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# **TOP SECRET//SCI**

## **CHARLIE**

**CONTAINS SENSITIVE COMPARTMENTED INFORMATION**

**THIS IS A COVER SHEET**

**FOR CLASSIFIED INFORMATION**

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STATUTES AND AGENCY IMPLEMENTING REGULATIONS.**

# **TOP SECRET//SCI**

## **CHARLIE**

**Operation Sky Tiger**

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## **Sat2 – Reverse Engineering – Intel:**

### **Background:**

The Symposium Satellite Cluster (SSC) is made up of 3 satellites that orbit the earth and an associated 7 ground stations. They're all connected via a private network and accessible over IP.

i5 Special Forces have recently taken control of one of these ground stations. They've created a VPN tunnel into the network.

One of the foreign satellites in the SSC is running a vulnerable FTP server.

The satellite can be reached over IP: \_\_\_\_\_

### **Tiger Client Intel:**

Intel has gained access to a CLI client for the system. The script, along with the client/server's shared library, can be found here: <https://bit.ly/41cVPEp>

Download and run the python scripts to load the CLI.

Command types and their parameters:

1. connect <username> <password>
2. get <file>
3. put <file>
4. exit

Intel has gained access to one of the system administrators login credentials. To connect to the server, use the following command:

```
> connect [ip] [username] [password]
```

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Username: admin4  
Password: harambe

### Tiger Server Intel:

The server is a python script named **tigers.py**. The FTP client does not perform error checking on user input, so all files in the server's directory can be downloaded.

The server is running outdated version of the Tiger FTP system that still has commands implemented that the CLI no longer supports.

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## Sat0 – Brute Force Cracking – Intel:

i5 Special Forces have gained access to an encrypted file. They've uploaded it to a secure server here:

To crack the encrypted file we can attempt to guess the password. Using a tool called John the Ripper (or John), we can guess thousands of passwords per second.

For the following commands, open a command line terminal using CTRL + ALT + T. Then type your commands and press enter to execute them.

To convert your encrypted zip file into a format John can understand, use the command:

```
$ zip2john secret.zip > secret.hash
```

*“Take secret.zip and create secret.hash using it in a format that John can understand.”*

Now that John can read it, use John to find the password:

```
$ john secret.hash
```

When John finds a password, we can unzip the file and use the password we found with John by using:

```
$ unzip secret.zip
```

The file “id\_rsa” is an SSH key file. It gives whoever uses it special access to a system via a protocol called Secure Shell (SSH).

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The server can be reached via SSH using the following login:

```
$ ssh admin@IP -p 5022 -i id_rsa
```

This command in plain English: *“give me a secure login as user admin to the server located at IP. Use port 5022 and my secret key found in the file id\_rsa.”*

You can now disable to satellite by the command:

```
$ killsat
```

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## Sat1 – Decoding – Intel:

The Symposium Satellite Cluster (SSC) is made up of 3 satellites that orbit the earth and an associated 7 ground stations. They're all connected via a private network and accessible over IP.

i5 Special Forces have recently taken control of one of these ground stations. They've created a VPN tunnel into the network.

i5 Intel has discovered that Sat1 is running an SSH server located on port 5023 at the following IP address: \_\_\_\_\_. They've also obtained the SSH key file (sat1\_key.zip located at <https://bit.ly/41cVPEp> for download, use password i5space to unzip). However, the SSH key file is encrypted so it cannot be used without figuring out the password.

During the raid i5 Special Forces also found the following hexadecimal code was present on a notepad with the title "*XOR SSH key*":

84 89 95 8D 84 91 84 8B 82 8A

Using this information, the Intel team believes that the code may have something to do with unlocking the SSH key file.

Other red team assets operating parallel to yours have obtained a copy of the executable the server is based off of, and Intel believes that there is a hexadecimal XOR key located somewhere in the executable. The executable is located in the sat1\_tools.zip file at <https://bit.ly/41cVPEp> for download. Your objective is to locate the key, decrypt the code, and shut down the enemy satellite.

To connect to SSH using the id\_rsa key file, use:

```
> ssh admin@[IP] -p [PORT] -i id_rsa
```

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