KB25230 - [Network Connect] How to install the 32-bit Network Connect client on 64-bit Linux platforms

Synopsis
This article describes how to install the 32-bit Network Connect client on 64-bit Linux platforms.

Problem or Goal
This article provides information on how to install the 32-bit Network Connect client on 64-bit Linux platforms.

Note that a native Network Connect 64-bit client is not available at this time.

Cause

Solution
From 7.3 and above, Pulse Secure PCS devices support 64-bit Linux (Redhat, OpenSuse, and Ubuntu) for Network Connect. Refer to the Release Notes for the correct supported platforms (Pulse Connect Secure (PCS)).

Note: Pulse Secure made changes in the existing 32-bit Network Connect client to launch it on 64-bit Linux platforms. It has all the necessary components/dependencies for the 32-bit NC.

To launch Network Connect on 64-bit Linux, you must have the 64-bit Mozilla Firefox browser, with the Java plug-in already configured. You can use both the Oracle and OpenJDK JRE. If the OpenJDK JRE is installed, the icedTea-Web plug-in (Java plug-in) should be 1.2 or above.

    sudo apt-get install icedtea-7-plugin

You also must perform the procedure below:

1. Install the 32-bit Java version (you must be root user to perform the steps):
   - 32-bit Java installation (Oracle JRE 6/ Oracle JRE 7, OpenJDK JRE 6/OpenJDK JRE 6):
     - Download jre-7u3-linux-i586.tar.gz and copy it to a folder (for example, /usr/java32).
     - Run the tar –xvf jre-7u3-linux-i586.tar.gz.
   
2. Update the alternatives link for Java (use the correct commands for your flavor of Linux):
   - Use the sudo update-alternatives --install /usr/bin/java <32 bit java path> <priority> command.
   - For example: sudo update-alternatives --install /usr/bin/java /usr/java32/jre1.7.0_03/jre/bin/java 10.
   
   Ensure that the default Java version is still 64 bit. This can be checked by looking at the link currently points to string in the output of the update-alternatives --display java command.

   If the default Java version is 32 bit, change it to 64 bit by using the sudo update-alternatives --config java command.

   After performing the above steps, alternative links will look as shown in the image below (the highlighted rows show both the 32-bit Java path and the default Java version):

   ![Alternative Links](image.png)

   Note: If 32 bit Java is installed via package managers, such as apt-get, yum or zypper, the ‘alternatives’ link may get automatically updated. In such a case, you can skip Step 2.

3. Install the standard 32 bit libraries and components:
   - Ubuntu (12.05 and below):
     
     sudo apt-get install ia32-libs

   - Ubuntu (13.x and above):
     
     Starting with Ubuntu 13.x, ia32-libs were removed from the package index. The following steps are a workaround to install the required libraries:

     sudo ln -s /usr/sbin/update-alternatives /usr/sbin/
     # Network Connect looks for update-alternatives from /usr/sbin/
sudo dokg --add-architecture i386
sudo apt-get update
# Allowing multilarch libraries to get both necessary 32-bit libraries for Network Connect
sudo apt-get install libstdc++6:i386 lib32z1 lib32ncurses5 lib32zr2:i386 lib32bz2-1.0 libbxext6:i386 libxrender1:i386 libxtst6:i386 libx11:i386
# Retrieve libx11-libs manually

**RedHat/Fedora:**

```bash
yun -y install xterm
yun -y ld-linux.so.2
yun -y libstdc++.so.6
yun -y libz.so.1
yun -y libXext.so.6
yun -y libXrender.so.1
yun -y libXtst.so.6
```

**OpenSUSE:**

```bash
zypper install libx1.so.6
```

Now you can connect to the VPN server and click the start button to launch Network Connect. If the Network Connect launcher applet can find the 32-bit Java path in the alternatives links, Network Connect will successfully launch. Otherwise, the following error message is generated: **Setup failed. Please install 32 bit java and update alternatives links using update-alternatives command.** For more details, refer KB article KB25239.

![Network Connect Error](image)

To launch Network Connect via the command line, use the following command:

```bash
```

`<java_path>` is the path to the 32 bit Java version.

**Note:**

- The IcedTeaPlugin will display the error **Start: Applet not initialized** if the common name (CN) of the VPN’s web server certificate does not match the host name, which is typed in the address bar.
- This is not an issue with the Pulse Secure VPN. To resolve this, you can add the common name (CN) in `/etc/hosts` and access the VPN server via the common name, instead of the IP address.

**Purpose**  Configuration

**Related Links**