Configure Secure Shell (SSH) User Authentication Settings on a Switch

Objective

Secure Shell (SSH) is a protocol that provides a secure remote connection to specific network devices. This connection provides functionality that is similar to a Telnet connection, except that it is encrypted. SSH allows the administrator to configure the switch through the command line interface (CLI) with a third party program.

In CLI mode via SSH, the administrator can execute more advanced configurations in a secure connection. SSH connections are useful in troubleshooting a network remotely, in cases where the network administrator is not physically present at the network site. The switch lets the administrator authenticate and manage users to connect to the network via SSH. The authentication occurs via a public key that the user can use to establish an SSH connection to a specific network.

The SSH client feature is an application that runs over the SSH protocol to provide device authentication and encryption. It enables a device to make a secure and encrypted connection to another device that runs the SSH server. With authentication and encryption, the SSH client allows for a secure communication over an unsecure Telnet connection.

This article provides instructions on how to configure client user authentication on a managed switch.

Applicable Devices

- Sx200 Series
- Sx300 Series
- Sx350 Series
- SG350X Series
- Sx500 Series
- Sx550X Series

Software Version

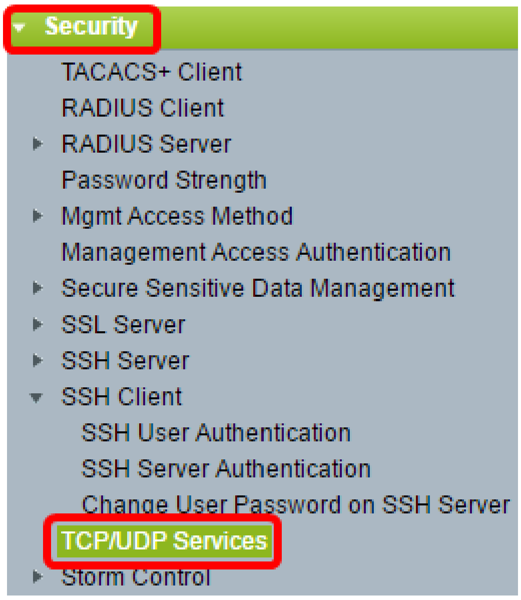
- 1.4.5.02 – Sx200 Series, Sx300 Series, Sx500 Series
- 2.2.0.66 – Sx350 Series, SG350X Series, Sx550X Series

Configure SSH Client User Authentication Settings

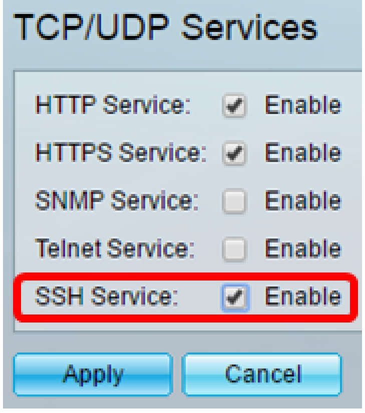
Enable SSH Service

Note: In order to support auto configuration of an out-of-box device (device with factory default configuration), SSH server authentication is disabled by default.

Step 1. Log in to the web-based utility and choose **Security > TCP/UDP Services**



Step 2. Check the **SSH Service** check box to enable access of switches command prompt through SSH.


TCP/UDP Services

HTTP Service: ☑ Enable

HTTPS Service: ☑ Enable

SNMP Service: □ Enable

Telnet Service: □ Enable

SSH Service: ☑ Enable

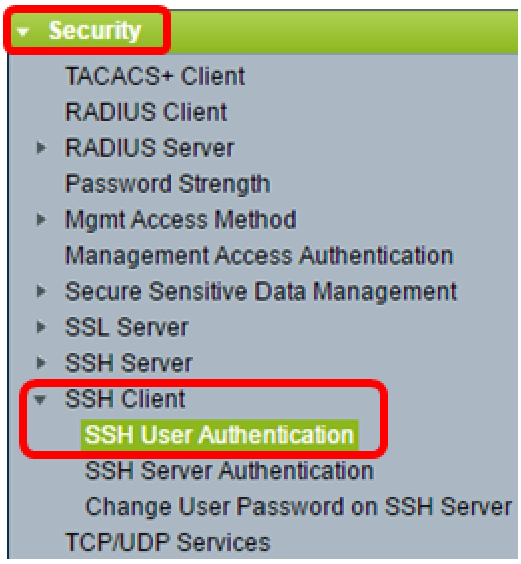
Step 3. Click **Apply** to enable the SSH service.

