DEVICE•MASTER®

DEVICE•MASTER® UP

Secure Configuration User Guide

COMTROL®
Network Enabling Devices

Trademark Notices

Comtrol, DeviceMaster, and PortVision are registered trademarks of Comtrol Corporation.

Other product names mentioned herein may be trademarks and/or registered trademarks of their respective owners.

First Edition, March 7, 2011

Comtrol Corporation makes no representations or warranties with regard to the contents of this document or to the suitability of the Comtrol product for any particular purpose. Specifications subject to change without notice. Some software or features may not be available at the time of publication. Contact your reseller for current product information.

Document Number: 2000549 Rev A

Table of Contents

This page was intentionally left blank to permit two-sided printing.

Password Authentication, Setting, and Usage

This *User Guide* discusses secure web configuration for the DeviceMaster and DeviceMaster UP.

This section discusses the following:

Authentication Method

Before the Web page password access method can be enforced, the log-in authentication must be set. The following steps must be performed in order for the password access to be enforced:

1. Telnet to the DeviceMaster UP by typing: **telnet <*ip_address*>** and press **Enter**.

2. When prompted for the password, enter the password if one has been set; otherwise, press **Enter**.
3. To display the current authentication setting for the Web page log-in functionality, type **auth**.
4. To enable enforcing of the Web page log-in functionality, set the authentication to *basic*. Type **auth basic**.
5. To disable enforcing of the Web page log-in functionality, set the authentication to *none*. Type **auth none**.

6. Reset the DeviceMaster UP by typing **reset** and press **Enter**.

```
Telnet 10.0.0.102
Password:

Comtrol DeviceMaster UP   ModelID: 5002111

Modbus/TCP 5.04
Built: Mon Feb 28 10:33:13 CST 2011
IP Addr: 10.0.0.102  Mask: 255.255.0.0 Gateway: 10.0.0.1
MAC Addr: 00 c0 4e 07 24 90


dm> auth
none

dm> auth basic


dm> auth
basic

dm> auth none


dm> auth
none

dm> reset
```

7. Allow the system to start-up. By default, this typically takes about 15 seconds.

Setting/Clearing the Password with Telnet

The password can be set or cleared with Telnet. Perform the following procedure to set or clear the password.

1. Telnet to the DeviceMaster UP.

```
Command Prompt
C:\>telnet 10.0.0.102
```

2. When prompted for the password, enter the password if one has been set; otherwise, press **Enter**.
3. You can set the password by typing the following, where ***xxxxxx*** `is the password`, and pressing **Enter**:

   `password` ***`xxxxxx`***

4. Clear the password by typing the following and pressing **Enter**:

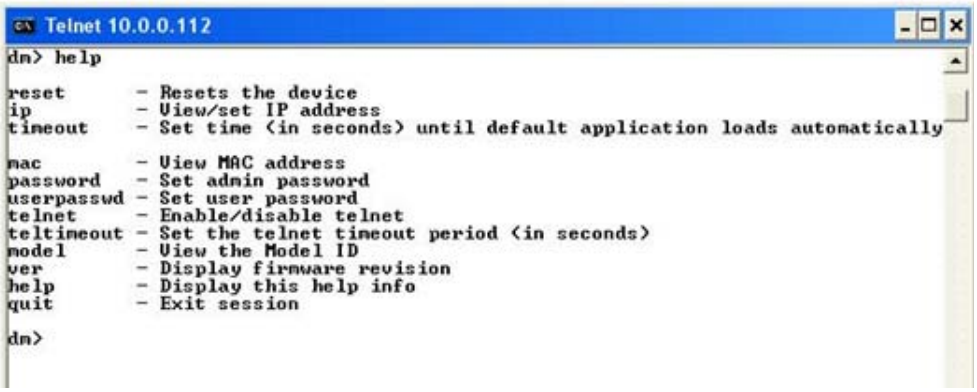
   `password`

```
Telnet 10.0.0.102
Password:

Control DeviceMaster UP   ModelID: 5002111

Modbus/TCP 5.04
Built: Fri Feb 18 15:58:23 CST 2011
IP Addr: 10.0.0.102  Mask: 255.255.0.0 Gateway: 10.0.0.1
MAC Addr: 00 c0 4e 07 24 90


dm> password mypassword
Password set

dm> password
Password cleared

dm>
```

5. Type **quit** to exit.

Telnet Help

To access the Telnet help, type **help**.



