



**BIG-IP**

**Network Support Engineer RMA4 Replacement Script, Version 1.01**



## BIG-IP NSE RMA4 Replacement Script

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### **Background**

Throughout this document, the Field Technician is referred to as “he.” This should be construed as the gender neutral use of the word and read as “he or she” and “his or hers” when used as a possessive pronoun.

This document is written for F5 Network Support Engineers (NSEs) to use as a guide for taking a Field Technician Service Provider through the RMA4 process.

The F5 RMA4 model is an accelerated Standard RMA. The Field Tech and the NSE assigned to guide the Field Tech are to get the replacement unit to the state where the customer can introduce the replacement into the customer’s network.

Because the F5 RMA4 is an accelerated Standard RMA, the F5 RMA4 process is limited to the following three steps:

1. Remove and replace the defective appliance or FRU
2. Restore the system software to the closest manufacturing validated release
3. Activate the license on the replacement appliance

The F5 RMA4 process does not include any of the following steps:

- Specific requests made by the end-customer’s on-site representative(s)
- Installing hotfixes or software patches
- Software upgrades
- Creating or restoring the UCS
- Moving data from FIPS
- Downloading and running End-User Diagnostics
- Memory upgrades
- Connecting network cables and failover cables

If the end-customer asks the Field Tech to perform any of these steps, you are to instruct the Field Tech that these are beyond the scope of his duties and not to fulfill the end-customer request.

### **Field Technician Arrival at Site**

The Field Tech will be instructed by the RMA Coordinator assigned to the case to call in to F5 Support as soon as the Field Tech arrives on site. When you are connected to the Field Tech for the first time, verify that the Field Tech understands the three steps that will be performed.

### **Field Technician Equipment**

During the initial training on F5 products, all technicians are provided with tools (screwdrivers, wrenches, etc.).

In addition to the tools, you may expect Field Techs to have Putty, TeraTerm, and WinSCP or equivalent software, and a web browser.

These requirements are detailed in the **RMA Field Technician Preparation Guide**.

### **Preparation - Download the Base Software**

Before starting the three-step RMA4 process, ensure that the Field Tech has the required system software. It is preferred by F5 that Field Techs have the required software already loaded on their laptop computers before



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arriving at the customer site. This requirement is generally not feasible however, and you may need to guide the Field Tech through the required steps to download the base software for the case. Ask the Field Tech if he has the required software loaded on his laptop computer. If not, guide the Field Tech through the process of downloading the required software. If this is the case, the Field Tech should start to download the software to his laptop before starting the RMA4 process. This is to minimize the time to complete the RMA4 by utilizing parallel processing.

Inform the Field Tech which base software version was installed on the unit that failed, and that this is the software that will be downloaded to his laptop computer. Direct the Field Tech to download the desired software release installer files and their associated \*.md5 files by taking the Field Tech through the steps below.

To download the BIG-IP software, guide the Field Tech through the following steps:

- a. Have the Field Tech navigate to the page on <https://downloads.f5.com> that allows him to select a product line, as shown in Figure 1.
- b. Instruct the Field Tech to click **BIG-IP v9.x** or **BIG-IP v10.x** as appropriate.
- c. Instruct the Field Tech to select the product version that corresponds to the BIG-IP software version from the drop-down menu.
- d. Instruct the Filed Tech to select the **Release** link.
- e. Instruct the Field Tech to download the appropriate files by clicking on the corresponding link and downloading it to his laptop. For BIG-IP v9.x installs, the tech will need to download the **local-install\*.im** file. For BIG-IP v10.x installs, the tech will need the **BIGIP-\*.iso** file. In the example shown in Figure 2, if the Field Tech needed to install the base software version of 9.1.2, you would instruct him to download the file **local-install-9.1.2.40.6.im** in this step and the file **local-install.md5** in step **g** below. The Field Tech should use the recommended FTP transfer method. It is recommended to download all F5 software to a folder called **C:\F5 Downloads** on the Field Tech's hard drive.
- f. Instruct the Field Tech to click the back button on his browser to navigate back to the page that presents the downloadable base software installer files.
- g. Instruct the Field Tech to download the \*.md5 file that corresponds to the install file (\*.im or \*.iso) downloaded in step **e**. Again, it is recommended that the Field Tech download this file to the **C:\F5 Downloads** folder on his laptop computer hard drive.



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The screenshot shows the F5 website's 'Downloads' page. At the top, there is a navigation bar with links for 'Ask F5', 'Global Sites', 'How to Buy', 'Careers', and 'Contact'. Below this is a search bar and a 'Logoff' button. The main navigation menu includes 'HOME', 'ABOUT F5', 'SOLUTIONS', 'PRODUCTS', 'TRAINING & SUPPORT', 'PARTNERS', 'NEWS', 'RESOURCES', and 'DEVCENTRAL'. The 'Downloads' section is active, showing a sidebar with 'Overview', 'FAQs', 'Ask F5', and 'Licensing Tools'. The main content area is titled 'Home Product Lines' and 'Select a Product Line'. It contains a table with two columns: 'F5 Product Family' and 'Product Line'. The 'BIG-IP' family has several product lines, with 'BIG-IP v9.x' highlighted by a blue box.

F5 Product Family	Product Line
Acopia	ARX v2.7.x
	Data Manager
	Secure Agent (32-bit)
	Secure Agent (64-bit)
BIG-IP	BIG-IP
	BIG-IP v4.x
	<b>BIG-IP v9.x</b>
	VIPRION
EnterpriseManager	Enterprise Manager v1.x
FirePass	FirePass
Hardware-Specific	Platform
ISMan	ISMan v1.x
Message-Security-Module	MSM v1.x
TrafficShield	TrafficShield v3.x
WANJet	WanJet v4.x
	WanJet v5.x
WebAccelerator	WebAccelerator v5.x

Figure 1: Downloading Base Software Files



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THE WORLD RUNS BETTER WITH F5.

My Account | Logoff

HOME ABOUT F5 SOLUTIONS PRODUCTS TRAINING & SUPPORT PARTNERS NEWS RESOURCES DEVCENTRAL

### DOWNLOADS

Overview  
FAQs

Ask F5  
Licensing Tools

Home Product Lines Select a Download

#### Select a Download

Product: BIG-IP® 9.x with Traffic Management Operating System™ (TMOS™)  
Version: 9.1.2  
Container: release

Please select the file you wish to download, make sure you have read the appropriate [Release Notes](#) before attempting to use the file.