Configure SSH User Authentication Settings

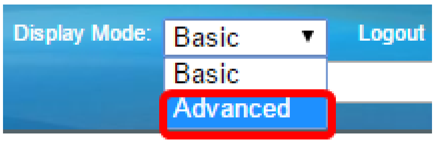
Use this page to choose an SSH user authentication method. You can set a username and password on the device if the password method is chosen. You can also generate a Ron Rivest, Adi Shamir and Leonard Adleman (RSA) or Digital Signature Algorithm (DSA) key if the public or private key method is selected.

RSA and DSA default key pairs are generated for the device when it is booted. One of these keys is used to encrypt the data being downloaded from the SSH server. The RSA key is used by default. If the user deletes one or both of these keys, they are regenerated.

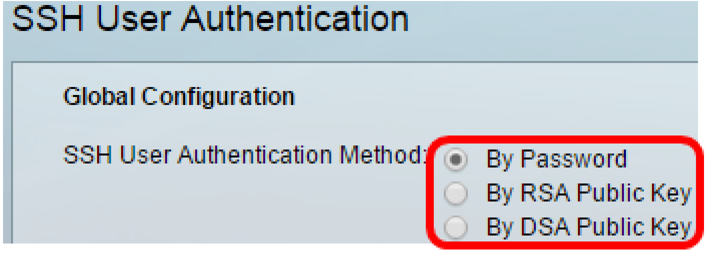
Step 1. Log in to the web-based utility and choose **Security > SSH Client > SSH User Authentication**.



Note: If you have an Sx350, SG300X, or Sx500X, switch to Advanced mode by choosing **Advanced** from the Display Mode drop-down list.



Step 2. Under Global Configuration, click the desired SSH User Authentication Method.


SSH User Authentication

Global Configuration

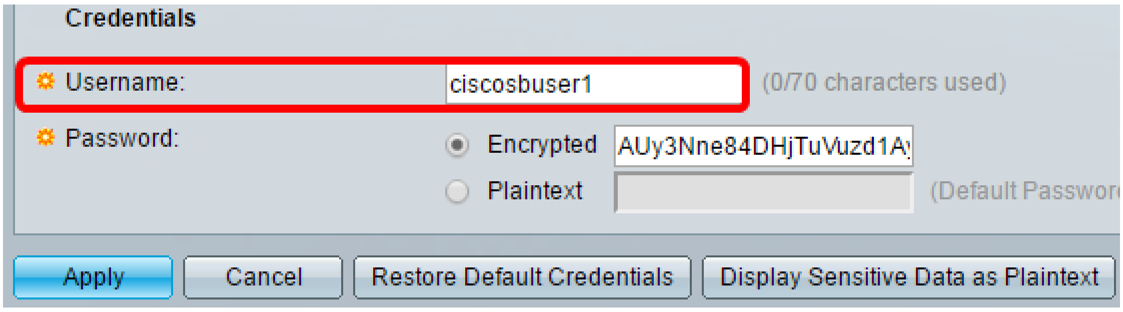
SSH User Authentication Method: ● By Password ○ By RSA Public Key ○ By DSA Public Key

Note: When a device (SSH client) attempts to establish an SSH session to the SSH server, the SSH server uses one of the following methods for client authentication:

- By Password — This option lets you configure a password for user authentication. This is the default setting and the default password is anonymous. If this option is chosen, make sure that the username and password credentials have been established on the SSH Server.
- By RSA Public Key — This option lets you use RSA public key for user authentication. An RSA key is an encrypted key based on factorization of large integers. This key is the most common type of key used for SSH user authentication.
- By DSA Public Key — This option lets you use a DSA public key for user authentication. A DSA key is an encrypted key based on ElGamal discrete algorithm. This key is not commonly used for SSH user authentication as it takes more time in the authentication process.

Note: In this example, By Password is chosen.

Step 3. In the Credentials area, enter the user name in the *Username* field.



