



Packet Tracer – Exploring File and Data Encryption

Addressing Table

Device	Private IP Address	Public IP Address	Subnet Mask	Site
FTP/Web Server	10.44.1.254	209.165.201.3	255.255.255.0	Metropolis Bank HQ
Mary	10.44.3.101	N/A	255.255.255.0	Healthcare at Home
Bob	10.44.1.3	N/A	255.255.255.0	Metropolis Bank HQ

Objectives

Part 1: Locate the FTP Account Credentials for Mary's Laptop

Part 2: Upload Confidential Data using FTP

Part 3: Locate the FTP Account Credentials for Bob's PC

Part 4: Download Confidential Data using FTP

Part 5: Decrypt the Contents of the clientinfo.txt File

Background

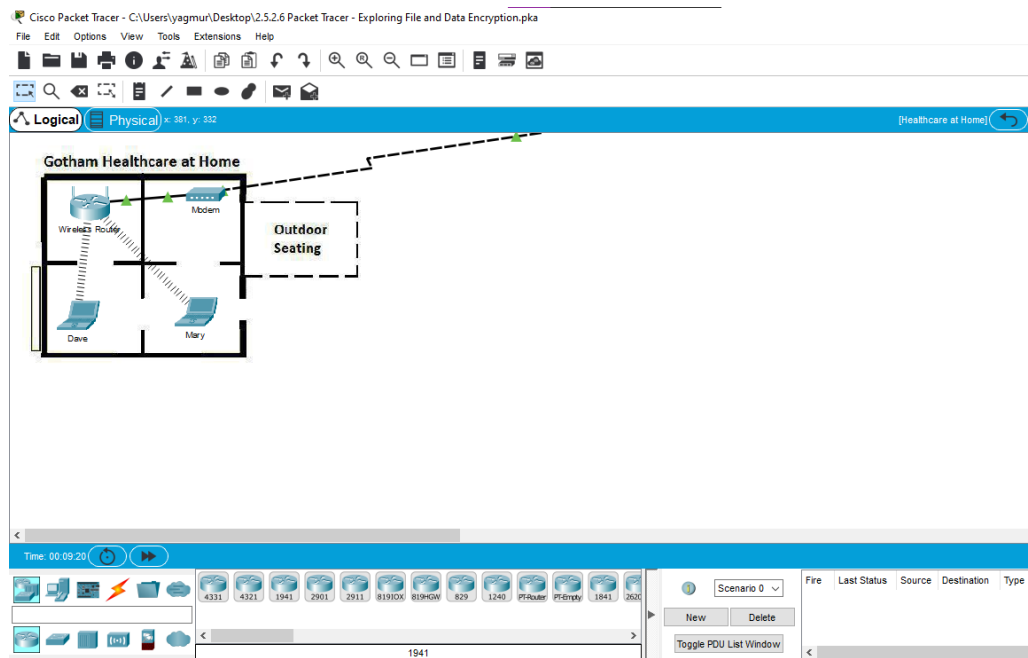
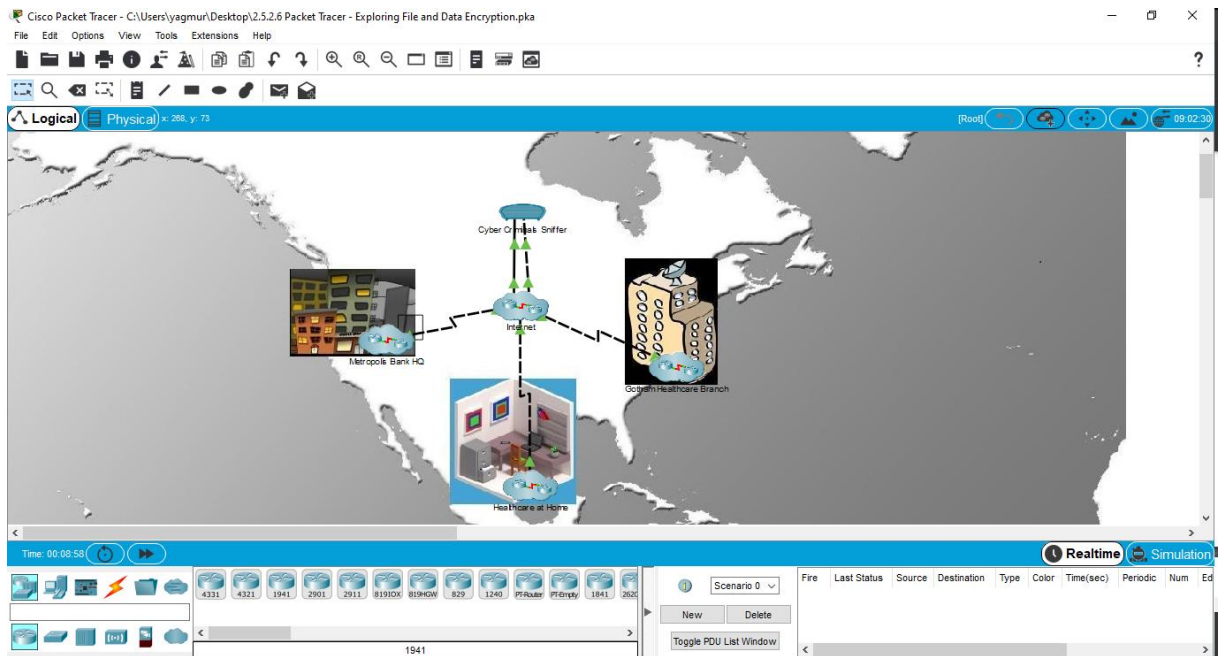
In this activity, you will access the encrypted contents of multiple files and transfer a file across the Internet to a centralized FTP server. Another user will then download the file from the FTP server and decrypt the files' contents. The IP addressing, network configuration, and service configurations are already complete. You will use the client devices in the differing geographic regions to transfer a file with encrypted data to another device.

Part 1: Locate the FTP Account Credentials for Mary's Laptop

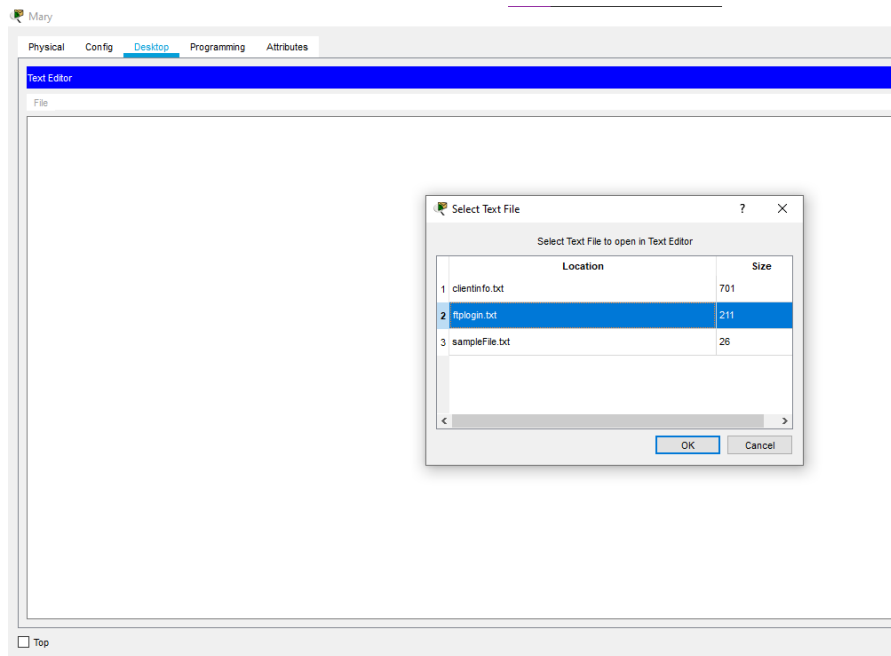
Step 1: Access the text document on Mary's laptop.

