Contenu

Introduction

Ce document donne des instructions pas à pas pour configurer la version 1 de Secure shell (SSH) sur des commutateurs Catalyst exécutant OS de Catalyst (CatOS). La version testée est cat6000-supk9.6-1-1c.bin ou une version ultérieure.

Conditions préalables

Conditions requises

Ce tableau montre le statut de support de SSH dans les commutateurs. Les utilisateurs enregistrés peuvent accéder à ces images logicielles en visitant le centre logiciel.

CatOS SSH	
Périphérique	**Prise en charge de la fonctionnalité SSH**
Cat 4000/4500/2948G/2980G (CatOS)	Images K9 en date de 6.1

Cat 5000/5500 (CatOS)	Images K9 en date de 6.1
Cat 6000/6500 (CatOS)	Images K9 en date de 6.1
SSH IOS	
Périphérique	**Prise en charge de la fonctionnalité SSH**
Cat 2950*	12.1(12c)EA1 et plus récent
Cat 3550*	12.1(11)EA1 et plus récent
Cat 4000/4500 (Logiciel Cisco IOS intégré) *	12.1(13)EW et plus récent **
Cat 6000/5500 (Logiciel Cisco IOS intégré) *	12.1(11b)E et plus récent
Cat 8540/8510	12.1(12c)EY et plus récent, 12.1(14)E1 et plus récent
Non SSH	
Périphérique	**Prise en charge de la fonctionnalité SSH**
Cat 1900	non
Cat 2800	non
Cat 2948G-L3	non
Cat 2900XL	non
Cat 3500XL	non
Cat 4840G-L3	non
Cat 4908G-L3	non

* La configuration est couverte en configurant le Secure Shell sur les routeurs et commutateurs exécutant le Cisco IOS.

** Il n'y a aucune prise en charge de SSH dans le train 12.1E pour le Logiciel Cisco IOS intégré par exécution de Catalyst 4000.

Consultez le formulaire d'autorisation d'exportation de logiciel de cryptage afin de solliciter le 3DES.

Ce document suppose que l'authentification fonctionne avant l'implémentation de SSH (par le mot de passe telnet, TACACS+) ou de RADIUS. Le SSH avec le Kerberos n'est pas pris en charge avant l'implémentation de SSH.

Composants utilisés

Ce document expose seulement les séries de Catalyst 2948G, Catalyst 2980G, Catalyst 4000/4500, Catalyst 5000/5500, et Catalyst 6000/6500 exécutant l'image de CatOS K9. Référez-vous à la section UDLD de ce document pour de plus amples détails.