Credentials

Username: ciscosbuser1 (0/70 characters used)

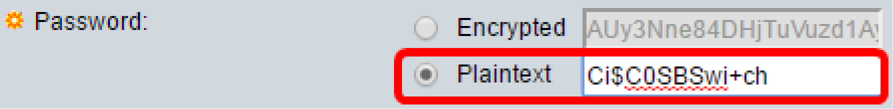
Password: ● Encrypted AUy3Nne84DHjTuVuzd1Ay

○ Plaintext (Default Passwor

Apply
Cancel
Restore Default Credentials
Display Sensitive Data as Plaintext

Note: In this example, ciscosbuser1 is used.

Step 4. (Optional) If you chose By Password in Step 2, click the method then enter the password in the *Encrypted* or *Plaintext* field.



Password: ○ Encrypted AUy3Nne84DHjTuVuzd1Ay

● Plaintext Ci$C0SBSwi+ch

The options are:

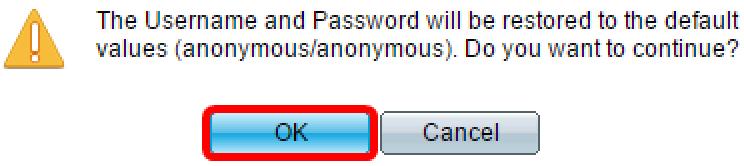
- Encrypted — This option lets you enter an encrypted version of the password.
- Plaintext — This option lets you enter a plain text password.

Note: In this example, Plaintext is chosen and a plain text password is entered.

Step 5. Click **Apply** to save your authentication configuration.

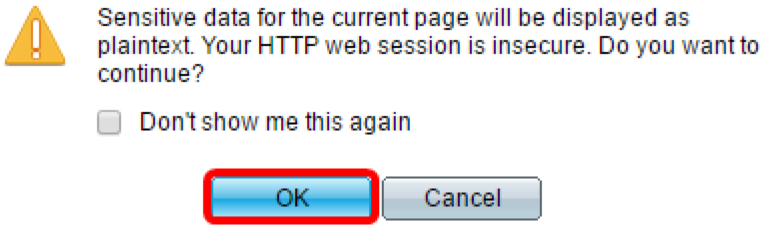
Step 6. (Optional) Click **Restore Default Credentials** to restore the default user name and password then click **OK** to proceed.

Note: The username and password will be restored to the default values: anonymous/anonymous.



The Username and Password will be restored to the default values (anonymous/anonymous). Do you want to continue?

Step 7. (Optional) Click **Display Sensitive Data as Plaintext** to show the sensitive data of the page in plain text format then click **OK** to proceed.

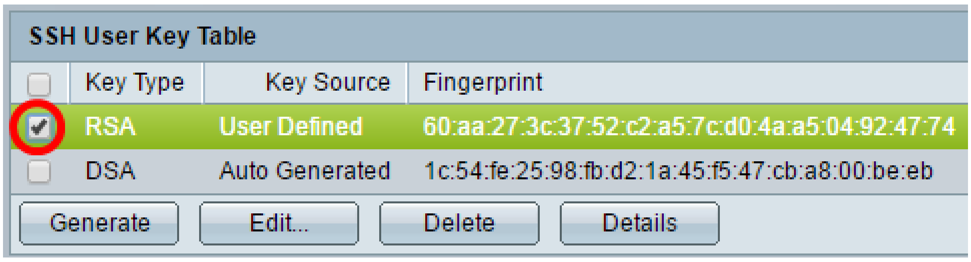


Sensitive data for the current page will be displayed as plaintext. Your HTTP web session is insecure. Do you want to continue?

□ Don't show me this again

Configure SSH User Key Table

Step 8. Check the check box of the key you wish to manage.

