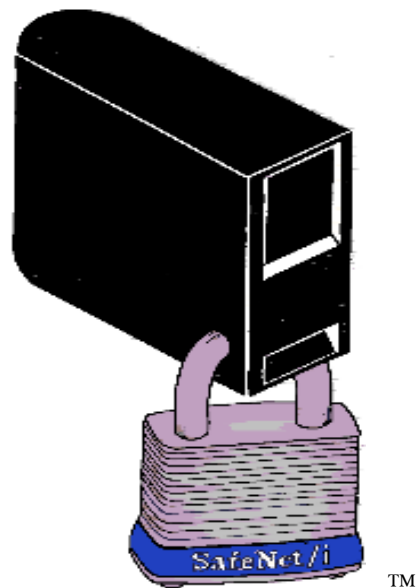


SafeNet/i

REFERENCE GUIDE

Version 10



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SafeNet/i Reference Guide

Chapter 1 - SETTING UP USERS

Navigating through the screens and menus

You can perform each of the steps outlined in this chapter by using the corresponding option on the SafeNet/i Main Menu, SN1.

Type **GO PCSECLIB/SN1** to navigate to the Main Menu.

```
SN1
MPADEV

                SafeNet/i  Version 10
                Network Resource Security
                Main Menu

Select one of the following:

1. Server Security Settings
2. Special SafeNet Settings
3. Alert Notification Settings
4. Additional FTP Settings
5. Work With Server IP Controls
6. Telnet IP Controls and Auto Signon

22. Special Jobs Menu (SN2)
23. Setup Reports Menu (SN3)
24. Analysis Reporting Menu (SN4)
25. DHCP Menu (SN5)

26. Journaling Menu (SN6)
27. User Settings Menu (SN7)
70. Expert User Menu (SNX)
80. Install Menu
90. Signoff

Level Required  Fast Path
All             WRKSRV
                CHGSPCSET
                CHGNOTIFY
                CHGFTPSET
3 or 4         WRKSRVIP
3 or 4         WRKTCPIPA

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Selection or command
===> _____

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
F13=Information Assistant  F16=System main menu
```

From this menu you can access all of the **SafeNet/i** functions and sub-menus.

On any menu you can use the menu options or you can use the Fast Path commands that are listed to the right of the options.

Sub-menus are accessed using Options 22 through 27, and Options 70 and 80. These options are available from every menu, even if the options are not listed on the menu.

To navigate among the sub-menus you can type the menu option number or you can type the menu name on the command line.

Menu Option	Menu Description	Menu Name
21	Main Menu	SN1
22	Special Jobs Menu	SN2
23	Reports Menu	SN3
24	Analysis Reporting Menu	SN4
25	DHCP Menu	SN5
26	Journaling Menu	SN6
27	User Settings Menu	SN7

Option 21 will always take you back to the Main Menu (SN1).

Navigating User Setup Screens

When using the **WRKUSRxxx** maintenance screens the following command keys provide navigation within **SafeNet/i**.

F2	Display list of defined SafeNet/i users
F3	Exit
F6	Add new entries
F7	Toggle between the group profile* settings and the user profile settings when working with the user setting maintenance screens in SafeNet/i
F8	Display all the user profiles within the group*
F9	Advance to next user setting screen
F12	Cancel
HELP	Additional HELP displays

***To use Group Profiles, you must have an unlimited user license.**

SafeNet Administrator

There are three types of SafeNet/i Administrators:

- Super Admin
- Regular
- Read Only

You can set up a SafeNet Administrator or ‘Super Admin’ or a Read Only Admin using **Option 8 – Work with SafeNet Administrators** on the [SafeNet/i User Settings Menu](#) (SN7), or by using the **WRKSNADM** command.

The **WRKSNADM** command can be executed by a user with *SECADM or *SECOFR authority.

A user profile must be set up as a SafeNet/i ‘Super Admin’ to perform the following:

- Activate or deactivate **SafeNet/i**
- Change/copy/remove the IBM-supplied Q profiles settings in **SafeNet/i** (see note below)
- Use the WRKSRV, CHGSPCSET, CHGFTPSET commands

A regular **SafeNet/i** user or administrator does not have authority to the above functions.

A SafeNet/i Read Only Admin can only view **SafeNet/i** settings and transactions, and run reports.

Unless specifically changed, QSECOFR is ALWAYS a SafeNet/i Super Admin. User profile SAFENET is a Super Admin; this status can be changed or removed to suit your purposes.

Alternate Administrative Security

Beginning with **SafeNet/i** Version 10, you can change the way administrative security for SafeNet/i is handled on your system. You can now:

- Permit regular SafeNet/i Administrators to copy or remove rules from **SafeNet/i** and assign *ALL entries
- Authorize only a Super Admin to change the LOGALL parameter in the Change SafeNet Special Setting (CHGSPCSET) command
- Allow regular Administrators to work with or modify user profiles that start with the letter Q

The QPROFS parameter on the **CHGSPCSET** command controls this function.

From the Main Menu (SN1) use **Option 2 – Special SafeNet Settings** or the **CHGSPCSET** command to change the *QPROFS* parameter to *YES or *NO.

See Chapter 5 in the SafeNet/i Implementation Guide for more details on the **CHGSPCSET** command.

Important Note

Prior to this change, a regular SafeNet/i Administrator or a Super Admin was allowed to use the **Change SafeNet Special Settings** command, **CHGSPCSET**. With this release, you must be a Super Admin to access this command.

THIS CAN CREATE A PROBLEM if you have included this command in your system SAVE process to stop transaction logging during the backup.

We recommend that you remove this from your SAVE procedure now and use the IBM save-while-active process instead from this point on.

Group Profile as SafeNet/i Administrator

You can enroll group profiles as SafeNet/i Administrators. When you enroll a group profile as an administrator, every member of the group will be considered to be an administrator by **SafeNet/i**.

Super User Control – Trusted Users

Under special circumstances it may be necessary to have a user that should not be checked through all the **SafeNet/i** security routines. Transactions from these users can bypass the traditional **SafeNet/i** security routines; you can choose to log the Super User transactions or not log these transactions.

To maintain these users, select **Option 10 – SafeNet Super Users** from the User Settings Menu (SN7)

```
SN7
MPADEV

SafeNet/i Version 10
Network Resource Security
User Settings Menu

Select one of the following:

Level Required Fast Path
1. Work with User to Server Security 3 or 4 WRKUSRSRV
2. Work with User to Object Level Security 4 WRKUSROBJ
3. Work with User to SQL Statement Security 4 WRKUSRSQL
4. Work with User to FTP Statement Security 4 WRKUSRFTP
5. Work with User to CL Command Security 4 WRKUSRCMD
6. Work with User to Long Path Names 4 WRKUSRPTH
7. Work with User to IP Addresses WRKUSRIP
8. Work with Swap Profiles WRKSWPPR
9. SafeNet Administrators 10. SafeNet Super-Users WRKSNADM,WRKSNSUSR
11. Copy A User Setup 12. Remove a User Setup CPYSNUSR,RMVSNUSR
13. Remove Unknown Users from SafeNet RMVSNUSR1

21. Main Menu (SN1) 23. Setup Reports Menu (SN3)
22. Special Jobs Menu (SN2) 24. Analysis Reports Menu (SN4)
Selection or command (c) Copyright 1997-2016 MP Assoc., Inc.
===>

F3=Exit F4=Prompt F9=Retrieve F12=Cancel
F13=Information Assistant F16=System main menu
```

Note: You can turn logging on or off for Super Users by using the CHGSPCSET command and changing the LOGSUSR parameter to *YES or *NO. See Chapter 5 in the *SafeNet/i Implementation Guide* for more details on the CHGSPCSET command.

This should only be used under conditions when you want NO Super User transactions to be logged and recorded by SafeNet/i. This is a global setting for all Super Users.

Setting the User Logging Levels

The valid logging levels are:

Logging Level A	Log all transactions
Logging Level R	Log only rejected requests
Logging Level N	No logging

As you set up your user logging levels, please keep in mind the following:

- If you set the logging level on the Server Function (WRKSRV) to *NO LOGGING* or *REJECTIONS*, the Server Function (WRKSRV) setting will override the individual user logging level.
- If you set the logging level on the Server Function to *ALL*, the individual user logging level will override the Server Function logging level.

To make sure you are logging transactions correctly, we recommend that when you initially set up **SafeNet/i** you set the Server Functions to log *ALL* and set the User to Server logging levels to *ALL*.

Then, after you have had some experience with checking the logs and interpreting the results, you may want to make changes for specific user and server combinations.

An example of this might include certain "trusted" user profiles. If you trust the user in question and are concerned about the size and amount of logging activity, you might choose to only record rejected transactions for that user.

Another example might be a known client server application that is clearly defined and does not need to be monitored. For these applications you might choose to stop logging altogether. We have found several fax applications that fall into this category. They generate a large number of entries that are really not needed for your purposes in controlling access security.

Entering User Security Levels

If you plan on setting any of the Server Functions to Level 3 or Level 4, and anticipate doing anything other than simply logging all requests, the first step in configuring **SafeNet/i** is to give the users authority to any Server Functions they require.

1. From the SafeNet/i User Settings Menu (SN7) select **Option 1 - Work with User to Server Security** or use **WRKUSRSRV** command

The *Work User to Server Security Enter User Profile* screen appears.

2. **Type the user profile** you will be setting up, or ***PUBLIC**, then **ENTER**.

If you would like a list of all user profiles on the system, press **F4** or type ***ALL**.

To see a list of users already defined within **SafeNet/i** type ***ALLDFN**.

```

PCSRVRS                               SafeNet/i   V10                               2/17/16
MPADEV                                Maintain User To Server Security       16:52:45
                                     User-> SAFENET   Safenet Profile

Type option, press Enter.
1=Authorized
R=Reject Requests

```

Opt	Server Text Description		Logging (A,R,N)	Job Run Priority
1	*ALL ACTIVE SERVERS		-	-
1	Distributed Data Management	*DDM	A	-
)	DRDA DB2 Database Access Rqst	*DRDA	A	-
)	Original Data Queue Server	*DQSRV	100 A	-
)	Original License Mgmt Server	*LMSRV	100 A	-
)	Original Message Server	*MSGFCL	100 A	-
)	Network Print Server - entry	QNPSERVR	100 A	-
)	Network Print Server - spool file	QNPSERVR	100 A	-
)	File Server	*FILESRV	100 A	-
)	Original Remote SQL Server	*RQSRV	100 A	-
				More...

```

                                     Add/Remove The 1 To Authorize/Unauthorize Server
F3 = Exit   F9 = WRKUSROBJ   F10 = Time Of Day Maintenance   F12 = Return
F2 = Show Defined User List   HELP           (c) Copyright 2015 MP Assoc., Inc.

```

The *Maintain User to Server Security* screen appears. A list of all the servers is displayed.

If you would like to see the list of all users who have been defined within **SafeNet/i**, press **F2**.

3. **Type 1** in the *Option* column in front of each server this user will have access to.

If they will have access to all the server functions, **select**

***ALL ACTIVE SERVERS**

To remove access to a particular server, remove the '1' and leave the *Option* column blank for that server.

4. **Enter** the *Logging Level* for each server.

A = All

R = Rejections only

N = No logging

When you have finished setting up servers for this user, press **ENTER**.

5. Enter the *Job Run Priority* for each server. Do this if you choose to override the operating system job priority defaults.

The job priority will be set when the user accesses this server. Valid job priorities are 00 (the default) through 99. A value of 00 indicates no change to the default job priority.

Press F9 to continue to the next step - setting up user authorities to objects.

Entering User Authorities to Objects

Once you have given the user access to the servers, the next step is to enter the level of authority the user has to objects on the IBM i if you plan on setting any of the servers to Level 4.

1. If you used F9 from the previous screen, skip to Step 4.
2. If you are currently on the SafeNet/i User Settings Menu (SN7), select **Option 2 - Work with User to Object Level Security** or use **WRKUSROBJ** command

The *Work User to Object Security* screen is displayed.

3. Type **the user profile name, the Group** or ***PUBLIC**, then **ENTER**.

To list all of the user profiles on the system, press **F4** or type ***ALL**.

To see a list of users already defined within **SafeNet/i** type ***ALLDFN**.

```
PCACCSO                      SafeNet/i  V10                      2/17/16
MPADEV                      Maintain Authorized Objects By User  16:54:33
User-> SAFENET  Safenet Profile

Type option, press Enter.
4=Delete

  Option      Library      Object      |-----Data Rights-----|Existence--|
  Option      or Folder    or Sub-Flr   Read  Write  Delete  Rights
  -           *ALLLIB      *ALL          X     X     X       X
  -           *ALLFLR      *ALL          X     X     X       X

Bottom

F2 = Show Defined SafeNet Users      F3 = Exit  F6 = Add
F9 = WRKUSRSQ L      F12 = Return  HELP      (c) Copyright 2015 MP Assoc., Inc.
```

The *Add New Object Authorization* screen appears.

If you would like to see the list of all users who have been defined within **SafeNet/i**, press **F2**.

Note: If this user has already been set up in **SafeNet/i**, the *Maintain Authorized Objects by User* screen is displayed. Press **F6** to add new objects and authorities for this user.

4. In the *Library or Folder* column, **enter the name** of the library or folder, then **TAB** to the *Object or Sub-Flr* column and **type in the name** of the object or sub-folder.

Note: Allowed entries for **Library** or **Folder**

- *ALLLIB
- *ALLFLR
- Specific library name

When setting up a **library**, you must enter the **complete library name**. Generic library names are not allowed.

Allowed entries for **Object**

- *ALL
- Specific object
- Generic data/program or IBM i object name followed by * (FIL*)

NOT ALLOWED for object

- Long file or folder names - 10 position maximum (names over 10 are truncated)
- Generic sub-folder names (FOLD*)
- Generic folder content names

NOT ALLOWED for library

- Long folder names
- Generic folder names
- Generic library names
- *ALL

If granting rights to multiple objects in one library, you must list the library name multiple times or use a generic object name. For example:

<u>LIBRARY</u>	<u>OBJECT</u>
QUSRSYS	PAY1
QUSRSYS	PROJECT
QUSRSYS	PRT*

5. For *Data Rights*, **type an X** under the appropriate level of authority. Place an X for each data right that applies.
6. For *Existence Rights*, **type an X** if this user will be able to create, delete or move an object.

To assign EXCLUSIONS to objects and/or libraries, give the user no rights by leaving the *Data Rights* and *Existence Rights* columns blank.

7. Repeat these steps for each object or group of objects for this user profile.

PageDown to the next screen if you need more lines.

ENTER when you have finished keying in all necessary objects and rights.

The *Maintain Authorized Objects by User* screen is refreshed and all the information you just entered is displayed.

Press F9 to continue to the next step - setting up user authorities to SQL statements.

Reminder:

If you have already entered objects for a particular user, and you are updating their user to object level security, a list of existing object authorities will be displayed. To add more, **press F6**. To delete an existing entry, **type 4** in the *Option* column, then **ENTER**.

Exclusions

To give all users read access to all objects in all libraries, but exclude them from any objects in the PAYROLL library, give *PUBLIC READ authority to the library and exclude *PUBLIC from the PAYROLL library.

```
PCACCSO          SafeNet/i V10          2/17/16
MPADEV          Maintain Authorized Objects By User  16:58:01
                User-> *PUBLIC   *Public Authorities

Type option, press Enter.
4=Delete

   Option      Library      Object      |-----Data Rights-----|Existence--|
   Option    or Folder  or Sub-Flr | Read Write Delete | Rights
-   -         QSRVAGT    *ALL        | -      -      -      | - *EXCLUSION*
-   -         PAYROLL    *ALL        | -      -      -      | - *EXCLUSION*
-   -         *ALLLIB    *ALL        | X      -      -      | -

                                                    Bottom

F2 = Show Defined SafeNet Users   F3 = Exit   F6 = Add
F9 = WRKUSRSQL   F12 = Return  HELP      (c) Copyright 2015 MP Assoc., Inc.
```

If the PAYDEPT profile needs to use objects in the PAYROLL library, grant user profile PAYDEPT READ authority to the PAYROLL library.

```

PCACCSO          SafeNet/i V10          2/17/16
MPADEV          Maintain Authorized Objects By User 17:03:03
                User-> *PUBLIC      *Public Authorities

Type option, press Enter.
4=Delete

   Option      Library  Object  |-----Data Rights-----|Existence--|
   Option    or Folder or Sub-Flr Read Write Delete  Rights
   -          PAYROLL  *ALL    X    -    -    -

                                                    Bottom

F2 = Show Defined SafeNet Users    F3 = Exit    F6 = Add
F9 = WRKUSRSQL    F12 = Return  HELP          (c) Copyright 2015 MP Assoc., Inc.

```

This individual authority overrides the *PUBLIC authority.

Entering User Authorities to SQL Statements

If you are going to set the *SQL* servers to Level 4, the next step is to authorize users to the SQL Statements they may need.

1. If you used F9 from the previous screen, skip to Step 4.
2. If you are currently on the SafeNet/i User Settings Menu (SN7), select **Option 3 - Work with User to SQL Statement Security** or use **WRKUSRSQL** command

The *Work User to SQL Statements* screen is displayed.

3. **Type the user profile, the Group or *PUBLIC, then ENTER.**

If you would like a list of all user profiles on the system, press **F4** or type ***ALL**.

To see a list of users already defined within **SafeNet/i** type ***ALLDFN**.

The *Maintain Authorized SQL Statements* screen appears.

```
SQLSETD                SafeNet/i  V10                2/17/16
MPADEV                 Maintain Authorized SQL Statements 17:05:41
                        User-> SAFENET

Type option, press Enter.
1=Select

      Opt  SQL Statement
      --  -
      1    *ALL Statements
      -    ALTER TABLE
      -    CALL
      -    COMMENT ON
      -    COMMIT
      -    CREATE COLLECTION
      -    CREATE DATABASE
      -    CREATE ENCODED
      -    CREATE INDEX
      -    CREATE TABLE
      -    CREATE UNIQUE
      -    CREATE VIEW
                                         More...

F2 = Show All Defined SafeNet Users    F3 = Exit
F9 = WRKUSRFTP                          F12 = Cancel    (c) Copyright 2015 MP Assoc., Inc.
```

4. **Type 1** in front of each SQL statement that this user is permitted to use.

Selecting ***ALL Statements** authorizes the use to all SQL statements

To remove authorization to a selection, remove the 1.

If you would like to see the list of all users who have been defined within **SafeNet/i**, press **F2**.

5. When finished making all your selections, **ENTER**.
6. **Press F9** to advance to the next step - setting up user authorities to FTP statements.

Entering User Authorities to FTP Statements

Next you must authorize users to the FTP Statements they may need if you are going to set the *FTP Server* or *FTP Client* to Level 4.

1. If you used F9 from the previous screen, continue with Step 4.
2. If you are on the SafeNet/i User Settings Menu (SN7), select **Option 4 - Work with User to FTP Statement Security** or use **WRKUSRFTP** command

The *Work User to FTP Statements, Enter User ID* screen is displayed.

3. **Type the user profile** or ***PUBLIC** then **ENTER**.

If you would like a list of all user profiles on the system, press **F4** or type ***ALL**.

To see a list of users already defined within **SafeNet/i** type ***ALLDFN**.

The *Work with Authorized FTP Statements* screen appears.

```
FTPSETD          _SafeNet/i_  V10          .2/17/16
MPADEV           Maintain Authorized FTP Statements 17:07:15
                User-> SAFENET

Type option, press Enter.
1=Select

   Opt      FTP Operation      Associated FTP Command
   --      -
   1        Directory/Lib Create  MKDIR, XMKD
   1        Directory/Lib Delete  RMD, XRMD
   1        Set Current Dir       LCD, CWD, CDUP, XCWD
   1        List Files            LIST, NLIST
   1        File Deletion         DELE
   1        Receiving Files       GET, MGET
   1        Sending Of Files      PUT, APPEND, MPUT
   1        Renaming Files        RNFR, RNTD
   1        Execute CL Commands   Any CL - SYSCMD

                                                    Bottom

F2=Show Defined Users  F3=Exit   F4=Additional Settings  F7=Alt Profiles
F8 = WRKUSRCMD        F12 = Cancel      (c) Copyright 2015 MP Assoc., Inc.
```

4. **Type 1** in front of each FTP statement that this user is permitted to use.

To remove authorization to a statement, remove the 1.

If you would like to see the list of all users who have been defined within **SafeNet/i**, press **F2**.

5. Press **F4** to display the *Maintain Special FTP Settings for Users* screen

Note: Special FTP settings for a user are allowed only when your system is at OS/400 V5R1 or higher. If you are at a previous operating system level, these settings have no effect.

```
FTPSET2D                SafeNet/i  V10                2/17/16
                        Maintain Special FTP Settings for Users  17:09:44

User->  SAFENET        Safenet Profile

Initial Name Format->  *LIB          (*LIB, *PATH)
Initial List Format->  *DFT          (*DFT, *UNIX)
Initial Library----->  QGPL          Name, *USRPRF
Encrypted FTP Connection-->  0 (0=Allowed,1=Not Allowed,2=Required)

Initial Home Directory Path  Name of Path or *USRPRF
/
_____
_____
_____

CCSID of Initial Path--->  00000 (0 - 65533) 0=Default

F3 = Exit
F12=Return                HELP          (c) Copyright 2015 MP Assoc., Inc.
```

For this user, the initial Name Format and List Format will override the settings established by the *i OS Change FTP Server Attributes* command (CHGFTPA).

Select the parameters as follows:

Encrypted FTP Connection

- For SSL connections this should be set to 0 or 2
- For regular or non-SSL connections, leave this set to 0 or 1

Initial Home Directory Path

- This field is in effect only when Name Format is set to *UNIX. The field should point to an actual IFS directory on the IBM i.

Name Format

- *LIB indicates that the user sees standard Library/Object IBM i style names
- *PATH displays PC or *UNIX style file and directory names.

List Format

- *DFT user sees standard IBM i CHGFTP server settings
- *UNIX user sees UNIX style directory listings

6. When finished making all your selections, **ENTER**.
7. **Press F9** to continue to the next step - setting up user authorities to CL commands.

Important Note:

When the FTP Client point is set to Level 4, only the GET and PUT FTP sub-commands are required. The other commands, when using the FTP Client, are for the TARGET SYSTEM ONLY (sent to/run on the target system).

When authorizing users to the GET/PUT sub-commands, the assumed object authority is reversed from authorities required for the FTP Server point and the same objects.

See the following examples.

Using FTP Client:

- Sending an object to a remote system
An FTP PUT of object ABC in an FTP Client session requires *READ authority to object ABC on the local machine.
- Get an object from a remote system
An FTP GET of object ABC in an FTP Client session requires *OBJMGT authority to the object ABC on the local machine.

Using FTP Server:

- Send an object to local system
An FTP PUT of object ABC in an FTP Server session requires *OBJMGT authority to the object ABC on the LOCAL machine.
- Get an object from the local system
An FTP GET of object ABC in an FTP Server session requires *READ authority to the object ABC on the LOCAL machine.

Entering User Authorities to CL Commands

Next, if you plan on setting the *FTP*, *DDM* or *Remote Command Servers* to Level 4, you must authorize users to the CL commands they may need.

1. If you used F9 from the previous screen, continue with Step 4.
2. From the SafeNet/i User Settings Menu, select **Option 5 - Work with User to CL Command Security** or use **WRKUSRCMD** command

The *Work User to CL Commands, Enter User ID* screen is displayed.

3. **Type the user profile** or ***PUBLIC** then **ENTER**.

If you would like a list of all user profiles on the system, press **F4** or type ***ALL**.

To see a list of users already defined within **SafeNet/i** type ***ALLDFN**.