Type **quit** to exit.

Web Page Password Access

When the authentication is set to require a password, such as **basic**, you will need to log into each web server session. To log in:

1. Leave the *User name* blank.
2. Type in your password. If there is no password configured, leave the *Password* blank.
3. Click **OK**.

Once logged in, you will have full read/write access to the web pages.

This page was intentionally left blank to permit two-sided printing.

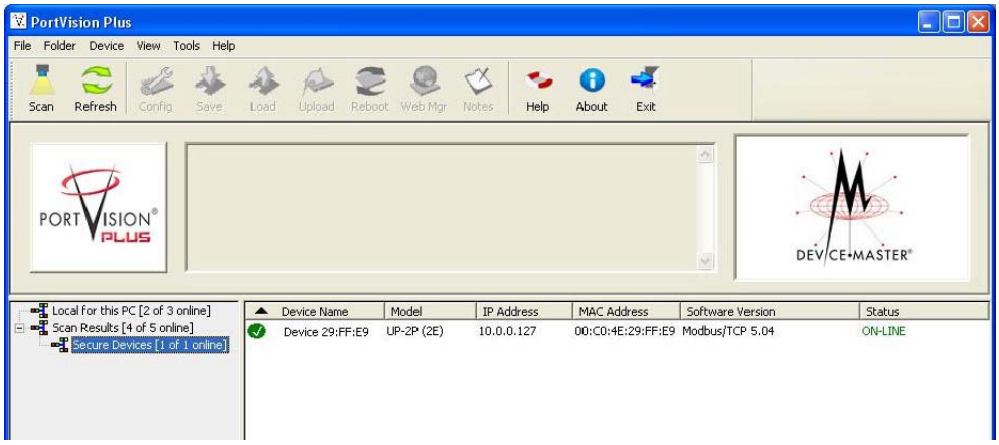
Using PortVision Plus

PortVision Plus can be used to automatically locate non-secured devices. Once located, PortVision Plus will remember the DeviceMaster UP gateway.

PortVision Plus may not be able to automatically locate a secure DeviceMaster UP gateway. If the DeviceMaster UP gateway is configured to enforce security before PortVision Plus has located it, then you may have to add the DeviceMaster UP to the device list manually.

PortVision Plus with a Non-Secured DeviceMaster UP Gateway

PortVision Plus can automatically locate non-secured DeviceMaster UP gateways by clicking the **Scan** button.



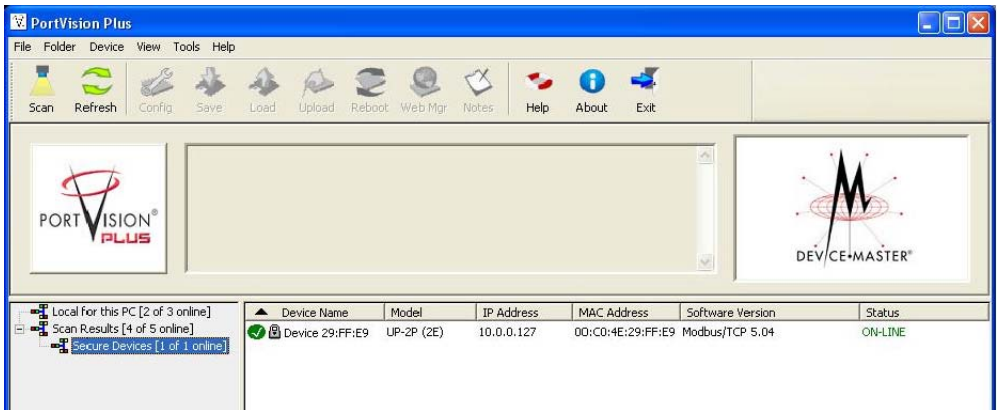
PortVision Plus with a Secured DeviceMaster UP Gateway

