i2Pass

Two Factor Authentication for the IBM i

Version 2.01

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Introduction

i2Pass provides extra security protection for IBM i (Power i, iSeries, AS/400) applications. It works with 5250 terminal session connections or with your own applications.

Your passwords may be compromised when using Telnet and other products over the Internet. “Hackers” and “snoopers” can pick up your user profiles and passwords and then use them to access your IBM i especially if your terminal session are not encrypted.

i2Pass gives you this protection by implementing a two factor authentication requirement for specific signon devices and users. This additional password, a randomly generated nine digit number, can only be used once. After it has been used, it can never be used again for a specific user profile, the additional password is permanently retired. This method allows you to access your system from a remote location for a legitimate purpose, but when someone tries to use that same authentication code over again, they are denied access. There is an option to require your user to enter their password a second time along with the second authentication number for full validation at final signon.

You can register your users along with their email address. When a signon is in process, the second authentication code is automatically sent to the user and then requested to complete the signon process. When a code is sent, it must be used within a 15 minute window. After 15 minutes, it will expire and cannot be used.

The two factor authentication can also be used from within your own applications. APIs (Application Program Interface) allow you to call our routines to generate the second authentication factor and email it to your user along with subsequent validation of the combination of user and secondary code.

i2Pass can be used to pre-generate a set of two factor authentication codes and produce them on a printed report. These can then be used to establish a remote connection. As each code is used, it is retired. Additional codes can be generated as needed and new listings of pre-generated codes can be made. This will come in handy when a user does not have immediate access to instant email. Care must be taken to guard the contents of the code listings.

i2Pass is licensed based on the serial number where the software is installed, the partition where the software is installed and the number of user profiles enrolled. Licenses are available for up to 25 users, from 26-100 users, from 101-200 users and an unlimited user license. When you install the software, at 25 user license is configured. Keep this in mind when testing. If you want to test at a higher user level, contact Kisco support for an authorization code at the higher level.

Overview

When first installed, the only user profile that will be able to administer i2Pass is QSECOFR. To authorize additional user profiles, sign on as QSECOFR (or any other (*SECOFR or *SECADM profile) and use option 11 on the INSTALL menu to authorize additional profiles.

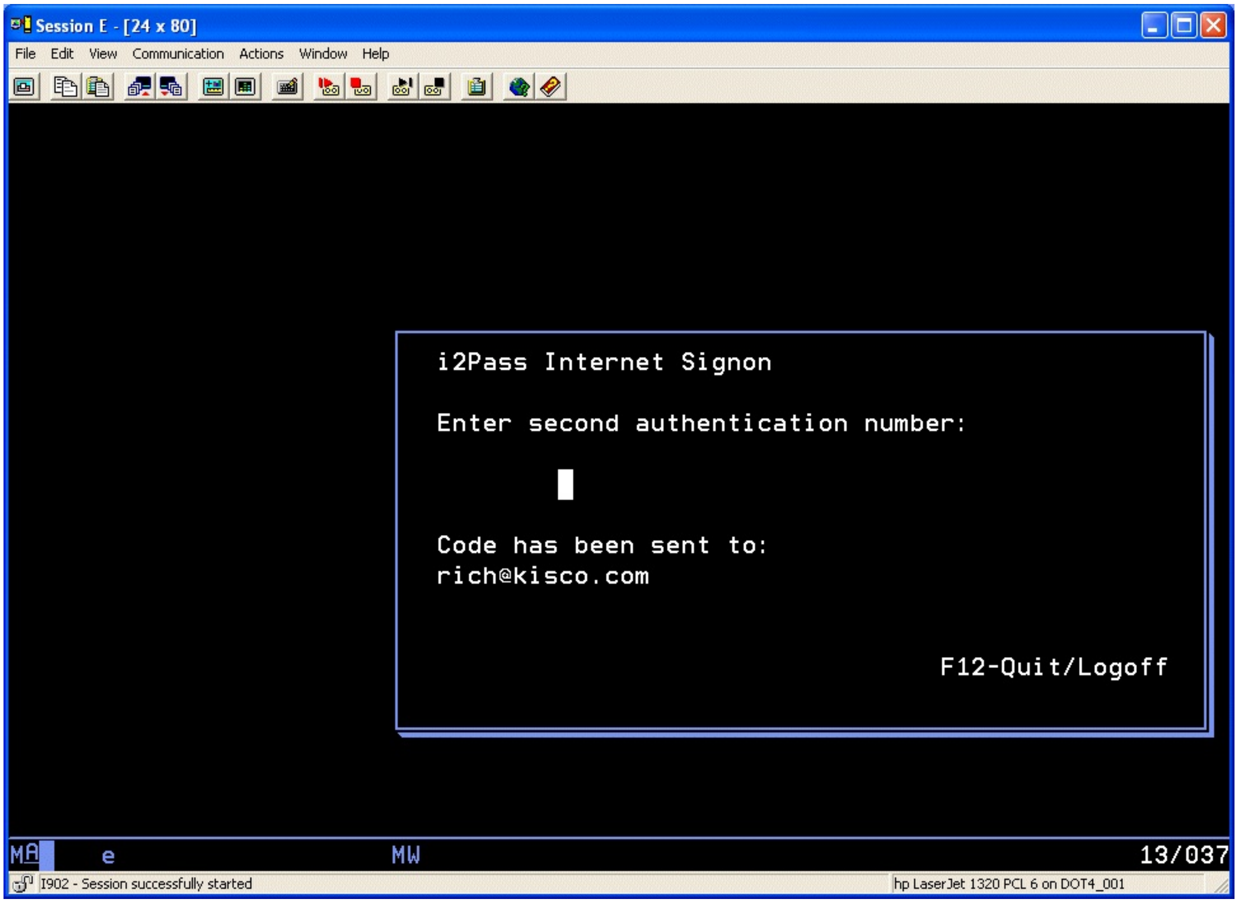
When you first install i2Pass, no changes are made to your system. You must configure i2Pass to your specific requirements before it will start protecting your remote access sessions. This configuration process lets you identify the device profiles for “at risk” terminal devices and also lets you enroll those users where you want the user profile verified since they are connecting to your system via an exposed connection. No authentication codes are generated when a user is enrolled. Part of the configuration process includes verifying that the email transmission used by i2Pass works on your system. This must be verified before you start implementation.

Note: All terminal devices with names that start with QPADEV* are considered to be at risk devices.

Before you start using i2Pass, we recommend that you test your email configuration to make sure that the email transport mechanism works correctly. Use option #10 on the INSTALL menu for this purpose. See the section in this manual for a description.

Once the configuration is done, you can start protecting your system using i2Pass. When a user profile is registered with an email address, we recommend that you send a test email to the user and verify that it has been received. Then, when an enrolled user signs in from a device that is identified as being at risk, a second authentication code is automatically emailed to the user during the signon process. The signon will wait until the second factor code is entered before completing.

When a user that is registered and current in the software logs in from a device that has been identified as "foreign", the following screen will be displayed after their user profile and password have been entered and validated by the IBM i OS:



```
i2Pass Internet Signon

Enter second authentication number:

Code has been sent to:
rich@kisco.com

                              F12-Quit/Logoff
```

```
MA     e                  MW                              13/037
```

I902 - Session successfully started

hp LaserJet 1320 PCL 6 on DOT4_001

For users using the pre-issued codes from listings, as passwords are used up, users will have to generate new passwords. When someone accesses your system with an incorrect 2FA code or with a 2FA code that has already been used, the failure action specified on the I2PSET command (option 9 on the INSTALL menu) is taken and an alert notice is issued.

A log of all system activity, access acceptances and access rejections is also kept by i2Pass. You can periodically review this information on-line or produce reports for later review.

What's New In Release 2?

Release 2 of i2Pass includes an optional feature that will let you control who can establish a 5250 terminal session with your system based on their IP address. When first installed or immediately following an upgrade, Release 2 will not activate this feature. When activated, however, you can control which IP addresses are allowed 5250 terminal access to your system. This can be activated on a user-by-user basis. See the "IP Address Controls for Terminal Sessions" section of this user's guide for instructions.

Also new with Release 2, the source IP address of each 5250 terminal session will be captured and reported in the Activity Log. This information can be displayed and/or listed using option #9 on the MASTER menu. Please note that only logon processes the occur following an upgrade to release 2 from an earlier release will include this information.

IBM i Security Loophole

i2Pass closes a security loophole in the IBM i OS that could be used to bypass entry of the second authorization code during an i2Pass signon process from a 5250 terminal session. As of release level 1.12 of i2Pass, this is no longer possible.

To make this work there are two settings changes that are made when i2Pass is installed.

First, the *MENU object named ASSIST in the QSYS system library has been changed so that user profile I2PASSUSR has *EXCLUDE authority for the object. If your IBM i OS is upgraded, this change will have to be done following the OS upgrade. The correct command to accomplish this is:

```
GRTOBJAUT  OBJ(QSYS/ASSIST) OBJTYPE(*MENU) USER(I2PASSUSR)
           AUT(*EXCLUDE)
```

Second, the I2PASSUSR user profile has to have the *ALLOBJ special authority REMOVED. We have also removed *SECADM as an additional security consideration. Installation of i2Pass as a new product will configure this user profile correctly and installation of the PTF IEPTF112 also resets the user profile. The correct set of special authorities for this user profile should be as follows:

```
*IOSYSCFG
*JOBCTL
*SAVSYS
*SPLCTL
```

Installation and Security

Specific installation instructions are covered in the section of this manual titled "Installation and Configuration". To install your product on trial, follow those instruction. i2Pass can be installed from distribution media supplied by Kisco Information Systems or from a download file from the Internet. The initial installation will allow i2Pass to run on your system for a period of at least thirty days. At the end of the trial period, the software will no longer function.

When you decide to keep i2Pass you must send your payment to Kisco Information Systems. At that time, Kisco must know the full serial number for your system and the partition number where the software is being used. If you are not sure of your serial number, go to the INSTALL menu in library I2PLIB and run option #2. Send Kisco a screen shot of the information displayed.

When Kisco receives your payment, serial number and partition information, they will issue a password to you. This password, when applied, will certify your copy of i2Pass and will permanently activate the software on your system. The password and certification instructions will be provided in writing by Email.

Uninstall Procedure

If you decide that you do not want to keep i2Pass after your free trial period, you can take the following steps to safely remove the software from your system:

1. Go to the MASTER menu in library I2PLIB and run option #1.
2. Delete any registered user profiles that show up here.
3. Exit the MASTER menu.
4. Delete the library named I2PLIB.

At this point, the software will be safely removed from your system.

Kisco Software Support

Kisco Information Systems provides unlimited software support during your first year of ownership. This includes the time during your free trial. Following the first year of ownership, there is a modest fee structure to maintain support for your software.

The Kisco support policy program works as follows:

1. First year support will be FREE! This includes unlimited telephone support, unlimited E-mail support, free release updates and free license transfers.

2. After the first year, an annual charge will apply for support and software maintenance.

3. The annual fee will be charged at the rate of 15% of the current selling price.

4. Support covered by this annual fee includes:

   a. Unlimited telephone support (518-897-5002)
   b. Unlimited E-mail support (Support@kisco.com)
   c. Defect analysis and correction
   d. Free updates to correct known defects
   e. Free license transfers
   f. Free use of our Customer Support Website information

At the end of your first year of ownership, you will receive an invoice from us for your first year's maintenance charge. Non-payment of this invoice will be taken to mean that you decline maintenance.

World Wide Web Support

You can use the World Wide Web to reach us and to obtain software support information. Just set your web browser to our URL at:

http://www.kisco.com

Support information specifically for i2Pass can be found at URL:

http://www.kisco.com/i2p

At our Website, you will find:

- Product information about all Kisco software products for the IBM i market.
- Customer support information including:
  - Latest release level information for all products
  - Technical bulletins
  - Descriptions for recent enhancements to products
  - E-mail contact information for getting in touch with us
- Information about consulting services available from Kisco Information Systems.
- ..... and more

We invite you to visit our Website, use the contact features to let us know what you think. We're always looking for ways to better serve you, our customer.

