IBM i Migration to IBM Power Virtual Server using BRMS and Cloud Storage Solutions

VERSION 1.5

TABLE OF CONTENTS

Chapter 1: Solution Overview

Introduction

A key question for IBM i clients looking to leverage the benefits of [IBM Power Virtual Server](#) (PowerVS) is: How do I move my existing workloads to PowerVS? At the highest level, the process for most clients involves performing a save on-premises, transferring the save to PowerVS and performing a restore.

This document is positioned for IBM i LPAR that have less than 3 TB of disk usage and have disk available to store backup media files. The actual size of the IBM i LPAR that can be migrated using this methodology will depend on the cutover time, unused disk capacity and network bandwidth to IBM Cloud.

Completing the migration process involves many important details. IBM i, PowerVS and networking skills are required. The goal of this tutorial is to provide a guide for moving an IBM i workload to PowerVS using Backup Recovery Media Services for i (5770-BR1) and Cloud Storage Solutions for i (5733-ICC).

Note that with this document, there is no concept of migrating the operating system (OS) separately from any databases or applications. This document describes migrating an entire IBM i virtual machine (VM), or LPAR (logical partition), which contains the OS, the integrated Db2 for IBM i database and any installed applications.

*Issues such as licensing on PowerVS or application-specific requirements and tuning are beyond the scope of this tutorial.

Source System Requirements

1. Installed Licensed Programs:
   - 5770BR1 - Backup Recovery and Media Services for IBM i
     - Options *BASE, 1 & 2
   - 5733ICC - IBM Cloud Storage Solutions for i
     - Options *BASE
   - Program Temporary Fixes (PTFs):
   - Latest program temporary fixes (PTFs) applied, along with Cloud-init PTFs .
   - Latest Backup Recovery Solutions IBM i Group PTF
   - Latest BRMS Service Pack
   - For 7.4 and 7.5, if using advanced software data compression for this migration, ensure all data compression support PTFs are applied:
     - 7.5:
       - 5770SS1-SI84525
       - 5770999-MF71323
       - 5770BR1-SI84643
     - 7.4:
       - 5770SS1-SI84526
       - 5770999-MF71322
       - 5770BR1-SI84629

2. Available disk storage equal to double the size of system storage used.

   Note: Depending on compressibility of system data, the actual amount needed may be less.

Summary of High-Level Steps

1. Create Network Install Server in PowerVS
2. Create Migration Target Server in PowerVS
3. Prepare Migration Source System
4. Full system save of Migration Source System to image catalog virtual devices
5. Transfer of save media to Network Install Server via an ICC FTP connection.

6. Install LIC and Base OS to Migration Target Server from Network Install Server. This uses virtual optical.
7. Restore the rest of the data from Migration Target Server. This data was transferred from the Network Install Server via an ICC FTP connection. This uses virtual tape.

Solution Diagrams

Migrating IBM i to the Cloud using BRMS and Cloud Storage Solutions with FTP
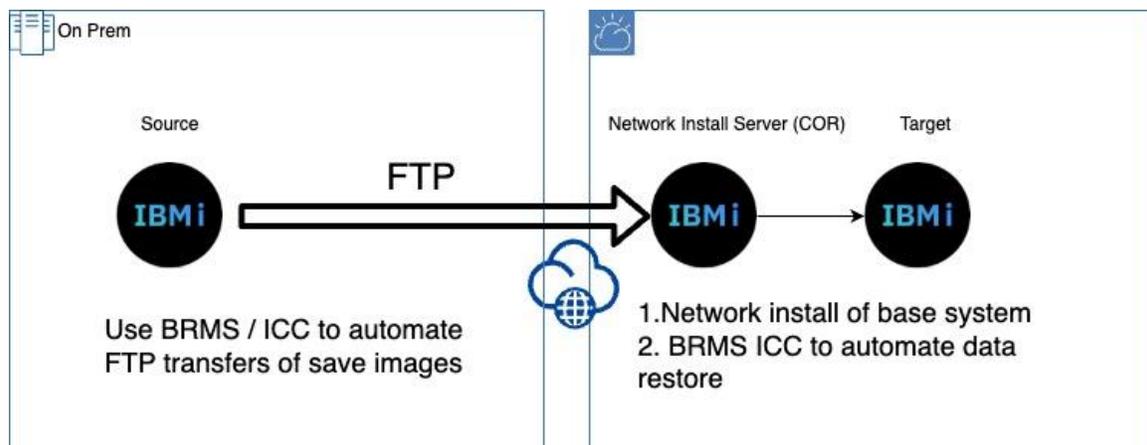
1. Use ICC (5733-ICC) and BRMS (5770-BR1) to transfer VM to PowerVS
2. Requires up to 2x disk used space on-premises
3. Requires reasonable network connection to IBM Cloud

Chapter 2: Implementation

Create a Network Install Server in PowerVS

The Network Install Server will be used to install the Migration Target Server in PowerVS using backup media created on the Migration Source System. Use the following steps to create a Network Install Server.

1. On 'Virtual server instances' screen
    - Click on **Create instance**
2. On 'Create virtual server instance' screen
    - General
        - Enter Instance name
        - Click on **Continue**
    - Boot image
        - Select OS – IBM i
        - Select image – Select the latest COR image. For example, IBMi_COR-74-09-1. The Network Install Server does not have to be the same release as the Migration Source System.
        - Select storage tier
        - IBM i Licenses – Select IBM i Cloud Storage Solution
        - Click on **Continue**
    - Profile
        - Select Machine type
        - Select Core type
        - Select Cores
        - Select Memory (GiB)
        - Click on **Continue**

- Storage volumes
    - Create and attach the recommended additional storage volume(s) for the BRMS backup data.
    - Click on **Create volume**
    - Enter Name in VSI
    - Enter Size
    - Click on **Create and attach**
    - Click on **Continue**
- Network interfaces
    - Attach Private Network. This network connects the Migration Source System, the Network Install Server, and the Migration Target Server. A Public network may optionally be selected but is not necessary for the migration.
    - Click on **Attach**
    - Select network
    - Click on **Attach**
    - Click on **Finish**
- Check box – I agree to the Terms and conditions
- Click on **Create**
- Verify message – Creating instance **…** This will take some time.
3. On the 'Virtual server instances' screen
    - **Refresh** until **Building** status or **Warning** status changes to **Active** status for the new Network Install Server.
    - Click on the new Network Install Server's **name** to get the 'Virtual server instance details' screen.
4. On the 'Virtual server instance details' screen
    - **Refresh** until System Reference Code SRC is 00000000 or A60050A0. When the SRC is 00000000, **Refresh** for one minute to make sure it stays at SRC 00000000. The Virtual server instance IPLs twice.
5. Open console. The Cloud provides an IBM i console.
    - Click on Menu **icon,** top right corner of screen.
    - Click on **Open console**, click on **Open console** again.

6. At screen - 'Sign on'
   - User - QSECOFR
   - Password - QSECOFR (default)
   - Press **Enter** to change your password.
   - Change QSECOFR Password. 15 characters minimum.
   - Previous sign-on **…** Press **Enter** to continue.
7. At screen - 'Work with Software Agreements'
   - Select Opt **5**=Display for all Licensed Programs in the list. Press **Enter**.
   - **F14**=Accept for each agreement displayed. Press **Enter**.
8. Command Entry screen displays more detailed messages
   - Type command **CALL QCMD**. Press **Enter**.
   - **F10**=Include detailed messages
9. Wait for TCP/IP configuration to complete
   - Type command **CFGTCP**. Press **Enter**.
   - **1**. Work with TCP/IP interfaces
   - **F5**=Refresh until attached network interface(s) are displayed with Line Descriptions CLOUDINITx and Line Type *ELAN
10. Sign on to Dedicated Service Tools (DST)
    - On 'Virtual server instance details' screen
    - Click on Menu **icon**, top right corner of screen
    - Click on **IBM i operations**
    - **Run action** (21) Activate dedicated service tools
    - On console window – 'Dedicated Service Tools (DST) Sign On' screen
      - Service tools user ID - QSECOFR
      - Service tools password – QSECOFR (default)
    - Change Service Tools User Password
    - **F3**=Exit to screen 'Exit Dedicated Service Tools'
      - **1**. Exit Dedicated Service Tools (DST)
11. *At screen - 'Sign On'*
    - User - QSECOFR
    - Password – existing password
    - **1**. Attempt to recover previous interactive job
    - Previous sign-on **...** Press **Enter** to continue.

12. Change System Value. Run command.
   - **CHGSYSVAL SYSVAL(QASTLVL) VALUE(*INTERMED)**
13. Start FTP Server. Run commands.
   - **CHGTCPSVR SVRSPCVAL(*FTP) AUTOSTART(*YES)**
   - **STRTCPSVR SERVER(*FTP)**
14. Copy user QSECOFR to create user MIGRATE for FTP sign on
   - Run command **WRKUSRPRF QSECOFR**
     - Opt **3**=Copy
     - User profile = MIGRATE
     - User password = <set MIGRATE's password>
     - Status = *ENABLED
     - Press **Enter**.
15. At SST add additional disk unit(s) to IBM i.
   - Type command **STRSST** press **Enter**
   - At screen - 'Start Service Tools (STRSST) Sign On'
     - Service tools user ID - QSECOFR
     - Service tools password - existing password
   - At screen - 'System Service Tools (SST)'
     - **3**. Work with disk units
     - **2**. Work with disk configuration
     - **2**. Add units to ASPs
     - **3**. Add units to existing ASPs
     - Specify ASP **1**. Then Press **Enter**.
     - **F10**=Ignore problems and continue
     - Press **Enter** to confirm your choice for Add units
   - At screen - 'Function Status'
     - You selected to add units
     - % complete
     - Wait for message - 'Selected units have been added successfully'.
   - **F3**=Exit to screen 'Exit System Service Tools'
     - Press **Enter** to continue ending SST.

Create Migration Target Server in PowerVS

After creating the Migration Target Server it will be scratch installed using the BRMS backup media created on the Migration Source System that was transferred to the Network Install Server.

1. On 'Virtual server instances' screen
   - Click on **Create instance**
2. On 'Create virtual server instance' screen
   - General
     - Enter Instance name
     - Click on **Continue**
   - Boot image
     - Select OS – IBM i
     - Select image – Select image with same release as Migration Source System
     - Select storage tier
     - IBM i Licenses – Select IBM i Cloud Storage Solution
     - Click on **Continue**
   - Profile
     - Select Machine type
     - Select Core type
     - Select Cores
     - Select Memory (GiB)
     - Click on **Continue**
   - Storage volumes
     - Create and attach the size of the storage volume(s) on the Migration Source System.
     - Create and attach the recommended additional storage volume(s) for the BRMS backup data.
     - Click on **Create volume**
     - Enter Name in VSI
     - Enter Size
     - Click on **Create and attach**
     - Click on **Continue**

- Network interfaces
  - Attach Private network. This network connects the Migration Source System, the Network Install Server, and the Migration Target Server. A Public network may optionally be selected but is not necessary for the migration.
  - Click on **Attach**
  - Select network
  - Click on **Attach**
  - Click on **Finish**
- Check box – I agree to the Terms and conditions
- Click on **Create**
- Verify message – Creating instance **…** This will take some time.

3. On 'Virtual server instances' screen
- **Refresh** until **Building** status or **Warning** status changes to **Active** status for the new Migration Target Server. This will take some time.
- Click on the new Migration Target Server's **name** to get the 'Virtual server instance details' screen.

4. **Only for IBM i 7.4 - On 'Virtual server instance details' screen**
- **Refresh** until System Reference Code is SRC 00000000 or A60050A0. When the SRC is 00000000, **Refresh** for several minutes to make sure it stays at 00000000. (The server IPL's twice).
- Open console. The Cloud provides an IBM i console.
  - Click Menu **icon**, top right corner of screen.
  - Click **Open console**, click **Open console** again.

5. **Only for IBM i 7.5 - On 'Virtual server instance details' screen**
   - **Refresh** until System Reference Code is SRC C6004036, A6005008, or 00000000.
   - Open console. The Cloud provides an IBM i console.
     - Click Menu **icon**, top right corner of screen.
     - Click **Open console**, click **Open console** again.
   - At screen - 'Dedicated Service Tools (DST) Sign On'
     - Service tools user ID – QSECOFR
     - Service tools password – QSECOFR (default)
     - Change Service Tools User Password
   - At screen - 'IPL or Install the System'
     - **1**. Perform an IPL
     - Licensed Internal Code IPL in Progress
     - Operating System IPL in Progress
     - Blank screen with **X SYSTEM**, **COMM657**, then **COMM655**
     - Operating System IPL in Progress (2nd IPL)

6. At screen - 'Sign on'
   - User - QSECOFR
   - Password - QSECOFR (default)
   - Press **Enter** to change your password.
   - Change QSECOFR Password. 15 characters minimum.
   - Previous sign-on **...** Press **Enter** to continue.

7. At screen - 'Work with Software Agreements'
   - Select Opt **5**=Display for all Licensed Programs in the list. **Page down** to end of list entering **5** on each entry. Press **Enter**.
   - **F14**=Accept for each agreement displayed. Press **Enter**.

8. At screen - 'IBM i Main Menu'
   - Command Entry screen displays more detailed messages
     - Type command **CALL QCMD**. Press **Enter**.
     - **F10**=Include detailed messages

9. Wait for automatic TCP/IP configuration to complete
   - Type command **CFGTCP.** Press **Enter**.
   - At screen - 'Configure TCP/IP'
   - **1.** Work with TCP/IP interfaces
   - **F5**=Refresh until attached network interfaces(s) are displayed with Line Descriptions CLOUDINITx and Line Type *ELAN
10. Verify connection to Network Install Server
   - Run command **PING 'n.n.n.n'**
11. Remove configured TCP/IP routes and interfaces. This adapter will be reconfigured as the Service Tools Server (STS) LAN adapter.
   - On 'Virtual server instance details' screen
     - **Page down** to 'Network interfaces', 'Private networks'
     - Record - IP address, Gateway, and CIDR
   - On console window – Type command **CFGTCP** press **Enter**
   - *2*. Work with TCP/IP routes
     - **4**=Remove to remove the ***DFTROUTE** for the Private network Gateway
   - **1**. Work with TCP/IP interfaces
     - Use the recorded Private network IP address
       - **10**=End to end the interface
       - Record the Line Description Name
       - **4**=Remove to remove interface
   - Type command **WRKLIND** press **Enter**
     - Remove the recorded Line Description Name
       - **8**=Work with status
       - **2**=Vary off
       - **F3**=Exit back
       - **4**=Delete
       - **F3**=Exit the **WRKLIND** command

12. Configure Service Tools Server LAN adapter using DST

- On 'Virtual server instance details' screen
- Click on Menu **icon**, top right corner of screen
- Click on **IBM i operations**
- **Run action** (21) Activate dedicated service tools
- Verify message – Operation successful … (21) Activate dedicated service tools.
- On console window – 'Dedicated Service Tools (DST) Sign On' screen
  - Service tools user - QSECOFR
  - **IBM i 7.4** - Service tools password – QSECOFR (default)
  - **IBM i 7.5** - Service tools password – existing password
- **For IBM i 7.4 -** Change Service tools user password
- At screen – 'Use Dedicated Service Tools (DST) '
- **5**. Work with DST environment
- **2**. System devices
- **F13**=Select STS LAN adapter
- At screen - 'Select Service Tools Server LAN Adapter'
- Option **1**=Select press **Enter.** Select adapter with the recorded Resource Name. There is only one adapter to select.
  - Internet address = Private network IP address
  - Gateway router address = Private network Gateway
  - Subnet mask = Private Network CIDR /24 is 255.255.255.0
  - **F7**=Store
  - **F17**=Deactivate followed by activate
- **F3**=Exit to screen 'Exit Dedicated Service Tools'
  - **1**. Exit Dedicated Service Tools (DST)
- At screen - 'Sign On'
  - User - QSECOFR
  - Password – existing password
  - **1**. Attempt to recover previous interactive job
  - Previous sign-on **...** Press **Enter** to continue.