This subsection discusses two scenarios:

- DeviceMaster UP Already Located on Page 10
- PortVision Plus with a Secured DeviceMaster UP Gateway on Page 9

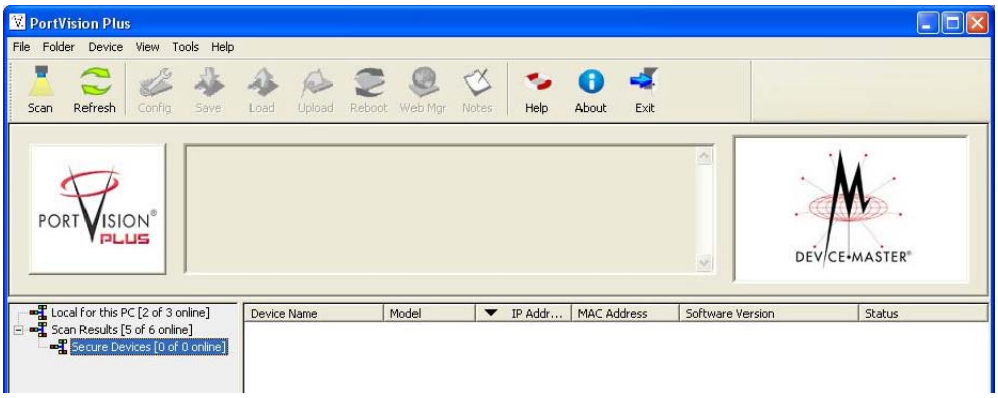
DeviceMaster UP Already Located

If PortVision Plus had located the DeviceMaster UP gateway before security was enforced, it will keep the DeviceMaster UP in its device list. The DeviceMaster UP will now have a **lock** symbol next to it.



DeviceMaster UP Not Previously Located

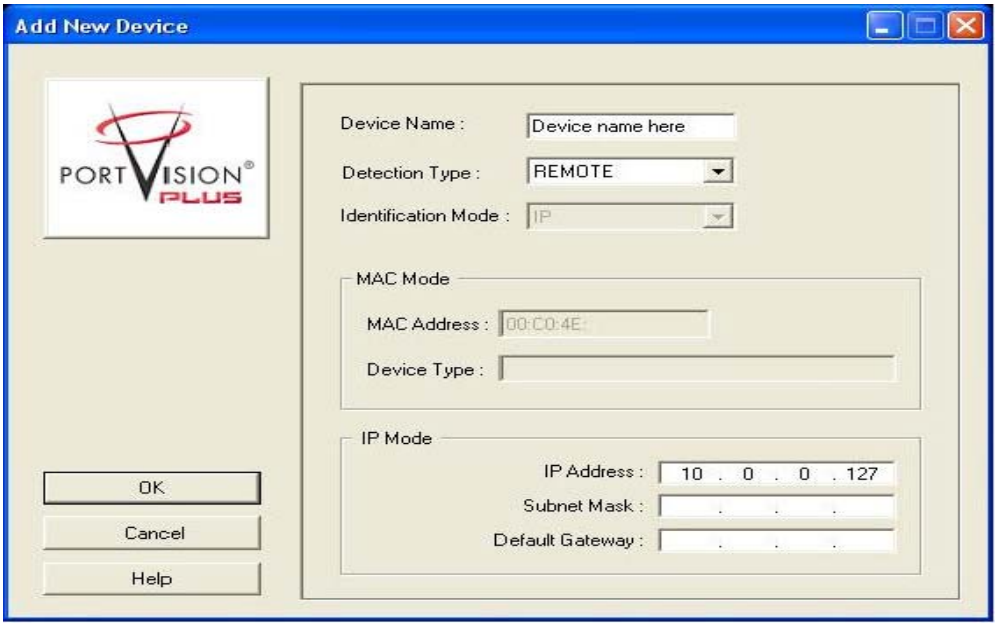
If PortVision Plus had not located the DeviceMaster UP gateway before security was enforced, it may not be able to locate the DeviceMaster UP. A screen similar to the one shown below is displayed.