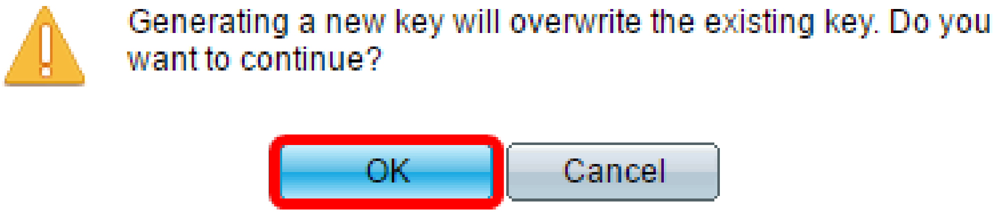


SSH User Key Table

☐	Key Type	Key Source	Fingerprint
☑	RSA	User Defined	60:aa:27:3c:37:52:c2:a5:7c:d0:4a:a5:04:92:47:74
☐	DSA	Auto Generated	1c:54:fe:25:98:fb:d2:1a:45:f5:47:cb:a8:00:be:eb

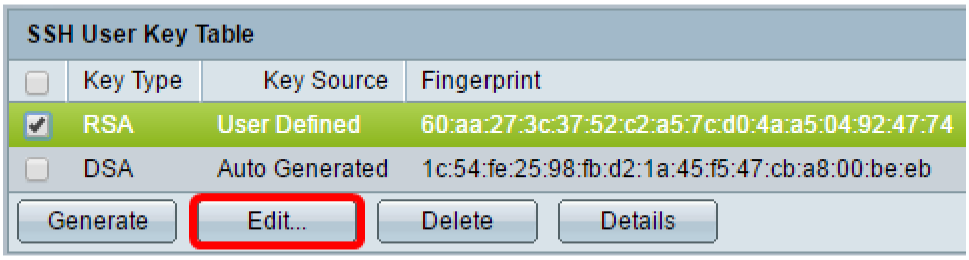
Note: In this example, RSA is chosen.

Step 9. (Optional) Click **Generate** to generate a new key. The new key will override the checked key then click **OK** to proceed.



Generating a new key will overwrite the existing key. Do you want to continue?

Step 10. (Optional) Click **Edit** to edit a current key.



SSH User Key Table

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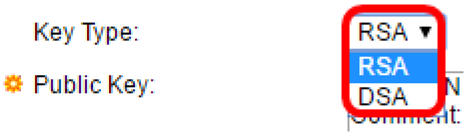
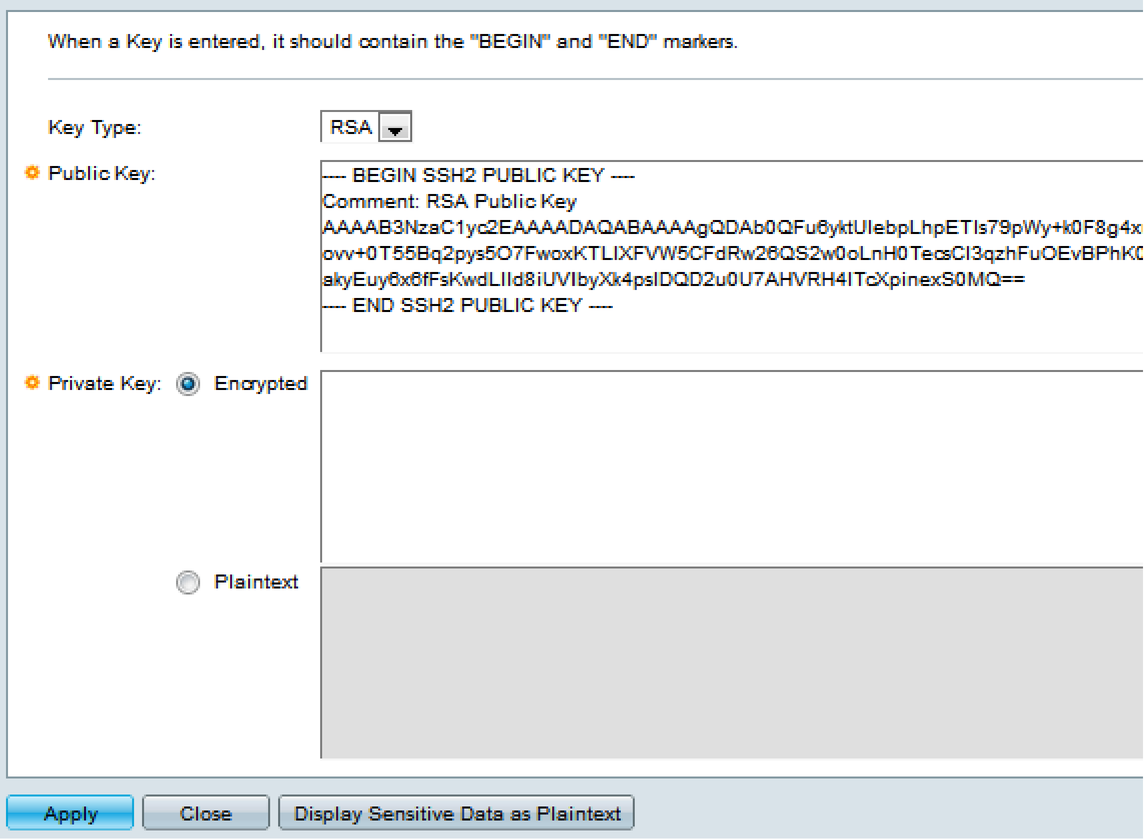
☑	RSA	User Defined	60:aa:27:3c:37:52:c2:a5:7c:d0:4a:a5:04:92:47:74
☐	DSA	Auto Generated	1c:54:fe:25:98:fb:d2:1a:45:f5:47:cb:a8:00:be:eb