Filename	Description	Size
BIGIP-9.1.2.40.6.iso	Product Release	299 MB
readme.txt	Product Release	473 Bytes
<b>local-install-9.1.2.40.6.im</b>	Product Release	141 MB
remote-install-9.1.2.40.6.im	Product Release	381 KB
BIGIP-9.1.2.40.6.md5	Product Release	55 Bytes
<b>local-install.md5</b>	Product Release	62 Bytes
remote-install.md5	Product Release	63 Bytes

**Download local-install\*.im and local-install\*.md5**

Figure 2: Downloading Base Software local-install Files

### RMA4 Step 1- Unrack the Old Unit, Rack Replacement Unit

The Field Tech should understand how to power down and remove the old appliance. When the Field Tech calls in, verify with him that he is to do the following:

1. Power down the failed unit and disconnect the power cord(s)
2. Disconnect all other cables connected to the failed unit
3. Unrack failed, old unit, if necessary, and rack mount replacement unit
4. Record the RMA Case Number on the Return label for the failed BIG-IP that will be returned to F5
5. Re-connect power to the replacement unit via the provided cable(s)
6. Do not re-connect cables to the management port and serial port. These will be re-connected at the very end of the RMA4 process
7. Do not connect any network cables or failover cables
8. Turn on the unit via the main switch (located in the rear of unit or behind the left front bay door). The unit may begin to start booting, which will be shown by activity in the LCD display. If the unit is not powering up, depress the **green checkmark**  button on the LCD panel for approximately 3 seconds to power up the unit.



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### RMA4 Step 2 - Determine if a Software Update is Required

Inform the Field Tech that the replacement unit that he is installing most likely has an older software version installed. Determine if you need the Field Tech to update the software version on the replacement unit and if so, which slot to install it upon. A BIG-IP typically has two 'slots' that it can boot from, and oftentimes there are different software versions installed on each. The BIG-IP may also have a compact flash card that is bootable and can have another software version installed upon it (if you are installing v9.x of the BIG-IP software).

To determine if you need to install a new software version, instruct the Field Tech to determine which software versions are installed on the current slot that you are working in by running the following command from your Console session:

```
#switchboot
```

This command will allow the Field Tech to see what is installed on all slots. If the version you want is installed on one of the slots, have the Field Tech choose that slot (if not already active) using the arrow keys, and hit the **Enter** key. Advise the Field Tech to reboot the BIG-IP by running the `reboot` command if a slot other than the default was chosen. After this is done, proceed to **RMA4 Step 3- Activate the License**.

If the version you want is NOT installed, you must determine which slot to install it on. Depending on the currently installed version and the desired version, follow one of the install procedures listed below.

### RMA4 Step 2 - SCP Downloaded Files to BIG-IP

Inform the Field Tech that the software is to be securely copied from his laptop to the BIG-IP by completing the following steps:

- 1) Instruct the Field Tech to connect his laptop directly to the Management Interface on the BIG-IP using a Crossover Ethernet Cable.
- 2) Instruct the Field Tech to assign a static IP address to the Ethernet adapter on his laptop.
  - a. The default management IP address on the BIG-IP is 192.168.1.245
  - b. Advise the Field Tech to use an IP in the same /24 network, such as 192.168.1.244
- 3) Instruct the Field Tech to SCP the files that he downloaded from his laptop to the replacement BIG-IP with WinSCP:
  - a. Instruct the Field Tech to navigate to the folder where WinSCP is installed (generally **C:\Program Files\WinSCP3**). Double-click on **WinSCP3** to start application.
  - b. Instruct the Field Tech to enter the management IP address in the **Host name** text box, and then to enter the user name of **root** and the corresponding password (the default password is **default**). Instruct the Field Tech to click on the **SCP** radio button in the **Protocol** section and click **Login** (see Figure 3).



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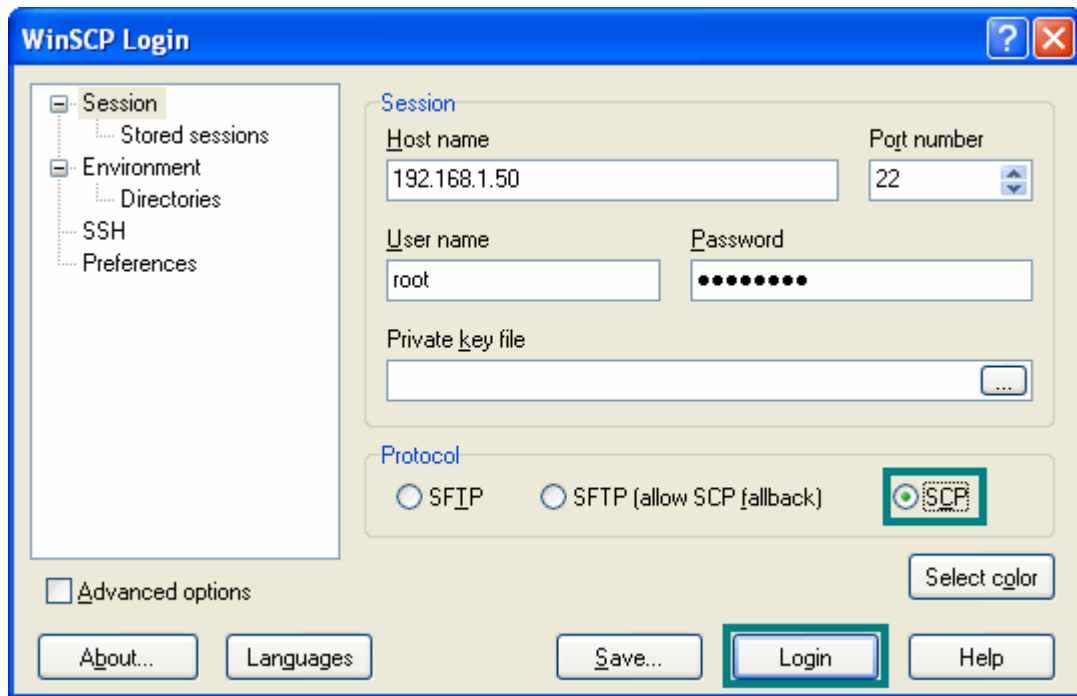


Figure 3: WinSCP Login





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- c. Instruct the Field Tech to look In the left pane, which represents the folder structure of his laptop, and navigate to the **C:\F5 Downloads** folder (or alternative folder where the Field Tech stored his downloaded files) by clicking on the **Up** arrow folder button and selecting the appropriate folders in the folder hierarchy (see Figure 4).