The *Maintain Authorized CL Commands* screen appears.

```
CMDSETD                SafeNet/i  V10                2/17/16
MPADEV                 Maintain Authorized CL Commands 17:12:39
User-> SAFENET

                        CL COMMANDS
                        *ALL
                        _____
                        _____
                        _____
                        _____
                        _____

                                                                Bottom

F2 = Show Defined SafeNet Users      F3 = Exit
F9 = WRKUSRPTH      F12 = Cancel      HELP      (c) Copyright 2015 MP Assoc., Inc.
```

4. **Type each CL command that this user is permitted to use.**

If you want the user to have access to all CL commands, **type *ALL** in the first available space.

To remove authorization to a command, **FIELD EXIT** through the line to blank it out.

If you would like to see the list of all users who have been defined within **SafeNet/i**, press **F2**.

5. When finished typing all the required CL commands for this user, press **ENTER**.
6. **Press F9** to continue with setting up path names.

Entering Long Path Names

The default **SafeNet/i** setting is to use long path names.

If you choose to not use long path name support, you must first change the **SafeNet/i** default setting. Use the **CHGSPCSET** command to set the **PATHL** parameter to ***SHORT**.

Important Reminder: SHORT PATH type is being deprecated as of this release.

Follow these steps to authorize the user to the paths.

1. If you used F9 from the previous screen, continue with Step 4.
2. From the **SafeNet/i User Settings Menu (SN7)**, select **Option 6 - Work with User to Long Path Names** or use **WRKUSRPTH** command

The *Work with User to Path Names, Enter User ID* screen is displayed.

3. **Type the user profile or *PUBLIC then ENTER.**

If you would like a list of all user profiles on the system, press **F4** or type ***ALL**.

To see a list of users already defined within **SafeNet/i** type ***ALLDFN**.

```
SNDD0100                SafeNet/i  V10                2/17/16
MPADEV                  Maintain Path Names           17:15:06
                        User-> SAFENET

Type option, press Enter.
2=Edit,4=Delete

Opt. Path Names...      R  W  D  O/M
-  /*                    X  X  X  X
-  /QDLS/*                X  X  X  X
-  /SafeNetDoc/*          X  X  X  X

Bottom

F2 = Show Defined SafeNet Users   F3=Exit   F6=Add   F9=WRKUSRIP
F12=Return   Alt+F1=HELP           (c) Copyright 2015 MP Assoc., Inc.
```

The *Maintain Path Names* screen appears.

If you would like to see the list of all users who have been defined within **SafeNet/i**, press **F2**.

4. Enter the paths that the user is authorized to.

Paths can be entered up to 512 positions in length, although only the first 60 positions are shown on the display. To enter and/or view a path over 60 positions long, **enter 2** in the option column.

Use **/*** to give authority to all folders/paths

End the path with ***** to allow access to all items in subfolders.

5. When finished typing all the paths for this user, press **ENTER**.

Building Generic Path Names for Lookups

You have a choice on how to perform generic path matching lookups.

Use the **CHGSPCSET** command to set the *GENPTH* parameter to **LTR* or **RTL*.

When using the default *Right-to-Left* lookup routine (**RTL*), the lookup sequence is:

1. Check for full path match in **WRKUSRPTH**
2. Remove one character at end of string, add an asterisk (*) wildcard character
3. Check for a match in **WRKUSRPTH**
4. Repeat 2-3 until matched, or beginning of string

OR

When using the *Left-to-Right* lookup routine. (**LTR*), the lookup sequence is:

1. Check for full path match in **WRKUSRPTH**
2. Start building the lookup string with **/a*** where a = the first character of requested path
3. Check for a match in **WRKUSRPTH**
4. Add one more character to lookup string from requested path (**/ab***)
5. Repeat 3-4 until all possibilities are exhausted

Copying an Existing User to Set Up a New User in SafeNet/i

This will allow you to copy the authorities and settings from one user to another within **SafeNet/i**. The new user profile must already exist in i OS.

1. From the User Settings Menu (SN7), select **Option 10 – Copy a User Setup to Another User** or use the **CPYSNUSR** command.

The *Copy SafeNet User/Authorities* screen is displayed.

2. **Type the user profile** you are copying from, then **the new profile(s)** to add.
3. When finished entering all the new profiles, press **ENTER**.

This will set up the new profile in **SafeNet/i** and return you to the User Settings Menu (SN7).

Removing a User from SafeNet/i

This option allows you to remove a user's authorities and settings from **SafeNet/i**, including Administrative rights

1. From the User Settings Menu (SN7), select **Option 11 – Remove a User Enrollment from SafeNet** or use the **RMVSNUSR** command

The *Remove Users from SafeNet* screen appears.

2. **Type the user profile(s)** to remove, then press **ENTER**.

This will remove the user from **SafeNet/i** and return you to the Special Jobs Menu.

Removing Unknown Users from SafeNet/i

Use the **RMVSNUSR1** command to remove user entries in SafeNet/i if the referenced user profile does NOT exist in the IBM i.

1. From the User Settings Menu (SN7), select **Option 12 – Remove Unknown Users from SafeNet** or use the **RMVSNUSR1** command

The *Remove Unknown Users SafeNet/i* is displayed.

2. **Type any user profiles that you want to OMIT** from the removal process.

This process will remove entries from the SafeNet/i control files if the user is unknown to the system and will return you to the User Settings Menu (SN7).

Removing Administrators from SafeNet/i

- From the User Settings Menu (SN7), select **Option 8 – Work with SafeNet Administrators** or use command **WRKSNADM**. Use *Option 4* to delete an Administrator.

OR

- Use command **RMVSNADM**, which does not appear on any menu.

Maintain all Security for a User

The **WRKUSRSEC** command, which is not found on any of the **SafeNet/i** menus, gives you the ability to perform security maintenance for an individual user without entering several different commands.

When you use the **WRKUSRSEC** command you will be presented with the *Maintain All Security for a User* screen.

```
SECSETD                _____ SafeNet/i _____                2/17/16
                        Maintain All Security For A User                17:18:41
                        . . . . .
User Profile . . . . .   SAFENET   Safenet Profile
                        . . . . .
                        Type option, press Enter.
                        .
                        1. Servers
                        2. Objects
                        3. SQL
                        4. FTP
                        5. Commands
                        6. Long Paths
                        7. IP Addresses
                        .
                        Option: _
                        .
F3 = Exit      HELP
F4 = Prompt
                        (c) Copyright 1999 MP Assoc., Inc
```

From this screen you can select which of the control files you wish to update for this particular user, without entering any additional commands or returning to the SafeNet/i Main Menu.

Within each of the applications, you can use **F9** to advance to the next maintenance screen.

Work with SafeNet Users – Matrix View

WRKSNUSRS command

Use **WRKSNUSRS** to navigate to a new *User Security Matrix* panel. It provides Administrators a quick view of users' authorities within **SafeNet/i**.

```

USRMTXD
MPA1

```

SafeNet/i
SafeNet User Matrix

10/08/16
16:02:01

Locate Profile: _____

Options: C=Cpy R=Rmv

Opt	Profile	1	2	3	4	5	6	7	8
		Srv	Obj	Sql	Ftp	Cmd	Ifs	Tod	Ipa
-	*PUBLIC	Y	Y	Y	+	Y	+	+	+
-	MJONES	+	Y	+	Y	Y	Y	+	+
-	MJONES1	+	Y	+	Y	+	+	+	+
*Admin	MJONES2	+	+	+	+	Y	+	+	+
-	MJONES3	Y	+	+	+	+	+	+	+
-	MJONES4	Y	Y	+	+	Y	+	+	+
-	MJONES5	Y	+	Y	+	Y	+	+	+
-	MJONES6	+	+	Y	+	Y	+	+	+
-	MJONES7	+	+	Y	+	Y	+	+	+
-	MJONES8	+	+	Y	+	Y	+	+	+
*Admin	QSEC0FR	Y	Y	Y	+	Y	Y	+	+
-	QSYSOPR	+	+	+	+	Y	+	+	+

More...

F1=Help F3=Exit F4=Prompt at cursor Loc F6=Fold
F12 = Cancel (c) Copyright 2016 MP Assoc., Inc.

From this panel, you can access any of the users' individual security settings within **SafeNet/i**.

To retrieve a user's settings, position your cursor over the 'Y' or the '+' in the specific column you wish to see (*Srv*, *Obj*, etc.) and **press F4**.

OR

Position your cursor in the option column on the row with the user you wish to review. Key the number of the column you want to see and **ENTER**.

Example:

Enter 1 to access WRKUSRSRV

Enter 2 to access WRKUSROBJ

Enter 3 to access WRKUSRSQL

Setting up Time of Day Controls

If you want to exclude users from server functions based on the day of the week or the time of day, use Time of Day controls.

Use the **WRKSRV** command to activate Time of Day controls.

SafeNet/i checks authority in the following sequence:

Is the	excluded from	at this time?
User	Specific Server *ALL Servers	
Group	Specific Server *ALL Servers	
Supplemental Group	Specific Server *ALL Servers	
*PUBLIC	*Specific Server *ALL Servers	

SafeNet/i checks until all the tests are passed or until an exclusion rule is encountered.

Note: In Version 8 and above, Time of Day controls are handled differently than in previous releases of SafeNet/i. With Version 8 and above, TOD controls are activated at the server level. Use the **WRKSRV** command to turn on Time of Day checking on the appropriate servers.

To set up the Time of Day controls for a specific user, use **Option 1 – Work with User to Server Security** from the SafeNet/i User Settings Menu or the **WRKUSRSRV** command.

Type the user profile, **ENTER** and then press **F10**.

The *User Time-of-Day Maintenance* screen appears.

```

UPDATE                               User Time-of-Day Maintenance                               SAFENET
User: SAFENET   Safenet Profile
Type options, Press enter.
   2=Change   4=Delete   5=Display

Opt Exit Point                               Format                               S S
- *ALL                                           - - 100 200 - - - - -
- Distributed Data Management                 *DDM                               - - - - -
- DRDA DB2 Database Access Rqst              *DRDA                               - - - - -
- Original Data Queue Server                 DTAQ0100                           - - - - -
- Original License Mgmt Server                LICM0100                           - - 200 300 - - - - -
- Original Message Server                    MESS0100                           - - - - -
- Network Print Server - entry                ENTR0100                           - - - - -
- Network Print Server - spool file           SPLF0100                           - - - - -
- File Server                                 PWFS0100                           - - - - -
- Original Remote SQL Server                 RSQL0100                           - - - - -
- Spooled file security exit point           SPSY0200                           - - - - -
- Original File Transfer Function            TRAN0100                           - - - - -
- Telnet Device Initialization               INIT0100                           - - - - -
- FTP Client Request Validation              VLRQ0101                           - - - - -
- FTP Server Request Validation              VLRQ0100                           - - - - -
F9=Update Holidays                               More...
F3=Exit      F5=Refresh

```

To exclude the user from all servers during the same days of the week and time of day, **type 2 – Change** in front of ***ALL**.

To select individual servers, **type 2** in front of the servers you want to change

You can define up to three time ranges and can select which days to exclude by **typing X** in front of the day.

```
UPDATE                               User Time-of-Day Maintenance           KTODM1
User: SAFENET   Safenet Profile

Exit Point . . . . . Original License Mgmt Server
Format . . . . . LICM0100

Time Of Day Exclude Ranges:
Range 1: From 200 To 300   Access between the given time range will
Range 2: From ____ To ____   be denied by SafeNet/i.
Range 3: From ____ To ____

Day Of The Week Exclusions:
Saturday   X   X=Exclusion is set
Sunday     X   Blank=Exclusion is off
Monday     -
Tuesday    -   Access on the indicated days
Wednesday  -   will be denied by SafeNet/i.
Thursday   -
Friday     -
Holidays   -

F5=Refresh   F12=Cancel   F9=Update Holidays
```

You can also define holidays that will be used to control Time of Day access.

Press F9 to display the *Time of Day Holiday Maintenance* screen.

Type the dates and descriptions of your holidays.

SafeNet/i Time of Day Holiday Maintenance

<u>Date</u>	<u>Description</u>	<u>Date</u>	<u>Description</u>
03/01/16	March First		
04/01/16	April Fools		
07/04/16	Independence Day		

F3=End w/update F12=Cancel

Press **ENTER**.

Chapter 2 - SETTING UP SERVERS

The final step in configuring **SafeNet/i** is to enter the Security Level settings for all the server functions.

Important: If you do this step first and restrict access to the server functions prior to setting up user rights, you may disrupt network requests until the users' authority table setup is completed. Setting up the Current Level on the servers should be considered the **LAST STEP** during the setup process.

Typically, use the Future Server Settings for initial setup and testing. When you are ready to activate SafeNet/i settings, you can flip the current and future settings by using **Option 1 - Work with User to Server Security** on the SafeNet/i Main Menu (SN1) then F22.

You can also use the **WRKSRV** command and F22.

SafeNet/i Server Function Security Levels

Level 1:

- IBM default
- Unlimited access, all requests accepted
- Requests can be logged, reporting available
- Performance impact - minimal

Level 2:

- No access at all, all requests for server are rejected
- Requests can be logged, reporting available
- Performance impact - not a consideration

Level 3:

- Access granted on a user-by-user basis to the server
- Requests can be logged, reporting available
- Performance impact – minimal
- TELNET at Level 3 requires use of the TCP/IP control table

Level 4:

- Access granted on a user to server and object, command, SQL, FTP basis
- Requests can be logged, reporting available
- Performance impact – higher

Level 4 requires authority to the server function and additionally requires table entries for proper authorization to individual or generic objects and/or folders by user profile. Data rights such as read/write and object management rights can be assigned on an individual basis.

Level 4 on the *DDM*, *FTP* or *Remote Command/Program Call Server* requires setting up authorities to CL commands.

For *DDM*, *FTP* or *Remote Command/Program Call Server*, all commands are restricted.

Level 5:

- This usually denotes a problem with an exit point program registration in IBM i
- This indicates that **SafeNet/i** does not recognize a program assigned to the exit point or has detected a user-defined program assigned. (Use **WRKREGINF** command to review existing exit point programs.)
- Not supported
- Cannot be changed via **SafeNet/i**, use **WRKREGINF** command
- See the section on 'Resetting Level 5 within SafeNet/i' in Chapter 9 of this guide

On the following pages you will find these levels grouped together to make it easier for you to decide the appropriate level of security required for each server function.

Setting the Server Function Logging Levels

The valid logging levels are:

Logging Level A	Log all transactions
Logging Level R	Log only rejected requests
Logging Level N	No logging

As you set up your Server Function logging levels, please remember the following:

- If you set the logging level on the Server Function to *NO LOGGING* or *REJECTIONS*, the Server Function setting will override the individual user logging level.
- If you set the logging level on the Server Function to *ALL*, the individual user logging level will override the Server Function logging level.

To make sure you are logging transactions correctly, we recommend that when you initially set up **SafeNet/i** you set the Server Functions to log *ALL* and set the individual user logging levels to either *ALL* or *REJECTIONS*.

Then, after you have had some experience with checking the logs and interpreting the results, you may want to make changes for specific user and server combinations.

Basic Server Security - Supported by all Servers – Rating LOW

Level 1 - IBM Default

Level 2 - No access to server

Intermediate Server Security - Supported by all Servers - Rating MEDIUM

Level 3 - Users must be authorized to the server

Special
Level 3 - *TELNET - controls signon by IP address

Advanced Server Security - Supported by Specific Servers - Rating HIGH

Level 4 - The user must be authorized to the server, the objects requested, the FTP Op or SQL Op, CL commands or long path to be used.

Supported by the following servers:

- Distributed Data Management Server
- Original Data Queue Server
- Network Printer Server - Spool file requests
- Integrated File Server
- Original Remote SQL Server
- Original File Transfer Function Server
- Original Virtual Print Server
- Database Server - Data base access
- Database Server - SQL access
- Data Queue Server
- Remote Command/Program Call Server
- FTP Server Request Validation
- FTP Client Request Validation
- REXEC Server request Validation
- Showcase™ Server
- Spooled File Security

Recommended Server Settings

<u>Server Description</u>	<u>Recommended Setting</u>
Central Server - client management	Level 1, Log None
Central Server - conversion map	Level 1, Log None
Central Server - license management	Level 1, Log None
Database Server - entry	Level 3, Log All- Limit user access
Database Server - data base access - 100	Level 4, Log All - Limit user and object access
Database Server - data base access - 200	Level 4, Log All - Limit user and object access
Database Server - object information - 100	Level 3, Log All - Limit user access
Database Server - object information - 200	Level 3, Log All - Limit user access
Database Server - SQL access - 100	Level 4, Log All - Limit user, object and SQL statement access
Database Server - SQL access – 200	Level 4, Log All - Limit user, object and SQL statement access
Data Queue Server	Level 1, Log None

Server Description

Recommended Setting

Distributed Data Management

Level 3, Log All - Limit user access
or
Level 4, Log All - Limit users to specific objects
and commands

DHCP

Level 1, Log None

DRDA DB2 Database Access Request

Level 3, Log All - Limit user

File Server

Level 4, Log All - Limit user and object access

FTP Client Server

Level 4, Log All - Limit user access & target connection
by IP Address

FTP Logon Server

Level 3, Log All - Limit user access

FTP Server Validation

Level 4, Log All - Limit user, source IP address, object,
FTP sub-commands

Network Print Server - entry

Level 1, Log None

Network Print Server - spool file

Level 1, Log None

Original Data Queue Server

Level 1, Log None

Original File Transfer Function

Level 4, Log All - Limit user and object access

Original License Mgmt Server

Level 1, Log None

<u>Server Description</u>	<u>Recommended Setting</u>
Original Message Server	Level 1, Log None
Original Remote SQL Server	Level 4, Log All - Limit user access to objects and SQL statements
Original Virtual Print Server	Level 1, Log None
PWRDWN SYS	Level 1, Log All – Log all requests
Remote Command/Program Call	Level 4, Log All - Limit user and object access and commands
REXEC Logon	Level 3, Log All - Limit user access
REXEC Server Request Validation	Level 4, Log All - Limit user, Source IP address
Spooled File Security	Level 1, Log None - Unless specific requirement for additional spool security
TELNET Logon or TELNET Logoff	Level 1, Log None
TFTP Logon	Level 1, Log None
User Profile Points	Level 1, Log All - Log all requests
TCP Signon Server	Level 1, Log None
Showcase™ Server	Level 4, Log All – Limit User, Object, Log all

Entering Server Function Security Levels

- From the SafeNet/i Main Menu select **Option 1 - Work with Server Security Settings** or use **WRKSRV** command

The *Maintain Server Security* screen is displayed.

```

WRKRE22R                               SafeNet/i  V10                               2/17/16
MPADEV                                 Maintain Server Security                       17:29:10
  Security Levels:
1=Unlimited Access  2=No Access  3=Limited by User  4=Limited by User & Object

  Logging Levels:
A=All  N=None  R=Rejects Only
                                TOD=Time of Day Controls
                                IPA=IP Address Controls
                                Y=Yes  N=No

|---Current---| Future  Max      Server
Sec. Log TOD IPA  Lvl  Lvl  Description
3  A  N  N  1  4  Distributed Data Management      *DDM
3  A  N  N  1  3  DRDA DB2 Database Access Rqst     *DRDA
1  A  N  N  1  4  Original Data Queue Server        *DQSRV
1  A  N  N  1  3  Original License Mgmt Server      *LMSRV
1  A  N  N  1  3  Original Message Server           *MSGFCL
1  A  N  N  1  3  Network Print Server - entry      QNPSERVR
1  A  N  N  1  4  Network Print Server - spool file QNPSERVR
3  A  N  N  1  4  File Server                        *FILESRV
4  A  N  N  1  4  Original Remote SQL Server        *RQSRV
1  A  N  N  4  4  Spooled file security exit point  *SPLAUT
                                         More...

F1=HELP  F3=Exit  F4=Fold  F7=IP Addresses  F18=User Exit Programs
F22=Flip Future & Current          (c) Copyright 1997-2015 MP Assoc. Inc.

```

- Enter the level of security and the logging level that is required for each server description in the *Current* columns.

The *Future* column lets you enter a setting for each server based on what you think the setting will be in the future. This makes it possible to use your historical transactions against both current and future server levels for testing purposes.

Enter a 'Y' in the *TOD* column to control individual server functions based on time of day.

When you change the *TOD* value it becomes effective immediately. Make sure you have used the *Time of Day* setup function, accessed via F10 within the **WRKUSRSRV** command, before you change this value on the server function.

TOD entries are based on **EXCLUSION** times for the users, establishing when the user is **NOT** permitted system access.

Enter a 'Y' in the *IPA* column to control whether individual server functions check for valid IP addresses.

The *IPA* column indicates if this server is checking for valid IP addresses. Place your cursor on the server display line and press F7 to view the IP address entries. Or use the **WRKUSRIP** command.

Note: The server functions are listed on multiple screens. **PageDown** to ensure you enter a level for all the servers.

3. When you have finished entering information for all the servers, **press ENTER**.

The screen is refreshed and any changes you made are reflected in the *Current* columns.

Customer Exit Programs

If you would like to use your own programs over these server exit points, **F18** on the *Maintain Server Security (WRKSRV)* screen gives you the ability to do so.

```
WRKREG3R                SafeNet/i  V10                2/17/16
MPADEV                  Maintain User Exit Programs    17:30:25

To remove a program, space over library and program name.

Pgm Types
U = Upstream
D = Downstream
Pgm
Type  Library  Program  Server  Description
D  QGPL      SNDMSGCL  Distributed Data Management
-  *NONE      *NONE    DRDA DB2 Database Access Rqst
-  *NONE      *NONE    Original Data Queue Server      100
-  *NONE      *NONE    Original License Mgmt Server    100
-  *NONE      *NONE    Original Message Server        100
-  *NONE      *NONE    Network Print Server - entry    100
-  *NONE      *NONE    Network Print Server - spool file 100
-  *NONE      *NONE    File Server                    100
-  *NONE      *NONE    Original Remote SQL Server      100
-  *NONE      *NONE    Spooled file security exit point 200
More...
```

F3=Exit HELP
Pageup/Pagedown (c) Copyright 2015 MP Assoc., Inc.

SafeNet/i will look to see if there is a customer-written program to call. If there is, it calls the program, passing two parameters, a one-byte status code, plus the rest of the data string from the client. The customer exit program can be called before (upstream) or after (downstream) the normal **SafeNet/i** program. Downstream is the typical customer requirement.

Your custom exit program can do whatever you want. When it returns to **SafeNet/i**, if the status code has been changed to indicate any type of rejection, **SafeNet/i** stops and logs the request, and returns a rejection to the client.

If the exit program does not change the status code, the request will go through the normal **SafeNet/i** checking process.

The string that is passed is limited to 4,000 characters, as defined by IBM. Examples of these strings can be found in the TRAPOD file and the appropriate IBM manuals.

Chapter 3 - TELNET AND TCP/IP ADDRESS CONTROLS

Certain Exit Point server functions can be controlled by source IP address and user profiles.

This function can be activated for all supported exit point servers that are at **SafeNet/i** security levels 3 or 4 (medium or high).

Use the **WRKSRV** command to view the *Maintain Server Security* display. A value in the *IPA* column indicates that this server is checking for valid IP addresses,

To set up IP Address Controls in **SafeNet/i**:

1. Turn on SafeNet/i Global IP control to activate IP Address checking by using the **CHGSPCSET** command

Change the **CTLBYIP** parameter to one of the following:

***YES** will activate IP address checking for specific server functions

***NO** indicates IP addresses will not be considered during security checking

2. Use the **WRKSRV** command to switch IP Address controls on or off. The servers that support IP Address controls will have a value in the *IPA* column.

Type 'Y' in the *IPA* field to turn ON IP Address checking for the server

An 'N' indicates that the IP checking is currently turned OFF for the server point

Remember: you can turn ON IP controls for the server only if its security level is set to 3 or above

IP Control Process Flow

This applies to every transaction for certain exit points set to SafeNet/i Security Level 3 or higher

1. Check CHGSPCSET CTLBYIP to see if global function is ***YES/*NO**

If ***NO** - Allow

> Exit IP checking process

If ***YES** - Continue Checking

> Check the “Specific Exit Point” for status of IP checking.