Step 11. (Optional) Choose a key type from the Key Type drop-down list.



Note: In this example, RSA is chosen.

Step 12. (Optional) Enter the new public key in the *Public Key* field.



When a Key is entered, it should contain the "BEGIN" and "END" markers.

Key Type: RSA

Public Key:

```
---- BEGIN SSH2 PUBLIC KEY ----
Comment: RSA Public Key
AAAAB3NzaC1yc2EAAAADAQABAAAAgQDAb0QFu6yktUlebpLhpETIs79pWy+k0F8g4x
ovv+0T55Bq2pys5O7FwoxKTLIXFVW5CFdRw26QS2w0oLnH0TecsCI3qzhFuOEvBPhK0
akyEuy6x6fFsKwdLIld8iUVIbyXk4psIDQD2u0U7AHVRH4ITcXpinexS0MQ==
---- END SSH2 PUBLIC KEY ----
```

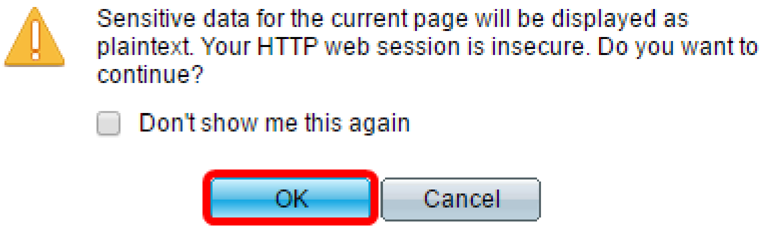
Private Key: ● Encrypted

○ Plaintext

Step 13. (Optional) Enter the new private key in the *Private Key* field.

Note: You can edit the private key and you can click Encrypted to see the current private key as an encrypted text, or Plaintext to see the current private key in plain text.

Step 14. (Optional) Click **Display Sensitive Data as Plaintext** to show the encrypted data of the page in plain text format then click **OK** to proceed.

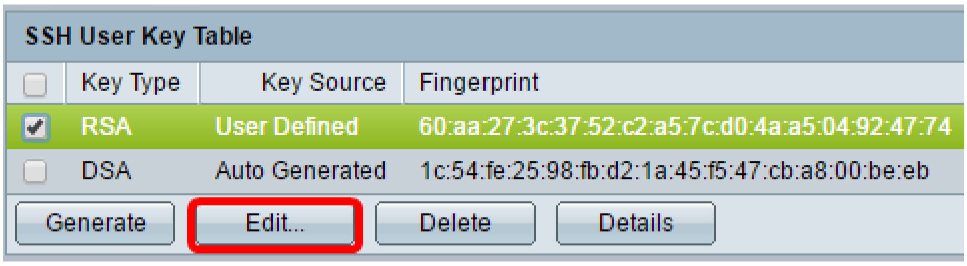


Sensitive data for the current page will be displayed as plaintext. Your HTTP web session is insecure. Do you want to continue?

□ Don't show me this again

Step 15. Click **Apply** to save your changes then click **Close**.