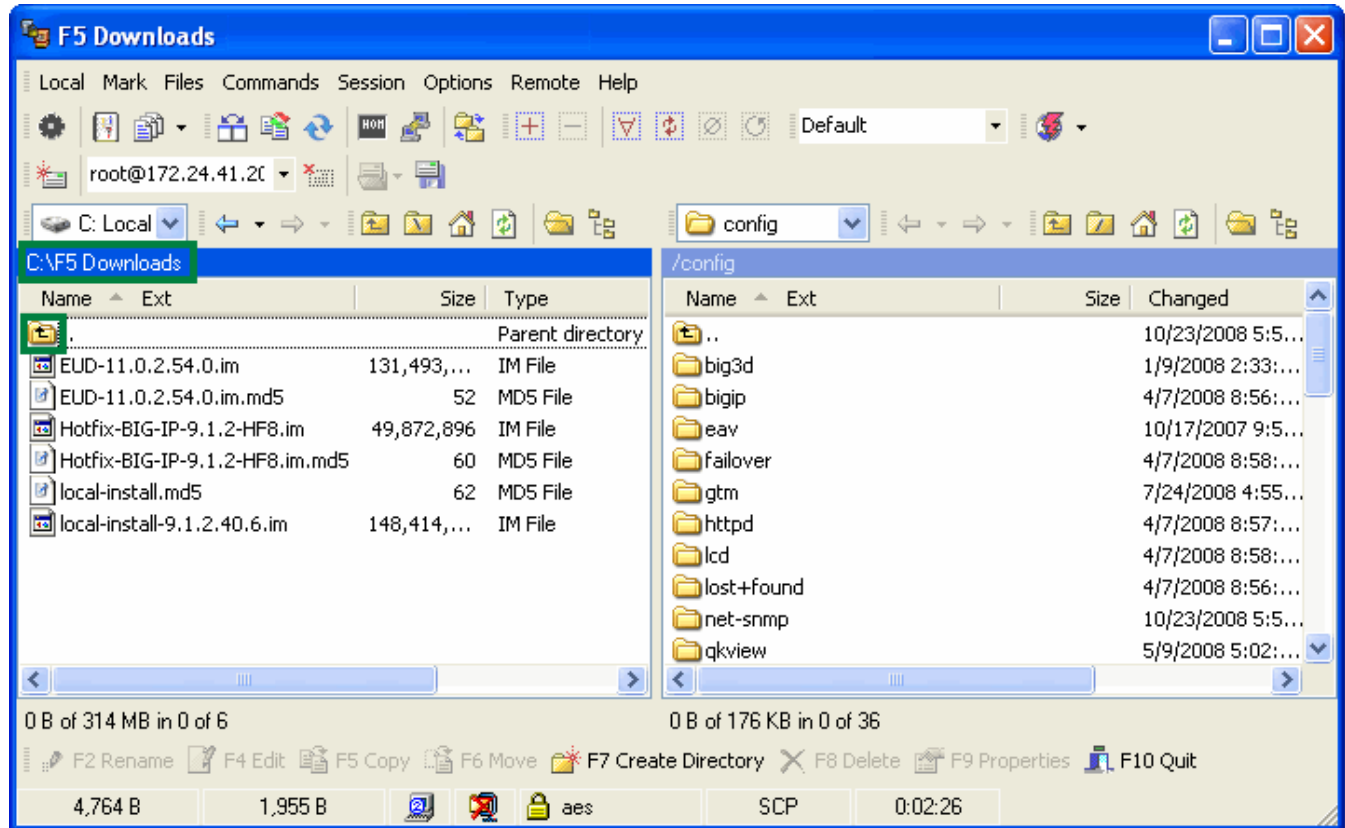


Figure 4: Navigating Directory Structure in WinSCP



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- d. Instruct the Field Tech to look in the right pane, which represents the directory structure of the BIG-IP, and navigate to the **/var/tmp** directory by clicking on the **Up** arrow folder button and selecting the appropriate folders in the directory hierarchy. After the Field Tech navigates to the **/var/tmp** directory, it may show **/shared/tmp** as the current directory due to a symbolic link (see Figure 5).