The Master Menu

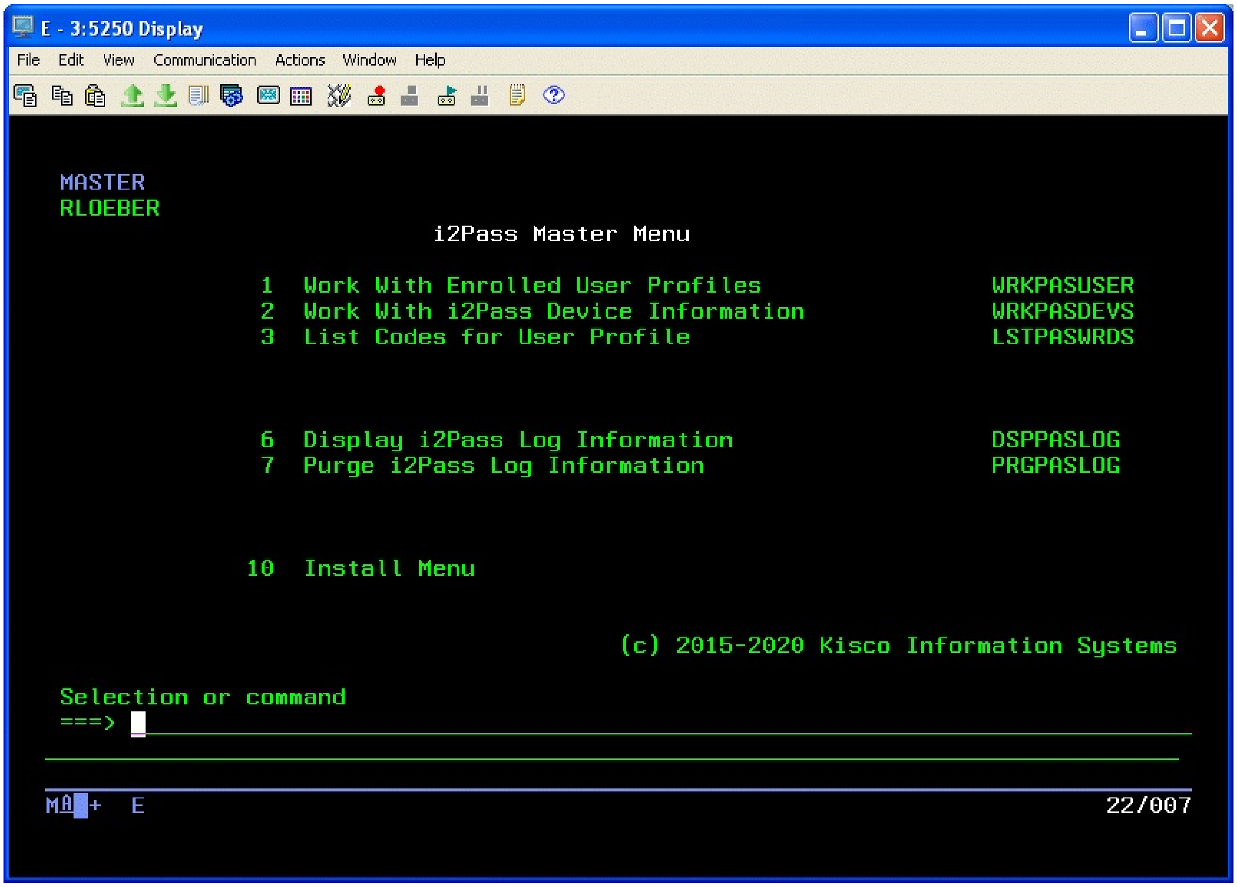
The main menu used by i2Pass is called MASTER and is found in the library I2PLIB. There are several ways to display the menu. You can issue the following GO command from any terminal command line:

```
GO I2PLIB/MASTER
```

This method does not require that the library name be added to your library list. You can also add the library to your library list and display the menu with an easier format. To add the library to your library list, enter the following two commands:

```
ADDLIBLE I2PLIB
GO MASTER
```

The main i2Pass menu appears as follows:



```
MASTER
RLOEBER
                        i2Pass Master Menu

             1  Work With Enrolled User Profiles          WRKPASUSER
             2  Work With i2Pass Device Information       WRKPASDEVS
             3  List Codes for User Profile               LSTPASWRDS


             6  Display i2Pass Log Information            DSPPASLOG
             7  Purge i2Pass Log Information              PRGPASLOG


            10  Install Menu


                                 (c) 2015-2020 Kisco Information Systems

Selection or command
===>

MA + E                                                          22/007
```

Each menu option handles the following functions. Each function is described in more detail later in this manual:

1. Work With Enrolled User Profiles — Displays a list of the enrolled users and allows you to work with them.

2. Work With i2Pass Device Information — Displays a list of the known display devices on your

system and their status registration with i2Pass.

3. List Codes for User Profile — Lets you generate a printed list of 2FA codes for a user.

6. Display i2Pass Log Information — Displays or lists the activity log and lets users view activity details.

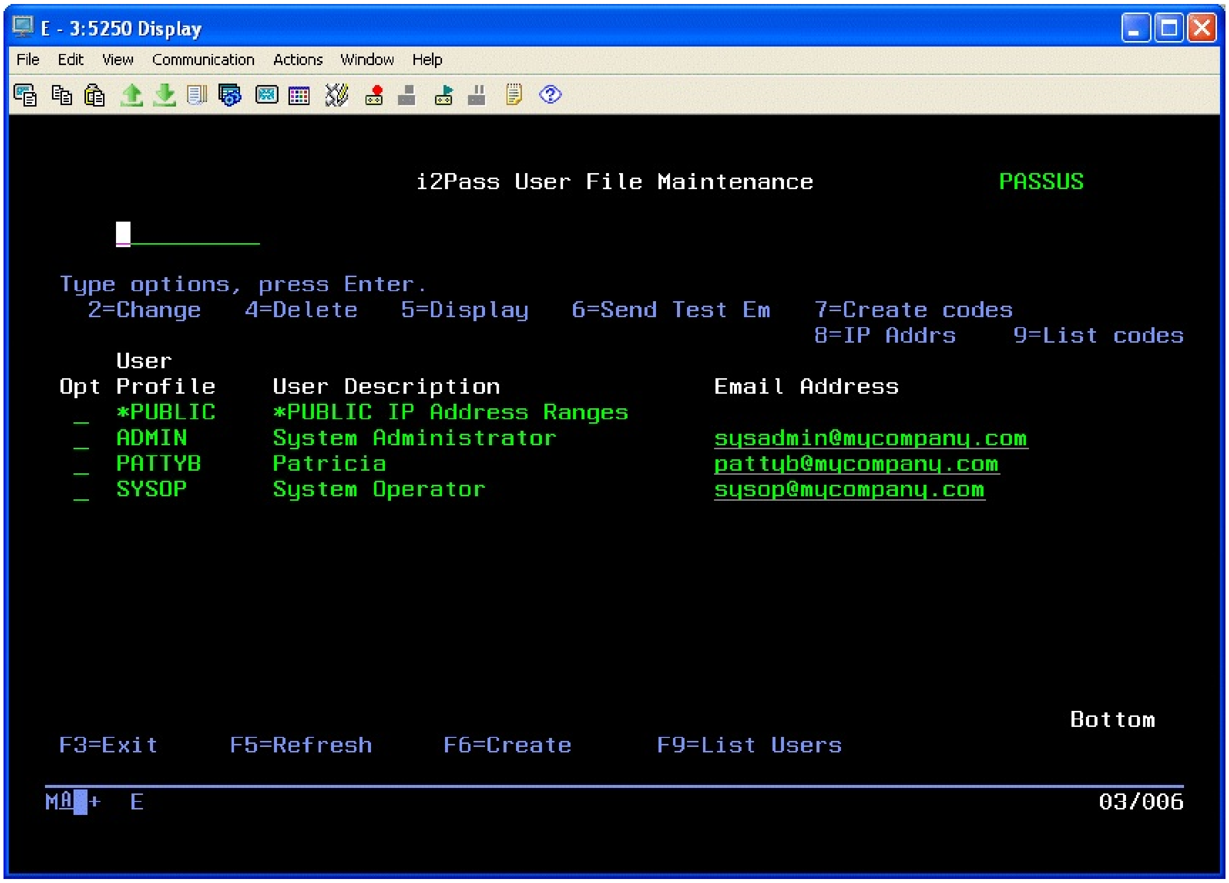
7. Purge i2Pass Log Information — Lets you purge the log activity file.

10. Install Menu — Displays the Install control menu.

The following section of the manual will describe each menu option and its use.

Work With Enrolled User Profiles

Choosing menu option #1, or keying the command WRKPASUSER, will bring up the following display:

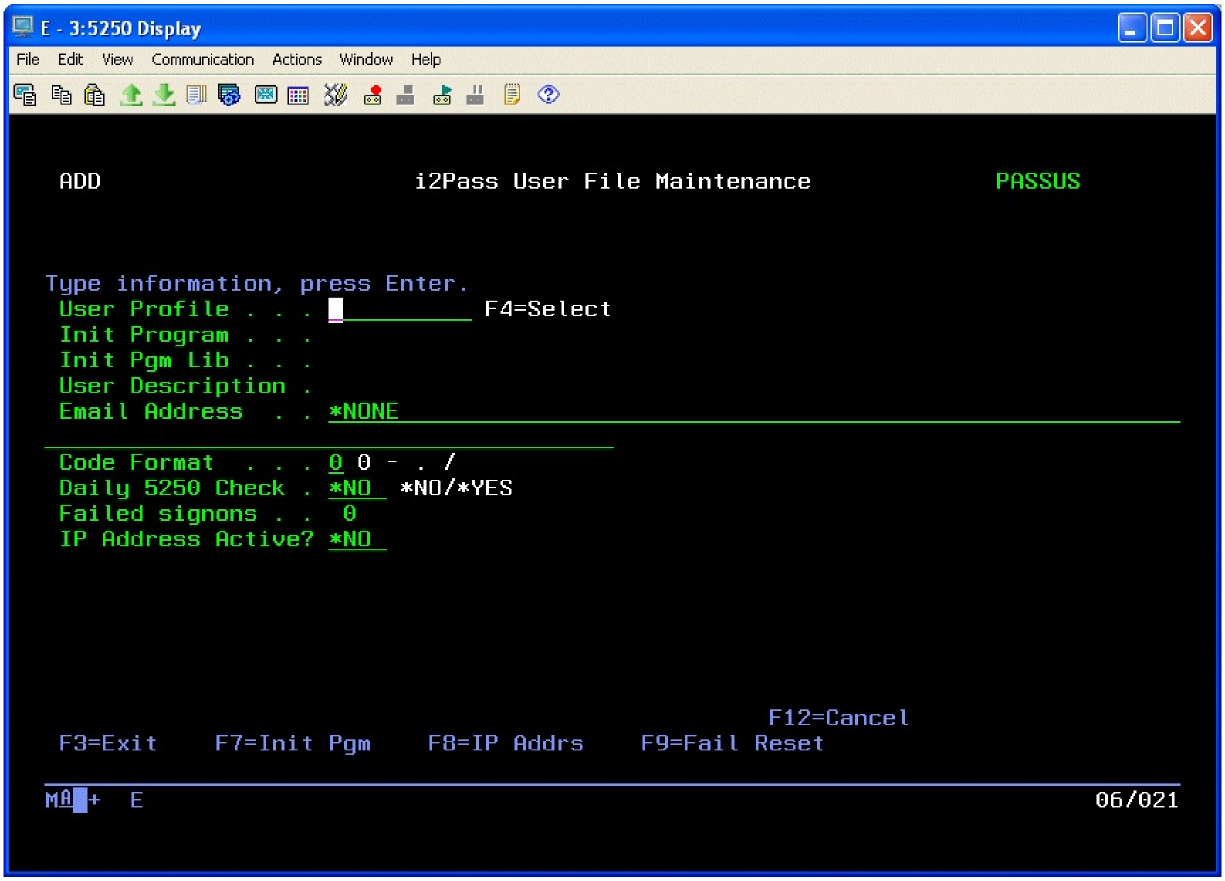


```
                          i2Pass User File Maintenance             PASSUS

      _________

   Type options, press Enter.
     2=Change    4=Delete    5=Display    6=Send Test Em    7=Create codes
                                                            8=IP Addrs    9=List codes
       User
   Opt Profile     User Description               Email Address
       *PUBLIC     *PUBLIC IP Address Ranges
    _  ADMIN       System Administrator           sysadmin@mycompany.com
    _  PATTYB      Patricia                       pattyb@mycompany.com
    _  SYSOP       System Operator                sysop@mycompany.com




                                                                          Bottom
   F3=Exit      F5=Refresh      F6=Create      F9=List Users

  MA +  E                                                                03/006
```

Pressing the F9 function key from this display will generate a listing of the user profiles enrolled in i2Pass. The report will be sent to your session output queue.