13. Change System Value. Run command.

- **CHGSYSVAL SYSVAL(QASTLVL) VALUE(*INTERMED)**
- To avoid console being disconnected by user QSYS
    - **CHGSYSVAL SYSVAL(QINACTITV) VALUE(*NONE)**

14. Wait until the network install to add additional IBM i disk unit(s).

Create Jump Server on IBM Cloud

For better console connectivity, create a Windows VM in the IBM Cloud. This VM can be used to download Access Client Solutions and be configured to use LAN Console

Establish Network Connectivity to Jump Server

If the network between PowerVS and IBM Cloud hasn't been established, create the necessary connection to allow IBM i to communicate to the Windows VM.

Prepare Migration Source System

- Open console. Migration Source System.
- At SST set 'Allow system value security changes'
  - Type command **STRSST** press **Enter**
  - At screen - 'Start Service Tools (STRSST) Sign On'
    - Service tools user ID - QSECOFR
    - Service tools password - existing password
  - **7**. Work with system security
  - 'Allow system value security changes' **1**=Yes – press **Enter**
    - Verify message – Security options were changed successfully
  - **F3**=Exit to screen 'Exit System Service Tools'
    - Press **Enter** to continue ending SST.
- Change System Values. Run commands.
  - **CHGSYSVAL SYSVAL(QALWUSRDMN) VALUE(*ALL)**
  - **CHGSYSVAL SYSVAL(QASTLVL) VALUE(*INTERMED)**
  - To avoid console being disconnected by user QSYS
    - **CHGSYSVAL SYSVAL(QINACTITV) VALUE(*NONE)**
- Enable use of BRMS function. Run command.
  - **SETUSRBRM USER(QSECOFR) USAGE(*ADMIN)**
- Connect to Cloud Private network that has Network Install Server and Migration Target Server attached.

- Start FTP Server. Run commands.
  - **CHGTCPSVR SVRSPCVAL(*FTP) AUTOSTART(*YES)**
  - **STRTCPSVR SERVER(*FTP)**
- Create ICC resource – FTP connection
  - Type command **WRKCFGICC**. Press **Enter**.
    - Opt **1**=Create
    - Name = MIGRATE
    - Type = FTP - press **Enter**
    - Resource description = system migration
    - Login ID = MIGRATE (user id on Network Install Server)
    - Login Password = password of user MIGRATE
    - Use compression *NO
    - Use encryption *NO - press **Enter.**
    - Root directory = /INSTALL on Network Install Server - **Page Down**.
    - Resource URI = IP of Network Install Server on Private Network - Press **Enter**.
- Verify ICC connection.
  - Type command **CPYTOCLD** press **F4** to prompt
    - Resource name = MIGRATE
    - Submit to batch = *NO
    - Local file name = /QIBM/UserData/BRMS/logs/install
    - Cloud file name = test – Press **Enter**
- On Network Install Server remove test file
  - Run command **WRKLNK OBJ('/INSTALL/test*')** Note '*'.
    - **4**=Remove – test STMF
    - **4**=Remove – test.mta STMF

- If needed, add additional recommended storage volume(s) for the BRMS backup.
  - Type command **STRSST** press **Enter**
  - At screen – 'Start Service Tools (STRSST) Sign On'
    - Service tools user ID - QSECOFR
    - Service tools password – existing password
  - **3**. Work with disk units
  - **2**. Work with disk configuration
  - **2**. Add units to ASPs
  - **3**. Add units to existing ASPs
  - Specify ASP **1.** Press **Enter**.
  - **F10**=Ignore problems and continue
  - Press **Enter** to confirm your choice for Add units
  - At screen – 'Function Status'
    - You selected to add units
    - % complete
    - Wait for message - 'Selected units have been added successfully'.
  - **F3**=Exit to screen 'Exit System Service Tools'
    - Press **Enter** to continue ending SST.

Full-system Migration from IBM i Migration Source System using BRMS and ICC

BRMS provides specific control groups that are used to save data and automatically move it to the Network Install Server. The control groups use different virtual media types to support the different phases of the migration. The entire migration can be accomplished without a need to create physical media.

Control group **QCLDBIPLnn** uses virtual optical media to do a SAVSYS and backups of specific product data which is required for the initial install of the Migration Target Server from the Network Install Server. Virtual optical is used for this control group because it supports network installs, whereas virtual tape does not.

- SAVSYS is required to install the operating system

- Product IBM Backup, Recovery and Media Services for i and BRMS save information is required before automatic recovery can be performed

- Product IBM TCP/IP Connectivity for i and configuration information is required to allow communications with the Network Install Server.

- Product IBM Cloud Storage Solutions for i and configuration information is required to establish connection with the Network Install Server.

Control group **QCLDBSYSnn** uses virtual tape to backup all other data on the system. Virtual tape is used for this control group because of its expanded capacity and limited restrictions versus that of virtual optical.

It is critical to run the cloud control groups in the correct order otherwise all necessary media information will not be available to do a recovery.

- FIRST run BRMS Control Group QCLDBSYS01
- SECOND run BRMS Control Group QCLDBIPL01

Together these control groups represent a full system save.

- **Open console. Migration Source System**.

Use the following procedures to perform a full save of the Migration Source System on the Migration Install Server

Before you save any data
Choosing Compression type for IBM i releases 7.4 and later

To set Data Compression (DTACPR) for all BRMS backups:
CALL PGM(QBRM/Q1AOLD) PARM('PARMOVR' '*ADD' 'DEVDTACPR' '*xxxxxxxx')
where '*xxxxxxx' is:

- *ZLIB
- *HIGH
- *MEDIUM
- *LOW
- *YES
- *NO
- *DEV

To remove the data compression override:
CALL PGM(QBRM/Q1AOLD) PARM('PARMOVR' '*REMOVE ' 'DEVDTACPR')

To display the data compression override:
CALL PGM(QBRM/Q1AOLD) PARM('PARMOVR' '*DISPLAY' 'DEVDTACPR')

Notes:

- Processing time for each backup depends on the size of the system processor, storage device capability, and the amount of data that will be saved.
- Other activities cannot be performed during these backups because the system will be in a restricted state.

- Verify that the ICC FTP resource has been created
  - Type command **WRKCFGICC** press **Enter**
  - Verify resource MIGRATE
  - **5**=Display to view connection details
- Create the BRMS backup control groups for the ICC FTP resource.
  - Run command **INZBRM *DATA**
- Verify BRMS backup control groups were created
  - Type command **WRKCTLGBRM** press **Enter**
  - Verify control groups QCLDBSYS01, QCLDBIPL01
- Put the Migration Source System in restricted state
  - Run command **ENDSBS SBS(*ALL) DELAY(120)**
- Verify system is in restricted state
  - Type command **WRKSBS. P**ress **Enter.**
  - **F5**=Refresh until message 'System ended to restricted condition.' is displayed.

- Note: If a Break Message is seen during the Backup, press **Enter** once to return to the screen where the **STRBKUBRM** was entered to monitor progress of the backup.

- Run the First backup command. QCLDBSYS01 control group is first.

  - **STRBKUBRM CTLGRP(QCLDBSYS01) SBMJOB(*NO)**

- Check the backup for errors. Its normal to have some errors:

  - Objects not saved. (Some objects are not required for the recovery).

  - Media not transferred to Network Install Server. (This will be completed after the Second backup).

- After First backup, verify system is still in a restricted state

  - Type command **WRKSBS.** Press **Enter.**
  - Verify message 'System ended to a restricted condition.'
  - If system not restricted
    - Run command **ENDSBS SBS(*ALL) DELAY(120)**

Note:

The second backup is using media class QCLDVRTOPT, the BRMS default is to create 10 virtual volumes to backup to optical.

- Since optical devices do not have an exit program interface to handle media switching while a backup is running, the backup command must provide enough volumes to successfully hold the backup data. A symptom that indicates the backup does not fit on the initial number of volumes provided is the backup will fail with message BRM4301 'Volume list exhausted'.

Set Number of Optical Volumes for Automatic Transfers

- The number of virtual optical volumes to create can be specified by running the following command: where - nn is the number of volumes to auto create. This value must be between 01 and 75.

  CALL PGM(QBRM/Q1AOLD) PARM('NUMOPTVOLS' '*SET ' 'nn')

- The number of volumes to create can be displayed by running the following command:

  CALL PGM(QBRM/Q1AOLD) PARM('NUMOPTVOLS' '*DISPLAY')

- The number of volumes to create can be reset to the default value of 10 by running the following command:

  CALL PGM(QBRM/Q1AOLD) PARM('NUMOPTVOLS' '*REMOVE')

- Run the Second backup command. QCLDBIPL01 is second.
  - **STRBKUBRM CTLGRP(QCLDBIPL01) SBMJOB(*NO)**
- Check the backup for errors. It's normal to have some errors.

  - Objects not saved. (Some objects are not required for the recovery).

  - Media not transferred. (This will be completed in the following steps).

```
                           Command Entry                       DMSOURCE
                                                Request level:    4
All previous commands and messages:
    Image catalog entry 8 removed from image catalog Q1ACQO5361.
    Image catalog Q1ACQO5361 is already unloaded.
    Image catalog entry 10 removed from image catalog Q1ACQO5361.
    Image catalog Q1ACQO5361 is already unloaded.
    Image catalog entry 7 removed from image catalog Q1ACQO5361.
    Usage limit of 0 exceeded. Grace period expires in 69 days on 12/06/23.
    Job 014061/QSECOFR/L000000022 submitted to job queue QICCJOBQ in library
      QICC.
    Usage limit of 0 exceeded. Grace period expires in 69 days on 12/06/23.
    Job 014063/QSECOFR/L000000023 submitted to job queue QICCJOBQ in library
      QICC.
    Control group QCLDBIPL01 type *BKU completed with errors.
                                                                  Bottom
Type command, press Enter.
===> strbkubrm ctlgrp(QCLDBIPL01) sbmjob(*no)



F3=Exit    F4=Prompt    F9=Retrieve    F10=Exclude detailed messages
F11=Display full         F12=Cancel    F13=Information Assistant   F24=More keys

MA*    A                                                         18/007
```

PF1	PF2	PF3	PF4	PF5	PF6	Enter	PA1	Attn	Insert	Backtab	NewLi...
PF7	PF8	PF9	PF10	PF11	PF12	Clear	PA2	SysReq	Delete	FldExit	NextP...

- After backups are complete, remove the data compression override if this was configured before saving any data.

  CALL PGM(QBRM/Q1AOLD) PARM('PARMOVR' '*REMOVE ' 'DEVDTACPR')

  CAUTION: If the above command is not run, then data compression override is persistent for ALL future backups done using BRMS and will remain so until removed.

- Check the status of the media transfer. **Success**, **Failed**, or **Active**.

  - Type command **WRKSTSICC STATUS(*ALL)** press **Enter**

  - If the Status is **Failed**, this is normal. Any **Failed** volumes will be transferred in the next step.

  - **F5**=Refresh until **Active** transfers have successfully completed with status **Success** before proceeding to the next step.

```
                          Work with ICC Status                        DMSOURCE

Type options, press Enter.
    4=End

                  --------- Job --------------                  Graphic% /
Opt File name/Time    Name          User        Number Status      Oper      Complete%
 __  /tmp/sshd.pid
     09/27/23 20:43 DSPO1      QSECOFR     011828 Failed      TOCLD            0
 __  /tmp/sshd.pid                                                        **********
     09/27/23 21:03 DSPO1      QSECOFR     011841 Success     TOCLD          100
 __  /QIBM/UserData/BRMS/cloud/Q1ACQ26659/Q26659
     09/29/23 01:54 DSPO1      QSECOFR     013813 Failed      TOCLD            0
 __  /QIBM/UserData/BRMS/cloud/Q1ACQ05361/Q05361                            **
     09/29/23 02:10 L000000023 QSECOFR     014063 Active      TOCLD           20
 __  /QIBM/UserData/BRMS/cloud/Q1ACQ05361/Q07178                            **
     09/29/23 02:10 L000000022 QSECOFR     014061 Active      TOCLD           20
                                                                         Bottom

Command
===>
F3=Exit       F4=Prompt     F5=Refresh     F9=Retrieve     F10=Command entry
F12=Cancel    F15=Work Subsystem Jobs      F17=Subset
Subset: Age in days:7
MA*    A                                                              08/002
```

PF1	PF2	PF3	PF4	PF5	PF6	Enter	PA1	Attn	Insert	Backtab	NewLi...
PF7	PF8	PF9	PF10	PF11	PF12	Clear	PA2	SysReq	Delete	FldExit	NextP...

- Transfer any Failed Volumes to the Network Install Server and complete backup processing.
  - Run command **STRMNTBRM**

- Verify transfer complete.
  - Type command **WRKSTSICC STATUS(*ALL)** press **Enter**
  - Volume Name, Status, and Complete% will be displayed for each file transfer.
  - **F5**=Refresh until **Active** transfers have successfully completed with status **Success** before proceeding to the next step.

```
                              Work with ICC Status                        DMSOURCE
Type options, press Enter.
    4=End

                      --------- Job --------------                   Graphic% /
Opt File name/Time    Name       User        Number Status     Oper    Complete%
 _   /tmp/sshd.pid                                                      **********
     09/27/23 21:03 DSP01     QSECOFR     011841 Success     TOCLD          100
 __  /QIBM/UserData/BRMS/cloud/Q1ACQ26659/Q26659
     09/29/23 01:54 DSP01     QSECOFR     013813 Failed      TOCLD            0
 __  /QIBM/UserData/BRMS/cloud/Q1ACQ05361/Q05361                       **********
     09/29/23 02:10 L000000023 QSECOFR    014063 Success     TOCLD          100
 __  /QIBM/UserData/BRMS/cloud/Q1ACQ05361/Q07178                       **********
     09/29/23 02:10 L000000022 QSECOFR    014061 Success     TOCLD          100
 __  /QIBM/UserData/BRMS/cloud/Q1ACQ26659/Q26659                       ***1
     09/29/23 02:15 L000000024 QSECOFR    014122 Active      TOCLD           31
                                                                       Bottom

Command
===> _____
F3=Exit      F4=Prompt     F5=Refresh     F9=Retrieve    F10=Command entry
F12=Cancel   F15=Work Subsystem Jobs     F17=Subset
Subset: Age in days:7
MA*    A                   MW                                          08/002
```

PF1	PF2	PF3	PF4	PF5	PF6	Enter	PA1	Attn	Insert	Backtab	NewLi...
PF7	PF8	PF9	PF10	PF11	PF12	Clear	PA2	SysReq	Delete	FldExit	NextP...

- Verify that all the Volumes used for the Full-System Backup no longer have a status of ***TRF**. The status should be ***ACT**. Location should be **MIGRATE**.
  - Type command **WRKMEDBRM** press **Enter**
  - Record the names of media class QCLDVRTOPT. These optical volumes will be manually added to an image catalog on the Network Install Server.
  - Record the names of media class QCLDVRTTAP. These tape volumes will be manually moved to the Migration Target Server.

A Recovery Report is used to assist with successful recoveries from save media that has been transferred to the Network Install Server.