If ***NO** (IP checking is not active at the server level) - Allow

> Exit IP checking process

If ***YES** (IP checking IS active at the server level) – Continue IP checking

> Check if **ANY** IP address is present for this exit point server



If IP addresses are **NOT PRESENT** for this server- Allow

> Exit IP checking process

If IP addresses are **PRESENT** – Continue ip checking

> Check the UserID & Source IP for an authorized IP address.

If UserID is found **IN** IP address Range with **REJECTION** Entry

> Reject and Exit process



If UserID is found **AND IN** the IP Range - Allow

> Exit IP checking process

If UserID is **NOT** found– Continue IP checking

> Check the GroupID & Source IP for an authorized IP address for this exit point server



If GroupID is found **IN** IP address Range with **REJECTION** Entry

> Reject and Exit process

If GroupID is found **AND IN** the IP Range - Allow

> Exit IP checking process



If GroupID **NOT** found – Continue ip checking

Check the ***PUBLIC** & Source IP for an authorized IP address

If ***PUBLIC** is found in the IP address Range with **REJECTION** Entry

> Reject and Exit process



If ***PUBLIC** is found **AND** in the IP Range - Allow

> Exit IP checking process

If Source IP **NOT** found –Reject

> **Exit SafeNet/i with Rejection**

NOTES:

1. Valid IP Range is 0.0.0.0 thru 255.255.255.254
2. Wildcard IP entries(ALL IP addresses) are entered as: 0.0.0.0 thru 255.255.255.254
3. All Source IP addresses will be validated against an IP address Range (FROM – TO).

Some requests may show as having a source IP of 127.0.0.1 or even a blank IP address. This is normal for some IPL and internal processes. Any access through the loopback device address will be automatically accepted by **SafeNet/i**.

Example of **WRKSRV** IPA field

```

WRKRE22R                               SafeNet/i   V10                               3/29/16
MPADEV                                 Maintain Server Security                       16:11:28
Security Levels:
1=Unlimited Access  2=No Access  3=Limited by User  4=Limited by User & Object

Logging Levels:                                TOD=Time of Day Controls
A=All  N=None  R=Rejects Only                  IPA=IP Address Controls
                                                Y=Yes  N=No

|----Current---| Future  Max      Server
Sec. Log TOD IPA  Lvl   Lvl   Description
4  A  N  1  1  4 FTP Server Request Validation          *FTPSERVER
3  A  Y  1  1  3 FTP Server Logon                        *FTPLOGON3
1  A  N  1  1  4 REXEC Server Request Validation         *REXSERVER
3  A  N  1  1  3 REXEC Server Logon                      *REXLOGON2
1  A  1  DHCP Address Binding Notify        *DHCPB
1  A  1  DHCP Address Release Notify       *DHCPR
1  A  N  N  1  3 TFTP Server Request Validation         *TFTPSRVR
1  A  N  N  1  4 Original Virtual Print Server        *VPRT
1  A  1  Prepower down system exit point    *PWRDWN
3  A  N  Y  1  3 Database Server - entry              *SQL
More...

F1=HELP  F3=Exit  F4=Fold  F7=IP Addresses  F18=User Exit Programs
Cursor in protected area of display.

```

With your cursor on the server line, **press F7** to enter *user profiles* and *valid IP address* combinations.

```

IP2SETD                               SafeNet/i   V10                               3/29/16
MPADEV                                 Authorized IP Addresses for Server:           16:42:05
FTP Server Logon
*FTPLOGON3 TCPL0300

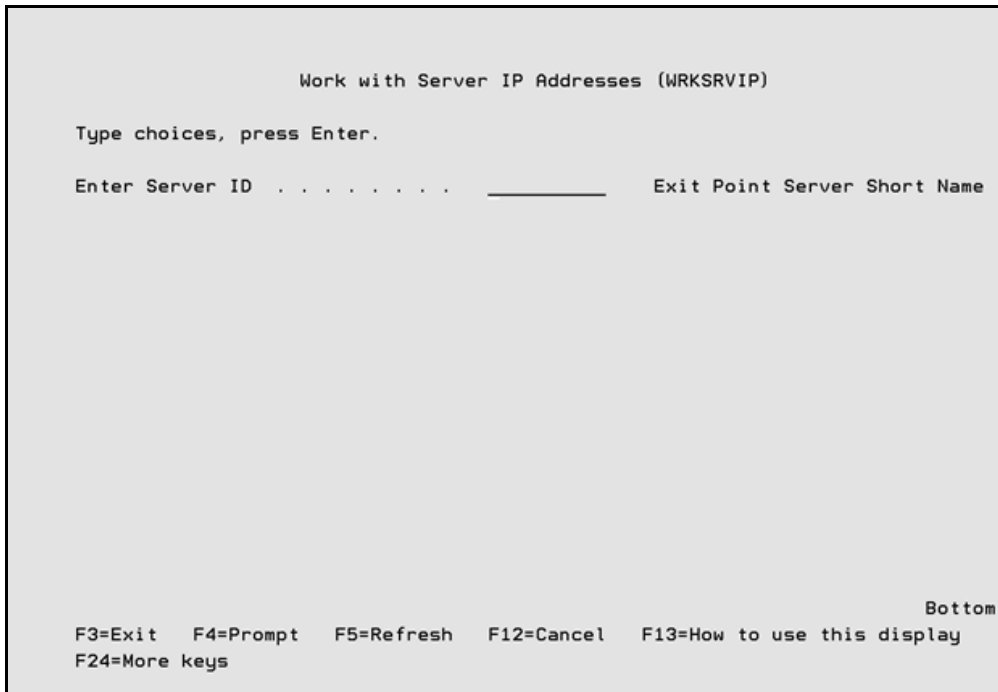
Options
3=Copy  4=Delete
7=View  User Entries |-----Range-----|  Accept
Opt Profile  From IP Address  To IP Address  Reject
- *PUBLIC  10.0.0.0        10.255.255.254  A
- MJONES3  10.2.2.4        10.2.2.4       R *Reject
-
-
-
-
-
-

Bottom

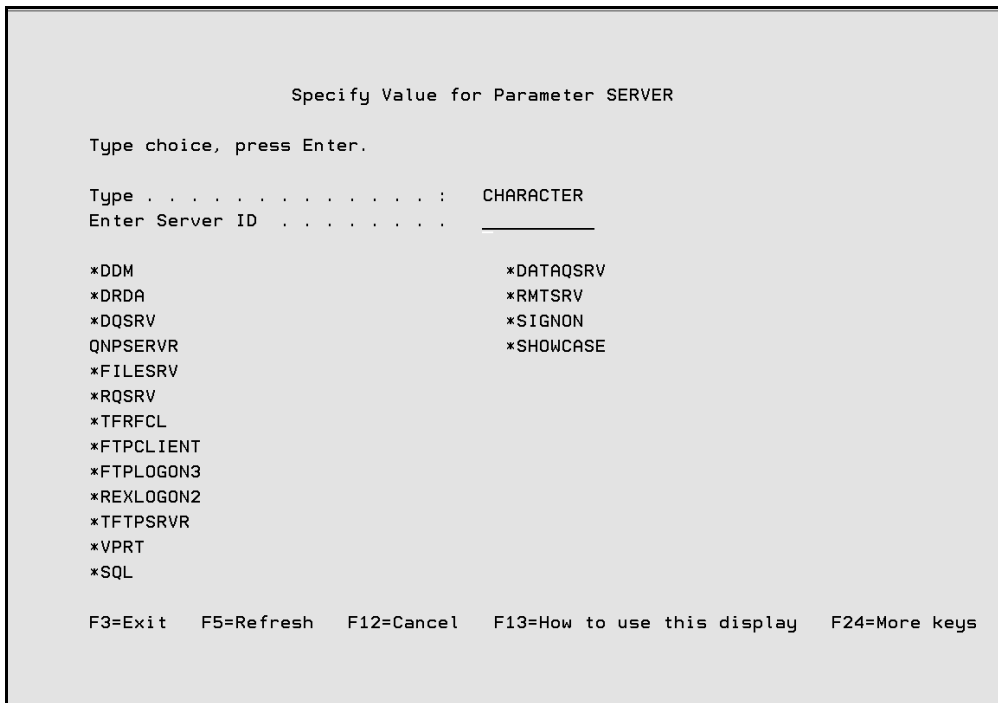
* Records Added.
F3=Exit  F4=Fold
HELP                                F12 = Cancel  (c) Copyright 2015 MP Assoc., Inc.

```

You can also navigate to this screen using the **WRKSRVIP - Work with Server IP Addresses** command.



Press F4 to display a list of all servers that support this function



Setting up TELNET

TELNET control features are supported only when the server is set to Level 3. You may use some or all of the features available with the TELNET server point:

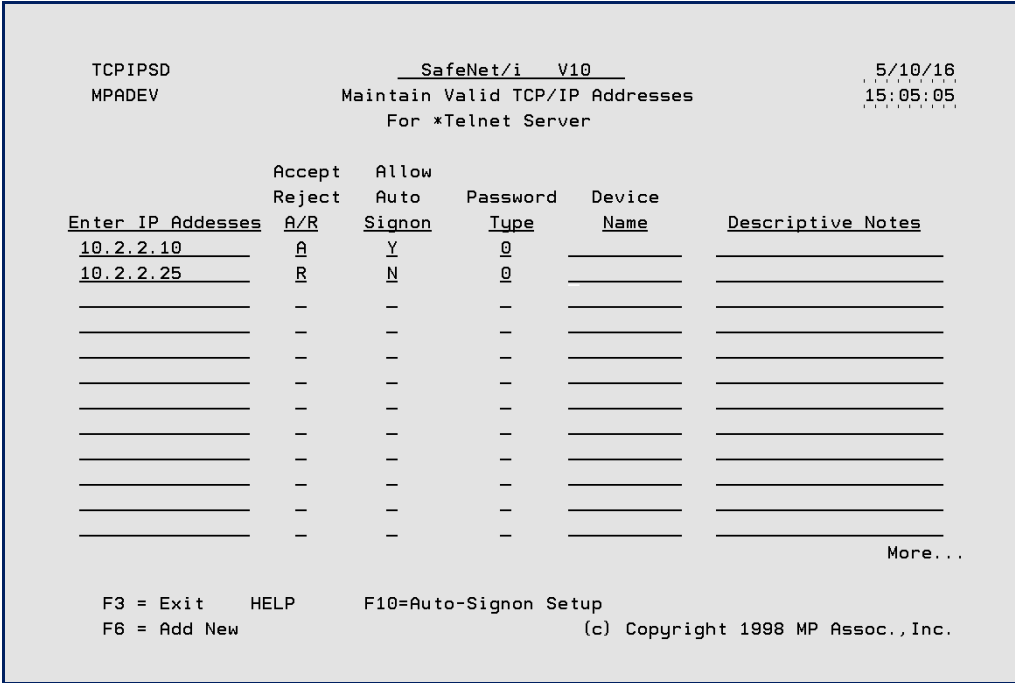
- Control access by IP address
- Allow auto sign-on (bypass sign-on)
- Restrict IP address to use specific device names (enhanced TELNET clients only)
- Restrict access based on the password type sent (none, clear or encrypted)

Controlling TELNET Access by IP Address or Restricting Device Naming in TELNET

1. Set the TELNET server to Level 3 using the **WRKSRV** command
2. From the SafeNet/i Main Menu (SN1), select **Option 5 – Work with TCP/IP Address Security** or use the **WRKTCPIPA** command and enter ***TELNET** as the server to control

OR

To access this screen using the **WRKSRV** command, place your cursor on the ***TELNETON** server and press **F7**.



3. **Enter the IP address** in dotted decimal format (i.e., 10.2.2.10)

Use wild card options if desired (10.2.2.x)

4. **Enter A or R** to accept or reject the request

Example 1:

Address	Accept/Reject
10.2.2.X	A
10.2.2.5	R

In this example any address from 10.2.2.1 through 10.2.2.255 will be accepted, with the exception of 10.2.2.5, which will be rejected.

Example 2:

Address	Accept/ Reject
10.2.2.1XX	A
10.2.2.14X	R

In this example all clients with addresses from 10.2.2.100 through 199 will be accepted, with the exception of clients addressed 10.2.2.140 through 10.2.2.149, which will be rejected.

5. To restrict access to specific device names **enter the device name** in the *Device Name* field with its corresponding IP address.

You may also use a generic device name by putting an * at the end of the name. If you use a generic name, up to 99 will be used.

For example:

An entry of AP* would allow devices to be used as AP01 through AP99. The login process through TELNET will select the next available device name.

To print the control table, select **Option 10 - Print TCP/IP Address Control Listing** on the SafeNet/i Reports Menu, (SN3).

Setting the Required Password Type

This field must be set if the *TELNET Server* is set to Level 3. You must enter the appropriate setting for ALL TELNET IP address controls. As of OS/400 V4R2, only a setting of 0 or 1 is available. A setting of 2, although allowed here for encrypted passwords, is only available at or above system level V5R1.

Valid settings are:

- 0** – No password was received or validated
 - 1** – A clear text password was received and validated
 - 2** – An encrypted password was received (SSL TELNET requires V5R1 or above)
-
- For normal TN5250 (TELNET support is VT100) you must set this to 0, since non-enhanced TELNET clients do not support this feature.
 - For IBM i Access for Windows TELNET, you can use a setting of 1. However, certain IBM i Access for Windows clients do not support this, so you **MUST** test this at your location.
 - A setting of 0 will always allow the client to connect.

Kerberos

For use with additional external Kerberos authentication you must also use the CHGTELNET command to modify the parameter value *KERBEROS* (**YES*) or (**NO*).

The CHGTELNET command is not found on any SafeNet/i menu; you must execute it from the command line.

1. Type **CHGTELNET** and prompt with **F4**
2. Change *KERBEROS* to **YES* or **NO*

Single Sign-on

This feature will let you implement Kerberos single sign-on through **SafeNet/i** without having to use the **SafeNet/i** automatic sign-on feature. This can be helpful if you do not have static IP addresses assigned to local workstations and are implementing Kerberos.

If your Telnet exit point in SafeNet/i is set to level 1, then Kerberos single sign-on will work as is and you can stop here.

To enable the function:

1. Disable the **SafeNet/i** automatic sign-on option.

If you have not enabled it yet, you can bypass this step.

2. To enable the Kerberos feature, run this command from the command line:

CHGTELNET and prompt with **F4**

Change *KERBEROS* to **YES*

At this point, the **SafeNet/i** automatic sign-on feature will not work and the data stream necessary for Kerberos single sign-on will work correctly.

If you want to revert back to the way this was set prior to the change, run this command:

CHGTELNET and prompt with **F4**

Change *KERBEROS* to **NO*

Allow Auto Sign-on

1. Use the **WRKSRV** command to set the TELNET server to Level 3
2. Use the **WRKTCPIPA *TELNET** command to **enter the IP address** allowed for auto sign-on
3. **Enter the password type** (0 or 1 is required)
4. **Enter a Y** to allow auto sign-on
5. Use the **WRKSIGNON** command to **enter the IP address, the user profile, library, program or menu** that the client will automatically be signed on to.

For IBM i Access for Windows, you must set the TN5250 session parameters on the client setup to bypass sign-on (see the IBM i Access documentation). This is required if you set the password type to 1 in the WRKTCPIPA setting.

For non-IBM i Access clients (named TELNET VT100 clients) you cannot use a password type of 1, only 0 is supported.

Important: If you intend to allow auto sign-on, please test this thoroughly, since it could present a security exposure.

Logging of TELNET Sessions

Under normal sign-on conditions (no auto sign-on allowed), each request for a TELNET session is logged into the transaction history file (TRAPOD) by IP address, and a user name of QSYS. QSYS is used because no user profile is associated with the actual TELNET session start request. Each logoff is also recorded by IP address with a user of QSYS.

If you use the auto sign-on feature, the request will be logged with the associated user set up in the Auto Sign-on Control file. Each logoff of a TELNET will also record the transaction with the user profile that was automatically signed on.

When *TELNETON is set to Level 3, only devices with IP addresses already registered will be permitted access to the TELNET server.

Changing the security level of the TELNET server functions takes effect immediately.

Chapter 4 - SETTING UP FTP

Steps to Set up FTP for Normal User ID Access:

1. From the SafeNet/i Main Menu (SN1), select **Option 4 – Additional FTP Settings** or use **CHGFTPSET** command
2. On the Change SafeNet FTP Settings screen, set *Allow normal user IDs to log on the FTP* to ***YES** or use **RLOGON (*YES)** parameter
3. Return to the SafeNet/i Main Menu (SN1) and Select **Option 1 - Server Security Settings** or use **WRKSRV** command

Locate the *FTP Logon*, *FTP Client* and/or *FTP Server* points. These must be set to Level 1, 3, or 4. (If you set these to Level 1, you can skip the rest of these steps.)

4. From the User Settings Menu (SN7), select the following options:
 - a. **Option 1 - Work with User to Server Security** or use **WRKUSRSRV** command

The user ID must be authorized to the *FTP Logon server* and one of the following:

- *FTP Client – if an IBM i user will be FTP-ing OUT from your IBM i
- *FTP Server – if an IBM i user will be FTP-ing INTO your IBM i

- b. **Option 2 - Work with User to Object Level Security** or use **WRKUSROBJ** command

Authorize the user ID to their own current library as specified in the i OS user profile. Enter this library in *User to Object Security*

Authorize the user ID to any other library or object. Enter these in *User to Object Security*

- c. **Option 4 - Work with User to FTP Statement Security** or use **WRKUSRFTP** command

Authorize the user ID to the FTP statements they will use. Use **F4** for additional user settings if required.

- d. **Option 5 - Work with User to CL Command Security**

Authorize the user to the CL commands they will issue through the *FTP Server*

Set the parameters for **CHGFTPSET** command as follows. The default value is highlighted in **bold**.

Parameter	Screen Selections	Value	Description
RLOGON	Allow Normal USERID FTP Logon	* YES *NO	This parameter is used to determine whether or not you want regular IBM i user IDs to be able to sign on through the FTP server. If you want only anonymous logons, set this to *NO and FTP for anonymous logons to *YES. If you say *NO to this option (allow normal IBM i user profiles to log on) then only anonymous logons will be allowed/disallowed based on the other parameters. Regular IBM i user IDs will not be accepted for FTP logons.
SIGNONDATE	Update Previous Signon Date	* YES *NO	Specifies whether to update the user profile's <i>Previous Signon Date</i> when a regular user logs onto the system via FTP. Under normal OS processing, a user's previous signon date is updated only when using 5250 signon.
ALOGON	Allow Anonymous FTP Logon	* YES *NO	If you want users to be able to login with the user ID of Anonymous, enter *YES. If you don't want a user to use the FTP Logon User as Anonymous, leave this field *NO.
ALIBR	Anonymous User Library	<i>Libname</i>	When you allow anonymous logons, you must restrict those FTP users to a specific library. For security purposes, enter it here <u>AND</u> grant the user profile for anonymous logons object rights to this library or group of objects within this library from the <u>SafeNet/i Main Menu, Option 3</u> . For the ANONYMOUS user profile under IBM i, make the 'Current Library' this library name. Also grant the anonymous user ID authority to the FTP server on the <u>Main Menu, Option 2</u> . Add the user to the valid FTP statements from the <u>Main Menu, Option 5</u> .
GUEST	Allow Anonymous GUEST	* YES *NO	To allow Anonymous user logins with the password of GUEST, enter *YES here. You can choose GUEST or use an e-mail address.

	Password		<p><i>Note:</i> If you select GUEST, the IBM i still prompts an anonymous user for their e-mail address. SafeNet/i, however, will only allow GUEST as the password.</p>
EMAIL	Allow E-mail Address for Password	*YES *NO	If you allow an anonymous user to accept an e-mail address, SafeNet/i will scan the address entered for an embedded “@” (at sign) for validation, and record the address in the log request file for reporting
AUSRPRF	Profile for Anonymous Logons	<i>profilename</i>	<p>If you allow anonymous logons, you must specify a valid, pre-existing user profile to run anonymous user logons in IBM i when the anonymous user logs on under FTP. In other words, a user would FTP to an IBM i FTP site running SafeNet/i, and that FTP site would prompt for a user name. The user keys ‘ANONYMOUS’ and the IBM i prompts for a password. The user then keys in a valid e-mail address and the IBM i starts a job assigned to the user ID you have specified here. The IBM i job is initiated using this profile and all its associated authorities.</p> <p>Enter the ANONYMOUS profile here, and if you want to assign a password to the profile enter that here also. It is highly recommended that you leave this as *NONE, *NONE. If you enter a password here, or use a profile other than ANONYMOUS, you leave a potential security exposure.</p> <p>Important: When using SafeNet/i and allowing for Anonymous, it is strongly recommended that you create an IBM i user profile called ‘ANONYMOUS’ with a password of *NONE and *USER for the profile type. If you do this, no one can use this profile to sign on since the password is set to *NONE.</p>

Anonymous FTP Logon

To set up for Anonymous Logon, you must fill in the special FTP settings, and set the *FTP Logon Server* to Level 3 and the *FTP Server Validation* to Level 4.

Follow these steps for FTP:

From the SafeNet/i Main Menu (SN1) select **Option 4 – Additional FTP Settings** or use **CHGFTPSET** command along with **F4**

The *Change SafeNet FTP Settings* screen is displayed.

Press F9 to see all parameters.

```
Change SafeNet FTP Settings (CHGFTPSET)

Type choices, press Enter.

Allow Normal USERID FTP Logon.  RLOGON      *YES
Update Previous Signon Date?. . SIGNONDATE *NO
Allow ANONYMOUS FTP Logon. . . . ALOGON     *NO
ANONYMOUS User Library . . . . ALIBR      ANONFTP
Allow Anonymous GUEST Pswd . . . GUEST      *YES
Allow E-Mail Address for Pswd.  EMAIL       *YES
Profile For ANONYMOUS Logons .  AUSRPRF   ANONYMOUS

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

Here you will find the special parameters to control login access to the *FTP Servers* from both Anonymous and regular user IDs.

Setting up for ANONYMOUS FTP

Example

1. Create a user profile on the IBM i called ANONYMOUS, with password *NONE and user class *USER, and set the Current Library.
2. From the SafeNet/i Main Menu (SN1), select **Option 4 – Additional FTP Settings** or use **CHGFTPSET** command along with **F4**
3. Set the parameters as follows:
 - If you want to allow IBM i users other than ANONYMOUS to log in through FTP server set parameter **RLOGON** to ***YES**
 - Enter **ALOGON(*YES)** to allow ANONYMOUS
 - Enter **the library name** to which the user is restricted in parameter **ALIBR**
 - Enter **the type of password** you want the user to enter - e-mail or Guest, or both
 - Enter **the IBM i user profile** in parameter **AUSRPRF** that was created in Step 1 above (ANONYMOUS)
4. Press **ENTER**
5. Return to the SafeNet/i Main Menu
6. Select **Option 1 - Server Security Settings** or use **WRKSRV** command
7. Locate the *FTP Logon Server* point
8. Change the *FTP Logon Server* to Level 3
9. Change the *FTP Server Validation* point to Level 4. If you want to allow for anonymous logons, you **MUST** set this to Level 4
10. From the SafeNet/i User Settings Menu (SN7), select **Option 1 -Work with User to Server Security** or use **WRKUSRSRV** command
11. Grant the ANONYMOUS user profile authority to the *FTP Logon* and *FTP Server Request Validation* server points.
12. From the SafeNet/i User Settings Menu (SN7), select **Option 2 - Work with User to Object Level Security** or use **WRKUSROBJ** command
13. Grant the ANONYMOUS user authority to the library entered in step 3 above (Current Library), and specifically to any objects within the library. Or, enter *ALL for all object and then assign the required data rights.

If using long path support, use the **WRKUSRPTH** command to enter the correct path or paths for ANONYMOUS.

14. From the User Settings Menu (SN7), select **Option 4 - Work with User to FTP Statement Security** or use the **WRKUSRFTP** command to grant the ANONYMOUS user ID authority to specific FTP commands. Use the additional FTP settings if required or if you want the ANONYMOUS profile initial path to be an IFS directory.

Object Level Security for FTP Client Sessions

To implement this function, set the *FTP Client Request Validation Server Function* to Level 4 in **SafeNet/i**.

When setting up object level security for the *FTP Client Request Validation Server*, remember that the data roles are reversed from *FTP Server Request Validation Function*.

For example, a PUT from the FTP Client requires READ authority to the local object; a GET requires both WRITE and OBJ MGMT authority to the local object.

IP Address Checking for FTP Client Sessions

When the *FTP Client Request Validation Server Function* is set to Level 3 or Level 4, you can control which IP addresses the FTP Client users are permitted to connect to.

To activate IP Address controls for the FTP client, use the WRKSRV command, locate the *FTP Client Request Validation* server and set the 'IPA' column to 'Y'.

You can then access the valid IP address table by moving your cursor to the same *FTP Client Request Validation* server line and pressing **F7**, or use the **WRKSRVIP** command using server ID of *FTPCLIENT.