- Click the **Healthcare at Home** site and then click the laptop **Mary**.

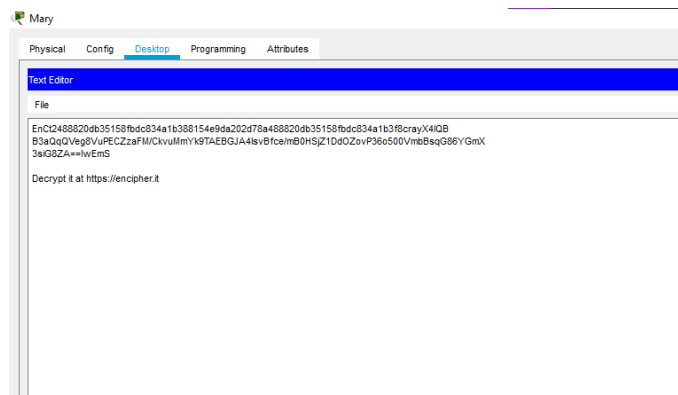
Packet Tracer – Exploring File and Data Encryption



- Click the **Desktop** tab and then click **Text Editor**.
- In the Text Editor window, click **File > Open**.

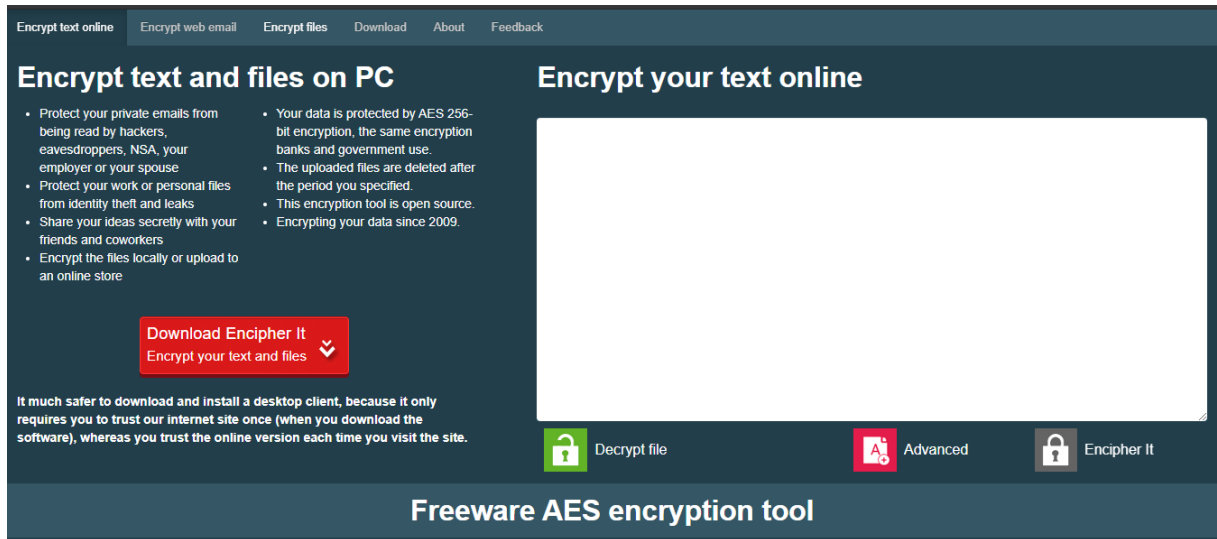


- d. Click the document **ftplogin.txt** and click **OK**.

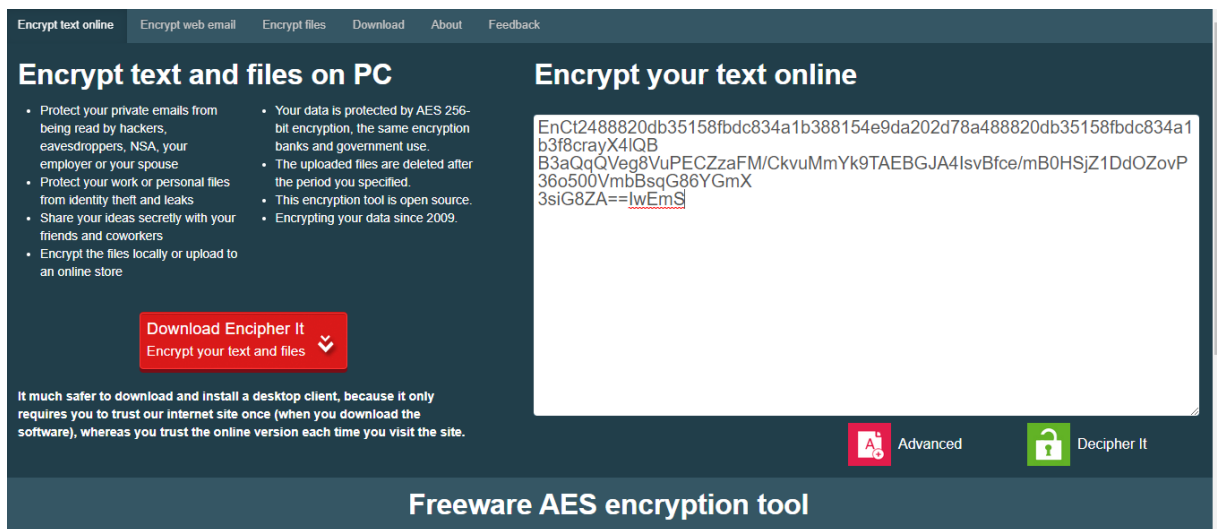


Step 2: Decrypt Mary's FTP account information.

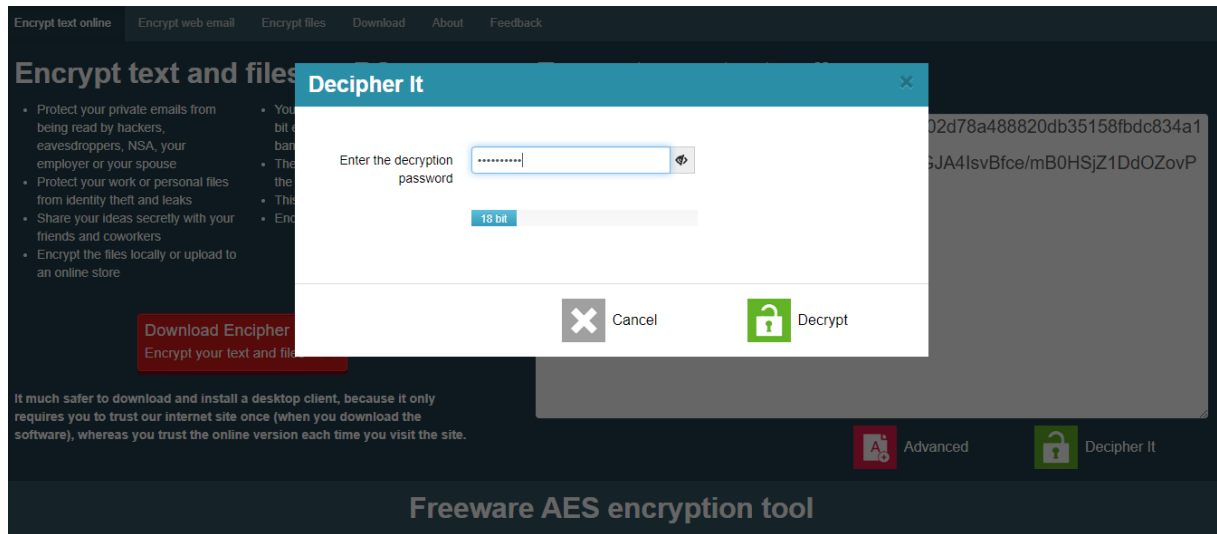
- Highlight all the text from the **ftplogin.txt** file and copy it.
- Open a web browser on your personal computer and browse to the website <https://encipher.it>