- To generate a Recovery Report run command
    - **STRRCYBRM OPTION(*CTLGRP) ACTION(*REPORT) CTLGRP((QCLDBSYS01 1) (QCLDBIPL01 2))**
- To review the Recovery Report
    - Type command **WRKJOB** press **Enter**
    - **4**. Work with spooled files
    - **Page down** to find the last instance of spooled file QP1ARCY
    - **5**=Display

NOTES:

- It is important to review the Recovery Report to ensure it is complete**. If any of the media produced during the backup has not been successfully transferred to the Network Install Server, it will not be included in the recovery report.**
- The CTLGRP parameter that was specified on the STRRCYBRM command above will help identify objects that were saved to volumes that have not been transferred to the Network Install Server. If objects are on volumes that were not included in the recovery report, they will be listed in a missing objects Attention section near top of the report.
- Once the Recovery Report has been verified, the report should be stored in a safe location so it can be referred to during the recovery on the Migration Target Server.
- IBM i Access Client solutions, option Printer Output, can be used to display and download the Recovery Report as a PDF file.

On Network Install Server

On the Network Install Server create an image catalog that contains the BRMS created optical media to perform a network install on the Migration Target System.

1. Determine the Directory that BRMS stored the backup information into.
   - Run command **WRKLNK OBJ('/INSTALL/QBRMS*').** Note '*'.
   - QBRMS_xxxxxxxx is used to represent that Directory in this document.

```
                        Work with Object Links

Directory  . . . . :    /INSTALL

Type options, press Enter.
  2=Edit    3=Copy    4=Remove    5=Display   7=Rename    8=Display attributes
  11=Change current directory ...


Opt   Object link           Type      Attribute    Text
__      QBRMS_KJBRMSX7        DIR
```

2. Create Virtual Optical Device called 'INSTALL'. Run command.

CRTDEVOPT DEVD(INSTALL) RSRCNAME(*VRT) LCLINTNETA(*NONE)

```
                    Create Device Desc (Optical) (CRTDEVOPT)

Type choices, press Enter.

Device description . . . . . . . > INSTALL       Name
Resource name  . . . . . . . . . > *VRT          Name, *NONE, *VRT...
Device type  . . . . . . . . .     *RSRCNAME     *RSRCNAME, 63BC, 63B8, 632A
Local internet address . . . . .   *NONE         *NONE, *SRVLAN
```

Vary on Virtual Optical Device. Run command.

VRYCFG CFGOBJ(INSTALL) CFGTYPE(*DEV) STATUS(*ON)

3. Create Image Catalog. Run command.

CRTIMGCLG IMGCLG(SYSIPL) DIR('/INSTALL/QBRMS_xxxxxxxx')

```
                    Create Image Catalog (CRTIMGCLG)

Type choices, press Enter.

Image catalog . . . . . . . . . > SYSIPL        Name
Directory . . . . . . . . . . . > '/install/QBRMS_Q05361'


Image catalog type . . . . . . .   *OPT           *OPT, *TAP
Create directory . . . . . . . .   *YES           *YES, *NO
Import image catalog . . . . . .   *NO            *NO, *YES
Catalog ASP threshold . . . . .    *CALC          1-99, *CALC, *MAX
Add virtual volumes . . . . . .    *NONE          1-256, *NONE, *DIR
```

4. Add Image Catalog Entry for each optical volume that was displayed using the **WRKMEDBRM** command on the Migration Source System. Those optical volume names were recorded.
Run command **ADDIMGCLGE** for each optical volume.

   - For example, volume Q06990
   - **ADDIMGCLGE IMGCLG(SYSIPL) FROMFILE(Q06990) TOFILE(Q06990)**

```
                    Add Image Catalog Entry (ADDIMGCLGE)

  Type choices, press Enter.

  Image catalog . . . . . . . . . > SYSIPL        Name
  From optical device, or . . . .                 Name, *VOL
  From image file . . . . . . . . > Q06990

  To image file . . . . . . . . . > Q06990

  Image catalog index . . . . . .   *AVAIL         1-256, *AVAIL
  Replace catalog entry . . . . .   *NO            *NO, *YES, *INSERT
  Text 'description' . . . . . . .   *GEN
```

5. Load Image Catalog. Run command.
   - **LODIMGCLG IMGCLG(SYSIPL) DEV(INSTALL)**

```
           Load or Unload Image Catalog (LODIMGCLG)

 Type choices, press Enter.

 Image catalog  . . . . . . . . . > SYSIPL        Name
 Option . . . . . . . . . . . . .   *LOAD         *LOAD, *UNLOAD
 Virtual device . . . . . . . . . > INSTALL       Name
 Write protect  . . . . . . . . .   *DFT          *DFT, *ALL, *NONE
 Library mode . . . . . . . . . .   *NO           *NO, *YES
```

6. Verify Image Catalog.

   - Type command **WRKIMGCLG** press **Enter**
   - Select Option **10**=Verify for image catalog "SYSIPL"
     - Verify type = *LIC
     - Sort image catalog = *YES
     - Network file server share = *YES - press **Enter**

```
            Verify Image Catalog (VFYIMGCLG)

 Type choices, press Enter.

 Image catalog  . . . . . . . . . > SYSIPL        Name
 Verify type  . . . . . . . . . . > *LIC          *UPGRADE, *PTF, *OPSYS...
 Sort image catalog . . . . . . . > *YES          *NO, *YES
 Network file server share  . . . > *YES          *NO, *YES
 Language . . . . . . . . . . . .   *DFT          2901-2999, *DFT
```

- Work with Entries
  - Select Option **12**=Work with entries for image catalog "SYSIPL"
  - Verify the Directory
  - Verify the status (Mounted or Loaded)

```
                      Work with Image Catalog Entries
                                                            System:
Catalog  . . :    SYSIPL               Status . . . :    Ready
Type . . . . :    Optical              Device . . . :    INSTALL

Directory  . . . . :    /INSTALL/QBRMS_KJBRMS

Type options, press Enter.
  1=Add    2=Change        4=Remove   6=Mount    8=Load    9=Unload
  10=Initialize volume    12=Work with volume

Opt    Index   Status       Image File Name
  __   *AVAIL
  __       1   Mounted      Q18883
  __       2   Loaded       Q20701
```

Verify image catalog information. Run command.

- **WRKLNK OBJ('/INSTALL/QBRMS_xxxxxxxx/*')** Note '/*'
- Verify that a BOOTP DIR was created
- Verify that a VOLUME_LIST STMF was created

```
                      Work with Object Links

Directory  . . . . :    /install/QBRMS_KJBRMS

Type options, press Enter.
  2=Edit    3=Copy    4=Remove    5=Display    7=Rename    8=Display
  11=Change current directory ...

Opt    Object link         Type     Attribute    Text
  __   BOOTP               DIR
  __   QIMGCLG             STMF

  __   Q30731.mta          STMF
  __   VOLUME_LIST         STMF
```

- End NFS Servers. Run command.
  - **ENDNFSSVR SERVER(*ALL)**

- Change Object Authority. Run command.
  - **CHGAUT OBJ('/INSTALL/QBRMS_xxxxxxxx') USER(*PUBLIC) DTAAUT(*RWX) SUBTREE(*ALL)**

- Start NFS Servers. Run command
  - **STRNFSSVR SERVER(*ALL)**

- End TFTP server. Run command.
  - **ENDTCPSVR SERVER(*TFTP)**

- Change TFTP Attributes. Run command.
  - **CHGTFTPA AUTOSTART(*YES) ALTSRCDIR('/INSTALL /QBRMS_xxxxxxxx')**

Specify the Alternate source directory where the volumes are stored

- Change Object Authority. Run command.
  - **CHGAUT OBJ('/INSTALL/QBRMS_xxxxxxxx') USER(QTFTP) DTAAUT(*RX) SUBTREE(*ALL)**

- Start TCP Server TFTP. Run command.
  - **STRTCPSVR SERVER(*TFTP)**

Perform Network Install On Migration Target Server

On the Migration Target Server create a virtual optical device to perform a network install using the Network Install Server.

- Create Virtual Optical Device
  - Run command **CRTDEVOPT** press **F4** to prompt
  - Device description = INSTALL
  - Resource name = *VRT - press **Enter**
  - Local internet address = *SRVLAN - press **Enter**
  - Remote internet address = IP address of Network Install Server
  - Network image directory = '/INSTALL/QBRMS_xxxxxxxx' where xxxxxxxx is the name added by BRMS – press **Enter**

```
                Create Device Desc (Optical) (CRTDEVOPT)

 Type choices, press Enter.

 Device description . . . . . . . > INSTALL        Name
 Resource name  . . . . . . . . . > *VRT           Name, *NONE, *VRT...
 Device type  . . . . . . . . . .   *RSRCNAME      *RSRCNAME, 63BC, 63B8, 632A..
 Local internet address . .   ----> *SRVLAN        *NONE, *SRVLAN
 Remote internet address  . ---->   '192.168.6.117'

 Network image directory  . ---->   '/INSTALL/QBRMS_xxxxxxxx'

 User ID number . . . . . . . . .   0              0-4294967295
 Group ID number  . . . . . . . .   0              0-4294967295
 Online at IPL  . . . . . . . . .   *YES           *YES, *NO
 Message queue  . . . . . . . . .   *SYSOPR        Name
   Library  . . . . . . . . . . .                  Name, *LIBL, *CURLIB
 Text 'description' . . . . . . .   *BLANK
```

- Vary on device. Run command.
  - **VRYCFG CFGOBJ(INSTALL) CFGTYPE(*DEV) STATUS(*ON)**

- Verify access to the remote image catalog. Run command.
  - **WRKIMGCLGE IMGCLG(*DEV) DEV(INSTALL)**
  - Verify directory /INSTALL/QBRMS_xxxxxxxx
  - Verify volumes mounted or loaded

Install Licensed Internal Code LIC on Migration Target Server using the Network Install Server

1. Start Network Install.

   - Type command **STRNETINS** press **F4** to prompt
   - Network optical device = INSTALL
   - Installation option = *LIC
   - Keylock mode = *MANUAL - press **Enter**, press **Enter**.

```
                    Start Network Install (STRNETINS)

 Type choices, press Enter.

 Network optical device . . . . . >  INSTALL       Name
 Installation option  . . . . . . >  *LIC          *ALL, *OPSYS, *LNG, *LIC
 Keylock mode . . . . . . . . . . >  *MANUAL       *NORMAL, *MANUAL
 IPL source . . . . . . . . . . .    B             B, A
 Language . . . . . . . . . . . .    *DFT          2901-2999, *DFT
 Confirm  . . . . . . . . . . . .    *YES          *YES, *NO
```

Press **F16** to confirm power down

```
 _                  Confirm Power Down of System

 System  . . . . . . . . . . . . . . . . . . :    I9TARGET


 To confirm power down, press F16.
 To cancel, press F12.










                                                             Bottom
 F12=Cancel    F16=Confirm
```

X SYSTEM, COMM657, then **COMM655** displayed for about 10 minutes.

2. **IBM i 7.5-----At screen – 'Dedicated Service Tools (DST) Sign On'**
   - Service tools user – QSECOFR
   - Service tools password – existing password
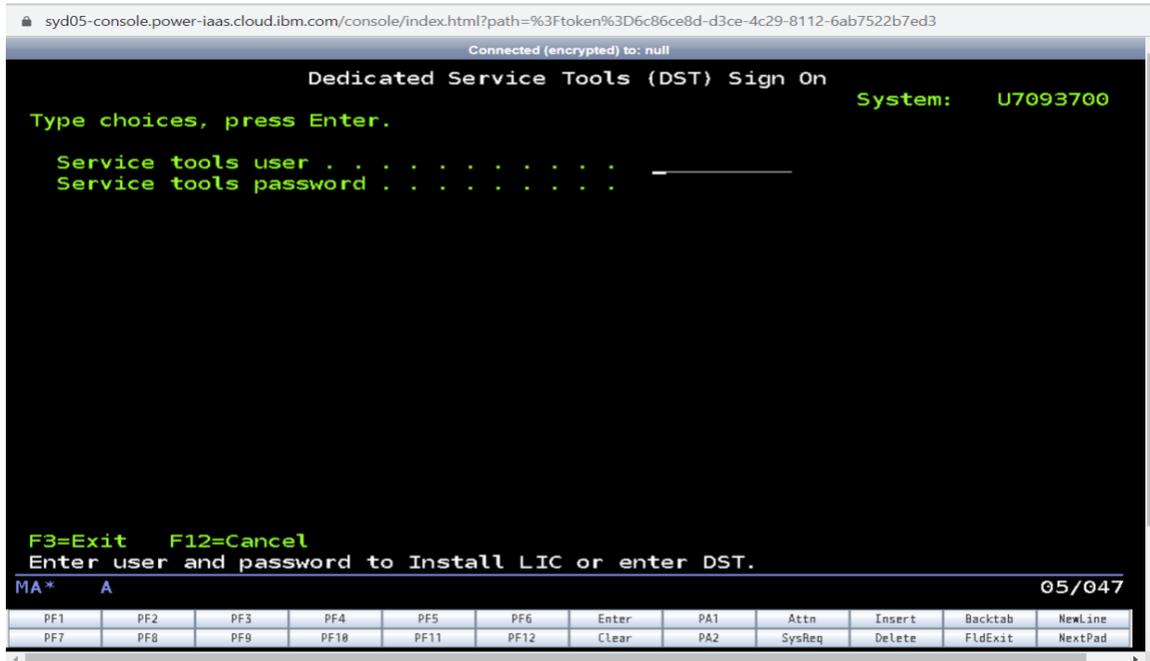
3. At screen - 'Install Licensed Internal Code'
   - Select 1. Install Licensed Internal Code
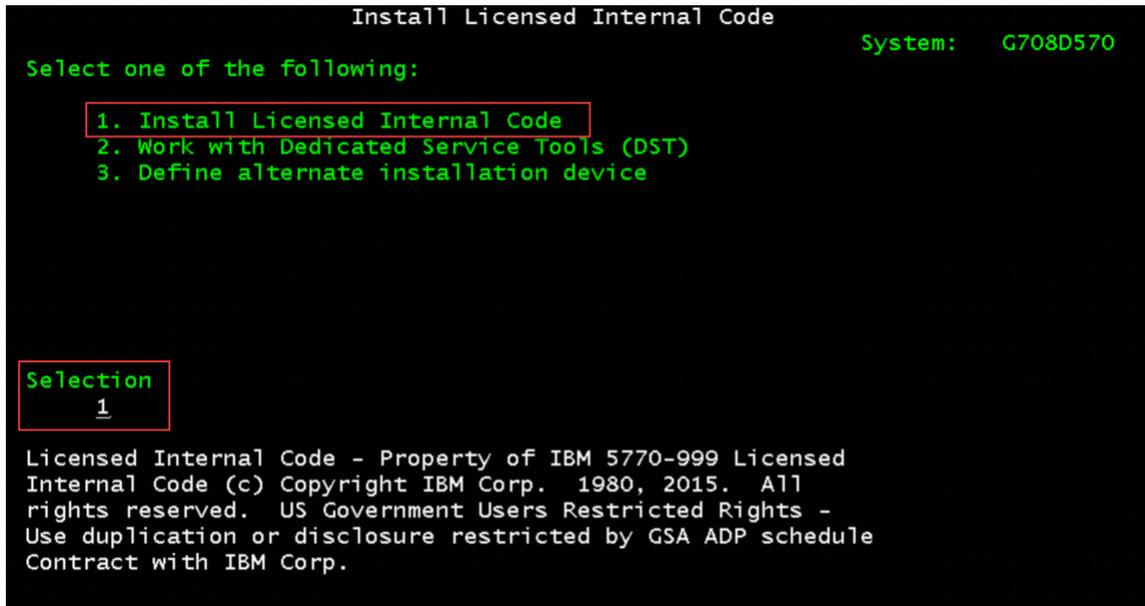
4. Select 2. Install Licensed Internal Code and Initialize System

```
                Install Licensed Internal Code (LIC)

Disk selected to write the Licensed Internal Code to:
        Serial Number   Type   Model   I/O Bus   Controller   Device
        Y43317OOOEOA    2145    050       O           O           O

Select one of the following:

      1. Restore Licensed Internal Code
      2. Install Licensed Internal Code and Initialize system
      3. Install Licensed Internal Code and Recover Configuration
      4. Install Licensed Internal Code and Restore Disk Unit Data
      5. Install Licensed Internal Code and Upgrade Load Source




Selection
     2

F3=Exit            F12=Cancel
```

