Troubleshooting FAQ and Guide for:

Java and IE Connectivity for PXMeters

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Note:

Date: 4/26/2016

Overview

Java and Internet Explorer are two technologies that are constantly evolving due to the increased amount of scrutiny that each respective product has placed upon itself in the world computing community. As each technology/product is updated, several considerations may need to be taken into account to ensure a smooth user experience.

The following document provides guidance and notes of consideration for interacting with the Eaton Power Xpert Meters (PXMP, PXM2000, PXM4/6/8k).

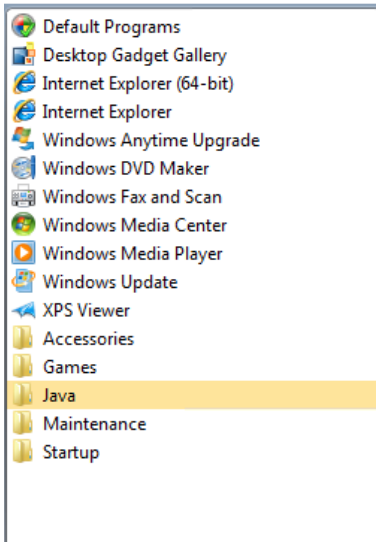
Minimum Software Requirements for Power Xpert Meter Connectivity

- **Minimum Java Revision Support:** Java 8-u30 and later
- **Windows Internet Explorer Revisions Supported:** IE 9, IE 10, IE 11 (32-bit and 64-bit platforms)
    - **NOTE – Internet Explorer 8 is no longer supported by Oracle and the Java Runtime Engine. As such, Eaton's CST will not entertain technical support issues concerning Power Xpert Meter connectivity and IE8.**

Internet Explorer v9, and v10; 32-bit vs 64-bit Considerations

Given the span of Windows operating system version existing across a number of environments, it's difficult to provide factual documentation relative to knowing whether a user has a 32-bit or 64-bit version of IE installed. IE9, and IE10 can use either the 32-bit or 64-bit version of Java provided that they match it to the platform version of IE that they decide to launch.

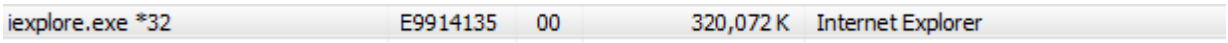
By default, IE9, and IE10 run as 32-bit applications unless a user accesses the Windows start menu and chooses the 64-bit version. In the example below, shortcuts for both platform versions existed in the Start menu. It should be noted that shortcuts for both DO NOT exist on operating systems where IE11 is loaded.



The easiest way to determine whether an Internet Explorer user is currently using the 32-bit or 64-bit version of the program is to have them launch Task manager and view the details from the Processes tab.

If iexplorer.exe is listed – then this signifies that the 64-bit platform application is being used.

However, if the user has iexplore.exe *32 listed – then this signifies that the 32-bit platform version of IE is being used.



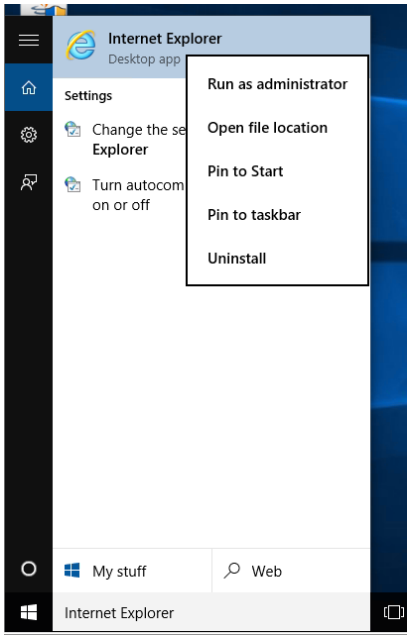
Internet Explorer 11 – Requires Java 32-bit

Internet Explorer 11 is installed as a native 64-bit application on most variants of Windows. When you launch IE11, IE11 operates as a 64-bit application but utilizes 32-bit instances (tabs) of Internet Explorer for backwards compatibility.

There is a method that allows IE11 to run its tabs in isolated 64-bit mode, however, attempting to steer the customer down that path would not produce gratifying results as it requires hacking the Windows registry to do so.

In order to log-in to a PXMeter and view its data, the 32-bit version of Java appears to be required in order to view PXMeter content via Java. This appears to be related to all tabs being open as 32-bit instances. Note that it may be necessary for a customer to manually download the 32-bit version of Java from www.java.com as Internet Explorer may deterministically download the 32-bit or 64-bit version with no rationale once directed to the web site.

About Internet Explorer 11 and Windows 10



The Windows 10 operating system is being adopted rapidly by end-users of existing Windows 7 and Windows 8.1 installations. New to Windows 10 is a brand new browser called Microsoft Edge. This new browser does not support Java or other third-party plugins.