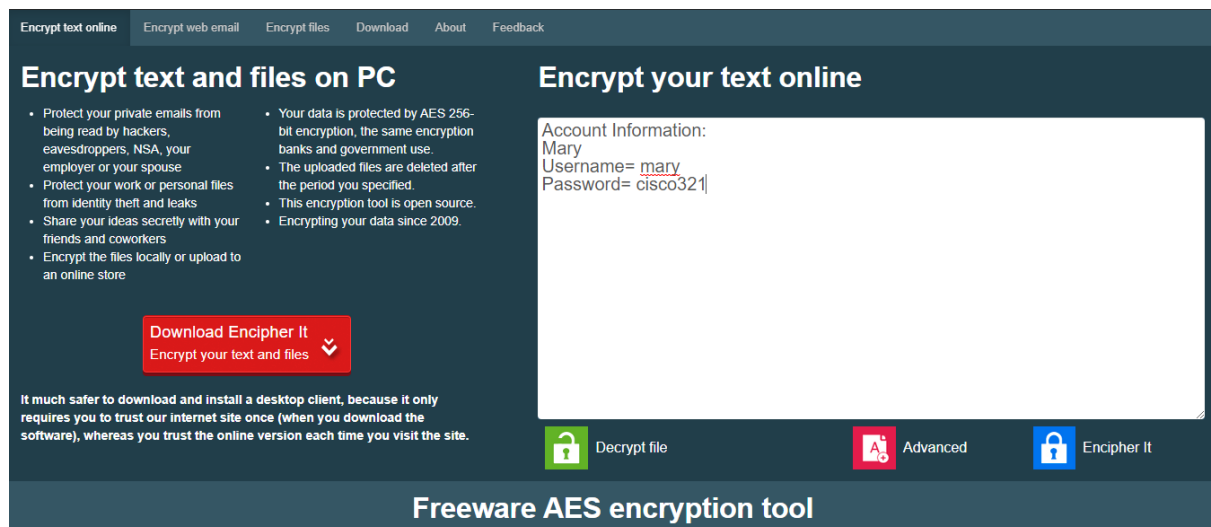
- c. Click the **whitespace** on the right of the website and paste in the encrypted text.



Click the **Decipher It** button and use the decryption password **maryftp123** to decrypt the encrypted text. Click **Decrypt**.



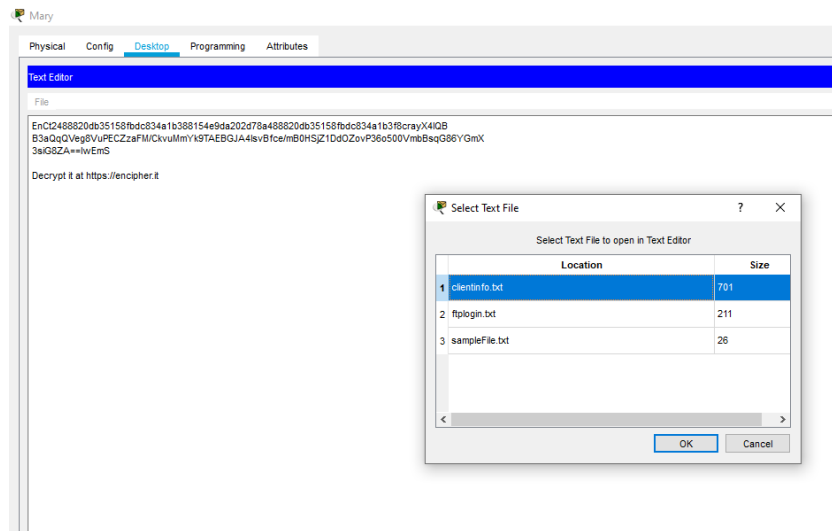
What is the username and password for Mary's FTP account?



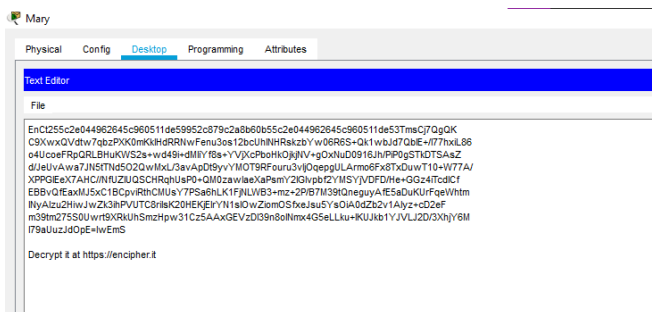
Part 2: Upload Confidential Data using FTP

Step 1: View the confidential document on Mary's Laptop.

- Click the **Healthcare at Home** site and then click the Laptop **Mary**.
- Click the **Desktop** tab and then click **Text Editor**.
- In the Text Editor window, click **File > Open**.



- d. Click on the document **clientinfo.txt** and click **OK**.

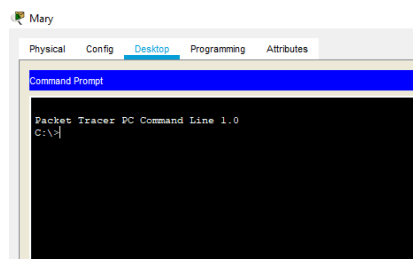


What form is the data in?

Encrypted form.

Step 2: Remotely connect to the FTP server.

- Within the **Healthcare at Home** site, click the Laptop **Mary**.
- Click the **Desktop** tab and then click **Command Prompt**.



- c. Connect to the **FTP/Web** server at **Metropolis Bank HQ** by entering **ftp 209.165.201.3** in the command prompt.
- d. Enter the username/password credentials located in Part 1 Step 2

```
C:\>ftp 209.165.201.3
Trying to connect...209.165.201.3
Connected to 209.165.201.3
220- Welcome to PT Ftp server
Username:|
```

```
Username:mary
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
```

Step 3: Upload a file to the FTP server.