5. Press **F10** to Continue

```
             Install LIC and Initialize System - Confirmation

Warning:        _
    All data on this system will be destroyed and the Licensed
    Internal Code will be written to the selected disk if you
    choose to continue the initialize and install.

    Return to the install selection screen and choose one of the
    other options if you want to perform some type of recovery
    after the install of the Licensed Internal Code is complete.



    Press F10 to continue the install.
    Press F12 (Cancel) to return to the previous screen.
    Press F3 (Exit) to return to the install selection screen.




F3=Exit          F10=Continue            F12=Cancel
```

It takes about 55 minutes to initialize the load source disk and 5 minutes for the Licensed Internal Code install to complete.

```
                         Initialize the Disk - Status
 _
  The load source disk is being initialized.



  Elapsed time in minutes . . . . . . . . . :        2.5









  Please wait.

 Wait for next display or press F16 for DST main menu
```

```
                      Install Licensed Internal Code - Status
 _
  Install of the Licensed Internal Code in progress.

               +------------------------------------------------+
  Percent      |                     60%                        |
  complete     +------------------------------------------------+

  Elapsed time in minutes  . . . . . . . . :        0.5








  Please wait.

 Wait for next display or press F16 for DST main menu
```

X_SYSTEM, **COMM657, COMM655,** then blank screen

37

6. Press **F10** to Accept the problems and continue
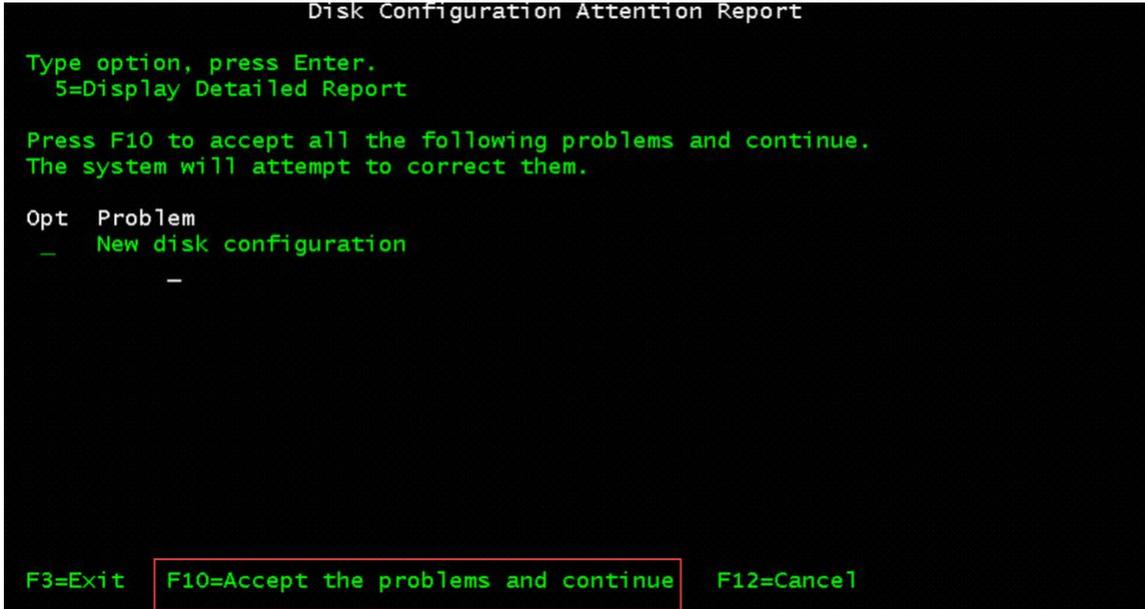
7. **IBM i 7.5-----At screen - 'Dedicated Service Tools (DST) Sign On'**
   - Service tools user – QSECOFR
   - Service tools password – QSECOFR (default)
   - Change Service Tools User ID Password

8. At screen - 'IPL or Install the System'
   - Add additional disk units for BRMS
   - **3**. Use Dedicated Service Tools (DST)

IBM i 7.4-----At screen – 'Dedicated Service Tools (DST) Sign On'

- Service tools user - QSECOFR
- Service tools password – QSECOFR (default)

9. **IBM i 7.4-----At screen - 'Change Service Tools User Password'**
   - Change the service tools user ID QSECOFR password

```
                      Change Service Tools User Password
                                               System:     G708D570
Service tools user ID name  . . . . . . . :   QSECOFR
Password last changed . . . . . . . . . . :   06/01/20

Type choices, press Enter.
  Current password  . . . . . . . . . . . .  _


  New password  . . . . . . . . . . . . . .


  New password (to verify)  . . . . . . . .










F3=Exit   F12=Cancel
Password is correct but set to expired
```

10. At screen - 'Use Dedicated Service Tools (DST)'
    - **4**. Work with disk units

```
                   Use Dedicated Service Tools (DST)
                                               System:     G708D570
Select one of the following:

     1. Perform an IPL
     2. Install the operating system
     3. Work with Licensed Internal Code
     4. Work with disk units
     5. Work with DST environment
     6. Select DST console mode
     7. Start a service tool
     8. Perform automatic installation of the operating system

    10. Work with remote service support

    13. Work with system security
    14. End batch restricted state


Selection
     4_

F3=Exit   F12=Cancel
```

11. Select **1.** Work with disk configuration


```
                    Work with Disk Units

 Select one of the following:

      1. Work with disk configuration
      2. Work with disk unit recovery



 Selection
      1
```
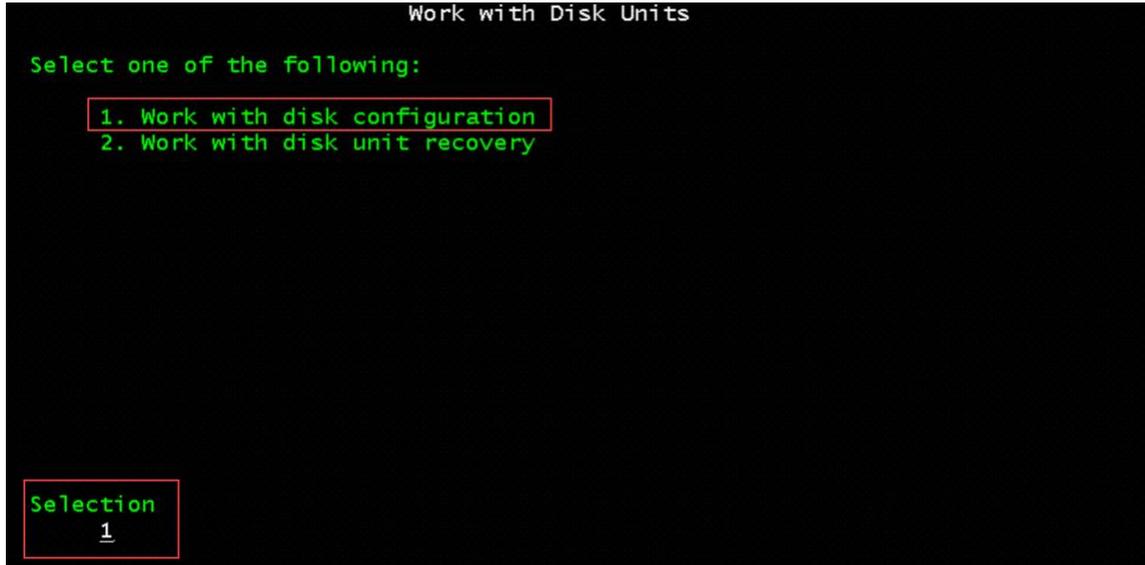
12. Select **3**. Work with ASP configuration


```
                 Work with Disk Configuration

 Select one of the following:

      1. Display disk configuration
      2. Work with ASP threshold
      3. Work with ASP configuration
      4. Work with mirrored protection
      5. Work with device parity protection
      6. Work with disk compression
      7. Work with hot spare protection
      8. Work with encryption



 Selection
      3
```
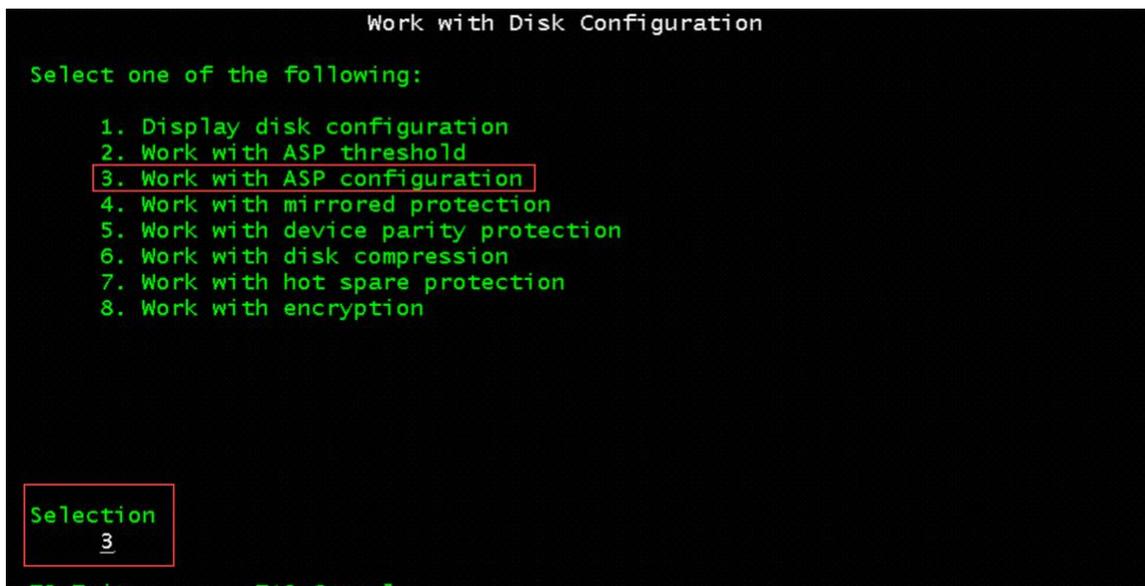
13. Select **3**. Add units to ASPs


```
                    Work with ASP Configuration

Select one of the following:

     1. Display disk configuration capacity
     2. Delete user ASP
     3. Add units to ASPs
     4. Delete ASP data
     5. Change ASP storage threshold
     6. Move units from one ASP to another
     7. Work with removing units from configuration
     8. Add units to ASPs and balance data




Selection
    3
```
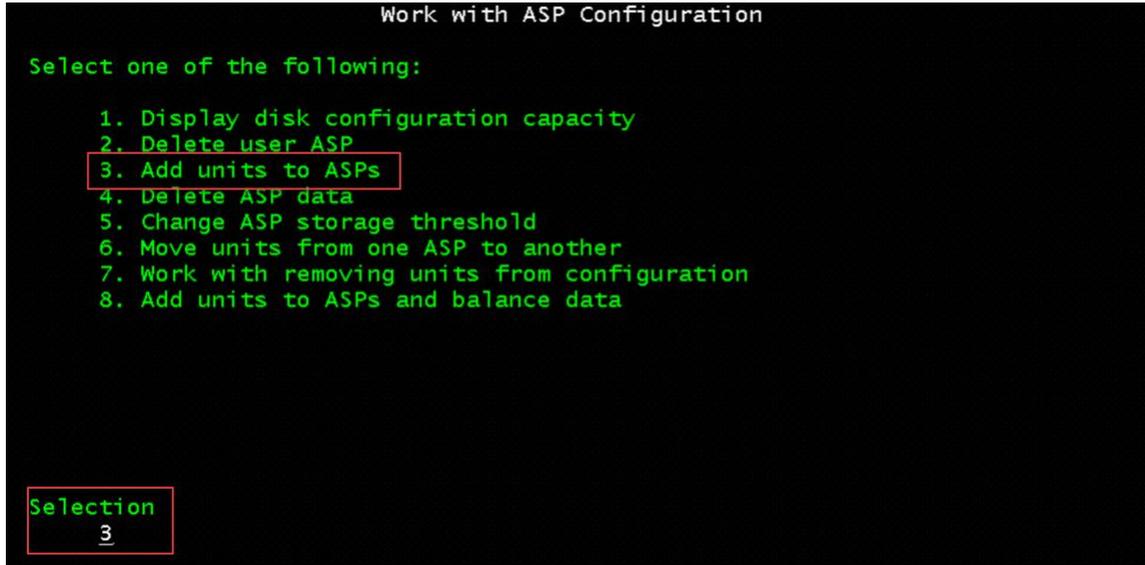
14. Select **3**. Add units to existing ASPs


```
                    Add Units to ASPs

Select one of the following:

     1. Create unencrypted ASPs
     2. Create encrypted ASPs
     3. Add units to existing ASPs








Selection
    3
```

42
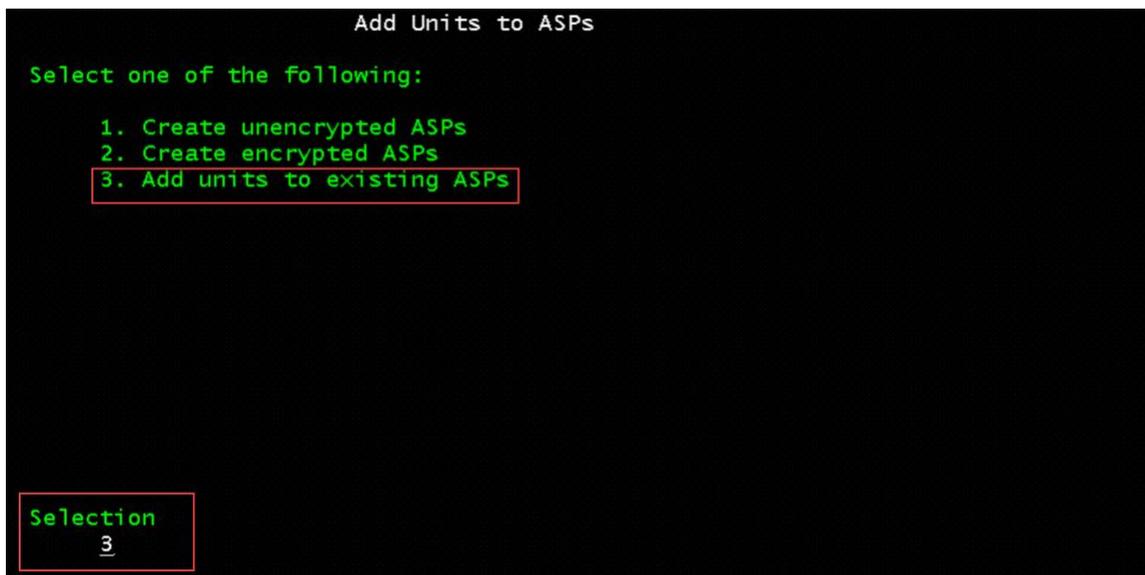
15. Specify ASP **1** for each unit to add – then press **Enter**

```
                  Specify ASPs to Add Units to

Specify the existing ASP to add each unit to.

Specify  Serial                                  Resource
  ASP    Number          Type  Model  Capacity   Name
   1___  Y43317000E0D    2145   050     114532   DMP003
```

16. Press **F10** to Ignore problems and continue

```
                       Problem Report

Note: Some action for the problems listed below may need to
be taken.  Please select a problem to display more detailed
information about the problem and to see what possible
action may be taken to correct the problem.

Type option, press Enter.
  5=Display Detailed Report

OPT   Problem
  _    Unit possibly configured for Power PC AS




F3=Exit       F10=Ignore problems and continue     F12=Cancel
```