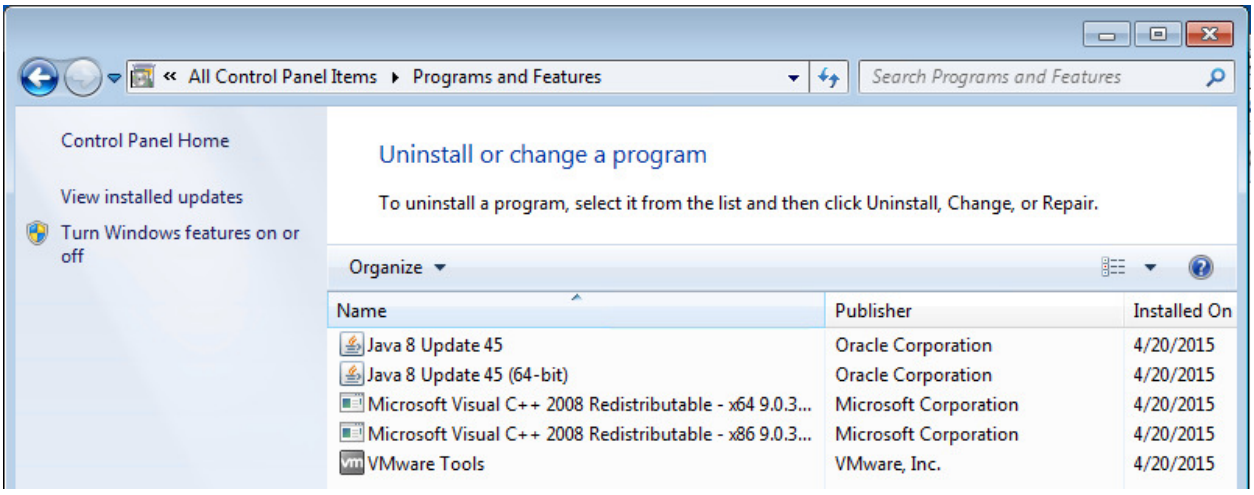
To view Power Xpert Meters that utilize Java, you must use Internet Explorer. By default, Windows 10 does not publish a shortcut to Internet Explorer in the Windows start menu. As a result, you must create a shortcut by either creating a *Pin to Taskbar*, or *Pin to Start*. To do this, simply type Internet Explorer into the Universal Search window. Once found, right-click on the Internet Explorer desktop application listing and select one of the pin options.

Determining Which Java Platform Is Installed

It may be difficult to determine which platform of Java is installed on a customer's machine. To easily identify which platform (32-bit or 64-bit) is loaded on a computer, access the Control Panel's Programs and Features utility.

In the example below, notice the difference between each. The 64-bit version of Java contains the platform notation in parenthesis, whereas the 32-bit does not.

NOTE – Eaton recommends checking the Programs and Features module of Windows Control Panel to verify the platform type of Java that is installed on your computer.



Java 8-u30 to Present

Product and FW Rev	Supported?	Notes
PXM 4/6/8k – 13.3.5.6 and later	Yes	• Add IP address of device into the Java Exception Site List via Java Control Panel.
PXM 4/6/8k - 13.3.5.4	Yes	• Add IP address of device into the Java Exception Site List via Java Control Panel. • Re-enable SSLv3 through the java.security file located in the \lib\security\ of your Java installation.
PXM 4/6/8k - 13.3.4.3 and prior	Yes	• Add IP address of device into the Java Exception Site List via Java Control Panel.
PX 4/8/8 (1st Gen) – v12.1.6	Yes	• Add IP address of device into the Java Exception Site List via Java Control Panel.
PXM2000 – v2.1.4	Yes	• Add IP address of device into the Java Exception Site List via Java Control Panel.
PXM2000 – v2.1.2 and prior	Yes	• Add IP address of device into the Java Exception Site List via Java Control Panel.
PXMP-EPM v2.3 and later	Yes	• Add IP address of device into the Java Exception Site List via Java Control Panel.
PXMP-EPM v1.x	No	PXMP-EPM with firmware v1.x is no longer supported by Eaton's Customer Success Team. It is recommended that you use our most recent firmware – available as a free download from http://www.eaton.com/meters. If you have a PXMP-EPM card with v1.x firmware and wish to upgrade it in the field, you will need to re-enable SSLv3 through the java.security file located in the \lib\security\ of your Java installation in order to access the WebUI to apply the update.

Troubleshooting Common Problems

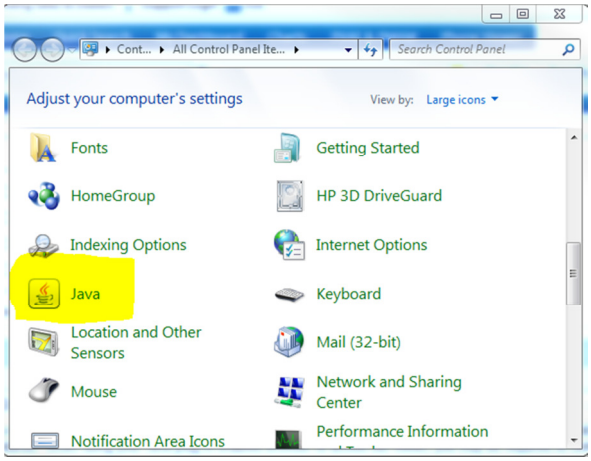
Browser Prompts "Application Blocked by Java Security….Exception Site List "– Configuring the Java Exception Site List