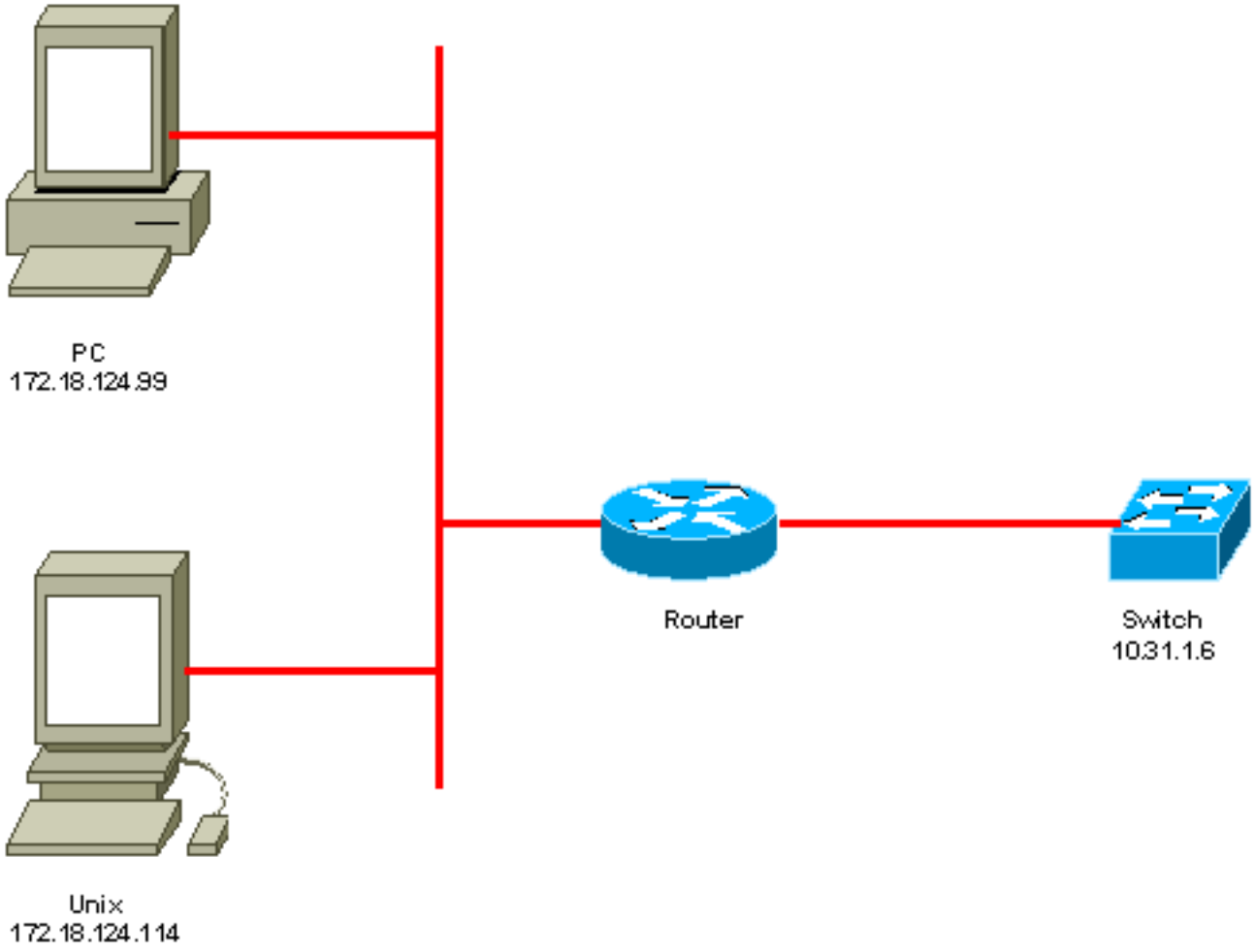
Les informations présentées dans ce document ont été créées à partir de périphériques dans un environnement de laboratoire spécifique. Tous les périphériques utilisés dans ce document ont démarré avec une configuration effacée (par défaut). Si vous travaillez dans un réseau

opérationnel, assurez-vous de bien comprendre l'impact potentiel de toute commande avant de l'utiliser.

Conventions

Pour plus d'informations sur les conventions des documents, référez-vous aux Conventions utilisées pour les conseils techniques de Cisco.

Diagramme du réseau



Configuration du commutateur

```
!--- Generate and verify RSA key.sec-cat6000> (enable) set crypto key rsa 1024Generating RSA
keys..... [OK]sec-cat6000> (enable) ssh_key_process: host/server key size: 1024/768 !--- Display
the RSA key.sec-cat6000> (enable) show crypto keyRSA keys were generated at: Mon Jul 23 2001,
15:03:30 1024 65537
151441469536057733285367170478570985060663476874686971696394035244062067857533870155088852569969
147833053784006695698761020781095949864817996533001801084478586347277306769718525641838624300188
100883056124113738169282007867437605827557313344852933219966820193013294709782680590633782154793
85405498193061651 !--- Restrict which host/subnets are allowed to use SSH to the switch. !---
Note: If you do not do this, the switch will display the message !--- "WARNING!! IP permit list
has no entries!"sec-cat6000> set ip permit 172.18.124.0 255.255.255.0172.18.124.0 with mask
255.255.255.0 added to IP permit list. !--- Turn on SSH.sec-cat6000> (enable) set ip permit
enable sshSSH permit list enabled. !--- Verity SSH permit list.sec-cat6000> (enable) show ip
```

permitTelnet permit list disabled.Ssh permit list enabled.Snmp permit list disabled.Permit List Mask Access-Type ---------------- ---------------- -------------172.18.124.0 255.255.255.0 telnet ssh snmp Denied IP Address Last Accessed Time Type----------------- ----------------- ----------

Désactiver le SSH

Dans certaines situations, il peut être nécessaire de désactiver le SSH sur le commutateur. Vous devez vérifier si le SSH est configuré sur le commutateur et si oui, le désactiver.