17. Press **Enter** to confirm the choice for Add units

```
                          Confirm Add Units
─

 Add will take several minutes for each unit.  The system will
 have the displayed protection after the unit(s) are added.

 Press Enter to confirm your choice for Add units.
 Press F9=Capacity Information to display the resulting capacity.
 Press F10=Confirm Add and Balance data on units.
 Press F12=Cancel to return and change your choice.

          Serial                    Resource              Hot Spare
 ASP Unit  Number        Type Model Name      Protection   Protection
   1                                           Unprotected
       1   Y43317000E0A   2145  050  DMP001    Unprotected       N
       2   Y43317000E0D   2145  050  DMP003    Unprotected       N




 F9=Resulting Capacity              F10=Add and Balance
 F11=Display Encryption Status      F12=Cancel
```

```
                          Function Status
─

 You selected to add units.




                       7 % Complete
```

44

Wait for message – 'Selected units have been added successfully'

```
                         Add Units to ASPs

 Select one of the following:

       1. Create unencrypted ASPs
       2. Create encrypted ASPs
       3. Add units to existing ASPs




 Selection
     _

 F3=Exit          F12=Cancel
   Selected units have been added successfully
```

18. Verify disk units have been added
  - **F3**=Exit to screen 'Work with Disk Units'
  - **1.** Work with disk configuration

```
                      Work with Disk Units

 Select one of the following:

     1. Work with disk configuration
     2. Work with disk unit recovery







 Selection
      1
```

19. Select **1.** Display disk configuration


```
                    Work with Disk Configuration

Select one of the following:

    1. Display disk configuration
    2. Work with ASP threshold
    3. Work with ASP configuration
    4. Work with mirrored protection
    5. Work with device parity protection
    6. Work with disk compression
    7. Work with hot spare protection
    8. Work with encryption







Selection
    1
```
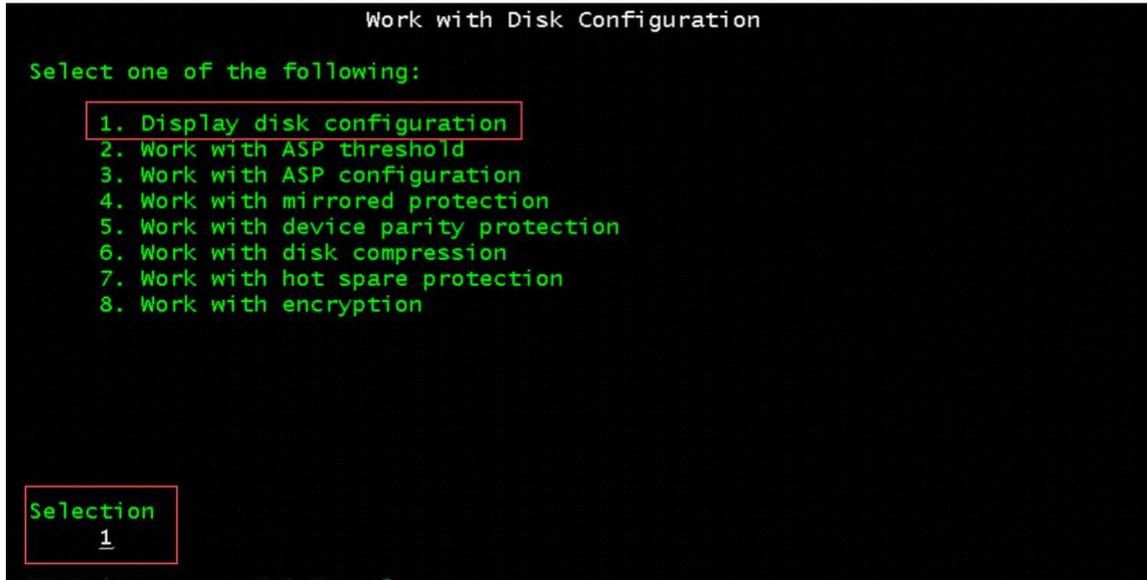
20. Select **1.** Display disk configuration status.


```
                    Display Disk Configuration

Select one of the following:

    1. Display disk configuration status
    2. Display disk configuration capacity
    3. Display disk configuration protection
    4. Display non-configured units
    5. Display device parity status
    6. Display disk hardware status
    7. Display disk compression status
    8. Display hot spare disk unit status
    9. Display disk path status
   10. Display encryption status
   11. Display protection for multiple connection disk units
   12. Display status of remove operation
   13. Display mirrored suspended/resuming units

Selection
    1
```

```
                  Display Disk Configuration Status

           Serial                    Resource                        Hot Spare
ASP Unit   Number      Type Model Name         Status              Protection
  1                                             Unprotected
       1   Y43317000E0A  2145  050  DMP001      Configured              N
       2   Y43317000E0D  2145  050  DMP003      Configured              N
```

21. Press **F3**=Exit to screen 'Exit Dedicated Service Tools'
    - **1**. Exit Dedicated Service Tools (DST)

22. **IBM i 7.5-----At screen - 'Dedicated Service Tools (DST) Sign On'**
    - Service tools user – QSECOFR
    - Service tools password – existing password

Install the Base Operating System on the Migration Target Server using the Network Install Server

1. Select **2.** Install the operating system

2. **IBM i 7.4** Select **5.** Network device

3. **IBM i 7.5-----**Select **5**. Network optical

```
                        Connected (encrypted) to: null
                     Install Device Type Selection
                                                    System:    U7093700
   Select the installation device type:

      1. Tape
      2. Optical
      3. Virtual device - preselected image catalog
      4. Current alternate selected device
      5. Network optical
      6. Optical container
      7. Network tape




   Selection

       _

   F3=Exit    F12=Cancel


MA*    A                                                         20/007
```

PF1	PF2	PF3	PF4	PF5	PF6	Enter	PA1	Attn	Insert	Backtab	NewLine
PF7	PF8	PF9	PF10	PF11	PF12	Clear	PA2	SysReq	Delete	FldExit	NextPad

4. Verify the Network Device/Optical Configuration
   - Server IP = the IP address of the Network Install Server
   - Path Name = the name of the Directory where the image volumes are located. /INSTALL/QBRMS_xxxxxxxx.
   - Press **F10**=Continue

```
                  Network Optical - Configuration
                                              System:    I70BC7A0


   Server IP     : 172.1.1.213
   Path Name     : /INSTALL/QBRMS_KJBRMSX7


   NOTE: It is required that the service tool lan adapter is
   configured and active.






   Press F10 to continue install with the present configuration


   F3=Exit    F10=Continue
```

5. Press **Enter** to confirm

```
                  Confirm Install of the Operating System
                                                      System:    G708D570
 Press Enter to confirm your choice to install the operating
   system.

 Press F12 to return and cancel your choice to install the
   operating system.
```

6. Press **Enter** again

```
                       Select a Language Group
                                                      System:    G708D570
 Note: The language feature shown is the language feature
 installed on the system.

 Type choice, press Enter.

    Language feature . . . . . . . . . . . . .     2924
```

Press **Enter** to confirm

```
                  Confirm Language Feature Selection
                                                      System:    G708D570
 Language feature  . . . . . . . . . . . . . . :    2924

 Press Enter to confirm your choice for language feature.
   Installing the system will continue.

 Press F12 to return to change your choice for
   language feature.
```

```
                Licensed Internal Code IPL in Progress
                                                    07/08/20  12:29:55
 IPL:
   Type  . . . . . . . . . . . . . . . :    Attended
   Start date and time . . . . . . . :    07/08/20  12:29:49
   Previous system end . . . . . . . :    Abnormal
   Current step / total  . . . . . . :      16       16
   Reference code detail . . . . . . :    C6004065

 IPL step                              Time Elapsed    Time Remaining
  Commit Recovery                        00:00:01        00:00:00
  Data Base Initialization               00:00:01        00:00:00
  Journal IPL Clean up                   00:00:01        00:00:00
  Commit Initialization                  00:00:01        00:00:00
 >Start the operating system

 Item:
   Current / Total . . . . . . :

 Sub Item:
   Identifier  . . . . . . . . :
   Current / Total . . . . . . :
```

Select Option **2**=Change install options – press **Enter**

```
                    Install the Operating System

Type options, press Enter.

    Install
      option . . . . .    2           1=Take defaults (No other
                                         options are displayed)
                                      2=Change install options


    Date:
      Year . . . . . .    20          00-99
      Month   . . . . .   07          01-12
      Day  . . . . . .    08          01-31

    Time:
      Hour . . . . . .    12          00-23
      Minute . . . . .    29          00-59
      Second . . . . .    56          00-59
```

7. At screen – 'Specify Install Options'
   - Select Option **1**=Restore programs and language objects from the
     current media set (this will restore system information from the
     Migration Source System backup)
   - Select Option **2**=Keep for Job and output queues
   - Select Option **1**=Yes for distribute operating system on available
     disk units
   - Press **Enter**

```
                    Specify Install Options

Type options, press Enter.

    Restore option . . . . . . .   1    1=Restore programs and language objects
                                           from the current media set
                                        2=Do not restore programs or
                                           language objects
                                        3=Restore only language objects
                                           from current media set
                                        4=Restore only language objects
                                           from a different media set using the
                                           current install device


    Job and output
      queues option  . . . . . .   2    1=Clear, 2=Keep

    Distribute operating system
      on available disk units. .   1    1=Yes, 2=No
```

51

8. At screen - 'Specify Restore Options'
   - Select System information **1**=Restore
   - Press **Enter**

```
                      Specify Restore Options

Type options, press Enter.

   Restore from the installation media:

     System information . . . .     1    1=Restore, 2=Do not restore

     Edit descriptions  . . . .     1    1=Restore, 2=Do not restore

     Message reply list . . . .     1    1=Restore, 2=Do not restore

     Job descriptions . . . . .     1    1=Restore, 3=Keep customization

     Subsystem descriptions . .     1    1=Restore, 3=Keep customization
```

9. Sign On. User = QSECOFR. No password required.

```
                          Sign On
                                      System  . . . . . :    I922BRMC
                                      Subsystem . . . . :    QCTL
                                      Display . . . . . :    QCONSOLE

            User  . . . . . . . . . . . . .     QSECOFR


            Program/procedure . . . . . . . .   _____
            Menu  . . . . . . . . . . . . . .   _____
            Current library . . . . . . . . .   _____








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       DISCLOSURE RESTRICTED BY GSA ADP SCHEDULE CONTRACT WITH IBM CORP.
                          (C) COPYRIGHT IBM CORP. 1980, 2015.
```

10. Change the following:
- System date
- System time
- Start print writers = **N**
- Start system to restricted state = **Y**
- Set major system options = **Y**
- Define or change system at IPL = **Y**
- Press **Enter**

```
                           IPL Options

Type choices, press Enter.

   System date  . . . . . . . . . . . . . .    07 / 08 / 20    MM / DD / YY
   System time  . . . . . . . . . . . . . .    12 : 42 : 00    HH : MM : SS
   System time zone . . . . . . . . . . . .    QN0600CST2      F4 for list
   Clear job queues . . . . . . . . . . . .    N               Y=Yes, N=No
   Clear output queues  . . . . . . . . . .    N               Y=Yes, N=No
   Clear incomplete job logs  . . . . . . .    N               Y=Yes, N=No
   Start print writers  . . . . . . →         N               Y=Yes, N=No
   Start system to restricted state . →        Y               Y=Yes, N=No


   Set major system options . . . . . →        Y               Y=Yes, N=No
   Define or change system at IPL . . →        Y               Y=Yes, N=No




 Last power-down operation was ABNORMAL
```

11. Verify: Enable automatic configuration = **Y**

```
                      Set Major System Options

Type choices, press Enter.

   Enable automatic configuration . . →        Y              Y=Yes, N=No
   Device configuration naming  . . . . . .    *NORMAL        *NORMAL, *S36
                                                              *DEVADR
   Default special environment  . . . . . .    *NONE          *NONE, *S36
```

12. Select **3.** System value commands

```
              Define or Change the System at IPL
                                          System:   I922BRMC
Select one of the following:

     1. Configuration commands
     2. Change user profile
     3. System value commands
     4. Network attribute commands
     5. General object commands
     6. Work with shared pools
     7. Change IPL attributes




Selection
    3
```

13. Select **3.** Work with system values

```
              System Value Commands
                                          System:   I922BRMC
Select one of the following:

     1. Display system value
     2. Change system value
     3. Work with system values







Selection
    3
```

14. Select Option **2=**Change for each of the System Values to change
   - Change and document any changes made from the list below:

```
                        Work with System Values
                                                System:    I922BRMC
Position to  . . . . . .          _____     Starting characters of system value
Subset by Type . . . . .    *ALL____    F4 for list

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

          System
Option    Value       Type        Description
   _      QABNORMSW   *SYSCTL     Previous end of system indicator
   _      QACGLVL     *MSG        Accounting level
   _      QACTJOB     *ALC        Initial number of active jobs
   _      QADLACTJ    *ALC        Additional number of active jobs
   _      QADLSPLA    *ALC        Spooling control block additional storage
   _      QADLTOTJ    *ALC        Additional number of total jobs
   _      QALWJOBITP  *SYSCTL     Allow jobs to be interrupted
   2      QALWOBJRST  *SEC        Allow object restore option
   _      QALWUSRDMN  *SEC        Allow user domain objects in libraries
   _      QASTLVL     *SYSCTL     User assistance level
                                                            More...
 F3=Exit   F4=Prompt   F5=Refresh   F11=Display names only   F12=Cancel
```

----- Attention ---

To prevent the recovery from failing, change the following system

values to the new settings.

Record the current setting for use after the recovery is complete.