Meter Firmware Affected: All Power Xpert Meters

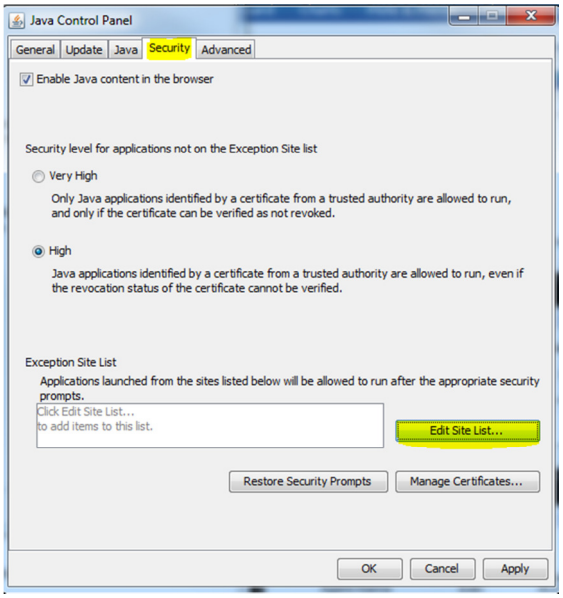
Symptom: Effective Java 8-u30 and later, Power Xpert Meters (regardless of firmware revision) may need to be added to the Java Exception Site List in order to access the meter. The appearance of this error may depend on whether or not your Java runtime engine is able to access the Internet to verify the sovereignty of the applet against public revocation lists.

Resolution: To access the meter, perform the following steps:

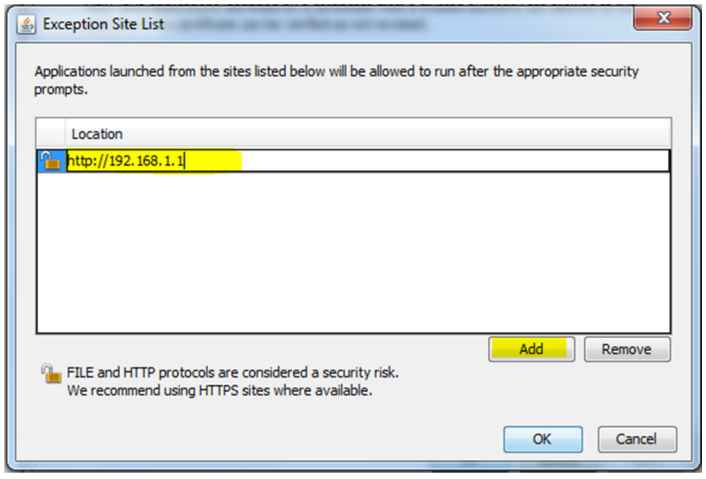
1. Access your Java Control Panel through Windows Control Panel.



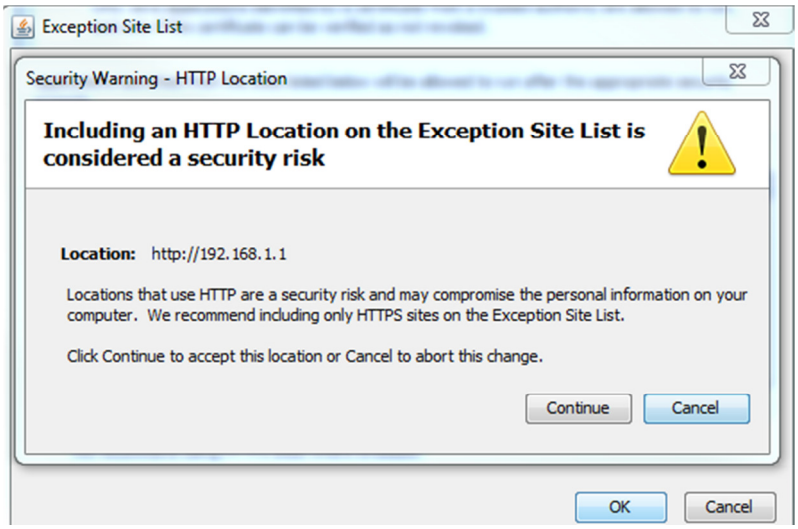
2. From the Java Control Panel, click on the Security tab. The Exception Site List will be visible in the bottom portion of the content area of this tab. Click the Edit Site List to begin configuration.



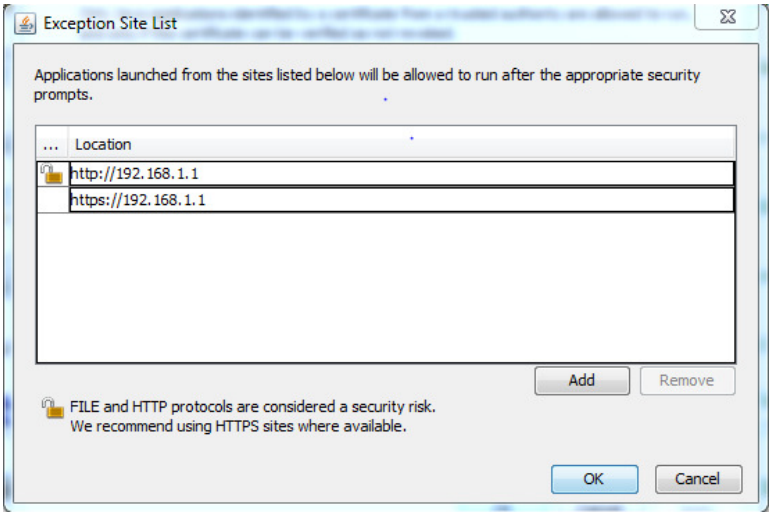
3. In the Exception Site List area, click Add to add a new line definition into the site list. Type in the full URL for the meter (including http:// or https:// - site/security scheme dependent). Press Enter on your keyboard once you have typed the entire path.