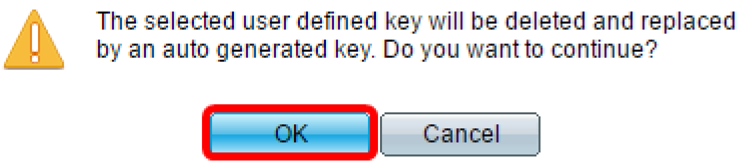
Step 16. (Optional) Click **Delete** to delete the checked key.



SSH User Key Table

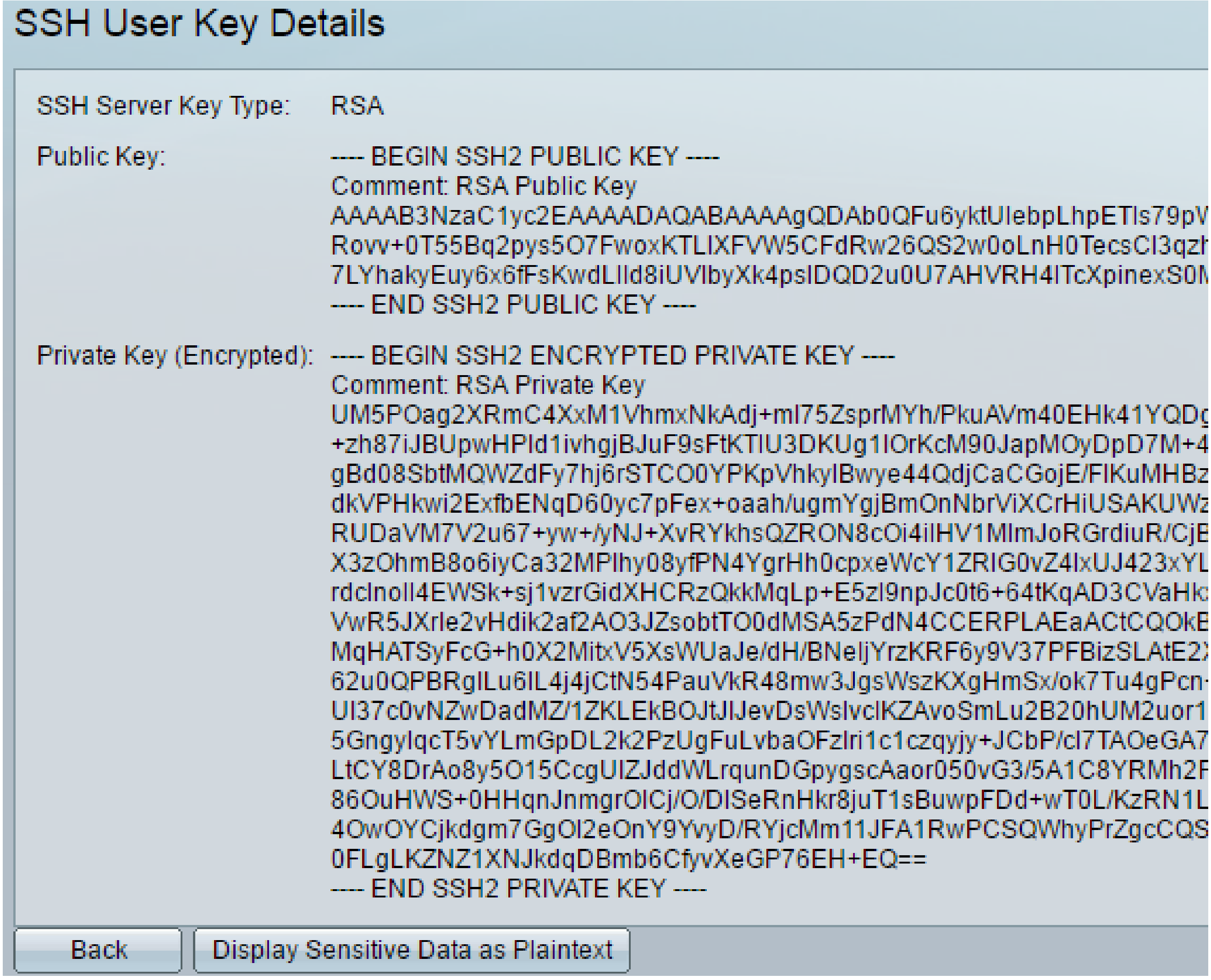
□	Key Type	Key Source	Fingerprint
☑	RSA	User Defined	60:aa:27:3c:37:52:c2:a5:7c:d0:4a:a5:04:92:47:74
□	DSA	Auto Generated	1c:54:fe:25:98:fb:d2:1a:45:f5:47:cb:a8:00:be:eb

Step 17. (Optional) Once prompted by a confirmation message as shown below, click **OK** to delete the key.