System value	Current setting	New setting
QALWOBJRST	_____	*ALL
QFRCCVNRST	_____	0
QINACTITV	_____	*NONE
QJOBMSGQFL	_____	*PRTWRAP
QJOBMSGQMX	_____	30 (minimum, 64 recommended)
QLMTDEVSSN	_____	0
QLMTSECOFR	_____	0
QMAXSIGN	_____	*NOMAX
QPFRADJ	_____	2
QPWDEXPITV	_____	*NOMAX
QSCANFSCTL	_____	*NOPOSTRST
QVFYOBJRST	_____	1

F3=Exit to screen 'Define or Change the System at IPL'

- **F3**=Exit and continue IPL

```
                        System Value Commands
                                                System:     I922BRMC
  Select one of the following:

       1. Display system value
       2. Change system value
       3. Work with system values








  Selection

       _
 F3=Exit   F12=Cancel
```

15. Press **Enter** to change your password.

```
                        Sign-on Information
 _
                                                System:     I922BRMC
  Password has expired.   Password must be changed to continue sign-on
  request.















  Press Enter to change your password.
```

Change Password

- Current password = QSECOFR
- New password 15 character minimum

```
                        Change Password

User profile  . . . . . . . . . . . . . :   QSECOFR

Password last changed . . . . . . . . . :   07/08/20

Type choices, press Enter.

  Current password  . . . . . . . . . . .

  New password  . . . . . . . . . . . . .

  New password (to verify)  . . . . . . .            _
```

16. At screen - 'IBM i Main Menu'
    - Notice the System name changed

```
MAIN                      IBM i Main Menu
                                                    System:    I922BRMC
Select one of the following:

     1. User tasks
     2. Office tasks
     3. General system tasks
     4. Files, libraries, and folders
     5. Programming
     6. Communications
     7. Define or change the system
     8. Problem handling
     9. Display a menu

    11. IBM i Access tasks

    90. Sign off

Selection or command
===> _

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F23=Set initial menu
```

17. At the command line type **GO LICPGM** press **Enter**
   - 10. Display Installed Licensed Programs

Notice the Base IBM i installed and Library QGPL and QUSRSYS are *BACKLEVEL

```
                    Display Installed Licensed Programs
                                                    System:    I922BRMC
_
Licensed   Installed
Program    Status      Description
5770SS1    *BACKLEVEL  Library QGPL
5770SS1    *BACKLEVEL  Library QUSRSYS
5770SS1    *COMPATIBLE IBM i
```

Recover the BRMS Product and Associated Libraries on the Migration Target Server using the Network Install Server

1. On the Migration Target Server Create Optical Device
    - Type command **CRTDEVOPT** press **F4** to prompt
    - Device description = INSTALL
    - Resource name = *VRT - press **Enter**
    - Local internet address = *SRVLAN - press **Enter**
    - Remote internet address = Network Install Server IP address
    - Network image directory = '/INSTALL/QBRMS_xxxxxxxx' where xxxxxxxx is the name assigned by BRMS – press **Enter**

```
                Create Device Desc (Optical) (CRTDEVOPT)

 Type choices, press Enter.

 Device description . . . . . . . > INSTALL        Name
 Resource name  . . . . . . . . > *VRT            Name, *NONE, *VRT...
 Device type  . . . . . . . . . .   *RSRCNAME       *RSRCNAME, 63BC, 63B8, 632A..
 Local internet address . .  ───> *SRVLAN         *NONE, *SRVLAN
 Remote internet address  . ──>   '192.168.6.117'


 Network image directory  . ──>   '/INSTALL/QBRMS_xxxxxxxx'


 User ID number . . . . . . . . .   0              0-4294967295
 Group ID number  . . . . . . . .   0              0-4294967295
 Online at IPL  . . . . . . . . .   *YES           *YES, *NO
 Message queue  . . . . . . . . .   *SYSOPR        Name
   Library  . . . . . . . . . . .                  Name, *LIBL, *CURLIB
 Text 'description' . . . . . . .   *BLANK
```

2. Vary on optical device. Run command.

    VRYCFG CFGOBJ(INSTALL) CFGTYPE(*DEV) STATUS(*ON)

3. Verify access to the remote image catalog. Run command.
    WRKIMGCLGE IMGCLG(*DEV) DEV(INSTALL)
    - Directory - /INSTALL/QBRMS_xxxxxxxx
    - Volumes should be Mounted or Loaded

NOTE: The following steps reference the BRMS Recovery Report. The Report is a spooled file named "QP1ARCY" on the Migration Source System. Information about the virtual optical and virtual tape volume(s) are in the Report.

4. Follow Step 004 in the BRMS Recovery Report. Use the specific information in the Recovery Report. The information shown in this document is just an example.

STEP 004 : Recover the BRMS Product and Associated Libraries

Change the QSYSOPR message queue to prevent messages not related to the recovery from interrupting the recovery process.

Run command.

- **CHGMSGQ MSGQ(QSYSOPR) DLVRY(*NOTIFY) SEV(99)**

Recover the libraries listed below, specifying the saved-item, the name of the standalone device or media library being used, and the volume identifiers and sequence numbers listed.

Run command.

- **RSTLIB SAVLIB(saved-item) DEV(device-name)**

VOL(volume-identifier) OPTFILE(")

The following are examples, the Recovery Report has the specific information.

```
Saved    Save   ----- ASP ------ Save    Save        Not   Sequence

Item     Type   Name   Number Date   Time   Saved  Saved Number

---------- ------- ---------- ----- -------- -------- -------- ------ ---------

QBRM     *FULL  *SYSBAS  00001  7/06/20 10:37:08   1184    0      48

   OPTFILE('/BRMSOPTSAV22488012007061037061922BRMC/QBRM ')

QMSE     *FULL  *SYSBAS  00001  7/06/20 10:37:09     8     0      49

   OPTFILE('/BRMSOPTSAV22488012007061037061922BRMC/QMSE ')

QUSRBRM  *FULL  *SYSBAS  00001  7/06/20 10:37:41    264    0      58

   OPTFILE('/BRMSOPTSAV22488012007061037081922BRMC/QUSRBRM ')
```

```
                           Restore Library (RSTLIB)

 Type choices, press Enter.

 Saved library  . . . . . . . . . > QBRM_____      Name, generic*, *NONSYS...
                  + for more values   _____
 Device . . . . . . . . . . . . . > INSTALL____      Name, *SAVF, *MEDDFN
                  + for more values   _____
 Volume identifier  . . . . . . . > Q06990_____
                  + for more values > Q07898_____
 End of media option  . . . . . .   *REWIND         *REWIND, *LEAVE, *UNLOAD
 Optical file . . . . . . . . . . > '/BRMSOPTSAV22488012007061037061922BRMC/QBRM
 '_____
```

```
 Selection or command
 ===> RSTLIB SAVLIB(QMSE) DEV(INSTALL) VOL(Q07898) OPTFILE('/BRMSOPTSAV224880120
 07061037061922BRMC/QMSE')
 F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F23=Set initial menu
```

```
 Selection or command
 ===> RSTLIB SAVLIB(QUSRBRM) DEV(INSTALL) VOL(Q08807) OPTFILE('/BRMSOPTSAV224880
 12007061037081922BRMC/QUSRBRM')
 F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F23=Set initial menu
```

5. Follow Step 005 in the BRMS Recovery Report
   - STEP 005 : Initialize BRMS Functional Authority Information
     - Run command **INZBRM OPTION(*SETAUT)**
     - Run command **SETUSRBRM USER(QSECOFR) USAGE(*ADMIN)**
6. Follow Step 008 in the BRMS Recovery Report
   - STEP 008 : Initialize BRMS Device and Media Library Information
     - Run command **INZBRM OPTION(*DEVICE)**
     - Run command **WRKDEVBRM**
   - Verify the virtual optical device "INSTALL *OPT" is in the list

```
                           Work with Devices                        I922BRMC

 Position to  . . . . . .  _____        Starting characters

 Type options, press Enter.
   1=Add    2=Change   4=Remove    5=Display
   8=Work with status

 Opt   Device      Category  Type/Model  Text
   _    _____     _____
   _    INSTALL     *OPT      632B/003    Entry created by BRM configuration
```

Follow Step 009 in the BRMS Recovery Report. Use the specific information in the Recovery Report. The information shown in this document is just an example.

  – 009 : Recover User Profiles STEP

----- Attention --

THIS REPORT CONTAINS ITEMS FROM A CLOUD BACKUP.

PLEASE RUN THE FOLLOWING PROGRAM CALL TO SET UP THE CLOUD VOLUMES:

- **CALL QBRM/Q1AOLD PARM('CLOUD   ' 'FIXDRVOL '**

   'Qxxxxx' 'Qxxxxx' 'Qxxxxx' 'Qxxxxx' 'Qxxxxx')

The 'FIXDRVOL ' parameter requires 2 blanks at the end.

Note:

Find the VOLUMES from the BRMS Recovery Report. Step 009.

```
===> CALL PGM(QBRM/Q1AOLD) PARM('CLOUD      ' 'FIXDRVOL  ' 'Q06990' 'Q07898' 'Q0
8807' 'Q13692' 'Q32656')
 F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F23=Set initial menu
```

Restore a current version of the user profiles.

Run command.

- **STRRCYBRM OPTION(*SYSTEM) ACTION(*RESTORE)**

Press **F9**=Recovery defaults - make the following changes

- Device - INSTALL
- Data base member option - *ALL
- Allow object differences - *COMPATIBLE

```
                    Restore Command Defaults

Type information, press Enter.

  Device  . . . . . . . . . . . . . . INSTALL    Name, *MEDCLS
                                     _____
                                     _____
                                     _____
  Parallel device resources:
    Minimum resources. . . . . . . .  *SAV       1-32, *NONE, *AVAIL
    Maximum resources. . . . . . . .  _____   1-32, *AVAIL, *MIN
  End of media option . . . . . . . . *REWIND    *REWIND, *LEAVE, *UNLOAD
  Option  . . . . . . . . . . . . . . *ALL       *ALL, *NEW, *OLD, *FREE
  Data base member option . . . . . . *ALL       *MATCH, *ALL, *NEW, *OLD
  Restore spooled file data . . . . . *NONE      *NONE, *NEW
  Allow object differences  . . . . . *COMPATIBLE *NONE, *ALL, *COMPATIBLE,
                                     _____   *AUTL, *FILELVL, *OWNER,
                                     _____   *PGP
                                     _____

                                                              More...
```

7. **Page down** once and make the following change
   - System resource management - *NONE

```
                    Restore Command Defaults

Type information, press Enter.

Restore to library  . . . . . . . . *SAVLIB     Name, *SAVLIB
Auxiliary storage pool  . . . . . . *SAVASP     Name, *SAVASP, 1-32...
Document name generation  . . . . . *SAME       *SAME, *NEW
System resource management  . . . . *NONE       *ALL, *NONE, *HDW, *TRA
Apply journaled changes:
  Restore journal receivers . . . . *YES        *YES, *NO
  Apply option  . . . . . . . . . . *NONE       *NONE, *APPLY, *REMOVE
    Ending date . . . . . . . . . . *CURRENT    Date, *CURRENT
    Ending time . . . . . . . . . . *CURRENT    Time, *CURRENT
Lotus point-in-time:
  Ending date . . . . . . . . . . . *CURRENT    Date, *CURRENT, *FULL
  Ending time . . . . . . . . . . . *CURRENT    Time, *CURRENT, *FULL
Create parent directories . . . . . *NO         *NO, *YES
  Parent directories owner  . . . . *PARENT     Name, *PARENT
Key store file  . . . . . . . . . . *SAV        Name, *SAV, *NONE
  Key store library . . . . . . . . *SAV        Name, *SAV, *NONE
                                                              More...
```

Press **Enter** to return to the Select Recovery Items screen

8. Option **1**=Select "*SAVSECDTA" and press **Enter**

```
                       Select Recovery Items                    I922BRMC

                                        Select action . . . . . : *ALL
                                        Select volume . . . . . : _____
  Type options, press Enter.
     1=Select   4=Remove   5=Display   7=Specify object

     Saved        Save     Save    Save   Parallel Volume    File        Expire
 Opt Item         Date     Time    Type   Devices  Serial    Sequence    Date
  1  *SAVSECDTA   7/06/20 10:36:12 *FULL           Q06990          45    7/27/20
  _  *SAVCFG      7/06/20 10:36:12 *FULL           Q06990          46    7/27/20
  _  QSYS2        7/06/20 10:37:12 *FULL           Q07898          52    7/27/20
  _  QGPL         7/06/20 10:37:13 *FULL           Q07898 +        53    7/27/20
  _  QUSRSYS      7/06/20 10:37:08 *FULL           Q06990          47    7/27/20
  _  QICC         7/06/20 10:37:12 *FULL           Q07898          50    7/27/20
  _  QUSRICC      7/06/20 10:37:12 *FULL           Q07898          51    7/27/20
  _  QIWS         7/06/20 10:37:13 *FULL           Q08807          55    7/27/20
  _  QSYSDIR      7/06/20 10:37:13 *FULL           Q08807          56    7/27/20
  _  QTCP         7/06/20 10:37:13 *FULL           Q08807          54    7/27/20
  _  QCLDIPL      7/06/20 10:37:39 *FULL           Q08807          57    7/27/20
                                                                        Bottom
```

```
                       Select Recovery Items                    I922BRMC
.................................................................................
:                      Display Recovery Items                    I922BRMC     :
:          _                                                     17:36:40     :
:      Remaining items . . . . :            1                                 :
:      Remaining objects . . . :           78                                 :
:      Remaining size  . . . . :       66.0275 M    100.0 %                   :
:                                                                             :
:  Saved                       Save   Volume                Exp    Objects    :
:  Item         Date     Time  Type   Serial    File Seq    Date   Saved      :
:  *SAVSECDTA   7/06/20 10:36:12 *FULL Q06990          45  7/27/20   78       :
:                                                                             :
:                                                                             :
:                                                                             :
:                                                                             :
:                                                                             :
:                                                                             :
:    Press ATTN key to cancel recovery after current item completes.         :
:  Waiting for reply to message on message queue QSYSOPR.                     :
:.................................................................................
```
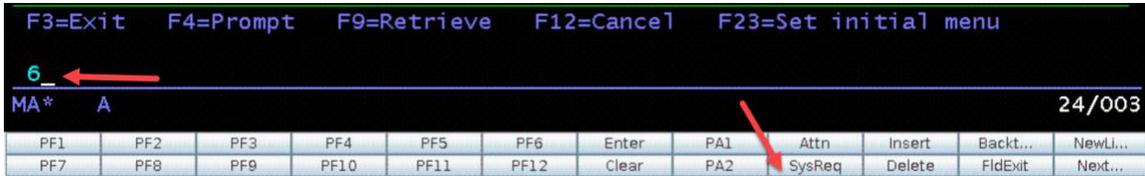
Note:

If a message "Waiting for reply to message on message queue QSYSOPR." is received, Select SysReq and type 6 to display QSYSOPR system messages.
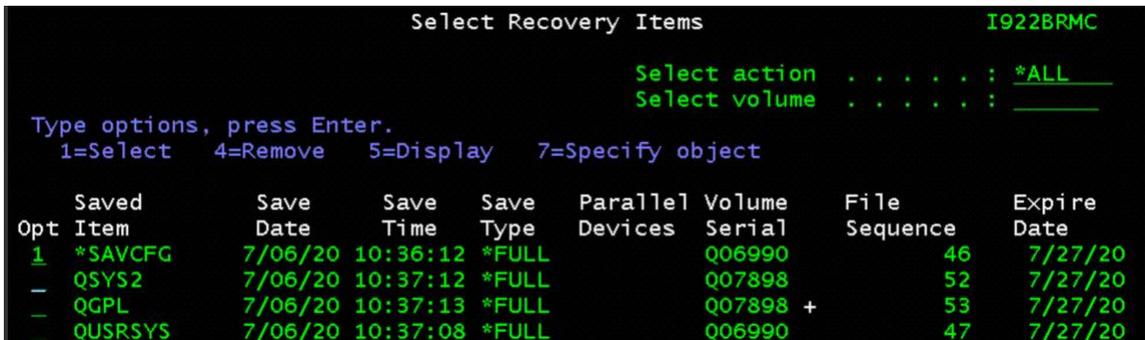
If asked to Load volume Qxxxxx on INSTALL (C G).

Type C to cancel and to continue with the restore.