From this display, you can enroll new users, display information about current users, generate new codes for existing users, test email addresses and generate code listings for users.

To enroll a new user, use the F6 function key. When you do, the following display will show:



```
 ADD                     i2Pass User File Maintenance            PASSUS


Type information, press Enter.
 User Profile . . . _________  F4=Select
 Init Program . . .
 Init Pgm Lib . . .
 User Description .
 Email Address  . . *NONE

 Code Format  . . . 0 0 - . /
 Daily 5250 Check . *NO   *NO/*YES
 Failed signons . .  0
 IP Address Active? *NO



                                                F12=Cancel
 F3=Exit     F7=Init Pgm    F8=IP Addrs    F9=Fail Reset

MA  + E                                                         06/021
```

Enter the user profile in the first field. If you are not sure, use the F4 selection function to display a list of profiles on your system and you can select one from the list.

When you have entered the user profile, skip down to the Email Address field. If your user will be working from printed listings of two factor authentication codes, leave the email address set to the default value of *NONE. If the user will be receiving their authentication codes dynamically via email, then you must enter their email address here.

Note: You can specify that the authentication code be sent to more than one email address.. i2Pass allows up to three email addresses to be stacked together for notification. The total number of characters for all three addresses plus the separator characters cannot exceed 100 characters.

To stack multiple addresses in the email field, just separated them by a single semi-colon (';') character. Do not add any spaces.

For example, if you want to send the email notification of your second factor authentication code to your email address and to your cell phone, you might code it like this:

myemail@email.com;8005551212@mycellcarrier.com

When you use this method, the second factor notification message will be sent to both locations.

After a user has been registered, the list of user profiles enrolled in i2Pass will be displayed again. To send a test email message, use option 6 next to the user just registered and a test email will be sent. You should confirm with the user that the test is received to validate the email address.

After entering the email address, fill in the following setting as indicated:

Code Format — Controls how the 2FA code is presented to this user. The values that you can choose are:

0 The code will be presented as a 9 digit number, nnnnnnnn

- The code will be presented as 9 digits separated by the hyphen character, nnn-nnn-nnn

. The code will be presented as 9 digits separated by periods, nnn.nnn.nnn

/ The code will be presented as 9 digits separated by the slash character, nnn/nnn/nnn

As originally installed, the zero option will be the default value. If you would like to change the default value, it is in position 415 of the I2CONTROL data area in the I2PLIB application library. You can change the default value using the following command:

```
CHGDTAARA DTAARA(I2PLIB/ISCONTROL (415 1))
          VALUE('.')
```

In this example, the default setting is changed to use the period value. After the default value has been changed, all new users registered will apply this new default value. Existing registered users are not affected. If they need to be changed, you will have to do so using option #1 on the MASTER menu.

Daily 5250 Check — If the DLYCHK setting on the I2PSET command (option 9 on the INSTALL menu) is set to *OPT, this setting will control how daily 2DA checking is done for the registered user. A value of *YES will allow once a day 2FA code processing for this used. *NO will ignore the daily check and always require a 2FA code.

Failed signons — Shows the current number of failed signon attempts for this user profile. This field can be reset to zero during a manual profile reset.

IP Address Active? — Determines whether this user's terminal sign-on sessions will be checked against a list of valid IP addresses established for them.

Choose one of the following:

*NO Terminal sign-on processes will not be checked.

*YES Terminal sign-on processes will be check against a list of valid IP addresses for this user.

If you specify *YES for the IP Address Active setting, you can use the F8 function key here to access and maintain the list of IP Address Ranges for this user profile.

During user registration, if the user profile has an initial program other than *NONE associated with it, that value in the user profile is updated and the current initial program information is stored in i2Pass. During a normal signon process, the initial program called by the IBM OS will be in i2Pass. When the logon has been validated by i2Pass, then their original initial program will be called.

Additional options that you can use from the list of user profiles enrolled are:

2 Change - will let you make changes to a user's email address

4 Delete - lets you remove a user profile that has been enrolled.

5 Display - displays the details of the enrollment for the user

6 Send a test email message to the user's email address

7 Create codes - generates new codes for the user profile. These are authentication codes that can be listed and then used by the user in lieu of depending on email transmission of the authentication codes at signon time.

8 Maintain the list of IP Address ranges allowed for the user profile.

9 List codes - a listing of the user's generated codes is created.

Update Initial Program

When a user profile is registered to i2Pass, the current Initial Program (and Library) is transferred from the user profile in the IBM i OS to a database file in i2Pass. You can now change the Initial Program and Library for a user after it has been registered in i2Pass.

When you have a user profile registered, run option 1 on the MASTER menu and place a 2 (Change) next to it. The next screen will show you how that user is registered, including the Initial Program and Library. To make a change to the Initial Program and Library, press the F7 function key. This will make these fields available for update.

Note, to remove an Initial Program and Library setting, change the Initial Program to *NONE and blank out the Library field.

The next time the user in question accesses your system through i2Pass, the new Initial Program setting will take effect.

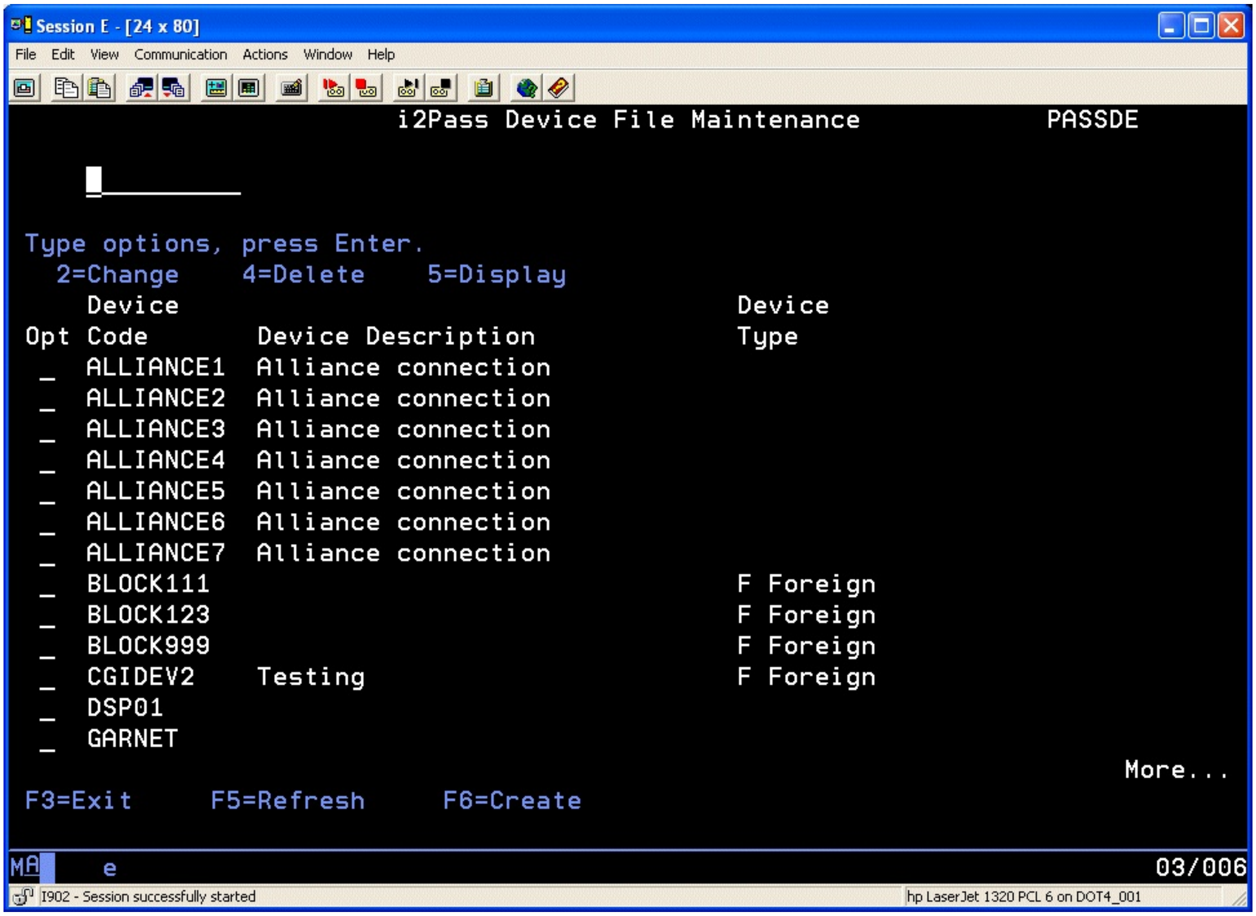
Work With i2Pass Device Information

i2Pass can be configured to recognize specific terminal devices as “foreign”. Foreign devices must use a second authentication factor in order to complete a signon process for an enrolled user profile. That code can either be provided dynamically via email at the time of the signon or can be selected from a listing of pre-generated authentication codes.

i2Pass considers all device names that start with QPADEVxxxx as foreign device names.

i2Pass includes an option on the INSTALL menu for registering all terminal device names automatically. Please see the documentation for the INSTALL menu for details on how to run this option.

To maintain the list of terminal devices, run option #2 on the MASTER menu. The following will be displayed:



```
                         i2Pass Device File Maintenance            PASSDE

    __________

 Type options, press Enter.
   2=Change    4=Delete    5=Display
    Device                                    Device
 Opt Code       Device Description            Type
  _  ALLIANCE1  Alliance connection
  _  ALLIANCE2  Alliance connection
  _  ALLIANCE3  Alliance connection
  _  ALLIANCE4  Alliance connection
  _  ALLIANCE5  Alliance connection
  _  ALLIANCE6  Alliance connection
  _  ALLIANCE7  Alliance connection
  _  BLOCK111                                 F Foreign
  _  BLOCK123                                 F Foreign
  _  BLOCK999                                 F Foreign
  _  CGIDEV2    Testing                       F Foreign
  _  DSP01
  _  GARNET
                                                                 More...
 F3=Exit     F5=Refresh     F6=Create

MA    e                                                          03/006
I902 - Session successfully started          hp LaserJet 1320 PCL 6 on DOT4_001
```

From this list, you can flag any device as a foreign terminal device. Place a 2 next to the device description and change the device type to F. When a user profile that has been enrolled in i2Pass attempts to sign on from a foreign device, a second authentication code will be required after the user id’s regular password has been authenticated by the IBM OS.

Note: Kisco recommends that you NOT implement i2Pass on the device that is used as your system console.

From this list, you can also remove devices using option 4 or create new device entries using the F6 option.