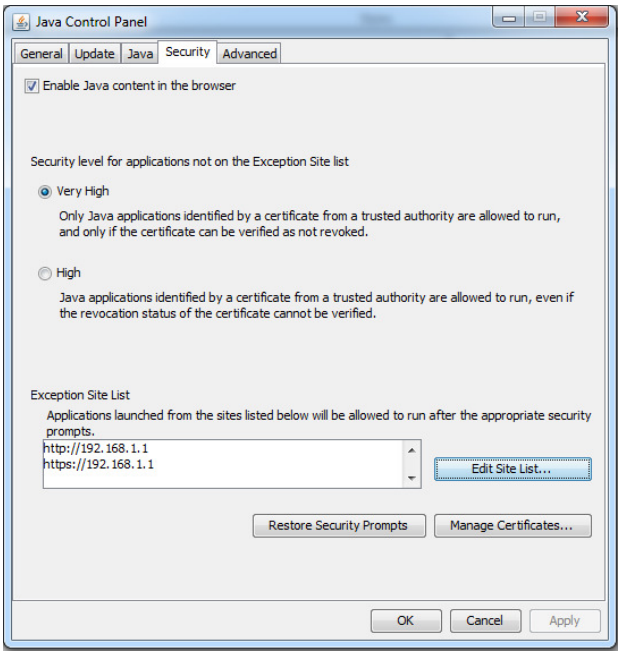
4. If entering an http:// based URL, you will be asked to confirm the addition to the site list. Click Continue.



NOTE: It is recommended that you also add an additional entry for the HTTPS address of the device you are attempting to connect to as some devices will automatically route you to secure HTTP. For example, the exception site list will shows http://192.168.1.1 as well as https://192.168.1.1, ensuring that navigation to either standard or secure HTTP is supported by your Java plugin.



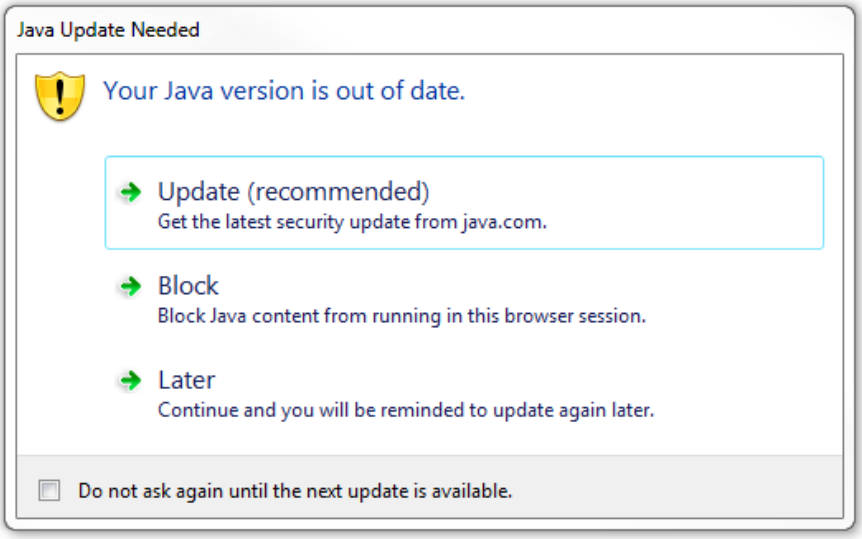
5. Click OK to close the Exception Site List. You should be able to view the new entry from the Security tab of your Java Control Panel. Please note that if you are accessing devices that require HTTPS access, you will need to enter the HTTPS form of the URL.


Java Control Panel
General
Update
Java
Security
Advanced
Enable Java content in the browser
Security level for applications not on the Exception Site list
Very High
Only Java applications identified by a certificate from a trusted authority are allowed to run, and only if the certificate can be verified as not revoked.
High
Java applications identified by a certificate from a trusted authority are allowed to run, even if the revocation status of the certificate cannot be verified.
Exception Site List
Applications launched from the sites listed below will be allowed to run after the appropriate security prompts.
http://192.168.1.1
https://192.168.1.1
Edit Site List...
Restore Security Prompts
Manage Certificates...
OK
Cancel
Apply

Browser Prompts "Your Java Version is Out of Date"

Meter Firmware Affected: All Power Xpert Meters

Symptom: On occasion, users may encounter the following message from Internet Explorer.



Resolution: This message is generated by Internet Explorer when an older version of Java has been invoked and begins loading. "Older version" is defined as any version that is tracked by Microsoft and deemed to be out of date by standards for their browser.

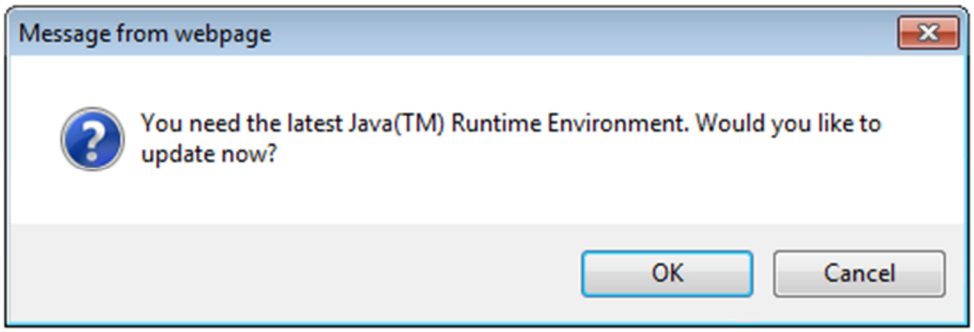
If you receive this message, you may click *Later* to continue with navigation to the meter. If you have Internet access, you may click *Update* (recommended) to obtain the latest revision of Java from the Java.com website.