```
IP2SETD                SafeNet/i  V10                10/08/16
MPA1                   Authorized IP Addresses for Server: 17:35:21
                       FTP Client Request Validation
Options                *FTPCLIENT VLRQ0101
3=Copy 4=Delete       IP Address Checking is Not Active.
7=View User Entries   |-----Target Address Range-----|  Accept
                       Profile      From IP Address    To IP Address      Reject
-      MJONES         10.2.2.2          10.2.2.5          A
-      _____
-      _____
-      _____
-      _____
-      _____

* Add new records.
F3=Exit  F4=Fold
HELP                    F12 = Cancel          (c) Copyright 2015 MP Assoc., Inc.

Bottom
```

Chapter 5 - REPORTS

SafeNet/i reports are grouped into the following categories:

- **Setup Reports** provide information on server settings, user authorities to servers and to data, etc.
- **Analysis and Usage Reports** provide data on **SafeNet/i** usage – the who, what, where and when information you need to manage your system.

Analysis reports have been enhanced to include the ability to select specific dates and/or users, including summaries by group profile. You can choose to print the reports or create an OUTFILE of the selected records in a readable format to use for your own ad-hoc reporting.

You can also use the analysis reports to take advantage of the Auto-enrollment feature of **SafeNet/i**. See the [SafeNet/i Implementation Guide](#) for more information.

The commands for all the usage reports support an archive file and member name. You can run the usage reports from any member of the TRAPARCW file on your system from any library. See the usage report commands PRTxxxUSG parameter ARCMBR

- **Journal Reports** provide additional auditing and controls if you have enabled the Journaling feature in **SafeNet/i**. See Chapter 8 in this guide for details on journaling.

Setup Reports

These reports are accessed through the SafeNet/i Reports Menu (SN3).

Each of these reports can be generated for a selected user or for *ALL users.

- | | |
|--|------------------|
| 1. Server Status | PRTSRVSTS |
| Prints each Server Function and its security level setting | |
| 2. User to Server Security Listing | PRTUSRSRV |
| Lists users and the Server Functions they are authorized to | |
| 3. User to Object Security Listing | PRTUSROBJ |
| Lists users, the libraries and objects they have authority to and the rights the users have to the objects | |
| 4. User to SQL Statement Listing | PRTUSRSQL |
| Lists all users and the SQL statements they are authorized to use | |
| 5. User to FTP Statement Listing | PRTUSRFTP |
| Lists all users and the FTP statements they are authorized to use | |
| 6. User to CL Command Listing | PRTUSRCMD |
| Lists users and the CL commands they are authorized to use | |
| 7. User to Long Path Security Listing | PRTUSRPTH |
| Lists users and long path names they are authorized to use | |
| 8. Print all the User Setup Reports | PRTUSRALL |
| Prints ALL the setup reports for a user | |
| 9. Print Swap Profiles | PRTSWPPRF |
| Prints a list of all swapped profiles | |

- | | |
|--|------------------|
| 10. TCP/IP Address Control Listing | PRTTCPIPA |
| Lists the TCP/IP address controls for any IP address control entries | |
| 11. Print Admins | PRTSNADM |
| Lists all of the SafeNet/i administrators | |
| 12. Print Super Users | PRTSNSUSR |
| Lists all of the SafeNet/i super users | |

Analysis and Usage Reports

These reports are accessed through the Network Transaction Analysis Reports Menu (SN4).

Options 2 through 7 on this menu also give you the ability to run auto-enrollment reports and perform the auto-enrollment process.

- | | |
|---|------------------|
| 1. Security Report by User
(Also Batch Transaction Test Report) | PRTSECRT |
| <p>Lists each request by user, the Server Functions they are requesting, the server's security level setting, and whether the request was accepted or rejected.</p> <p>Can also be used as a test report to recheck all historical transactions against current and future SafeNet/i settings.</p> <p>Allows "what if" testing of all historical transactions against current and future control file settings to see if further set up is required.</p> | |
| 2. User to Server Usage Report | PRTSRVUSG |
| <p>Using historical transactions, lists each server a user has accessed</p> | |
| 3. User to Object Usage Report | PRTOBJUSG |
| <p>Using historical transactions, lists each LIB/OBJ a user has accessed and the type of access, i.e., READ, WRITE, DELETE</p> | |
| 4. User to SQL Usage Report | PRTSQLUSG |
| <p>From historical transactions, lists each SQL operation performed by each user.</p> | |
| 5. User to FTP Usage Report | PRTFTPUSG |
| <p>From historical transactions, lists each FTP operation performed by each user.</p> | |
| 6. User to CL Command Usage Report | PRTCLUSG |
| <p>Using historical transactions, lists each CL command issued by each user.</p> | |

- | | |
|---|------------------|
| 7. User to IFS Path Usage Report | PRTPTHUSG |
| <p>Using historical transactions, lists each path accessed by each user.</p> | |
| 8. Print User to IP Address Usage Report | PRTIPUSG |
| <p>Prints a list by user of each server accessed, and from what source IP address.</p> | |
| 9. Print Executive Summary | SNEXESUM |
| <p>Provides a report, either detailed or summary, containing the current status and statistics of SafeNet/i on your system.</p> | |

Using Archived Transactions with the Reports

You can run the Security Report or any of the analysis and usage reports using data that has been purged from the transaction history file or from a converted transaction journal receiver (see Note below). The TRAPARCW file must contain the data you want to process.

TRAPARCW is a multiple member file where member names are based on the date when the purge was run and records were written to the archive. In order to run the report from the archived data, you will need to know which member name to use.

For example, a member named 'A20090117' contains archive records from the purge that was run on January 17, 2009.

Once you determine which member you wish to use, you can enter that member name in the ACRMBR parameter, available within all the PRTSECRPT and PRTxxxUSG commands and reports.

As an example, run the *Print Security Report by User* from the Network Transaction Analysis Reports Menu (SN4), Option 1 or use the PRTSECRTP command.

On the first screen of the PRTSECRPT command, you can enter the *Selection from Date* and/or the *Selection to Date*. If you use an archive member, you can leave the default date range selection as *BEGIN *END and specify the archive member. That will print everything in the member.

```
Print Security Report (PRTSECRPT)

Type choices, press Enter.

Only print rejections . . . . . Y           Y, N
Select Servers . . . . . *ALL           *ALL, *DEFAULT, *SELECT
Sort Type . . . . . *USRDAT         *USRDAT, *USRSRV, *SRVUSR
Security Level Check . . . . . H           H, C, F
Selection From Date . . . . . *BEGIN       Date, *BEGIN,
      From Time . . . . . *BEGIN       Time, *BEGIN,
Selection To Date . . . . . *END         Date, *END,
      To Time . . . . . *END         Time, *END,
User(s) or Group to Select . . . *ALL       Name
      + for more values _____
User Profile(s) To OMIT . . . . *NONE       User Name
      + for more values _____
Job queue . . . . . *JOB           Name, *JOB
      Library. . . . . _____ Name,
Output Queue . . . . . *CURRENT       Name, *CURRENT
      Library. . . . . _____ Name,
                                                    More...
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

Page down to the second screen to locate the *Print from Archive Member* parameter

```
Print Security Report (PRTSECRPT)

Type choices, press Enter.

Outfile Name for Report . . . . *NONE      Name, *NONE
Library. . . . .                _____ Name,
Print Empty/Blank Reports? . . . *YES      *YES, *NO

Additional Parameters

Print from Archive Member? . . . A20151215 Name, *NO
Library. . . . .                PCSECDTA  Name

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

Enter the member name containing the archive data you want to include in the report.

To report on a sub-set of what's in the member, you can specify a *FROM* date and a *TO* date in addition to the member name. If you do this, make sure your date selection range includes the dates in the member, or you will not get any results.

Note: You can also use this option to print a report from Converted Transaction Journal entries. You must first use the CVTTRNJRN command and copy the result data set from the command run to a new archive member. See CVTTRNJRN command in *Chapter 7* of this guide.

Chapter 6 - TESTING YOUR SECURITY SETTINGS

Once you have planned your server function Security Level settings, **SafeNet/i** gives you a method to test the settings to make sure they will provide the level of security you anticipate. It acts as a “what-if” tool to verify the effect your settings will have before you actually turn on access control.

If you have been logging network requests with **SafeNet/i** you can, at any time, run each historical record through the security checking routines and receive a result of ‘ACCEPTED’ or ‘REJECTED’ based on current or future **SafeNet/i** settings.

This allows you to make changes to the server function Security Level, the user-to-server settings, or data rights authorities, and using previously logged requests, tell immediately if your settings will give the desired response to the clients.

To test your collected transactions use one or both of the following, found on Special Jobs Menu (SN2):

- **Option 4** - *On-line Transaction Testing* (PCTESTR) – the preferred method
- **Option 2** – *Print Transaction Security Report* in test mode

Testing SafeNet/i settings based on your historical data with the on-line transaction tester

This is the preferred method if you would like immediate feedback.

1. From the SafeNet/i Main Menu (SN1) select **Option 22 - Special Jobs Menu** (SN2)
2. Select **Option 4 - On-Line Transaction Testing** or use **PCTESTR** command

The *On-Line Transaction Testing* screen will appear.

```
PCTESTR                SafeNet/i  V10                2/17/16
MPADEV                 On-Line Transaction Testing Mode 17:38:08

This program will scroll thru the request logging file one
record at a time beginning with the record closest to the
date and time as entered below. You may also select to view a
specific User or server.
Enter the beginning date-->  2/14/2016  MMDDYYYY  (Optional)

Enter the beginning time-->  0000000000  (HHMMSSmm) (Optional)

Enter a Specific User Profile-->  _____  (Optional)

Enter a Specific Server ID----->  _____  F4=Prompt (Optional)

Use the parameter below to test various security levels, or
to just review the historical transactions.
Enter the Security Level To Check-->  _  C=Current,F=Future,H=Historical
Show Only Rejections?-->  _  (Y/N)                or levels 2, 3 or 4.

F3 = Exit      F6=Additional Testing ParmS
```

If you want, you may enter a beginning date and time, or the user or server ID, then enter the desired security level to test against your logged transactions.

If you do not enter a date and time, you will be shown requests beginning with the first available record in the file.

3. In the *Security Levels to Check* field:

Type C (Current) to test transactions with your **present SafeNet/i** Server Security Levels

Type H (Historical) to review the actual status received when the transaction was logged; no new 're-testing' is performed.

Type F (Future) to test transactions with your **future** Server Security Levels. This will test each selected transaction against the future security setting to determine if your security control files are set up correctly.

You may also choose to test a specific security level using a **2, 3** or **4** in this field.

If you want to test your Time-of-Day controls, **type Y** in Time of Day Check.

If you want to see only rejected requests, **type Y** in *Show only Rejections*.

Important: If you elect to display only rejections, be advised that this may seriously impact interactive performance. Consider using the *Batch Transaction Test Report* as an alternative.

Use **F4** to display a list of server functions

```

PCTESTR                               SafeNet/i  V10                               2/22/16
MPADEV                                On-Line Transaction Testing Mode          15:44:20

This program will scroll thru the request logging file one
record at a time beginning with the record closest to the
date and time as entered below. You may also select to view a
specific User or server.
Enter the beginning date-->  2/22/2016  MMDDYYYY (Optional)

Enter the beginn
Enter a Specific
Enter a Specific
Use the paramete
to just review t
Enter the Securi
Show Only Reject

F3 = Exit   F6=Addit

                                Select a Server
                                Position To Desired Record, Press Enter.
                                F12=Return
                                Available Servers:
                                *DDM   Distributed Data Management
                                *DRDA   DRDA DB2 Database Access Rqst
                                *DQSRV  Original Data Queue Server
                                *LMSRV  Original License Mgmt Server
                                *MSGFCL  Original Message Server
                                QNPSERVR Network Print Server - entry
                                QNPSERVR Network Print Server - spool file
                                *FILESRV File Server
                                More...
  
```

Use **F6** to set additional testing options as you require

```

PCTESTR                               SafeNet/i  V10                               2/22/16
MPADEV                                On-Line Transaction Testing Mode          15:42:21

This program will scroll thru the request logging file one
record at a time beginning with the record closest to the
Optional Testing Parameters.

Perform Time-Of-Day Checking--> *NO_ *Yes, *No
Path Type to Check--> *SHORT *Long, *Short
Path Search Sequence--> *STD *STD, *ALT1, *ALT2, *ALT3
Path Search Stop Point--> *ONMATCH *OnMatch, *OnAccept..
Generic Path Build Direction--> *RTL *LTR, *RTL
Maintain Legacy Native DB Path Search--> *YES *Yes, *No
Object Search Sequence--> *STD *STD, *ALT1, *ALT2, *ALT3
Object Search Stop Point--> *ONMATCH *OnMatch, ...
Generic Object Lookups--> *YES *Yes, *No
Replace User-> _____ With User-> _____
Check IP Addresses on Supported Servers--> *YES *Yes, *No
Enter=Save Settings F3=Exit No Save F12=Defaults

F3 = Exit   F6=Additional Testing Parms
  
```

When you press **ENTER** and a transaction that meets your selection criteria is found, the *On-Line Transaction Testing Mode* screen is displayed.

```
PCTESTR                               SafeNet/i  V10                               2/17/16
MPADEV                                On-Line Transaction Testing Mode          17:45:01

Requested Security Level to Check --> H Historical Review
Current Server Security Setting-----> 1 No Checking Performed
Max. Security Level For this Server-> 3 User to Server Checked
Return Information:
Status Code--> 1 Accepted
User--> SAFENET
Job-> QZSOSIGN      Date/Time--> 2/16/2016
Source IP Address--> 10.2.2.25
Server--> *SIGNON  TCP/IP Client Signon Server
Format--> ZSOY0100 Request for TCP/IP Signon Access

F3 = Exit      Pageup/Pagedown          F5 = ReTest Transaction
F12 = Restart                                     (c) Copyright 2015 MP Assoc., Inc.
```

This describes:

- The Requested Security Level setting to check
- The current Security Level for the server
- The maximum security level setting for this server
- The user making the request
- The group profile related to the user
- The date and time of the request
- The IBM i server job name the request came from
- The format
- The server function receiving the request
- Data used, if any
- Whether the request was accepted or rejected, and the reason for the rejection
- If it is displayed as a valid function key, you can **press F10** to view even more detail

- Additional command keys are shown when rejections are displayed. These additional command keys will allow you to work directly with the appropriate user setting based on the rejection code.
4. You can roll up or down to scroll backward and forward, or you can press **ENTER** to scroll forward to the next record in the logging file.

At any time you can press **F12** to return and enter a new starting date and time, server or user, or change the Security Level to check.

Note: Use this tool to develop and test your initial security settings prior to putting them into production. You can go back and change the different **SafeNet/i** parameters to see how they affect each transaction.

Use the additional command keys shown in rejections to immediately make changes to user settings.

Batch Transaction Test Review/Report – Security Report by User

You can use this batch report to test all the historical transactions through current and future control file settings.

With this report you can make changes to control files, then re-run all the historical transactions back through a security check process to determine if further security set up is required.

If you want to see the same servers each time you run this security report, you can customize it by using Special Jobs Menu (SN2), **Option 1 - Select Default Servers for Security Report**. This option lets you select the specific servers you are interested in, then makes them the default each time you run the report.

This report is available from the Network Transaction Analysis Reports Menu (SN4), **Option 1 - Print Security Report by User** or the Special Jobs Menu (SN2), **Option 2 – Print Transaction Security Report**.

You can also use the **PRTSECRPT** command. Use F4 to prompt for parameters when entering the command.

Use **F9** to display all parameters

```
Print Security Report (PRTSECRPT)

Type choices, press Enter.

Only print rejections . . . . . Y           Y, N
Select Servers . . . . . *ALL           *ALL, *DEFAULT, *SELECT
Sort Type . . . . . *USRDAT         *USRDAT, *USRSRV, *SRVUSR
Security Level Check . . . . . H           H, C, F
Selection From Date . . . . . *BEGIN       Date, *BEGIN,
    From Time . . . . . *BEGIN       Time, *BEGIN,
Selection To Date . . . . . *END         Date, *END,
    To Time . . . . . *END         Time, *END,
User(s) or Group to Select . . . *ALL       Name
    + for more values
User Profile(s) To OMIT . . . . *NONE       User Name
    + for more values
Job queue . . . . . *JOBDB           Name, *JOBDB
    Library. . . . .
Output Queue . . . . . *CURRENT       Name, *CURRENT
    Library. . . . .
                                                    More...

F3=Exit  F4=Prompt  F5=Refresh  F10=Additional parameters  F12=Cancel
F13=How to use this display  F24=More keys
```

On the *Print Security Report* screen fill in the following:

1. Decide if you wish to print all transactions or only those that were rejected.
 - **Enter Y** for only rejections (the default) or **N** to print all transactions
 - Printing only rejections will reduce the size of the output report

2. Select the servers to include in the report
 - ***ALL** - all servers
 - ***DEFAULT** - based on servers that were selected on the Special Jobs Menu (SN2), **Option 1 - Select Default Servers for Security Report**
 - ***SELECT** - displays a list of servers to choose from

3. Select your preferred *Sort Type*
 - ***USRDAT** - by user, then by date within user
 - ***USRSRV** - by user, then by server within user
 - ***SRVUSR** - by server, then by user within server

4. Select the correct *Security Level Check* value
 - **H** = Historical Review only

Show status at actual time of client request
 - **C** = Re-check all transactions against current server settings
 - **F** = Re-check all transactions against the *Future* server settings

5. Select these optional parameters
 - Enter a start date and time or accept the default value
 - Enter an ending date and time or accept the default value
 - Enter a specific user ID or ***ALL**

Page Down to view additional parameters, or if you would like to print the report to an output file.

You can override any of your environment defaults to test various settings, if desired.

```
Print Security Report (PRTSECRPT)

Type choices, press Enter.

Outfile Name for Report . . . . . *NONE _____ Name, *NONE
Library . . . . . _____ Name,
Add to Outfile? . . . . . *NO *YES, *NO
Print Empty/Blank Reports? . . . *YES *YES, *NO
Test Time of Day . . . . . *NO *YES, *NO
Test IP Address Controls? . . . . *NO *YES, *NO
Perform Generic Object Search? . . *YES *YES, *NO
Object Search Sequence . . . . . *STD *STD, *ALT1, *ALT2, *ALT3
Object Search Stop Point. . . . . *ONMATCH *ONMATCH, *ONACCEPT...
Path Type to Check . . . . . *SHORT *LONG, *SHORT
Path Search Sequence . . . . . *STD *STD, *ALT1, *ALT2, *ALT3
Path Search Stop Point. . . . . *ONMATCH *ONMATCH, *ONACCEPT...
Generic Path Build Direction . . . *RTL *LTR, *RTL
Legacy QSYS.LIB Path Support? . . *YES *YES, *NO

More...
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys
```

6. Decide if you want to test the time of day controls

Enter ***YES** or ***NO** for the *Test Time of Day* parameter

7. Decide if you want to test IP Address controls

Enter ***YES** or ***NO** for the *Test Time of Day* parameter

When you have finished making your selections, **ENTER** to submit the report to batch.

Recommended approach to testing

A recommended approach to using the *On-Line Transaction Testing* program is:

1. Set all of the important server functions to Security Level 1, Log All. This will log all requests without affecting any users. Set your *Future Server* settings or use the pre-loaded recommended values.

Turn off logging on the non-critical servers to limit logging.

2. Collect your requests and print out the *Security Report by User* from the Network Transaction Analysis Reports Menu (SN4). Select *Historical Review*.
3. Set up your *User to Server* and *User to Object, SQL, FTP, CL*, etc. tables if you wish to go to Security Level 4.
4. You can use several tools provided with **SafeNet/i** to test your security settings. Use the *Security Report by User* or the on-line version, *PCTESTR*. These can be run to test the collected transactions against the current or future server settings. (Use Future Setting)
5. Use *Show only Rejections* on *PCTESTR* and *Print only Rejections* on the batch report. If your settings are correct for the Security Levels being tested, you should receive messages only for transactions that would be rejected.

If any of the requests are rejected, check the message description and make the appropriate corrections to the **SafeNet/i** settings. Try the transaction again.

Note: If you request Level 4, you may only get a security check to Level 3 since some servers support only up to Level 3. This is noted on each record in the *On-Line Transaction Testing* as “Level Requested”, “Level Checked” and “Max Level”.

PCREVIEW

Use the **PCREVIEW** command or **Option 3 - On-Line Transaction Review** from the SafeNet/i Special Jobs Menu (SN2) to review each transaction logged by **SafeNet/i**.

This displays the historical transactions only. No testing can be performed using this tool.

1. Type **PCREVIEW** and press **ENTER**.

The *Network On-Line Transaction Review* screen is displayed and the **HELP** key is active.

```
MPADEV   PCTRAND           SafeNet/i   V10           2/17/16  17:49:35
Network On-Line Transaction Review
User.: SAFENET           From Date.: 12/01/2015 (MMDDYYYY)
Server:                   To Date... : 12/31/2015 (MMDDYYYY)
Status: _ (A=Accepted, R=Rejected, Blank=All) Start Time: 0 (HHMMSS)
Order.: A (A=Ascending, D=Descending)
Type option, press Enter.
1=Details
Sel Stat User      Format      Server      Date      Time      IP Address
_  Accept SAFENET   ZSOY0100   *SIGNON    12/01/15  13.36.36.700 10.242.1.2
_  Accept SAFENET   TCLP0300   *FTPLOGON3 12/02/15  11.09.37.784 10.242.1.2
_  Accept SAFENET   VLRQ0100   *FTPSERVER 12/02/15  11.09.44.283 10.242.1.2
_  Accept SAFENET   VLRQ0100   *FTPSERVER 12/02/15  11.09.52.213 10.242.1.2
_  Accept SAFENET   ZSOY0100   *SIGNON    12/02/15  12.06.20.240 10.242.1.2
_  Accept SAFENET   ZSOY0100   *SIGNON    12/02/15  12.06.20.505 10.242.1.2
_  Accept SAFENET   CZRC0100   *RMTSRV    12/02/15  12.06.20.990 10.242.1.2
_  Accept SAFENET   CZRC0100   *RMTSRV    12/02/15  12.06.21.055 10.242.1.2
_  Accept SAFENET   CZRC0100   *RMTSRV    12/02/15  12.06.21.125 10.242.1.2
_  Accept SAFENET   PWFS0100   *FILESRV   12/02/15  12.06.22.147 10.242.1.2
_  Accept SAFENET   CZRC0100   *RMTSRV    12/02/15  12.06.22.268 10.242.1.2 +

F3=Exit  F5=Refresh  F12=Cancel  F17=Top  F18=Toggle (Ascend/Descend)  HELP
(C) Copyright 2010 MP Associates, Inc.
```

2. Using the fields at the top of the screen, you can select only the records you wish displayed. You can select by user, server, status, from and to date.

For example, to review only rejections for today:

- Type **R** in the Status field
- By default, today's date is entered for you

3. To obtain additional information about a particular record, type a **1** next to the record and press **ENTER**.

The *On-Line Transaction Review Mode* screen is displayed, supplying more detailed information about the specific transaction.