Pour vérifier si le SSH a été configuré sur le commutateur, émettez la commande de **show crypto key**. Si le résultat affiche la clé RSA, alors le SSH a été configuré et activé sur le commutateur. Un exemple est montré ici.

sec-cat6000> (enable) **show crypto keyRSA keys were generated at: Mon Jul 23 2001**, 15:03:30 1024 65537
1514414695360577332853671704785709850606634768746869716963940352440620678575338701550888525699691478330537840066956987610207810959498648179965330018010844785863472773067697185256418386243001881008830561241137381692820078674376058275573133448529332199668201930132947097826805906337821547938540549819306165 1

Pour supprimer la clé crypto, émettez la commande de **clear crypto key rsa** afin de désactiver le SSH sur le commutateur. Un exemple est montré ici.

sec-cat6000> (enable) **clear crypto key rsa** Do you really want to clear RSA keys (y/n) [n]? y RSA keys has been cleared. sec-cat6000> (enable)

débogage dans Catalyst

Pour activer des débogages, émettez la commande du **ssh 4 de set trace**.

Pour activer des débogages, émettez la commande du **ssh 0 de set trace**.

exemples de commande de débogage d'une bonne connexion

Solaris au Catalyst, Triple Data Encryption Standard (3DES), mot de passe telnet

Solaris

rtp-evergreen# **ssh -c 3des -v 10.31.1.6**SSH Version 1.2.26 [sparc-sun-solaris2.5.1], protocol version 1.5.Compiled with RSAREF.rtp-evergreen: Reading configuration data /opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon 0rtp-evergreen: Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-evergreen: Connection established.rtp-evergreen: Remote protocol version 1.5, remote software version 1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public key (768 bits) and host key (1024 bits).Host key not found from the list of known hosts.Are you sure you want to continue connecting (yes/no)? yesHost '10.31.1.6' added to the list of known hosts.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen: Encryption type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc compensation attack detector.rtp-evergreen: Received encrypted confirmation.rtp-evergreen: Doing password authentication.root@10.31.1.6's password: rtp-evergreen: Requesting pty.rtp-evergreen: Failed to get local xauth data.rtp-evergreen: Requesting X11 forwarding with authentication spoofing.Warning: Remote host denied X11 forwarding, perhaps xauth program could not be run on the server side. rtp-evergreen: Requesting shell.rtp-evergreen: Entering interactive session.Cisco Systems Consolesec-cat6000>

Catalyst

```
rtp-evergreen# ssh -c 3des -v 10.31.1.6SSH Version 1.2.26 [sparc-sun-solaris2.5.1], protocol
version 1.5.Compiled with RSAREF.rtp-evergreen: Reading configuration data
/opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon 0rtp-evergreen:
Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-evergreen:
Connection established.rtp-evergreen: Remote protocol version 1.5, remote software version
1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public key
(768 bits) and host key (1024 bits).Host key not found from the list of known hosts.Are you sure
you want to continue connecting (yes/no)? yesHost '10.31.1.6' added to the list of known
hosts.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen: Encryption
type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc compensation
attack detector.rtp-evergreen: Received encrypted confirmation.rtp-evergreen: Doing password
authentication.root@10.31.1.6's password: rtp-evergreen: Requesting pty.rtp-evergreen: Failed to
get local xauth data.rtp-evergreen: Requesting X11 forwarding with authentication
spoofing.Warning: Remote host denied X11 forwarding, perhaps xauth program    could not be run
on the server side. rtp-evergreen: Requesting shell.rtp-evergreen: Entering interactive
session.Cisco Systems Consolesec-cat6000>
```