Eaton's Customer Success Team recommends utilizing the latest revision of Java for an optimal experience.

Browser Prompts "You Need the Latest Java Runtime Environment"

Meter Firmware Affected: PXM4/6/8k v13.3.5.4, PX 4/6/8k (1st Gen) All Firmware Versions, PXMP v2.0 and later

Symptom: Internet Explorer v11 users may be prompted with the following message even though they are utilizing a current revision of the Java Runtime Environment

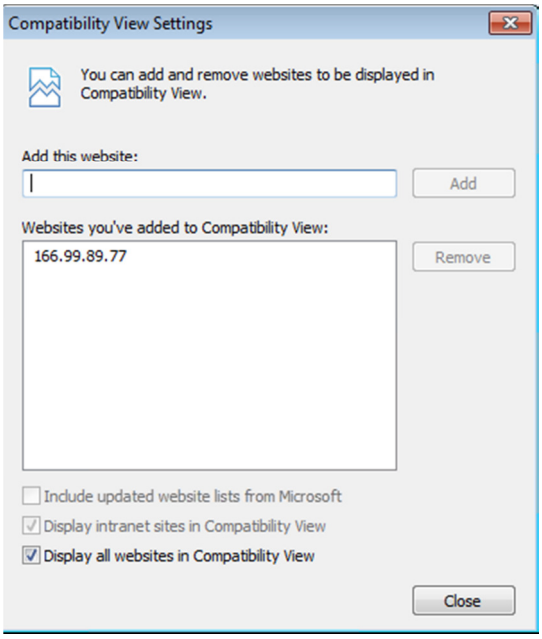


Resolution: If a user does not have Java loaded onto their computer, they will legitimately receive this message.

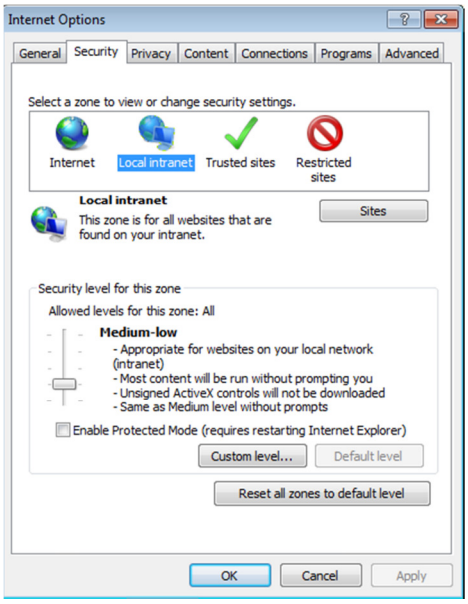
However, it has been found that Internet Explorer v11 operates as a native 64-bit Windows application. More so in order better recognize HTML5 sites, modern versions of Internet Explorer will attempt to enter into a mode to scale data appropriately.

To work-around the issue, the meter must be added into the Compatibility View Settings, as well as defined as an Intranet page. To do so in IE11, perform the following steps:

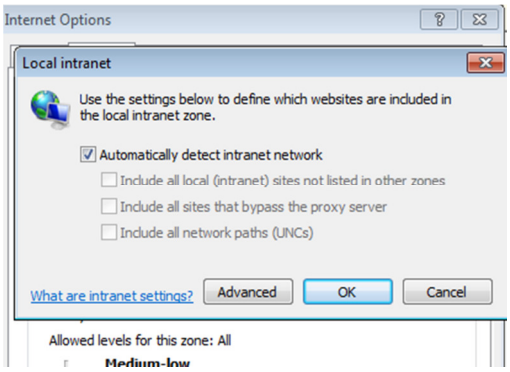
1. Go to Tools>Compatibility View Settings. Add the IP address or resolvable name of the meter into the List. Make certain that the checkboxes for Display Intranet Sites in Compatibility View is checked (should be grayed out and checked by default).



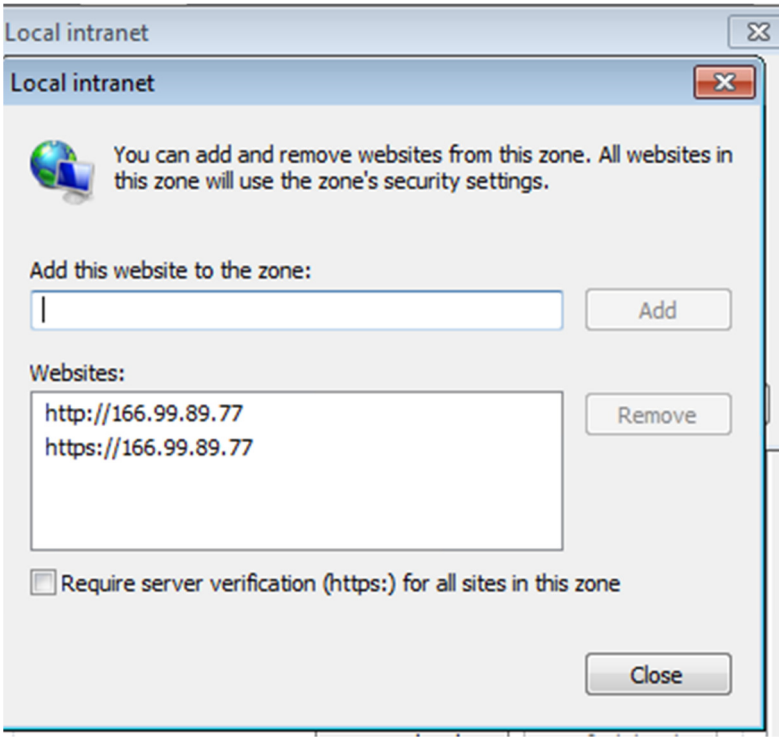
2. Go to Tools>Internet Options. Click the Security Tab.
3. Then click to Highlight **Local Intranet**, followed by clicking the Sites button.



