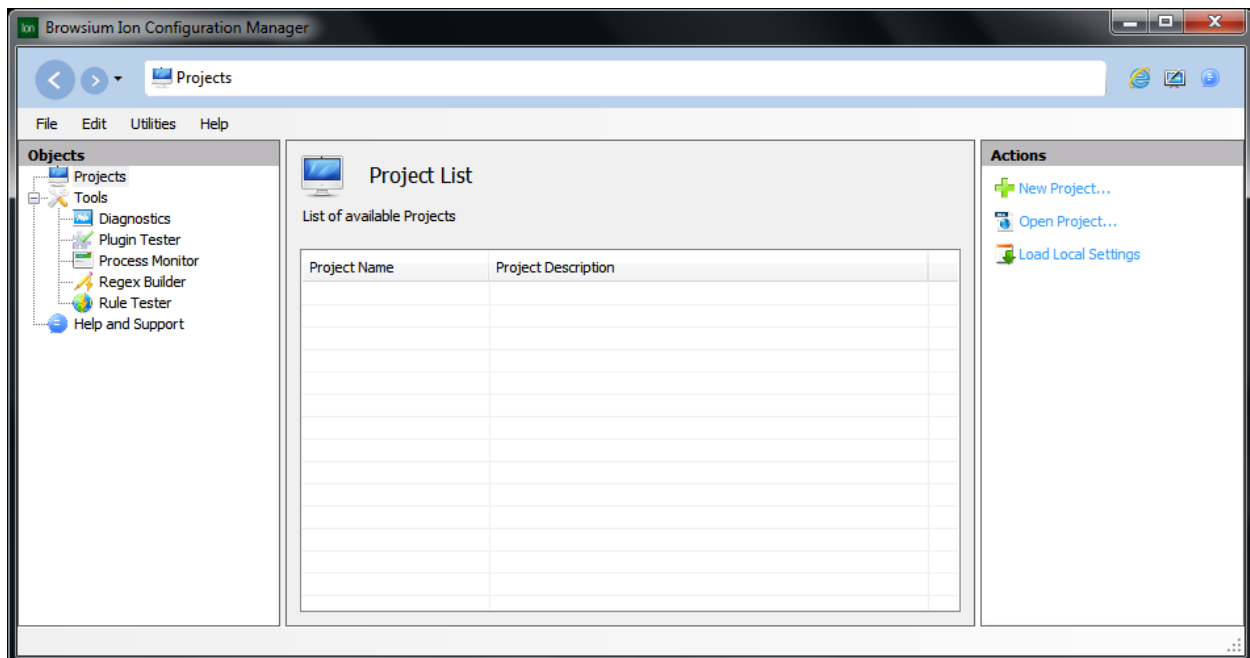
In this section you will learn:

- ✓ More about the Browsium Ion Configuration Manager
- ✓ Where to Find Settings in the Browsium Ion Configuration Manager
- ✓ How to Navigate the Screens, Settings and Options in the Browsium Ion Configuration Manager

3. Ion Configuration Manager Overview

The Ion Configuration Manager enables you to create and manage Rules that define the websites you want to open using the Ion rendering process. This section looks at the various elements of the Ion Configuration Manager. The Configuration Manager is designed with the look and feel of an MMC snap-in, with three main functional areas:

- Objects Pane (Left) – Tree view containing Projects, Tools and Help/Support Nodes
- Content Pane (Center) – Main data and content window
- Actions Pane (Right) – Contextual links for common tasks and steps



In addition to the main functional areas, there is a [Menu Bar](#) and Quick Links area to provide easy access to commonly used items.

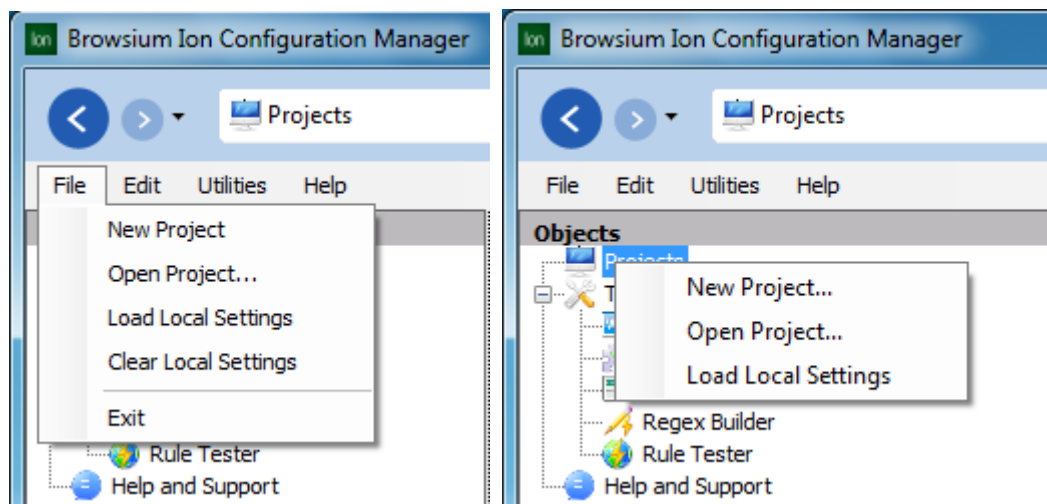


The Quick Links area includes links to launch Internet Explorer, show the Welcome Screen and open the Browsium Documentation Center.

See the [Projects Node](#), [Profile Node](#), [Rules Manager Node](#), [Settings Node](#) and [Tools Node](#) sections for a detailed description of each Objects Pane Node. [Help and Support](#) opens the Browsium Documentation and Support site in the Content Pane.

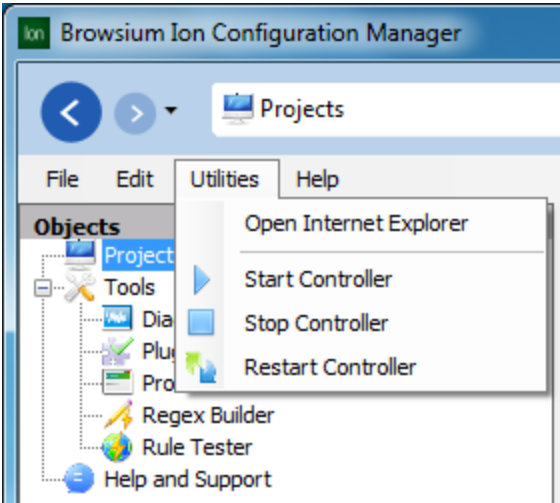
3.1. Menu Bar

The Ion Configuration Manager Menu Bar dynamically updates the list of available File menu items based on the active Node selected in the Objects Pane. The functions available in the File menu can also be found using the right click context menu on a given Node.



To aid in configuration testing and tuning, the Ion Configuration Manager allows Administrators to apply settings directly in the local system registry. This option reduces delays and overhead of exporting settings to Group Policy by applying those settings and forcing the local machine to reload policy values. Settings can be saved to either the Current User (HKCU) or Local Machine (HKLM) based on the needs of your organization and whichever choice properly replicates the target client system settings for your organization.

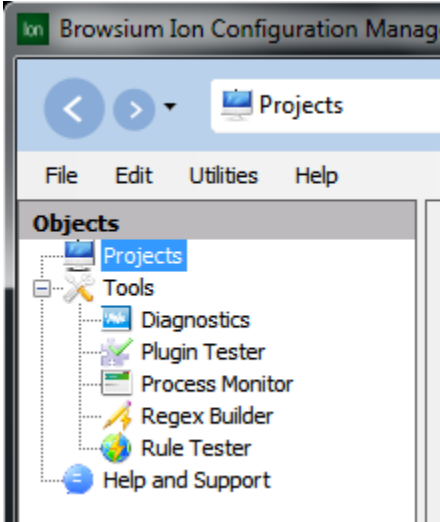
You can use the Utilities menu to launch Internet Explorer and manage the [Browsium.Continuity.Controller.exe](#) (“Controller”) process. You may need to Start/Stop/Restart the Controller in order to load new configurations or reproduce troubleshooting steps.



3.2. The Projects Node

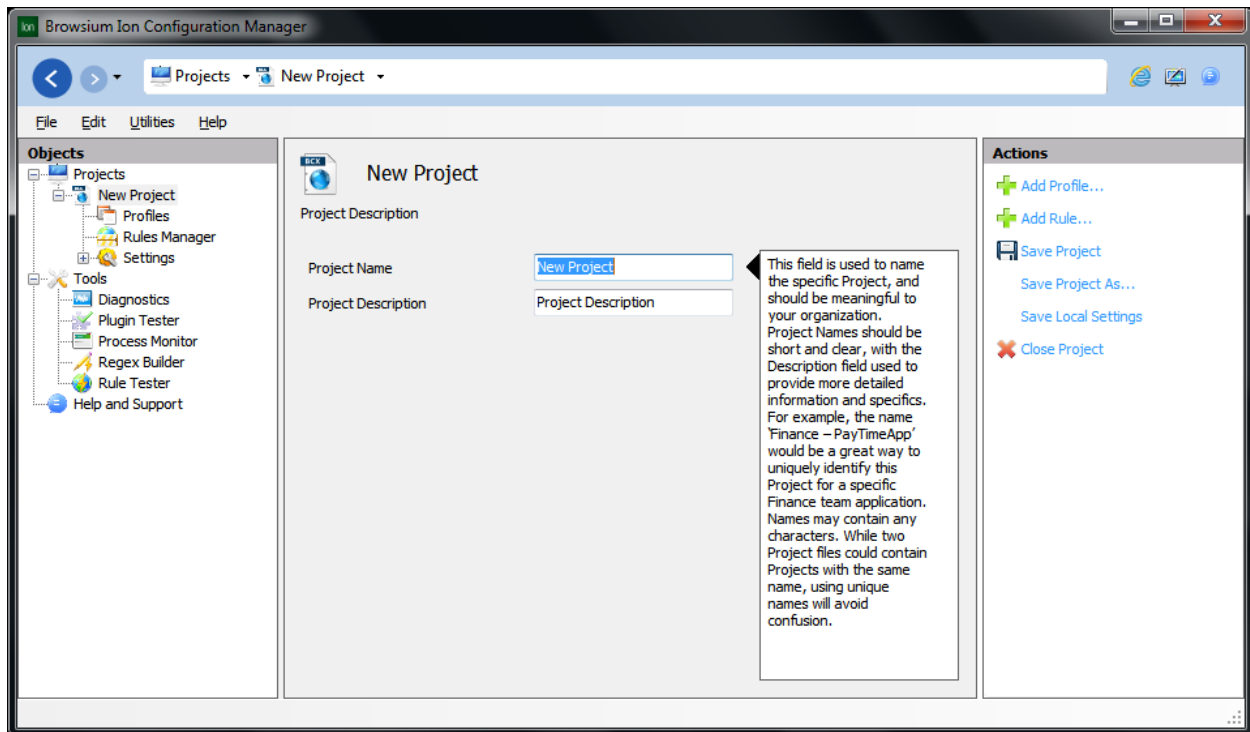
The Projects Node displays all configuration files (Projects) loaded in the Ion Configuration Manager. An individual Project file (.PROJECT.BCX file extension) contains all of the configuration information needed for a given set of Rules and Profiles. Multiple Projects can be opened simultaneously and multiple Projects can be saved in a single Project file.

The tree view provides an easy method for working with individual Projects to edit, save and export configurations. Items within the Projects Node have right-click context menus that can be used as shortcuts for commonly used features such as 'Save' or 'Add Profile'.



Highlighting the main Projects Node displays the list of available Projects. A specific Project can be opened by either double clicking on the item from the Projects List or selecting it from the tree view listing.

Loading a Project (or creating a New Project) in the Projects Node inserts the item into the tree view and brings up the Project details in the Content Pane.



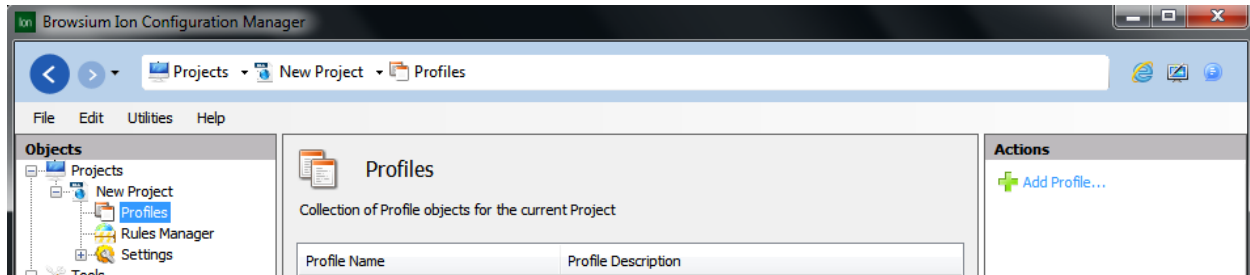
Project details (Name and Description) can be edited in this screen. Projects are assigned default values (New Project, Project Description) and should be edited to reflect information and labeling relevant to your organization.

Use the File menu or right click context menu to Save a Project. To Export the settings to Group Policy (either .ADM or .ADMX formats), select the Project and use the File menu option. See the [Group Policy](#) section for more information on this feature.

From here you can select items from the Actions Pane (context sensitive) menus or right click any of the items under the Project name.

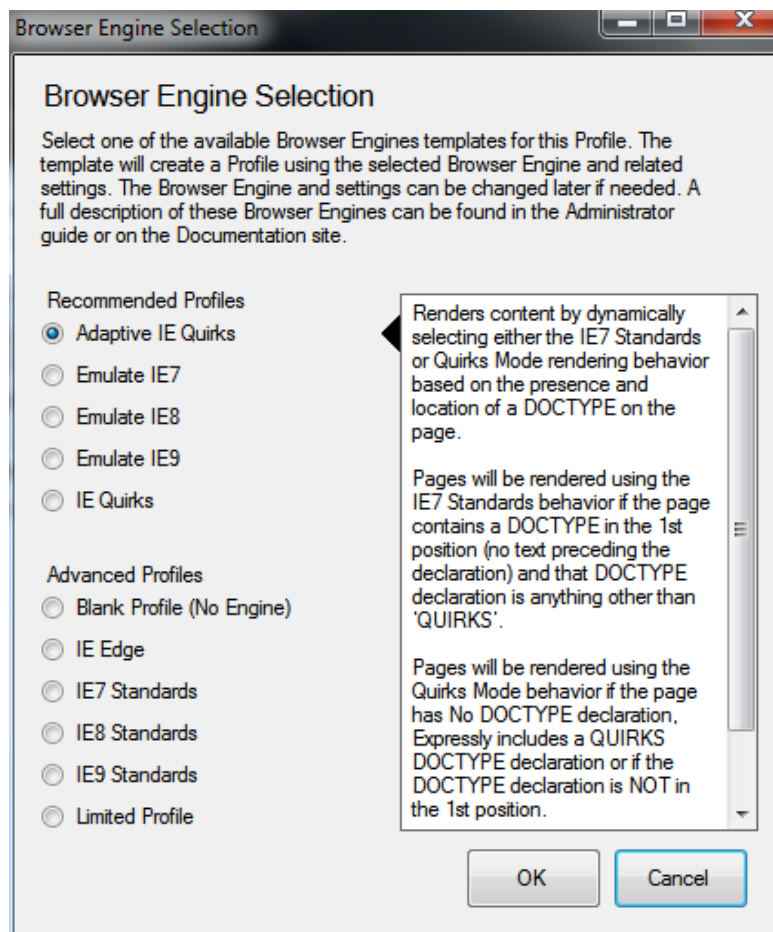
3.3. The Profile Node

Profiles contain the Browser engine, environment settings and specific Add-ons to be used in rendering content. To create a new Profile, right click on the Profiles Node or use the Actions Pane 'Add Profile' item.



3.3.1. Browser Engine Selection

Profiles are based on browser engines. This screen shows the available Profile Templates in Ion:



Recommended Profiles are the most commonly used options and should be used as a starting point for most customers with older web applications, especially those looking to migrate from Internet Explorer 6. Advanced Profiles should be used by customers who have more specific requirements, newer or specialized web applications.

This chart provides a list of the Profiles included by default with a standard Ion client installation:

<i>Profile</i>	<i>Description</i>
Adaptive IE Quirks	<p>Renders content by dynamically selecting either the IE7 Standards or Quirks Mode rendering behavior based on the presence and location of a DOCTYPE on the page. Pages will be rendered using the IE7 Standards behavior if the page contains a DOCTYPE in the 1st position (no text preceding the declaration) and that DOCTYPE declaration is anything other than 'QUIRKS'. Pages will be rendered using the Quirks Mode behavior if the page has no DOCTYPE declaration, expressly includes a QUIRKS DOCTYPE declaration or if the DOCTYPE declaration is NOT in the 1st position.</p> <p>In either case the IE6 UA string is declared regardless of which rendering Mode is selected.</p>
Emulate IE7	Standards Mode directives are displayed in Internet Explorer 7 Standards Mode and Quirks Mode directives are displayed in IE5 Mode.
Emulate IE8	Standards Mode directives are displayed in Internet Explorer 8 Standards Mode and Quirks Mode directives are displayed in IE5 Mode.
Emulate IE9	<p>Standards Mode directives are displayed in Internet Explorer 9 Standards Mode and Quirks Mode directives are displayed in IE5 Mode.</p> <p>Note: This Profile will default to the IE8 Standards Mode engine on systems that are not running IE9.</p>
IE Quirks	Renders content as if it were displayed in Quirks Mode by Internet Explorer. IE Quirks is similar to the rendering behavior in IE 5.5. This Profile can be used to force a web application to render using 'Quirks' Mode directives.
Blank Profile (No Engine)	This creates an empty Profile with no Browser Engine or customized values. All settings are default settings or blank values.

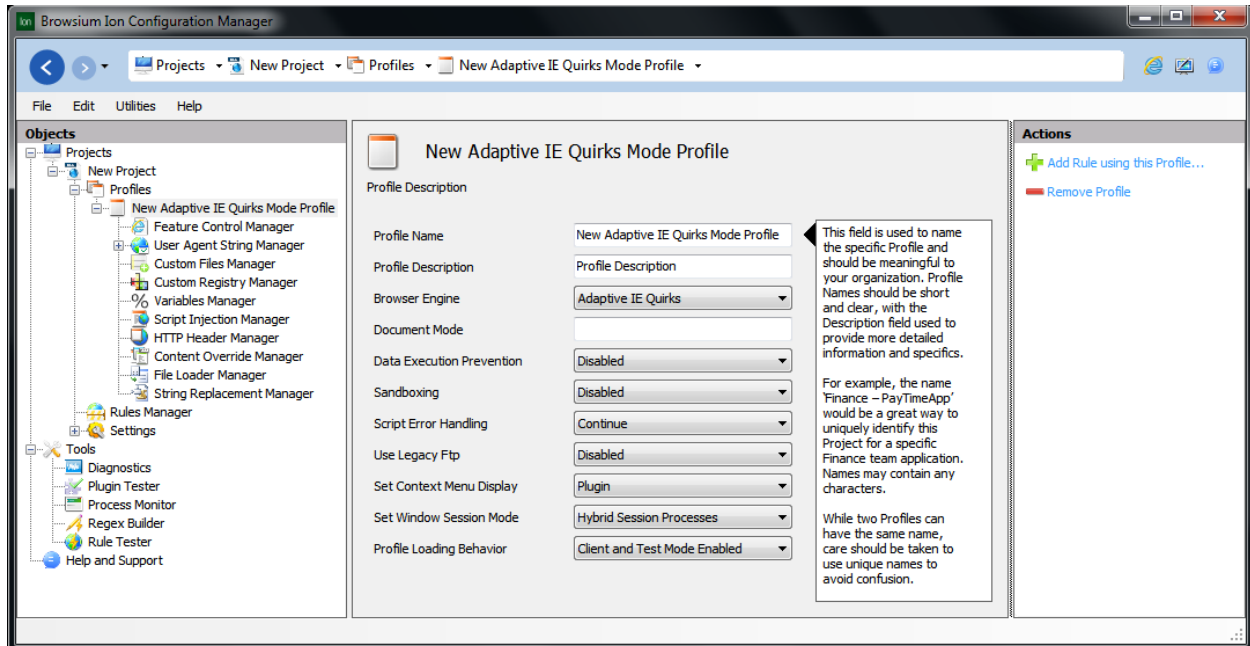
IE Edge	<p>To plan for future browser version continuity, Ion includes the 'Default IE Edge Mode Profile' to enable rules to always use the default (latest) browser engine installed on the system.</p> <p>Note: Ion is supported for installation with IE8 and IE9. Use caution in selecting this value as it will have important behavioral, rendering and scripting differences when used on different Internet Explorer versions.</p>
IE7 Standards	<p>Renders content as if it were displayed in Standards Mode by Internet Explorer 7. This Profile can enable scenarios where a web application renders properly using the IE8's 'IE7 Mode' but the given line-of-business application may require granular setting configurations that are not possible or appropriate changes to make globally to the IE8 browser configuration.</p>
IE8 Standards	<p>Renders content as if it were displayed in Standards Mode by Internet Explorer 8.</p>
IE9 Standards	<p>Renders content as if it were displayed in Standards Mode by Internet Explorer 9.</p> <p>Note: This Profile will default to the IE8 Standards Mode engine on systems that are not running IE9.</p>
Limited Profile	<p>This Profile uses the 'Host Browser' engine (IE8 or IE9 depending on the client system) and allows for limited customization such as Script and Content overrides as well as HTTP response headers.</p> <p>Note: Custom File and Registry settings cannot be used with the Limited Profile.</p>

Any Profile can be modified to suit specific web application compatibility issues. For example, Ion makes it possible to specify different versions of the Java Runtime Environment (JRE) on a per-Profile basis, whereas changing the JRE version for IE8 (or IE9) globally would only allow for a single version to be loaded at a time.

Care should be used when selecting the IE Edge, Emulate IE9 and IE9 Standards Profiles since the rendering engines, and therefore rendering behavior, will be very different when the Profile is invoked on systems running IE8 as compared with systems running IE9.