```
PCTESTR                               SafeNet/i  V10                               2/17/16
MPADEV                                On-Line Transaction Review Mode          17:50:38
                                       Actual Status At Time Of Request

Requested Security Level to Check --> H Historical Review
Current Server Security Setting-----> 1 No Checking Performed
Max. Security Level For this Server-> 3 User to Server Checked
Return Information:
Status Code--> 1 Accepted
User--> SAFENET
Job-> QZSOSIGN      Date/Time--> 12/02/2015
Source IP Address--> 10.242.1.2
Server--> *SIGNON   TCP/IP Client Signon Server
Format--> ZS0Y0100 Request for TCP/IP Signon Access

F3 = Exit      Pageup/Pagedown
F12 = Restart                                     (c) Copyright 2015 MP Assoc., Inc.
```

You can use the **ROLL UP/ROLL DOWN** keys to scroll through the sequential transactions or **press ENTER** to return to the PCREVIEW sub-file screen.

If you selected only a specific user or server to be displayed in PCREVIEW, you will find that only those records meeting the selection criteria will be displayed as you scroll through the file with the on-line transaction test program.

Chapter 7 - BACKUP, ARCHIVING AND PURGING TRANSACTIONS

Log file Purge and Archiving (STRPRGARC command)

When **SafeNet/i** is logging client requests, the information is kept in the TRAPOD file in library PCSECDTA. At times this file may grow to a considerable size. This function deletes the records in the TRAPOD file and optionally archives the transactions to file TRAPARCW.

The default library for the archive file TRAPARCW is PCSECDTA. If you want the archived records to be archived to a different library, use the CHGARCLIB command to specify the library you want to use. Make sure you set this accordingly before you start your purge processes.

There are two ways to purge the TRAPOD file:

1. Standard purge using retention days or purge-through date
2. Archive TRAPOD records and generate a report

This allows you to specify the number of days to retain records or a purge-through date, and provides the capability to archive the records to an alternate file and member. You can also print a report listing either all of the purged records or only those records that were rejections.

When using **SafeNet/i** with Transaction Journaling active you can also purge old journal receivers at the same time. See additional information on journaling in Chapter 8 of this guide.

Review the STRPRGARC command, parameters *RMVRCUS* and *RRMVSTAT*. Use **F9** to display all parameters.

To perform a standard purge

1. Backup the TRAPOD file to tape, if desired.

If you do not use save-while-active, you will need to issue the **ENDTRP** command **BEFORE** beginning the backup and the **STRTRP** command **AFTER** the backup.

2. Select **Option 6** from the Special Jobs Menu (SN2) or use the **STRPRGARC** command.
3. Enter **the number of days** to retain information in the TRAPOD file or **enter the date** to purge through. The default is to retain the information for thirty days.
4. You can direct the processing of the purge to a specific job queue.

If you leave the default value of *JOBID, then the default job queue for your job will be used.

If you choose to use a different job queue, you can enter the name here. You must have the job queue's library name in your job's library list when you use this option.

5. If you ended logging prior to performing a backup, issue the **STRTRP** command to restart logging.

You can use the following command instead of the menu option:

STRPRGARC DAYS(060) ARC(*NO)

This will purge the TRAPOD file and retain 60 days of data. The number of days must be entered as three characters, i.e., 020 for 20 days.

There will be no archiving of purged records with the *ARC(*NO)* parameter.

To purge the log and archive the records

1. Select **Option 6** from the Special Jobs Menu (SN2) or use the **STRPRGARC** command.
2. Enter **the number of days** to retain information in the TRAPOD file or **enter the date** to purge through. The default is to retain the information for thirty days.
3. Make sure *Archive purged records* is set to ***YES**
4. Set *Print purged records* and *Only print rejections* to whichever option you wish
5. Use **F10** to display *Additional Parameters*
6. Select ***YES** or ***NO** for *Remove deleted records*

***YES** requires that transaction logging be turned off

You can use the following command instead of the menu option:

STRPRGARC DAYS(060) ARC(*YES) PRT(*YES) PRTR(*NO) RMVDEL(*NO)

This will purge the TRAPOD file and retain 60 days of data; archive the records; print a report listing all records, not just rejections.

All archived records are transferred to a file named TRAPARCW. Each time the archive command is run, a new file member is added to this file. It is recommended that for auditing purposes you save the archive file to tape; when saved, remove the members.

If you wish to create the TRAPARCW file in a library other than PCSECDTA, use the CHGARCLIB command to specify that library name.

Journaling Purge Consideration

If you are also journaling network requests and wish to purge the associated journal receivers, use parameters *RMVRCVS* and *RRMVSTAT* on the STRPRGARC command.

Press **F9** to display these additional parameters.

Automating the log file purge

To automatically purge the log file, archive the purged records and generate the transaction report, use the following command or add it to the system job scheduler:

SBMJOB CMD(PCSECLIB/STRPRGARC DAYS(XXX) JOB(SECPRG)

XXX is the number of days to retain records (060 = 60 days retention)

Automating the One Step Security Report

To automatically run the security report without purging or archiving any records, use the following command:

PRTSECRPT

There are no parameters required for this command.

If you run this command without parameters, it will generate the report using the full log file content.

To submit this command to batch type:

SBMJOB CMD(PCSECLIB/PRTSECRPT)

For additional selection criteria for this report, use the Network Transaction Analysis Reports Menu, (SN4) **Option 1 - Print Security Report by User**.

Automating and Running the Security Report and the Log File Purge Together

Use this method to automate both the **SafeNet/i Security Report** and the *Log File Purge*.

For this example, the purge is being done on Mondays and Thursdays. You may use any schedule you wish; however, make sure your purge is retaining enough days for reporting purposes.

Each of these commands provides parameters to print either only rejections or all transactions. Review these parameters and change as required.

Monday

1. Run purge and retain 5 days, print report of all rejected, purged records

STRPRGARC DAYS(005)

2. Run security report - it will print rejections for the last 5 days (Thursday through Monday)

PRTSECRPT

Thursday

1. Run purge and retain 4 days, print purged rejected records

STRPRGARC DAYS(004)

2. Run security report - it will print rejections for the last 4 days (Monday through Thursday)

PRTSECRPT

This example runs the Log File Purge and retains only 1 day of data in the file.

Saturday

1. Run security report and see entire contents of log

PRTSECRPT

2. Run purge and retain 1 day

STRPRGARC DAYS(001)

Note: It is a good idea to run these commands back-to-back and at off-peak hours to minimize performance impact.

Daily Backup Procedure

Modify your daily backup procedure to follow these guidelines.

Note: If you utilize the *Save-while-active* function for your backups, you may skip all of these steps and continue with your backups.

1. Enter command **CHGSPCSET LOGALL(*NO)**

This prevents **SafeNet/i** from attempting to log requests

2. Issue the **ENDTRP** command within **SafeNet/i**

This will end the transaction logging program and subsystem

3. Perform your normal backup steps

If you skipped Step 1, skip Step 4 also.

4. **CHGSPCSET LOGALL(*YES)** to begin logging

5. Issue the **STRTRP** command to re-start the transaction logging subsystem and program

Remember to include the **SafeNet/i** data library, PCSECDTA, as well as the optional SafeNet/i Journal or Archive libraries in your daily backup procedure. See commands CHGARCLIB and CHGJRNLIB.

Chapter 8 - JOURNALING SAFENET/i ACTIVITY

Journaling Security Files and Network Transactions

SafeNet/i can provide additional security and reporting capabilities through the use of journals.

There are two types of journal functions available for SafeNet/i:

1. Journal all the SafeNet/i security control files and data areas
2. Journal all network transactions. You may choose to log all the network transactions to the standard TRAPOD file, to a journal receiver or both the journal and the physical file

All Journal Management processes can be accessed via the Journaling Control Menu (SN6)

```
SN6                               SafeNet/i   Version 10
MPADEV                            Journaling Control Menu for SafeNet/i

Select one of the following:
1. Work with SafeNet Journal Control Settings
2. Work With SafeNet Journals in Library:
3. Manage/Purge TRAPOD Transaction Journals:
4. Manage/Purge SAFENET Security Journals:

Fast Path
CHGSPCSET
WRKJRN
MNGJRNRCV TRAPOD
MNGJRNRCV SAFENET

6. Convert SafeNet Security Journals and Reporting
7. Convert SafeNet Transaction Journals for Reporting
CVTSECJRN
CVTTRNJRN

21. Main Menu (SN1)
22. Special Jobs Menu (SN2)
23. Setup Reports Menu (SN3)
24. Analysis Reporting Menu (SN4)
25. DHCP Menu (SN5)
27. User Settings Menu (SN7)
90. Signoff

Selection or command
===> _____

F3=Exit F4=Prompt F9=Retrieve F12=Cancel
F13=Information Assistant F16=System main menu
```

To start the journal processes select **Option 1 – Work with SafeNet Journal Control Settings** or use command CHGSPCSET

1. For network transaction journaling, set *Record All Transactions* (*LOGALL* parameter) to one of the following:

- *FILE
- *JOURNAL
- *BOTH
- *NONE

Note: If you select option *JOURNAL, there will be NO entries recorded into the standard TRAPOD file. If you wish to re-build the standard transactions from the journal receivers into the TRAPOD file format for reporting, you must use menu *Option 7 – Convert SafeNet Transaction Journals*.

2. For SafeNet/i security and control file journaling, set *Journal SafeNet Sec Changes* (*JRNSEC* parameter) to either *YES or *NO

Journaling Library

When you activate either of the journaling types, a new library will be created on your system. The default name of this new library is PCSECJRN.

To specify a library other than PCSECJRN for SafeNet/i journals and journal receivers, use the **CHGJRNLIB** command.

Before issuing the **CHGJRNLIB** command, be sure to end SafeNet/i journaling with the **ENDSAFEJRN** command.

This library will contain all the journals and journal receivers required for **SafeNet/i**.

- To **view** the Journals and Receivers in library PCSECJRN, use **Option 2 - Work with SafeNet Journals in Library** on the Journaling Control Menu (SN6)

This option utilizes the standard IBM i commands for working with journals and receivers.

- To **manage** the Journal Receivers in library PCSECJRN, use **Option 3 – Manage/Purge TRAPOD Transaction Journals** and **Option 4 – Manage/Purge SafeNet Security Journals** on the Journaling Control Menu (SN6)

Verify or Delete Journal Receivers – STRPRGARC command

- For the Network Transaction Journal, we have included an automated process to purge old journal receivers via the STRPRGARC command, found on the Special Jobs Menu (SN2), **Option 6 - Purge/Archive Log File - TRAPOD**.

Using the STRPRGARC command you can have the receiver entries purged just as you would normally purge the TRAPOD file or you can just leave the receivers on your system for future use.

- For the SafeNet/i Security Journals, you will have to remove any unwanted journal receivers using **Option 4 – Manage/Purge SafeNet Security Journals** on the Journaling Control Menu (SN6) or use the MNGJRNRCV command. Specify a purge-thru date or number of days to retain.

There is no automated management tool provided for the SafeNet/i Security journal receivers.

```

                                Manage SN Journal Receivers (MNGJRNRCV)

Type choices, press Enter.

Journal . . . . . > SAFENET      Name
Library . . . . . *LIBL        Name, *LIBL, *CURLIB
Journal receiver saved before:
  Save date . . . . . *NOCHK     Date, *NOCHK, *CURRENT
  Save time . . . . .           Time, *BEGIN, *CURRENT
Journal receiver retain days . . *NONE     1-999, *NONE
Journal receivers to retain . . *NONE     1-999, *NONE
Journal receiver status . . . . *SAVED   *SAVED, *ONLINE, *PARTIAL...
Journal receiver option . . . . *VERIFY  *VERIFY, *DELETE
Force receiver deletion . . . . *NO      *NO, *YES

                                Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```


Convert and Print SafeNet/i Security Journals – CVTSECJRN command

Use this command to convert **SafeNet/i** Security Journal Receiver entries to a usable format and request optional reports.

The Convert Security Journal Command (CVTSECJRN) allows you to extract all the SafeNet/i Security File Journals into regular database output files for reporting and/or to track changes made to SafeNet security files for a given time frame. Any output files will be placed in the OUTFILE library specified. All the output files will have the letter "J" prefixed to the original file name.

From the Journaling Control Menu (SN6), use **Option 6 – Convert SafeNet Security Journals and Reporting** or use the **CVTSECJRN** command

```

                                Convert SafeNet Sec Journals (CVTSECJRN)

Type choices, press Enter.

Convert From Date . . . . . _____ Date
Convert To Date . . . . . _____ Date
Run Journal Entry Reports? . . . *YES *YES, *NO
Original File Name . . . . . *ALL *All or Specific File Name.
Job queue . . . . . *JOB *JOB
Library. . . . . _____ Name,
Report Sequence . . . . . *BYADMIN *BYUSER, *BYADMIN, *BYDATE
Admin Profile to Select. . . . . *ALL Name, *ALL
User Profile to Select. . . . . *ALL Name, *ALL
Report Output Queue . . . . . *JOB Name, *JOB
Library. . . . . _____ Name,
Delete Outfile after Reports? . . *YES *YES, *NO
Outfile Library . . . . . QTEMP Library Name
Email Results to Address . . . . *NONE _____

                                Bottom
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys
```

Additionally you can generate reports of any changes made by using the CVTSECJRN Reports option. Selection options allow you to specify a specific file, administrator or user to generate reports for. In addition, you can email the result reports to any valid email address.

Using this command in conjunction with SafeNet/i security journaling, it is possible to automatically generate a daily report of any SafeNet/i security setting changes made and have it automatically email you the results.

We have provided you with a sample CL program to demonstrate how you can generate a daily report.

See source file QSAFESRC in library PCSECLIB member RUNDLYJRN. Modify as required.

Sample Security Audit Report

```

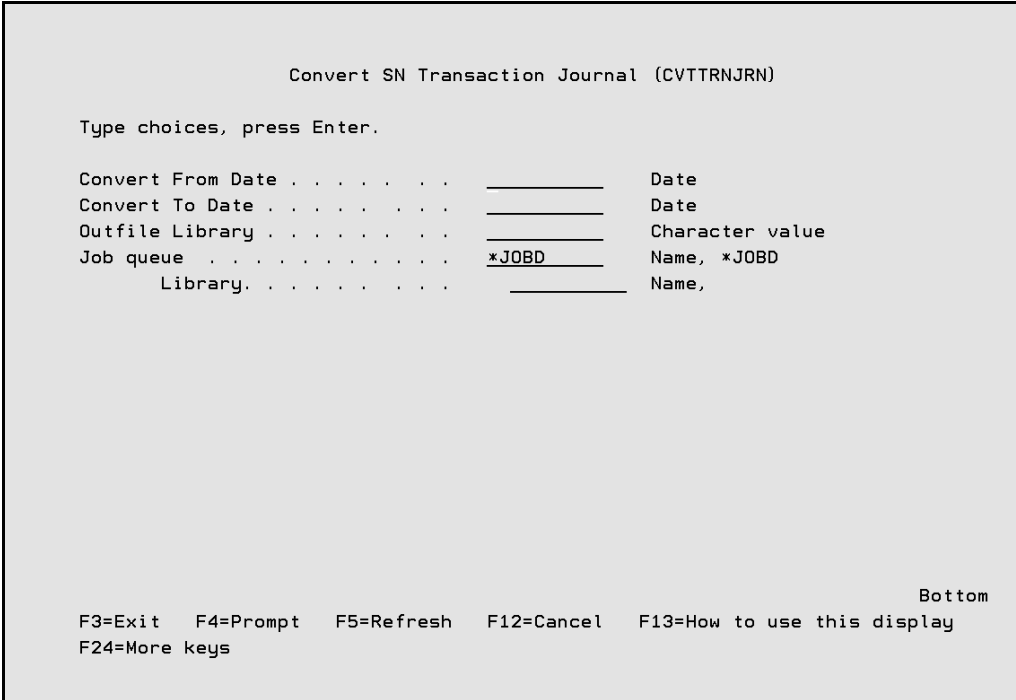
REPORT - Notepad
File Edit Format View Help
=====
CMDUSR - User To Commands (WRKUSRCMD)
1/03/12 SafeNet/i Audit Report of User to Command Authority Changes On System: MPA1 P:
SNRJ213 Dates: 12/01/11 thru 12/31/11 Sequenced By Admin Run by-SAFI
AdminId Commands
-----
MBJONES Malcolm B. Jones
On 12/27/11@14:17:20 Admin MBJONES Added MJONES *ALL
Additions: 1
Total Additions: 1
Total Changes:
Total Deletes:
SafeNet/i (C) Copyright 2011 MP Associates, Inc.
=====
FTPUSR - FTP Statements (WRKUSRFTP)
1/03/12 SafeNet/i Audit Report of User to FTP Statement Authority Changes On System: MPA1 P:
SNRJ216 Dates: 12/01/11 thru 12/31/11 Sequenced By Admin Run by-SAFI
AdminId Statements
-----
SAFENET Safenet V9.0 Profile
On 12/07/11@08:05:28 Admin SAFENET Deleted IBM2 Set Current Dir Sending Of Files
On 12/07/11@08:05:28 Admin SAFENET Added IBM2 Set Current Dir Sending Of Files List Files
On 12/07/11@08:06:26 Admin SAFENET Deleted IBM2 Set Current Dir Sending Of Files List Files
On 12/07/11@08:06:26 Admin SAFENET Added IBM2 Set Current Dir Sending Of Files List Files
Receiving Files
Additions: 2
Deletes: 2
Total Additions: 2
Total Changes:
Total Deletes: 2
SafeNet/i (C) Copyright 2011 MP Associates, Inc.
=====
PCACCESS - Authorized Objects (WRKUSROBJ)
1/03/12 SafeNet/i Audit Report of User to Object Authority Changes On System: MPA1 P:
SNRJ211 Dates: 12/01/11 thru 12/31/11 Sequenced By Admin |-----Data-Rights---
AdminId Library/Object Read Write Delete O
-----
SAFENET Safenet V9.0 Profile
On 12/30/11@17:03:04 Admin SAFENET Added SAFENET QUSRSYS/MBJ1 X X X
On 12/30/11@17:03:52 Admin SAFENET Added IBM2 QUSRSYS/MBJ1 X
On 12/30/11@17:19:47 Admin SAFENET Deleted IBM2 QUSRSYS/MBJ1 X
On 12/30/11@17:32:23 Admin SAFENET Added IBM2 QUSRSYS/MBJ1 X
On 12/31/11@09:49:02 Admin SAFENET Added IBM2 *ALLLIB/*ALL X
On 12/31/11@09:49:05 Admin SAFENET Deleted IBM2 QUSRSYS/MBJ1 X
On 12/31/11@09:49:44 Admin SAFENET Deleted IBM2 *ALLLIB/*ALL X
On 12/31/11@09:50:04 Admin SAFENET Added IBM2 *ALLLIB/*ALL X
On 12/31/11@09:50:21 Admin SAFENET Changed IBM2 From: *ALLLIB/*ALL X

```

Convert Network Transactions Journal Receivers – CVTTRNJRN command

Use this option to convert the network transactions journal receiver entries to a usable format.

From the Journaling Control Menu (SN6), use **Option 7 – Convert SafeNet Transaction Journals for Reporting** or use the **CVTTRNJRN** command



You must specify a date range to select and a library name to contain the converted file. The file will be called JTRAPOD. It is in the same format as the original TRAPOD file normally used for transaction logging.

If you wish to use the converted file for additional reporting, you must first either copy it to a new archive member (file TRAPARCW) or copy the records back into the TRAPOD file.

Important: If you copy the records directly back into the TRAPOD file, you must make sure you are not duplicating or replacing the existing records in the TRAPOD file. Confirm that the date range you select will not include records that are currently in your TRAPOD file or you may duplicate existing transaction records.

If you use the TRAPARCW archive file:

1. Add a new member to the file.
2. Copy the records from the converted JTRAPOD file to the new member in TRAPARCW file.
3. You can use the PRTSECRPT command to print a normal SafeNet/i security report from the converted transaction journals by simply specifying the archive member name in parameter ARCMBR.

Chapter 9 - SPECIAL SAFENET CONSIDERATIONS

This section contains information on procedures that will help you manage and automate certain **SafeNet/i** functions.

Excluding an Exit Point from SafeNet/i Checking

You can flag a specific exit point so that it is always excluded from SafeNet/i processing.

Use of this option will open up a security exposure on your system, so we do not recommend that you use this before consulting with SafeNet/i support staff. However, you may find that your system requires that a specific exit program be excluded.

To exclude an exit point from SafeNet/i checking, follow these steps EXACTLY:

1. At the command line, run the following commands

**ADDLIBLE PCSECLIB
ADDLIBLE PCSECDTA**

2. Update the exit point exclusion code by running a file maintenance program. You can run this program by entering the following on the command line

CALL ACTEPXCL

3. Find the exit point on the list that place a **2** next to it. On the detail screen that follows, code the exclusion code with the letter **X** and press **ENTER**.
4. Bring your system to a restricted state by ending all subsystems.
5. When the system reaches restricted state, deactivate SafeNet/i by running **Option 50** from the INSTALL menu.
6. When SafeNet/i is deactivated, you can then immediately reactivate it using the same **Option 50** from the INSTALL menu.
7. Resume normal processing by starting your controlling subsystem. At this point, the selected exit point will no longer be linked to the SafeNet/i product.

Restoring an Exit Point to SafeNet/i Checking

If it becomes necessary to once again have **SafeNet/i** linked to the exit point that has been excluded, you can do so by following the exact same procedure as excluding the point, outlined on the previous page, EXCEPT that at step #3, remove the letter X and leave the exclusion code blank.

When you start your controlling subsystem, **SafeNet/i** will be re-connected to the exit point.

When you restore an exit point, SafeNet/i will re-set the server security level to 1. Use **Option 1** on the SafeNet/i Main Menu (SN1) or the **WRKSVR** command to check the security level of the server and change it to the level you require.

Resetting Level 5 within SafeNet/i

When an installation has a user exit program in place that **SafeNet/i** does not recognize, the exit point will automatically be set to Level 5 (unsupported). To allow **SafeNet/i** to support this server you must do the following:

1. Remove your user exit program from the registration facility in i OS.

Type WRKREGINF and press ENTER

Locate the exit point and remove your exit program.

Important: Do not remove any program called from PCSECLIB.

You may have several servers set to Level 5. You must remove each one. Then, using the DSPNETA or CHGNETA command, verify that your IBM i network attributes DDMACC and PCSACC are both set to *OBJAUT.

If these attributes are not initially set to *OBJAUT, **SafeNet/i** will flag several exit points to Level 5.

2. Type the following:

CALL PCSECLIB/DELST5CL and press ENTER

3. From the SafeNet/i Main Menu (SN1) select **Option 1 - Server Security Settings** or use **WRKSRV** command.

Press F3 to exit without making any changes

4. Using the IBM i console, you must place the system in a restricted state with the **ENDSBS *ALL *IMMED** command, or any other site-specific shutdown process.

5. De-activate **SafeNet/i**

From the Install Menu select **Option 50 - Activate/De-Activate SafeNet/i**

Follow the instructions to de-activate the program found in Chapter 13 in this guide, 'De-activating and Removing SafeNet/i'.

6. Re-activate **SafeNet/i**

Select **Option 50 - Activate/De-Activate SafeNet/i**

7. Restart your system

Pre-Power Down Program Point

You can create a power down CL program to be called whenever the PWRDWNSYS command is issued. **SafeNet/i** will call this program and log the request whenever the command is processed.

To use this feature, create a CL program called PWRDWNCL and place it in library QGPL.

Profile Swapping

Profile Swapping allows you to assign an alternate or a "swapped" user profile to be interrogated by **SafeNet/i** and passed to i OS for security lookups.

You can select different 'Swap to' profiles for a user, based on the Server function utilized when that user connects to IBM i. This provides a more granular security approach when utilizing the Swap Profile function of **SafeNet/i**.