4. In Local Intranet, click the Advanced Buttons.



5. Add the IP or resolvable name of the meter(s) into the list. Be sure to add both HTTP and HTTPS URLs into the list as they are treated differently.

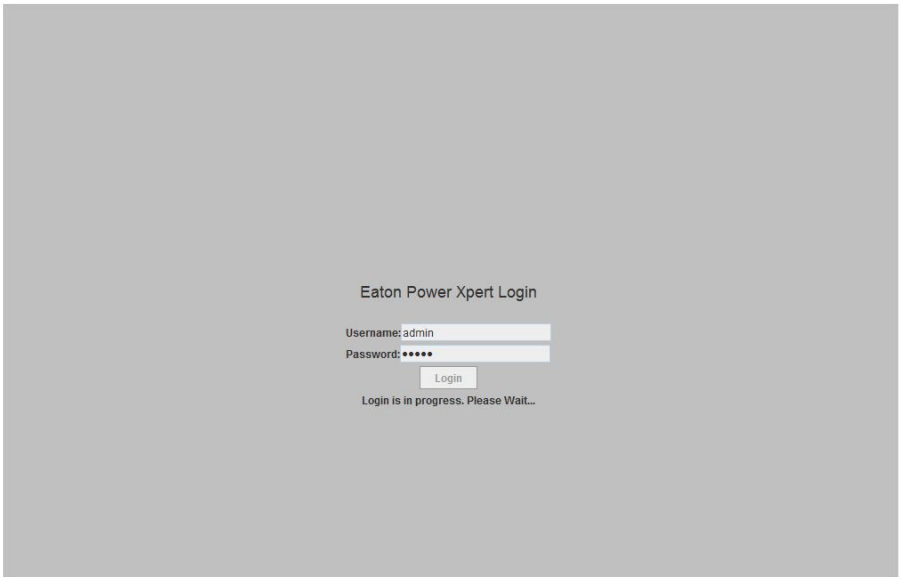


NOTE: It has been observed that Internet Explorer 11 will accept an IP address entry without http:// or https:// preceding it. Make certain that the user has entered the appropriate prefix as without it, it can cause IE to still believe that no Java is loaded on the user's computer.

Stuck at Login Screen

Meter Firmware Affected: Global – PXM 4/6/8k, PXMP-EPM 2.0 – all revisions

Symptom: Some users of current and prior generation firmware on PXMeter 4/6/8k and PXMP may be unable to get past the login screen even though the credentials entered are correct. There are two possible resolutions to this observation – *Disable Java Temporary Internet Files*, and *Enabling SSLv3 on Newer Versions of Java*.

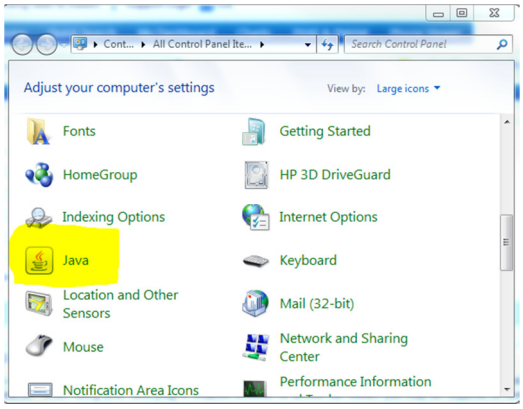


Disable Java Temporary Internet Files

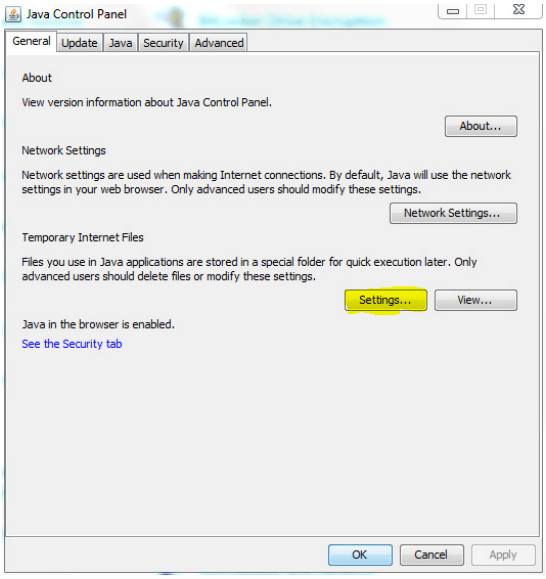
Resolution: Regardless of revision of meter firmware, this resolution may apply. While Internet Explorer will cache temporary Internet files, Java will also cache applets that have been downloaded from other devices. It has been observed that Java cache can cause login issues with the observation that the login page will freeze after users enter their credentials.