Alternate Signon Screen

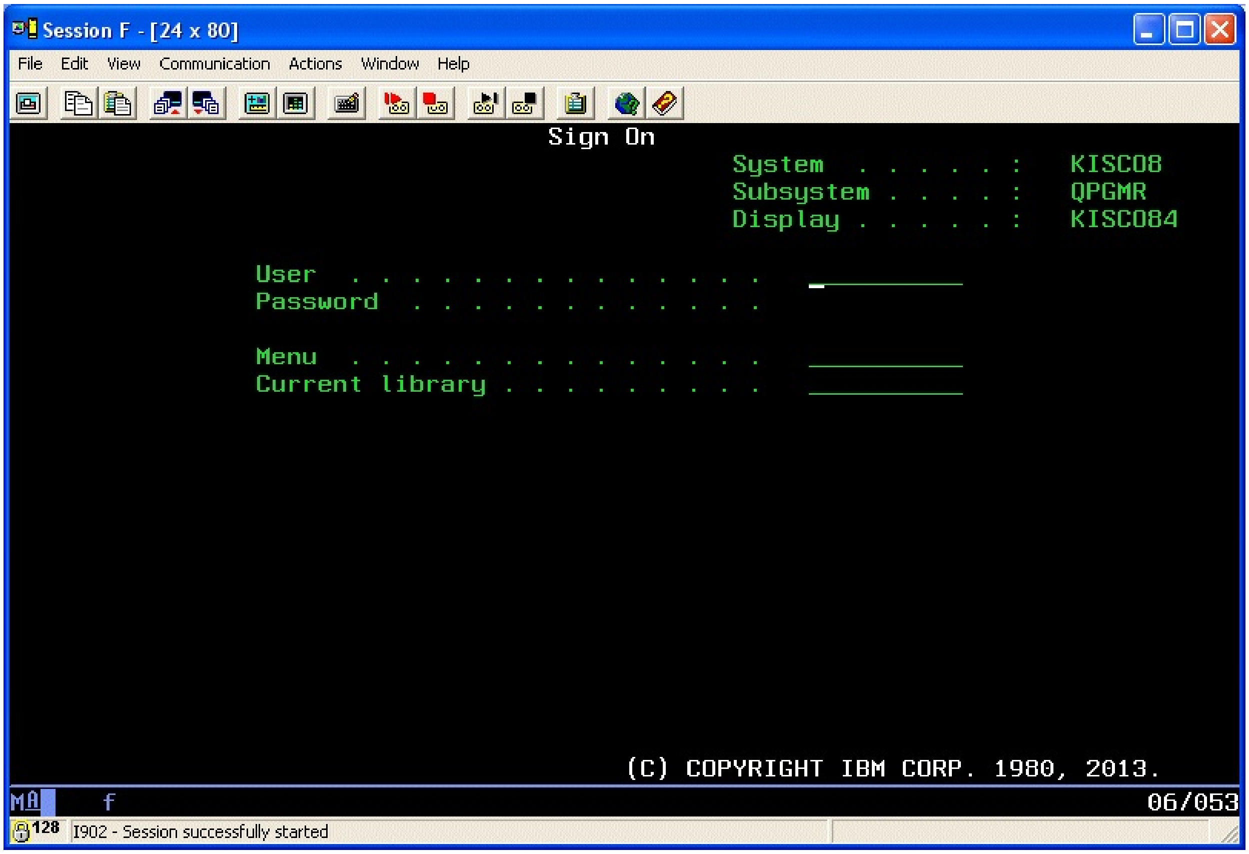
A savvy user on your system could be enrolled in i2Pass and then, by a trick done during the logon process, bypass the i2Pass requirement for a 2FA code validation.

If you are familiar with the IBM i 5250 signon screen, it typically includes the following lines for most IBM i systems:

```
User  . . . . . . . . . . . . . .  __________
Password  . . . . . . . . . . . .
Program/procedure . . . . . . . .  __________
Menu  . . . . . . . . . . . . . .  __________
Current library . . . . . . . . .  __________
```

An educated user could sign on using their normal user profile and password and then, in the "Program/procedure" field, type in the value 'QCMD' with the result that i2Pass processing is bypassed and the user gains direct access to your system with a command line being displayed.

To correct for this, it is a simple matter to replace the standard signon screen with a custom screen that removes the "Program/procedure" field from being available for use. When this change is made, the familiar signon screen will look like this:



```
                                  Sign On
                                             System  . . . . . :   KISC08
                                             Subsystem . . . . :   QPGMR
                                             Display . . . . . :   KISC084

                 User  . . . . . . . . . . . . . .    __________
                 Password  . . . . . . . . . . . .

                 Menu  . . . . . . . . . . . . . .    __________
                 Current library . . . . . . . . .    __________

                                       (C) COPYRIGHT IBM CORP. 1980, 2013.
MA     f                                                                 06/053
```

128 I902 - Session successfully started

If your system already has a customized signon screen, stop reading now and contact your system administrator to arrange for the "Program/procedure" field to be removed.

If, however, you are still using the standard signon screen that came with your system, we have now provided an alternate to it packaged with i2Pass. The signon screen is named QDSIGNON (if you are using long passwords, the screen is named QDSIGNON2) and is located in the system QSYS library. We have these two *FILE objects now included in the I2PLIB application library for i2Pass. The source code for both of these screens is also now included in a source file named QDDSSRC, also in the I2PLIB library. The screens have been tested for IBM i OS level 6.1 and 7.2 and we anticipate that they will also work with other active IBM i OS release levels.

Installing the Alternate Signon Screen

***** WARNING *** WARNING *** WARNING *** WARNING *** WARNING *****

Changing the signon screen specification can result in your users, including you, from being able to log on to your system effectively locking you out of your system. Implementation of this should be fully tested at a time when there are no active users on your system.

You should not make this change if you are still just evaluating i2Pass. If you later decide not to purchase i2Pass and remove our library from your system, you could create a situation where your users are locked out of the system.

The signon screen specification is stored in the subsystem description for any interactive subsystem on your system. For most systems, this is the QINTER subsystem. Some systems may also use the QPGMR subsystem for interactive work.

DO NOT IMPLEMENT THE ALTERNATE SIGNON SCREEN FOR THE QCTL SUBSYSTEM, this will guarantee that your system console will always be available.

To implement the alternate signon screen, do the following steps which will include the recommended testing process. This example will use the QINTER subsystem, but it can be followed for any interactive subsystem that you need to change.

1. Sign on to your system console as QSECOFR. Verify that this terminal session is running in the QCTL subsystem.

2. Check and make sure that no users are signed on using the interactive subsystem that you want to change.

3. End the subsystem to be changed.

4. Run the following command:

   ```
   CHGSBSD SBSD(QINTER) SGNDSPF(I2PLIB/QDSIGNON)
   ```

   If your system is configured for long passwords (system value QPWDLVL value of 2 or 3), then use the following command instead:

   ```
   CHGSBSD SBSD(QINTER) SGNDSPF(I2PLIB/QDSIGNON2)
   ```

5. Start the subsystem back up using the STRSBS command.

6. Start a terminal session. Confirm by observation that the new logon screen is active. Then, perform a log on and make sure that you get to the logon destination that you would normally see.

7. If step #6 completes normally, then you can resume normal processing.

8. If step #6 reveals any problem, the recovery is as follows:

   a. From the system console, end the subsystem again.

   b. Run the following command to restore the system signon screen that was previously in use:

      ```
      CHGSBSD SBSD(QINTER) SGNDSPF(QSYS/QDSIGNON)
      ```

   c. Restart the subsystem and check to make sure that the signon process is now working correctly again.

If you have any questions about this process, feel free to contact us at Kisco Information Systems with your questions or concerns.

List Codes for User Profile

Option #3 on the MASTER menu will let you generate a listing of pre-generated codes for a user profile. This will prompt the LSTPASWRDS command and will ask for the user profile to be listed. An option on the prompt will let you also list passwords that have already been used for the profile.

Display i2Pass Log Information

i2Pass logs all activity to a log file. You can display or print this information by selecting option #6 from the menu or by using the DSPPASLOG command. You are initially prompted for which entries you want displayed. The options are:

*TODAY	The initial display will show entries from the current date. This is the default.
*PRVDAY	The initial display will show entries from the previous day.
YYYYMMDD	Entries from the specific date will be shown.

Details will be shown for events.

From this display, there are two function keys that you can use to create a listing of the log information. F6 will create a listing of the information in sequence by date and time. The F8 key will create the listing in sequence by user, date and time.

Purge i2Pass Log Information

As you use i2Pass, the log file will begin to get quite large. A purge function is provided to let you remove records from the log file. To purge the log file, choose menu option #10 or use the PRGPASLOG command. When you start the purge, it will ask you for a specific purge date in the format YYYYMMDD or a second parameter can be used to indicate the number of days to keep activity on file. One or the other parameter must be used.

Note: Once records are removed from the log file, they are no longer available for display or reporting purposes. Be sure to run any reports you may want to keep before you run a purge of the log file.

IP Address Controls for Terminal Sessions

i2Pass includes an optional feature that will let you establish access controls for 5250 terminal sessions by the IP address that the session is coming from. This feature can be activated for individual user profiles to specify a range of IP addresses that the user is allowed to connect to your system from. There is also a feature that lets you establish a range of IP addresses that can apply to all users who have IP address checking activated.

When first installed or when you first upgrade to Release 2 of i2Pass,this feature is turned off on a global basis. You should consider running your system for a little while with the featured turned off so that you can collect the IP addresses currently being used. This information will appear in the i2Pass Log (option #6 on the MASTER menu) once users have been enrolled and start using i2Pass.

To turn the feature on and start using it, you will have to update the setting that activates the feature using option #9 on the INSTALL menu. Check the parameter setting that shows as follows:

```
     IP Addr Checking Active? . . . . > *NO
```

Change this value to *YES. Once this change has been made, then any user that is registered to i2Pass with the IP Address checking feature active will be subject to this test before a terminal session can be established. Note that this test is done before any 2FA activity takes place.

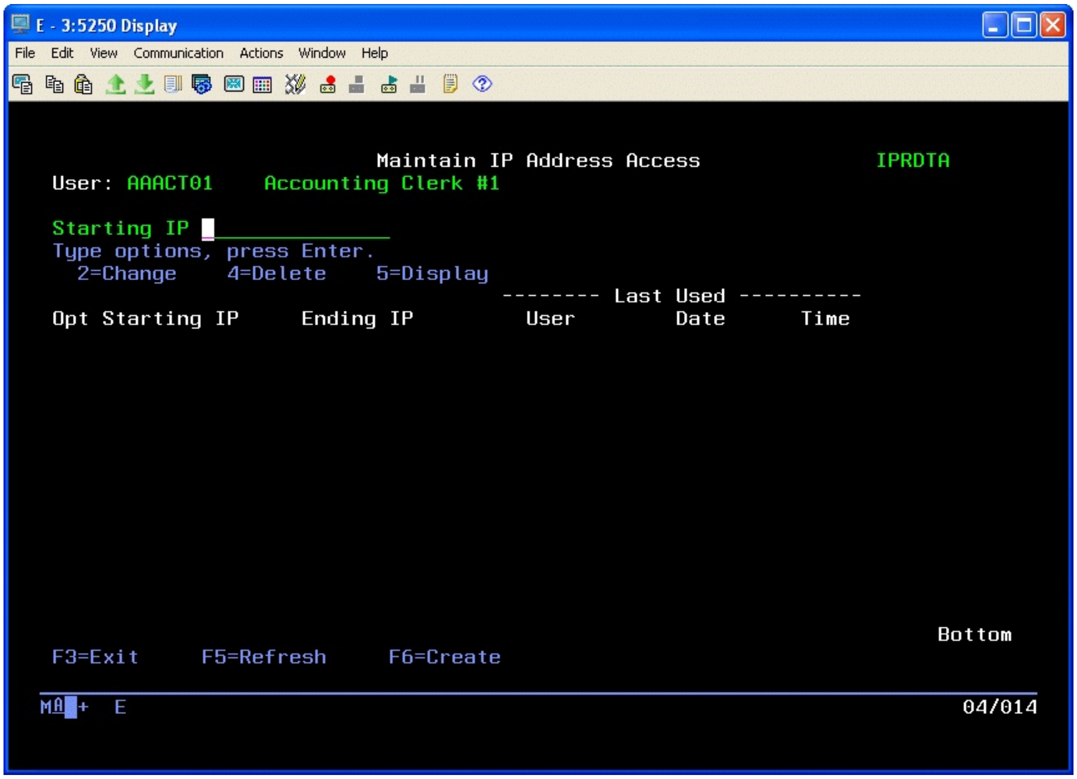
To restrict a user to a specific IP address or a range of IP addresses, start menu option #1 on the MASTER menu. Locate the user in question and place a 2 next to their registration listing to update the settings for the user profile. When the detail screen is displayed, find the setting marked as follows:

```
     IP Address Active? *NO
```

Change the setting to *YES.