When profile swapping is in use, any incoming network transactions or jobs are assigned the alternate profile (the 'Swap to' profile) and passed as this alternate profile to i OS. The operating system then performs all security related checking as if the request came from the 'Swap to' profile and not the original profile. The job in i OS retains its original user name.

All authority checking by **SafeNet/i** is performed using the original profile name.

Alternate Profile Swapping is controlled using the **CHGSPCSET** command or from SafeNet/i Main Menu, (SN1) *Option 2*. Set the *SWAPU* parameter to one of these values:

- ***NO**

Do not swap profiles within **SafeNet/i**

- ***OPT**

SafeNet/i will swap profiles if the original user has an alternate swap profile set up in **SafeNet/i**

- ***RQD**

Requires that a swap profile must be set up for the original profile in **SafeNet/i**, or all requests are rejected.

Setting up a Swap Profile

Make sure that you have set the *SWAPU* parameter on the **CHGSPCSET** command to allow profile swapping. Then follow these steps to set up your alternate profiles.

1. From the User Settings Menu, (SN7) select **Option 8 – Work with Swap Profiles** or use the **WRKSWPPRF** command
2. Enter the **user profile** to work with.

You can type the user profile or type *ALL for a complete list of swap profiles.

Press **ENTER**

The *User Swap Profile Maintenance* screen appears

```
KUSRSW                User Swap Profile Maintenance                2/23/16
                                                                12:01:05
Position to: _____
Type options, press Enter.
  2=Change   4=Delete   5=Display
Opt User Prf  Exit Point  Format   Swap User  Exit Point Description
_  MJONES1   *FILESRV   PWFS0100 MJONES2   File Server
_  MJONES8   *SIGNON    ZSOY0100 MJONES9   TCP Signon Server

F3=Exit      F5=Refresh   F6=Create

                                                                Bottom
```

Use **Option 2** to change an existing Swap Profile

Update the *Swap-To User Profile*

UPDATE	User Swap Profile Maintenance	KUSRSW
Type information, press Enter.		
User Profile	MJONES1	
Exit Point	*FILESRV	*ALL or F4=Prompt
Format	PWFS0100	*ALL or name
Swap To User Profile	<u>MJONES2</u>	
F3=Exit	F5=Refresh	F11=Delete
		F12=Cancel
		Roll up/down

ENTER

Press F6 to add a new Swap Profile

```
ADD                               User Swap Profile Maintenance          KUSRSW

Type information, press Enter.
User Profile . . . . . MJONES1
Exit Point . . . . . *ALL *ALL or F4=Prompt
Format . . . . . *ALL *ALL or name

Swap To User Profile . . . . . MJONES2

F3=Exit      F5=Refresh      F12=Cancel
```

3. On the *User Swap Profile Maintenance* screen, enter

- User Profile to Swap
- Exit Point and Format
- Swap-to Profile

ENTER

Whenever a user connects to the IBM i through a client/server connection, after **SafeNet/i** checks the original profile, i OS will do all security checking on the 'Swap to' profile.

In this example:

MJONES1 swaps to MJONES2 when connecting via the *FILESRV function

MJONES1 swaps to MJONES9 when using the *SQLSRV function

MJONES8 swaps to MJONES9 when using the *SIGNON function

```
KUSRSW                User Swap Profile Maintenance                2/23/16
                                                                12:05:47
Position to: _____

Type options, press Enter.
  2=Change  4=Delete  5=Display

Opt User Prf  Exit Point Format  Swap User  Exit Point Description
-  MJONES1   *FILESRV  PWFS0100 MJONES2   File Server
-  MJONES1   *SQLSRV   ZDAQ0100 MJONES9   Database Server - SQL access
-  MJONES8   *SIGNON   ZSOY0100 MJONES9   TCP Signon Server

F3=Exit  F5=Refresh  F6=Create

Bottom
```

Files Contained in SafeNet/i

These files are available for you to use for any additional reporting requirements you may have. All are located in library PCSECDTA.

DHCPBLOG

Contains DHCP Bindings log reports

DHCPRLLOG

Contains DHCP Release log reports

ERRORD File

Contains all error codes (accepted/rejected) associated with **SafeNet/i**.

FIXEDIPS

Contains fixed IP client addresses (static addresses)

IBMFLR File and IBMFLRL (Long paths to IBM folders)

Contains all IBM supplied folder names. You may add additional folder names to this file for automatic READ and/or WRITE authority as required.

JRNFILES

Contains the names of files in SafeNet/i that are journaled when using the journaling feature within SafeNet/i

MACNAMES

Contains MAC addresses with names of associated DHCP clients

TRAPARCW File

Contains all the purged transactions if the STRPRGARC command was utilized

TRAPOD File

All logged network requests are placed in this file. This file will grow significantly over time, depending on network traffic. Be sure to pay close attention to its size and establish a schedule to purge records.

This file can also be used for additional user-developed reporting. See [IBM OS/400 Servers and Administration](#) for additional information and record layouts.

Extra Security for TRAPOD

SafeNet/i provides an option for imposing extra security on the TRAPOD file to prevent anyone from altering the file.

By default the TRAPOD file is secured by the SAFENET authorization list. As such, the only users who have full access to the file are SafeNet/i administrators plus any other users with *ALLOBJ authority.

Normally, this should be sufficient security since all of these users fall into the category of security officers.

However, if you need an extra level of security for this file in order to satisfy audit requirements, you can use the SETTRAP command to activate additional security for the TRAPOD file.

The SETTRAP command will toggle this extra security on or off. To activate the additional security us this command:

SETTRAP SECSTS(*ON)

When the extra security is turned on, SafeNet/i administrators will no longer have direct access to the TRAPOD file. They will be limited to using SafeNet/i tools which do not permit data manipulation, only purging.

Users with all object authority will still have access, but this should limit the pool of users to very few for your installation.

To deactivate this extra security, use the following command:

SETTRAP SECSTS(*OFF)

This will re-establish security based on the SAFENET authorization list.

SafeNet/i Commands

Commands	Description
ADDSNADM	Maintain SafeNet Administrators
ADDSNUSR	Allows batch maintenance of SafeNet/i users
ADDUSRCMD	Allows batch maintenance of users to commands
ADDUSRFTP	Allows batch maintenance of users to FTP
ADDUSROBJ	Allows batch maintenance of users to objects
ADDUSRSQL	Allows batch maintenance of users to SQL
ADDUSRSVR	Allows batch maintenance of users to servers
CHGARCLIB	Change the name of the library to use for TRAPOD archived records
CHGFTPSET	Change FTP special settings
CHGJRNLIB	Change the library to use for SafeNet/i journals and journal receivers
CHGNOTIFY	Changes status of Alert Notification
CHGSPCSET	Change SafeNet/i special settings
CHGTELNET	For Kerberos and Telnet security setting override
CPYSNUSR	Copy settings from one SafeNet/i user to another
CVTTRNJRN	Extract all the SafeNet/i Network Transactions journals into regular DB files for reporting
CVTSECJRN	Extract all the SafeNet/i Security File journals into regular DB files for reporting
ENDTRP	Ends the transaction logging program
MNGJRNRCV	TRAPOD
MNGJRNRCV	SAFENET
IPPING	Performs IP Address ping check
PCREVIEW	Starts the on-line transaction review process
PCTESTR	Starts the on-line transaction testing program
RMVSNUSR	Removes a user from all SafeNet/i enrollments
RMVSNUSR1	Removes all profiles not defined to OS400. Excludes profiles beginning with '*' (*Public)
RMVUSRCMD	Removes user's authorities to CL commands

Commands	Description
RMVUSRFTP	Removes user's authorities to FTP
RMVUSROBJ	Removes user's authorities to objects
RMVUSRSQL	Removes user's authorities to SQL
RMVUSRSRV	Removes user's authorities to server functions
SETSAFENET	OPTION(A) – Activates SafeNet/i
SETSAFENET	OPTION(B) – Deactivates SafeNet/i
SETVER	Used to change the license code level of SafeNet/i
SNDHCPPRG	Purge expired DHCP lease information
SNEXESUM	Generate Executive Summary report
STRPRGARC	Starts archive purge/security report of log file
STRTRP	Starts the transaction logging program and SBS
WRKDFTSRV	Select servers to include in Security Report
WRKSIGNON	Work with TELNET sign-on parameters
WRKSNADM	Maintain SafeNet/i Administrators
WRKSNSUSR	Work with SafeNet/i Super Users
WRKSNUSRS	Work with User Matrix
WRKSNDHCP	Work with current DHCP activity
WRKSRV	Work with server security settings
WRKSRVIP	Manage users and IP addresses at the server level
WRKSWPPRF	Work with Swap Profiles
WRKTCPIPA	Work with TCP/IP address control
WRKUSRCMD	Work with user to CL commands
WRKUSRFTP	Work with user to object FTP statement security
WRKUSRIP	Work with user to IP address entries
WRKUSROBJ	Work with user to object security
WRKUSRPTH	Work with User to IFS path security
WRKUSRSEC	Work with user security. Permits access to all security screens for an individual user without entering several different commands
WRKUSRSQL	Work with user to object SQL statement security

Commands	Description
WRKUSRSRV	Work with user to server security

Print Commands

Commands	Description
PRTCLUSG	Reports command usage and auto-enrollment
PRTFTPUSG	Starts the FTP transaction and testing program
PRTIPUSG	Reports User to IP Address usage and auto-enrollment
PRTMACINF	Print MAC Address and Static IP Address
PRTOBJUSG	Starts the object transaction and testing program
PRTPTHUSG	Starts the IFS path transaction and testing program
PRTSECRPT	Print security report
PRTSNADM	Print the list of SafeNet/i Administrators
PRTSNSUSR	Print the list of SafeNet/i Super Users
PRTSQLUSG	Reports SQL statement usage and auto-enrollment
PRTSRVSTS	Print Server Status listing
PRTSRVUSG	Reports server usage and auto-enrollment
PRTTCPIPA	Print the TCP/IP address controls listing
PRTUSRALL	Prints all the setup reports for a user
PRTUSRIP	Print User to IP Address Authorizations with Accept/Reject Status
PRTUSRSRV	Prints the User to Server Authorization report
PRTUSROBJS	Prints the User to Object Authorization report
PRTUSRSQL	Prints the User to Authorized SQL Statement report
PRTUSRFTP	Prints the User to Authorized FTP Statement report
PRTUSRCMD	Prints the User to Authorized Command report
PRTUSRPTH	Prints the User to Long Paths report
PRTUSRSWP	Prints the Swap Profile listing

Menu Fast Path Commands

Commands	Description
SN1	SafeNet/i Main Menu
SN2	Special Jobs Menu
SN3	Reports Menu
SN4	Network Transaction Analysis Reports
SN5	DHCP Control and Reports Menu
SN6	Journaling Control Menu
SN7	User Settings Menu
SNX	Fast Path Expert Menu

Chapter 10 - Using Alert Notifications

The SafeNet/i Alert Notification feature continually monitors network activity for possible malicious activity. Alerts will be generated whenever a transaction is rejected via SafeNet/i.

Using Alert Notifications, you can have **SafeNet/i** issue Alert messages. Alert messages can be sent to a system message queue, a distribution list, an email address or a text message device using SMS.

Note: If you use a distribution list for alert notification instead of a regular email address, the Distribution List ID Qualifier **MUST** be your IBM i system name.

In addition, you must have set up SMTP mail options on the IBM i.

Alert Types

There are two types of alert notification available. We recommend using **summarized** alerts after the initial installation and setup. Using summarized alerts, you can prevent a flood of e-mails in the event of a large number of rejected transactions being processed by SafeNet/i.

1. **Summarized alerts** - you can receive a message that gives summarized information regarding **SafeNet/i** rejections. For example, "There have been six (6) rejections by **SafeNet/i** since 01/01/99 at 12:00:00".

This process starts the SAFELOGING subsystem, which contains a pre-start job called ALERTWATCH. SAFELOGING runs from the *BASE memory pool and uses very little system resources. You can set the time interval between alerts; by default 30 minutes is used.

When you specify summary alerts via e-mail, **SafeNet/i** will include a list of the summarized alerts in the form of an e-mail attachment text file. This attachment provides information regarding the nature of the alerts being reported and eliminates the need to access the system for details.

2. **Detailed alerts** - you can specify that **SafeNet/i** send detailed alert messages. Every **SafeNet/i** rejection will generate a message that describes the user, server and date/time that a request was rejected.

This option does not start the ALERTWATCH program, since it is not required when detailed messages are specified.

Activating SafeNet/i Alert Notification

1. From the SafeNet/i Main Menu (SN1) select **Option 3 - Alert Notification Settings** or use the **CHGNOTIFY** command and **press F4**.

```
Change Alert Notification (CHGNOTIFY)

Type choices, press Enter.

Alert Notification Status. . .   *ON          *ON, *OFF
```

2. **Type *ON** for parameter *ALERT* to activate alert notification, then **ENTER**.

```
Change Alert Notification (CHGNOTIFY)

Type choices, press Enter.

Alert Notification Status. . .   *ON          *ON, *OFF
Summarized Alerts? . . . . .   *YES          *YES, *NO
Activate E-Mail Alerts?. . . . *YES          *YES, *NO
Msg Q or Distribution List . . . QSYSOPR      Name, *NONE
                               + for more values
```

3. Enter ***YES** to receive summarized alerts or ***NO** for detailed alerts.
4. Enter ***YES** to receive alerts as e-mail or ***NO** to receive alerts as workstation messages only.

Your system must be configured for SMTP before e-mails can be used.

5. **Enter the message queue(s) and/or e-mail distribution list(s)** that should receive these alerts. You can send alerts to both message queues and distribution lists, or directly to a specific Internet email address.

The alerts are not sent to message queues in *BREAK mode. To receive these alerts immediately, make sure the user message queue is in *BREAK mode. (See CHGMSGQ command in the IBM CL Manual)

6. You can enter **individual e-mail addresses** to receive alerts in addition to, or instead of, message queues and distribution lists.
7. To send the alert to a phone or text device using SMS, use the following format and the telephone number. This is based on your cellular carrier.

Here are examples of the most common cell service providers:

- AT&T: 10digitphonenumber@txt.att.net
- Cingular: phonenumber@cingularme.com
- Nextel: phonenumber@messaging.nextel.com
- Sprint: phonenumber@messaging.sprintpcs.com
- T-Mobile: phonenumber@tmomail.net
- Verizon: phonenumber@vtext.com
- Virgin Mobile: phonenumber@vmobl.com

If you are not sure about the carrier, contact the cell phone user and find out from them. If it is not one of the above, some research with the service provider may be required.

```

Change Alert Notification (CHGNOTIFY)

Type choices, press Enter.

Alert Notification Status . . .   *ON          *ON, *OFF
Summarized Alerts? . . . . .   *YES          *YES, *NO
Activate E-Mail Alerts? . . . . *YES          *YES, *NO
Msg Q or Distribution List . . . QSYSOPR        Name, *NONE
                               + for more values
E-Mail Addresses for Alerts . . safenet@kisco.com
_____
                               + for more values "5557778844@vtext.com"
_____

```

Use the '+' sign to enter additional values.

8. Press **ENTER** to display the parameter to set the *Summarized Alert Interval*

If the *Summarized Alerts* parameter is set to ***YES**, you can specify the number of minutes between alerts. You will receive notification when each interval expires, indicating the number of rejections since the last notification.

Creating a Distribution List

Use the **CRTDSTL** command to create a distribution lists for **SafeNet/i** alerts if required.

Chapter 11 - DHCP CONTROLS AND REPORTING

Dynamic Host Configuration Protocol

DHCP allows clients to obtain IP network configuration, including an IP address, from a central DHCP server. DHCP servers control whether the addresses they provide to clients are allocated permanently or leased for a specific period of time. When the server allocates a leased license, the client must periodically check with the server to re-validate the address and renew the lease.

The DHCP client and server programs handle address allocation, leasing and lease renewal.

If you are using DHCP on your IBM i this gives you a way to control it. If you are not using DHCP, you can still use these options to review other activity.

To use the IBM i as a DHCP server, refer to the relevant i OS manual and/or System i Navigator.

Working with DHCP

DHCP functions are performed from the DHCP Control and Reports Menu (SN5).

From the SafeNet/i Main Menu (SN1) select **Option 25 – DHCP Menu**

The *DHCP Control and Reports Menu* appears.

```
SN5                               SafeNet/i   Version 10
MPADEV                             Network Resource Security
                                   DHCP Control and Reports Menu

Select one of the following:
1. Display Current DHCP Activity
2. Print DHCP Reports - Active Leases
3. Print DHCP Expired Lease Reports

5. Maintain MAC Addresses to User Names
6. Maintain Permanent, Static IP Addressed Devices
7. Print MAC Names and Static IP Address Lists
8. Run Purge of Expired DHCP Lease Information
9. IP Address Range Ping Checker

21. Main Menu (SN1)
22. Special Jobs Menu (SN2)
23. Setup Reports Menu (SN3)

24. Analysis Reporting Menu (SN4)
26. Journaling Menu (SN6)
27. User Settings Menu (SN7)
90. Signoff

Selection or command                (c) Copyright 1997-2016 MP Assoc., Inc.
===> _____

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
F13=Information Assistant  F16=System main menu
```

The DHCP functions provide the ability to maintain MAC addresses and device names, set IP addresses and ping IP addresses.

From the DHCP Control and Reports Menu (SN5) you can also run reports for active and expired leases, MAC names and IP address lists.

Current DHCP Activity

To see current status, from the DHCP Control and Reports Menu (SN5) select **Option 1 – Display Current DHCP Activity**

This screen displays bind and release information

DHCP01D		SafeNet/i		2/18/16
MPA1		DHCP Bind and Release Information		15:33:49
Currently Active DHCP Addresses Bound				
Type	IP Address	Assigned Names	Bind Date/Time	Lease Expiration
FIXED	10.2.2.12	MPA400/VIRTUAL		
FIXED	10.2.2.13	MPA400/VIRTUAL		
FIXED	10.2.2.14	MPA400/VIRTUAL		
FIXED	10.2.2.2	MPAMAIN - 720		
FIXED	10.2.2.3	MPA1		
FIXED	10.2.2.33	ANDY XP DESKTOP		
FIXED	10.2.2.4	MPADEV - 720		
FIXED	10.2.2.49	ASTARO FIREWALL Y		
FIXED	10.2.2.5	WIN2K ACT DIR		
FIXED	10.2.2.50	LYNKSYS AP		
FIXED	10.2.2.51	WES-NAM ASTARO		
FIXED	10.2.2.7	MPACTL1 MSTWIN DC		
FIXED	10.2.2.81	BURT LINUX TEST		
FIXED	10.2.2.99	BIG MAMA FILE SRV		

More...

F2=Bind or Release View F3=Exit F4=Edit MAC Names F5=Ping Check
F7=MAC Names/Addresses F12=Cancel HELP (c) Copyright 2001 MP Assoc., Inc

Use function keys to switch views:

- F2 switches between the *Currently Active DHCP Addresses Bound* and *Expired or Released DHCP Addresses* screen

The *Expired or Released* addresses list contains information gathered since the last time the list was purged.

- F7 switches between *MAC addresses* and the assigned names

You will notice that the devices with fixed IP addresses do not change as you toggle between the two displays.

- F4 puts you in edit mode and allows you to revise the assigned names

Move your cursor to the name you want to change in the *Editable Names* column. Press **ENTER** to record the change.

To use this function make sure you are looking at the *Currently Active DHCP Addresses Bound* screen. Use F2 if necessary to switch.

- F5 pings the addresses

This will ping all the IP addresses that are displayed. The responses will flash at the bottom of the screen. When the process has completed, you will see a *Ping Status* column indicating the results of the pings.

If you are looking at the active addresses, you will ping those. If you are looking at expired or released addresses, all of those will be pinged.

Be aware that pinging the expired or released addresses can take a very long time depending on the last time the list was purged.

The number of packets and time-to-wait are controlled by two data areas: PINGPKTS and PINGTIME in PCSECDTA.

The default is one packet and one second wait. You can change these data areas manually if required.

Maintaining MAC Addresses

From the DHCP Control and Reports Menu (SN5) select **Option 5 – Maintain MAC Addresses to User Names**

This operates as a standard IBM i DFU program.

```
MACDFU                               Mode . . . . : ENTRY
Format . . . . : RMAC                File . . . . : MACNAMES

MAC Address: 00-02-E3-03-1E-F1
Assigned Name: CD

F3=Exit      F5=Refresh      F6=Select format
F9=Insert    F10=Entry       F11=Change
```

Press **F9** to use insert mode when editing

Press **F23** to delete the MAC address and name

Fixed IP Addresses

To assign IP addresses to devices, from the DHCP Control and Reports Menu (SN5) select **Option 6 – Maintain Permanent, Static IP Addressed Devices** or use the **SNDHCPPR** command

Even if you are not using DHCP on your IBM i, you can use this option to do PING checks for network troubleshooting.

Press **F6** to add an IP address

```
ADD                      Maintain Permanent, Static IP Devices      KFXIPD

Type information, press Enter.
Fixed/Perm IP Address . . . . . 10.2.2.50
Assigned Device Names . . . . . LINKSYS AP

F3=Exit      F5=Refresh      F12=Cancel
```

If you enter a DHCP IP address you will receive an error message. This is for fixed IP addresses only.

Purging Expired DHCP Lease Information

The *Expired or Released DHCP* address information is cumulative and will remain in the system until you purge it.