- a. At the **ftp>** prompt, enter the command **dir** to view the current files stored on the remote FTP server.

```
ftp>dir

Listing /ftp directory from 209.165.201.3:
 0  : asa842-k8.bin                               5571584
 1  : c1841-advipservicesk9-mz.124-15.T1.bin      33591768
 2  : c1841-ipbase-mz.123-14.T7.bin               13832032
 3  : c1841-ipbasek9-mz.124-12.bin               16599160
 4  : c2600-advipservicesk9-mz.124-15.T1.bin      33591768
 5  : c2600-i-mz.122-28.bin                       5571584
 6  : c2600-ipbasek9-mz.124-8.bin                 13169700
 7  : c2800nm-advipservicesk9-mz.124-15.T1.bin    50938004
 8  : c2800nm-advipservicesk9-mz.151-4.M4.bin     33591768
 9  : c2800nm-ipbase-mz.123-14.T7.bin             5571584
10  : c2800nm-ipbasek9-mz.124-8.bin               15522644
11  : c2950-i6q412-mz.121-22.EA4.bin             3058048
12  : c2950-i6q412-mz.121-22.EA8.bin             3117390
13  : c2960-lanbase-mz.122-25.FX.bin              4414921
14  : c2960-lanbase-mz.122-25.SEE1.bin            4670455
15  : c2960-lanbasek9-mz.150-2.SE4.bin            4670455
16  : c3560-advipservicesk9-mz.122-37.SEE1.bin    8662192
17  : pt1000-i-mz.122-28.bin                     5571584
18  : pt3000-i6q412-mz.121-22.EA4.bin             3117390
```

- b. Mary has a file containing encrypted healthcare client information. Upload the **clientinfo.txt** file to the FTP server by entering the command **put clientinfo.txt**.
- c. At the **ftp>** prompt, enter the command **dir** and verify the **clientinfo.txt** file is now on the FTP server.

```
ftp>put clientinfo.txt

Writing file clientinfo.txt to 209.165.201.3:
File transfer in progress...

[Transfer complete - 701 bytes]

701 bytes copied in 0.091 secs (7703 bytes/sec)
ftp>dir

Listing /ftp directory from 209.165.201.3:
0   : asa842-k8.bin                      5571584
1   : c1841-advipservicesk9-mz.124-15.T1.bin 33591768
2   : c1841-ipbase-mz.123-14.T7.bin         13832032
3   : c1841-ipbasek9-mz.124-12.bin          16599160
4   : c2600-advipservicesk9-mz.124-15.T1.bin 33591768
5   : c2600-i-mz.122-28.bin                5571584
6   : c2600-ipbasek9-mz.124-8.bin           13169700
7   : c2800nm-advipservicesk9-mz.124-15.T1.bin 50938004
8   : c2800nm-advipservicesk9-mz.151-4.M4.bin 33591768
9   : c2800nm-ipbase-mz.123-14.T7.bin       5571584
10  : c2800nm-ipbasek9-mz.124-8.bin         15522644
11  : c2950-i6q412-mz.121-22.EA4.bin       3058048
12  : c2950-i6q412-mz.121-22.EA8.bin       3117390
13  : c2960-lanbase-mz.122-25.FX.bin        4414921
14  : c2960-lanbase-mz.122-25.SEE1.bin     4670455
15  : c2960-lanbasek9-mz.150-2.SE4.bin     4670455
16  : c3560-advipservicesk9-mz.122-37.SEE1.bin 8662192
17  : clientinfo.txt                      701
18  : pt1000-i-mz.122-28.bin               5571584
19  : pt3000-i6q412-mz.121-22.EA4.bin      3117390
ftp>
```

If cyber criminals were to capture the file transfer crossing the Internet, what would be in clear text?

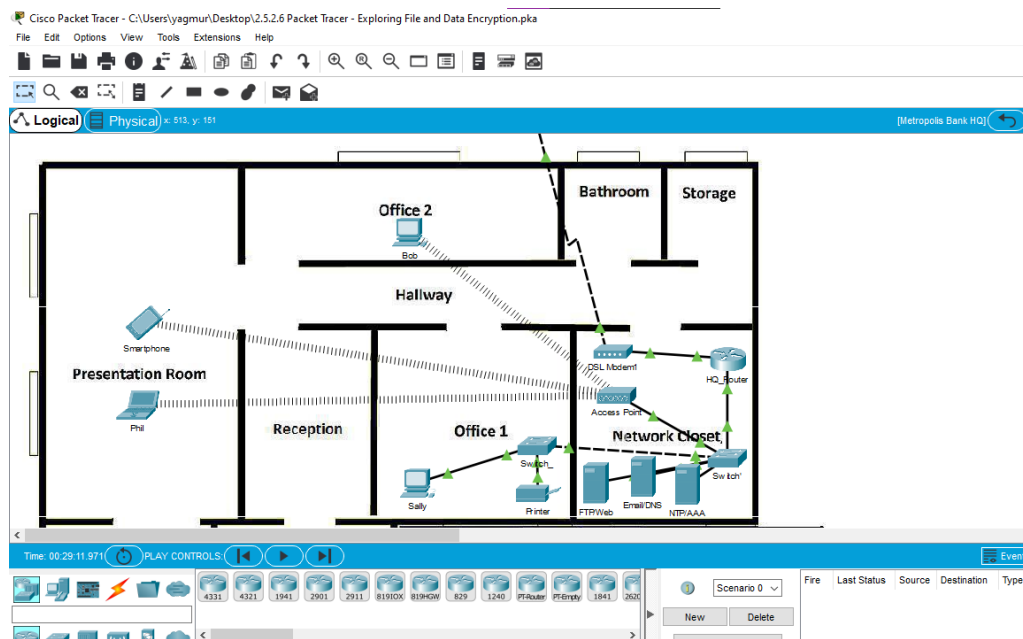
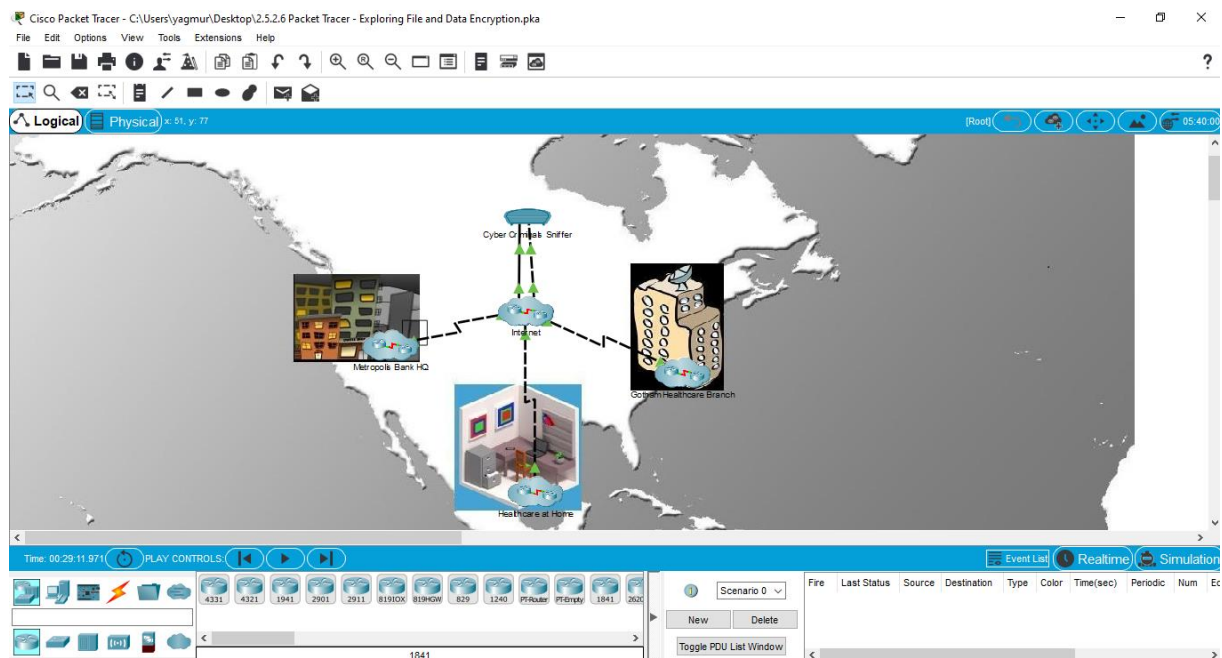
The username: mary, password: cisco321 for the FTP connection are in clear text but the contents of the document are encrypted.