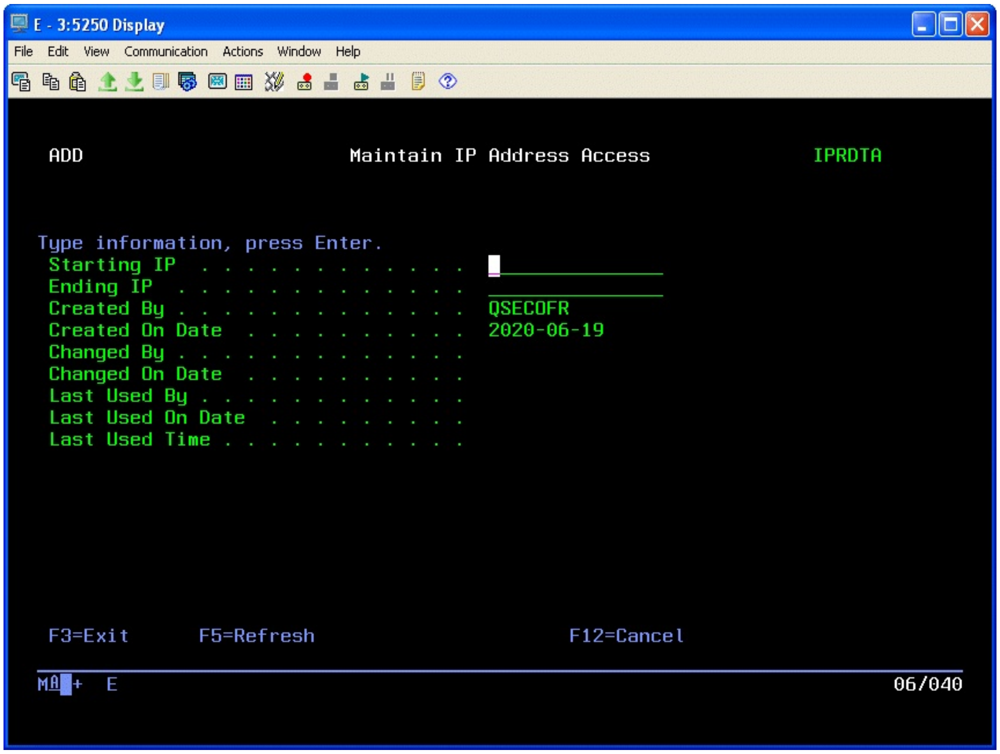
After this change has been recorded, you will need to define an IP address or range of IP addresses that the user can use to access your system.

Locate the user in the list of registered users and place an 8 next to their user profile. The following display will appear:



```
                            Maintain IP Address Access              IPRDTA
User: AAACT01    Accounting Clerk #1

Starting IP  ______________
Type options, press Enter.
  2=Change     4=Delete     5=Display
                                    -------- Last Used ----------
Opt Starting IP      Ending IP          User        Date       Time










                                                                    Bottom
F3=Exit      F5=Refresh      F6=Create

MA + E                                                           04/014
```

To add an IP address range, press the F6 key and the following screen will be displayed:



```
 ADD                          Maintain IP Address Access            IPRDTA


Type information, press Enter.
 Starting IP  . . . . . . . . . . . .    ______________
 Ending IP  . . . . . . . . . . . . .    ______________
 Created By . . . . . . . . . . . . .    QSECOFR
 Created On Date  . . . . . . . . . .    2020-06-19
 Changed By . . . . . . . . . . . . .
 Changed On Date  . . . . . . . . . .
 Last Used By . . . . . . . . . . . .
 Last Used On Date  . . . . . . . . .
 Last Used Time . . . . . . . . . . .







 F3=Exit      F5=Refresh                      F12=Cancel

MA + E                                                        06/040
```

Enter a range of IP addresses in the form of nnn.nnn.nnn.nnn. For example, you could define a range of 10.1.1.1 to 10.1.1.25. If you want to define a single specific IP address, put the same IP address for both the starting and ending IP address. Press ENTER to record the IP address range. If you will need additional IP address ranges, you can enter them now.

The “Last Used By” and “Last Used On Date/Time” refer to the last time that this IP Address range record was used to allow a user sign-on process.

In your list of registered users, you will see an entry for a profile named *PUBLIC. This is not an actual user profile and the entry cannot be updated, but you can place an 8 next to it an authorize IP addresses. When you do, these IP address ranges will be used for all users who have the IP address checking feature activated. Using this method, you can specify one range of IP addresses for all users and then only specify unique addresses for individual user profiles.

Custom Application Security

i2Pass lets you use two factor authentication functions from within your own application programs. This will allow you to implement single-use, self-expiring authentication controls in your own applications.

This feature is implemented through the use two APIs included with i2Pass.

PASGENA	Generates a single two factor authentication code and sends it as email to the registered user and sets a return code
PASCHKA	Validates the user profile and two factor authentication code provided and sets a return code with results

You can call these two APIs from within your own programs. Details on each API follow.

PASGENA API

The PASGENA API can be used to issue a single use two factor authentication code and return the code to the calling program. The API has three parameters as follows

Parameter	**Type**	**Length**	**Description**
User Profile	Input	10	This is the user profile for which you want to generate the authentication code. The user must be registered to i2Pass with a valid email address provided.
Code	Output	9	This is the nine digit two factor authentication code generated from the call to the API
Return Code	Output	2	This is a two digit code that reports the results of the call to the API. Values returned are as follows: 00 - Code generated and emailed 01 - User not enrolled in i2Pass 02 - No email address on file for user 03 - User profile not valid on this system

When the return code is 00, a valid code has been generated and sent as email. The code will expire in 15 minutes. The PASGENA API is stored in the I2PLIB library.

PASCHKA API

The PASCHKA API can be used to validate a two factor authentication code for a specific user profile. It will issue a return code with the results of the authentication. There are four parameters used with this API as follows:

Parameter	**Type**	**Length**	**Description**
User Profile	Input	10	Provide the user profile for which the authentication code will be validated.
Code	Input	9	Provide the two factor authentication code you want to validate for the given user profile.
Call Type	Inpu	1	Must be coded with the value 'A' - indicates an API use of the validation process.
Return Code	Output	2	This is a two digit code that reports the results of the call to the API. Values returned are as follows: 00 - Code is OK and its use has been logged 01 - User/code not found 02 - User/code already used 03 - Code is expired

If the code returned is 00, then the combination of the user profile and the code provided were valid. The API will retired the code so that it cannot be used again and the validation process will be logged in the activity log.

Installation and Configuration

Before any i2Pass functions will work, the initial install procedure must be run. i2Pass can be installed from media received with a shipment from Kisco Information Systems or from a download file obtained from the Internet. If you received a direct shipment from Kisco, use the *Installation from Media* instructions. If you downloaded a file from the Internet, use the *Installation from Internet* instructions. Both follow.

Installation from Media

You can install i2Pass by following these easy instructions:

1. Sign on using the QSECOFR id.

2. Place the installation CD in your system and key the following command:

   ```
   LODRUN DEV(xxxx)
   ```

   where xxxx is the name of your CD drive. The installation objects are all in the root directory ('/') for the CD path.

3. During installation, i2Pass does the following:

   - Checks to see if this is a new install or an update install.
   - For update installs, the old i2Pass program library is saved in library I2PLIBOLD and history information is transferred to the newly installed library.
   - For new installs, the software is initialized for the free 30 days trial period.
   - Creates a special user profile named I2PASSUSR. This profile will be created with no password and in disabled status
   - Creates an authorization list named I2PASSAUT which will be used for security purposes for object in the application library
   - Additional documentation is printed which covers topics that have been added or changed since the user documentation manual was last printed.

4. When the command finishes, the i2Pass Master Menu will be displayed.

When the procedure finishes, your copy of i2Pass will be successfully installed for your thirty day trial period. At the end of the trial period, i2Pass will cease functioning until either an extension password or a permanent password is entered. The additional documentation printed during the installation covers features and functions that have been added or changed since your copy of the manual was printed. Before using i2Pass, please review this manual and the additional documentation in detail.

If you upgraded from an earlier release of i2Pass, you may delete the library named I2PLIBOLD created during the installation after you are certain that the new release is working to your satisfaction.

Installation from Internet

For installations from the Internet download, a URL at the Kisco website will be provided with detailed instructions. This will be available from the following website for i2Pass:

http://www.kisc.com/i2p

Follow the instructions from the Download page. We recommend that you print these instructions and use them as a check list for best results. The software download from the website is standard ISO CD image file. On most PCs with CD burning software, the ISO image file can be used to create an installable CD using the instructions on the previous page.

Configuration Considerations

Once the software has been installed, additional configuration considerations should be taken into account as follows:

1. The current display devices for your system must be identified to i2Pass so that correct context can be determined. Additional information for this is in the user's guide, including a tool for initializing device information on the INSTALL menu in the following section.