3.3.2. Profile Editor

The Profile Editor is used to modify settings, values and configurations for a given Profile. To get started, highlight a Profile to view the details in the Content Pane.



Profile details (Name, Description, Engine, etc.) can be edited in this screen. Profiles are assigned default values based on the Template selected when creating a New Profile. Most values can be left at defaults, but Profile Name and Description should be edited to reflect information and labeling relevant to your organization.

3.3.2.1. Profile Editor



New Adaptive IE Quirks Mode Profile

Profile Description

Profile Name	<input type="text" value="New Adaptive IE Quirks Mode Profile"/>	<div style="border: 1px solid gray; padding: 5px;"> <p>◀ This field is used to name the specific Profile and should be meaningful to your organization. Profile Names should be short and clear, with the Description field used to provide more detailed information and specifics.</p> <p>For example, the name 'Finance – PayTimeApp' would be a great way to uniquely identify this Project for a specific Finance team application. Names may contain any characters.</p> <p>While two Profiles can have the same name, care should be taken to use unique names to avoid confusion.</p> </div>
Profile Description	<input type="text" value="Profile Description"/>	
Browser Engine	<input type="text" value="Adaptive IE Quirks"/>	
Document Mode	<input type="text"/>	
Data Execution Prevention	<input type="text" value="Disabled"/>	
Sandboxing	<input type="text" value="Disabled"/>	
Script Error Handling	<input type="text" value="Continue"/>	
Use Legacy Ftp	<input type="text" value="Disabled"/>	
Set Context Menu Display	<input type="text" value="Plugin"/>	
Set Window Session Mode	<input type="text" value="Hybrid Session Processes"/>	
Profile Loading Behavior	<input type="text" value="Client and Test Mode Enabled"/>	

This list provides an explanation of each item on the Profile Editor screen. Additional information about each setting is available from within the Ion Configuration Manager using the 'rollover' information panel display inside the Content Pane.

Profile Name - The Profile name is a friendly name for your reference, and can be modified to suit your organization.

Profile Description - The description field provides a place to include a more complete explanation of the Profile.

Browser Engine - The browser engine value determines the core engine used for the Profile.

Document Mode – Ion allows you to define which Document Mode is included for pages loaded using the specified Profile. Internet Explorer Document Modes are used to trigger different rendering and scripting engine behaviors. The default Document Mode included with each Profile is set based on the browser engine selected when the Profile is created. The Document Mode can be changed at any time and is exclusive of the browser engine value. More information about Document Modes can be found at [http://msdn.microsoft.com/en-us/library/ie/cc288325\(v=vs.85\).aspx#DCModes](http://msdn.microsoft.com/en-us/library/ie/cc288325(v=vs.85).aspx#DCModes).

Note – Changing the Document Mode without a corresponding change to the browser engine may cause unexpected behavior.

Data Execution Prevention – Ion enables granular management of DEP/NX settings for a specific Profile rather than the entire Internet Explorer process. Enabled by default on IE8, DEP/NX support enhances security by preventing an application or service from executing code from a non-executable memory region. Ion provides the ability to manage enhanced security settings for the DEP/NX feature. To disable DEP/NX support for the specific Profile, simply click the checkbox.

Note - The IE Quirks and Adaptive IE Quirks Profiles have DEP/NX disabled by default to ensure line-of-business application compatibility. DEP/NX can be turned on by simply changing the value to 'Enabled'.

Sandboxing - By default Sandboxing is set to '**Disabled**' to ensure the broadest range of application compatibility needs. With Sandboxing Enabled, Ion further increases browser security by reducing write access to the underlying operating system. When the Ion process is closed, the memory is cleared and the content is no longer available. Ion tries to ensure that web applications will continue to work properly in a sandboxed environment while mitigating potential security issues if the end user loads malicious content. While this feature is disabled by default there are some instances where a web application may need to commit data to the operating or file system rather than delete it when the process is closed.

Script Error Handling – Internet Explorer is designed to make page scripting 'work' even when errors are encountered. Some minor script errors (e.g. 'unexpected values') can be safely ignored and normal page rendering will occur. More serious scripting errors can cause the page to stop working or otherwise behave in an undesired way. Script Error Handling options are:

- **Continue** (Default): Do not show script errors (to the user), automatically select the 'Continue' option as if the user had selected it.
- **Halt**: Do not show script errors (to the user), automatically select the 'Cancel' option as if the user had selected it.
- **Show**: Show script errors (to the user), allowing the user to decide how it should be handled.

Use Legacy FTP – The design of Internet Explorer 6 was closely linked with Windows Explorer, so when FTP links were encountered by IE6 the user would see FTP handled seamlessly by Windows Explorer. For security reasons this design was deprecated and FTP connections were handled directly within the browser starting with Internet Explorer 7. The Use Legacy FTP feature emulates the legacy FTP behaviors and loads FTP connections in a Windows Explorer view, while still retaining the security enhancements of the new Internet Explorer process model.

Set Context Menu Display - A context menu is the menu which appears when the user right-clicks on a given object. Internet Explorer has a specific context menu for each version of the program, and many

3rd-party web applications replace that context menu to provide extra functionality or application interactivity points for the user. By default, Ion replaces the default Internet Explorer context menu, as well as any 3rd-party web application context menus. Ion replaces the context menu to provide certain functionality and a consistent experience regardless of the browser engine being invoked. This feature enables control over whether to display the Ion context menu or to defer to the browser for display of the built-in context menu or a 3rd-party web application custom context menu.

Set Window Session Mode – Ion provides the ability to directly manage session behavior for a given Profile, making it simple to ensure users can take advantage of a tabbed browsing experience while still accessing the applications they need, in the way they want. Available session modes are:

- **Shared:** All tabs with content loaded by the same Profile will share cookies and session information.
- **Process Per Tab:** Full session isolation where each tab that invokes a Profile does so through a separate process, so that session information isn't available outside that unique process.
- **Hybrid Session Processes (Default):** A combination of the Shared and Process Per Tab designed to balance stability and system resources. This feature works by sharing session information across a specified number of tabs as defined in the [Maximum Pages per Process](#) value in the [Settings Node](#). When the maximum number of pages is reached, subsequent tabs will be assigned to a new process (e.g. until that process reaches its maximum) and new tabs will use new sessions. Tabs will remain in their respective process until all tabs associated with that process are closed.

Note — Since each tab uses a separate process, using the Process Per Tab Window Session Mode will result in Ion consuming more memory than Shared or Hybrid Session Modes. Process Per Tab should only be used for Profiles and web applications where shared session data causes issues.

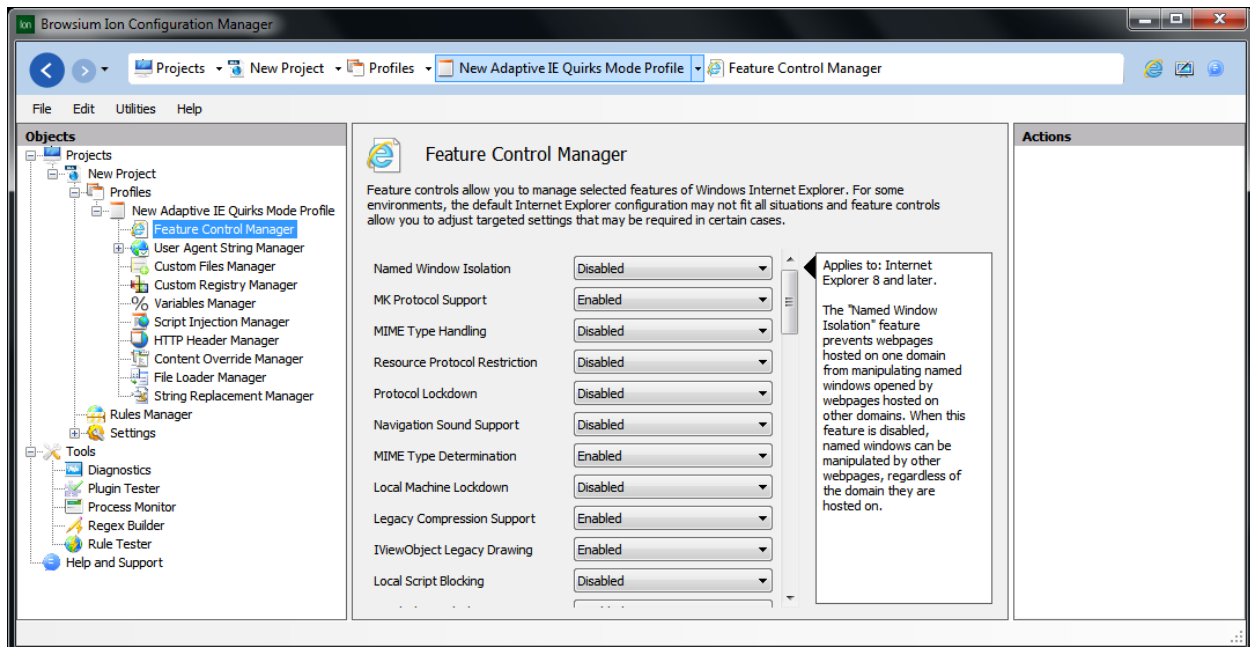
Profile Loading Behavior – Profiles can be Enabled or Disabled to provide more granular management and resource loading behaviors. There are several options to manage Profile Loading Behavior:

- **Client Mode Enabled:** Profile will be loaded only when used by a Rule.
- **Test Mode Enabled:** Profile will be loaded on systems where the Admin Toolbar has been installed.
- **Client and Test Mode Enabled (Default):** Profile will be loaded on Client systems if used by a Rule. In addition, the Profile will be loaded for machines with the Admin Toolbar installed.
- **Disabled:** Profile will never be loaded and cannot be triggered by any Rule match.

Note - If set to Disabled, the Profile will not be loaded by the Client system, even if a Rule calls that Profile, or when triggered manually using Test Mode in the Admin Toolbar. An organization may choose to set the Profile to Disable rather than delete it from a Project file.

3.3.2.2. Feature Control Manager

Use these settings to manage specific Feature Control Keys in a Profile.



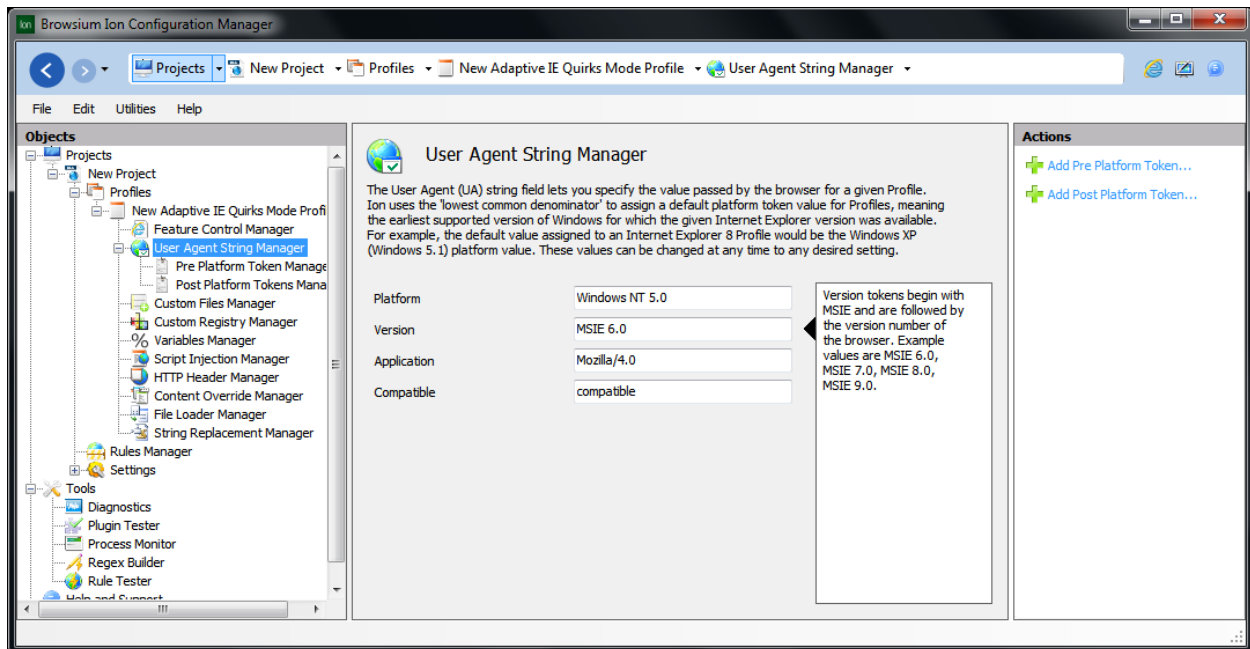
Most web applications do not have specific requirements for modifying these values from their system defaults, but Ion provides the ability to customize the settings on a per Profile basis.

Microsoft-supported Feature Control Keys not included in this list can be set using the Custom Registry Manager interface. For a full list of supported keys, please see [http://msdn.microsoft.com/en-us/library/ms537184\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/ms537184(VS.85).aspx). See the [Working with Custom Files, Registry Settings and ActiveX settings](#) section for more information on using the Custom Registry feature and an example of creating a Custom Registry File entry.

3.3.2.3. User Agent String Manager

The User Agent (UA) string field lets you specify the value passed by the browser for a given Profile. For example, the default UA string used by IE6 is that of a Windows XP Service Pack 2 system. Some common web application compatibility issues can be resolved by simply adjusting the UA string values. Using this feature, Profiles can be configured to send the desired UA string without impacting the installed Internet Explorer UA string values. UA strings are defined in a Profile using the originally selected browser engine template, but the values can be changed at any time.

More information on the User Agent string elements and potential values can be found at <http://msdn.microsoft.com/en-us/library/ms537503%28v=vs.85%29.aspx>.



Ion provides the ability to uniquely and individually define each portion of the UA String value. The most commonly adjusted values are Platform and Version.

3.3.2.3.1 Platform Token Editor

In addition to the base UA String values, Ion provides a mechanism to specify Pre- and Post-Platform Token values that are included in the full UA String value.

Pre Platform Token

Manage Pre Platform Token Name/Value pairs.

Name

Value

Specify the name of the Pre-Platform token.

To insert an environment variable or a custom profile variable, use \$(VariableName).

Post Platform Token

Manage Post Platform Token Name/Value pairs.

Name

Value

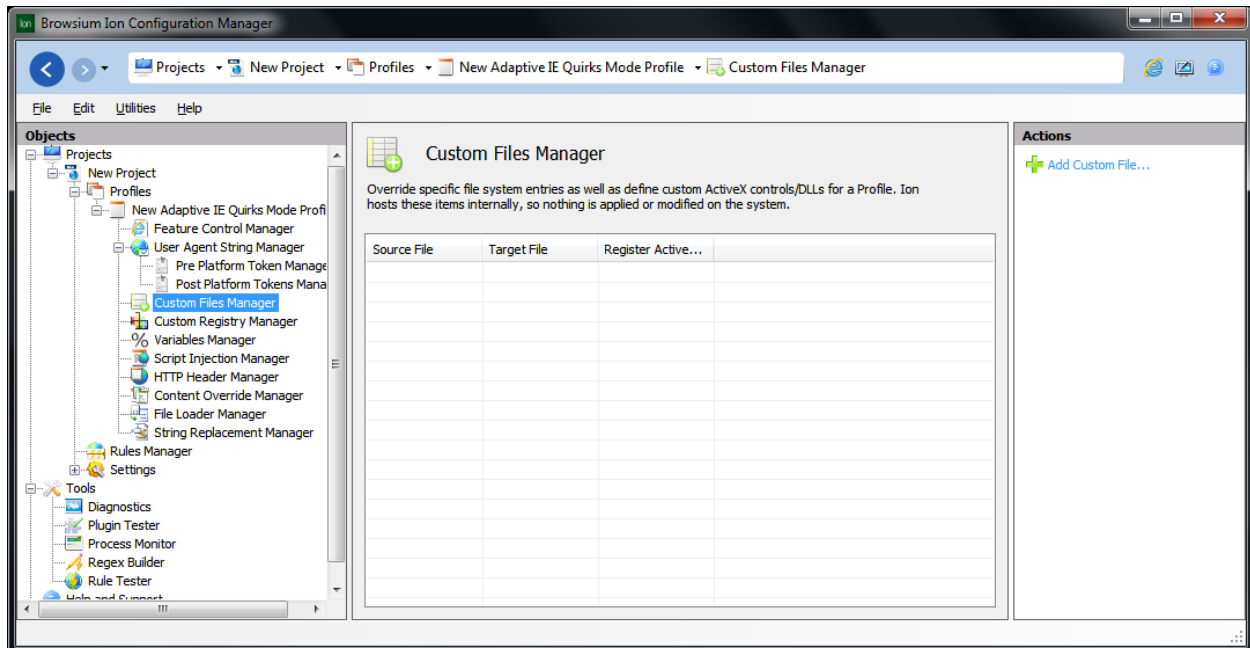
Specify the name of the Post Platform token.

To insert an environment variable or a custom profile variable, use \$(VariableName).

Common uses of the Pre- and Post-Platform Tokens define the installed add-ons and versions. Some web applications examine these values for proper functionality so this feature enables including the required values. Other web applications are unable to process long UA String values and this feature can be used to reduce the set of Pre- and Post-Platform Tokens to a manageable level.

3.3.2.4. Custom Files Manager

Ion allows you to create specific file system entries as well as define custom ActiveX controls for a Profile. Ion hosts these items internally, so nothing is applied or modified on the system. Any required file system entries or ActiveX controls should be defined here.



This screen displays all configured Custom File and Custom ActiveX mappings. To add a value, use the link in the Actions Pane on the right-hand side or simply right click on the Custom Files Manager Node and select the 'Add Custom File' option from the context menu. To edit a value, highlight the item in the Content Pane and use the 'Edit Custom File' link in the Actions Pane or the Custom Files Manager right-click context menu.

3.3.2.3.1 Custom Files Editor

Custom Files Editor

Create or Edit Custom File mappings to override default Browser loading behaviors or to enable 'side by side' running of different control versions, etc.

Source File ...

Target File ...

Register ActiveX/COM? Disabled

This is the location of the source file to be loaded by the plugin. This file MUST exist and be read accessible to the client machine and user account. The file can be either local or remote. DLL and OCX files DO NOT have to be installed on the client machine.

This field supports system/environment variables as well as wildcard values.

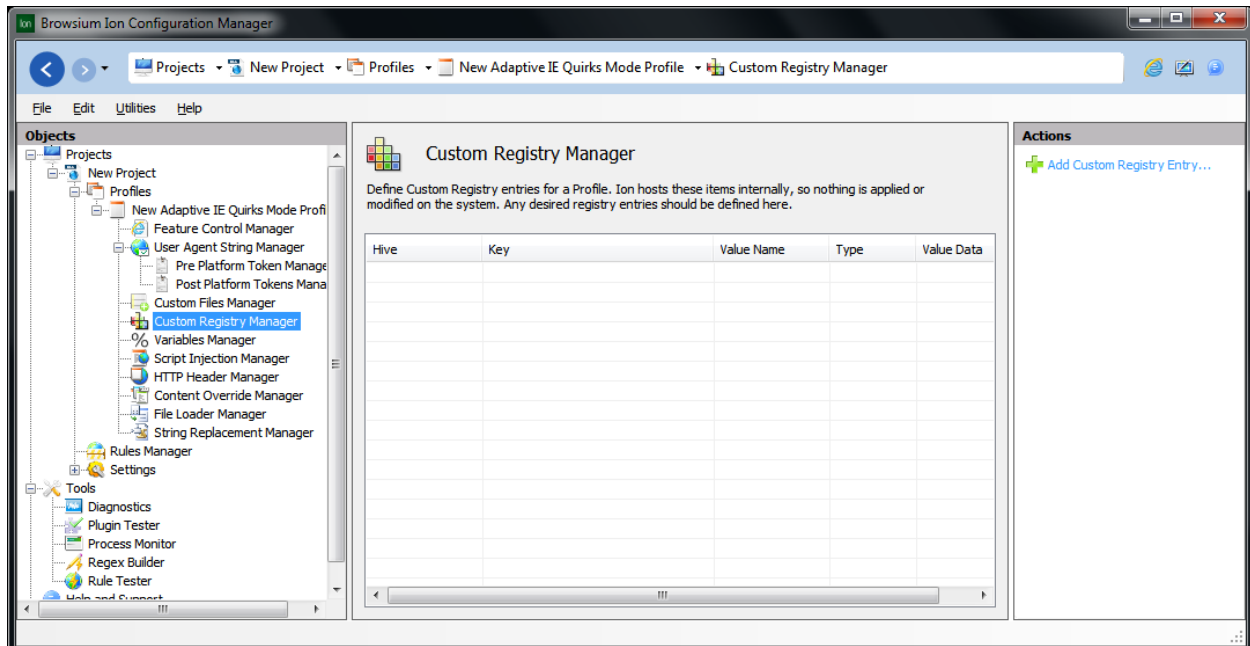
To insert an environment variable or a custom profile variable, use \$(VariableName).

OK Cancel

Use this screen to add or edit Custom File mappings. More information on this feature and an example of creating a Custom File mapping can be found in the [Working with Custom Files, Registry Settings and ActiveX Controls](#) section.