Part 3: Locate the FTP Account Credentials for Bob's PC

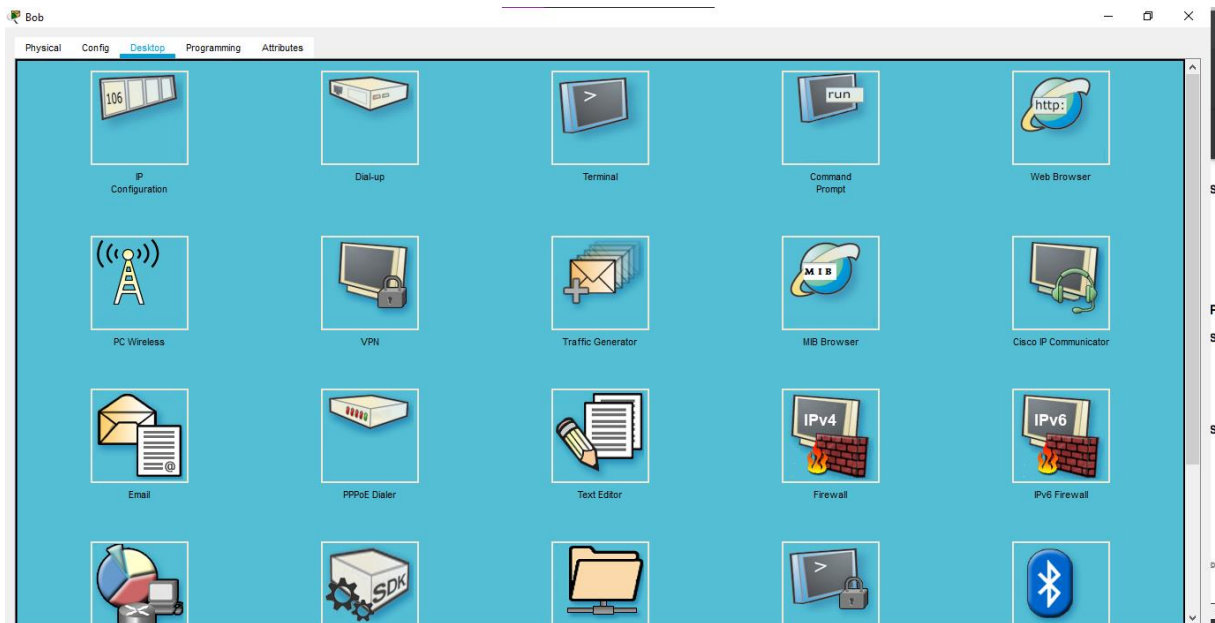
Step 1: Access the text document on Bob's PC.

- a. Click the **Metropolis Bank HQ** site and then click the PC **Bob**.

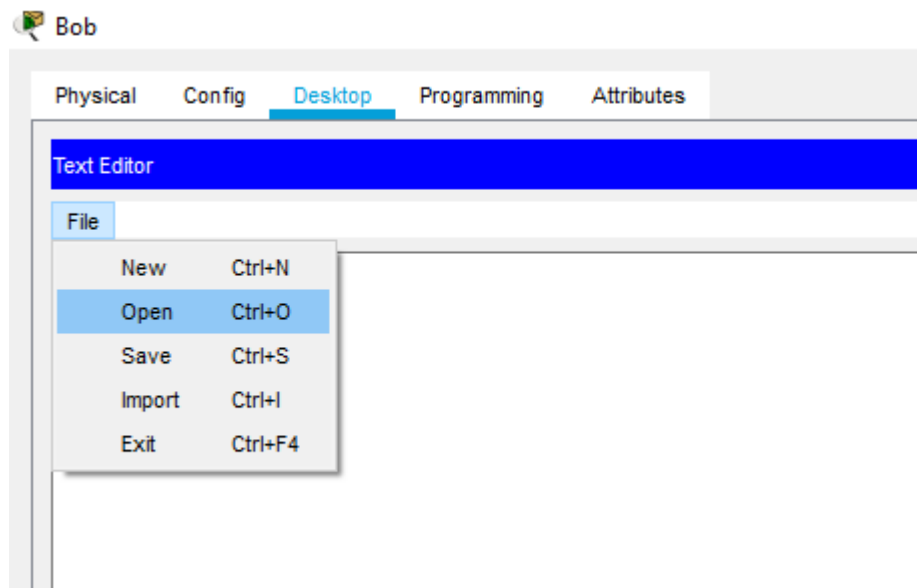
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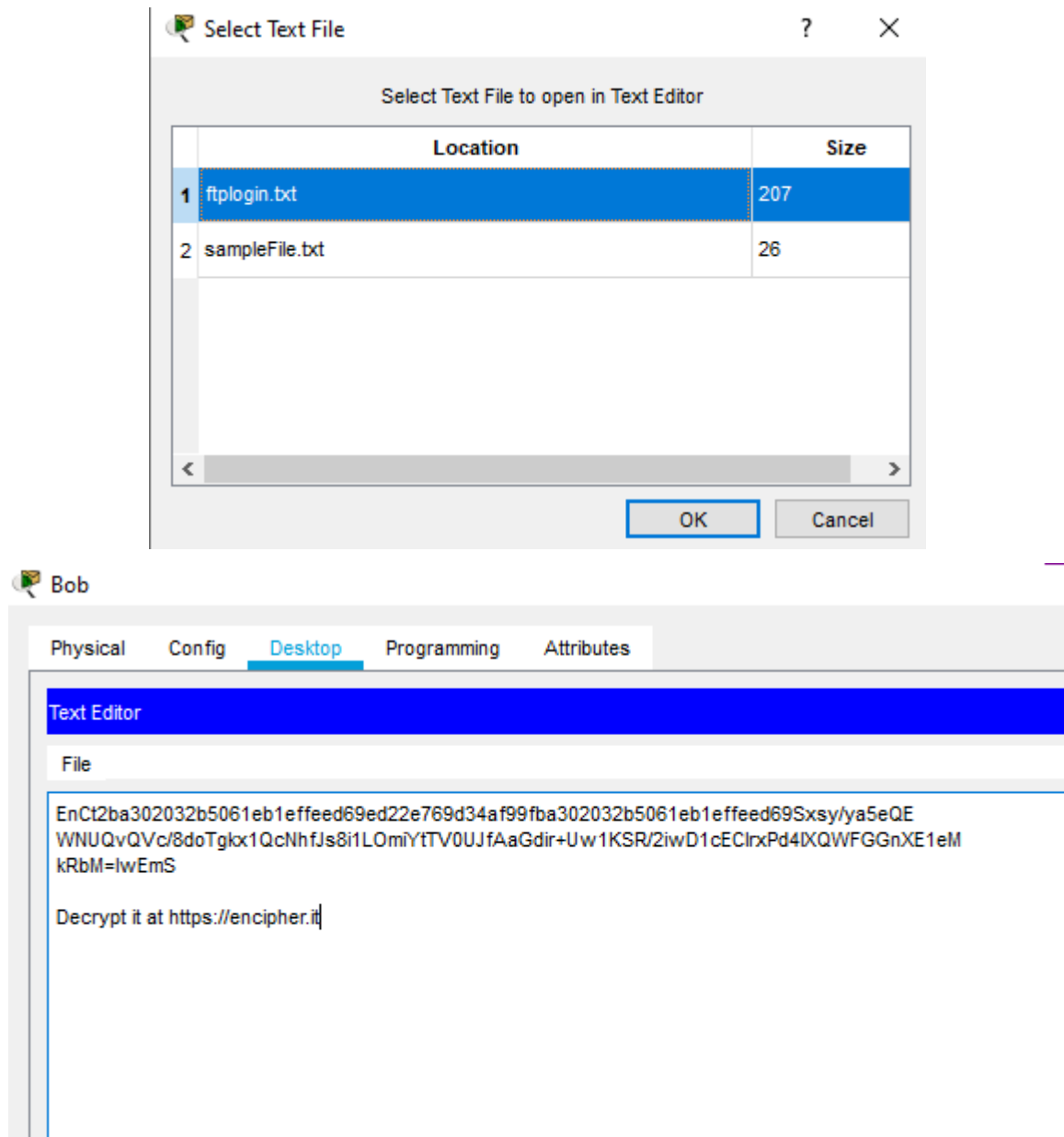
- b. Click the **Desktop** tab and then click **Text Editor**.