To disable Java Temporary Internet Files, perform the following steps:

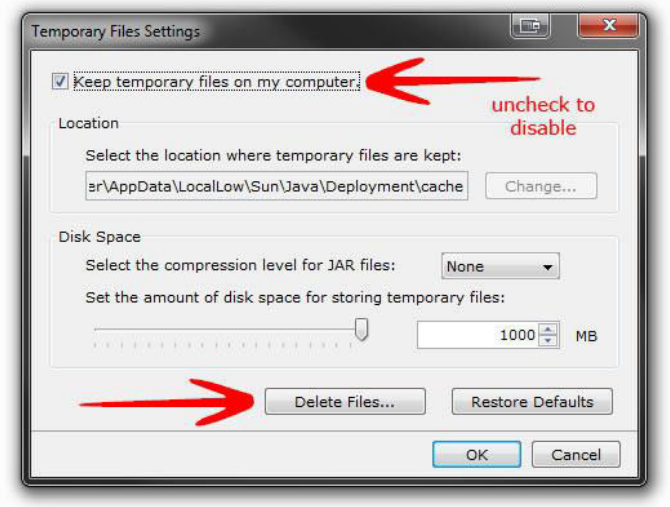
1. Access your Java Control Panel through Windows Control Panel.



2. From the Java Control Panel, click on the General tab. Notice the Temporary Internet Files Section at the bottom of the page. Click the Settings Button.



3. Uncheck the box to disable Temporary Internet Files, and click the Delete files button and delete all options.



4. Click OK to close the settings. Close the Java Control Panel. Clear your Internet Explorer temporary files, and restart the browser and re-attempt your login.

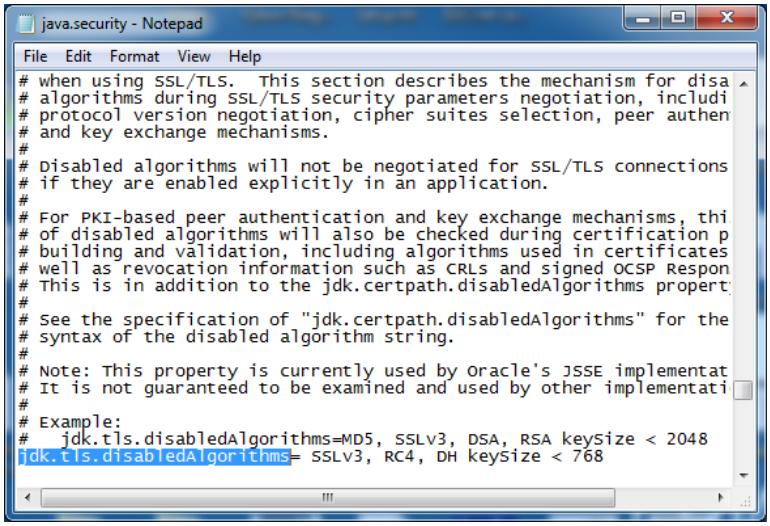
Enabling SSLv3 on Newer Versions of Java

Meter Firmware Affected: PXM4/6/8k v13.3.5.4 and prior, and PXMP v1.1 and earlier

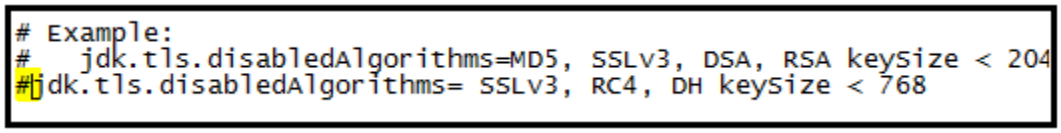
Resolution: For users of PXM 4/6/8k firmware 13.3.5.4, and PXMP-EPM v1.1 and earlier, this resolution may apply. SSLv3 was disabled by Oracle in favor of TLS authentication. Given older firmware revisions of Eaton meters supported did not support TLS until recently, users may need to re-enable SSLv3 in their Java Security parameters to access PXM 4/6/8k meters utilizing v13.3.5.4 or older firmware, and PXMP-EPM cards using old firmware with the intentions of upgrading to a modern revision of firmware.

To re-gain access, perform the following steps:

1. Using Windows File Explorer, navigate to the Java install directory on your PC. This will be in either the 32-bit Program Files Folder, or 64-bit Program Files folder of your operating system (e.g. C:\Program Files (x86)\Java\jre.xxx). Then, access lib\security\
2. Find the java.security file. Copy and paste it to your computer's desktop.
3. Open the copied file from your computer's desktop using a text editor (Notepad is recommended). Within the file, perform a search for the string of *jdk.tls.disabledAlgorithms*. You should find a line that is similar to what is shown in the screenshot below.



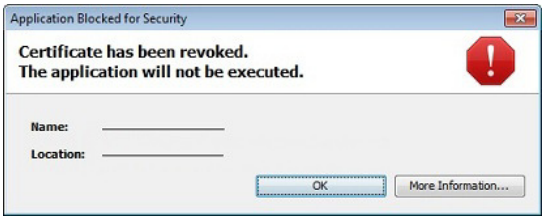
4. Place a hashtag/numeric sign character at the beginning of the line to comment out the disablement. Save the file and copy it back into the lib\security\ directory of your Java install.