3.3.2.5. Custom Registry Manager

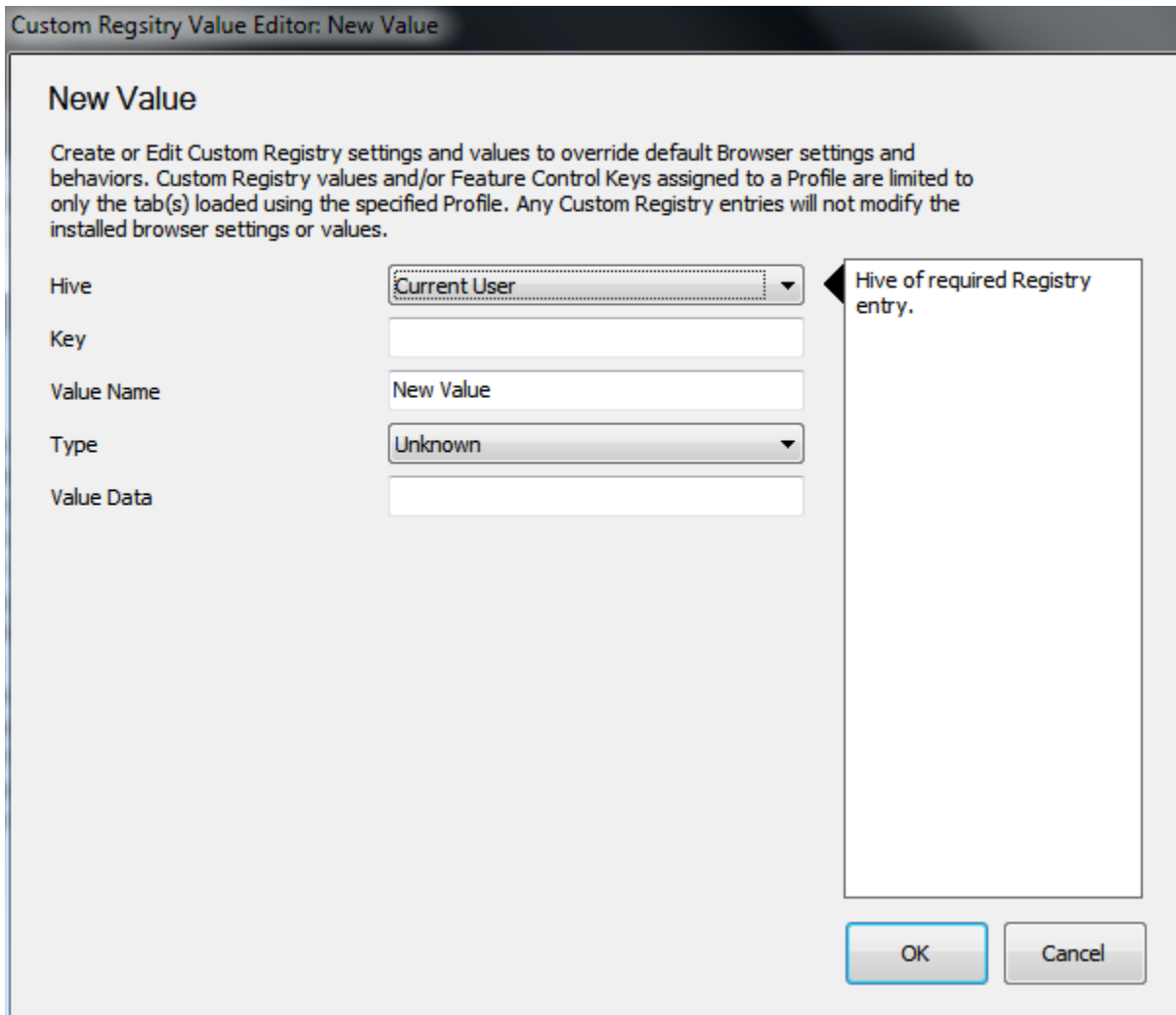
This screen allows you to create specific registry entries for a Profile. Ion provides an environment to host these items internally, so nothing is applied or modified on the system. Any required registry entries should be defined here.



To add a value, use the link in the Actions Pane on the right hand side or simply right click on the Custom Registry Manager Node and select the 'Add Custom Registry Entry' option from the context menu. To edit a value, highlight the item in the Content Pane and use the 'Edit Custom Registry Entry' link in the Actions Pane or the Custom Registry Manager right-click context menu.

3.3.2.3.1 Custom Registry Value Editor

Any type of Registry entry can be created using this interface. Simply choose the Hive location and entry values, and then click OK.



The screenshot shows a dialog box titled "Custom Registry Value Editor: New Value". The main area is titled "New Value" and contains the following text: "Create or Edit Custom Registry settings and values to override default Browser settings and behaviors. Custom Registry values and/or Feature Control Keys assigned to a Profile are limited to only the tab(s) loaded using the specified Profile. Any Custom Registry entries will not modify the installed browser settings or values."

The dialog box contains several input fields and dropdown menus:

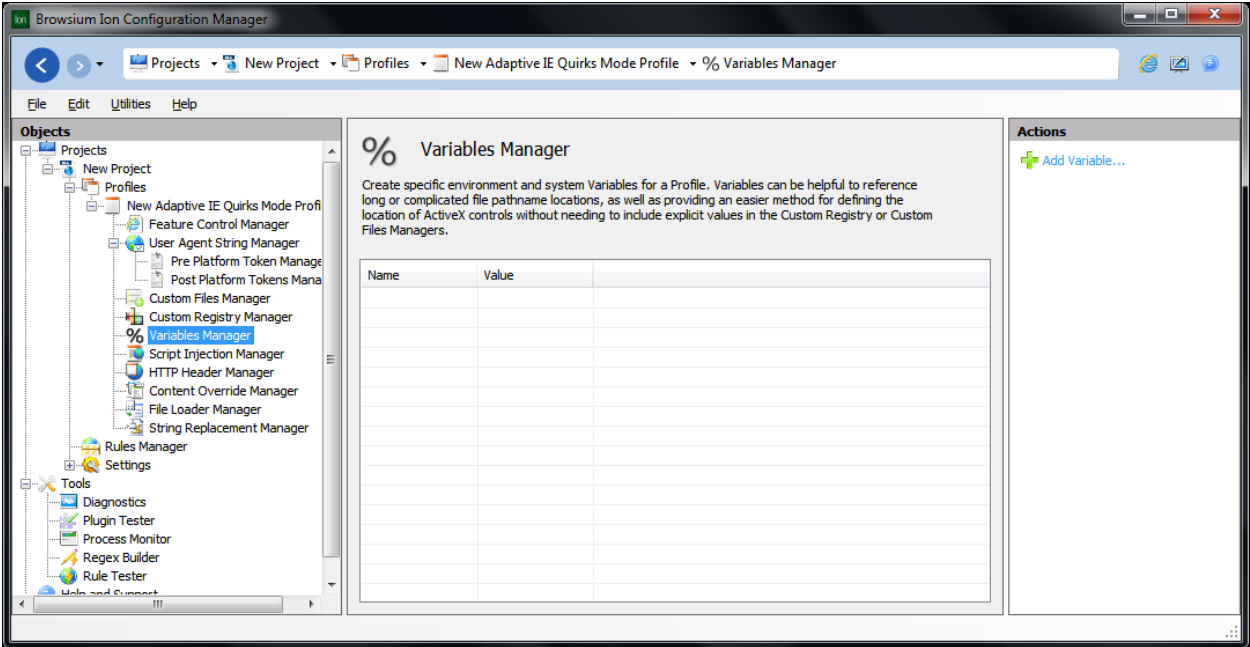
- Hive:** A dropdown menu with "Current User" selected.
- Key:** An empty text input field.
- Value Name:** A text input field containing "New Value".
- Type:** A dropdown menu with "Unknown" selected.
- Value Data:** An empty text input field.

On the right side of the dialog box, there is a large empty rectangular area with a black arrow pointing to it from the left. Above this area, the text "Hive of required Registry entry." is displayed. At the bottom right of the dialog box, there are two buttons: "OK" and "Cancel".

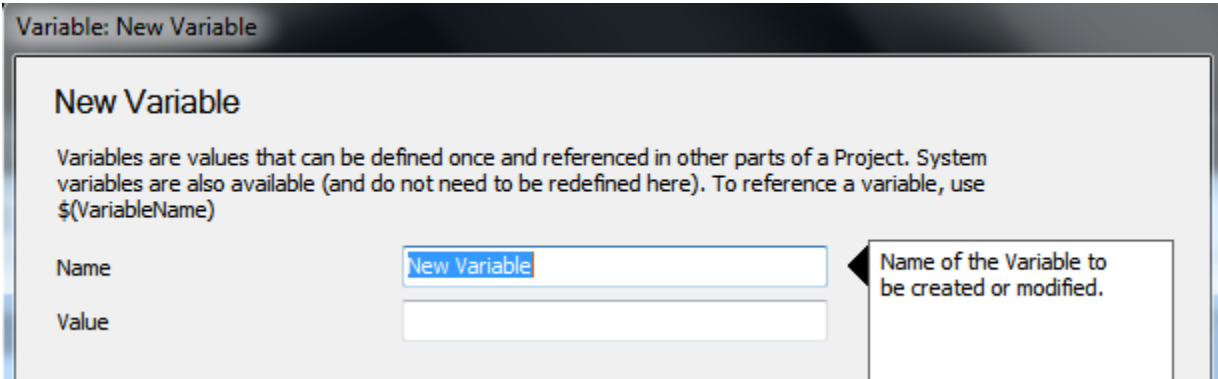
For more information on working with Custom Registry settings, see the [Working with Custom Files, Registry Settings and ActiveX Controls](#) section.

3.3.2.6. Variables Manager

This screen allows you to create specific variables entries for a Profile. Ion includes the ability to utilize system and user variables for referencing file location pathnames. Variables can be helpful to reference long or complicated file pathname locations, and can provide an easier method for changing the location of ActiveX controls without needing to modify the settings in the Custom Registry Manager or Custom Files Manager. In addition to accessing global system and user defined variables, Ion enables an administrator to create custom local variables within the Ion environment.

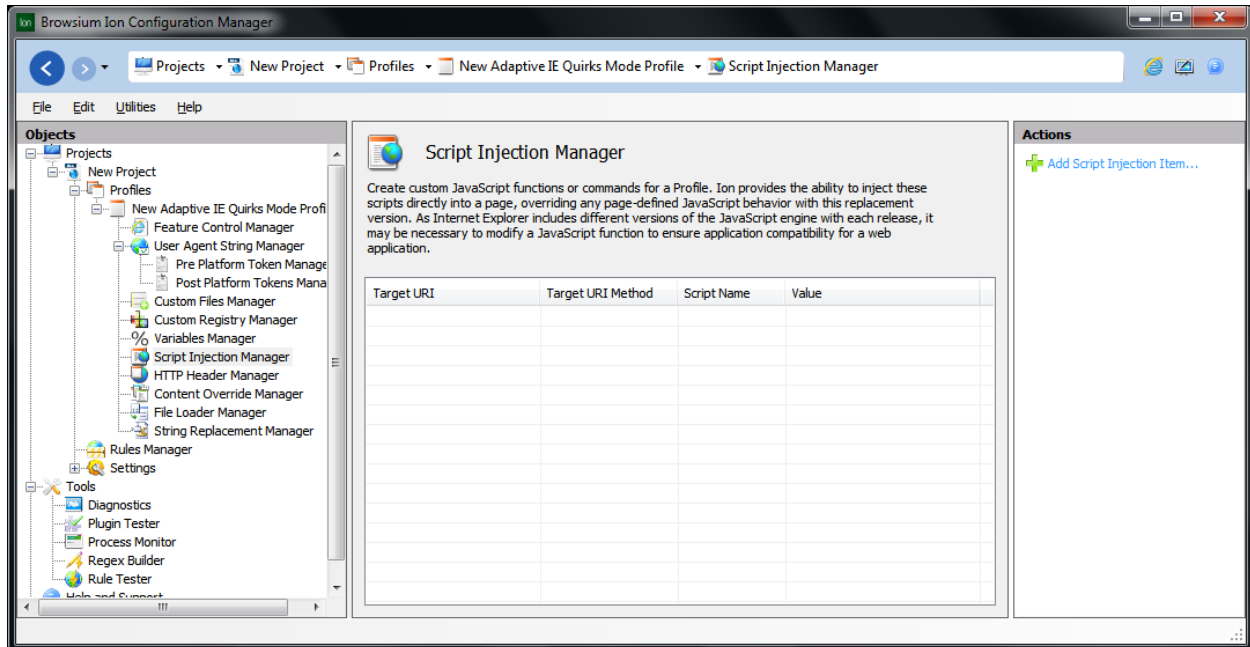


This list displays all configured Variable mappings. To add a value, use the link in the Actions Pane on the right-hand side or simply right click on the Variables Manager Node and select the 'Add Variable' option from the context menu. To edit a value, highlight the item in the Content Pane and use the 'Edit Variable' link in the Actions Pane or the Variables Manager right-click context menu.



3.3.2.7. Script Injection Manager

This screen allows you to create custom JavaScript functions or commands for a Profile. Ion provides the ability to inject these scripts directly into a page, overriding any page-defined JavaScript behavior with this replacement version. As new versions of Internet Explorer include different versions of the JavaScript engine, it may be necessary to modify a JavaScript function to ensure application compatibility for a given web application.



For example, a site designed for IE6 may be able to run in a later version of Internet Explorer with only a few scripting tweaks. The JavaScript defined here is injected in the <head> tag of the document after the page loads and before the OnLoad event of the <body> tag is triggered.

To add a script, use the link in the Actions Pane on the right hand side or simply right click on the Script Injection Manager Node and select the 'Add Script Injection Item' option from the context menu. To edit a value, highlight the item in the Content Pane and use the 'Edit Script Injection Item' link in the Actions Pane or the Script Injection Manager right click context menu.

3.3.2.3.1 Script Injection Editor

This basic example of the Scripts override feature provides an illustration of how to use the feature to replace a function. Here is a simple HTML page with a function (DisplayMessage) that displays an alert when the OnLoad event is triggered.

```
<html>
<head>
<script type="text/javascript">
function DisplayMessage(message)
{
    alert(message);
}
</script>
</head>
<body OnLoad="DisplayMessage('Hello world')">
Page body.
</body>
</html>
```


To override the DisplayMessage function each time this page is loaded by a given Profile, simply click the **'Add Script Injection Item'** link in the Actions pane or use the Script Injection Manager right-click context menu option to open the Script Injection Editor window. Provide a name for your script – this name is for your reference purposes only; it is not part of the function or script itself. Enter the entire JavaScript in the Script window. This example shows a single function, but the Script can contain any number of functions or statements (up to an object size limit of 2MB).

The screenshot shows a dialog box titled "Script Name: DisplayMessage". Inside, the main title is "DisplayMessage". Below the title is a note: "This Name is for your reference and identification purposes only; it is not part of the function or script itself. It should be relevant to your business or web application." The form contains the following fields:

- Target URI:** A text box containing "http://www.aggrid.com".
- Target URI Method:** A dropdown menu set to "Simple".
- Script Name:** A text box containing "DisplayMessage".
- Value:** A large text area containing the following JavaScript code:


```
function DisplayMessage(message)
{
  alert('Ion Script: ' + message);
}
```

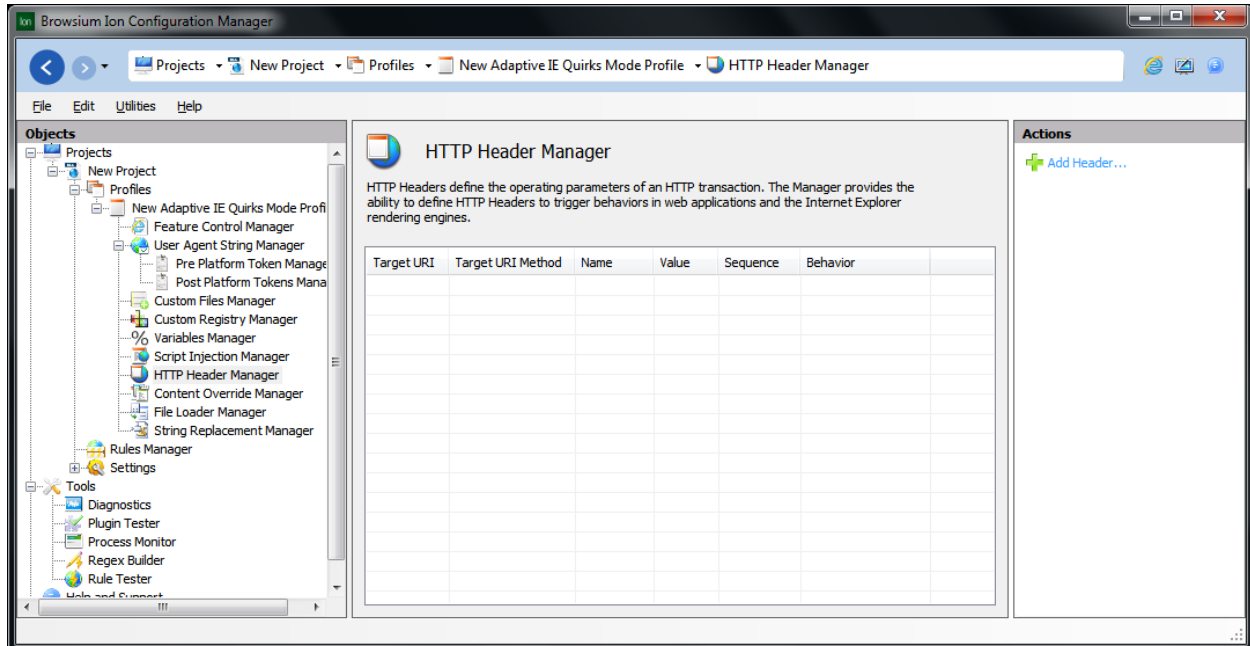
On the right side of the dialog, there is a separate text box with the following text: "The actual JavaScript code to be injected in pages rendered using the assigned Profile. To insert an environment variable or a custom profile variable, use \${VariableName}." Below this text box are "OK" and "Cancel" buttons.

This script will now be injected into any page loaded by the associated Profile.

Note — Syntax validation is NOT performed on content entered in the Script editor window, so any malformed JavaScript may cause script errors or other unexpected behaviors.

3.3.2.8. HTTP Header Manager

This screen displays the list of defined Custom HTTP headers. HTTP header fields are components of the message header of requests and responses and some web applications rely on these headers to trigger certain behaviors and functionality. Ion enables easy creation and management of HTTP Headers.



A list of available HTTP Header fields can be found at http://en.wikipedia.org/wiki/List_of_HTTP_header_fields. To add an HTTP Header, use the link in the Actions Pane on the right-hand side or simply right click on the HTTP Header Manager Node and select the 'Add Header' option from the context menu. To edit a value, highlight the item in the Content Pane and use the 'Edit Header' link in the Actions Pane or the HTTP Header Manager right-click context menu.

HTTP Header: New Header

New Header

Use HTTP Handlers to set Request and Response values used for pages rendered by the Profile.

Target URI: Target URI (location) to modify the HTTP header

Target URI Method:

Name:

Value:

Sequence:

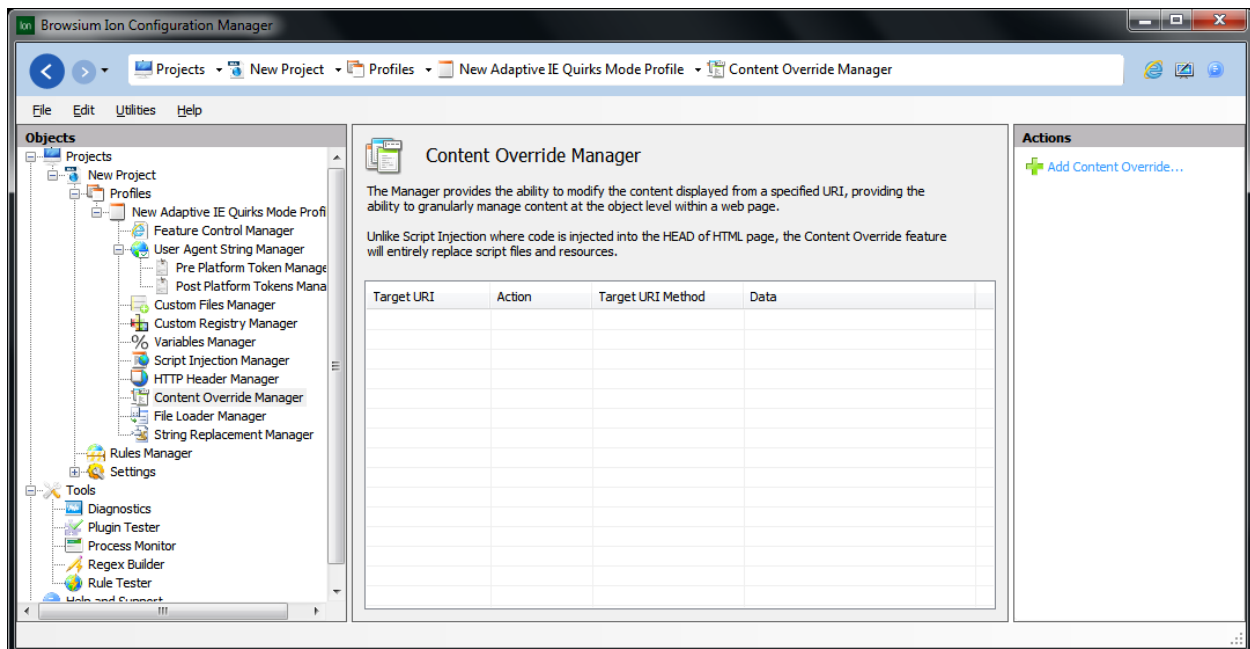
Behavior:

OK Cancel

3.3.2.9. Content Override Manager

Some older web applications may include content (JavaScript, HTML, CSS, images, etc.) resulting in compatibility issues with newer browser rendering engines that cause the application to work incorrectly. These issues can be as simple as layout issues, more complex coding related issues that prevent the site from loading or even serious issues that cause the web browser to crash when loading specific content.

Ion provides the ability to replace or block inline or linked content for a given web page to help solve these compatibility issues.



3.3.2.3.1 Content Override Editor

Start by defining the Target URI – even though these settings are part of a Profile which would be triggered by a Rule, Content Overrides have an additional layer of granularity and work with content regardless of the location so the Target URI must be specified for the content being replaced.

The Content Override feature provides the ability to control the loading behavior taken by the browser for the specified content. The available Actions are:

- **Block:** Stops the content from being downloaded.
- **URL(Default):** Redirects the request for the content at the specified URI to the URL specified in the Data field.
- **File:** Loads content from the file specified in the Data field.
- **Content:** Replaces content from the specified URI with the content in the Data field.