PC au Catalyst, 3DES, mot de passe telnet

Catalyst

```
rtp-evergreen# ssh -c 3des -v 10.31.1.6SSH Version 1.2.26 [sparc-sun-solaris2.5.1], protocol
version 1.5.Compiled with RSAREF.rtp-evergreen: Reading configuration data
/opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon 0rtp-evergreen:
Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-evergreen:
Connection established.rtp-evergreen: Remote protocol version 1.5, remote software version
1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public key
(768 bits) and host key (1024 bits).Host key not found from the list of known hosts.Are you sure
you want to continue connecting (yes/no)? yesHost '10.31.1.6' added to the list of known
hosts.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen: Encryption
type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc compensation
attack detector.rtp-evergreen: Received encrypted confirmation.rtp-evergreen: Doing password
authentication.root@10.31.1.6's password: rtp-evergreen: Requesting pty.rtp-evergreen: Failed to
get local xauth data.rtp-evergreen: Requesting X11 forwarding with authentication
spoofing.Warning: Remote host denied X11 forwarding, perhaps xauth program    could not be run
on the server side. rtp-evergreen: Requesting shell.rtp-evergreen: Entering interactive
session.Cisco Systems Consolesec-cat6000>
```

Solaris au Catalyst, 3DES, authentification d'AAA (authentification, autorisation et traçabilité) (AAA)

Solaris

```
Solaris with aaa on:rtp-evergreen# ssh -c 3des -l abcde123 -v 10.31.1.6SSH Version 1.2.26
[sparc-sun-solaris2.5.1], protocol version 1.5.Compiled with RSAREF.rtp-evergreen: Reading
configuration data /opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon
0rtp-evergreen: Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-
evergreen: Connection established.rtp-evergreen: Remote protocol version 1.5, remote software
version 1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public
key (768 bits) and host key (1024 bits).rtp-evergreen: Host '10.31.1.6' is known and matches the
host key.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen:
Encryption type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc
compensation attack detector.rtp-evergreen: Received encrypted confirmation.rtp-evergreen: Doing
password authentication.abcde123@10.31.1.6's password: rtp-evergreen: Requesting pty.rtp-
evergreen: Failed to get local xauth data.rtp-evergreen: Requesting X11 forwarding with
authentication spoofing.Warning: Remote host denied X11 forwarding, perhaps xauth program
could not be run on the server side.rtp-evergreen: Requesting shell.rtp-evergreen: Entering
interactive session.Cisco Systems Consolesec-cat6000>
```

Catalyst

```
Solaris with aaa on:rtp-evergreen# ssh -c 3des -l abcde123 -v 10.31.1.6SSH Version 1.2.26
```

[sparc-sun-solaris2.5.1], protocol version 1.5.Compiled with RSAREF.rtp-evergreen: Reading configuration data /opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon 0rtp-evergreen: Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-evergreen: Connection established.rtp-evergreen: Remote protocol version 1.5, remote software version 1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public key (768 bits) and host key (1024 bits).rtp-evergreen: Host '10.31.1.6' is known and matches the host key.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen: Encryption type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc compensation attack detector.rtp-evergreen: Received encrypted confirmation.rtp-evergreen: Doing password authentication.abcde123@10.31.1.6's password: rtp-evergreen: Requesting pty.rtp-evergreen: Failed to get local xauth data.rtp-evergreen: Requesting X11 forwarding with authentication spoofing.Warning: Remote host denied X11 forwarding, perhaps xauth program could not be run on the server side.rtp-evergreen: Requesting shell.rtp-evergreen: Entering interactive session.Cisco Systems Consolesec-cat6000>

exemples de commande de débogage de ce qui peut aller mal

Débogage de Catalyst avec le client essayant Blowfish Cipher [non pris en charge]