- c. In the Text Editor window, click **File > Open**.



- d. Click the document **ftlogin.txt** and click **OK**.



Step 2: Decrypt Bob's FTP account information.

- Highlight all the text from **ftlogin.txt** file and copy it.
- Open a web browser on your personal computer and browse to the website <https://encipher.it>
- Click the **whitespace on the right of the website and paste in the encrypted text**.

The screenshot shows the Encipher It website. The top navigation bar includes links for 'Encrypt text online', 'Encrypt web email', 'Encrypt files', 'Download', 'About', and 'Feedback'. The main content is divided into two columns. The left column, titled 'Encrypt text and files on PC', lists several bullet points about the tool's security and features, and includes a red 'Download Encipher It' button. The right column, titled 'Encrypt your text online', displays a large text area containing an encrypted string. At the bottom of the page, there is a footer with the text 'Freeware AES encryption tool' and two icons: 'Advanced' and 'Decipher It'.

Encrypt text online | Encrypt web email | Encrypt files | Download | About | Feedback

Encrypt text and files on PC

- Protect your private emails from being read by hackers, eavesdroppers, NSA, your employer or your spouse
- Protect your work or personal files from identity theft and leaks
- Share your ideas secretly with your friends and coworkers
- Encrypt the files locally or upload to an online store
- Your data is protected by AES 256-bit encryption, the same encryption banks and government use.
- The uploaded files are deleted after the period you specified.
- This encryption tool is open source.
- Encrypting your data since 2009.

Download Encipher It
Encrypt your text and files

It much safer to download and install a desktop client, because it only requires you to trust our internet site once (when you download the software), whereas you trust the online version each time you visit the site.

Encrypt your text online

EnCt2ba302032b5061eb1efeed69ed22e769d34af99fba302032b5061eb1efeed69
Sxsy/va5eQE
WNUQvQVc/8doTgkx1QcNhfs8i1LOmiYtTV0UJfAaGdir+Uw1KSR/2iwD1cECIrxP
d4IXQWFGGnXE1eM
kRbM=IwEmS

Advanced **Decipher It**

Freeware AES encryption tool

- d. Click **Decipher It** button and use the decryption password **bobftp123** to decrypt the encrypted text. Click **Decrypt**.

The screenshot shows the 'Decipher It' decryption interface. It has a title bar with a close button. The main area contains a text input field labeled 'Enter the decryption password' with a password mask (dots). Below the input field is a '26 bit' indicator. At the bottom, there are two buttons: 'Cancel' and 'Decrypt'.

Decipher It

Enter the decryption password

26 bit

Cancel **Decrypt**

What is the username and password for Bob's FTP account?

The screenshot shows the Encipher It website. The top navigation bar includes links for 'Encrypt text online', 'Encrypt web email', 'Encrypt files', 'Download', 'About', and 'Feedback'. The main content is divided into two columns. The left column, titled 'Encrypt text and files on PC', lists several bullet points about the tool's security and features, and includes a red 'Download Encipher It' button. The right column, titled 'Encrypt your text online', displays a large text area containing account information. At the bottom of the page, there is a footer with the text 'Freeware AES encryption tool' and two icons: 'Advanced' and 'Decipher It'.

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Encrypt text and files on PC

- Protect your private emails from being read by hackers, eavesdroppers, NSA, your employer or your spouse
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Encrypt your text online

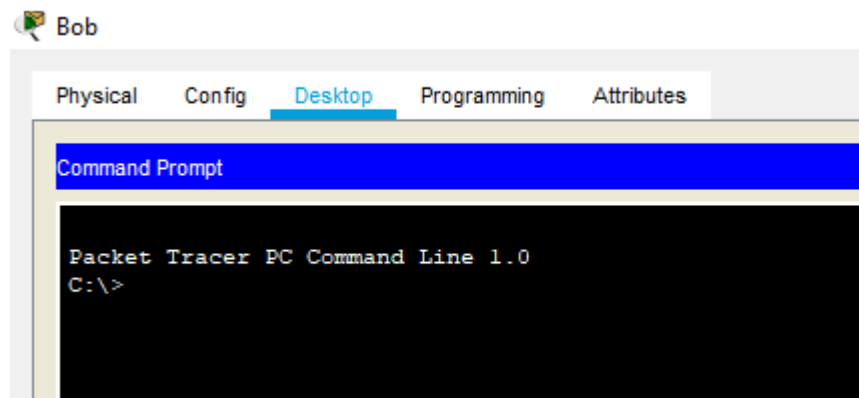
Account Information:
Bob
Username= bob
Password= ninja123

Decrypt file **Advanced** **Encipher It**

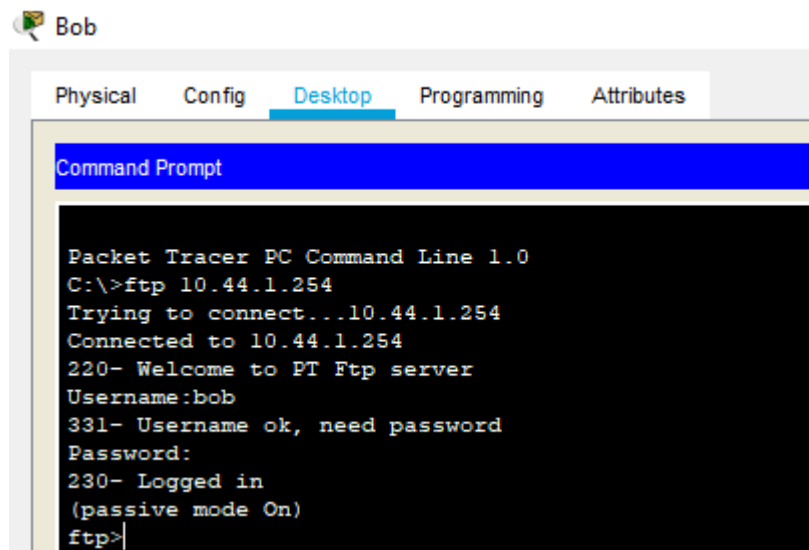
Part 4: Download Confidential Data using FTP

Step 1: Remotely connect to the FTP server.

- a. Within the **Metropolis Bank HQ** site, click the PC **Bob**.
- b. Click the **Desktop** tab and then click **Command Prompt**.



- c. Connect to the **FTP/Web** server within the **Metropolis Bank HQ** by entering **ftp 10.44.1.254** in the command prompt.
- d. Enter the username/password credentials located in Part 3 Step 2



Step 2: Download the file to Bob's PC.