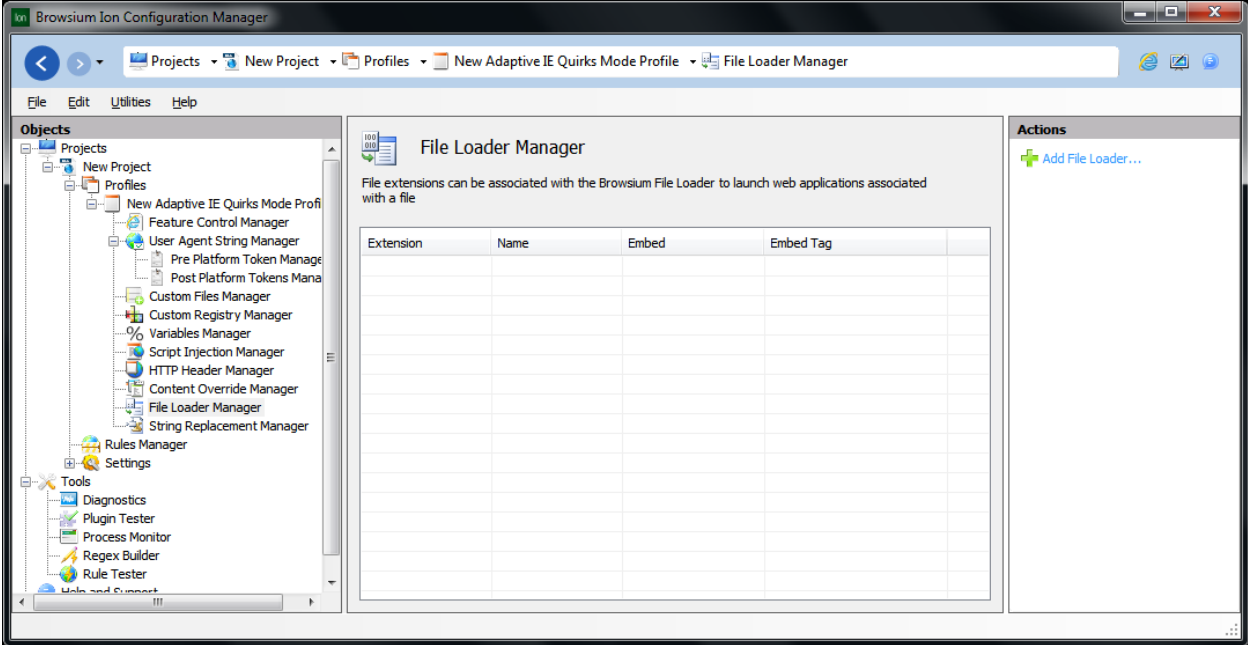
The Data field will contain content based on the selected Action.

Note — While Ion is not sold as a security solution, the Content Override feature can be used to prevent downloading known malicious or restricted content.

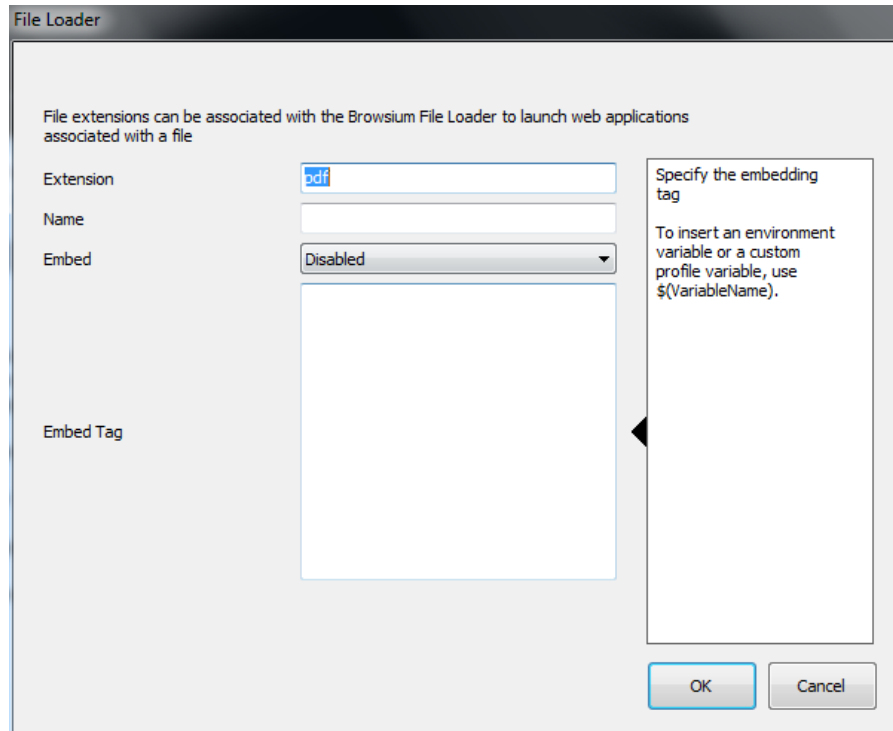
3.3.2.10. File Loader Manager

The File Loader feature provides support for web applications that need to render/load content in a full screen browser ActiveX controls when triggered by a specific file type -- such as rendering a PDF file in a full page Acrobat viewer. IE6 allowed for the ability to launch these full screen ActiveX controls by double clicking on an associated file on the user's machine. However, in IE8, this functionality is no longer supported and requires significant user retraining to get the expected behavior. Using the File Loader feature, Administrators can create configurations for specific file types and select whether the corresponding ActiveX control is a full page control or served through an object tag on an HTML page. Ion solves this issue and offers the ability to create a Rule that would load through the Ion File Loader executable. At this point, double clicking on a file will launch a new IE instance and serve the specific file through the corresponding ActiveX viewer for the file type.

An example would be configuring a File Loader entry for .pdf files (PDFs can be displayed either as a full page ActiveX controller or as an embedded ActiveX control on a page, but a full page control requires less configuration).



When creating the loader, first specify the file type extension (not including the separating period). In this case it would be “pdf” (without the quotes). Next, select whether the file is rendered through an embedded ActiveX control or a full screen control. This example uses a full-screen control, so the **Embed** value is set to “Disabled”. There is no need to specify anything for the embed tag for a full-screen control.



The screenshot shows a dialog box titled "File Loader". At the top, it states: "File extensions can be associated with the Browsium File Loader to launch web applications associated with a file". Below this, there are four main sections:

- Extension:** A text input field containing the text "pdf".
- Name:** An empty text input field.
- Embed:** A dropdown menu currently set to "Disabled".
- Embed Tag:** A large, empty text area.

On the right side of the dialog, there is a section titled "Specify the embedding tag" with the instruction: "To insert an environment variable or a custom profile variable, use \${VariableName}." Below this instruction is another empty text area. At the bottom right of the dialog are "OK" and "Cancel" buttons.

To use an embedded ActiveX control to render the file, set the **Embed** value to “Enabled.” Add the template of the object tag to the Embed Tag field. The object tag looks like `<object classid=...>` where the classid value is the value of the control GUID and the %1 variable is used as a replacement variable for the file being loaded by the user.

File Loader

File extensions can be associated with the Browsium File Loader to launch web applications associated with a file

Extension:

Name:

Embed:

Embed Tag:

```
<OBJECT classid="CLSID:00020421-0000-0000-c0000-000000000046">
<PARAM name="SourceFile"
value="%1">
</OBJECT>
```

Specify the embedding tag

To insert an environment variable or a custom profile variable, use \$(VariableName).

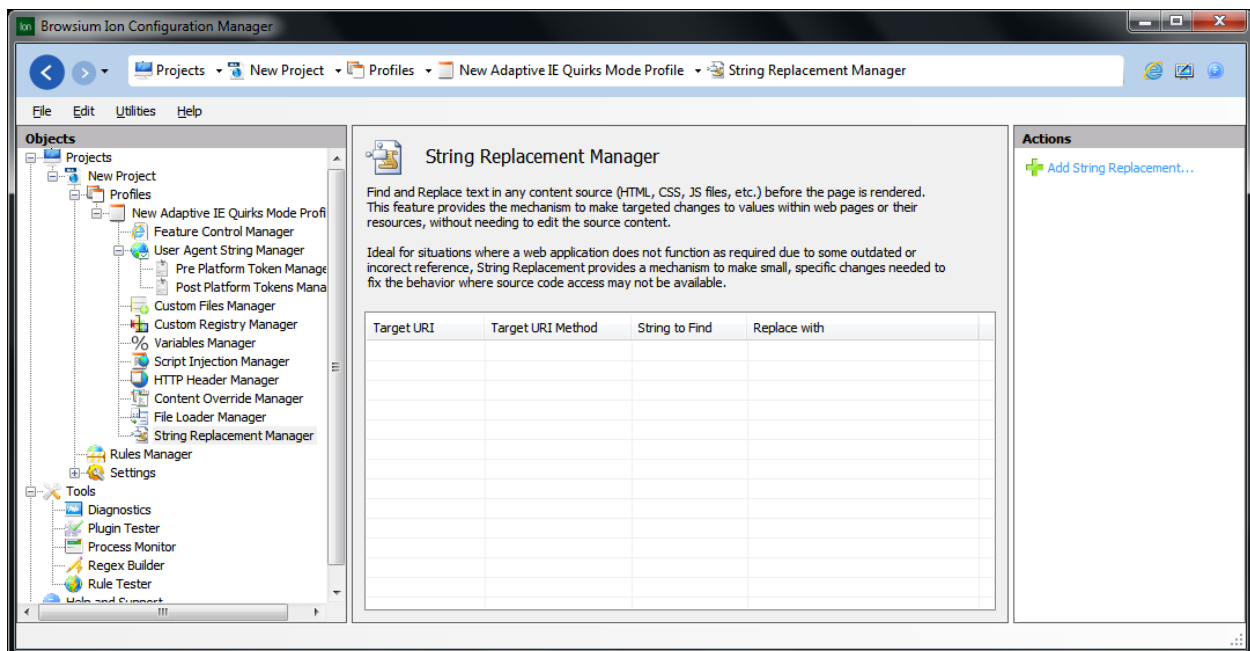
OK Cancel

Note – The Name value is designed to provide administrators with the ability to uniquely identify the specific File Loader. The value is optional, but recommended for customers with more than a single defined File Loader.

3.3.2.11. String Replacement Manager

Some older web applications need simple, targeted fixes to make an application work exactly right. Often the issues can be as simple as resizing an image or changing a word in some JavaScript. Changing the web application source code is a great way to go – but many organizations are using ‘off the shelf’ applications for which they don’t have source code access to change what is needed. Some commercial applications have license agreements that prohibit any modification to their source code or binaries. In addition, changing the source code is impractical for ‘roll outs’ where some users will remain on older browsers while some users get the latest versions.

Ion offers the ability to edit text ‘inline’ before the browser rendering begins, enabling an organization to fix virtually any issue without touching the source code. These changes are highly targeted and can be used to make pinpoint changes to the affected area of the web application.



Making a string replacement is easy. Start by defining the Target URI – even though these settings are part of a Profile which would be triggered by a Rule, String Replacements are designed to work with content regardless of the location so the Target URI must be specified for the strings being replaced.

3.3.2.3.1 String Replacement Editor

String Replacement

Find and Replace text in any content source (HTML, CSS, JS files, etc.) before the page is rendered. This feature provides the mechanism to make targeted changes to values within web pages or their resources, without needing to edit the source

Target URI

Target URI Method

Find/Replace Method

String to Find

Replace with

Target URI (location) to replace strings

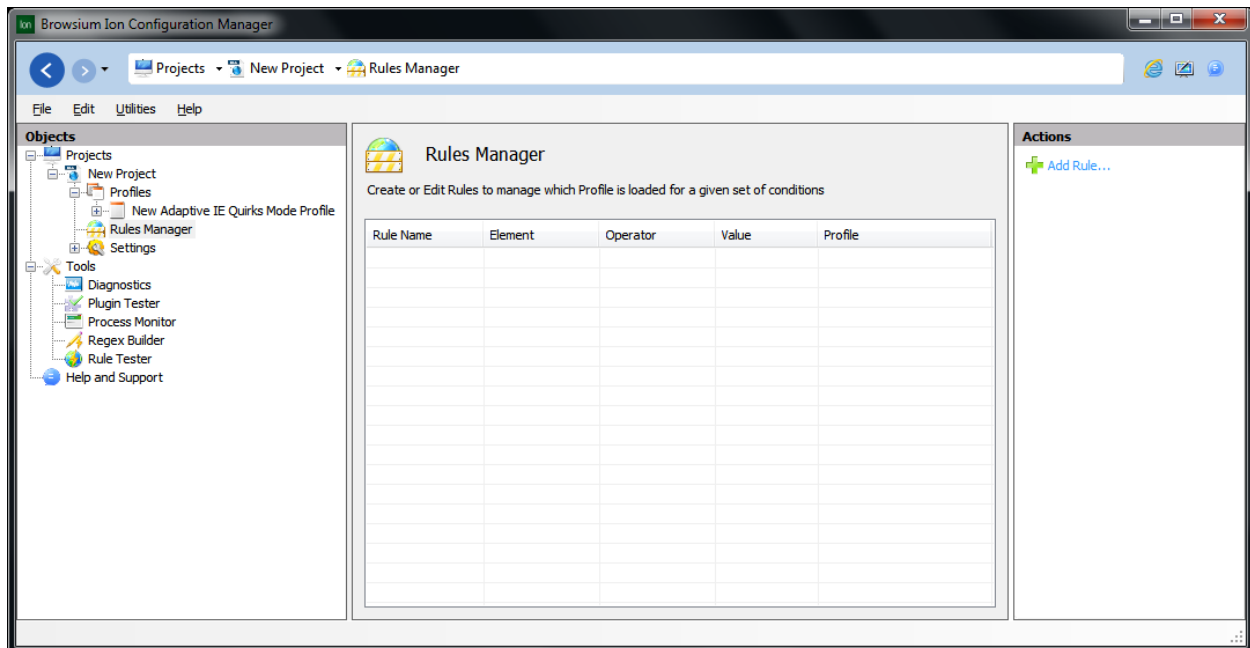
OK Cancel

Enter the string to find - the pattern match can be EXACT or REGEX depending on the Method property selection (Simple or Regex).

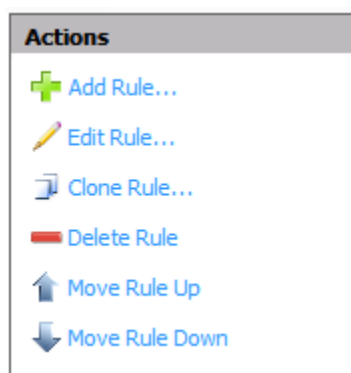
Enter the value to be used as the replacement text and click OK to finish.

3.4. The Rules Manager Node

The Rules Manager is the main interface for creating, editing and managing evaluation criteria for which content is to be rendered using Ion. This section contains details on the various elements and pieces of this interface.



The Content Pane shows the hierarchical rules list that Ion uses to determine how to handle web application rendering. The heading for each column in this window refers to the specific rule element (e.g. Rule Name, Element, Operator, Value, etc.) for a given Rule. When no Rules are present, the Actions Pane only displays the 'Add Rule' link. As Rules are added the Actions Pane will display additional links to manage ordering and editing Rules.



Add Rule - To create a new rule, click the Add Rule link in the Actions Pane to bring up the Rule Editor window. The next part of this section provides details on the options and values in the Rule Editor window. See the [How to Create a Rule Section](#) for details on creating rules.

Edit Rule - URLs and rule definitions can be complex, and complexity may lead to typographical errors. In the event you make a mistake or need to revise a Rule, simply double click the line to edit (or highlight the line and click the Edit Rule link in the Actions Pane) to make the necessary changes.

Delete Rule - To delete a Rule, select it from the Rules Manager Window, then click the Delete Rule link in the Actions Pane.

Note — To disable a rule rather than remove it, click the checkbox next to the rule name

Clone Rule - Some web applications or systems may require several related rules to function properly. The Clone Rule function is designed to aid in quickly creating rules that are similar to previously created Rules. The Clone Rule function can also help avoid having to copy/paste or manually retype a Rule that contains a long or complex URL.

Move Rule Up/Move Rule Down - By default, rules are ordered in the sequence they are added. Since rules are evaluated in the order they are stored, the sequence of rules can be critical to the proper functionality of your web application in Ion. To manually adjust the order of a Rule, simply highlight the Rule and use the Up and Down buttons to move it to the proper placement.

3.4.1. Rule Editor

The Rule Editor window is used for creating new Rules or editing existing Rules.

Rule Name - You can name a rule using any characters without restriction or character count limit. Rule names are for your use and identification only, and have no impact on functionality. Browsium recommends using rule names that clearly describe what the rule is used for, so it can be easily identified in the Rules Manager display.

Element - This table contains a brief explanation of the various Elements on which Rules can be created.

Type	Description	Example
Absolute URI	The entire canonical URI, including protocol scheme, username, password, hostname, domain, port, path, query, extension and fragment.	http://www.browsium.com/

Authority	Username, password, hostname, domain and port.	user@host.browsium.com:9001
Display URI	The protocol scheme, hostname, domain, port, path, query and optionally, fragment.	http://www.browsium.com
Domain	The domain (including top level domain) only. Not for use for intranet sites. (Use "Host" instead.)	browsium.com
Extension	The file extension of the resource.	.html
Fragment	The information following a fragment marker (#), including the marker itself. This can refer to named anchors found within a document.	#top
Host	The fully qualified domain name or plain hostname.	browsium.com or filestore
Password	The password, as parsed from the URI.	Password
Path	The path and resource name.	/animals/birds
Path and Query	The path, resource name and query string.	/animals/birds?robin
Query	The query string. (All text following a ? in a URI)	?robin
Raw URI	The entire URI as entered, including characters represented as "%61"	http://username:password@hostn%61me.browsium.com
Scheme Name	The protocol scheme name. (The text preceding "://" in an URI.)	http or ftp
User Info	The username and password, as parsed from the URI.	user:password
User Name	The username as parsed from the URI.	User
Host Type	The type of host.	2 (IPV4), 3 (IPV6)
Port	The port number.	850
Scheme	The scheme of the URI.	2 (HTTP), 11 (HTTPS)

Zone	The zone of the URI.	1 (INTRANET), 3 (INTERNET)., etc.
------	----------------------	-----------------------------------

Operator - This table contains a brief explanation of each available Operator.

Conditional	Description
Is	Exactly matches the value field.
Is Not	Does not match the value field.
Less Than	Is less than and not equal to the value field. This conditional is especially useful with the Host, Port, Scheme and Zone rule types.
More Than	Is more than and not equal to the value field. This conditional is especially useful with the Host, Port, Scheme and Zone rule types.
Begins With	Starts with the string in the value field.
Ends With	Ends with the string in the value field.
Excludes	Does not contain the value field.
Includes	Contains the value field.
RegEx	Is determined by the regular expression in the value field.

Value – This field should contain the string or integer to conditionally match in order to Ion to manage content rendering.

Profile - The Profile selection determines which browser Profile Ion uses to load the matching website. Any configured Profiles will be listed in this dropdown. In a default configuration there are no Profiles available. To change the Profile used for a given Rule, simply change the value in this field and save the configuration.

Command File Name – Browsium Ion can be used to launch other applications or execute commands when Rule conditions are met. Simply enter the full path and filename of the command to execute. This field supports environment and system variables.

Command Arguments – Used in conjunction with the ability to launch applications or execute commands, this value is the argument that is passed to the command. Use the %1 variable to insert the target URL into the command arguments.

Block Navigation – Determine whether to continue standard page navigation when certain conditions are met. Using this feature an administrator could prevent content from being loaded.

Note — While Browsium Ion is not sold as a security solution, the Block Navigation feature can be used to prevent users from accessing known malicious or restricted content.

Security Level – Browsium Ion is designed to isolate content rendering and provides content loading behaviors in a secure manner. The default behavior for Ion to render only content matched by a Rule – all unmatched content navigations/loading will be cancelled. This table provides descriptions of the available security levels:

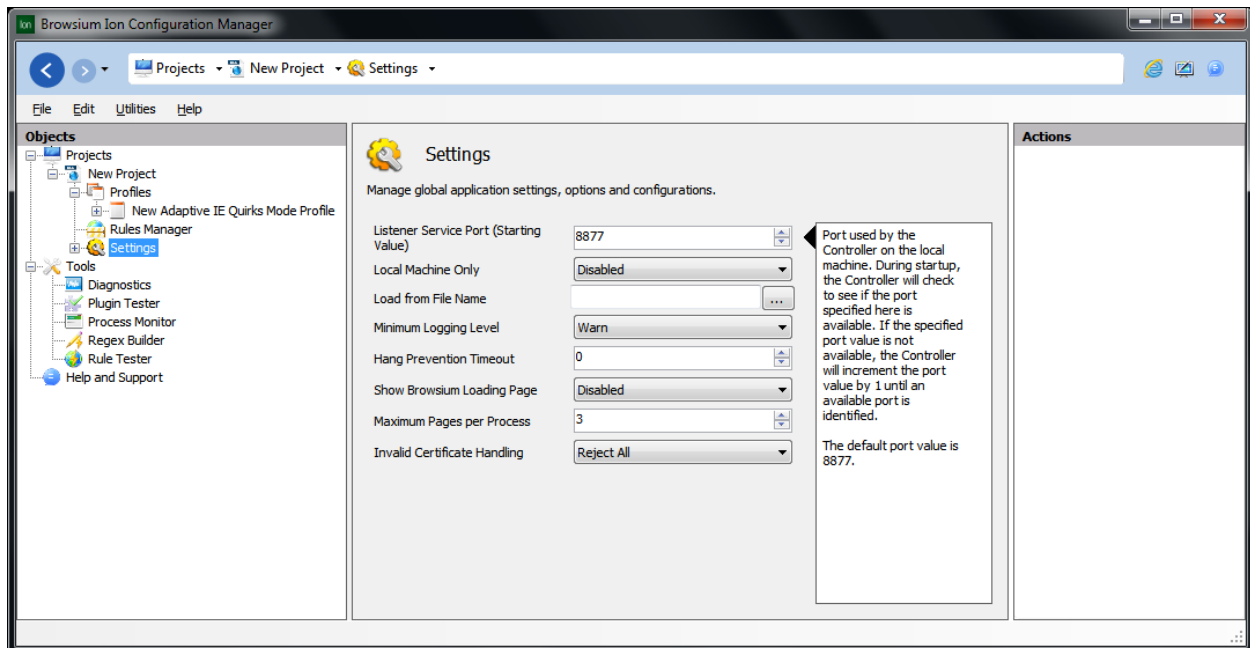
Security Level	Description
Low	<p>Content is considered to match a Rule based on the value in the Address Bar (not based on each page elements unique URI). If the content of the Address Bar matches a Rule, all objects on the page will be rendered using the specified Profile. Ion will not evaluate subsequent navigation events (e.g. clicking a link, etc.) and will continue to render content using the same Profile until the tab is closed.</p> <p>Note: This setting should be used only when necessary. Since navigation events are not consistently evaluated, use of this setting could potentially result in a system being exposed to security threats if malicious content is accessed.</p> <p>This is the default value for the setting.</p>
Medium	<p>Content is considered to match a Rule based on the value in the Address Bar (not based on each page elements unique URI). If the content of the Address Bar matches a Rule, all objects on the page will be rendered using the specified Profile. Ion will treat subsequent navigation events (e.g. clicking a link) as ‘new’ navigations and perform a complete evaluation of the requested content.</p>
High	<p>Contents (individual page elements) are loaded only when a Rule is matched. If the content of the Address Bar matches a Rule, all objects on the page will be evaluated (and rendered if the specific object matches as well) using the specified Profile. Ion will treat subsequent navigation events (e.g. clicking a link, etc.) as ‘new’ navigations and perform a complete evaluation of the requested content.</p>

By default, new Rules are set to a Medium security level.