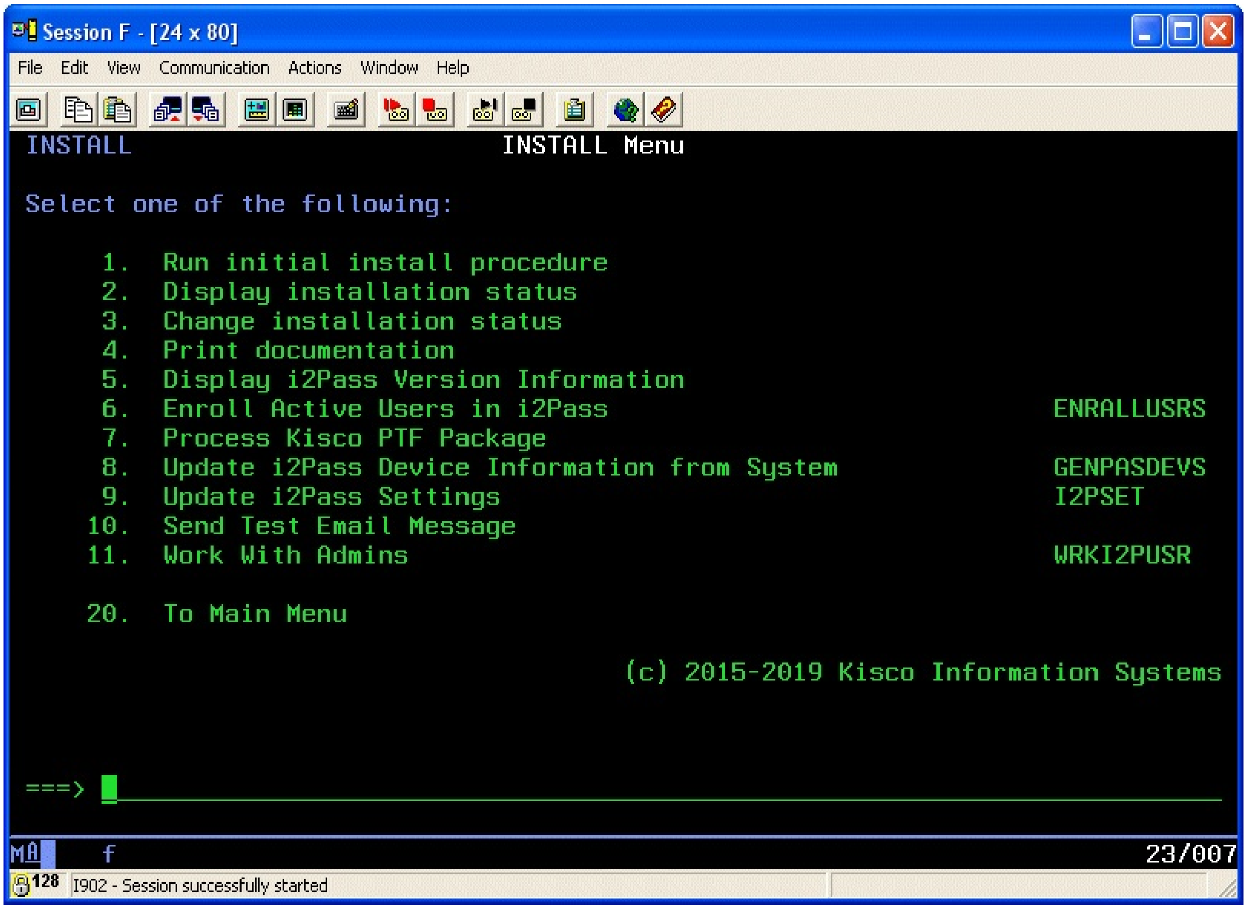
2. User profiles will also have to be enrolled in i2Pass. Only those user profiles that will actually use Telnet signon should be enrolled. If all of your users will be using Telnet, there is another tool on the INSTALL menu to enroll all users at once. Users who may need to be validated from the APIs provided must also be enrolled.

3. i2Pass issues security alert notification messages to up to 10 user profiles. The default user profile QSECOFR is initially assumed by the software. An option on the INSTALL menu will let you add more user profiles to the list. You can also register email addresses for notifications.

4. i2Pass relies on email for notification of codes generated and for activity violation attempts. **Before you use the software**, you should go to the INSTALL menu and run option #10 to send a test email to a valid email address. If the email gets delivered, great, you can proceed with your implementation. If the email does not get delivered, you will have to see why it is failing. This can frequently be determined by checking the joblog from the session where the test message has been sent (DSPJOBLOG). If you need help with this, contact Kisco support staff.

The Install Menu

When you select item 10 from the main menu, the installation menu is displayed as follows:



```
INSTALL                           INSTALL Menu

Select one of the following:

     1.  Run initial install procedure
     2.  Display installation status
     3.  Change installation status
     4.  Print documentation
     5.  Display i2Pass Version Information
     6.  Enroll Active Users in i2Pass                         ENRALLUSRS
     7.  Process Kisco PTF Package
     8.  Update i2Pass Device Information from System          GENPASDEVS
     9.  Update i2Pass Settings                                I2PSET
    10.  Send Test Email Message
    11.  Work With Admins                                      WRKI2PUSR

    20.  To Main Menu

                                        (c) 2015-2019 Kisco Information Systems



===> _____________________________________________________________________

MA     f                                                              23/007
128  I902 - Session successfully started
```

Menu items perform the following functions. Each function is discussed in greater detail later in this document:

1. Run initial install procedure - Do not use this option unless directed to do so by Kisco Support staff. This option is automatically run during normal install processing.

2. Display installation status - Displays a screen showing the current installation status for the software.

3. Change installation status - Displays the current software installation status and allows for changes to be made.

4. Print documentation - Prints this documentation manual to the default print device.

5. Display i2Pass Version Information - Displays the current version and PTF information about your installed version of i2Pass.

6. Enroll Active Users in i2Pass — Lets you enroll an individual user profile, a set of GENERIC* user profiles or all user profiles on your sytstem.

7. Process Kisco PTF package - Allows you to process a corrective PTF package received from Kisco for program fixes.

8. Update I2Pass Device Information from System — Automatically analyzes the device information for your system and creates the initial file for all known display devices.

9. Update i2Pass Settings — Sets and updates values used by i2Pass.

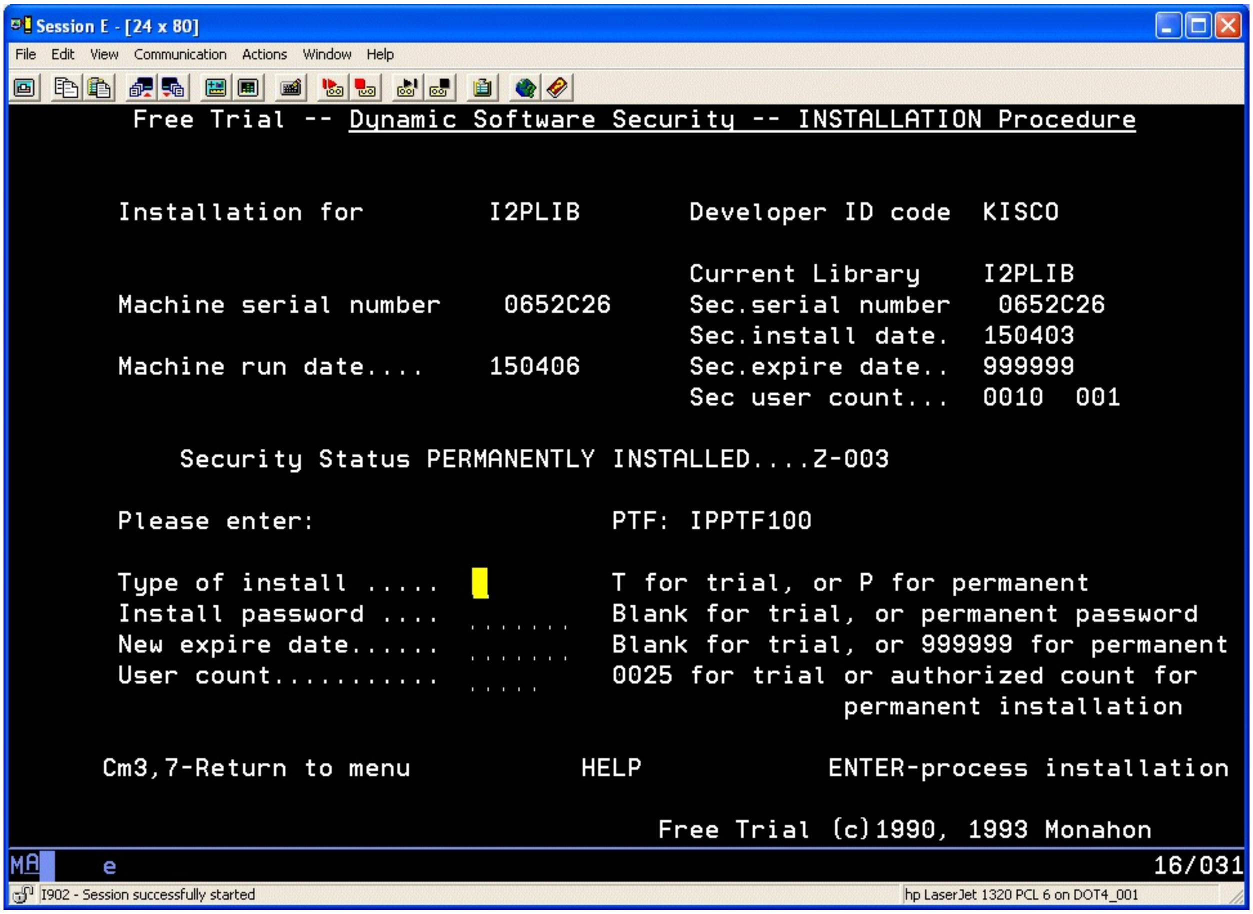
10. Send Test Email Message — Sends a test email message to any email address. This must be done immediately following installation to make sure that your email transmission process works correctly with your current system configuration.

11. Work With Admins — Lets you define the user profiles that can administer the i2Pass software product.

20. To Main Menu - Will display the i2Pass main menu.

Display installation status

At any time, you can check the current installation status of your copy of i2Pass by selecting this menu option. You must be signed on with security authority of QSECOFR or equivalent. The following screen will be displayed:


Session E - [24 x 80]
File Edit View Communication Actions Window Help
I902 - Session successfully started
hp LaserJet 1320 PCL 6 on DOT4_001

```
        Free Trial -- Dynamic Software Security -- INSTALLATION Procedure


       Installation for        I2PLIB       Developer ID code  KISCO

                                            Current Library    I2PLIB
       Machine serial number    0652C26     Sec.serial number   0652C26
                                            Sec.install date.  150403
       Machine run date....    150406       Sec.expire date..  999999
                                            Sec user count...  0010  001

           Security Status PERMANENTLY INSTALLED....Z-003

       Please enter:                   PTF: IPPTF100

       Type of install .....           T for trial, or P for permanent
       Install password ....  .......  Blank for trial, or permanent password
       New expire date......  .......  Blank for trial, or 999999 for permanent
       User count...........  .....    0025 for trial or authorized count for
                                                      permanent installation

      Cm3,7-Return to menu          HELP           ENTER-process installation

                                          Free Trial (c)1990, 1993 Monahon
MA    e                                                                16/031
```

The message at the center of the screen indicates your current installation status. You should also check the Sec.expire date for an expired trial period. i2Pass may still show as installed on a trial basis but, if the trial is expired, it will no longer function.

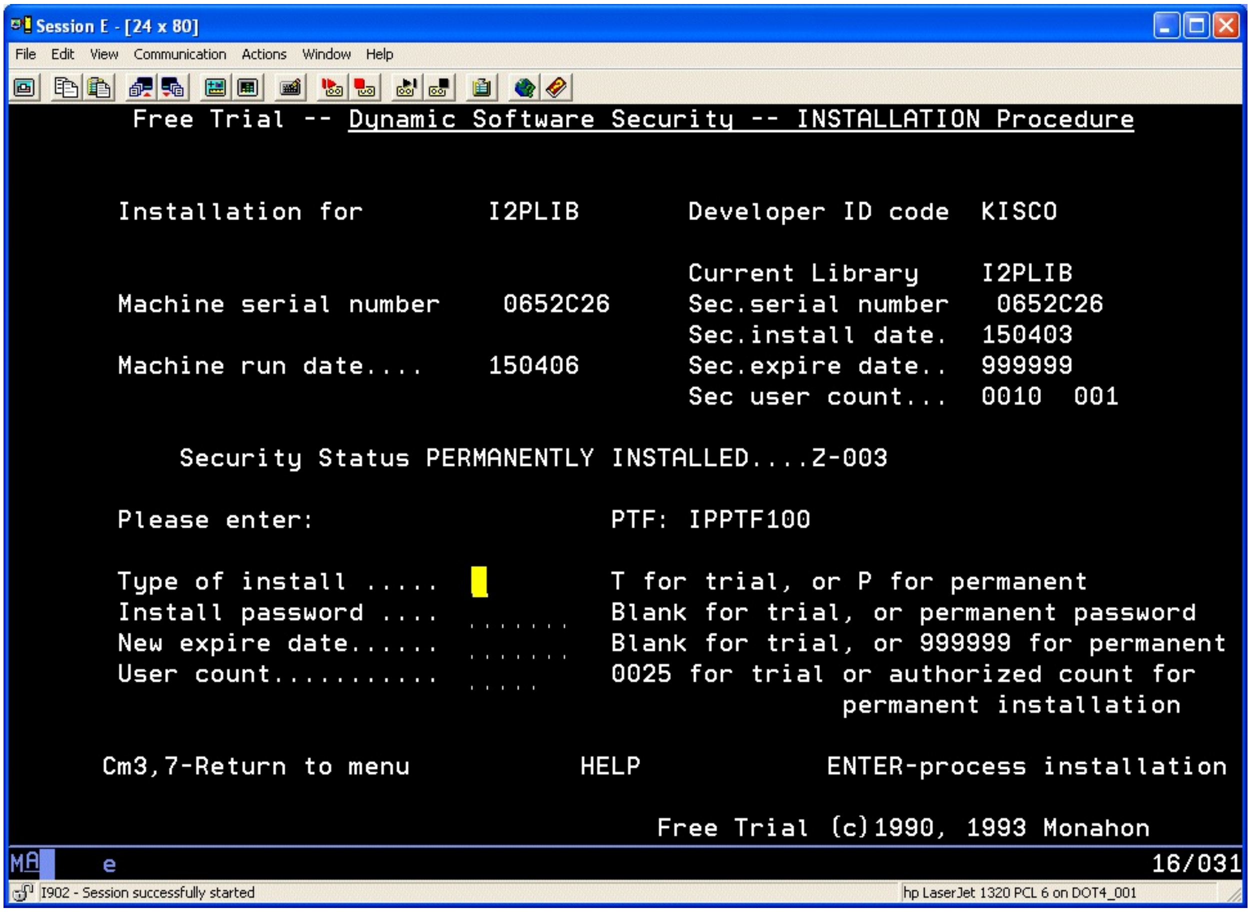
The following are the possible status messages that can appear on this display:

Message	Explanation
Z-001 NOT INSTALLED	Trial installation not started
Z-002 TRIAL EXPIRED	Trial period has ended
Z-003 PERMANENTLY INSTALLED	Software is permanently installed
Z-004 INSTALLED ON TRIAL	Software is installed on trial
Z-005 PASSWORD NOT ACCEPTED	Password keyed is not valid
Z-006 WRONG LIBRARY	Programs must run from our library
Z-007 PLEASE RUN TRIAL INSTALL	Must have trial install before perm.
Z-008 INVALID INSTALL REQUEST	Must be P or T

Z-009 INVALID SECURITY (REC#6)	Call Kisco
Z-010 INVALID SECURITY (NO ZZ)	Call Kisco
Z-011 INVALID SECURITY (HASH.)	Call Kisco

Change installation status

To make changes to your installation status, use this menu option. The changes processed can include both a trial period extension and permanent installation. You must be signed on with QSECOFR security authority or equivalent. When you select this option, the following screen is displayed:



```
        Free Trial -- Dynamic Software Security -- INSTALLATION Procedure


       Installation for        I2PLIB       Developer ID code  KISCO

                                            Current Library    I2PLIB
       Machine serial number    0652C26     Sec.serial number   0652C26
                                            Sec.install date.  150403
       Machine run date....    150406       Sec.expire date..  999999
                                            Sec user count...  0010  001

           Security Status PERMANENTLY INSTALLED....Z-003

       Please enter:                   PTF: IPPTF100

       Type of install .....           T for trial, or P for permanent
       Install password ....           Blank for trial, or permanent password
       New expire date......           Blank for trial, or 999999 for permanent
       User count...........           0025 for trial or authorized count for
                                                      permanent installation

      Cm3,7-Return to menu          HELP            ENTER-process installation

                                          Free Trial (c)1990, 1993 Monahon
MA     e                                                                 16/031
```

I902 - Session successfully started

hp LaserJet 1320 PCL 6 on DOT4_001

Trial extension

To extend a trial period, contact Kisco Information Systems and request an extension. We will provide you with an extension password and new expiration date. On the above screen, enter the following:

Type of install	Enter 'T' for trial
Install password	Enter all six digits of the extension password provided, including any leading zeros
New expire date	Enter the new expiration date in the format YYMMDD (ie: Jan 12, 1998 would be 980112)
User count	Enter the user count that your copy of i2Pass will be authorized for.

When the parameter fields have been completed, press enter to reactivate your software.

Permanent installation

To permanently install your software package, use the permanent password provided by Kisco Information Systems following receipt of payment. On the above screen, enter the following:

Type of install	Enter 'P' for permanent
Install password	Enter all six digits of the extension password provided, including any leading zeros
New expire date	Enter all 9's (ie: 999999)
User count	Enter the user count that your copy of i2Pass will be authorized for.

When the parameter fields have been completed, press enter. Your software is now permanently installed.

Print additional documentation

At any time, you can reproduce the additional documentation by using this menu option. A full copy of the additional documentation topics will be printed.

Enroll Active User Profiles

You can use this option to enroll all user profiles in i2Pass. This is only recommended for those shops where all or most users will be using the Telnet connection.

Note: This option will enroll the user profiles, but will not record an email address for each user. If your users plan to work from printed codes, this will work just fine. If, however, your users will want to receive their authentication codes by email, then option #1 on the MASTER menu will have to be used to store and test an email address for each user profile registered.

Process Kisco PTF Package

i2Pass supports distribution of program updates remotely via the Internet. When programs in i2Pass are updated or program fixes are required, Kisco Information Systems can send the updates directly to you via the Internet. If needed, we will send E-mail to you with an attached PC file. This file, when loaded into a folder on your system, can be used to post program updates and changes to your copy of i2Pass.

When you receive a PTF update package from Kisco, you will be given an eight character PTF Package Name. To load and apply the PTF to your system, follow these steps:

Step# Instructions

1. Create a folder on your system named KISCO. You can do this with the following command:

   ```
   CRTFLR FLR(KISCO)
   ```

   Note: If you have received other PTFs from Kisco in the past, this folder may already exist on your system. There is no need to re-create it again at this point.

2. From a PC that is attached to your system, move the PTF Package file that you received from Kisco into this folder. From a PC client, you can simply use a copy function to accomplish this. A command similar to the following should work:

   copy c:\{**ptfname**} I:\qdls\kisco

   where **ptfname** is the PTF Package name assigned to the file.

3. Sign on to any terminal or terminal session as QSECOFR.

4. Make sure that no i2Pass functions are in use and that no users are logged into any i2Pass menu.

5. Type the following command:

   ```
   I2PLIB/KISPTF
   ```

   and press the F4 prompt key. You can also choose option #7 from the INSTALL menu.

6. The command will prompt for two values. The first is the name of the i2Pass application library and should not be changed. The second command must contain the eight character name of the PTF Package File. When both parameters are set, press ENTER and the PTFs will be loaded and applied to your copy of i2Pass.

7. All Kisco PTFs are loaded so that the prior version of any program objects is saved. This will allow for the effects of a PTF to be reversed at a later time should a defect be identified in the PTF. This can only be done via direct instruction from a Kisco support representative.

During the PTF installation process, two printouts are created. One of these will be the PTF Cover Letter Documentation; the other is an update of the additional documentation topics for all i2Pass changes. Kisco recommends that you read both before starting to use i2Pass again.

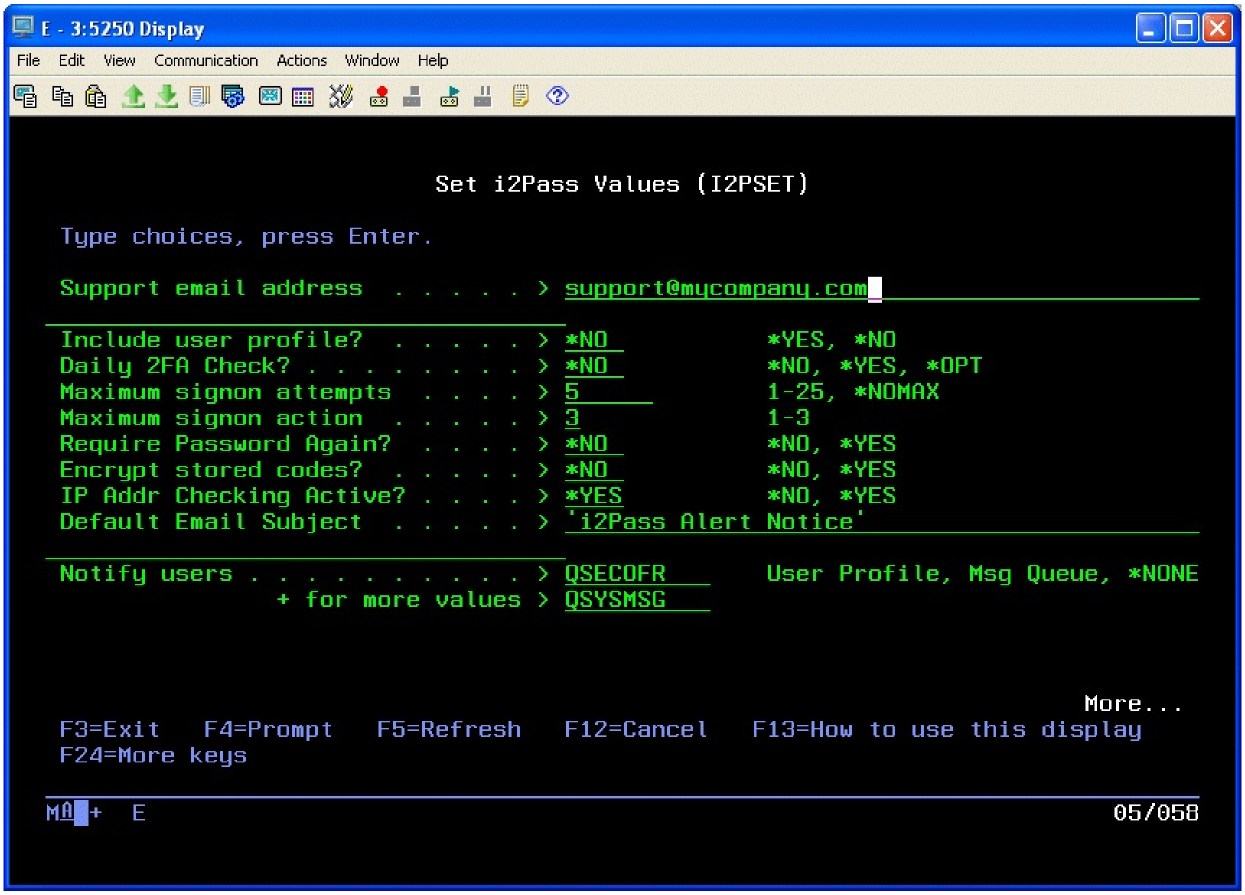
Update I2Pass Device Information

i2Pass determines signon context based on a list of terminal devices maintained within i2Pass. After initially loading the software, you can run this option from the INSTALL menu to populate the list with all known terminal devices. Once the list has been initialized, you can use the menu options to review and maintain the list.

You can also run this option at any time after the initial use. Any new terminal devices will be added to the table while existing device records will be left as they currently appear.

Update i2Pass Settings

Option #9 on the INSTALL menu lets you maintain certain global settings for i2Pass. When you start this option, the following will be shown:



```
                        Set i2Pass Values (I2PSET)

 Type choices, press Enter.

 Support email address  . . . . . > support@mycompany.com

 Include user profile?  . . . . . > *NO            *YES, *NO
 Daily 2FA Check? . . . . . . . . > *NO            *NO, *YES, *OPT
 Maximum signon attempts  . . . . > 5              1-25, *NOMAX
 Maximum signon action  . . . . . > 3              1-3
 Require Password Again?  . . . . > *NO            *NO, *YES
 Encrypt stored codes?  . . . . . > *NO            *NO, *YES
 IP Addr Checking Active? . . . . > *YES           *NO, *YES
 Default Email Subject  . . . . . > 'i2Pass Alert Notice'

 Notify users . . . . . . . . . . > QSECOFR        User Profile, Msg Queue, *NONE
                + for more values > QSYSMSG



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

MA + E                                                                   05/058
```

Enter the values as follows:

Support email address	Enter a valid email address. This will be used by i2Pass as the sender's email for all notification email messages.
Include user profile?	Lets you specify that the notification as email message that contains the second authentication factor exclude the user profile in the message text. Some customers may prefer to not include both the user profile and the authentication factor in the same message.