- a. At the **ftp>** prompt, enter the command **dir** to view the current files stored on the remote FTP server.

```
ftp>dir

Listing /ftp directory from 10.44.1.254:
 0   : asa842-k8.bin                               5571584
 1   : c1841-advipservicesk9-mz.124-15.T1.bin      33591768
 2   : c1841-ipbase-mz.123-14.T7.bin               13832032
 3   : c1841-ipbasek9-mz.124-12.bin               16599160
 4   : c2600-advipservicesk9-mz.124-15.T1.bin      33591768
 5   : c2600-i-mz.122-28.bin                       5571584
 6   : c2600-ipbasek9-mz.124-8.bin                13169700
 7   : c2800nm-advipservicesk9-mz.124-15.T1.bin    50938004
 8   : c2800nm-advipservicesk9-mz.151-4.M4.bin     33591768
 9   : c2800nm-ipbase-mz.123-14.T7.bin             5571584
10   : c2800nm-ipbasek9-mz.124-8.bin              15522644
11   : c2950-i6q412-mz.121-22.EA4.bin            3058048
12   : c2950-i6q412-mz.121-22.EA8.bin            3117390
13   : c2960-lanbase-mz.122-25.FX.bin             4414921
14   : c2960-lanbase-mz.122-25.SEE1.bin           4670455
15   : c2960-lanbasek9-mz.150-2.SE4.bin           4670455
16   : c3560-advipservicesk9-mz.122-37.SEE1.bin   8662192
17   : clientinfo.txt                             701
18   : pt1000-i-mz.122-28.bin                     5571584
19   : pt3000-i6q412-mz.121-22.EA4.bin           3117390
ftp>
```

- b. Mary had uploaded the **clientinfo.txt** file containing encrypted healthcare client information. Download the **clientinfo.txt** file to Bob's PC by entering the command **get clientinfo.txt**.

```
ftp>get clientinfo.txt

Reading file clientinfo.txt from 10.44.1.254:
File transfer in progress...

[Transfer complete - 701 bytes]

701 bytes copied in 0.016 secs (43812 bytes/sec)
ftp>
```

- c. At the **ftp>** prompt, enter the command **quit**.

```
ftp>quit

221- Service closing control connection.
C:\>
```

- d. At the **PC>** prompt, enter the command **dir** and verify the **clientinfo.txt** file is now Bob's PC.

```
C:\>dir

Volume in drive C has no label.
Volume Serial Number is 5E12-4AF3
Directory of C:\

1/1/1970    3:0 PM                701      clientinfo.txt
1/1/1970    3:0 PM                207      ftplogin.txt
2/7/2106    9:28 PM                26       sampleFile.txt
               934 bytes                3 File(s)

C:\>
```

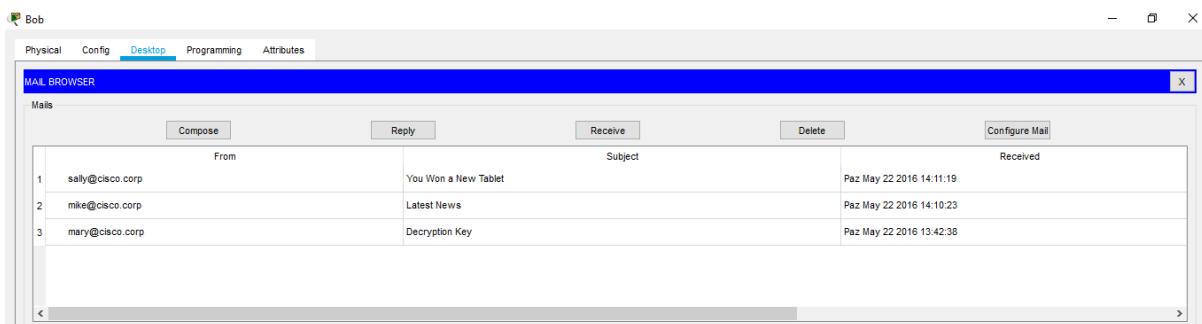
If cyber criminals were to capture the file transfer crossing the Internet, what would be in clear text?

The username: bob, password: ninja123 for the FTP connection are in clear text but the contents of the document are encrypted.

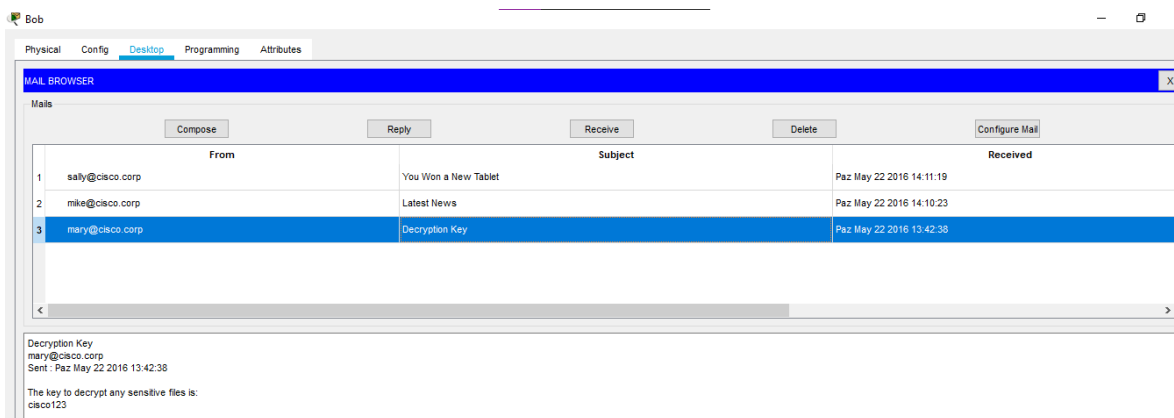
Part 5: Decrypt the Contents of the clientinfo.txt File

Step 1: Receive the decryption key from Mary.

- Within the **Metropolis Bank HQ** site, click the PC **Bob**.
- Click the **Desktop** tab and then click **Email**.



- In the Email window, click **Receive**.
- Click on the Email with the subject "Decryption Key" and record the decryption key below.