Set Rule - All Rules are enabled by default when they are created. Some Rules may contain complex parameters or complex paths and it may be more practical to simply disable a Rule rather than remove it if the Rule is not needed or to test ordering patterns, etc. In addition, some users may choose to keep only a single Rule set and want to disable a specific Rule for some given period of time. To disable a Rule, select 'Disabled' from the dropdown list or click the checkbox next to the Rule name in the Rules Manager.

3.5. The Settings Node

The Settings Tab gives you the ability to edit global settings for Ion configurations that will be applied to all Profiles. These settings encompass features such as the Listener Service Port, Hang Prevention, Profile Idle Resets, and generic security and loading behaviors.



3.5.1. Listener Service Port

Port used by the Controller on the local machine. During startup, the Controller will check to see if the specified port is available. If that port is not available, the Controller will automatically increment the port value by 1 until an available port is identified. The default port value is 8877.

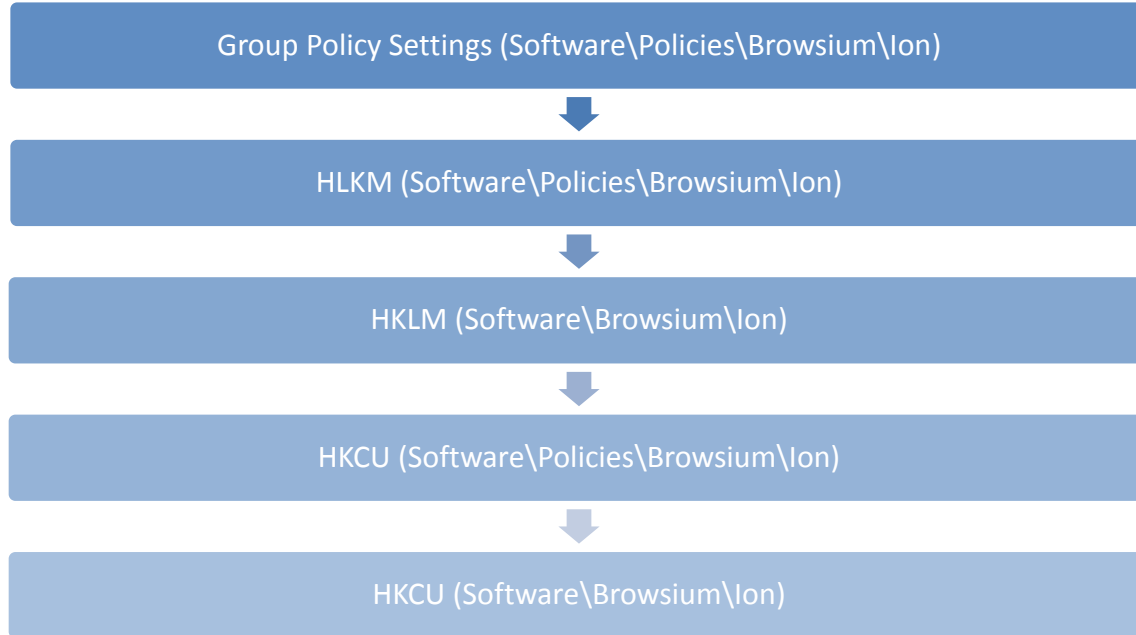
3.5.2. Local Machine Only

By design, Group Policy will allow values in the Current User (HKCU) hive to take precedence over values from the Local Machine (HKLM) hive. Some organizations may want to prevent values in HKCU from overriding HKLM Ion configuration values. By setting the Local Machine Only value to 'Enabled' Ion will restrict reading to only HKLM values.

3.5.3. Load from File Name

Since Ion is a client side solution with no server component, getting the configuration settings to the client is critical for proper operation. Configuration management is extremely flexible and can be tailored to meet the design and requirements of your environment. By default Ion will look first in Group

Policy for configurations, then Local Machine, then Current User. This table provides a hierarchy of precedence for how configuration values are evaluated and the locations being read:



Ion will not look for a local (flat) file configuration by default. In order to instruct Ion to load configurations from a local file instead of the registry or policy values, you must create two Project files – one Project that contains only a single reference to the location of the local file (that is defined in this setting), and another Project file that is the actual Project to be used by the organization. The path location value for the ‘actual’ Project file can be hardcoded or declared with a system variable (using the `$(variable)` format notation). Use Group Policy to deploy the ‘local file reference’ Project file to user systems. Use the preferred process for your organization to deploy the ‘actual’ Project file to the specified location.

For organizations that do not use Group Policy, local testing using the ‘Save local Settings’ option in the File menu to save the ‘local file reference’ project values to the administrator workstation. Once the values are saved to the local system, export the registry values from the location chosen in the ‘Save Local Settings’ dialog box (either ‘Current User’ or ‘Local Machine’).

Note – Be careful to clear the Load From File Name value when saving the Project file containing the actual configurations and settings that will be loaded by Ion. Failing to clear the values properly could result in circular configuration loading attempts or similar issues.

3.5.4. Minimum Logging Level

Ion records logging information to the standard Windows event log under an application-level source named 'Ion'. The Logging Level setting determines the amount and type of data collected in the Windows event log. This table summarizes the various levels and data collected:

Level	Description
All	Writes Trace, Info, Warn, and Error entries
Info	Writes Info, Warn and Error entries
Warnings	Writes Warn and Error entries
Errors	Writes Error entries

3.5.5. Hang Prevention Timeout

The Hang Prevention Timeout value enables an organization to automatically terminate a browser engine process if it goes longer than a predefined number of seconds without a response to the Ion Controller. The Controller will automatically re-launch the stopped process.

A value of 0 or lower will turn off hang prevention. The default setting for this feature is 0.

3.5.6. Show Browsium Loading Page

On older systems, slower network connections or systems with limited memory, users may experience a moment of delay while Ion loads content and attaches to the Internet Explorer frame. This option allows administrators to control the display of the Ion loading page to users while content is loaded.

Loading...



If this page takes too long to load, [click here](#) to re-navigate to [ion:http://ion.aqgrid.com](http://ion.aqgrid.com).

If the problem persists, please contact your system administrator.



By default, this option is set to Disabled and users will see the standard 'blank' page between navigations.

Note — Hyperlinks on the loading page will always update to reference the requested URL. The text on this loading page cannot be edited or customized.

3.5.7. Maximum Pages per Process

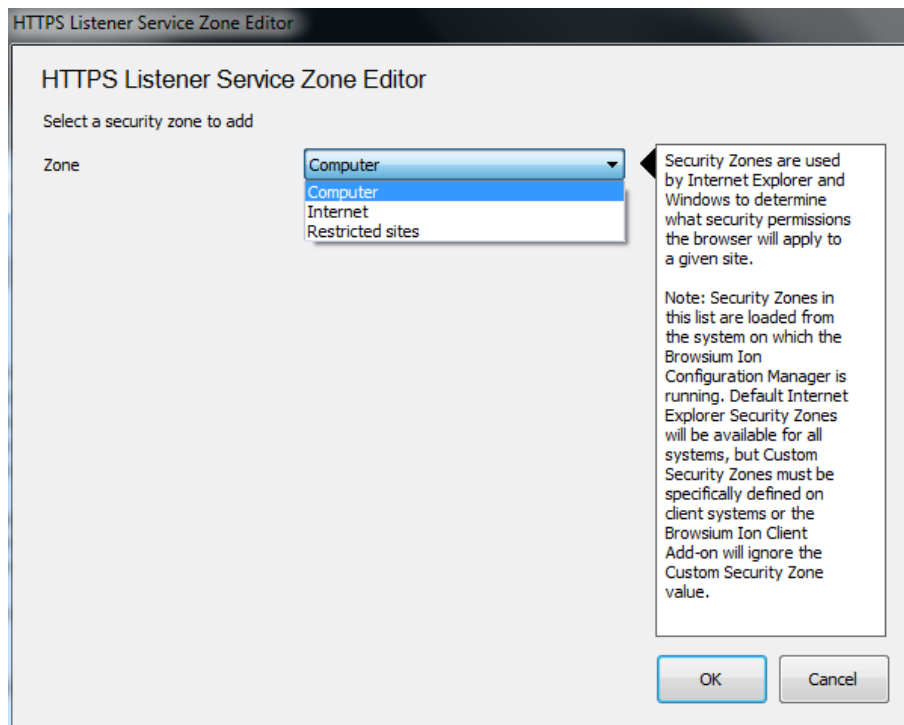
The Maximum Pages per Process value represents the maximum number of pages Ion will allow to run within a process. This value represents “parent” webpages; in Internet Explorer 7 and higher parent pages are analogous to tabs. Parent tabs can have unlimited child windows within a process.

The design of Internet Explorer 8 (and later) limits the number of webpages that can be opened in a single process. Loading too many tabs in a single process may cause Internet Explorer to crash. The Loosely Coupled Internet Explorer (LCIE) feature helps prevent users from seeing this limitation by spreading tabs throughout a number of processes.

Administrators should avoid the Maximum Pages per Process setting value over 15. A value over 15 can trigger memory errors and access violations and may result in application crashes. The default value for this feature is 3.

3.5.9.1. HTTPS Listener Service Zone Editor

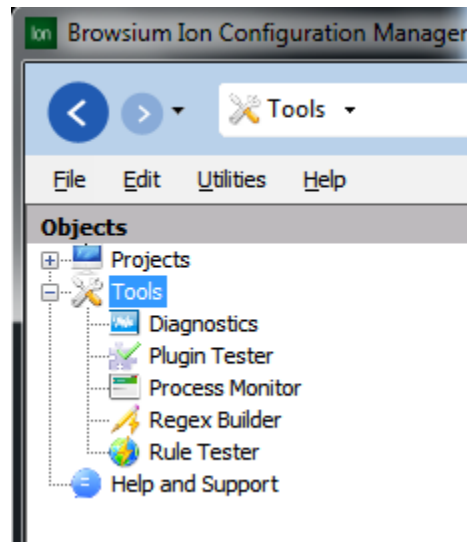
When the Listener Service Zone Editor window is opened, Ion will load and display a list of all configured Security Zones (including Custom Zones) that have not yet been added:



Select the Security Zone needed and click OK.

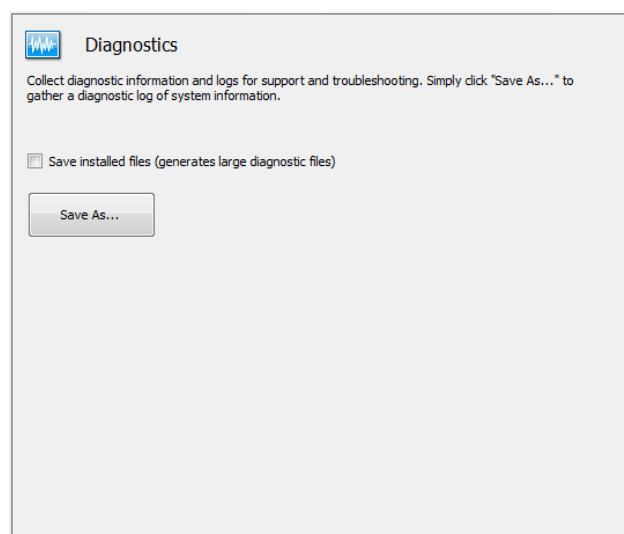
3.6. The Tools Node

The Tools Node was designed to provide a set of ‘helper’ applications for creating, testing and designing Profiles and Rules. Additional Tools will be added later, and can be installed by simply placing the specific DLL file in the directory with the Browsium Ion Configuration Manager and restart.



3.6.1. Diagnostics

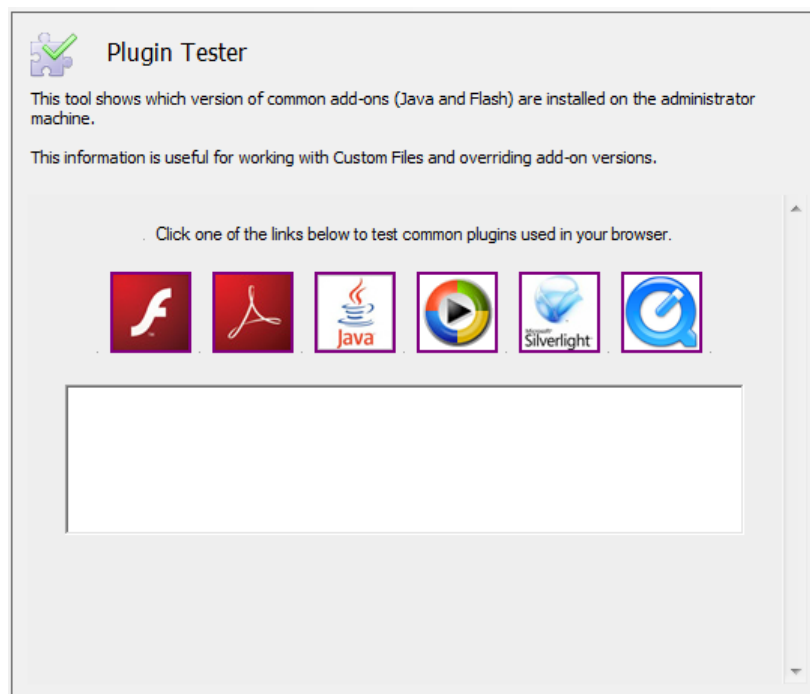
In the event Ion is not functioning properly, you can obtain software support under a support agreement or using the public support site at <http://support.browsium.com>. If the issue cannot be resolved using standard procedures, you may be directed by the Browsium support staff to provide error logs as well as system diagnostics information from the affected PC.



Collecting Diagnostics information requires clicking the 'Save As' button and specifying a location for the output file. The system may take several minutes to gather data on installed components, system values as well as other configuration information. None of the data collected will be used or stored with any type of personally identifiable information.

3.6.2. Plugin Tester

Some web application compatibility issues are related to the specific version of an add-on installed on the system. Many compatibility issues are fixed by loading older versions of the add-on (using the [Custom Files](#) capability). The Plugin Tester Tool is designed to provide administrators with a quick and easy way to verify the currently installed versions of many common add-ons.



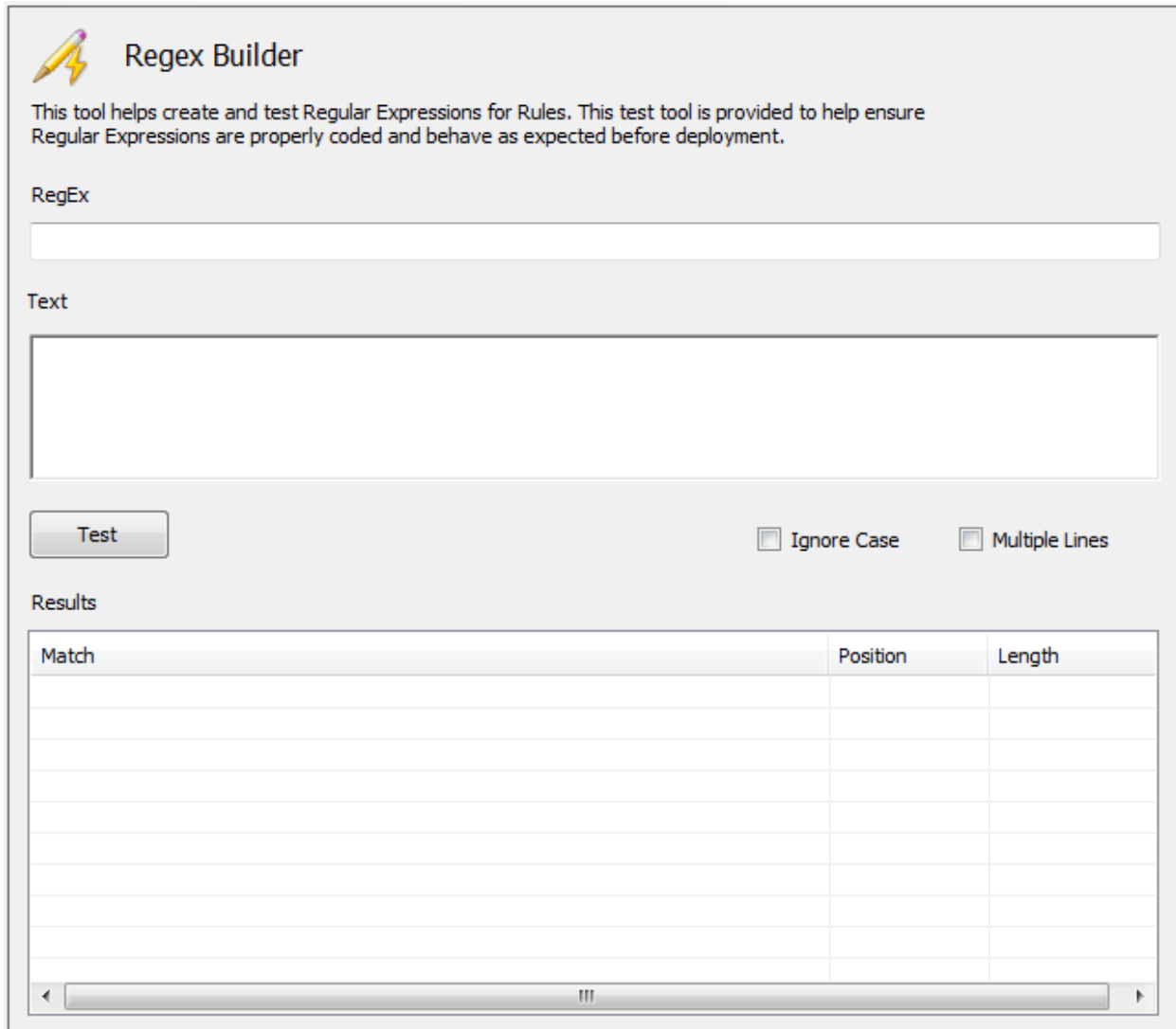
Click one of the icons to display the version number and name of the add-on in the text box.

3.6.3. Process Monitor

Ion includes Process Monitor (from the Sysinternals suite of tools) in the Tools Node to help administrators identify resources being loaded and referenced by a web application. Including Process Monitor eliminates the need for administrators to download and install additional applications for common web application troubleshooting issues.

3.6.4. Regex Builder

The Regex (Regular Expression) Builder is for administrators to create and validate complex Regular Expressions that can be used in the rules evaluation criteria.



The screenshot shows the 'Regex Builder' tool interface. At the top left is a yellow lightning bolt icon. The title 'Regex Builder' is displayed. Below the title is a descriptive paragraph: 'This tool helps create and test Regular Expressions for Rules. This test tool is provided to help ensure Regular Expressions are properly coded and behave as expected before deployment.' The interface includes a 'RegEx' input field, a 'Text' input area, a 'Test' button, and two checkboxes: 'Ignore Case' and 'Multiple Lines'. Below these is a 'Results' section containing a table with three columns: 'Match', 'Position', and 'Length'. The table is currently empty. A scrollbar is visible at the bottom of the results table.

The Regex Builder provides a simple integrated tool for writing and testing Regular Expressions before using them as rules evaluation criteria to help avoid errors in pattern matching.

For more information on the Regex Builder, including a step by step example, please read the 'Using regular expressions in Ion rules' document in the Knowledge Base section of <http://support.browsium.com>.

3.6.5. Rule Tester

Some web applications may require complex Rules with unique pattern matching behaviors. The Rule Tester Tool is designed to assist in troubleshooting Rule evaluation logic. Simply select an active Project and enter the Address and click 'Test'. When the Project is selected, the available list of Rules is displayed in the bottom window.

Rule Tester

This tool is designed to show which Rule is triggered by a given URI and is an ideal way to being troubleshooting when Profiles are not loading content as expected.

Project:

Test Address:

Matching Rule

Rule Name: Value:

Element: Profile:

Operator:

Loaded Project Rule List (Ordered)

Rule Name	Element	Value	Profile

If the tested Address matches a Rule, the Rule's parameters and resulting values will be displayed for easy review.

3.7. The Help and Support Node

The Help and Support Node is designed to provide easy access to product documentation, videos and how-to instruction. Having the Help and Support displayed in the Content pane, administrators can work more quickly and get quick and easy access to the information they need.