The selected user defined key will be deleted and replaced by an auto generated key. Do you want to continue?

Step 18. (Optional) Click **Details** to see the details of the checked key.



SSH User Key Details

SSH Server Key Type: RSA

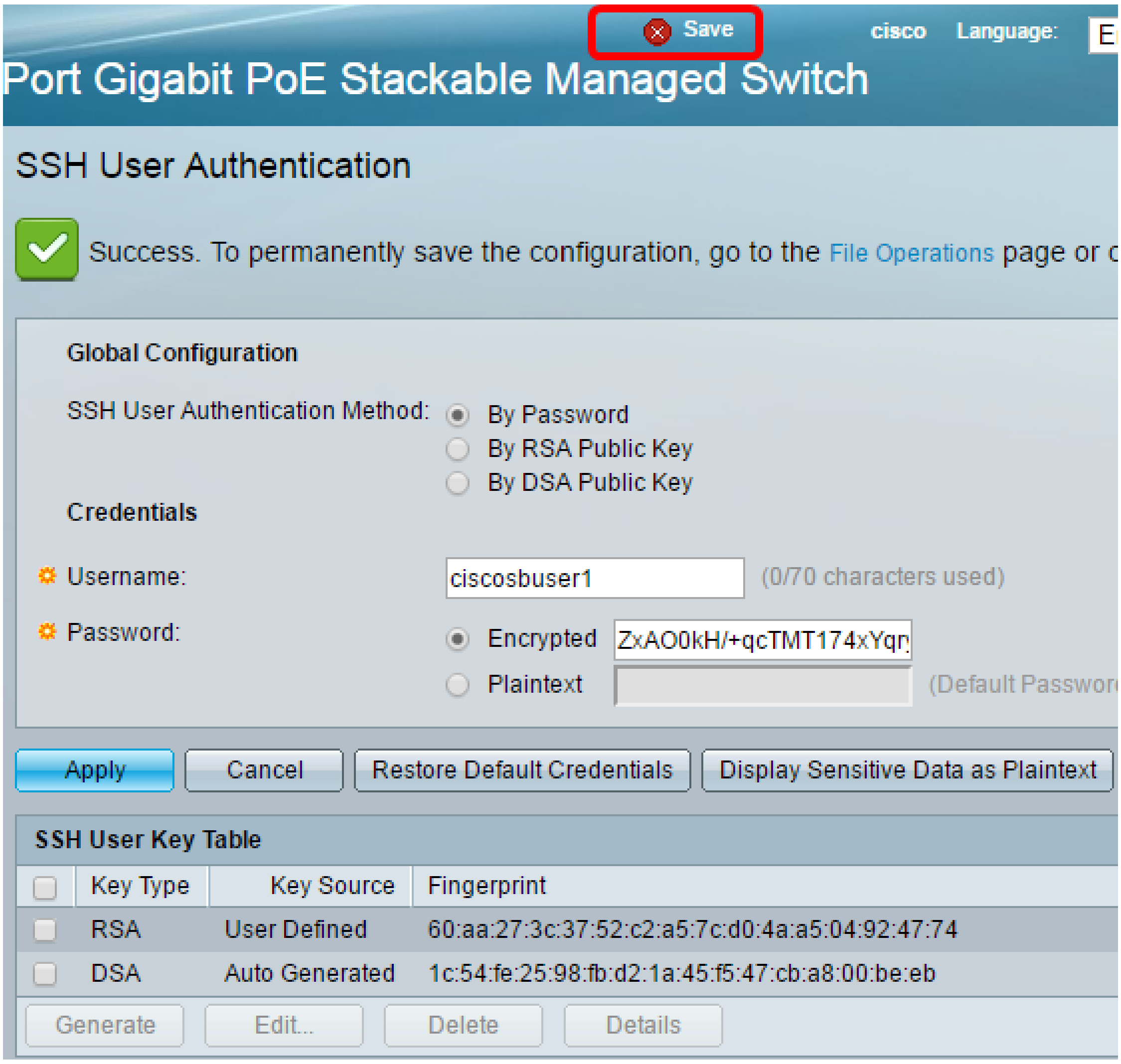
Public Key:

```
---- BEGIN SSH2 PUBLIC KEY ----
Comment: RSA Public Key
AAAAB3NzaC1yc2EAAAADAQABAAAAgQDAb0QFu6yktUlebpLhpETls79pV
Rovv+0T55Bq2pys5O7FwoxKTLIXFVW5CFdRw26QS2w0oLnH0TecsCl3qzh
7LYhakyEuy6x6fFsKwdLlId8iUVlbyXk4psIDQD2u0U7AHVRH4lTcXpinexS0M
---- END SSH2 PUBLIC KEY ----
```