Choose one of these options:

*YES The user profile will be included with the authentication code email message.
*NO The authentication code will be sent without

the user profile in the message.

Daily 2FA Check?

This is a global specification on how you want to control repeated 5250 signon processes for a user profile using the same terminal address.

Choose one of these options:

*NO Each time a user signs on with a 5250 terminal, a 2FA code will be sent.

*YES The first time a user signs on with a 5250 terminal each day, a 2FA code will be sent. Subsequent signons from the same terminal session will not require a 2FA code.

*OPT Checking for once a day signon priviledges will be determined at the user registration level.

Maximum signon attempts

This is the number of signon attempts that will be allowed before an action is taken on the system to stop logon processing.

Choose one of these options:

*NOMAX Indicates that an unlimited number of attempts will be allowed and no action will be taken by the system.

1-25 Indicates that the number of attempts will be allowed before an action is taken. This defaults to 3 when initially installed.

Maximum signon action

The action you want to take when the sign on attempt limit has been exceeded.

Choose one of these options:

1 The device will be disabled.

2 The user profile will be disabled.

3 Both the device and the user profile will be disabled.

Note: This function (the previous 2 settings) mirrors the IBM i OS special values of QMAXSIGN and QMAXSGNACN. Kisco recommends that you seriously consider implementing this new control. Someone attempting to gain access to your system with a known user profile and password, could potentially gain access via a brute force Telnet attack. Implementing this feature can serve to stop this kind of attack before any serious damage.

Require Password Again?

Indicates whether you want a user to re-enter their password when the 2FA code is verified. This will cause the user to enter their password twice during 5250 signon processing, but may be a requirement for certain security settings that require that the password and the 2FA code be validated concurrently.

Choose one of these options:

*NO Re-entering of the user's password will not be requested. (Default)

*YES When the user signs on with a 5250 terminal, in addition to the 2FA code they will also be required to re-enter their password a second time along with the 2FA code.

Encrypt stored codes?

Controls whether the 2FA codes stored by i2Pass are encrypted or stored in plain text.

Choose one of these options:

*NO The 2FA codes are stored in plain text. (Default)

*YES The 2FA codes are encrypted.

IP Addr Checking Active?

Controls whether the IP address checking controls are active or inactive. Deactivating the IP address checking will turn this feature off for all user profiles registered with i2Pass, regardless of how each individual user is configured.

Choose one of these options:

*NO - IP Address checking is not active.

*YES - IP Address checking is active for users where the feature is active.

Default Email Subject

This value will be used as the Email Subject when alerts and notification messages are sent. If you are using i2Pass in a multiple partition or multiple server installation, you can use this to differentiate the notification messages so that you know which platform is issuing the message.

Notify users

Enter up to 5 user profiles where you want notification messages sent when i2Pass issues a code rejection.

Email notifications

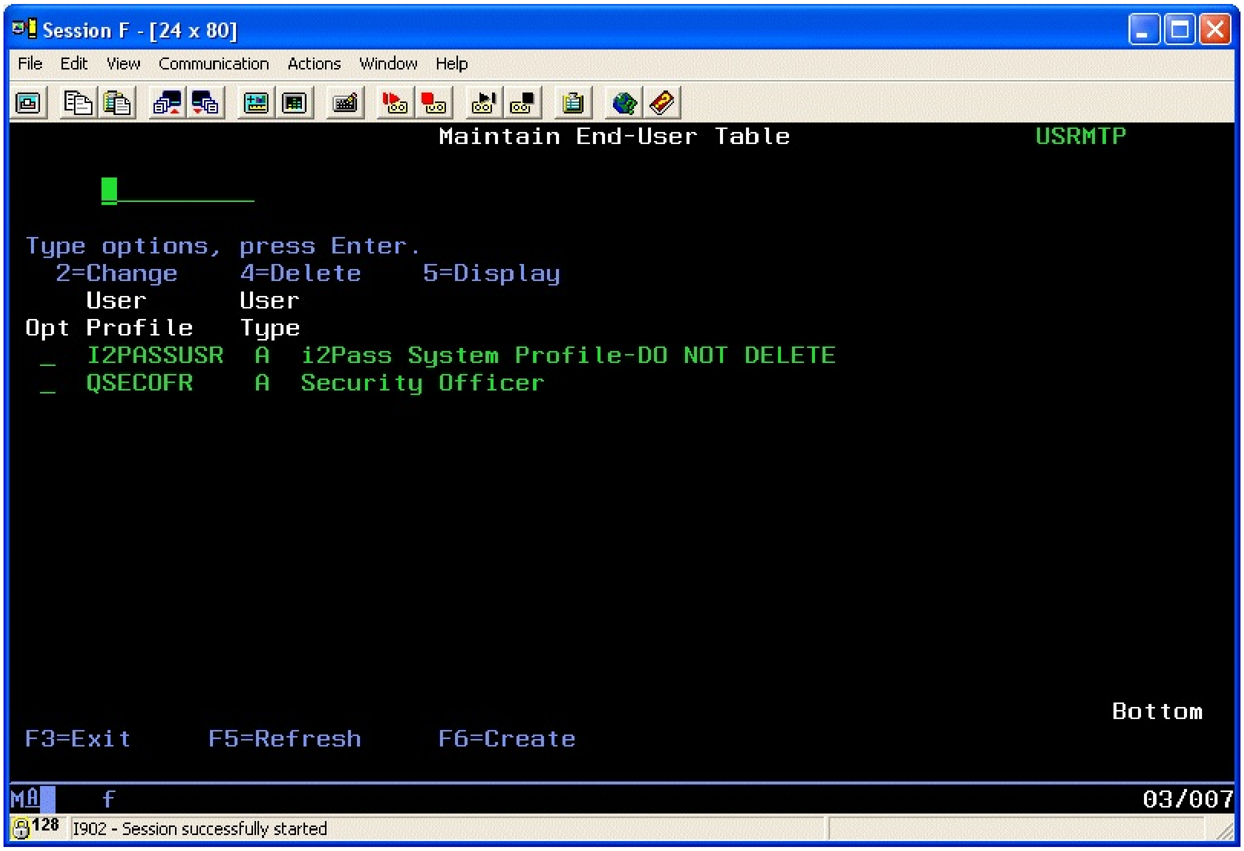
Enter up for 5 email addresses where you want notification messages send when i2Pass issues a code rejection. If no email addresses are going to be used, enter the special value *NONE in the first field.

Send Test Email Message

This option will prompt you for an email address. When you complete the email address and press ENTER, a test email message will be sent to the address provided. If it fails to go through, run the DSPJOBLOG command from the command line to check for error codes posted. Contact Kisco if you need help with your system configuration at this point.

Work With Admins

This option lets you control which user profiles can be used to administer the i2Pass software on your system. When you start option 11 on the INSTALL menu or use the WRKI2PUSR command from the I2PLIB library, the following display will show:



```
                             Maintain End-User Table                  USRMTP

     __________

Type options, press Enter.
  2=Change     4=Delete     5=Display
    User       User
Opt Profile    Type
 _  I2PASSUSR   A   i2Pass System Profile-DO NOT DELETE
 _  QSECOFR     A   Security Officer






                                                                     Bottom
F3=Exit      F5=Refresh     F6=Create
MA     f                                                            03/007
128  I902 - Session successfully started
```

As shipped from Kisco, the two user profiles shown above are always included. You cannot delete either of these.

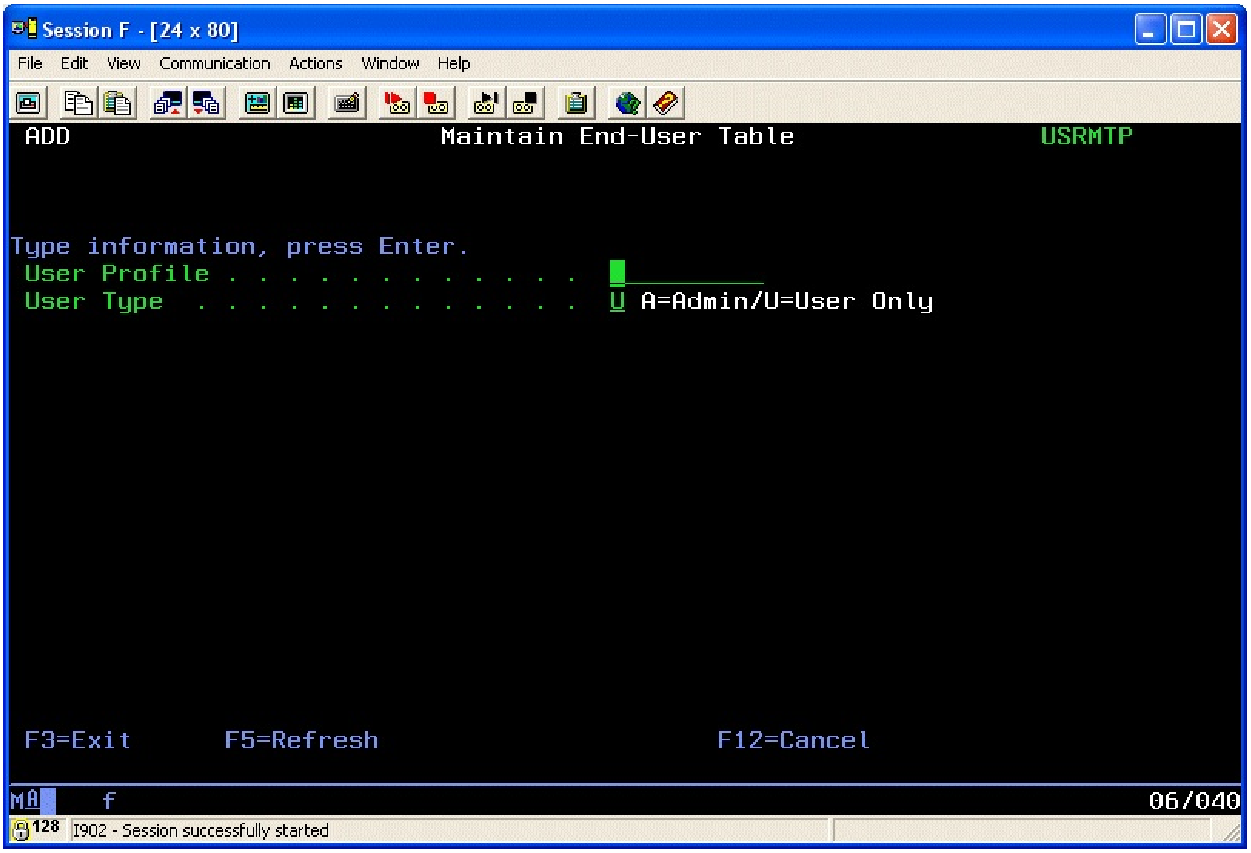
i2Pass provides for two different levels of admin profiles as follows:

Type A - Full administrative privileges

Type U - Limited privileges

The type U administrator can enroll user profiles, but they cannot run any of the purge functions, remove user profile enrollments or work with admins using option 11 on the INSTALL menu.

To add a new admin to this list, use the F6 function key. The following add screen will be displayed:


Session F - [24 x 80]
File Edit View Communication Actions Window Help

```
 ADD                         Maintain End-User Table                 USRMTP


Type information, press Enter.
 User Profile . . . . . . . . . . . . _________
 User Type  . . . . . . . . . . . . . U A=Admin/U=User Only













 F3=Exit      F5=Refresh                       F12=Cancel
MA    f                                                              06/040
```

128 I902 - Session successfully started

Enter the user profile that you want to add and assign the type of admin code you want to use and press ENTER. The user will be added to the list of profiles allowed to administer i2Pass.