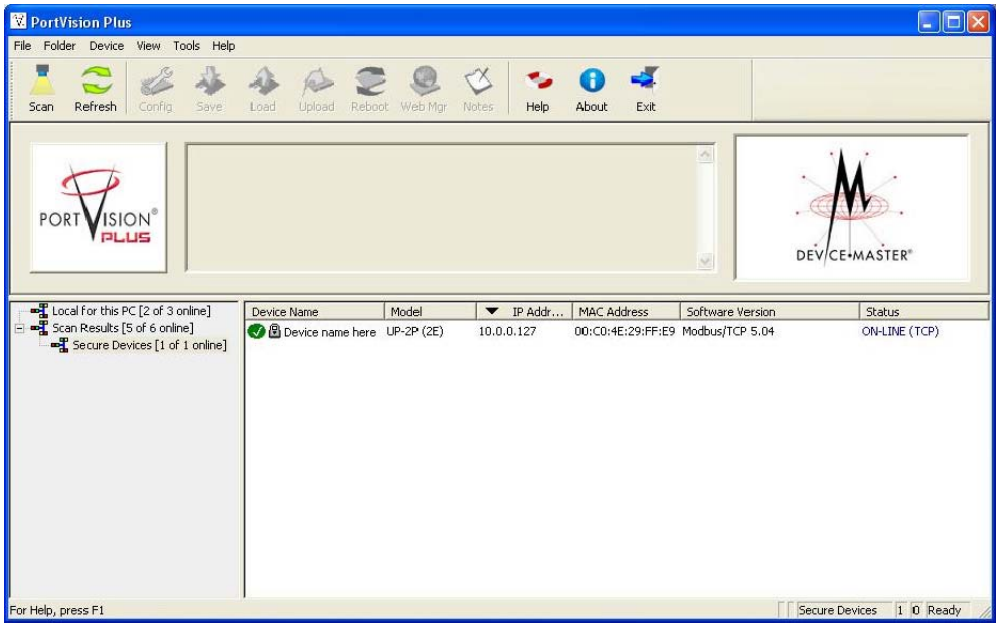
The DeviceMaster UP will need to be added to the list by using the **Add New Device** option. In PortVision Plus, click **Device->Add New Device** and the following screen appears.

1. Enter a **Device Name**.
2. Enter the **IP Address** of the DeviceMaster UP.

3. Click **OK**.



Now PortVision Plus will be able to locate the DeviceMaster UP.



This page was intentionally left blank to permit two-sided printing.

Enabling Web Page Configuration Security (HTTPS)

After loading firmware with secure configuration capabilities, HTTPS configuration becomes available. It is up to you to determine which access will be allowed.

The default settings are:

- Both HTTP (non-secure/unencrypted) and HTTPS (secure/encrypted) configurations are enabled.
- Telnet/ssh are enabled.
- SNMP is disabled.

It is up to you to determine whether or not to disable the unencrypted HTTP configuration access.