Solaris with aaa on:rtp-evergreen# **ssh -c 3des -l abcde123 -v 10.31.1.6**SSH Version 1.2.26 [sparc-sun-solaris2.5.1], protocol version 1.5.Compiled with RSAREF.rtp-evergreen: Reading configuration data /opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon 0rtp-evergreen: Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-evergreen: Connection established.rtp-evergreen: Remote protocol version 1.5, remote software version 1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public key (768 bits) and host key (1024 bits).rtp-evergreen: Host '10.31.1.6' is known and matches the host key.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen: Encryption type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc compensation attack detector.rtp-evergreen: Received encrypted confirmation.rtp-evergreen: Doing password authentication.abcde123@10.31.1.6's password: rtp-evergreen: Requesting pty.rtp-evergreen: Failed to get local xauth data.rtp-evergreen: Requesting X11 forwarding with authentication spoofing.Warning: Remote host denied X11 forwarding, perhaps xauth program could not be run on the server side.rtp-evergreen: Requesting shell.rtp-evergreen: Entering interactive session.Cisco Systems Consolesec-cat6000>

Débogage de Catalyst avec le mauvais mot de passe telnet

Solaris with aaa on:rtp-evergreen# **ssh -c 3des -l abcde123 -v 10.31.1.6**SSH Version 1.2.26 [sparc-sun-solaris2.5.1], protocol version 1.5.Compiled with RSAREF.rtp-evergreen: Reading configuration data /opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon 0rtp-evergreen: Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-evergreen: Connection established.rtp-evergreen: Remote protocol version 1.5, remote software version 1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public key (768 bits) and host key (1024 bits).rtp-evergreen: Host '10.31.1.6' is known and matches the host key.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen: Encryption type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc compensation attack detector.rtp-evergreen: Received encrypted confirmation.rtp-evergreen: Doing password authentication.abcde123@10.31.1.6's password: rtp-evergreen: Requesting pty.rtp-evergreen: Failed to get local xauth data.rtp-evergreen: Requesting X11 forwarding with authentication spoofing.Warning: Remote host denied X11 forwarding, perhaps xauth program could not be run on the server side.rtp-evergreen: Requesting shell.rtp-evergreen: Entering interactive session.Cisco Systems Consolesec-cat6000>

Débogage de Catalyst avec la mauvaise authentification AAA

Solaris with aaa on:rtp-evergreen# **ssh -c 3des -l abcde123 -v 10.31.1.6**SSH Version 1.2.26 [sparc-sun-solaris2.5.1], protocol version 1.5.Compiled with RSAREF.rtp-evergreen: Reading configuration data /opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon 0rtp-evergreen: Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-evergreen: Connection established.rtp-evergreen: Remote protocol version 1.5, remote software version 1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public key (768 bits) and host key (1024 bits).rtp-evergreen: Host '10.31.1.6' is known and matches the

```
host key.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen:
Encryption type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc
compensation attack detector.rtp-evergreen: Received encrypted confirmation.rtp-evergreen: Doing
password authentication.abcde123@10.31.1.6's password: rtp-evergreen: Requesting pty.rtp-
evergreen: Failed to get local xauth data.rtp-evergreen: Requesting X11 forwarding with
authentication spoofing.Warning: Remote host denied X11 forwarding, perhaps xauth program
could not be run on the server side.rtp-evergreen: Requesting shell.rtp-evergreen: Entering
interactive session.Cisco Systems Consolesec-cat6000>
```

Dépannez

Cette section Routage traite différents scénarios de dépannage liés à la configuration de SSH sur des commutateurs Cisco.

Connexion impossible pour commuter par le SSH

Problème :

Ne peut pas se connecter au commutateur utilisant le SSH.

Les commandes d'**ip ssh de débogage** donnent ce résultat :

```
Solaris with aaa on:rtp-evergreen# ssh -c 3des -l abcde123 -v 10.31.1.6SSH Version 1.2.26
[sparc-sun-solaris2.5.1], protocol version 1.5.Compiled with RSAREF.rtp-evergreen: Reading
configuration data /opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon
0rtp-evergreen: Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-
evergreen: Connection established.rtp-evergreen: Remote protocol version 1.5, remote software
version 1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public
key (768 bits) and host key (1024 bits).rtp-evergreen: Host '10.31.1.6' is known and matches the
host key.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen:
Encryption type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc
compensation attack detector.rtp-evergreen: Received encrypted confirmation.rtp-evergreen: Doing
password authentication.abcde123@10.31.1.6's password: rtp-evergreen: Requesting pty.rtp-
evergreen: Failed to get local xauth data.rtp-evergreen: Requesting X11 forwarding with
authentication spoofing.Warning: Remote host denied X11 forwarding, perhaps xauth program
could not be run on the server side.rtp-evergreen: Requesting shell.rtp-evergreen: Entering
interactive session.Cisco Systems Consolesec-cat6000>
```

Solution :

Ce problème de se produit en raison d'une des raisons suivantes :

- Les nouvelles connexions SSH échouent après avoir modifié le nom de hôte.
- SSH configuré avec des codes non marqués (ayant le FQDN du routeur).