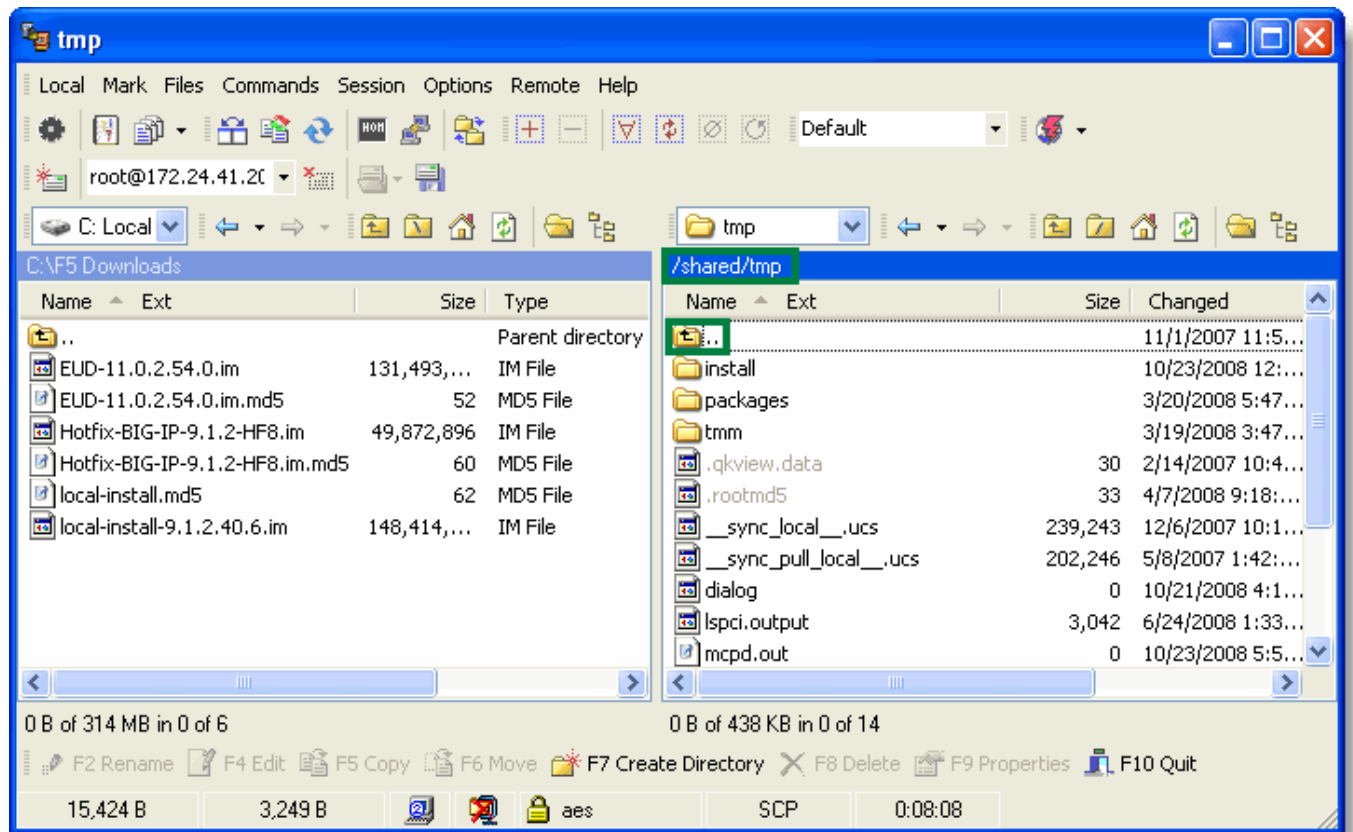
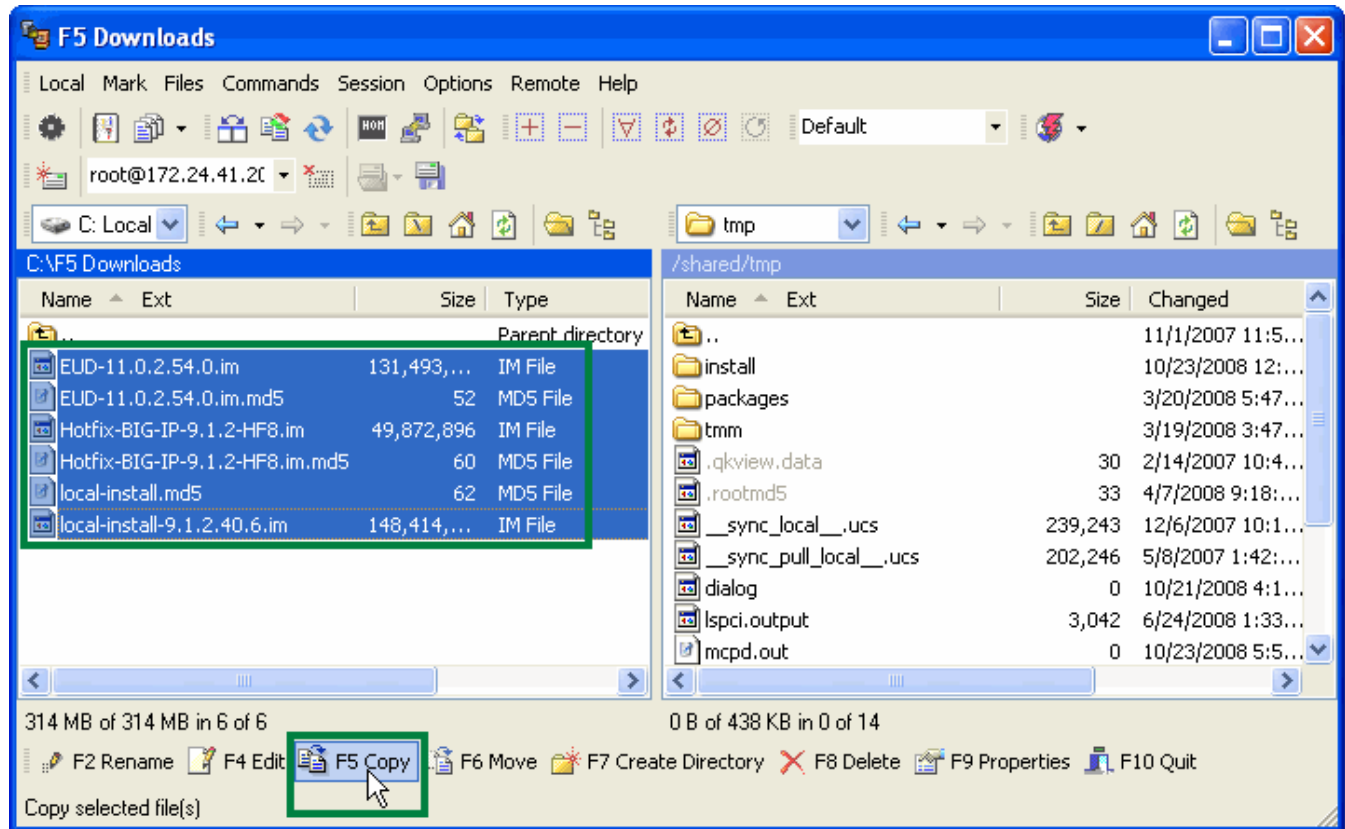


Figure 5: Navigating Directory Structure on BIG-IP



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- e. Instruct the Filed Tech to SCP (Secure Copy) the downloaded files (EUD, local-install,) to **/var/tmp** on the BIG-IP by highlighting the files in the left pane (inform the Field Tech that he can use the **Shift** and **Ctrl** keys to highlight multiple files), and then clicking on the **F5 Copy** button. Tell the Field tech that a window will pop up asking him to copy or cancel. Click **Copy** (see Figure 6).



**Figure 6: SCP'ing Install Files**

- f. Inform the Field Tech that when the secure copy is complete, the files will show in the right pane, indicating that they have been SCP'ed to the BIG-IP. Instruct the Field Tech to close the **WinSCP** window.

## **RMA4 Step 2 - Install the Base Software: v9.x to v9.x (If Required)**

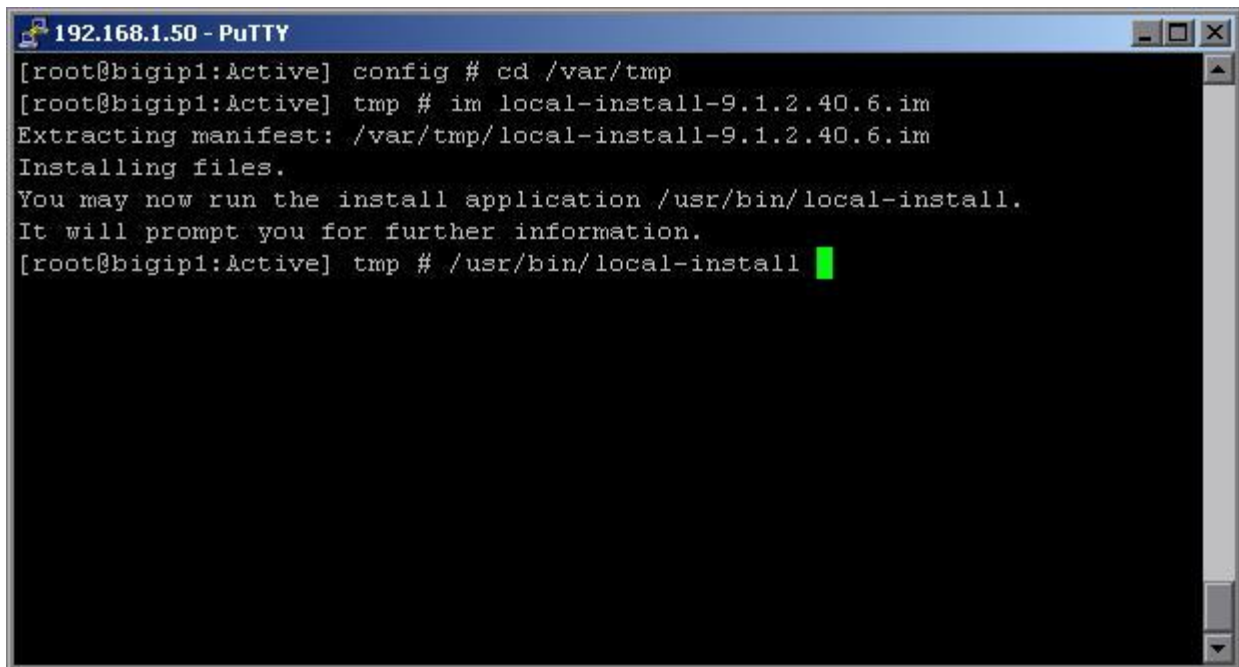
In order to install a desired version of the v9.x BIG-IP software on a system that is already running another version of the v9.x software, instruct the Field Tech to perform the following steps:

- a. (Recommended) Instruct the Field Tech to connect his laptop to the Console Port using his Serial "Null Modem" cable, and connect to the BIG-IP using his terminal software. This is preferable to installation via ssh to the management port, as the installation will cause the box to reboot, ending any ssh sessions, but not interrupting terminal connections via Serial.
- b. If necessary, log in as the root user with a password of **default**.
- c. Change directories by entering **cd /var/tmp**.
- d. View the files in the directory by entering **ls**.
- e. Run **md5sum <filename\*.im>** to display an md5 hash of the installer file.



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- f. Run `cat <filename*.md5>` to display the known good md5 hash.
- g. Visual verify that the two md5 hashes are the same. If they differ, direct the Field Tech to re-download and transfer the installer files to the BIG-IP again.
- h. Run `im <filename*.im>` to start the installer. Note that in some older versions, this will not automatically start the installer, but instead will advise that you may then run `/usr/bin/local-install` to start the installer, as seen in Figure 7 below. Do so if necessary.
- i. A **Welcome** screen will appear first. Press **Enter** to continue or type **C**.
- j. A **Copyright** page will appear next. Press **Enter** to continue.
- k. A **Warning** page may appear next, stating 'If you desire to save and restore your current configuration(s) you must reboot the system ... Are you sure you want to continue?' Use the arrow key to select **Yes** and hit **Enter**.
- l. The **Syslog Configuration** page may be displayed, asking if you would like to configure a remote syslog server. Highlight **OK** and hit **Enter**.
- m. A page showing the supported installation images found is shown. You are asked if you would like to specify another installation URL or path. Highlight **No** and hit **Enter** or type **N**.
- n. You are asked which boot image location that you want to install to. Use the arrow keys to highlight the slot that you are currently booted from (this can be displayed by running `switchboot -I` from a command prompt). Highlight **OK** and hit **Enter**.
- o. From the next screen, highlight **Install BIG-IP (or Packages)...**, or type **I**, highlight **OK** and hit **Enter**.
- p. From the next screen, highlight **Done**, highlight **OK** and hit **Enter**.
- q. From the next screen, use the arrow keys and use the space bar to select the partition that you want to boot to by default. You should select the slot that you have chosen to install to using the arrow keys and then hit the space bar to select it.
- r. From the **Installation Summary** page, hit **Enter**.
- s. A final warning page is shown. Use the arrow key to highlight **Yes** to continue with the installation and hit **Enter** or type **Y**. The installation will proceed. The installation will take several minutes. When you see the login prompt, the installation has completed.



```
192.168.1.50 - PuTTY
[root@bigip1:Active] config # cd /var/tmp
[root@bigip1:Active] tmp # im local-install-9.1.2.40.6.im
Extracting manifest: /var/tmp/local-install-9.1.2.40.6.im
Installing files.
You may now run the install application /usr/bin/local-install.
It will prompt you for further information.
[root@bigip1:Active] tmp # /usr/bin/local-install
```

Figure 7: Starting the Software Installer



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### **RMA4 Step 2 - Install the Base Software: v9.x to v10.x, v10.x to v10.x with Partition or Volume change (If Required)**

In order to install a desired version of the v10.x BIG-IP software on a system that is already running another version of the v9.x software, or running a version of v10.x on Partitions and the customer desires Volumes (or vice-versa), instruct the Field Tech to perform the following steps.

**NOTE:** You cannot directly upgrade from v9.1.x and earlier to v10.x, as the installer does not function properly on these software versions. In order to perform this upgrade, you have three choices:

1. Use **switchboot** as detailed earlier and select a later version of the v9 software, then reboot and install from this version.
2. Guide the Field Tech to install an intermediate software version first, such as v9.3.1 (recommended).
3. Follow these steps to work around the issue with the image2disk installer; this works best if the Field Tech has this document available to reference.

**WARNING: THIS PROCEDURE SHOULD BE USED WITH EXTREME CARE. REPORTING MORE MEMORY THAN IS PHYSICALLY PRESENT IN THE UNIT CAN FORCE AN INSTALL OF THE V10 SOFTWARE ON HARDWARE THAT CANNOT SUPPORT IT, LEADING TO A FAILED AND UNRECOVERABLE INSTALLATION.**

- a. First, determine the physical memory available in the box by running **b memory | head**, and note the total memory amount.
- b. Next, create a simple bash script that will report this number:  
**echo 'echo <memory in kilobytes>' > /usr/bin/physmem**  
For example, if you reported 4GB of memory, you would ask the Field Tech to type: **echo 'echo 4000000' > /usr/bin/physmem**
- c. Make the script executable with **chmod +x /usr/bin/physmem**
- d. You should now be able to proceed as normal. If the image2disk installer still fails with errors regarding insufficient memory, then please guide the Field Tech through installing an intermediate version instead of using this workaround.

After performing the above procedure, if needed, continue with the install:

- a. (Recommended) Instruct the Field Tech to connect his laptop to the Console Port using his Serial "Null Modem" cable, and connect to the BIG-IP using his terminal software. This is preferable to installation via ssh to the management port, as the installation will cause the box to reboot, ending any ssh sessions, but not interrupting terminal connections via Serial.
- b. If necessary, log in as the root user with a password of **default**.
- c. Change directories by entering **cd /var/tmp**.
- d. View the files in the directory by entering **ls**.
- e. Run **md5sum <filename\*.iso>** to display an md5 hash of the installer file.
- f. Run **cat <filename\*.md5>** to display the known good md5 hash.
- g. Visual verify that the two md5 hashes are the same. If they differ, direct the Field Tech to re-download and transfer the installer files to the BIG-IP again.
- h. Run **im <filename\*.iso>** to install the tools necessary to install v10.x to the system.
- i. Run one of the following, depending on if the customer specified they desire Volumes or Partitions:
  - a. For Partitions, run **image2disk --instslot=<slot name> --format=partitions --nosaveconfig <filename\*.iso>**
  - b. For Volumes, run **image2disk --instslot=<slot name> --format=volumes --nosaveconfig <filename\*.iso>**
  - c. On a v9.x to v10.x upgrade, if volumes or partitions has not been specified by the customer, the default action should be to install in volumes.