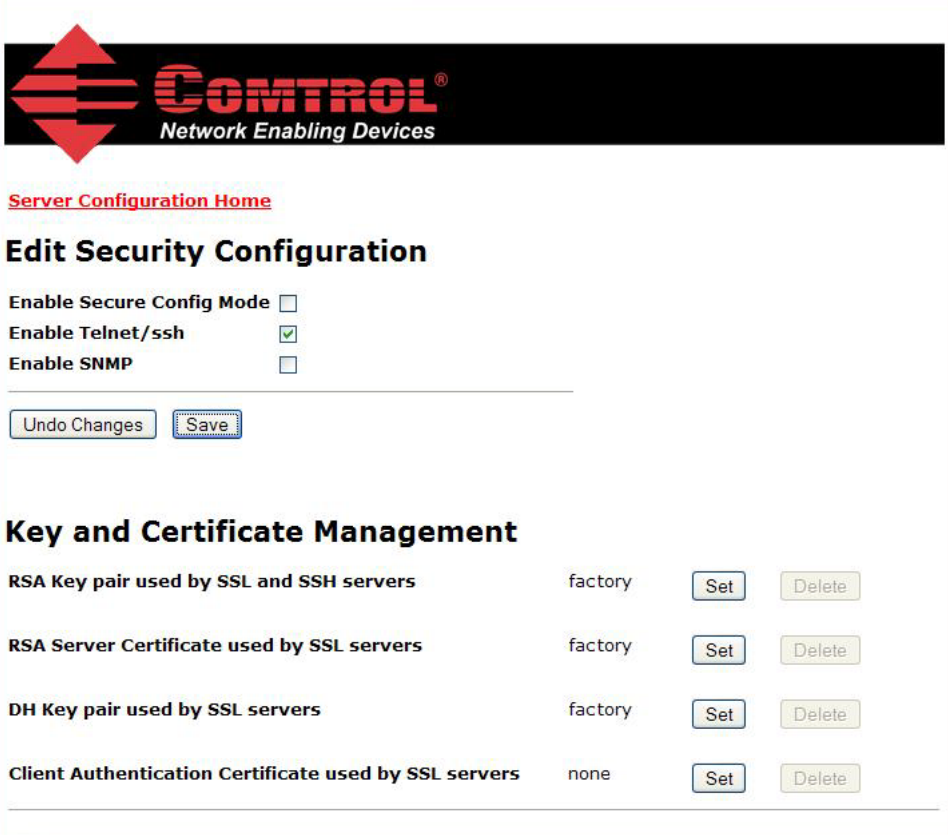
Configuring Security

The embedded web pages are used to configure the DeviceMaster UP security.

Secure configuration mode is enabled on the security configuration web page screen by clicking the **Configure Security** link on the main page. Selecting this option disables the non-secure configuration functionality.

1. Open the DeviceMaster UP *Server Configuration* page using one of these methods:
   - Web browser: Open a web browser and enter the IP address of the DeviceMaster UP that you want to configure.
   - PortVision Plus: Start PortVision Plus, click **Scan**, right-click the DeviceMaster UP that you want to configure, and then click **Web Manager**.
2. Click **Configure Security** on the home page.

3. On the *Edit Security Configuration* page: click **Enable Secure Config Mode** if you want to provide this level of security, which disables the following features:
   - Telnet access to administrative and diagnostic functions is disabled. If enabled, SSH log ins are still allowed.
   - Unencrypted access to the web server via port 80 (http:// URLs) is disabled. Encrypted access to the web server via port 443 (https:// URLs) is still allowed.
   - Administrative commands that change configuration or operating state and are received using the Comtrol proprietary TCP driver protocol on TCP port 4606 are ignored.
   - Administrative commands that change configuration or operating state and are received using the Comtrol MAC mode proprietary Ethernet protocol number 0x11FE are ignored.



4. If necessary, click **Enable Telnet/ssh**.
5. If necessary, click **Enable SNMP**.

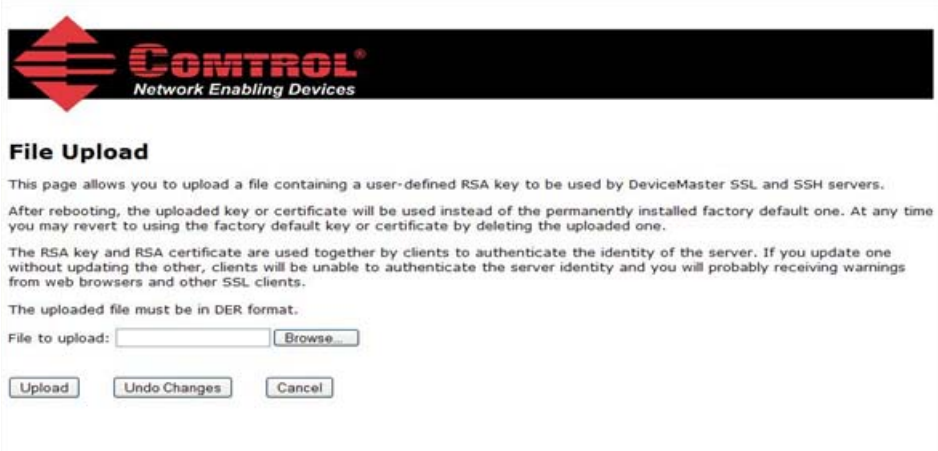
6. If required, click **Set** on the *Edit Security Configuration* page to configure **RSA key pair used by SSL and SSH servers.**