From the DHCP Control and Reports Menu (SN5) select **Option 8 – Run Purge of Expired DHCP Lease Information**

```

                                DHCP Expired Lease Purge (SNDHCPPRG)

Type choices, press Enter.

Thru Date . . . . . 12/31/2015   Date to purge thru
Thru Time . . . . . 23:59       Time to Purge Thru

                                                                    Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

Enter the date and time to purge through. When you **ENTER** the log of expired DHCP leases will be cleared.

Ping Checker

You can use this option to ping a single IP address or a range of addresses.

From the DHCP Control and Reports Menu (SN5) select **Option 9 – IP Address Range Ping Checker**

```
PING1D                               SafeNet/i                               Last Date: 123115
MPA1                                  Ping Range Test                          Last Time: 162931
    From IP Addr: 10.2.2.4            To Ping Addr: 10.2.2.50
    Keep Previous Ping Records?: N    # Packets: 1    Seconds Wait: 1
    Show Only Pingable Addresses?: Y

  IP Address      Known Name      Status      IP Type
  10.2.2.4        MPADEV - 720    Pingable    Static IP
  10.2.2.4        MPADEV - 720    Pingable    Static IP
  10.2.2.8                                     Pingable
  10.2.2.9                                     Pingable
  10.2.2.10                                    Pingable
  10.2.2.25                                    Pingable
  10.2.2.49        ASTARO FIREWALL Y Pingable    Static IP

                                          Bottom

F2=Current DHCP Activity  F3=Exit
F7=Edit Static IPs        F12=Cancel    HELP (c) Copyright 2001 MP Assoc., Inc
```

Enter the range of IP addresses that you want to ping.

You must re-type at least one of the IP addresses to refresh the data entry fields.

Press **ENTER** and you will begin to see replies flash on the bottom of the screen.

When all the IP addresses have been pinged the *Status* column will display the results of the pings.

Chapter 12 - PROBLEM DETERMINATION

If **SafeNet/i** is not working properly, there are a few general things to check.

Error Message Received on the IBM i

1. Did you perform an IPL after the initial **SafeNet/i** installation?

It is necessary to IPL your IBM i after completing the installation steps. If you do not IPL your system, you will experience unpredictable results.

Recovery: IPL your system then try **SafeNet/i** again.

2. Is the PTF level on your IBM i current?

Compare your PTF level with **SafeNet/i** required levels.

Recovery: Install the latest cumulative PTF package if necessary.

3. Is your client application current on service packs or fixes?

Check to make sure you have the most recent level of fixes for your client.

Recovery: Apply latest service pack or fix package

4. Is this the first time you are using this client application?

If this is the first time you are using this particular application, it may be that your server functions are not set up properly.

Recovery: Check **SafeNet/i** request logs for errors and correct. Use on-line testing program to verify your settings are correct.

5. Have you made changes to server function Security Levels or user authority tables?

If a particular request was working, and now it is not, make sure you have not inadvertently disabled a server function or revoked authorities from a user.

Recovery: Double check changes against the request log, use the on-line transaction program to test your authority settings.

Error Message Received on the Client

If you receive an error message indicating a problem with a client or a communications request, or an exit program rejection and **SafeNet/i** is active:

Check the request log for a 'REJECTED' response

1. Use the date and time along with the user ID to find the request that was rejected. Use **PCREVIEW** or check the Security Report.
2. When you find the request that was rejected, the log will indicate the reason for the rejection. You will find a list of error codes and their descriptions at the end of this chapter.
3. If you need to make changes to authorities you can test your changes with the on-line transaction program before you implement them. See Chapter 7 in this guide, 'Testing your Security Settings.'

If the request does not appear in the log or the Review screen

These steps should help you determine if the problem is network related, client related or **SafeNet/i** related.

1. Try the same request with a user ID that has rights to all servers and has all object and all folder authority. User profile QSECOFR is set up with all rights in **SafeNet/i** by default.
2. Check the log file for the request and response.
3. Make changes to authorities if necessary.
4. Try the request again with the original client or with the on-line transaction program.
5. Try a different client or user ID.

If you are unsure that SafeNet/i is the source of the problem

1. Reset the Security Level in **SafeNet/i** by following these directions:
 - From the SafeNet/i Main Menu select **Option 1 – Work with Server Security Settings** or use **WRKSRV** command
 - If you know which server function the request is using, change the server's Security Level to 1. If you cannot determine which server function the request is attempting to access, set all the servers to Security Level 1.
 - Try the client request again
 - If the request is successful, change the server (or servers) back to the original Security Level, Logging Level All. This will log all the client requests.
2. Try the client request again.
 - If the request is successful, run the request log report and review the client request.
 - If the request is rejected, check PCREVIEW to view the actual transaction.
 - Make the required authority table changes. Test your changes with the on-line transaction program.
 - Try the client request again and review the logs again.

Verify most recent IPL

If you receive a message on the IBM i about a **SafeNet/i** or PCSECLIB program, or you still cannot resolve a client error or client application error, check to see if the system was IPL'd since you:

- Initially installed **SafeNet/i**
- Applied PTFs to **SafeNet/i**

If not, you must IPL your system for the changes to take effect.

If you still cannot resolve the problem

1. Check all the joblogs for the jobs in the subsystems:

```
QSYSWRK  
QSERVER
```

2. You may have to change the QDFTJOB job description to capture the joblogs of certain jobs initiated by client requests.

```
CHGJOB QDFTJOB LOGLVL(4 00 *SECLVL) LOGCLPGM(*YES)
```

Note: Remember to change this back to its default when you have resolved the problem or you may generate an excessive number of joblogs.

```
CHGJOB QDFTJOB LOGLVL(4 00 *NOLIST) LOGCLPGM(*NO)
```

3. End then start both subsystems:

```
QSYSWRK  
QSERVER
```

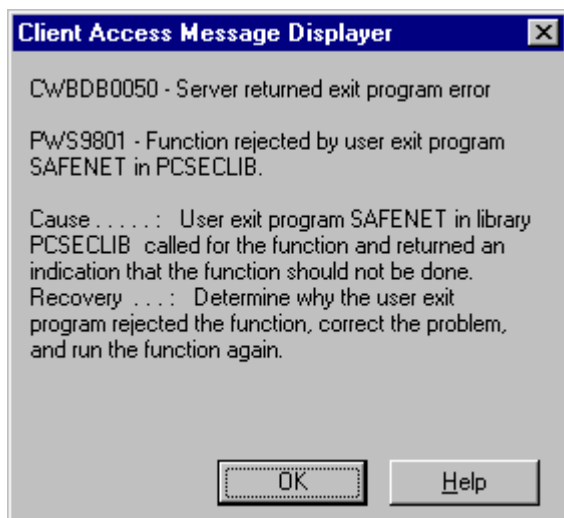
4. Try the client request again
5. Check for joblogs and errors
6. You may have to end and re-start QSYSWRK and QSERVER to force joblog creation.

Also try **ENDTCPSVR *ALL, ENHOSTSVR *ALL**; then **STRTCP** and **STRHOSTSVR *ALL**.

To determine if the problem is with the server or a client, try this process with another client application that may access the same server.

Examples of Client Error Messages

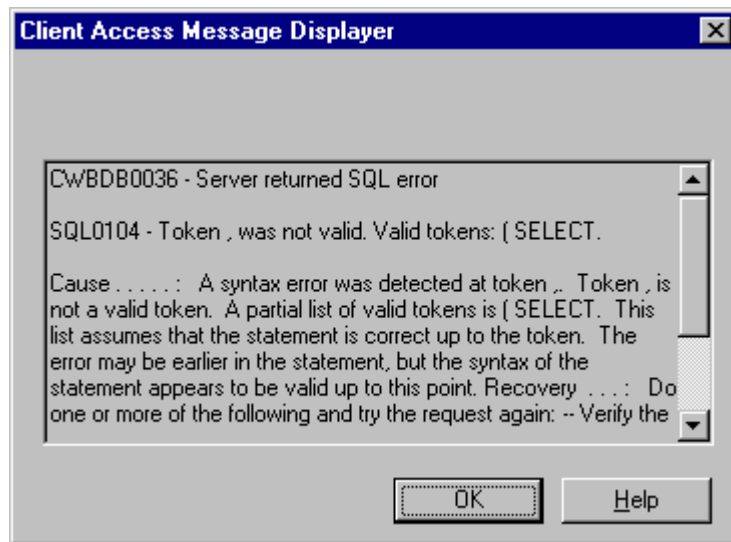
Some common error messages you may see on a Windows client:



This message was received on the client when the server function was set to Level 2 - Function Disabled/No Access.



This message was received on the client when the user was not authorized to the server.



This message was received on the client when the user was not authorized to the SQL Select statement.

Error Codes which Appear in the Log

1	Accepted	
0	Rejected	Reason unavailable
A	Rejected	Server is turned off
B	Rejected	No authority to server
C	Rejected	No authority to object
D	Rejected	No authority to library
E	Rejected	Invalid Data Rights authority
F	Rejected	Invalid Object Management Rights
G	Rejected	Unauthorized path statement
H	Rejected	No authority to SQL statement
I	Rejected	Incoming commands *OFF
J	Rejected	No authority to Root Directory
K	Rejected	Unauthorized FTP Logon
L	Rejected	Unauthorized FTP Command
N	Rejected	Unauthorized REXEC Logon
O	Rejected	Unauthorized TFTP Logon
P	Rejected	Unauthorized IP Address
Q	Rejected	Invalid Op-Specific Request

R	Rejected	Auto-signon requires password
S	Rejected	TELNET requires password
T	Rejected	Encrypted password required
U	Rejected	No devices available
V	Rejected	Unauthorized CL command
X	Rejected	Error with Swap Profile
Y	Rejected	Error during Profile Swap
Z	Rejected	User/Server Reject Code (Specific *REJECT in WRKUSRSRV)
@	Rejected	Time of Day control
#	Rejected	Function requires SafeNet/i regular Admin authority
\$	Rejected	Function requires SafeNet/i Super Admin authority
%	Rejected	FTP Encryption is required
c	Rejected	No authority to Spool File
d	Rejected	No authority to OUTQ

Additional Troubleshooting Tips

PCREVIEW Command

Use the PCREVIEW commands to easily view historical network transactions. You can select various filters to display only the records from the log file you are interested in. From this screen you can request details of the information.

TRAPOD File

When testing network requests through **SafeNet/i** you can see each transaction being written to the **TRAPOD** file in library PCSECDTA.

Use the operating system command DSPPFM (Display Physical File Member) to look at the contents of the **TRAPOD** file. Type **B** on the *Control line* and press **ENTER**. This will take you directly to the bottom of the file and enable you to see the last request recorded in the file.

As a network request is processed by **SafeNet/i**, a record is written to the **TRAPOD** file. The name of the **SafeNet/i** program that processed the request is in position 1-10; the status of the request is in position 11 (1= Accepted, all others are rejections); the user profile is in position 12-21.

The rest of the record contains specific information based on the request type. Detailed information is available in IBM's [TCP/IP Configuration and Reference Guide](#) or the specific licensed program manual.

Chapter 13 - DE-ACTIVATING AND REMOVING SAFENET/i

You must be signed on as a Super Admin in SafeNet/i to perform any Activate/De-Activate processes. See 'SafeNet Administrator' in Chapter One of this guide.

De-activating SafeNet/i

Under some circumstances you may want to de-activate **SafeNet/i**. It may be necessary when troubleshooting network problems to make sure they are not being caused by an application such as **SafeNet/i**, or when you need to remove **SafeNet/i** from your system.

If after you have de-activated **SafeNet/i** you still have problems with network requests or connections, you may want to IPL your IBM i or **ENDSBS *ALL** to uncover any autostart jobs or other IPL-initiated i OS activities that may still be allocating **SafeNet/i** objects and programs. This is not required if you do not need to de-allocate all the **SafeNet/i** programs.

Once you have been successful in isolating your network problem, you can re-activate **SafeNet/i**.

Before de-activating

Optionally, rather than de-activating SafeNet/i you can remove one or more exit points if required.

For example, if you have a problem with the *FILESRV server function use the **WRKREGINF** command to:

1. Locate the IBM i exit point for the *FILESRV server function
2. Remove the SafeNet/i exit program
3. Stop and restart the file server

This will prevent the IBM i file server job from using **SafeNet/i** but continue to protect the other server jobs in IBM i with **SafeNet/i**. This way you can eliminate a performance problem or IBM i problem from one server but continue to protect your other access points with **SafeNet/i**.

To activate or de-activate SafeNet/i:

Remember, you must be a **SafeNet/i** Super Admin to perform this step.

1. From the Install Menu select **Option 50 - Activate/De-Activate SafeNet/i**

The *Server Activation Control* screen is displayed, indicating the current setting.

```
ACTIVEID                               SafeNet/i  V10                               5/11/16
MPADEV                                  Server Activation Control                     13:01:57

*****WARNING - WARNING*****
If you change this setting from active to deactive,
you should ENDSBS *ALL at your earliest convenience
to remove all locks on SafeNet control files. Then
restart your system.
If you change this setting from deactive to active,
you should ENDSBS *ALL at your earliest convenience
to ensure full activation of SafeNet. Then restart
your system.
Your Security is Currently:

Activated

Press the F5 Key to change this setting

F3 = Exit    HELP

(c) Copyright 1997 MP Assoc., Inc
```

2. **Press F5** to change the setting and return to the Install Menu.
3. After performing these steps, end all subsystems then restart them to maintain security integrity.
4. Try your network request again. If **SafeNet/i** is active, and your request is not successful, review your request log and correct the problem based on the error code on the report.

Removing SafeNet/i from your system

If it becomes necessary to completely remove **SafeNet/i** from your IBM i, follow these steps.

1. Sign on to the system as QSECOFR or SAFENET.

2. De-activate **SafeNet/i**.

Follow the instructions on the previous pages to de-activate the program.

3. Exit all **SafeNet/i** menus

4. Remove PCSECLIB and PCSECDTA from your jobs library list

5. Put your system into a Restricted state.

ENDSBS *ALL *IMMED

6. After all the jobs have ended, restart your system. You can use

STRSBS QCTL

7. Delete library PCSECLIB and PCSECDTA

8. Delete the SAFENET authorization list from your system

SafeNet/i is now completely removed from your system.

Appendix A - SERVER FUNCTION DESCRIPTIONS

Newer Servers

This server support, provided by IBM with Client Access (now IBM i Access for Windows) beginning with OS/400 Version 3 Release 1, services optimized clients: Optimized OS/2 (32 bit applications) and Windows XP, Windows 7, Windows 8, Windows 10.

Additional servers are supplied by IBM for each new release of i OS.

Central Server - Client Management

Description: Central Server - client mgmt - 100

The central server provides the ability to update the client management database on the IBM i. IBM i Access for Windows uses this function when new or existing IBM iAccess clients attach to the server.

Server Identifier: *CNTRLSRV

Format Name: ZSCS0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 1, Log All

Notes:

1. At Level 3 users must be authorized to the server function.
2. Level 4 is not required or supported.

Central Server - Conversion Map

Description: Central Server - conversion map - 100

The central server provides support for retrieving conversion maps for clients that need them. These conversion maps are usually used on the client for ASCII to EBCDIC conversions and EBCDIC to ASCII conversions.

Server Identifier: *CNTRLSRV

Format Name: ZSCN0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 1, Log All

Notes:

1. At Level 3 users must be authorized to the server function.
2. Level 4 is not required or supported.

Central Server - License Management

Description: Central Server - license mgmt - 100

The license management support provided by this server is very similar to the support in the original license management server for IBM i Access for Windows clients. The initial request from a client checks out a license for each IBM i Access for Windows user and the server remains active until the client is no longer communicating with the IBM i.

Server Identifier: *CNTRLSRV

Format Name: ZSCL0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 1, Log All

Notes:

1. At Level 3 users must be authorized to the server function.
2. Level 4 not required or supported.

DB2 for IBM i Database Access Request - DRDA

Description: DRDA DB2/400 Database Access Request

This server is used whenever a client requests a DRDA conversation connection.

Where used: Rumba Access
DB2 for IBM i™
DB2 for OS/390™
DB2 Connect™

And more . . .

Server Identifier: *DRDA

Format Name: *DRDA

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 3, Log All

Notes:

1. At Levels 3 and 4 users must be authorized to the server function.

Database Server - Data Base Access - 100

Description: Database Server - data base access - 100

This server function manipulates data base files on the IBM i. It allows operations to data base files, such as: create physical file, add database file member, delete file.

Where used: IBM i Access for Windows
- *Access to IBM i database through ODBC interface*
- *File transfers*

Used by ODBC*, Microsoft Access* and Microsoft Query* for object manipulation

Used by functions
Create source physical file
Create database file, based on existing file
Add, clear, delete database file member
Override database file
Delete database file override
Delete file

Server Identifier: *NDB

Format Name: ZDAD0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Limitations: None

Recommended Setting: Level 4, Log All

Notes:

1. At Levels 3 and 4 users must be authorized to the server function.
2. Supports generic (wildcard) object names.

Database Server - Data Base Access - 200

Description: Database Server - data base access - 200

This server function enables the addition of library list entries.

Where used: IBM Client Access for Windows for Windows95
- Access to IBM i database through ODBC interface
- File transfers

Used by various ODBC, DRDA™, SQL packages such as Microsoft Access, Microsoft Query, etc.

Server Identifier: *NDB

Format Name: ZDAD0200

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Limitations: - Does not support generic library names
- Does not support long object names

Recommended Setting: Level 4, Log All

Notes:

1. At Levels 3 and 4 users must be authorized to the server function.
2. At Level 4 the user must be granted authority for each library to add to the library list.

Database Server - Entry

Description: Database Server - Entry - 100

This server function is used at server initiation request. It is the request that always comes first. All other database server requests come after a request to this entry point. This is called whenever a new connection to the database server is started and a new QZDASOINIT job is initiated to service client database requests, such as calling a stored procedure.

Where used: IBM i Access for Windows
- Access to IBM i database through ODBC interface
- File transfers

Server Identifier: *SQL

Format Name: ZDAI0100

Levels Supported: Basic (Levels 1, 2,)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 3, Log All

Notes:

1. At Level 3 users must be authorized to the server function.
2. **ALL DATABASE SERVER REQUESTS REQUIRE THIS SPECIFIC SERVER TO BE ACCESSIBLE.** A request to this server precedes all other kinds of database server requests.
3. Level 4 is not required or supported.

Database Server - Object Information - 100

Description: Database Server - object information - 100

This server function is used for requests to retrieve information about certain objects from the data base server.

Where used: IBM i Access for Windows
- Access to IBM i database through ODBC interface
- File transfers

Server Identifier: *RTVOBJINF

Format Name: ZDAR0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Usage: Used to retrieve information for the following objects:

- Library (or collection) - SQL package
- File (or table) - SQL package statement
- Field (or column) - File member
- Index - Record format
- Relational database (or RDB) - Special columns

Limitations: You must restrict access to the user's default library list through user profile parameter changes or i OS object security.

Recommended Setting: Level 4, Log All

Notes:

1. List retrievals from *USRLIBL automatically allowed.
2. Data rights enforced.
3. At Levels 3 and 4 users must be authorized to the server function.
4. At Level 4 the user must be authorized to the OBJECT/LIBRARY.

Database Server - Object information - 200

Description: Database Server - object information - 200

This server function is used for requests to retrieve additional information about certain objects from the data base server, such as primary and foreign key information.

Where used: IBM i Access for Windows
- Access to IBM i database through ODBC interface
- File transfers

Server Identifier: *RTVOBJINF

Format Name: ZDAR0200

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Usage: Used for requests to retrieve information for the following objects:
- Foreign keys - Primary keys

Limitations: - You must restrict access to the user's default library list through user profile parameter changes.

Recommended Setting: Level 3, Log All

Notes:

1. At Level 3 the user must be authorized to the server function.
2. Level 4 is not required or supported.

Database Server - SQL Access

Description: Database Server - SQL access - 100
Database Server – SQL access – 200 (for V4R1 and above)

This server function is used when certain SQL requests are received for the data base server.

The QIBM_QZDA_SQL2 exit point takes precedence over the QIBM_QZDA_SQL1 exit point. If a program is registered for the SQL2 exit point, it will be called, and a program for the SQL1 point will not be called.

Where used: IBM i Access for Windows
- Access to IBM i database through ODBC interface
- File transfers
Used by all network SQL statement processing

Server Identifier: *SQLSRV

Format Name: ZDAQ0100
ZDAQ0200

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Recommended Setting: Level 4, Log All

Notes:

1. At Levels 3 and 4 users must be authorized to the server function.
2. At Level 4 the user must be authorized to the OBJECT/LIBRARY and the SQL statement. Data authority requirements are determined by the authorized SQL statements for the user.

Data Queue Server

Description: Data Queue Server - 100

A data queue is an IBM i object that can be used by any 'client' application program to access a data queue that resides on the IBM i. Applications can use data queue to pass data between jobs. Multiple client jobs can send or receive data from a single data queue.

Server Identifier: *DATAQSRV

Format name: ZHQ00100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Limitations: None

Recommended Setting: Level 1, Log All

Notes:

1. At Levels 3 and 4 users must be granted access to the server function.
2. At Level 4 users must be granted access to specific data queues and libraries.
3. Supports generic (wildcard) data queue names. (DATAQ* = all data queue names starting with the letters DATAQ)

DHCP Address Binding Notify

Description: DHCP Address Binding Notification - 100

This server assigns IP addresses to specific client hosts.

Where used: Any device on a TCP/IP network whenever it requests an IP address from the IBM i when the IBM i is set to be the local network DHCP server

Server Identifier: *DHCPB

Format name: DHCA0100

Levels Supported: Basic (Level 1)

Limitations: None

Recommended Setting: Level 1, Log All

DHCP Address Release Notify

Description: DHCP Address Release Notification - 100

This server releases an IP address from its specific client host assignment binding.

Where used: Any device on a TCP/IP network whenever it requests an IP address from the IBM i when the IBM i is set to be the local network DHCP server

Server Identifier: *DHCPR

Format name: DHCR0100

Levels Supported: Basic (Level 1)

Limitations: None

Recommended Setting: Level 1, Log All

File Server

Description: File Server - 100

The file server function allows clients to store and access information, such as files and programs, on the IBM i in various formats. The IBM i OS file server interfaces with the integrated file system on the IBM i. It provides file serving capabilities equivalent to shared folders, but also allows clients to access information in any of the file systems within the operating system.

Where used: IBM i Access for Windows
- *Access to entire file system*
- *Windows Explorer and other applications*

Server Identifier: *FILESRV

Format Name: PWFS0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Recommended Setting: Level 4, Log All

Notes:

1. When set to Levels 3 or 4, each IBM i Access for Windows user must be specifically authorized to this server to access their shared folder and update functions.
2. To grant authority to all folders and all file systems use:

Library <u>or Folder</u>	Object <u>or Sub-Folder</u>
*ALLFLR	*ALL

To enter *ALLFLR/ *ALL you must be signed on as QSECOFR.

Proper Data Rights must be selected also.

3. At Level 4, to authorize a user for access to a non-IBM folder within the QDLS file system (shared folders), you must enter two records in the OBJECT/USER security file.

Example 1: A user requires access to a folder called PERSONNEL within QDLS.

Network Request: /QDLS/PERSONNEL

Entries Required:

	<u>Library or Folder</u>	<u>Object or Sub-Folder</u>	<u>Read</u>
Entry #1	QDLS	PERSONNEL	X
Entry #2	PERSONNEL	*ALL	X

Example 2: You can add specific folder names in place of *ALL to further extend the directory path.

Network Request: /QDLS/PERSONNEL/PAYROLL/SALARY

Entries Required:

	<u>Library or Folder</u>	<u>Object or Sub-Folder</u>	<u>Read</u>
Entry #1	QDLS	PERSONNEL	X
Entry #2	PERSONNEL	*ALL	X
Entry #3	PAYROLL	SALARY	X
Entry #4	SALARY	*ALL	X

4. This is a typical IBM i Access for Windows user security set up if automatic read to IBM folders is not enabled (found on Special Jobs Menu, Option 2):

<u>Library or Folder</u>	<u>Object or Sub-Folder</u>	<u>Read</u>
QDLS	QIWSFLR	X
QIWSFLR	*ALL	X

5. If you choose to use *SHORT path support, **SafeNet/i** does not support the full long file names or lower case names. **SafeNet/i** will truncate each request to a maximum of 10 characters and convert it to upper case.

Use *LONG PATH support instead!

To allow access to file systems **Qopensys, Qfilesys.400 and home**, key in the first 10 positions of each file system name only.

Example:

Network Request: /Qfilesys.400/QSYS.LIB/PAYROLL.LIB/SALARY.FIL

Entries Required:

	<u>Library or Folder</u>	<u>Object or Sub-Folder</u>	<u>Read</u>
Entry #1	QFILESYS.4	QSYS.LIB	X
Entry #2	QSYSLIB	PAYROLL.LI	X
Entry #3	PAYROLL.LI	SALARY.FIL	X

SafeNet/i will convert all requests to uppercase, then check the first ten characters in each directory name for a match.

Note: When native libraries or objects are accessed via the file server, .LIB, .file, etc. are added to the end of the name. You must enter the .LIB or .file in the user to object control file. If the same user accesses these same objects through another server also, (SQL, for example) you must also enter the authorities without the .LIB and .file.

Example:

For the path through the file server: home/TEST.LIB/abc.file you must enter:

<u>Library</u>	<u>Object</u>	<u>Auth</u>
home	TEST.LIB	X
TEST.LIB	*ALL	X

For SQL or other access you also need:

<u>Library</u>	<u>Object</u>	<u>Auth</u>
TEST	*ALL	X

File Server

Description: File Server - 200

This function was added under OS V7.3. It is similar to the PWFS0100 point and adds additional information and controls.

Where used: Any time the IFS is accessed via a network client

Server Identifier: *PWSF0200

Format Name: VLRQ0100

Levels Supported:	Basic	(Level 1, 2)
	Intermediate	(Level 3)
	Advanced	(Level 4)

Usage Notes/Limitations:

Available only with iOS 7.3 and above

By default this point is not activated within **SafeNet/i**. If you require the additional function provided by this point, you can activate it at any time.

Please contact **SafeNet/i** support for activation instructions.

FTP Client Request Validation

Description: FTP Client Request Validation

This function is used whenever the IBM i is a client, issuing FTP commands to a remote system.

Where used: IBM i command lines, interactive and batch jobs can initiate an FTP client request

Server Identifier: *FTPClient

Format Name: VLRQ0100

Levels Supported: Basic (Level 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Usage Notes/Limitations:

At Level 3 or Level 4 you can implement IP address controls. This will allow you to limit what target addresses/systems an FTP client can connect to.

Use the WRKSRV command to setup the valid source AND target IP addresses by user. You must set up valid target addresses using the WRKSRV (Work with Server Settings) command.

Using WRKSRV, find the *FTPCIENT server point. Position your cursor on the *FTPCIENT point line, and press F7.

This will present the correct target IP address maintenance screen:

```
IP2SETD                               SafeNet/i  V10                               5/12/16
MPADEV                                Authorized IP Addresses for Server:      14:57:32
                                       FTP Client Request Validation
                                       *FTPCIENT VLRQ0101
Options
3=Copy 4=Delete  IP Address Checking is Not Active.
7=View User Entries |-----Target Address Range-----|  Accept
                   Profile  From IP Address  To IP Address  Reject
-   -   -   -   -   -   -   -   -   -
-   -   -   -   -   -   -   -   -
-   -   -   -   -   -   -   -   -
-   -   -   -   -   -   -   -   -
-   -   -   -   -   -   -   -   -
```


Recommended

Setting: Level 4, Log All

Important Note:

When the FTP Client point is set to Level 4, only the GET and PUT FTP sub-commands are required. The other commands, when using the FTP Client, are for the TARGET SYSTEM ONLY (sent to/run on the target system).

When authorizing users to the GET/PUT sub-commands, the assumed object authority is reversed from authorities required for the FTP Server point and the same objects.

See the following examples.

Using FTP Client:

- Sending an object to a remote system
An FTP PUT of object ABC in an FTP Client session requires *READ authority to object ABC on the local machine.
- Get an object from a remote system
An FTP GET of object ABC in an FTP Client session requires *OBJMGT authority to the object ABC on the local machine.

Using FTP Server:

- Send an object to local system
An FTP PUT of object ABC in an FTP Server session requires *OBJMGT authority to the object ABC on the LOCAL machine.
- Get an object from the local system
An FTP GET of object ABC in an FTP Server session requires *READ authority to the object ABC on the LOCAL machine.

FTP Logon Server

Description: FTP Logon Server 1 - 100

This server is used any time the IBM i answers an FTP start request from another system or user. It is available in OS/400 versions V3R7 through V4R1

This FTP 100 point is not registered by default within SafeNet/i. See FTP Logon 300 for the default FTP server.

If you need to use the FTP 100 server point specifically, please contact SafeNet/i Support for assistance.

Optionally you can use SafeNet/i and the FTP Logon Server to update a user's previous signon date. See the *SIGNONDATE* parameter in command CHGFTPSET for details.

Where used:	Internets and Intranets MS Windows DOS And most other operating systems
Server Identifier:	*FTPLOGON
Format Name:	TCPL0100
Levels Supported:	Basic (Level 1, 2) Intermediate (Level 3)
Limitations:	None
Recommended Setting:	Level 3, Log All

FTP Logon Server

Description: FTP Logon Server 2 - 200

This server is used any time the IBM i answers an FTP start request from another system or user. It is available in OS/400 versions V4R2 and above.

This FTP 200 point is not registered by default within SafeNet/i. See FTP Logon 300 for the default FTP server.

If you need to use the FTP 200 server point specifically, please contact SafeNet/i Support for assistance

Where used:	Internets and Intranets MS Windows DOS And most other operating systems
Server Identifier:	*FTPLOGON2
Format Name:	TCPL0200
Levels Supported:	Basic (Level 1, 2) Intermediate (Level 3)
Limitations:	None
Recommended Setting:	Level 3, Log All

FTP Logon Server

Description: FTP Logon Server 3 – 300

This server is used any time the IBM i answers an FTP start request from another system or user.

This is the default and primarily supported FTP Logon point for all OS levels V5R1 and above.

Optionally you can use SafeNet/i and the FTP Logon Server to update a user's previous signon date. See the *SIGNONDATE* parameter in command CHGFTPSET for details.

Where used:	Internets and Intranets MS Windows DOS And most other operating systems
Server Identifier:	*FTPLOGON3
Format Name:	TCPL0300
Levels Supported:	Basic (Level 1, 2) Intermediate (Level 3)
Limitations:	None
Recommended Setting:	Level 3, Log All

FTP Server Request Validation

Description: FTP Server Request Validation

This function is used whenever the IBM i receives an FTP command it must act upon.

Where used: Internets and Intranets
MS Windows
And most other operating systems

Server Identifier: *FTPSERVER

Format Name: VLRQ0100

Levels Supported: Basic (Level 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Limitations: None

Recommended Setting: Level 4, Log All

Notes:

1. At Level 4, users must be authorized to the directory path (WRKUSRPTH) or the objects (WRKUSROBJ) and the FTP statements they require.
2. Only at Level 4 are 'ANONYMOUS' logons allowed. This is in conjunction with the special FTP security settings. See Chapter 4 in this guide, 'Setting up FTP' (CHGFTPSET command).
3. You can limit FTP connections from specific IP Addresses.

You can activate IP Controls via the WRKSRV command and can define those IP addresses using the WRKSRVIP command.

You can also review 'Setting up TCP/IP Address Controls' in Chapter 3 of this guide.

4. This point does not support IP address controls directly. IP address controls for *FTPSERVER are implemented at the *FTPLOGON server level. If a user is not allowed to connect through the *FTPLOGON server (either by not being authorized to the server or is rejected due to an invalid IP address at the *FTPLOGON level), the user will never reach the *FTPSERVER server point.

Network Print Server - Entry

Description: Network Print Server - entry - 100

This server function is used when the network print server is started.

Server Identifier: QNPSEVR

Format Name: ENTR0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 3, Log All

Notes:

1. At Level 3 users must be granted access to the server function.
2. Level 4 is not required or supported.

Network Printer Server - Spool File

Description: Network Print Server - spool file - 100

This server function is used after the network print server receives a request to process an existing spooled output file.

Server Identifier: QNPSEVR

Format Name: SPLF0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Limitations: Level 4 grants spool file management rights to the owner of the spool file only.

Recommended Setting: Level 4, Log All

Notes:

1. At Levels 3 and 4 users must be granted access to the server function.
2. Level 4 requires no special set up. (see Limitations above)
3. No specific object authorizations required.

Pre-Power Down

Description: Pre-Power Down Server

This program is called whenever the PWRDWNSYS or ENDSYS command is issued

Where used: Any interface, command line or program that can issue the PWRDWNSYS or ENDSYS command

Server Identifier: PWRDWN

Format Name: PWRD0100

Levels Supported: Basic (Level 1)

Limitations: None

Recommended Setting: Level 1

Notes:

1. To use the pre-power down program call, create a CL program called PWRDWNCL.

Remote Command and Distributed Program Call Server

Description: Remote Command/Program Call - 100

The remote command and distributed program call server is provided to allow client users and applications to issue IBM i CL commands and call programs.

Server Identifier: *RMTSRV

Format Name: CZRC0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)
And special global control setting

Limitations: SafeNet/i does not check Library/Object security on imbedded command strings

Recommended Setting: Level 4, Log All

Notes:

1. For X-1002 Remote Command Call, the same rules apply here as for *DDM commands. You must use the Special Jobs Menu to allow or reject remote commands entering via this server. In addition, see Note 3 below.

One setting controls both *RMTSRV X-1002 and *DDM command servers.

2. Used by System i Navigator for system object access.

Each GUI request from system object access triggers a program call. Most are in QUSRSYS or QGY libraries. By allowing QGY/*ALL and QUSRSYS/*ALL Read Data Rights, you let users access GUI interfaces.

3. At Level 4 you must authorize each user to the CL commands they may issue through this server.

REXEC Logon Server

Description: REXEC Logon Server 1 - 100

This server is used to validate a client request to start the REXEC Server. It is available in all versions of i OS.

This REXEC Logon 100 point is not registered by default with SafeNet/i. See REXEC Logon 200 for the default REXEC Logon server.

If you need to use the REXEC Logon 100 server point specifically, please contact SafeNet/i Support for assistance

Where used: Windows and OS/2 Desktop Add-in Applications
Other Clients using REXEC Applications

Server Identifier: *REXLOGON

Format name: TCPL0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 3, Log All

REXEC Logon Server

Description: REXEC Logon Server 2 - 200

This server is used to validate a client request to start the REXEC Server. It is available in OS/400 versions V5R1 and above.

This REXEC Logon Server 200 is the default registered REXEC point in SafeNet/i.

Where used: Windows and OS/2 Desktop Add-in Applications
Other Clients using REXEC Applications

Server Identifier: *REXLOGON2

Format name: TCPL0300

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 3, Log All

REXEC Request Validation Server

Description: REXEC Request Validation Server

This server is initiated whenever a client issues a REX statement to the IBM i.

Where used: Windows and OS/2 Desktop Add-in Applications
Other Clients using REXEC Applications

Server Identifier: *REXSERVER

Format name: VLRQ0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Limitations: None

Recommended Setting: Level 3, Log All

Usage Notes:

This point does not support IP address controls directly. IP address controls for *REXSERVER are implemented at the *REXLOGON server level. If a user is not allowed to connect through the *REXLOGON server (either by not being authorized to the server or is rejected due to an invalid IP address at the *REXLOGON level), the user will never reach the *REXSERVER server point.

ShowCase™ Validation Server

Description: Showcase Validation Server

This server is initiated by a client utilizing the Showcase™ product with the proper exit point added to i OS.

Please follow the instructions from Showcase™ to properly register the ShowCase Exit Program. You MAY have to use the ADDEXITPGM command to add the exit point for ShowCase™ to your IBM i Server.

Where used: Any client utilizing Showcase™ Application

Server Identifier: *SHOWCASE

Format name: SRCS0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Limitations: None

Recommended Setting: Level 4, Log All

****Important Notes on setting up a user for ShowCase****

Although Showcase uses SQL statements to access i OS data, SafeNet/i does NOT verify the SQL statement authority. SafeNet/i ONLY verifies the user to server and user to objects. The SQL Statement is NOT interrogated for authority. If the user issues a SELECT statement, the object authority required is *READ. If the user issues a DELETE statement, data *DELETE authority is required.

You DO NOT have to set up SQL statement authority for the Showcase users.

Spooled File Security

Description: Spooled File Security - 100

The spooled file security exit point allows SafeNet/i to control access to spooled files in specific output queues.

This is a system-wide setting. Once an exit program is assigned to the exit point all system spool file activity will call the exit program if the user profile does not have *SPLCTL or *JOBCTL special authorities. If the SafeNet/i security level for this server is at level 3 or higher, SafeNet/i will perform additional security lookups.

Where used: During any access to spooled files, whether remote or via the 5250 command line.

Server Identifier: *SPLAUT

Format Name: SPSY0200

Levels Supported:

Basic	(Level 1, 2)
Intermediate	(Level 3)
Advanced	(Level 4)

Limitations: This exit point is available on IBM i V7.1 and above

Recommended

Setting: Level 1 Log All – unless additional output queue control is required by your installation

Usage Notes:

Exit point QIBM_QSP_SECURITY gives SafeNet/i the ability to control access to spooled files in individual output queues.

1. If the user has *SPLCTL or *JOBCTL special authority, iOS security is in place. SafeNet/i cannot intercept the request.
2. If the user does NOT have *SPLCTL or *JOBCTL special authority, normal SafeNet/i processing and logging will occur.
 - a. If *Spool Server Security is at Level 3 AND the user is authorized to the *SPLAUT Server, then the user will have access to all OUTQs and all spool files. If not authorized to *Spool Server, the request will be rejected.

- b. If *Spool Server Security is at Level 4, the user must be authorized to the *SPLAUT Server AND the Library/OUTQ as defined in WRKUSROBJ. If not authorized to the *Spool Server and OUTQ, the request will be rejected
- 3. At Level 1, the default, all spooled file activity will be logged for those users without *SPLCTL or *JOBCTL special authorities.
- 3. At Level 2, no access to ANY OUTQ except spool file creations
- 4. At Level 3, the user must be authorized to the *SPLAUT exit point server in SafeNet/i
- 5. At Level 4, Level 3 rules apply. In addition, the user must have authority to the output queue and library and have the specific data or management rights assigned (Read, Write, Delete, etc.)

For instance, if the user is trying to delete a spooled file in the output queue, they must have Delete Rights to the OUTQ/LIB assigned with WRJUSROBJ.

Example: A user is trying to delete a spool file in QGPL/QPRINT OUTQ

- Spooled File Security Server set to Level 1
 - a. If logging for server point is on, record is logged; otherwise, accept and continue
- Spooled File Security Server set to Level 3
 - a. Check for the specific user-to-server *SPLAUT (WRKUSRSRV); check group profiles for specific *SPLAUT entry
 - b. If found, accept
- Spooled File Security Server set to Level 4
 - a. Perform Level 3 checks
 - b. Check specific user-to-object QGPL/QPRINT entry and check required Read or Management authority
 - c. Check group profiles to specific object entry (QGPL/QPRINT) and check required authority

Notes and Exclusions:

The exit programs will be called at the beginning of each IBM i spool command or API, except under any of the following conditions:

1. The job or thread has spool control (*SPLCTL) special authority. The special authority may originate from the user profile, group profile, or adopted authority.
2. The job or thread has job control (*JOBCTL) special authority and the spooled file resides on an output queue with OPRCTL(*YES). The special authority may originate from the user profile, group profile, or adopted authority.
3. The command or API is executed in a system job (including SCPF), a subsystem monitor job, or any job that is running under one of the following system user profiles:

QUATPROF	QNETSPLF
QCLUMGT	QNFSANON
QCOLSRV	QNTF
QDBSHR	QPEX
QDBSHRDO	QPM400
QDFTOWN	QRJE
QDIRSRV	QSNADS
QDLFM	QSPL
QDOC	QSPLJOB
QDSNX	QSRVAGT
QFNC	QSYS
QGATE	QTCP
QLPAUTO	QTFTP
QLPINSTALL	QTSTRQS
QMSF	

Special Notes regarding Spooled File Security

IBM has implemented the Spooled File Security exit point differently than other exit points.

Using IBM iOS security, where SafeNet/i is not installed on a system, if the user does NOT have *SPLCTL or *JOBCTL, that user would be rejected from doing spool file ops by iOS. This would be a normal rejection by IBM iOS.

If SafeNet/i is installed and the Spooled File Security point is set to Level 1, a user without *SPLCTL or *JOBCTL would still be rejected by iOS, as a normal response by IBM iOS.

If SafeNet/i is at Level 1 and the user DOES HAVE *SPLCTL or *JOBCTL the user would have access. This is also a normal IBM iOS response, but in this case there is no logging at Level 1.

If SafeNet is at Level 3 or 4, and the user DOES NOT have *SPCTL or *JOBCTL, SafeNet/i rules and logging are in effect.

If SafeNet/i is at Level 3 or 4 and the user HAS *SPLCTL or *JOBCTL, SafeNet/i does not see the request and iOS takes care of the authority.

To summarize, SafeNet/i can only manage users who do NOT have the required special authorities of *SPLCTL or *JOBCTL.

If you want SafeNet/i to manage and LOG user spool requests, then you must REMOVE the *SPLCTL and *JOBCTL special authorities from the User Profiles you want to log and manage through SafeNet/i.

If you don't want SafeNet/i to manage and/or log any user spool actions, give users *SPLCTL and *JOBCTL special authorities.

TCP Signon Server

Description: TCP Signon Server - 100

The sign-on server provides security for clients that use TCP/IP communications support. This security function prevents access to the IBM i for users with expired passwords or allows entry to only specific users.

Server Identifier: *SIGNON

Format Name: ZSOY0100

Levels Supported: Basic (Level 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 1, Log All

Notes:

1. Level 3 requires specific authority to the server function.
2. Level 4 is not required or supported.

TELNET Device Initialization
TELNET Device Termination

Description: **TELNET Device Initialization - *TELNETON**
TELNET Device Termination - *TELNETOFF

The TELNET servers provide for security when using TCP/IP and TELNET clients. This point allows the restriction by IP address and password type. Auto-sign-on can also be configured. TELNET Device Termination allows for session logging and device management upon session termination. *TELNETOFF is dependent upon the setting of *TELNETON.

Where used: Any TN5250 (TELNET client)
MS Windows
IBM i Access for Windows

Server Identifier: *TELNETON
*TELNETOFF

Format Name: INIT0100
TERM0100

Levels Supported: Basic (Level 1, 2)
Intermediate (Level 3)

Limitations: See Chapter 3 in this guide, 'TELNET, TCP/IP Address Controls'

Recommended Setting: Level 3, Log All

Notes:

1. Level 3 requires correct IP addressing in control file (WRKTCPIPA *TELNET)

TFTP Server Request Validation

Description: TFTP Server Request Validation

Clients utilizing TFTP (Trivial File Transfer Protocol), such as the IBM Net Station use this server.

Where used: IBM Net Station Boot

Server Identifier: *TFTPSRVR

Format name: VLRQ0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 3, Log All

User Profile Servers

Description: Add User Profile
Change User Profile
Delete User Profile
Restore User Profile

These servers are called each time a user profile command is issued.

Where used: Any interface or command line that can issue a user profile associated i
OS command

Server Identifier:	Format:
*CHGPRF	CHGP0100
*CRTPRF	CRTP0100
*DLTPRFA	DLTP0100
*DLTPRFB	DLTP0200
*RSTPRF	RSTP0100

Levels Supported: Basic (Levels 1)

Limitations: None

**Recommended
Setting:** Level 1, Log All

Notes:

1. This point simply logs which user profile was affected, who performed the action, and when it was done.

Legacy Servers

These servers have been provided by IBM since PC Support/400 became available. Support for these original servers was designed for and is still used to service the original clients: DOS, Extended DOS and OS/2.

Distributed Data Management

Description: Distributed Data Management - 100

Security checking is performed when a remote user or system accesses an IBM i file or issues an incoming remote command via DDM. The remote user must be authorized to perform the operation (open, close, read or write, for example) or the DDM request is rejected.

Server Identifier: *DDM

Format Name: *DDM

Levels Supported: Basic (Levels 1, 2,)
Intermediate (Level 3)
Advanced (Level 4)
Plus special setting for remote command processing
CL command authority checking is performed at Level 4

Limitations:

- See the Special Jobs Menu for incoming remote commands
- Cannot check authority of files, objects or commands imbedded in the command string

Recommended Setting: Level 4, Log All

Notes:

1. Commands are allowed only if specified from Special Jobs Menu, Option 2 (**CHGSPCSET** command). DDM commands, NOT file requests, can be stopped by saying "NO" to *Allow DDM Commands* parameter. The **SafeNet/i** default is "YES" to allow commands. Review existing requirements prior to changing this setting. At Level 4, users must be authorized to commands.
2. Does not support *SPC type transactions
3. For Version 4 of **SafeNet/i**, if *DDM is set to Level 4, you must authorize each user to the CL commands they may issue to the IBM i.
4. Most IBM i systems, by default, use the QUSER profile for the communications conversation. QUSER must have authority to all files that are being accessed and must be authorized to the *DDM server function.

To change from QUSER as the default, a change to the default communications entry must be made in the QCMN subsystem description. See your system administrator for assistance.

Original Data Queue Server

Description: Original Data Queue Server - 100

A data queue is an IBM i object that is used by IBM i application programs for communications. Applications can use data queues to pass data between jobs. Multiple IBM i jobs can send or receive data from a single data queue.

Server Identifier: *DQSRV

Format Name: DTAQ0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Limitations: None

Recommended Setting: Level 1, Log All

Notes:

1. At Levels 3 and 4 users must be granted access to the server function.
2. At Level 4 users must be granted access to specific data queues and libraries.
3. Supports generic (wildcard) data queue names. (DATAQ* = all data queue names starting with the letters DATAQ)

Original Transfer Function Server

Description: Original File Transfer Function - 100

The Client Access transfer function transfers data between the IBM i system and a personal computer.

Server Identifier: *TFRFCL

Format Name: TRAN0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Recommended Setting: Level 4, Log All

Notes:

1. Specific users must be granted access to the server function at Levels 3 and 4.
2. Users must be granted access to specific files and libraries at Level 4.
3. Supports generic (wildcard) file names. (FI* = all file names starting with the letters FI)
4. Full control of library, object and data rights allowed.
5. At Level 4, to select or extract a list of objects from within a library, you must enter the name of the library and use *ALL in the *Object or Sub-Flr* column. The user will need Read data rights to the library.

Example 1: To get a list of all files in *USRLIBL there must be an entry for the user requesting the list:

<u>Library or Folder</u>	<u>Object or Sub-Folder</u>	<u>Read</u>
*USRLIBL	*ALL	X

Example 2: To get a list of all files in the library PAYROLL enter:

<u>Library or Folder</u>	<u>Object or Sub-Folder</u>	<u>Read</u>
*PAYROLL	*ALL	X

6. CRTFILE(*YES) CRTMBR(*YES)

To do a “REPLACE” with a CREATE FILE(*YES) or a CREATE MEMBER(*YES), Existence Rights must be given to the user for the FILE/LIBRARY being created.

To do a “REPLACE” with a CREATE FILE(*NO) or CREATE MEMBER(*NO), Delete and Write Data Rights must be specified to the object.

Original License Management Server

Description: Original License Management Server - 100

The license management server ensures valid licenses are available for Client Access, IBM and non-IBM licensed applications when requested from a client. The license management server performs this process every time a Client Access client requests a license for an application, typically upon session initiation. When a Client Access client disconnects from the IBM i, the license is released and is available for another client to use.

Server Identifier: *LMSRV

Format Name: LICM0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 1, Log All

Notes:

1. At Level 3 the user must be authorized to the server function.
2. Level 4 is not required or supported.

Original Message Server

Description: Original Message Server - 100

The message function server allows users to communicate with each other by sending messages. Users can communicate with other users at IBM i workstations or with users at personal computers that are attached to the IBM i system.

The message function server routes messages sent from PC users to the appropriate user and receives messages for PC users and sends them to the PC workstation.

Server Identifier: *MSGFCL

Format Name: MESS0100

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)

Limitations: None

Recommended Setting: Level 1, Log All

Notes:

1. At Levels 3 and 4, the user must be authorized to the server function.
2. Generic (wildcard) names are supported for Level 4.

Original Remote SQL Server

Description: Original Remote SQL Server - 100

The remote SQL server processes requests that are received from Client Access products that are using the high-level language remote SQL API. The API allows applications running on the clients to run SQL statements on a remote IBM i system. The databases accessed may be either SQL database files or native IBM i database files.

Server Identifier: *RQSRV

Format Name: RSQL0100

Levels Supported:

Basic	(Levels 1, 2)
Intermediate	(Level 3)
Advanced	(Level 4)

Limitations: ODBC support on Windows 3.1 and Client Access for DOS with Extended Memory clients **DO NOT** use this server

Recommended Setting: Level 4, Log All

Notes:

1. Levels 3 and 4 require the user to be authorized to the server function.
2. Level 4 checks SQL statements and Object/Library for authority.
3. User must have authority to SQL statement and Object/Library.

Original Virtual Print Server

Description: Original Virtual Print Server - 100

The virtual print server is used to print data from PC application programs on IBM i printers.

Server Identifier: *VPRT

Format Name: Always Blanks

Levels Supported: Basic (Levels 1, 2)
Intermediate (Level 3)
Advanced (Level 4)

Limitations: None

Recommended Setting: Level 3 or 4, Log All

Notes:

1. At Levels 3 and 4 users must be authorized to the server function.
2. At Level 4, for each printer that is opened the user must have authority to the printer.

Example 1: To grant authority to all printers that begin with the letters PRT in library QUSRSYS enter:

<u>Library or Folder</u>	<u>Object or Sub-Folder</u>	<u>Read</u>
QUSRSYS	PRT*	X

Example 2: To grant authority to only the PAYROLL printer, enter:

<u>Library or Folder</u>	<u>Object or Sub-Folder</u>	<u>Read</u>
QUSRSYS	PAYROLL	X

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