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- j. The installation will proceed, and will take several minutes. When you see the login prompt, the installation has completed.

### **RMA4 Step 2 - Install Base Software: v10.x to v10.x (If Required)**

In order to install a desired version of the v10.x BIG-IP software on a system that is already running another version of the v10.x software and the desired, instruct the Field Tech to perform the following steps:

- a. (Recommended) Instruct the Field Tech to connect his laptop to the Console Port using his Serial “Null Modem” cable, and connect to the BIG-IP using his terminal software. This is preferable to installation via ssh to the management Port, as the installation will cause the box to reboot, ending any ssh sessions, but not interrupting terminal connections via Serial.
- b. If necessary, log in as the root user with a password of **default**.
- c. Change directories by entering **cd /var/tmp**.
- d. View the files in the directory by entering **ls**.
- e. Run **md5sum <filename\*.iso>** to display an md5 hash of the installer file.
- f. Run **cat <filename\*.md5>** to display the known good md5 hash.
- g. Visual verify that the two md5 hashes are the same. If they differ, direct the Field Tech to re-download and transfer the installer files to the BIG-IP again.
- h. Run **bigpipe software image /shared/tmp/<filename\*.iso> add** to add the desired software to the cache in **/shared/images**.
- i. Run **bigpipe software images show** to produce a table of the cached images. Note the name, version and build of the image you just installed.
- j. Run **bigpipe software desired <slot name> product BIG-IP version <version> build <build>**. This will begin the install, and place you back at the command prompt.
- k. Run **watch bigpipe software status show** to display the current installation progress. When you see the install complete, type **<CTRL>+C** to exit the status display.
- l. Run **bigpipe software desired <slot name> active enable** to set the new installation active. This will cause the system to automatically reboot into the new software version. When you see the login prompt, the installation has completed

### **RMA4 Step 2 - Install Base Software: v10.x to v9.x (If Required)**

Downgrading a v10.x system to v9.x is currently beyond the scope of this document, as it will require the Field Tech to have a USB thumb drive available.

### **RMA4 Step 3 Activate License**

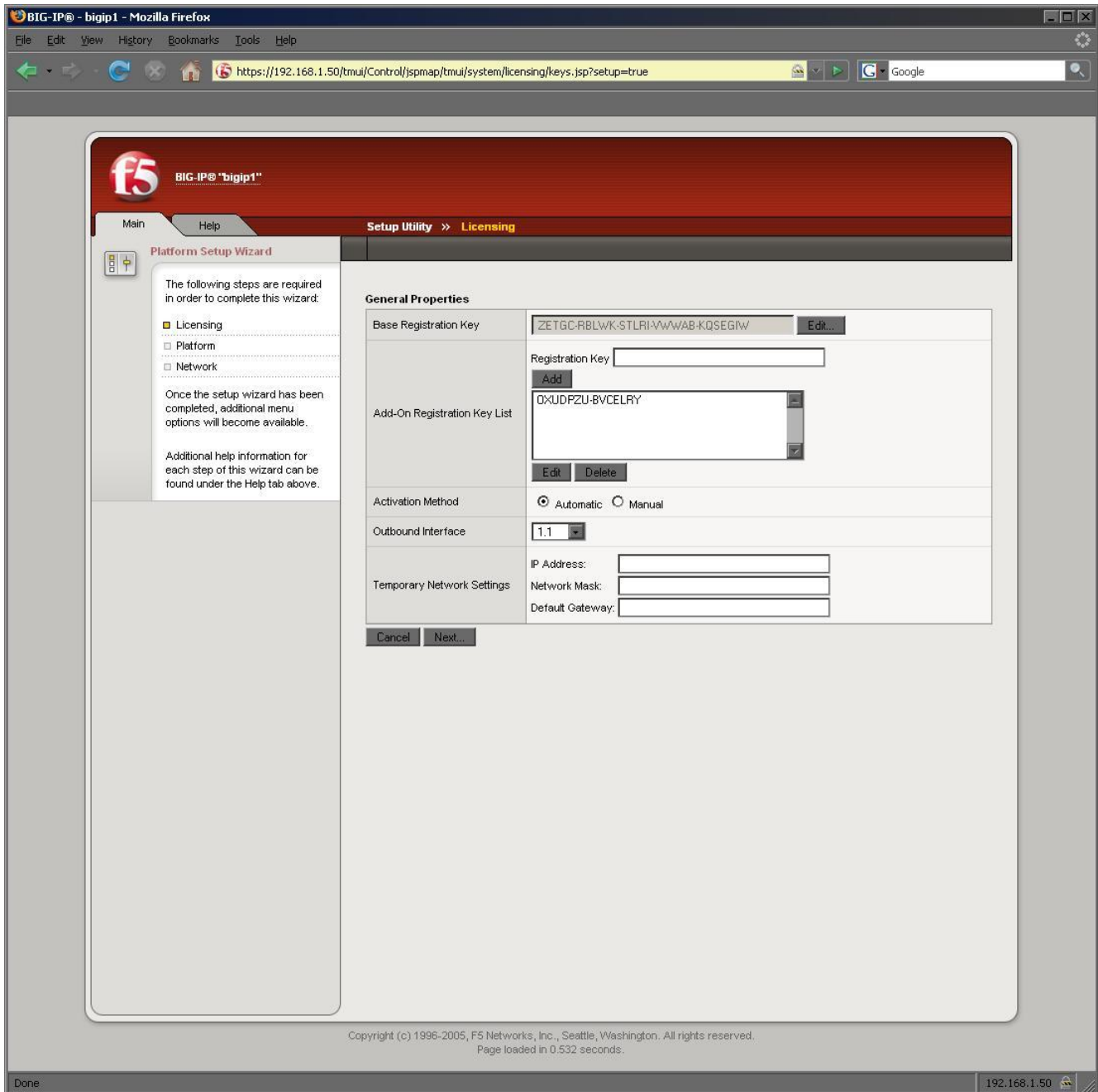
- 1) Instruct the Field Tech to access the web interface (TMUI) by opening a browser and going to **https://<MGMT IP>** (substitute the customer’s Management IP address), and authenticate with the default username and password of **admin/admin**. After the Field Tech has logged in, verify that he sees the **Licensing** page. Instruct the Field Tech to click on the **Activate** button.

**NOTE:** When the Field Tech accesses the web interface, some browsers may display a message indicating a problem with a website’s security certificate. Depending on the browser, the Field Tech will probably see an option to continue to this website. You should instruct the Field Tech to continue to the website by selecting the appropriate link or button.

- 2) Take the Field Tech through the required steps to license the box via the web interface. Since F5 cannot assume that Internet access is available, you will have to guide the Field Tech through the manual process described below. The Field Tech will need you to provide the correct Base Registration Key and any Add-On Registration Keys. These keys also should have been emailed to the customer. Figure 8 shows the initial **Licensing** page.