   The RSA Key Pair is used to sign the Server RSA Certificate. This verifies that the DeviceMaster UP is authorized to use the server RSA identity certificate. If the Server RSA Key is to be replaced, a corresponding RSA identity certificate must also be generated and uploaded. If this is not done, clients will not be able to verify the identity certificate.

   Note: *Possession of the private portion of this key pair could allow someone to pose as the DeviceMaster UP.*

   a. Click **Browse** to locate the server RSA key.

   b. Click **Upload**.

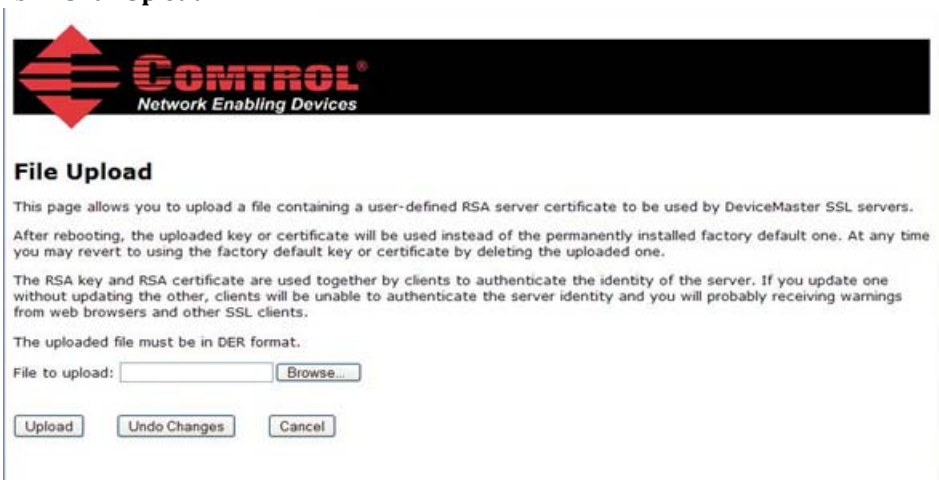


7. If required, click **Set** on the *Edit Security Configuration* page to configure the **RSAServer Certificate used by SSL servers.**

   This is the certificate that the DeviceMaster UP uses during SSL/TLS handshaking to identify itself. It is used most frequently by the DeviceMaster UP SSL server firmware when clients open connections to the DeviceMaster UP's secure web server or other secure TCP ports. In order to function properly, this certificate must be signed using the Server RSA Key. This means that the server RSA certificate and server RSA key must be replaced as a pair.

   a. Click **Browse** to locate the RSA server certificate.

   b. Click **Upload**.