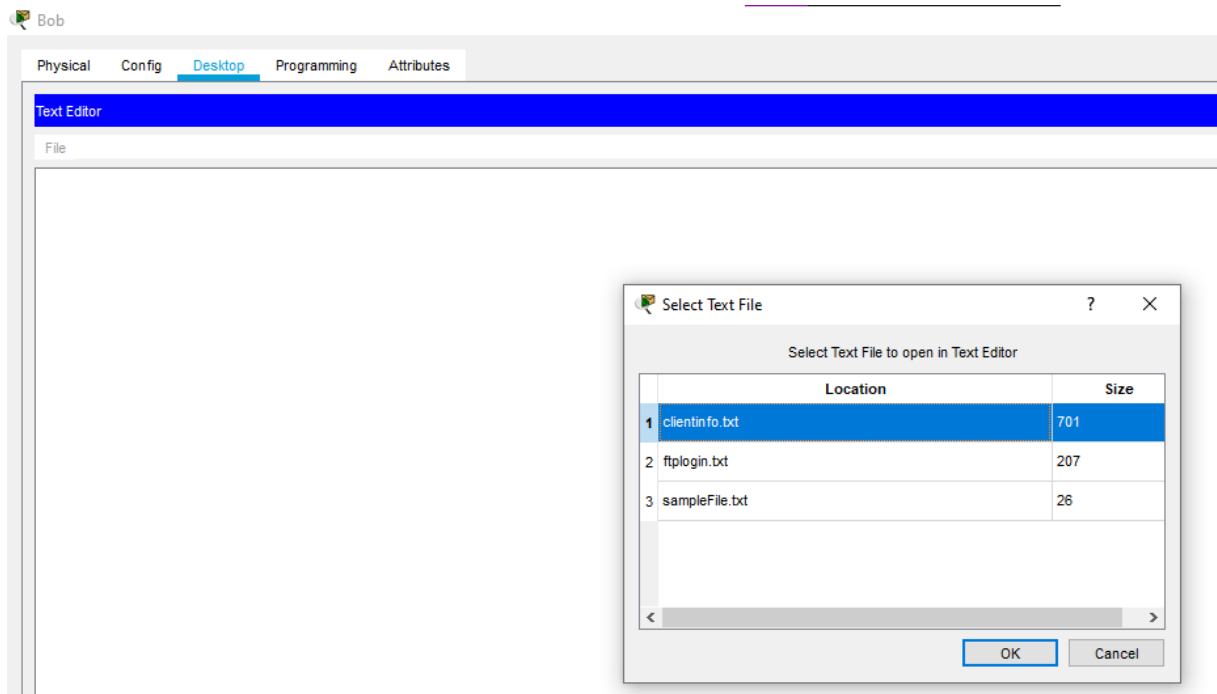
What is the decryption key to access the confidential information in the clientinfo.txt file?

cisco123

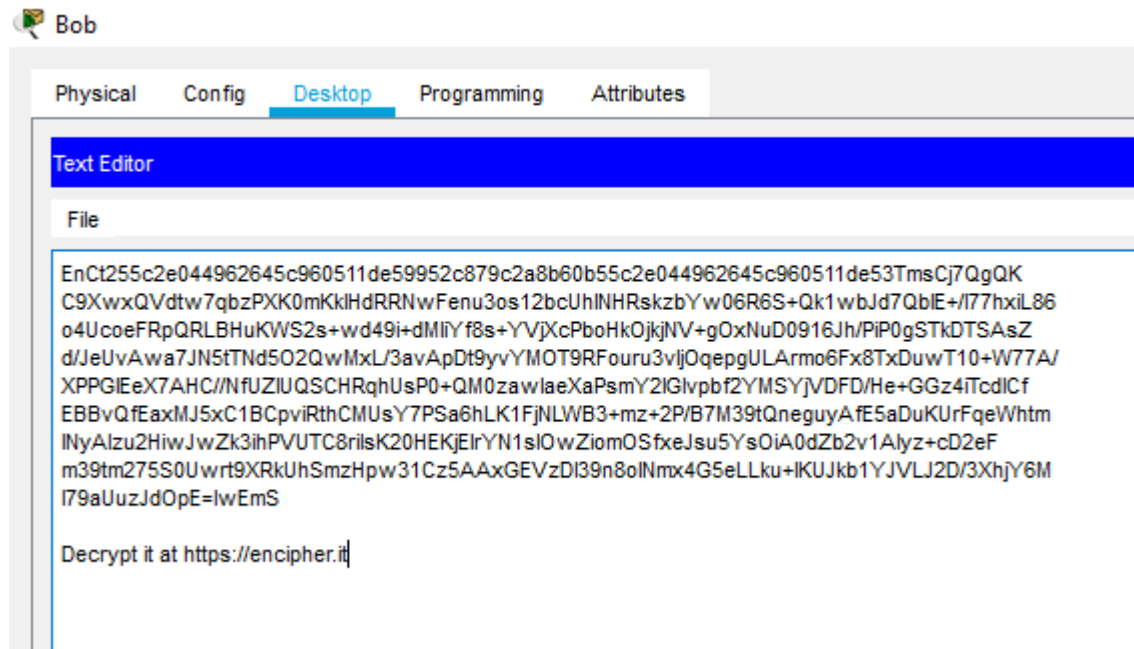
Step 2: Decrypt the contents of the clientinfo.txt file.

- Within the **Metropolis Bank HQ** site, click the PC **Bob**.
- Click the **Desktop** tab and then click **Text Editor**.
- In the Text Editor window, click **File > Open**.

- d. Click the document **clientinfo.txt** and click **OK**.



- e. Highlight all the text from the **clientinfo.txt** file and copy it.



- f. Open a web browser on your personal computer and browse to the website <https://encipher.it>
- g. Click the **whitespace** on the right of the website and paste in the encrypted text.

The screenshot shows the Encipher.it website. The top navigation bar includes links for 'Encrypt text online', 'Encrypt web email', 'Encrypt files', 'Download', 'About', and 'Feedback'. The main content area is split into two columns. The left column, titled 'Encrypt text and files on PC', lists benefits of the desktop client and includes a red 'Download Encipher It' button. The right column, titled 'Encrypt your text online', contains a large text area with a long string of encrypted text. At the bottom right of the text area is a green 'Decipher It' button. A footer banner at the bottom reads 'Freeware AES encryption tool'.

Click **Decipher It** button and use the decryption password from Mary's email to decrypt the encrypted text. (**password: cisco123**) Click **Decrypt**.

The screenshot shows the 'Decipher It' dialog box. It has a title bar with the text 'Decipher It' and a close button. The main area contains a label 'Enter the decryption password' next to a password input field. Below the input field is a progress bar showing '15 bit' decrypted. At the bottom, there are two buttons: 'Cancel' with a grey 'X' icon and 'Decrypt' with a green padlock icon.

What is the first account name in the clientinfo.txt file?

The screenshot shows the homepage of the Encipher It website. The navigation bar at the top includes links for 'Encrypt text online', 'Encrypt web email', 'Encrypt files', 'Download', 'About', and 'Feedback'. The main content is divided into two columns. The left column, titled 'Encrypt text and files on PC', lists several bullet points about the tool's security and features, and includes a red 'Download Encipher It' button. The right column, titled 'Encrypt your text online', features a text input area with a table of names and their corresponding encrypted data. The table has three columns: 'Name', 'Zip', and 'Code/Credit Card'. Below the input area, there are three icons: a green padlock for 'Decrypt file', a red padlock for 'Advanced', and a blue padlock for 'Encipher It'. The footer of the page states 'Freeware AES encryption tool'.

Encrypt text online | Encrypt web email | Encrypt files | Download | About | Feedback

Encrypt text and files on PC

- Protect your private emails from being read by hackers, eavesdroppers, NSA, your employer or your spouse
- Protect your work or personal files from identity theft and leaks
- Share your ideas secretly with your friends and coworkers
- Encrypt the files locally or upload to an online store
- Your data is protected by AES 256-bit encryption, the same encryption banks and government use.
- The uploaded files are deleted after the period you specified.
- This encryption tool is open source.
- Encrypting your data since 2009.

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Encrypt your text and files

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Encrypt your text online

Name	Zip	Code/Credit Card
Plato X. Riggs	2769	5537342697671706
Drew N. Stark	40008	532605 072104 7364
Laith Wilkerson	21800	516234 6483327961
Drew A. Dennis	33024	4716904313886
Genevieve Robertson	25498	491 65497 20952 457
Paki Parsons	419043	492954 7171363013
Teagan N. Avery	64416	4485 5676 5330 3713
Joy B. Goodman	6048TB	419978 0389706805
Orla L. Rowe	93081	520 88110 11661 765
Wynter English	1396	534047 781153 0565

Decrypt file | Advanced | Encipher It

Freeware AES encryption tool