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**Figure 8: Initial Licensing Page**

- a. Instruct the Field Tech to select **Manual** and then take the Field Tech through these steps:
  - i. Enter the correct Base Registration Key and any Add-On Registration Keys in the appropriate text boxes, if necessary.
  - ii. Select the **Manual** radio button in the **Activation Method** area (see Figure 9) and click **Next**. A pop-up window opens that reads "Please perform a software reboot after activation". Click **OK**.





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- iii. Copy the dossier to your clipboard (**Ctrl-a, Ctrl-c**) and save it to your hard drive. (See Figure 13.)
- iv. Move your laptop to an area where it has Internet access.
- v. Change the IP information of your laptop, if necessary, so that it can access the Internet.
- vi. Click the link **Click here to access F5 Licensing Server** or open a new web browser to <https://activate.f5.com/>.

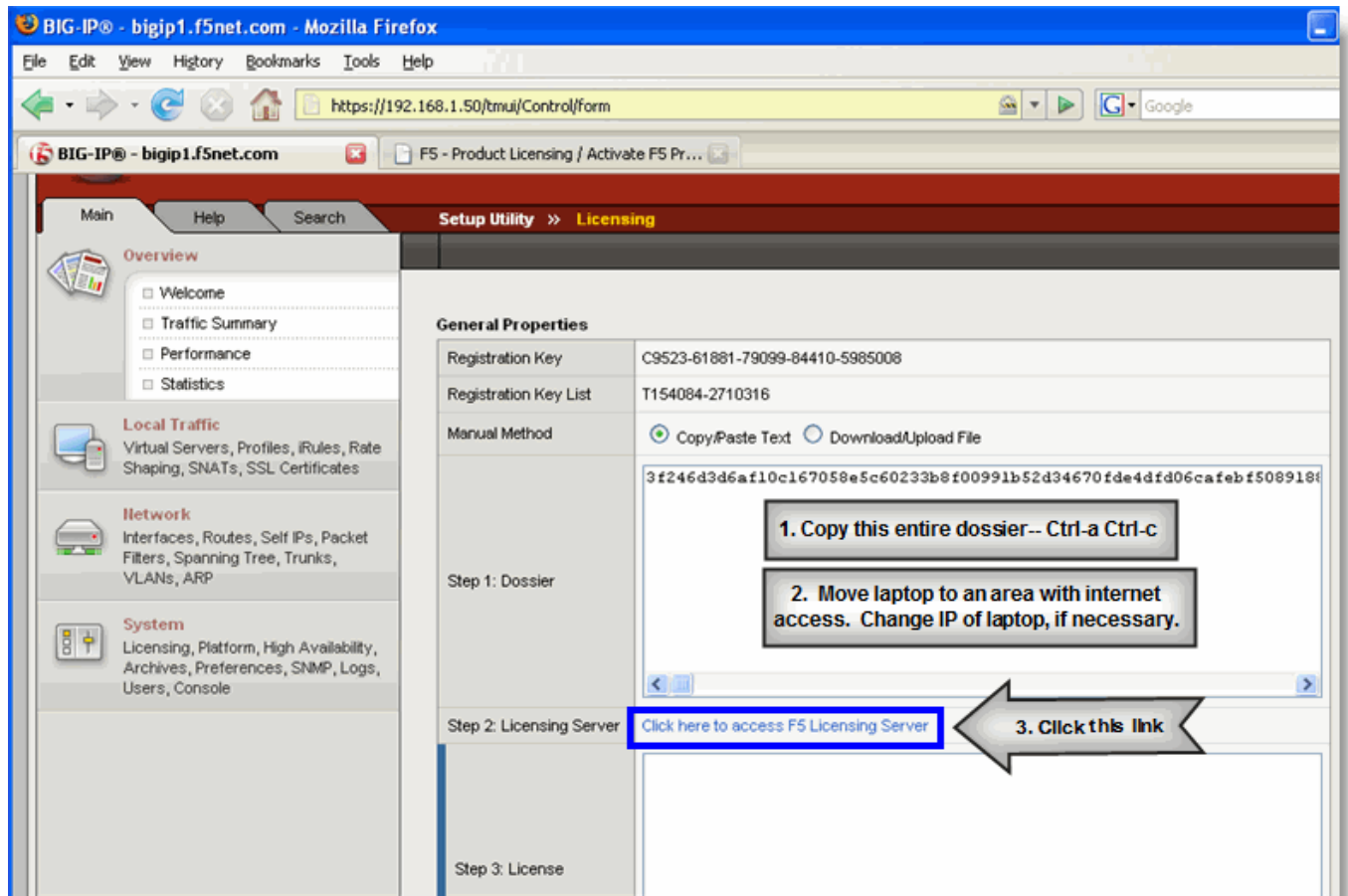


Figure 9: Manual Licensing Options

- b. Paste the dossier into the dossier text box and click **Next** in the browser for the <https://activate.f5.com/> website, as shown in Figure 10.





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Figure 10: Manual Licensing - Pasting the Dossier

- c. The license is generated. Click in the **License** text box and copy the license with the following key sequence: **Ctrl-a**, **Ctrl-c**, and also save the license to your hard drive by clicking **Download license** (see Figure 11).