Section Four

Configuration Tutorial

In this section you will learn:

- ✓ How to Create a Profile
- ✓ How to Create Rules in Ion
- ✓ How to Remove Rules in Ion
- ✓ How to Work With Custom Files and Registry Editor Options
- ✓ How to Work With Variables
- ✓ How to Work With Custom File Handlers

4. Configuration Tutorial

Once the Browsium Ion Configuration Manager installation is complete, you can begin configuring which sites to display with the Ion add-on using the Browsium Ion Configuration Manager. The Browsium Ion Configuration Manager is provided as a simple interface to create, delete and manage Ion behavior. As a security design, by default Browsium Ion only renders sites explicitly identified in the rule set, so you must create a rule or series of rules in order to use Browsium Ion.

Note — Systems must have the Browsium Ion Client Add-on for the appropriate version of Windows installed in order to use the rules and configurations created in the Ion Configuration Manager.

4.1. How to Create a Profile

The Ion Profiles feature provides the ability to bind specific custom file system, registry and file settings to a specific browser engine. Ion includes eleven Profiles templates that can be used to create Profiles: 'Adaptive IE Quirks', 'Emulate IE7', 'Emulate IE8', 'Emulate IE9', 'IE Quirks', 'Blank Profile (No Engine)', 'IE Edge', 'IE7 Standards', 'IE8 Standards', 'IE9 Standards' and the 'Limited Profile'.

Any Profile can be modified to suit your needs after it is created, but the templates will remain unchanged. Some organizations may not need to make any customizations to the settings defined in the template, while others will require several changes to a Profile in order to make their web applications function properly.

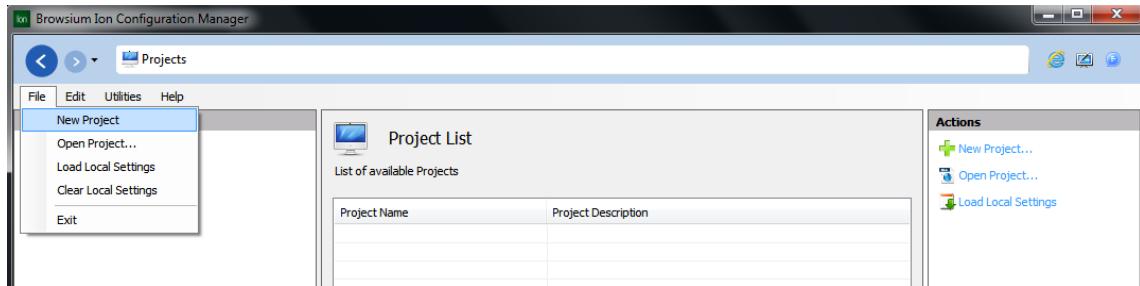
This table shows the specific browser engine version that will be loaded in each scenario:

Browser Engine selected	If IE8 is installed	If IE9 is installed
Adaptive IE Quirks	IE8 Quirks Mode or IE7 Standards Mode (as evaluated by DOCTYPE)	IE9 Quirks Mode or IE7 Standards Mode (as evaluated by DOCTYPE)
IE7 Standards	IE7 Standards Mode for IE8	IE7 Standards Mode for IE9
IE8 Standards	IE8 Standards Mode	IE8 Standards Mode for IE9
IE9 Standards	IE8 Standards Mode	IE9 Standards Mode
IE Quirks	IE8 Quirks Mode	IE9 Quirks Mode
IE Edge	IE8 Standards Mode	IE9 Standards Mode
Emulate IE7	Emulate IE7 Mode for IE8	Emulate IE7 Mode for IE9
Emulate IE8	IE8 Standards Mode	Emulate IE8 Mode for IE9
Emulate IE9	IE8 Standards Mode	IE9 Standards Mode

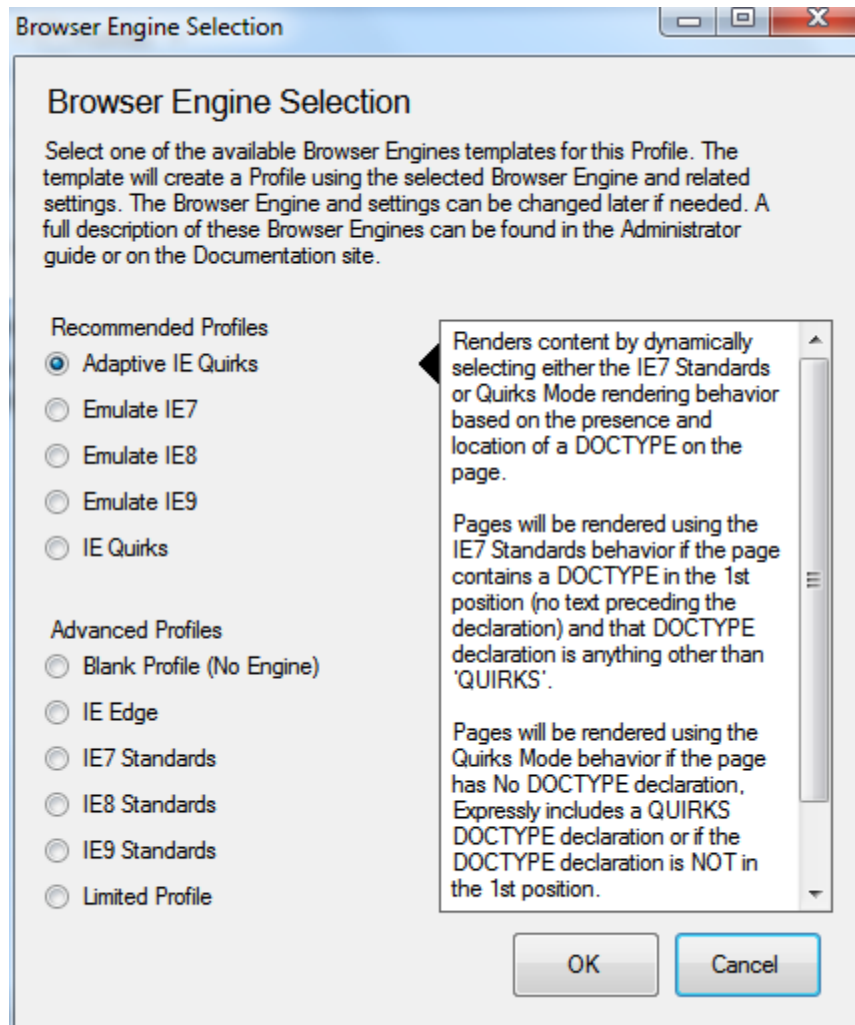
The following steps demonstrate how to create a Profile based on the 'Adaptive IE Quirks' browser engine to render sites using an older version of Java. By design, Internet Explorer can only load the latest version of Java installed on the machine. This design is ideal for security and developer purposes, but it impedes the ability to ensure web application compatibility. This example will illustrate how to create a Profile to load Java 1.4.2 update 19 (1.4.2_19) instead of the newer Java 1.6 update 25 (1.6.0_25) version installed on the system.

Note — Additional information on this topic, including information on running other combinations of Java or how to run the MSJVM can be found online at <http://support.browsium.com> in the “Managing Java with Ion” document.

- 1) Open the Ion Configuration Manager. Since no Rules or Settings are loaded by default, you will need to create a New Project, Open a saved Project or Load Local Settings from under the File menu. If this is the first time you have loaded the Ion Configuration Manager you will have no Project files or local settings on your system so you would create a New Project.

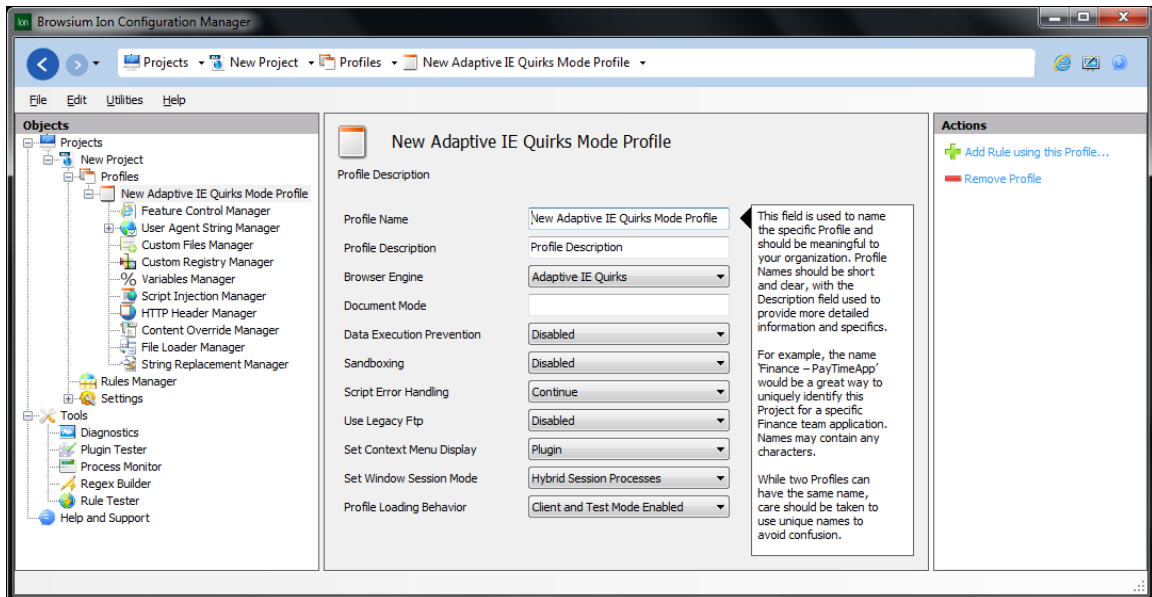


- 2) Click on the Profiles Node, then click the 'Add Profile' link in the Actions pane (or right-click on the Profiles Node and select 'Add Profile') to open the Browser Engine Selection screen:



Select the Profile needed for your web application and click 'OK'. If you are unsure which Profile to use, Browsium recommends starting with the Adaptive IE Quirks Profile for legacy web applications. With newer web applications you can start using the latest available browser engine version and then working backwards as needed.

- 3) Enter a name and description for the new Profile. The name and description fields are for reference purposes only and can be anything useful or meaningful to your organization and environment. Profile Names and Descriptions can be changed at any time.



The Profile will be pre-populated with the most commonly needed settings for the specified Profile. Changes to these values can be made at any time.

4.2. How to Create a Rule

Ion provides several options for rule matching in order to meet the specific needs of your environment. In this example we have identified a website, <http://www.aggrid.com>, which is not compatible with IE8, so we need to make a rule to enable Ion when users visit that web application.

The easiest way to create a Rule using the Profile you just created is to use the 'Add Rule using this Profile' link in the Actions pane. Rules can also be created using the following steps:

1. Click the Rules Manager Node, and then click the 'Add Rule' link in the Actions pane to bring up the Rule Editor window.

The screenshot shows the 'Rule Editor: Ion Demo Site' window. The title bar reads 'Rule Editor: Ion Demo Site'. The main content area is titled 'Ion Demo Site' and contains the text: 'Rules define which profile is loaded for a given set of conditions.' Below this text is a form with the following fields:

- Rule Name:
- Element:
- Operator:
- Value:
- Profile:
- Command File Name:
- Command Arguments:
- Block Navigation:
- Security Level:
- Set Rule:

On the right side of the form, there is a text box with the following text:

This field is used to name the specific Rule, and should be meaningful to your organization. Rule Names should be short and clear and may contain any characters. For example, the name 'HR - Benefits System' would be a great way to uniquely identify this Rule for a specific HR team application.

While two Rules could contain the same name, care should be take to use unique names to avoid confusion.

At the bottom right of the window are two buttons: 'OK' and 'Cancel'.

Note - See the [Rule Editor](#) section for more information on each setting.

Using the Rule Editor, enter a name for the Rule. Rule names are friendly names for organizational and identification purposes only and have no effect on the behavior of a rule. For this example, we will choose "Ion Demo Site".

2. Select an Element type from the dropdown menu. For this example, we will choose the most common and granular type of rules used by customers, “Absolute URI”. An Absolute URI is the exact text excluding any fragments you would see in the browser’s address bar when you are at a site. A table with a list of all rule types and a brief description of each is located in the [Rule Editor](#) section.

Rule Editor: Ion Demo Site

Ion Demo Site

Rules define which profile is loaded for a given set of conditions.

Rule Name	Ion Demo Site
Element	Absolute Uri
Operator	
Value	
Profile	
Command File Name	
Command Arguments	
Block Navigation	
Security Level	
Set Rule	

Select the Element on which the Rule is to act. The most common Element type is Absolute URI, which is the default option for this setting.

See the Administration Guide or Documentation Center for more information and details of each Element value.

- Next, choose an Operator from the dropdown menu. For this example, we will choose “Is”. The operator “Is” allows Ion to open the website only if the value in the rule matches the value in the browser’s address bar *exactly*. Since the condition matches only for the root directory, named pages and sub-sites will not render using Ion, but rather with the installed browser’s normal rendering behavior.

Rule Editor: Ion Demo Site

Ion Demo Site

Rules define which profile is loaded for a given set of conditions.

Rule Name	<input type="text" value="Ion Demo Site"/>
Element	<input type="text" value="Absolute Uri"/>
Operator	<input type="text" value="Includes"/>
Value	<input type="text" value="Is"/>
Profile	<input type="text" value="Is Not"/>
Command File Name	<input type="text" value="Less Than"/>
Command Arguments	<input type="text" value="More Than"/>
Block Navigation	<input type="text" value="Begins With"/>
Security Level	<input type="text" value="Ends With"/>
Set Rule	<input type="text" value="Includes"/>
	<input type="text" value="Excludes"/>
	<input type="text" value="RegEx"/>
	<input type="text" value="Allowed"/>
	<input type="text" value="Medium (recommended)"/>
	<input type="text" value="Enabled"/>

Select the Operator value on which the Rule will evaluate. In addition to common Operator values, Rules can be triggered by complex Regular Expressions, providing the maximum flexibility for any application.

OK Cancel

4. Enter a Value to check for Rule matching conditions. For this example we will use the URI of our application - <http://www.aggrid.com/>.

The screenshot shows a dialog box titled "Rule Editor: Ion Demo Site". Inside, there is a section titled "Ion Demo Site" with the instruction "Rules define which profile is loaded for a given set of conditions." Below this, there are several fields and dropdown menus:

- Rule Name: Ion Demo Site
- Element: Absolute Uri
- Operator: Is
- Value: <http://www.aggrid.com/>
- Profile: New Adaptive IE Quirks Mode Profile
- Command File Name: (empty)
- Command Arguments: (empty)
- Block Navigation: Allowed
- Security Level: Medium (recommended)
- Set Rule: Enabled

On the right side of the dialog, there is a text box with the following text: "The Value field should be the string or integer that must be conditionally matched to instruct the plugin to take over content rendering." An arrow points from this text box to the Value field.

At the bottom right of the dialog, there are two buttons: "OK" and "Cancel".

Note — The trailing forward slash is critical for this particular rule since an Absolute URI must match the text you would see in a browser's address bar when paired with the "Is" condition.

- If you used the Action pane link to create this Rule, the Profile is already defined. Otherwise simply choose “New Adaptive IE Quirks Profile” as the Profile for this rule.

Rule Editor: Ion Demo Site

Ion Demo Site

Rules define which profile is loaded for a given set of conditions.

Rule Name	Ion Demo Site
Element	Absolute Uri
Operator	Is
Value	http://www.aggrid.com/
Profile	New Adaptive IE Quirks Mode Profile
Command File Name	No Profile
Command Arguments	
Block Navigation	Allowed
Security Level	Medium (recommended)
Set Rule	Enabled

Select the Profile needed to properly run the web application. Any configured Profiles in the currently loaded Project will be listed in this dropdown.

OK Cancel

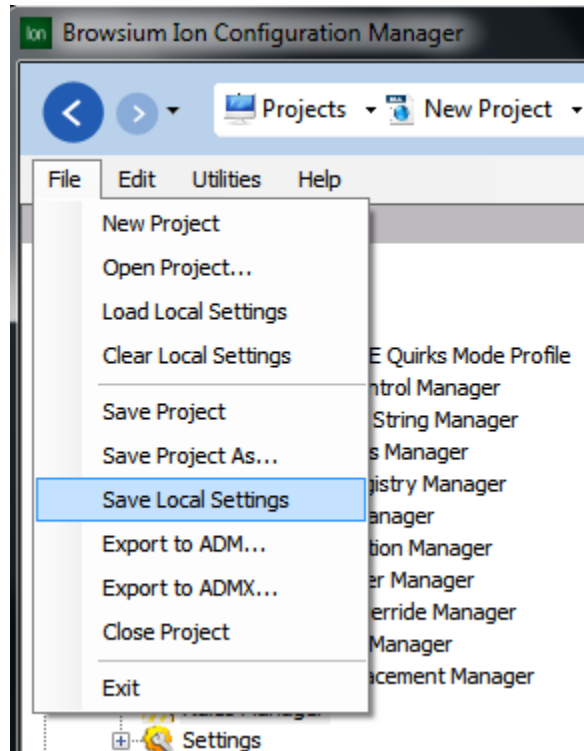
Most Rules would not require modifying any of the remaining values, but some organizations may choose to modify these values for internal requirements or design policies. More information on each of these options can be found in the [Rule Editor](#) section.

- When you are done creating the Rule (or changing a setting), remember to click the ‘OK’ button to save the Rule to the Rules Manager.
- You can continue to add Rules until you have completed all the desired entries.
- Rules and configurations can be saved either as Local Settings or Project files.

Note — Projects should be saved regularly to ensure work is not accidentally lost. Browsium Ion does not auto-save work in progress.

Saving as Local Settings will apply the rules and configuration to the machine instantly, whereas saving the Project file would not apply those rules now but enable you to load them later or pass

them to another machine. For this example, we'll use the Save Local Settings option under the File menu.



In order to save the Ion configuration files to the local system, the user may need to click **'Allow'** on the process elevation request.

9. Once the settings are saved, simply open your browser (IE8/IE9) and browse to the site that satisfies the rule you have just created. You can right-click on the page to see the Ion context menu (including the name of the Profile) to verify the page is rendered by the Ion rendering agent.

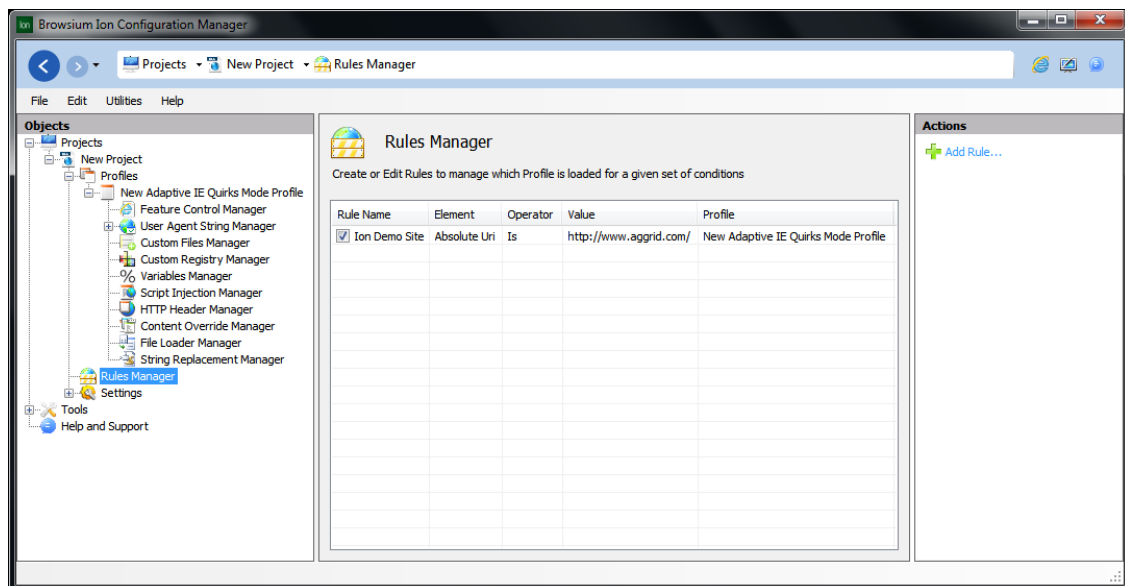


4.3. How to Remove a Rule

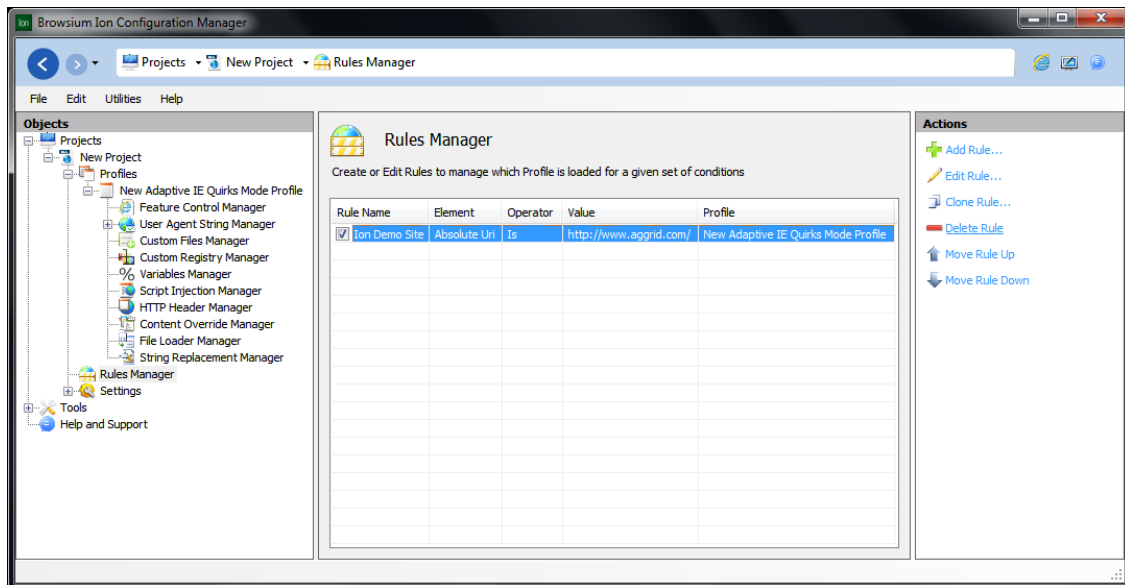
Rules are easily removed using the Browsium Ion Configuration Manager when it is no longer needed. In this example, assume we have taken the needed steps to mitigate the compatibility issues with the web application running on www.aggrid.com, so we no longer need to display the site using Ion.