5. If your web-browser is still open, you may need to close and restart it in order for this change to take effect.

Failed to Validate Certificate or Certificate has been revoked. Frozen Blue Screen Load

Symptom: When attempting to access the meter via HTTPS with a registered certificate, the following errors are observed

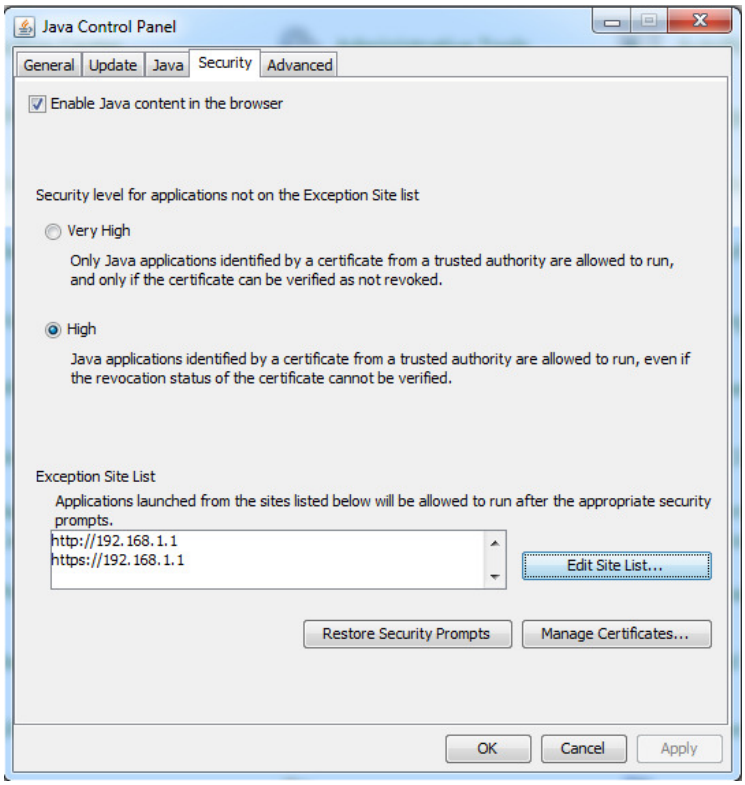


Alternatively, some users may see a blue screen with no activity whatsoever.

Alternatively, advanced Java users may see the following error message from Java:

Caused by: com.sun.deploy.security.RevocationChecker$StatusUnknownException: Certificate does not specify OCSP responder.

Resolution: Eaton Power Xpert Meters use a self-signed HTTPS certificate. Java Security must be configured for "High" setting. If the Java Control Panel is configured for 'Very High', this will stop any navigation to the meter once Java cannot verify the sovereignty of a self-signed certificate.



NOTE: This setting may be controlled by your network administrator. If you cannot adjust this setting on your own, please contact a network administrator for assistance!

Java Prompts "Warning – Unavailable Version of Java Requested"

Meter Firmware Affected:

Symptom: Some users may be prompted that the application would like to use a version of Java that is not installed on the system.

Resolution: Simply click "Run with the latest version".

Revision History

Date	Revision
04/23/2015	• Initial Document Draft Release
5/22/2015	• Added note to page 14 for making certain that http:// and-or https:// prefix is in Local Intranet Sites definition area. • Added new section on accessing devices with expired and/or Unverified Certificates
9/14/2015	• Updated Enabling SSLv3 page to reflect new changes in Java where the disabledAlgorithms could be theoretically anywhere in the file now. Recommending searching for the keyword as Mo had recommended to a prior customer. • Added information on how to disable Revocation Authority Checking in the event that someone is attempting to access a meter via HTTPS with an expired certificate.
10/22/2015	• General documentation cleanup. • Support for IE8 discontinued due to Oracle dropping support for IE8. • Support for prior versions of Java before JRE 8 –u31 removed due to continuous security updates by Oracle and CST attempts to streamline support efforts to ensure a quality experience.
11/4/2015	• Added section regarding clearing temporary internet files from Java as it has been observed this can cause login issues.
12/8/2015	• Updated Enable SSLv3 steps to simply comment out the *jdk.tls.disabledAlgorithms* to simplify the process. Additional structure changes made to condense the number of steps required. • Correct typo in Windows 10 section about how to create IE11 shortcut via Pin to Start and Pin to Taskbar shortcuts. • Addressed PXMP v1.x firmware no longer supported with recommendation to upgrade to our latest release. • Additional minor formatting changes and modifications to streamline the document overall.
1/20/2016	• Added Section on “Your Java Version is out of date”. • Re-organized ‘You need latest version of Java” to follow the new section added referenced in previous bullet item for this update. • General formatting and housekeeping of the overall document.
3/30/2016	• Modified Note on checking Programs and Features module to check platform type of Java installed on a computer. • Promoted section for adding meters to exception site list to beginning of troubleshooting section. Changes beginning with Java 8-u77 may cause connecting to any meter (regardless of firmware revision) to require it to be added to the exception site list. • Miscellaneous formatting corrections.

4/26/2016	• Modified Troubleshooting section for expired or invalid certificates • Miscellaneous formatting corrections. • Removed outdated information regarding bypassing revocation authorities (outdated as of Java 8-u99)