Private Key (Encrypted):

```
---- BEGIN SSH2 ENCRYPTED PRIVATE KEY ----
Comment: RSA Private Key
UM5POag2XRmC4XxM1VhmxNkAdj+ml75ZsprMYh/PkuAVm40EHk41YQDg
+zh87iJBUpwHPld1ivhgjBJuF9sFtKTlU3DKUg1lOrKcM90JapMOyDpD7M+4
gBd08SbtMQWZdFy7hj6rSTCO0YPKpVhkylBwye44QdjCaCGojE/FlKuMHBz
dkVPHkwi2ExfbENqD60yc7pFex+oaah/ugmYgjBmOnNbrViXCrHiUSAKUWz
RUDaVM7V2u67+yw+/yNJ+XvRYkhsQZRON8cOi4ilHV1MlmJoRGrdiuR/CjB
X3zOhmB8o6iyCa32MPlhy08yfPN4YgrHh0cpxeWcY1ZRIG0vZ4lxUJ423xYL
rdclnoll4EWSk+sj1vzrGidXHCRzQkkMqLp+E5zl9npJc0t6+64tKqAD3CVaHk
VwR5JXrle2vHdik2af2AO3JZsobtTO0dMSA5zPdN4CCERPLAEaACtCQOkB
MqHATSyFcG+h0X2MitxV5XsWUaJe/dH/BNeljYrzKRF6y9V37PFBizSLAtE2X
62u0QPBRglLu6lL4j4jCtN54PauVkR48mw3JgsWszKXgHmSx/ok7Tu4gPcn-
Ul37c0vNZwDadMZ/1ZKLEkBOJtJlJevDsWslvclKZAvoSmLu2B20hUM2uor1
5GngylqcT5vYLmGpDL2k2PzUgFuLvbaOFzlri1c1czqyjy+JCbP/cl7TAOeGA7
LtCY8DrAo8y5O15CcgUlZJddWLrqunDGpygscAaor050vG3/5A1C8YRMh2F
86OuHWS+0HHqnJnmgrOlCj/O/DlSeRnHkr8juT1sBuwpFDd+wT0L/KzRN1L
4OwOYCjkdgm7GgOl2eOnY9YvyD/RYjcMm11JFA1RwPCSQWhyPrZgcCQS
0FLgLKZNZ1XNJkdqDBmb6CfyvXeGP76EH+EQ==
---- END SSH2 PRIVATE KEY ----
```

Step 19. (Optional) Click the **Save** button at the top portion of the page to save the changes to the startup configuration file.



Save
cisco
Language:
Port Gigabit PoE Stackable Managed Switch

SSH User Authentication

✓ Success. To permanently save the configuration, go to the File Operations page or c

Global Configuration

SSH User Authentication Method: ● By Password ○ By RSA Public Key ○ By DSA Public Key

Credentials

Username: ciscosbuser1 (0/70 characters used)

Password: ● Encrypted ZxAO0kH/+qcTMT174xYqr ○ Plaintext (Default Passwor

Apply
Cancel
Restore Default Credentials
Display Sensitive Data as Plaintext

SSH User Key Table

□	Key Type	Key Source	Fingerprint
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□	DSA	Auto Generated	1c:54:fe:25:98:fb:d2:1a:45:f5:47:cb:a8:00:be:eb

You should now have configured the client user authentication settings on your managed switch.