You can remove a rule by following these steps:

1. Open the Ion Configuration Manager and load the Project containing the Rules you want to remove (using either Load Local Settings or Open Project from the File menu). With the Project loaded, click the Rules Manager node to bring up the ordered list of Rules.



2. Select the Rule you wish to remove from the list of Rules.



3. Click the Delete Rule in the Actions pane.

Note — Remember to save the rules using the File menu (either as a Project File or Local Settings) before closing the Ion Configuration Manager to ensure the deleted Rule is actually removed from your configuration. For organizations using Group Policy to manage configurations, you will need to export the new settings and push out the changes to ensure clients are updated.

4.4. Working With Custom Files, Registry Settings and ActiveX Controls

One of the most powerful features of Ion is that it lets you use files and settings other than those traditionally installed on the PC. This is accomplished, in part, by creating additional Ion profiles.

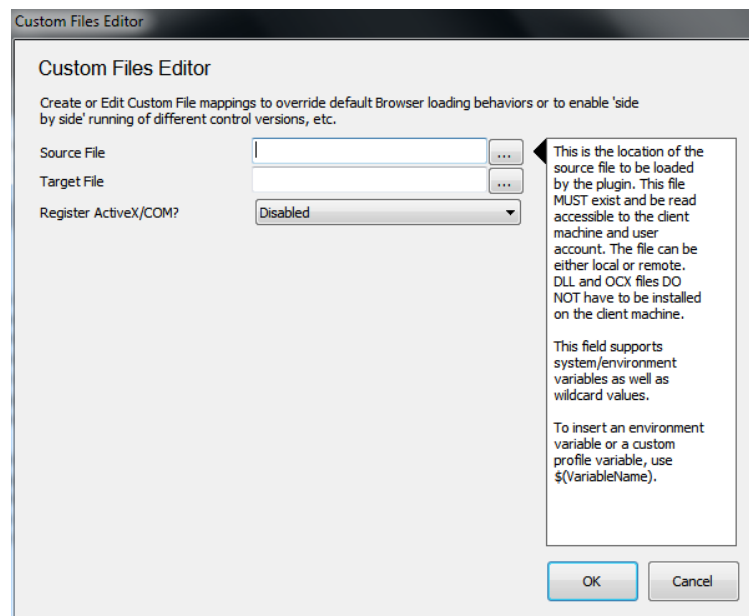
To illustrate how this feature works, the example in this section uses the Browsium demo website, “aggrid.com”, which worked properly in IE6 and is also incompatible with the latest version of Java. To accommodate this site, create a Profile and include a Custom ActiveX control setting to load the older, compatible version of the Java Runtime Environment.

The example used here (requiring Java 1.4.2_19) shows an ActiveX control setting that requires only one file, but it is important to understand Custom ActiveX controls may be comprised of several files (either [.OCXs](#) and/or [.DLLs](#)) as well as a range of registry entries.

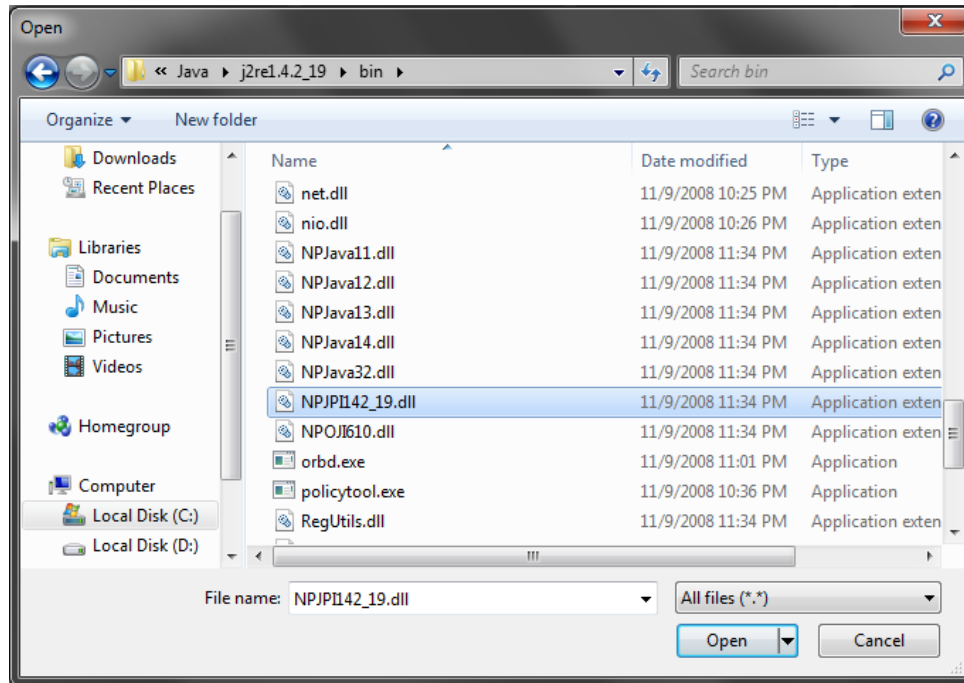
Note — Visit the Ion support site (<http://docs.browsium.com>) for more information on Settings and guidance for commonly requested controls.

The following steps demonstrate how to create the configuration needed to solve the Java compatibility issues on the “aggrid.com” site:

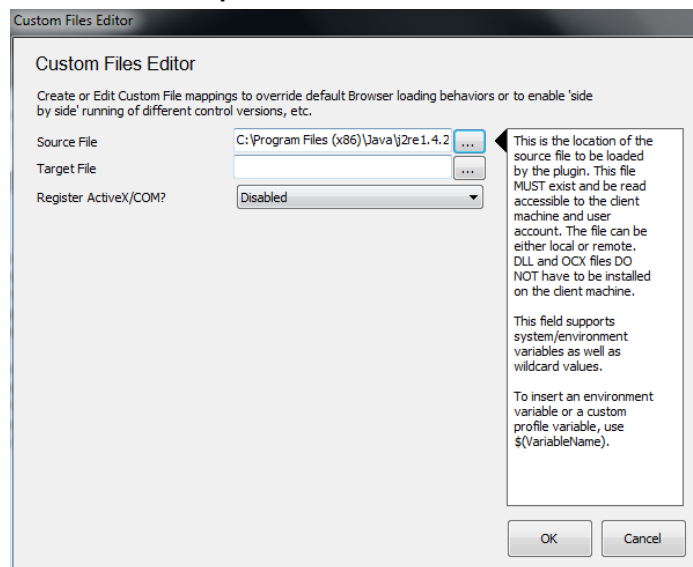
- 1) Create a Profile (This example uses the name “Java 1.4.2_19 & IE Adaptive Quirks”) using the process outlined in the [How to Create a Profile](#) section, then select the Custom Files Manager from under the Profile node. Click the ‘**Add Custom File**’ link in the Actions pane to will bring up the “Custom File Editor” window where you need to identify the source and target files for Ion to manage.



- 2) The Source File is the item needed for your application – in this case the Java 1.4 file (NPJPI142_19.dll). Either manually enter the path of the file or select it by clicking the ‘...’ button to open the file dialog. The required .dll can be found under the “bin” directory where Java was installed.

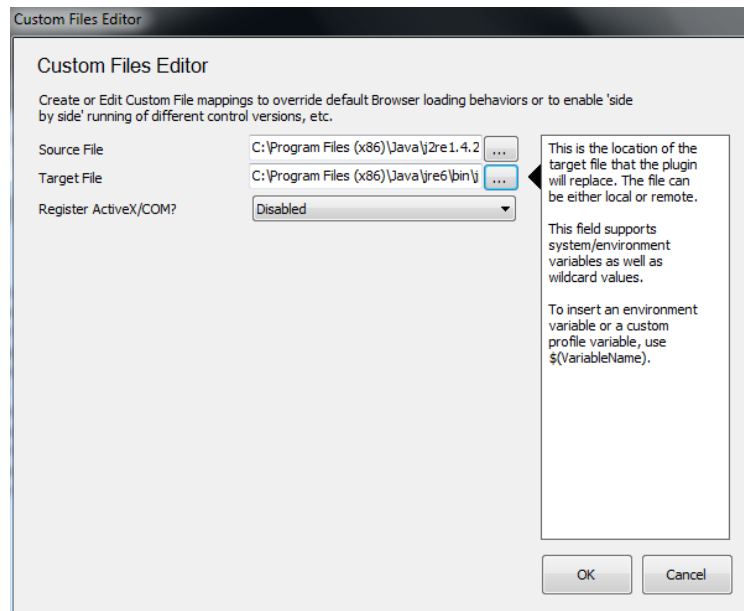


Highlight the desired file and click ‘Open’ to select it.

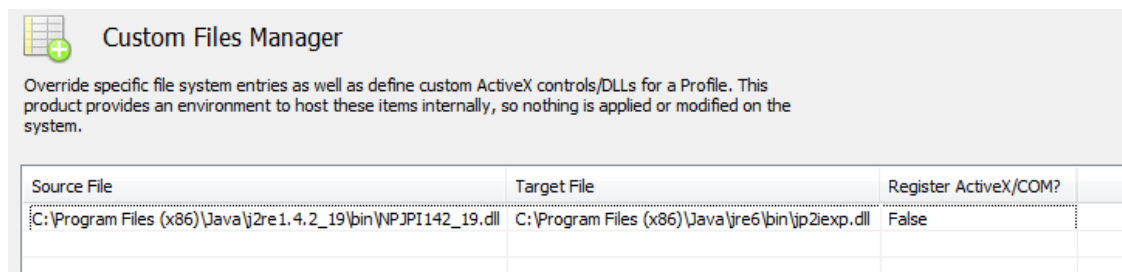


The location and filename will be entered in the Source File text box.

- 3) The Target File is the file to be overridden – in this case Java 1.6 file (JP2IEXP.DLL). Either manually enter the path and location of the file or select it by clicking the ‘...’ button to open the file dialog. The Target File can be found under the “bin” directory where Java 1.6 was installed.



- 4) Leave the ‘**Register ActiveX Control/COM?**’ set to ‘Disabled’ and select ‘**OK**’.
- 5) Your Custom Files Manager window should now show something like this:



Now you need to create a Rule to instruct Ion to automatically render the “aggrid.com” site using this Profile. To get started, click the Rules Manager node.

- 1) Click the ‘Add Rule’ link in the Actions pane.

Rule Editor: New Rule

New Rule

Rules define which profile is loaded for a given set of conditions.

Rule Name	<input type="text" value="New Rule"/>	<p>This field is used to name the specific Rule, and should be meaningful to your organization. Rule Names should be short and clear and may contain any characters. For example, the name ‘HR – Benefits System’ would be a great way to uniquely identify this Rule for a specific HR team application.</p> <p>While two Rules could contain the same name, care should be take to use unique names to avoid confusion.</p>
Element	<input type="text" value="Absolute Uri"/>	
Operator	<input type="text" value="Includes"/>	
Value	<input type="text"/>	
Profile	<input type="text" value="Java 1.4.2_19 & IE Adaptive Quirks"/>	
Command File Name	<input type="text"/>	
Command Arguments	<input type="text"/>	
Block Navigation	<input type="text" value="Allowed"/>	
Security Level	<input type="text" value="Medium (recommended)"/>	
Set Rule	<input type="text" value="Enabled"/>	

- 2) Give the rule a friendly name (e.g. 'Java 1.4 at Aggrid.com') and enter 'aggrid.com' in the 'Value' field. Finally, select the profile we previously created from the 'Profile' dropdown:

Rule Editor: Java 1.4 at Aggrid.com

Java 1.4 at Aggrid.com

Rules define which profile is loaded for a given set of conditions.

Rule Name:

Element:

Operator:

Value:

Profile:

Command File Name:

Command Arguments:

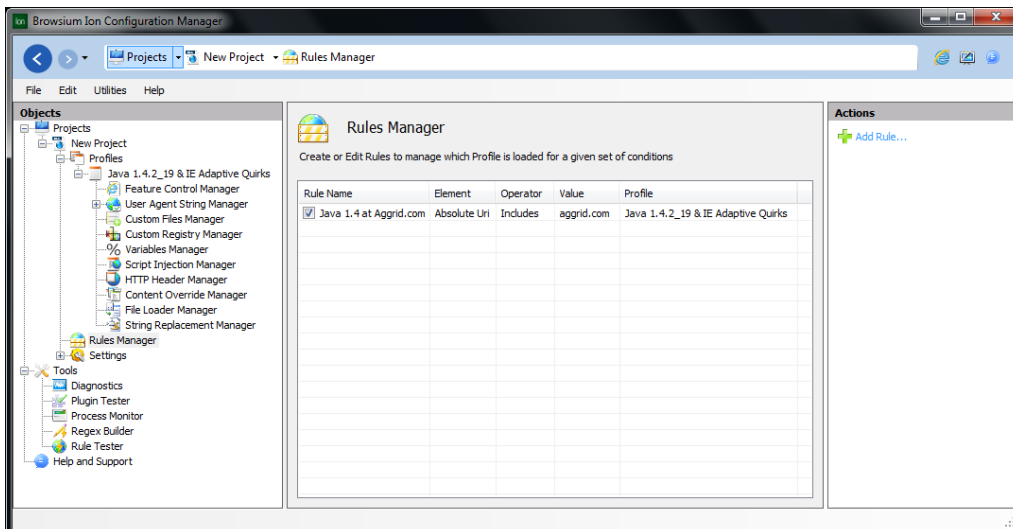
Block Navigation:

Security Level:

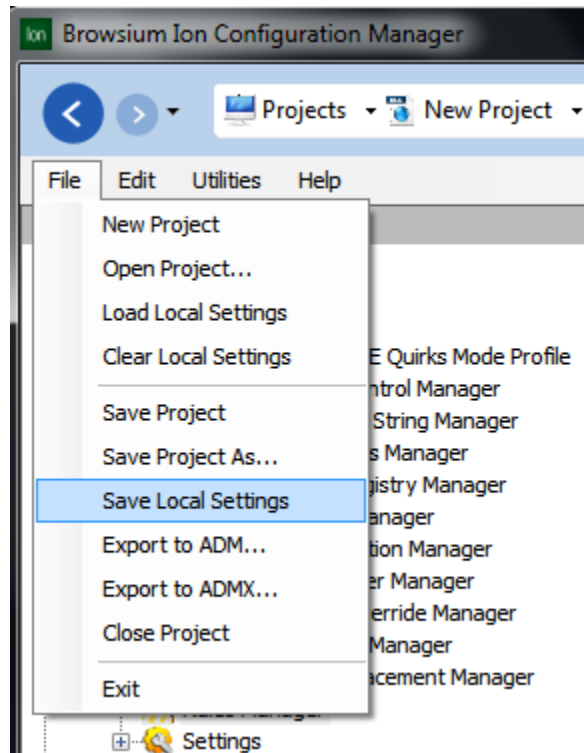
Set Rule:

The Value field should be the string or integer that must be conditionally matched to instruct the plugin to take over content rendering.

- 3) Click 'OK' to add this Rule to the list:



- 4) Your Rule and Profile are now ready to use. Select 'File' from the menu bar, then 'Save Local Settings.'

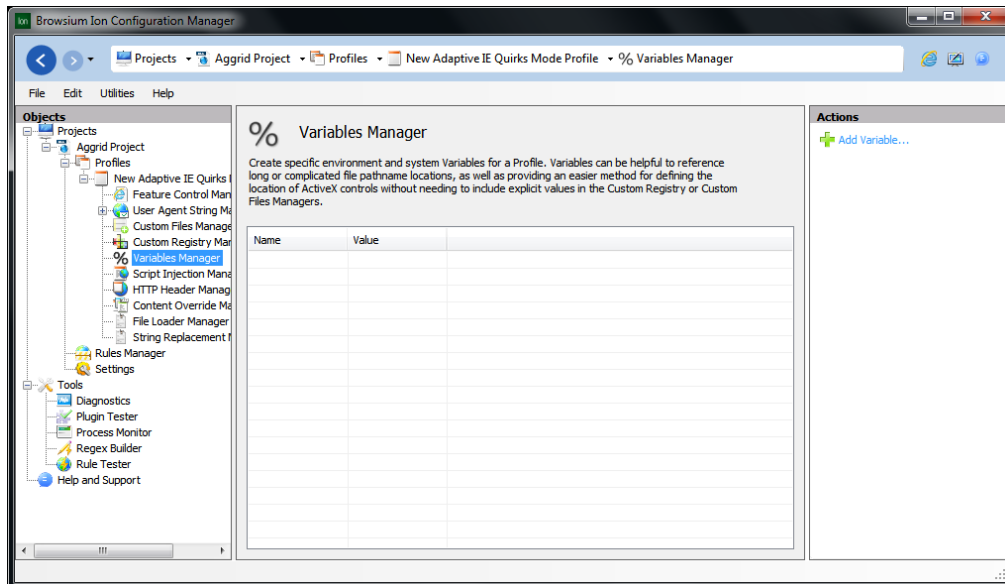


4.5. Working With Custom Environment Variables

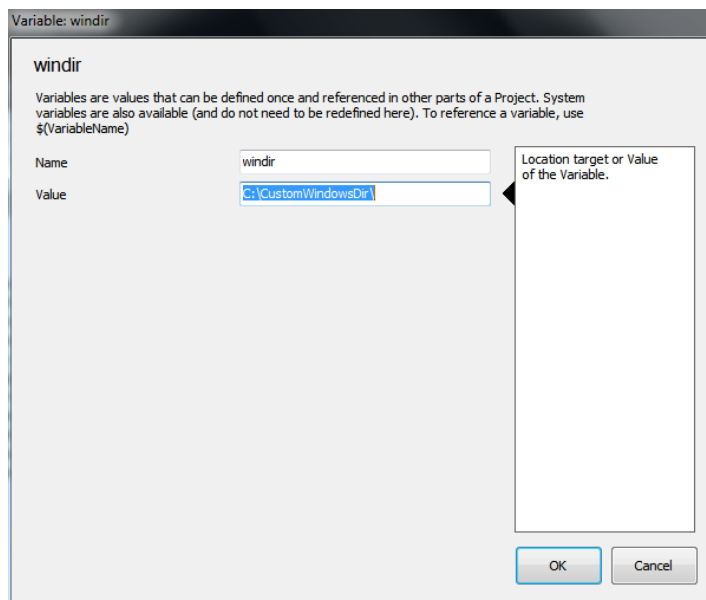
Using system, user and custom environment variables increases flexibility and provides mechanisms to easily manage Registry and file system settings in Ion. Instead of requiring all values to be hard coded, variables can be used to define local or network directory locations.

As an example, you can use the following steps to create a Custom Files Editor to override the default Windows directory location environment variable windir:

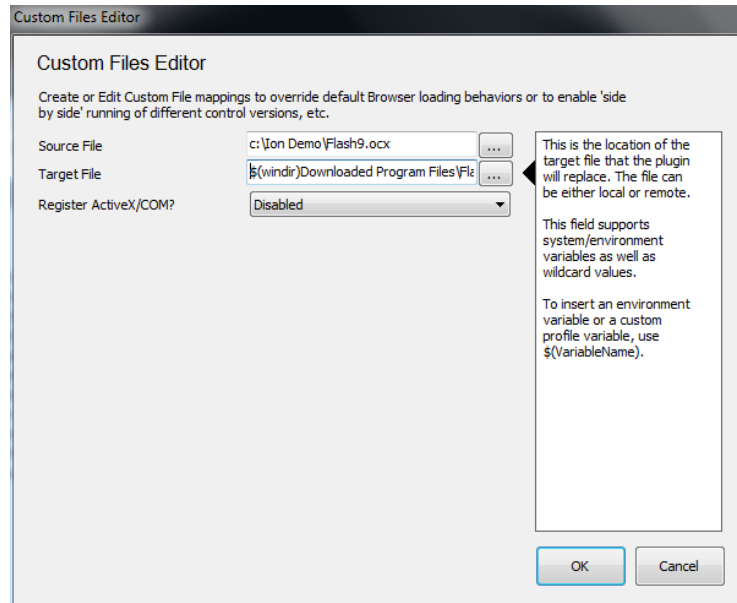
1. Open your Project file and select the desired Profile. Next, click on '**Variables Manager**', then click the '**Add Variable**' link in the Actions pane.



2. First, create the variable using this window. Any variables defined here can be used in the Custom Registry Manager and Custom Files Manager sections for more flexibility in pathname declarations. For example, to override the system windir value:

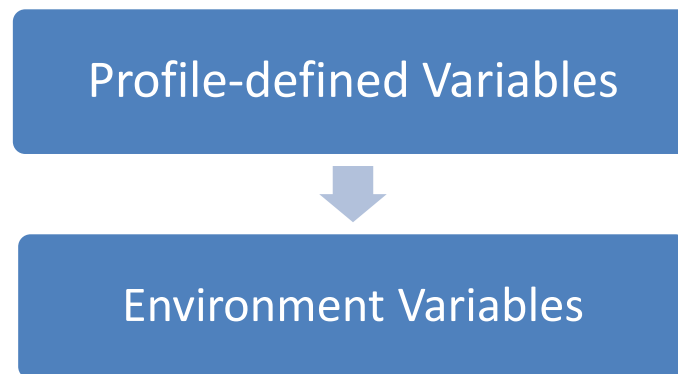


- Variables defined in a Profile can be used to override a system variable by simply redefining the desired variable in this section. Now references to `windir` will use the new value when referenced in any Ion setting or configuration:



Note – Ion supports the ability to append, rather than replace, existing system variables. Appending to existing variables is helpful for things like the PATH variable where replacing it could cause issues.

Ion loads and recognizes Variable values and locations using the following order of precedence:



This means that Ion will always chose a Variable defined in an Ion Profile over one defined in either the User Environment settings or the System Environment settings when Variables of the same name exist across those locations. In the same vein, Ion will choose a Variable defined in the User Environment settings over one defined in the System Environment settings when Variables with the same name are defined concurrently.