## BIG-IP NSE RMA4 Replacement Script

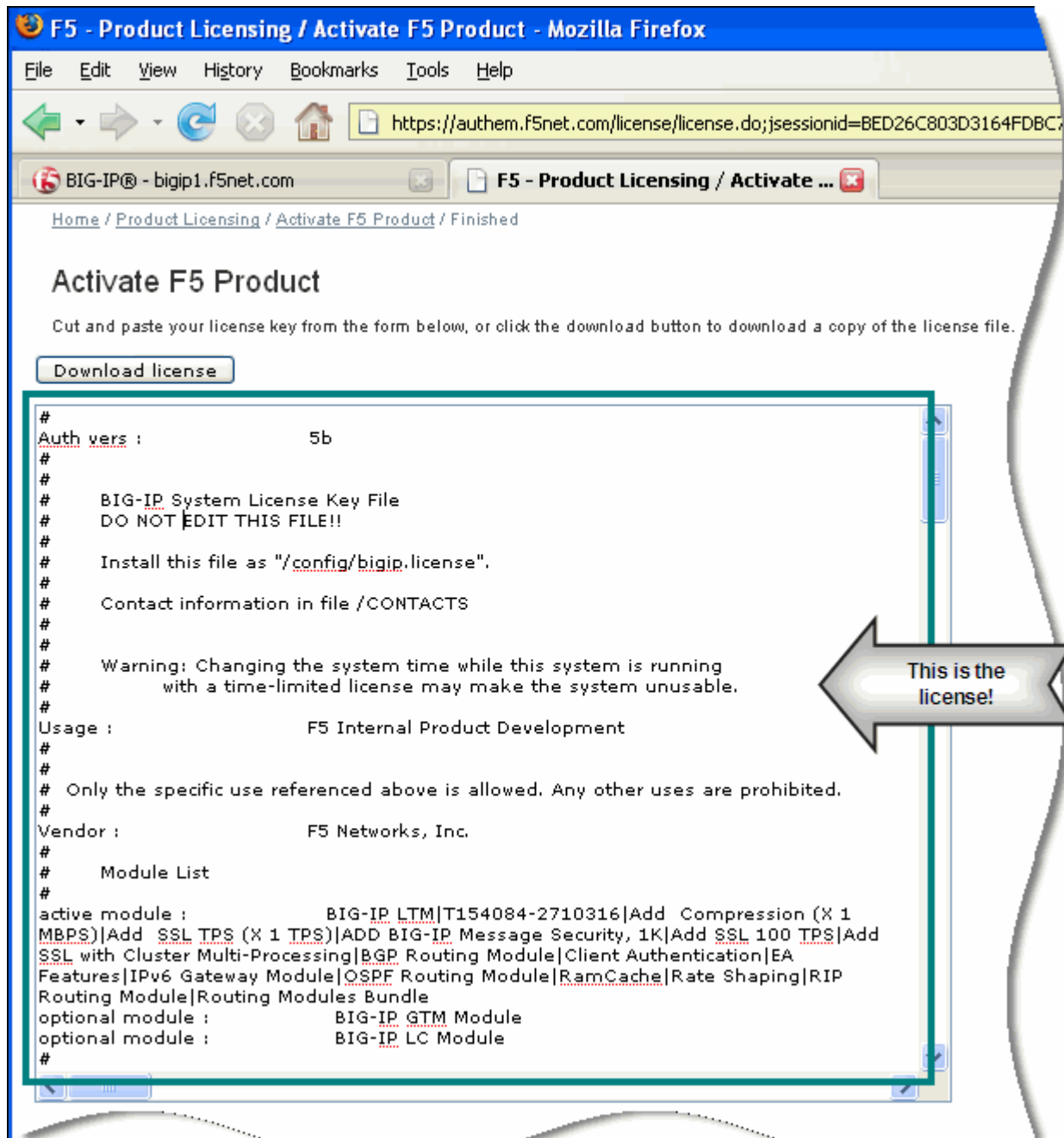


Figure 11: Manual Licensing - Copy the License

- d. Move your laptop back to where it has access to the BIG-IP. Change the IP information of your laptop so that it can communicate through the browser interface again.
- e. Paste the license into the **License** text box and click **Next**, as shown in Figure 12.



## BIG-IP NSE RMA4 Replacement Script

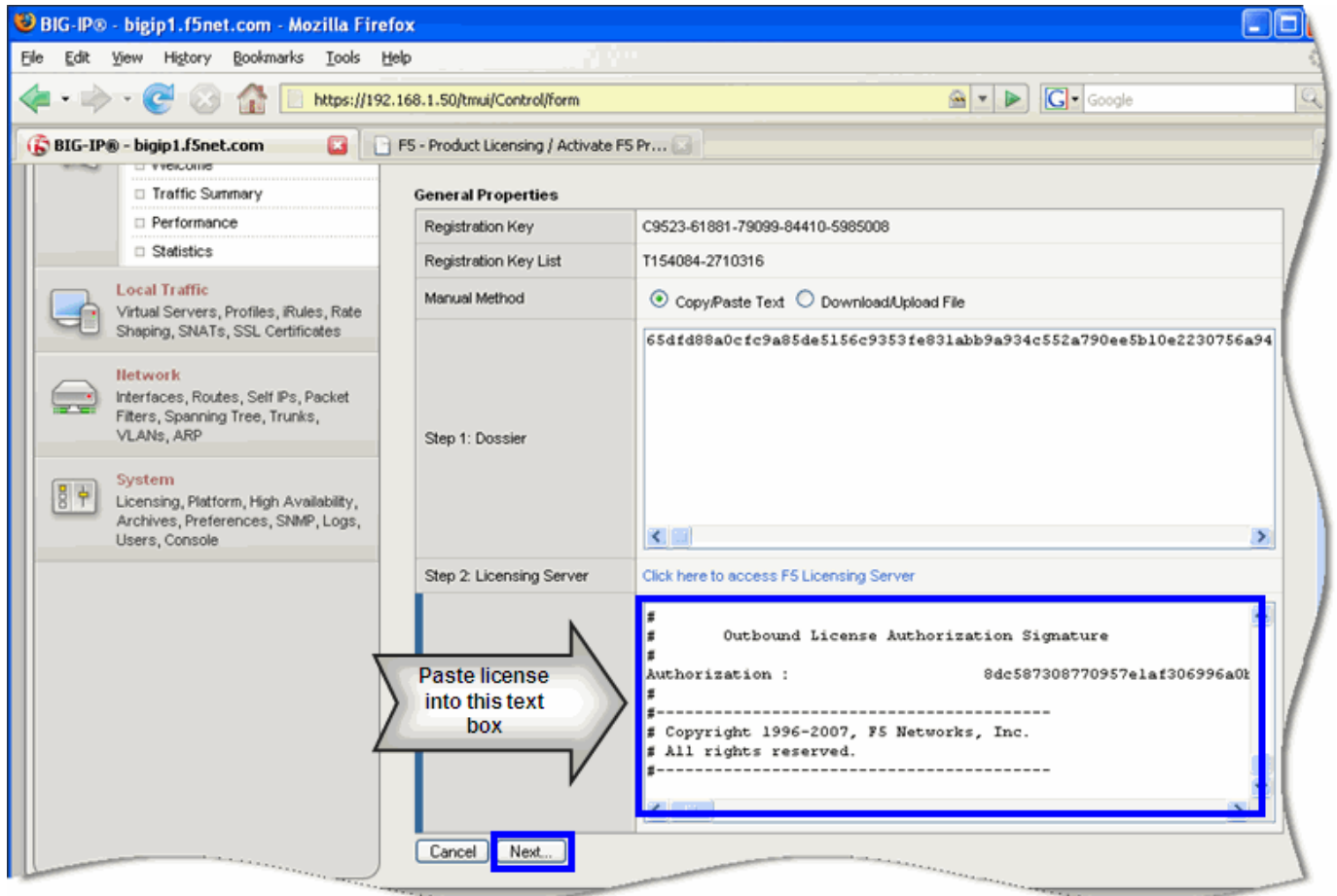


Figure 12: Manual Licensing - Paste the License

To complete the licensing process, instruct the Field Tech to reboot the unit. Upon successful reboot, instruct the Field Tech to re-connect cables to the Management Port and Serial Port.

The Field Tech is to leave any network cables or failover cables unconnected.

Inform the Field Tech that the RMA4 process has been completed.