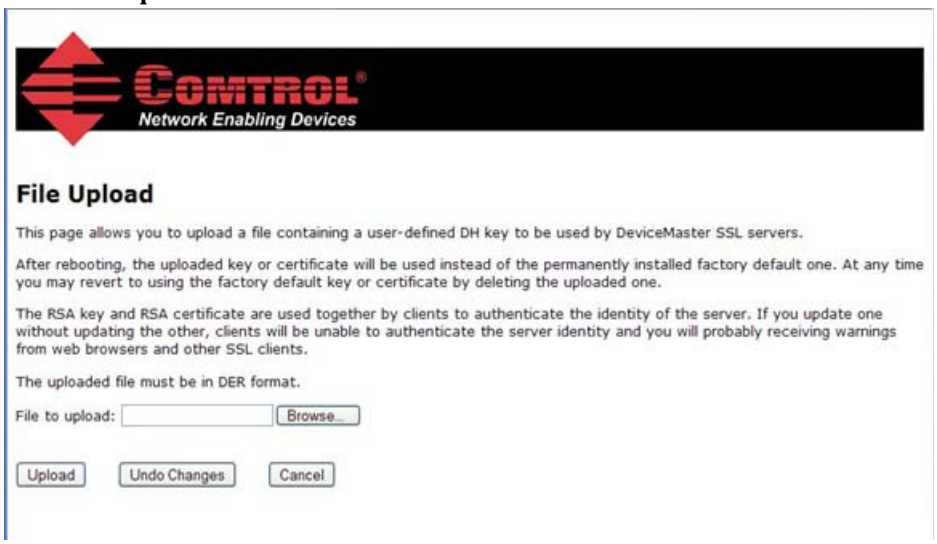
8. If required, click **Set** to enter the **DH Key Pair used by SSL servers** on the *Edit Security Configuration* page.

   This is the private/public key pair that is used by some cipher suites to encrypt the SSL/TLS handshaking messages.

   Note: *Possession of the private portion of the key pair can allow an eavesdropper to decrypt traffic on SSL/TLS connections that use DH encryption during handshaking.*

   a. Click **Browse** to locate the private/public key pair.

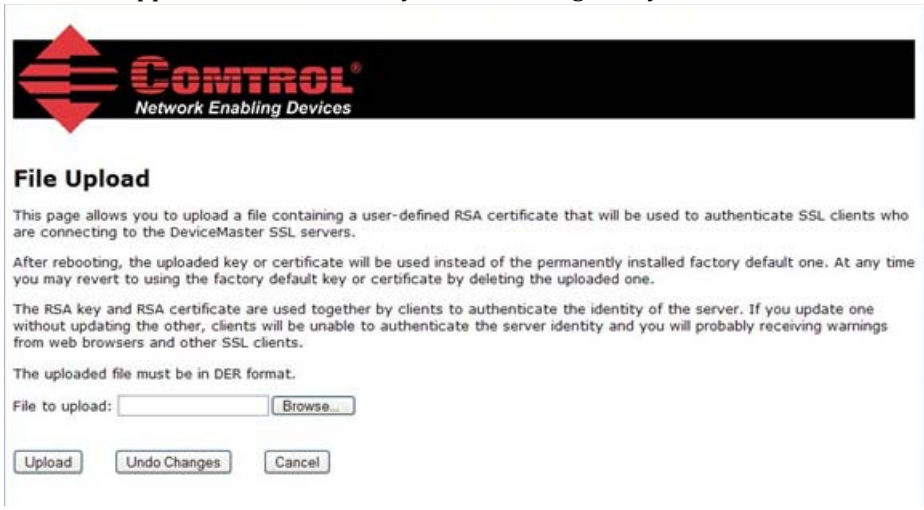
   b. Click **Upload**.



9. If required, click **Set** on the *Edit Security Configuration* page to upload the **Client Authentication Certificate used by SSL servers**.

   If a CA certificate is uploaded, the DeviceMaster UP only allows SSL/TLS connections from client applications that provide to the DeviceMaster UP an identity certificate. This identity certificate must have been signed by the CA certificate that was uploaded to the DeviceMaster UP. The uploaded CA certificate is used to validate a client's identity.

   - The uploaded CA certificate is sometimes referred to as a *trusted root certificate*, a *trusted authority certificate*, or a *trusted CA certificate*.
   - The uploaded CA certificate might be that of a trusted commercial certificate authority or it may be a privately generated certificate that an organization creates internally to provide a mechanism to control access to resources that are protected by the SSL/TLS protocols.
   - To control access to the DeviceMaster UP's SSL/TLS protected resources you should create your own custom CA certificate and then configure authorized client applications with identity certificates signed by the custom CA certificate.



   a. Click **Browse** to locate the Client Authentication Certificate.
   b. Click **Upload**.

10. After completing the key and certification management, click **Save**.

11. To allow the changes to become affective, click **Reboot**.