Section Five

Rule Writing Basics

In this section you will learn:

- ✓ Recommendations for Rule Writing
- ✓ Using Test Mode for Instant Testing

5. Rule Writing Basics

You completely control the Ion experience. We do not pre-ship any rules. There is nothing hidden from you and we do not make any decisions for you. We can, however, provide some guidance on writing rules that might work effectively for your organization.

For security purposes, we have designed Ion not to render content that fails to match a declared Rule. This opt-in model prevents unwanted content from being displayed using anything other than the installed version of Internet Explorer. While the Ion design increases security and protects both systems and users from inadvertently loading malicious content, unmatched rule content can still be displayed.

5.1. Recommendations for Writing Rules that Work Well

Ion was designed so users browsing the web are unaware anything ‘special’ about the content they are viewing and to remove from users the burden of ensuring line-of-business applications ‘just work’. This is the key to a successful experience. Users should not be concerned with the browser rendering engine that they are using with line-of-business applications and websites. Anything else can disrupt and interfere with workflow and efficiency. When writing rules with the Ion Configuration Manager, there are some things to take into consideration that can help your users have a better experience.

Many organizations have just begun to assess which applications and websites are incompatible with newer versions of Internet Explorer. Without a detailed review of which applications need remediation, organizations may look at building broad Rulesets. Most internal web applications are accessed through the Intranet Zone so, at first, you may want to write a Rule that covers the Intranet Zone. This will ensure that all your internal web applications render as they have in previous versions of Internet Explorer. Over time, you can build a library of rules that cover the specific web applications which either do not work with later versions of the browser or still need to be tested. Then, you can remove the overarching intranet rule so that the specific rules apply.

Some web applications used by your organization may be accessed in sites resolved in the Internet Zone. We *strongly* advise you not write a Rule that covers the Internet Zone because that could cause all external websites to be rendered with a less secure rendering and scripting engine or expose your organization’s workstations to attacks targeting outdated and insecure add-ons. For sites in the Internet Zone needing Ion, you should write rules to specifically target your organization’s web applications.

Note — Browsium strongly discourages writing a Rule that covers the Internet Zone.

5.2. Working with Web Application Assessment Tools

While Ion provides a solution for Web Application Continuity issues, you must create a rule set to make your line-of-business applications function properly. For organizations that have been actively assessing application compatibility issues in their environment, making the rules list can be relatively straightforward. For organizations just starting their assessment efforts, making the rules could prove complex – but the Local Intranet rule could be a short-term solution while more assessment is performed.

5.3. Using Test Mode

Sometimes you may want to try a site with Ion rather than creating a Rule, saving it and loading the web application. Ion includes the ability to enable Test Mode for instant site testing using the 'Admin Toolbar' that is installed with the Ion Configuration Manager. The 'Admin Toolbar' is accessed directly inside Internet Explorer and can switch instantly between different Profiles (for any Profile available on the local machine). To enable Test Mode, simply open Internet Explorer and click the 'Test Mode: Off' section of the 'Admin Toolbar'.

Note – Test Mode can use any Profile where the Profile Loading Behavior is set to either 'Client and Test Mode Enabled' or 'Test Mode Only Enabled'.

With Test Mode enabled, simply enter the website Address and the site will be loaded using the Profile listed in the Admin Toolbar. The website can be instantly viewed using any other available Profile by selecting another Profile from the list in the Admin Toolbar. To verify a site is displayed using the desired Profile, simply right-click inside the tab and see the Profile name listed in the context menu:



Test Mode is only available for users on a system with the Browsium Ion Configuration Manager installed and the Browsium Ion Admin Toolbar enabled; it cannot be used or deployed to all users via the Client add-on. Customers are advised to use caution when loading sites located in the Internet Zone, as the Test Mode feature works regardless of what Zone the content is in and content could be rendered using a lower security context than intended.

Note — Enabling Test Mode will cause Browsium Ion to render Rule-matching sites with the Test Mode Profile selection instead of the Profile listed in the defined Rule.



Section Six

Managing Ion in the Enterprise

In this section you will learn:

- ✓ How Rules and Settings are Applied with Ion
- ✓ Using Ion with Group Policy
- ✓ Using Ion with Flat File Configurations
- ✓ How Ion Keeps Users Secure Through Admin-only Configurations

6. Managing Ion in the Enterprise

In this section, you will learn how to prepare Ion Configurations and Project files for deployment. Ion Configurations and Project files can be deployed using a range of methods and tools. This section focuses on two of them:

- Group Policy
- Flat File Deployment

6.1. Ion Rules Behavior

Since Ion uses a Rule-based opt-in model, the ordering of Rules is critical to ensure your web applications function properly. The design of Ion allows an organization to manage configurations in either centralized or distributed models. If a centralized team manages the configuration, there is less likelihood of overlapping configurations. Organizations that distribute configuration settings to various business units or web application teams may encounter conflicting configurations. In these instances Ion will always use the 'Last In, First Out' (LIFO) method, meaning that newer configuration values will overwrite previously read values for the same name.

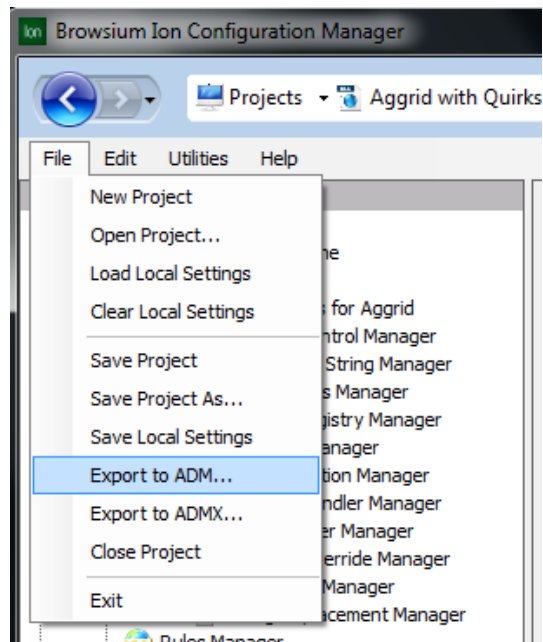
For organizations using Group Policy and multiple Organizational Units, similar logic applies. For example, if all company users receive one set of rules defined by the corporate IT department, and a non-overlapping configuration is only applied to members of the Finance department, the two sets of configurations will simply be additive, giving Finance users a larger set of rules than other company employees. If there is a conflict, LIFO applies again and whatever rules were read last will overwrite previous values.

In addition to the process outlined here, specific examples and step by step directions for managing Ion with Group Policy can be found online at support.browsium.com.

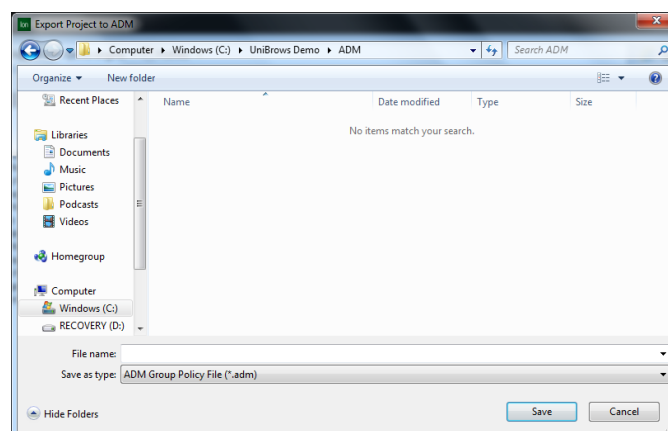
6.2. Export Rules to Deploy Using Group Policy

It's easy to prepare Ion rules and configurations for deployment via Group Policy in your choice of ADMX or ADM file formats. The following steps demonstrate how you can export Group Policy data from the Ion Manager.

1. Open the Ion Configuration Manager. Click the File menu and select the appropriate Group Policy export option (ADM or ADMX).



2. Choose a location to save the export file.



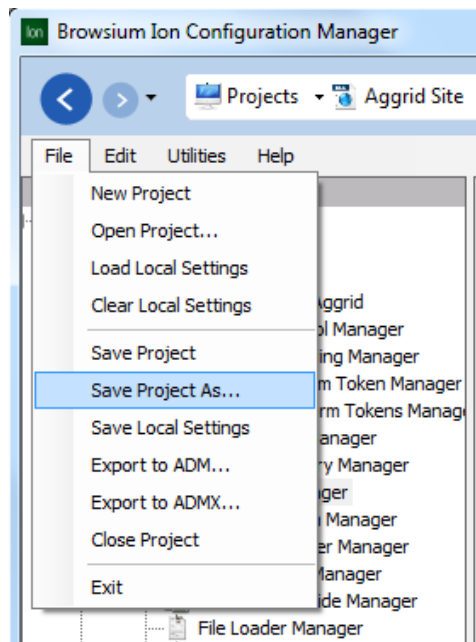
3. After exporting the rules and configurations into an ADM/ADMX file, simply import them to your Group Policy environment.

6.3. Exporting Rules for Flat File Distribution

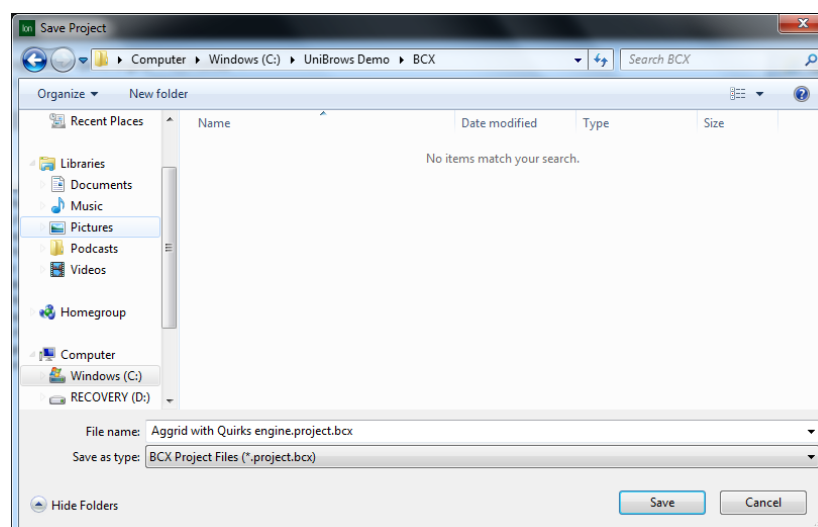
Ion also supports flat file-based rule deployments. Projects are standard XML documents, allowing you to take full advantage of this versatile format.

The following steps demonstrate how you can prepare an Ion project file for distribution over your network:

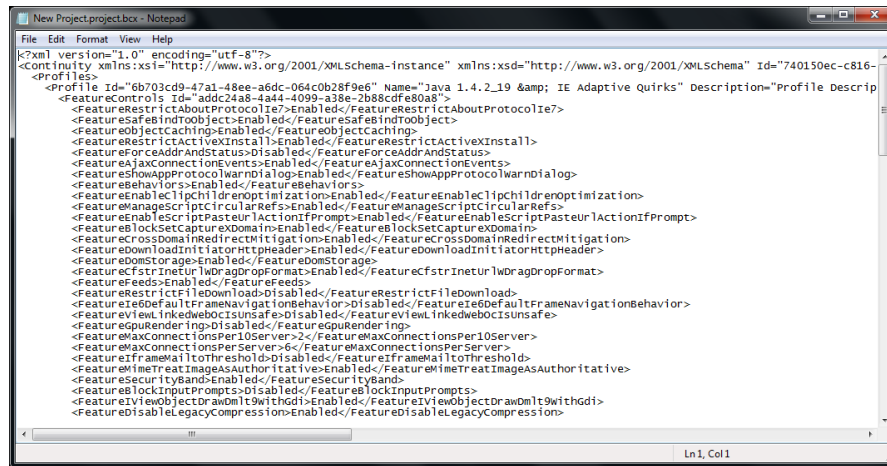
1. Open the Ion Configuration Manager and ensure the desired Project is loaded. Click the File menu, and then select 'Save Project' (or 'Save Project As').



2. Choose a location to save the project file.



3. (Optional) You can open your project file using Notepad or other text editors.



```

New Project.project.bcx - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="utf-8"?>
<continuity xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" Id="740150ec-c816-
<Profile Id="6b703cd9-47a1-48ee-a6dc-064c0b28f9e6" Name="Java 1.4.2_19 & IE Adaptive Quirks" Description="Profile Descrip
<FeatureControls Id="addc24a8-4a44-4099-a38e-2b88cdf80a8">
  <FeatureRestrictAboutProtocol7>Enabled</FeatureRestrictAboutProtocol7>
  <FeatureSafeIndObject>Enabled</FeatureSafeIndObject>
  <FeatureObjectCaching>Enabled</FeatureObjectCaching>
  <FeatureRestrictActiveInstall>Enabled</FeatureRestrictActiveInstall>
  <FeatureForceAddrAndStatus>Disabled</FeatureForceAddrAndStatus>
  <FeatureAjaxConnectEvents>Enabled</FeatureAjaxConnectEvents>
  <FeatureShowAppProtocolWarning>Enabled</FeatureShowAppProtocolWarning>
  <FeatureBehavior>Enabled</FeatureBehavior>
  <FeatureEnableJipChildrenOptimization>Enabled</FeatureEnableJipChildrenOptimization>
  <FeatureManageScriptCircularRefs>Enabled</FeatureManageScriptCircularRefs>
  <FeatureEnableScriptPasteurActionIfPrompt>Enabled</FeatureEnableScriptPasteurActionIfPrompt>
  <FeatureBlockSetCaptureDomains>Enabled</FeatureBlockSetCaptureDomains>
  <FeatureCrossDomainRedirectMitigation>Enabled</FeatureCrossDomainRedirectMitigation>
  <FeatureDownloadInitiatorHTTPHeader>Enabled</FeatureDownloadInitiatorHTTPHeader>
  <FeatureDOMStorage>Enabled</FeatureDOMStorage>
  <FeatureCFSTRNetURLDragDropFormat>Enabled</FeatureCFSTRNetURLDragDropFormat>
  <FeatureFeeds>Enabled</FeatureFeeds>
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  <FeatureIE6DefaultFrameNavigationBehavior>Disabled</FeatureIE6DefaultFrameNavigationBehavior>
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  <FeatureGPURendering>Disabled</FeatureGPURendering>
  <FeatureMaxConnectionsPerServer>2</FeatureMaxConnectionsPerServer>
  <FeatureMaxConnectionsPerServer>6</FeatureMaxConnectionsPerServer>
  <FeatureIFrameAlertThreshold>Disabled</FeatureIFrameAlertThreshold>
  <FeatureMimeTreatImageAsAuthoritative>Enabled</FeatureMimeTreatImageAsAuthoritative>
  <FeatureSecurityBand>Enabled</FeatureSecurityBand>
  <FeatureBlockInputPrompts>Disabled</FeatureBlockInputPrompts>
  <FeatureIViewObjectDrawOmit9withgdi>Enabled</FeatureIViewObjectDrawOmit9withgdi>
  <FeatureDisableLegacyCompression>Enabled</FeatureDisableLegacyCompression>

```

Note — Browsium does not recommend using anything other than the Browsium Ion Configuration Manager for editing Rules and configurations, unless directed to do so by Browsium Support.

4. Use your preferred method of software distribution to propagate the flat files to the end-user machines, but be sure to follow the process outlined in the [Load Configuration from File](#) section to ensure proper management of Ion with flat files.

6.4. Why Users Can't Create Their Own Rules

Only Administrative installs of Ion are capable of creating rules. The justification for this design boils down to a simple reason: security.

Older web applications and ActiveX controls were not designed with modern exploits in mind and may not be updated as frequently as their newer counterparts (or at all, in the case of end-of-life software). That's why it's important to run modern, up-to-date software for normal, everyday web browsing. Ion helps organizations do just that, allowing them to migrate to the latest platforms while continuing to use the legacy software on an as needed basis.

A user faced with an incompatible web application might be tempted to use Ion excessively or even exclusively. But running Ion to render like IE6 and exposing outdated ActiveX Controls to the open Internet just isn't a good idea.

Compatibility problems are frustrating and incur a cost to users' productivity. Since users are not given a way to enable Ion manually to 'fix' something that appears to be broken, we encourage companies to use existing support feedback mechanisms, such as helpdesk or support escalation systems, to give users ways to provide feedback and get new sites added to the Ion rules lists.



Appendix A

Appendix A: Troubleshooting

In this section you will learn:

- ✓ How to Recognize Issues with an Ion Configuration
- ✓ What to do When Ion is Not Working as Expected

A. Troubleshooting

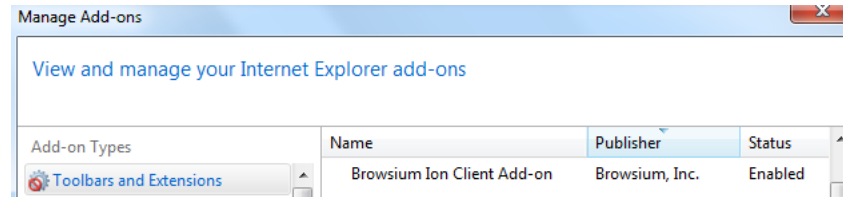
A.1. Ion Rule or Test Mode Fails To Engage

You may encounter a scenario in which Ion fails to engage on one or websites based on rules you've created or based on your Test Mode settings.

The following points may guide you to a resolution:

- **Review System Prerequisites**
 - Check to see that the target computer meets the performance and storage requirements to run Ion.
 - Confirm that .NET 2.0 Service Pack 2 is installed on the computer running the Ion Client installation.
- **Allow Ion to Finish Loading**
 - Ion may take up to 10 to start and load all components properly.
 - If you see blank pages and the 'standard' IE context menu, it is possible Internet Explorer was started before Ion loaded all the necessary files. Since the Controller process only needs to be started once, simply shutdown Internet Explorer, restart the Ion controller and wait a few seconds before restarting Internet Explorer.
- **Verify the Ion Installation Files**
 - If you are using a computer where both the Ion Configuration Manager and Ion Client Add-on are present, ensure that they are installed and running.
 - If you are using a computer where only the Ion Client Add-on is installed, verify that it is correctly installed and running.
- **Ensure Matching Versions of the Configuration Manager and Client Package are Installed**
 - If you installed previous versions of Ion, make sure that you are using the Ion Configuration Manager for which the Major, Minor, and Update numbers match that of the Ion Client Add-on currently installed on a target machine.
- **Confirm the Ion Executable Files are Running**
 - Check to see that the Ion Controller (`Browsium.Continuity.Controller.exe`) is running on the target machine.
 - Verify the Browser Engine/Profile executable files (`Browsium.Continuity.InternetExplorer*.exe`) are running.
- **Ensure the Ion Plugin is Enabled and Running**
 - Confirm the Browsium Ion Client Add-On is seen and loaded by Internet Explorer

- Open Internet Explorer and open the Manage Add-Ons dialog. Do you see the Ion client add-on installed? Is it enabled?
- An Internet Explorer instance that correctly loads the Ion Client Package Add-On will display the following information in the Manage Add-Ons dialog:



- **Try Using Test Mode**

- If you do not have Test Mode enabled already, or if Test Mode is working when rules are not, turn on Test Mode in the Admin Toolbar.
 - To enable Test Mode, click the 'Test Mode: Off' section of the Admin Toolbar.
 - Select the Profile you wish to use in Test Mode when evaluating pages.
- Enter the URL or URLs in question into the Address Bar to load a web page or application using the specified Profile.
- If Test Mode works when a Rule does not:
 - Review the rule(s) for errors.
 - Try using the Rule Tester Tool to verify conditions are being met as expected.
 - Try using alternate Element or Condition settings for the rule(s).

Note — Test Mode is only available for users on a system with the Browsium Ion Configuration Manager installed and Admin Toolbar enabled; it cannot be used or deployed to all users via the Browsium Ion Client add-on.

- **Visit the Forums or Contact Support**

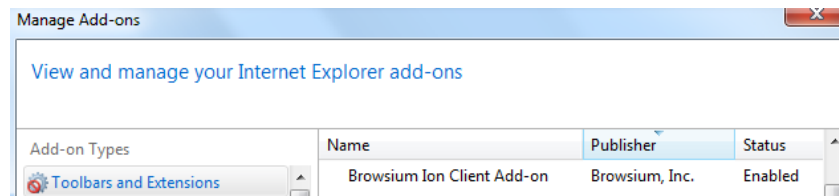
- If all of these steps fail, consider posting a question on the Browsium Support Forums.
- If you have a support evaluation or contract, contact your service integrator, or the Browsium Support team for one-on-one guidance

A.2. Correct Profile Does Not Load for a Web Site

If you are experiencing an issue where a specific Ion Profile does not load for one or more web sites, the following steps may help resolve your issue.

1. Check that you have Rule covering the website or web application in question.
 - a. If testing locally, make sure you have saved the current settings to the local machine or current user

2. Open the Task Manager and check that the `Browsium.Continuity.Controller.exe` (Controller), the `Browsium.Continuity.InternetExplorer*.exe` (IE Engine) processes are running.
3. In Internet Explorer, open the Manage Add-Ons window, and check that the Ion Plugin for Internet Explorer is enabled. Your configuration should match the configuration in the screenshot below:



4. If the Configuration Manager is installed on the machine, try to load the site manually using Test Mode in the Admin Toolbar.

A.3. Browser Window Doesn't Get Focus Automatically

Some users may experience 'focus' issues where a web page or web application loads and the user is unable to interact with the browser window automatically. This issue is related to how Windows provides focus control (the ability to receive input). Users will need to click inside the browser tab window to ensure proper focus.

A.4. Ion Not Working Properly in IE 6/7/10

At this time Browsium Ion is only supported for Internet Explorer 8 and 9, so you may see unexpected behavior when trying to install and run Ion with other versions of Internet Explorer.

A.5. The Controller Becomes Unresponsive

Restart using the included command file (`Browsium.Continuity.RestartController.exe`) which can be found in the Ion Client add-on install directory.