9. Follow Step 011 in the BRMS Recovery Report
   - STEP 011 : Recover Configuration Data
     • Select Option **1**=Select "*SAVCFG" and press **Enter**

10. Follow Step 012 in the BRMS Recovery Report
   - STEP 012 : Recover Required System Libraries
     - Select Option **1**=Select for all of the Saved Item's on optical volume(s). **Page down** to look through list. Press **Enter**

```
                         Select Recovery Items                      I922BRMC

                                       Select action  . . . . . . : *ALL____
                                       Select volume  . . . . . :  _____
   Type options, press Enter.
     1=Select    4=Remove    5=Display    7=Specify object

       Saved          Save     Save    Save   Parallel Volume    File        Expire
   Opt Item           Date     Time    Type   Devices  Serial    Sequence    Date
    1  QSYS2        7/06/20 10:37:12  *FULL             Q07898          52    7/27/20
    1  QGPL         7/06/20 10:37:13  *FULL             Q07898 +        53    7/27/20
    1  QUSRSYS      7/06/20 10:37:08  *FULL             Q06990          47    7/27/20
    1  QICC         7/06/20 10:37:12  *FULL             Q07898          50    7/27/20
    1  QUSRICC      7/06/20 10:37:12  *FULL             Q07898          51    7/27/20
    1  QIWS         7/06/20 10:37:13  *FULL             Q08807          55    7/27/20
    1  QSYSDIR      7/06/20 10:37:13  *FULL             Q08807          56    7/27/20
    1  QTCP         7/06/20 10:37:13  *FULL             Q08807          54    7/27/20
    1  QCLDIPL      7/06/20 10:37:39  *FULL             Q08807          57    7/27/20


                                                                            Bottom
   F3=Exit    F5=Refresh    F9=Recovery defaults    F11=Object View
   F12=Cancel    F14=Submit to batch    F16=Select
    68 objects restored.   2 objects excluded.
```

```
                         Select Recovery Items                      I922BRMC
   .............................................................................
   :  _                   Display Recovery Items                 I922BRMC    :
   :                                                             17:57:35    :
   :    +---------------------------------------------------------------+    :
   :    | Remaining items . . . . :          8                         |    :
   :    | Remaining objects . . . :      2,511                         |    :
   :    | Remaining size  . . . . :   4,967.2540 M      98.7 %         |    :
   :    +---------------------------------------------------------------+    :
   :                                                                         :
   : Saved                         Save   Volume                Exp   Objects :
   : Item         Date     Time    Type   Serial    File Seq    Date  Saved   :
   : QGPL       7/06/20 10:37:13  *FULL  Q07898 +        53   7/27/20   165   :
   : QUSRSYS    7/06/20 10:37:08  *FULL  Q06990          47   7/27/20  1680   :
   : QICC       7/06/20 10:37:12  *FULL  Q07898          50   7/27/20   108   :
   : QUSRICC    7/06/20 10:37:12  *FULL  Q07898          51   7/27/20    36   :
   : QIWS       7/06/20 10:37:13  *FULL  Q08807          55   7/27/20   138   :
   : QSYSDIR    7/06/20 10:37:13  *FULL  Q08807          56   7/27/20    73   :
   : QTCP       7/06/20 10:37:13  *FULL  Q08807          54   7/27/20   281   :
   : QCLDIPL    7/06/20 10:37:39  *FULL  Q08807          57   7/27/20    30   :
   :                                                                         :
   :                                                                         :
   : Press ATTN key to cancel recovery after current item completes.        :
   :                                                                         :
   .............................................................................
```

- The restore from virtual optical media is complete. **F3**=exit.

Add Internet Address for Migration Target Server After Network Install and Restore from Virtual Optical Media

1. At SST remove Service Tools Server (STS) LAN adapter configuration that was used for network install and restore from virtual optical media.
   - Type command **STRSST** press **Enter**
   - At screen - 'Start Service Tools (STRSST) Sign On'
     - Service tools user ID - QSECOFR
     - Service tools password – existing password
   - **8**. Work with Service Tools Server Security and Devices
   - **F13**=Select STS LAN adapter
   - At screen - 'Select Service Tools Server LAN Adapter'
     - **1**=Select Resource Name that is currently selected. Note '*'.
     - Record - Resource name, Internet address, Gateway router address, and Subnet mask.
     - **F13**=Deactivate
     - **F6**=Clear
     - **F7**=Store
     - **F3**=Exit to screen 'Exit System Service Tools'
       - Press **Enter** to continue ending SST.
2. *Remove existing TCP/IP routes and interfaces. These are actually the configuration from the Migration Source System.*
   - Type command **CFGTCP** press **Enter**
   - **2**. Work with TCP/IP routes
     - **4**=Remove - to remove all *DFTROUTE's
   - **1**. Work with TCP/IP interfaces
     - **4**=Remove - to remove all, except 127.0.0.1 *LOOPBACK
2. Remove existing line descriptions. These are actually the configuration from the Migration Source System.
   - Type command **WRKLIND** press **Enter**
     - **4**=Delete - to delete all
3. Add line description for Migration Target Server. Use Resource name recorded above.
   - **CRTLINETH LIND(MIGRATE) RSRCNAME(CMNxx)**

4. Add TCP/IP interface for Migration Target Server. Use Internet address and Subnet mask recorded above.
   - **ADDTCPIFC INTNETADR('n.n.n.n') LIND(MIGRATE) SUBNETMASK('n.n.n.n')**
5. Add TCP/IP route for Migration Target Server. Use Gateway router address recorded above.
   - **ADDTCPRTE RTEDEST(*DFTROUTE) NEXTHOP('172.1.1.2')**
6. TCP/IP must be started so BRMS can transfer virtual tape media required for the recovery from the Network Install Server.
   - Continue the recovery in restricted state. NOTE: Use of restricted state TCP/IP requires that 5770SS1 option 3 was installed when the backups were run on the Migration Source System.
     - Run commands:
     - **STRTCP STRSVR(*NO) STRIFC(*NO) STRPTPPRF(*NO) STRIP6(*YES)**
     - **STRTCPIFC INTNETADR('n.n.n.n')** Use Internet address recorded above.
   - If restricted state TCP/IP is not available, start all subsystems by running the following commands:
     - **STRSBS SBSD(QCTL)**
     - **STRTCP**
7. Find the Resource URI used for the Network Install Server, this is where the virtual tape volume(s) were stored by BRMS.
   - Type command **WRKCFGICC** press **Enter**
   - Select Option **5**=Display for MIGRATE
   - Ping the Resource URI to verify the connection.
     - Run command **PING 'n.n.n.n'**

Create Virtual Tape and Retrieve Virtual Tape Media from Network Install Server

1. Create a virtual tape device. Run command.
   - **CRTDEVTAP DEVD(MIGRATETAP) RSRCNAME(*VRT)**
2. Vary on the virtual tape device. Run command.
   - **VRYCFG CFGOBJ(MIGRATETAP) CFGTYPE(*DEV) STATUS(*ON)**
3. Setup the cloud tape volume(s)
   - Only specify the tape volume(s) in the command.
   - **CALL QBRM/Q1AOLD PARM('CLOUD   ' 'FIXDRVOL ' 'Qxxxxx')**
4. Move tape volume(s) from the Network Install Server to the Migration Target Server
   - **WRKMEDBRM** press **Enter**
   - Find the tape volume(s) from the BRMS Recovery Report.
   - Notice the Location of the tape volume(s), they should still be in the Network Install Server. Location = **MIGRATE**. Media Class = **QCLDVRTTAP**.
   - Select Option **8**=Move (all the tape volume(s) with Location **MIGRATE** at the same time) press **Enter**
   - Change the Storage location to *HOME and press **Enter**
   - Wait for message – Volume Qxxxxx moved.
     - **F3**=Exit

5. Check the ICC Status of the tape volume(s) transfer
   - **WRKSTSICC STATUS(*ALL)**
   - Check Status is **Active** or **Success** for Oper=FRMCLD (From Cloud)
   - Status of **Failed** is ok for Oper=TOCLD (To Cloud)
   - Once all the jobs with Oper = FRMCLD have a Status of **Success**, continue with the BRMS restore.
   - **F3**=Exit

6. Follow Step 013 in the BRMS Recovery Report
   - STEP 013 : Reset BRMS Device and Media Library Information
   - **INZBRM OPTION(*DEVICE)**
   - **WRKDEVBRM**
   - Verify Virtual Tape Device 'MIGRATETAP *VRTTAP' is listed
   - 4=Remove to remove Virtual Optical Device 'INSTALL *OPT'
   - **F3**=Exit

__ STEP 015 : Recover All Remaining System and User Data

TCP/IP has already been started. Do not use STEP 015 instructions to start TCP/IP.

You may now select to recover all of the data on the Migration Target Server using tape volume(s) moved from the Network Install Server. Otherwise, skip to the next recovery step, Recover IBM Product Libraries.

To recover all of the data, type the following command and press **Enter**.

- **STRRCYBRM OPTION(*RESUME)**

Press **F9** on the 'Select Recovery Items' screen to go to the 'Restore Command Defaults' screen.

- Ensure *MEDCLS is specified for the Device prompt.
- Ensure *SAVLIB is specified for the Restore to library prompt.
- Ensure *SAVASP is specified for the Auxiliary storage pool prompt.

Press **Enter** to return to the 'Select Recovery Items' screen.

Use **F16** to select all recovery items and press **Enter**. After all saved items are recovered, continue with the step following "Recover Directories and Files".

Otherwise you can recover individually, starting with Recover IBM Product Libraries.

Recover IBM Product Libraries on the Migration Target Server using tape volume(s) moved from the Network Install Server.

1. Follow Step 016 in the BRMS Recovery Report
- STEP 016 : Recover IBM Product Libraries

- **STRRCYBRM OPTION(*IBM) ACTION(*RESTORE)**

The Restore Command Defaults should be used to specify the correct Device parameter and change the Create parent directories prompt back to *NO.

Press **F9** on the Select Recovery Items display to go to the Restore

Command Defaults display.

- Ensure *MEDCLS is specified for the Device prompt.

- Ensure *NO is specified for the Create parent directories prompt.

- Press **Enter** to return to the Select Recovery Items display.

2. Review the list of Recovery Items and Remove any that have already been restored.

- Select Option **4**=Remove and press **Enter**
  - Note that the "Volume Serial" is from the optical media
  - Once the items are removed, they will drop off the list

```
                        Select Recovery Items                      I922BRMC

                                          Select action  . . . . . . : *ALL____
                                          Select volume   . . . . . . : _____
   Type options, press Enter.
     1=Select   4=Remove    5=Display    7=Specify object

        Saved      Save      Save   Save   Parallel Volume   File         Expire
   Opt  Item       Date      Time   Type   Devices  Serial   Sequence     Date
   4    QICC       7/06/20 10:37:12 *FULL           Q07898        50       7/27/20
   4    QUSRICC    7/06/20 10:37:12 *FULL           Q07898        51       7/27/20
   4    QIWS       7/06/20 10:37:13 *FULL           Q08807        55       7/27/20
   4    QSYSDIR    7/06/20 10:37:13 *FULL           Q08807        56       7/27/20
   4    QTCP       7/06/20 10:37:13 *FULL           Q08807        54       7/27/20
   _    #CGULIB    7/06/20  9:23:31 *FULL           Q13692         1       7/27/20
   _    #COBLIB    7/06/20  9:23:31 *FULL           Q13692         2       7/27/20
   _    #DFULIB    7/06/20  9:23:32 *FULL           Q13692         3       7/27/20
   _    #DSULIB    7/06/20  9:23:32 *FULL           Q13692         4       7/27/20
   _    #RPGLIB    7/06/20  9:23:32 *FULL           Q13692         5       7/27/20
   _    #SDALIB    7/06/20  9:23:33 *FULL           Q13692         6       7/27/20
                                                                         More...
   F3=Exit   F5=Refresh    F9=Recovery defaults    F11=Object View
   F12=Cancel    F14=Submit to batch    F16=Select
```

Change the Recovery Defaults

- Select **F9**=Recovery defaults
- Device = MIGRATETAP
- Option = *ALL
- Data base member option = *ALL
- Restore spooled file data = *NEW
- Allow object differences = *COMPATIBLE

3. Page down
   - System resource management = *NONE
   - Create parent directories = *NO
   - Press **Enter** to return to "Select Recovery Items"

```
                      Restore Command Defaults

Type information, press Enter.

  Restore to library  . . . . . . . .  *SAVLIB      Name, *SAVLIB
  Auxiliary storage pool  . . . . . .  *SAVASP      Name, *SAVASP, 1-32...
  Document name generation  . . . . .  *SAME        *SAME, *NEW
  System resource management    ──────▶ *NONE       *ALL, *NONE, *HDW, *TRA
  Apply journaled changes:
    Restore journal receivers . . . .  *YES         *YES, *NO
    Apply option  . . . . . . . . . .  *NONE        *NONE, *APPLY, *REMOVE
      Ending date . . . . . . . . . .  *CURRENT     Date, *CURRENT
      Ending time . . . . . . . . . .  *CURRENT     Time, *CURRENT
  Lotus point-in-time:
    Ending date . . . . . . . . . . .  *CURRENT     Date, *CURRENT, *FULL
    Ending time . . . . . . . . . . .  *CURRENT     Time, *CURRENT, *FULL
  Create parent directories .  ──────▶  *NO         *NO, *YES
    Parent directories owner  . . . .  *PARENT      Name, *PARENT
  Key store file  . . . . . . . . . .  *SAV         Name, *SAV, *NONE
    Key store library . . . . . . . .  *SAV         Name, *SAV, *NONE
```

4. Select the saved items
   - Review the list again
   - Select Option **1**=Select for each item

     or
   - Select **F16**= Select (this will select all the items)
   - Press **Enter** to recover the saved items

Recover User Libraries on the Migration Target Server using tape volumes moved from the Network Install Server.

1. Follow Step 017 in the BRMS Recovery Report
- STEP 017 : Recover User Libraries
  - **STRRCYBRM OPTION(*ALLUSR) ACTION(*RESTORE)**
2. Review the list of Recovery Items and Remove any that have already been restored.
   - Select Option **4**=Remove and press **Enter**
     - Notice that the "Volume Serial" is from the optical media
     - Press **F11**=Object View (will show which Control Group created the saved item)
     - Remove items created by "QCLDBIPL01"
     - Once the items are removed, they will drop off the list

```
                                               Select action  . . . . . . : *ALL
                                               Select volume  . . . . . . :  _____
  Type options, press Enter.
     1=Select    4=Remove    5=Display    7=Specify object

     Saved        Save      Save     Item          ----- Objects ----  Control
  Opt Item        Date      Time     Type      Saved     Not Saved  Group      Encrypted
   _  QS36F       7/06/20  9:25:14  *LIB         1              0  QCLDBSYSO1
   _  QUSRDIRCF   7/06/20  9:25:14  *LIB         3              0  QCLDBSYSO1
   _  QUSRDIRDB   7/06/20  9:25:14  *LIB       191              0  QCLDBSYSO1
   _  QUSRIJS     7/06/20  9:25:14  *LIB       104              0  QCLDBSYSO1
   _  SYSIBM      7/06/20  9:25:16  *LIB        66              0  QCLDBSYSO1
   _  SYSIBMADM   7/06/20  9:25:16  *LIB        17              0  QCLDBSYSO1
   _  SYSPROC     7/06/20  9:25:16  *LIB         3              0  QCLDBSYSO1
      SYSTOOLS    7/06/20  9:25:16  *LIB        60              0  QCLDBSYSO1
   4  QUSRSYS     7/06/20 10:37:08  *LIB      1680              0  QCLDBIPLO1
   4  QSYS2       7/06/20 10:37:12  *LIB       343              0  QCLDBIPLO1
   4  QGPL        7/06/20 10:37:13  *LIB       165              0  QCLDBIPLO1
                                                                         Bottom
```

3. Select the saved items
   - Review the list again
   - Select Option **1**=Select for each item

     or
   - Select **F16**=Select (this will select all the items)
   - Press Enter to recover the saved items

```
                                        Select action  . . . . . :  *ALL
                                        Select volume  . . . . . :  _____
     Type options, press Enter.
      1=Select    4=Remove    5=Display    7=Specify object

        Saved        Save      Save     Save    Parallel Volume      File         Expire
    Opt Item         Date      Time     Type    Devices  Serial      Sequence     Date
     1  #LIBRARY     7/06/20   9:25:10  *FULL            Q13692           136     7/27/20
     1  CESARLIB     7/06/20   9:25:10  *FULL            Q13692           137     7/27/20
     1  CESARLIBBK   7/06/20   9:25:11  *FULL            Q13692           138     7/27/20
     1  CESAROBJ     7/06/20   9:25:11  *FULL            Q13692           139     7/27/20
     1  CLDLIB       7/06/20   9:25:11  *FULL            Q13692           140     7/27/20
     1  CLDTSTCS1    7/06/20   9:25:12  *FULL            Q13692           141     7/27/20
     1  QDSNX        7/06/20   9:25:12  *FULL            Q13692           142     7/27/20
     1  QMGTC        7/06/20   9:25:13  *FULL            Q32656           144     7/27/20
     1  QMGTC2       7/06/20   9:25:13  *FULL            Q32656           145     7/27/20
     1  QRCL         7/06/20   9:25:13  *FULL            Q32656           146     7/27/20
     1  QSRVAGT      7/06/20   9:25:13  *FULL            Q32656           147     7/27/20
                                                                                  More...
     F3=Exit    F5=Refresh    F9=Recovery defaults    F11=Object View
     F12=Cancel    F14=Submit to batch    F16=Select

    MA*    A                    MW                                                 10/002
```

| PF13 | PF14 | PF15 | PF16 | PF17 | PF18 | Enter | Rule | EndFld | ErInp | Reset | DUP ... |
| PF19 | PF20 | PF21 | PF22 | PF23 | PF24 | Clear | AltCur | ErFld | ErEOF | Next... | |

```
    _                 Display Recovery Items                    I922BRMC
                                                                22:20:32
        Remaining items . . . . :           6
        Remaining objects . . . :         441
        Remaining size  . . . . :     51.0239 M     60.8 %

    Saved                        Save  Volume                 Exp      Objects
    Item         Date      Time  Type  Serial    File Seq     Date     Saved
    QUSRDIRDB    7/06/20   9:25:14  *FULL Q32656       151   7/27/20     191
    QUSRIJS      7/06/20   9:25:14  *FULL Q32656       152   7/27/20     104
    SYSIBM       7/06/20   9:25:16  *FULL Q32656       154   7/27/20      66
    SYSIBMADM    7/06/20   9:25:16  *FULL Q32656       155   7/27/20      17
    SYSPROC      7/06/20   9:25:16  *FULL Q32656       156   7/27/20       3
    SYSTOOLS     7/06/20   9:25:16  *FULL Q32656       157   7/27/20      60




      Press ATTN key to cancel recovery after current item completes.
```

79

Recover Document Library Objects on the Migration Target Server using tape
volumes moved from the Network Install Server.