Les solutions de contournement pour ce problème sont :

- Si le nom de hôte a été modifié, et le SSH ne fonctionne plus, alors mettez à zéro le nouveau code créez-en un autre avec l'étiquette appropriée.`Solaris with aaa on:rtp-evergreen# ssh -c 3des -l abcde123 -v 10.31.1.6SSH Version 1.2.26 [sparc-sun-solaris2.5.1], protocol version 1.5.Compiled with RSAREF.rtp-evergreen: Reading configuration data /opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon 0rtp-evergreen: Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-evergreen: Connection established.rtp-evergreen: Remote protocol version 1.5, remote software version 1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public key (768 bits) and host key (1024 bits).rtp-evergreen: Host '10.31.1.6' is known and matches the host key.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen: Encryption type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc compensation attack detector.rtp-evergreen: Received`

```
encrypted confirmation.rtp-evergreen: Doing password authentication.abcde123@10.31.1.6's
password: rtp-evergreen: Requesting pty.rtp-evergreen: Failed to get local xauth data.rtp-
evergreen: Requesting X11 forwarding with authentication spoofing.Warning: Remote host
denied X11 forwarding, perhaps xauth program   could not be run on the server side.rtp-
evergreen: Requesting shell.rtp-evergreen: Entering interactive session.Cisco Systems
Consolesec-cat6000>
```

- N'utilisez pas des clés RSA anonymes (nommées après le FQDN du commutateur). Utilisez les codes étiquetés à la place.`Solaris with aaa on:rtp-evergreen# ` **`ssh -c 3des -l abcde123 -v 10.31.1.6`**`SSH Version 1.2.26 [sparc-sun-solaris2.5.1], protocol version 1.5.Compiled with RSAREF.rtp-evergreen: Reading configuration data /opt/CISssh/etc/ssh_configrtp-evergreen: ssh_connect: getuid 0 geteuid 0 anon 0rtp-evergreen: Allocated local port 1023.rtp-evergreen: Connecting to 10.31.1.6 port 22.rtp-evergreen: Connection established.rtp-evergreen: Remote protocol version 1.5, remote software version 1.2.26rtp-evergreen: Waiting for server public key.rtp-evergreen: Received server public key (768 bits) and host key (1024 bits).rtp-evergreen: Host '10.31.1.6' is known and matches the host key.rtp-evergreen: Initializing random; seed file //.ssh/random_seedrtp-evergreen: Encryption type: 3desrtp-evergreen: Sent encrypted session key.rtp-evergreen: Installing crc compensation attack detector.rtp-evergreen: Received encrypted confirmation.rtp-evergreen: Doing password authentication.abcde123@10.31.1.6's password: rtp-evergreen: Requesting pty.rtp-evergreen: Failed to get local xauth data.rtp-evergreen: Requesting X11 forwarding with authentication spoofing.Warning: Remote host denied X11 forwarding, perhaps xauth program   could not be run on the server side.rtp-evergreen: Requesting shell.rtp-evergreen: Entering interactive session.Cisco Systems Consolesec-cat6000>`

Afin de résoudre ce problème pour toujours, mettez à niveau le logiciel IOS aux versions et plus récentes l'unes des dans lesquelles ce problème est réparé.

Un bogue a été classé au sujet de ceci. Pour plus d'informations, référez-vous au bogue Cisco portant l'ID CSCsm68097 (**clients** enregistrés uniquement).

Informations connexes

- Page d'assistance SSH
- Configuration de Secure Shell sur les routeurs et les commutateurs exécutant Cisco IOS
- Toolkit de débogage
- Support technique - Cisco Systems