1. Follow Step 018 in the BRMS Recovery Report
- STEP 018 : Recover Document Library Objects

   STRRCYBRM OPTION(*ALLDLO) ACTION(*RESTORE)
2. Select the saved item
   - Select Option **1**=Select
   - Press **Enter** to recover the saved items

```
                                  Select action  . . . . . . : *ALL____
                                  Select volume  . . . . . . : _____
 Type options, press Enter.
   1=Select   4=Remove   5=Display   7=Specify object

     Saved        Save     Save    Save   Parallel Volume   File        Expire
 Opt Item         Date     Time    Type   Devices  Serial   Sequence    Date
  1  *ALLDLO      7/06/20  9:25:34 *FULL            Q32656        159    7/27/20
```

Recover Directories and Files on the Migration Target Server using tape volumes moved from the Network Install Server.

1. Follow Step 019 in the BRMS Recovery Report
- STEP 019 : Recover Directories and Files

- **STRRCYBRM OPTION(*LNKLIST) ACTION(*RESTORE)**

2. Review the list of Recovery Items and Remove any that have already been restored.
    - Select Option **4**=Remove and press **Enter**
        - Notice that the "Volume Serial" is from the optical media
        - Press **F11**=Object View (will shows which Control Group created the saved item)
        - Remove items created by "QCLDBIPL01"
        - Once items are removed, they will drop off the list

```
                                        Select action  . . . . . . :  *ALL
                                        Select volume  . . . . . . :  _____
 Type options, press Enter.
   1=Select    4=Remove    5=Display    7=Specify object

      Saved        Save     Save    Item       ----- Objects ----  Control
 Opt  Item         Date     Time    Type       Saved    Not Saved  Group     Encrypted
  4   QCLDIPL      7/06/20 10:37:39 *LNK          30            0  QCLDBIPL01
  _   *LINK        7/06/20  9:25:35 *LNK      185918            0  QCLDBSYS01
  _   *LINK        7/06/20  9:25:35 *LNK           1            0  QCLDBSYS01
```

2. Select the saved items

- Select Option **1**=Select
- Press Enter to recover the saved items

```
                                        Select action  . . . . . : *ALL____
                                        Select volume  . . . . . : _____
  Type options, press Enter.
    1=Select    4=Remove    5=Display    7=Specify object

      Saved         Save    Save    Save    Parallel Volume    File        Expire
  Opt Item          Date    Time    Type    Devices  Serial    Sequence    Date
  1   *LINK         7/06/20 9:25:35 *FULL            Q32656 +       160    7/27/20
  1   *LINK         7/06/20 9:25:35 *FULL            Q32656 +       160    7/27/20
```

3. View the progress of the "processing objects" and "completed objects" as they get restored

```
  _                    Display Recovery Items                    I922BRMC
                                                                 22:36:21
     Remaining items . . . . :            2
     Remaining objects . . . :        185,919
     Remaining size  . . . . :    23,721.8734 M    100.0 %

  Saved                         Save  Volume                  Exp      Objects
  Item          Date    Time    Type  Serial   File Seq       Date     Saved
  *LINK         7/06/20 9:25:35  *FULL Q32656 +       160  7/27/20 185918
  *LINK         7/06/20 9:25:35  *FULL Q32656 +       160  7/27/20      1




    Press ATTN key to cancel recovery after current item completes.
  Started processing 9000 objects, completed 2000 objects.
```

82

Complete Final Recovery Steps on the Migration Target Server

1. Follow Step 023 in the BRMS Recovery Report
- STEP 023 : Update Program Temporary Fix Information

  - Run command **UPDPTFINF**

2. Follow Step 024 in the BRMS Recovery Report
- STEP 024 : Recover Authorization Information

  - Run command **RSTAUT USRPRF(*ALL)**

```
                    Restore Authority (RSTAUT)

Type choices, press Enter.

User profile . . . . . . . . . .   *ALL         Name, generic*, *ALL
              + for more values    _____










F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cance
F13=How to use this display        F24=More keys
Authorities processed for 3 of 65 user profiles.
```

3. Follow Step 027 in the BRMS Recovery Report
   - STEP 027 : Reset System Values
   - Use the recorded system values and the **WRKSYSVAL** command to change the system values to their original settings.

4. Follow Step 028 in the BRMS Recovery Report
   - STEP 028 : Print Job Log
     - Run command **DSPJOBLOG JOB(*) OUTPUT(*PRINT)**

5. Change System Value for QIPLTYPE
   - **WRKSYSVAL QIPLTYPE** press **Enter**
   - Select Option **2**=Change
   - Select **0**=Unattended IPL. Press **Enter**. **F3**=Exit.

```
                        Work with System Values
                                                    System:    I922BRMC
Position to  . . . . . .    _____    Starting characters of system value
Subset by Type . . . . .    _____       F4 for list

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

        System
Option  Value         Type      Description
  2     QIPLTYPE     *SYSCTL    Type of IPL to perform
```

```
                        Change System Value

System value . . . . . :    QIPLTYPE
Description  . . . . . :    Type of IPL to perform


Type choice, press Enter.

  Type of IPL  . . . . .    0          0=Unattended IPL
                                       1=Attended IPL with dedicated service
                                         tools
                                       2=Attended IPL, console in debug mode
```

7. Sign on to Dedicated Service Tools (DST)

- On 'Virtual server instance details' screen
- Click on Menu **icon**, top right corner of screen
- Click on **IBM i operations**
- **Run action** (21) Activate dedicated service tools
- Verify message – Operation successful … (21) Activate dedicated service tools.
- On console window – 'Dedicated Service tools (DST) Sign On' screen
  - Service tools user ID – QSECOFR
  - Service tools password – existing password

8. At screen - 'Use Dedicated Service Tools (DST)'

- **7**. Start a service tool

```
                    Use Dedicated Service Tools (DST)
                                              System:    TARGET
Select one of the following:

    1. Perform an IPL
    2. Install the operating system
    3. Work with Licensed Internal Code
    4. Work with disk units
    5. Work with DST environment
    6. Select DST console mode
    7. Start a service tool
    8. Perform automatic installation of the operating system

   10. Work with remote service support

   13. Work with system security
   14. End batch restricted state


Selection
     7

F3=Exit    F12=Cancel
```

9. Select Option **7**=Operator panel functions

```
                         Start a Service Tool
                                              System:    TARGET
Attention: Incorrect use of this service tool can cause damage
to data in this system.  Contact your service representative
for assistance.

Select one of the following:

    1. Display/Alter/Dump
    2. Licensed Internal Code log
    3. Trace Licensed Internal code
    4. Hardware service manager
    5. Main storage dump manager
    6. Product activity log
    7. Operator panel functions
    8. Performance data collector


Selection
    7_

F3=Exit   F12=Cancel
```

10. At screen – 'Operator Panel Functions'

- IPL source: **2**=B

- IPL mode: **2**=Normal

- Press Enter to change the IPL attributes and return to the main DST menu.

```
                   Operator Panel Functions
                                              System:    DMSX75X0
IPL source:    2    (1=A, 2=B or 3=D)
IPL mode:      2    (1=Manual, 2=Normal, 3=Secure or 4=Auto)

Press Enter to change the IPL attributes and return
  to the main DST menu.
Press F8 to set the IPL attributes and restart the system.
  Machine processing will be ended and the system will be
  restarted.
Press F10 to set the IPL attributes and power off the system.
  Machine processing will be ended and the system will be
  powered off.
Press F12 to return to the main DST menu without changing
  IPL attributes.




F3=Exit   F8=Restart   F10=Power off   F12=Cancel
```

- **F3**=Exit to 'Exit Dedicated Service Tools' screen
  - **1**. Exit Dedicated Service Tools (DST)
- Close console window

Capture Image of Migration Target Server

The captured image will be used to create a new Virtual server instance of the Migration Target Server. This allows the TCP/IP network to be configured.

1. *Power off Migration Target Server*
   - On 'Virtual server instance details' screen
   - Click on Menu **icon**, top right corner of screen
   - Click on **Immediate shutdown**
   - Click on **Shutdown**
   - Verify message – Starting immediate shutdown …
   - **Refresh** until status is **Shutoff**
2. *Capture image*
   - On 'Virtual server instance details' screen
   - Click on Menu **icon**, top right corner of screen
   - Click on **Capture and export**
   - Check box – all Attached volume(s)
   - Click on **Next**
   - Export destination – Check box **Image catalog**
   - Enter Catalog image name
   - Click on **Capture and export.** Click on **Capture and export**.
3. *Verify captured image*
   - On 'Virtual server instance details' screen
   - Click on **Boot images**, left side of screen
   - **Refresh** images until image is in list and status is **Active**

Create New Migration Target Server

1. On 'Virtual server instances' screen
   - Click on **Create instance**
2. On 'Create virtual server instance' screen
   - General
     - Enter Instance name
     - Click on **Continue**
   - Boot image
     - Select OS – IBM i
     - Select image – Captured image
     - Select storage tier – Set by captured image
     - Select any IBM i Licenses
     - Click on **Continue**
   - Profile
     - Select Machine type
     - Select Core type
     - Select Cores
     - Select Memory (GiB)
     - Click on **Continue**
   - Storage volumes
     - Create any additional volume(s)
     - Click on **Create volume**
     - Enter Name in VSI
     - Enter Size
     - Click on **Create and attach**
     - Click on **Continue**
   - Network interfaces
     - At least one private or public network is required
     - Click on **Finish**
   - Check box – I agree to the Terms and conditions
   - Click on **Create**
   - Verify message – Creating instance **…** This will take some time.
3. On the 'Virtual server instances' screen

- **Refresh** until **Building** status or **Warning** status changes to **Active** status for the new Migration Target Server.
- Click on the new Migration Target Server's **name** to get the 'Virtual server instance details' screen.

4. On the 'Virtual server instance details' screen
- **Refresh** until System Reference Code SRC is 00000000 or A60050A0. When the SRC is 00000000, **Refresh** for one minute to make sure it stays at SRC 00000000. The Virtual server instance IPLs twice.

5. Open console window. The Cloud provides an IBM i console.
- Click on Menu **icon,** top right corner of screen.
- Click on **Open console**, click on **Open console** again.

6. At screen – 'Sign On'
- User – QSECOFR
- Password – existing password
- Previous sign-on … Press **Enter** to continue.

7. Wait for TCP/IP configuration to complete
- Type command **CFGTCP**. Press **Enter**.
- **1**. Work with TCP/IP interfaces
- **F5**=Refresh until attached network interface(s) are displayed with Line Description(s) CLOUDINITx and Line Type *ELAN

8. Verify system

Chapter 3: Troubleshooting

Media status *TRF

Each BRMS volume has a status. The status how the volume is currently being used. Status *TRF has been added to indicate a volume has pending transfer operations.   Run the following command to see all media that has a status of *TRF:

WRKMEDBRM TYPE(*TRF)

```
        Volume              Creation Expiration              Move     Media       Dup
 Opt    Serial    Status    Date     Date      Location      Date     Class       Sts

 __     Q03276    *TRF      05/21/20 06/11/20  BRMSCLD       05/21/20 QCLDVRTTAP
 __     Q15373    *TRF      05/20/20 06/10/20  CLDTEST       05/20/20 QCLDVRTTAP
 __     Q16559    *TRF      05/20/20 06/10/20  BRMSCLD       05/20/20 QCLDVRTTAP
 __     Q28330    *TRF      05/21/20 06/11/20  BRMSCLD       05/21/20 QCLDVRTTAP
 __     Q31739    *TRF      05/21/20 06/11/20  BRMSCLD       05/21/20 QCLDVRTTAP
```

Most transfers will be started by BRMS but run in jobs in subsystem QICCSBS. To determine which jobs have been used to process transfers for BRMS run the following command:

WRKSTSICC STATUS(*ALL)

Use the job information from the failed transfer to work with the job. The job log will contain information about the transfer:

WRKJOB JOB(015970/QSECOFR/L000000010)

option 4=Work with spooled files

option 5=Display

Resolving transfer problems

When a transfer to the Network Install Server fails, the volumes may be left in
*TRF status. Once the transfer problem has been understood and fixed, if the
volume still has a status of *TRF and the location is the MIGRATE location, do
the following recovery on the source system:

- Use **WRKMEDBRM** option 8 'Move' to change the Storage location to
  *HOME
- Run STRMNTBRM MOVMED(*YES) or MOVMEDBRM to retry the
  transfer

ICC Flight Recorder Directory

The ICC flight recorder is used to further diagnose file transfer to and from the
Cloud.

WRKLNK OBJ('/QIBM/ProdData/QICC')

Select the most current STMF file. Option **5**=Display

Verify the MIGRATE resource is functioning correctly

CPYTOCLD and press **F4** to prompt

- The ICC resource must be created.
- IBM® i Read (*R) authority is required on the file that will be copied, and Execute (*X) authority on all directories in the path leading to the file. For example, if copy the file /home/user/jdoe/file.txt, the profile must have Execute authority on the home, user, and jdoe directories, and Read authority on file.txt.

- Example: Using "/tmp/lpume.log"
    - Resource name = MIGRATE (was created earlier)
    - Submit to batch = *NO (should be a small text file)
    - Local file name = /tmp/plume.log (verify it is in the directory path)
    - Cloud file name = test1cs (this can be any name, don't forget to cleanup file in the Network Install Server if successful after the test)

```
                    Copy ICC File to Cloud (CPYTOCLD)

 Type choices, press Enter.

 Resource name  . . . . . . . . . > TOR1CLD      Name
 Submit to batch  . . . . . . . . > *NO          *NO, *YES
 Local file name  . . . . . . . . > '/tmp/lpume.log'




 Cloud file name  . . . . . . . . > test1cs
```

 "File copied." message confirms it was copied

```
 Parameters or command
 ===>
 F3=Exit    F4=Prompt    F5=Refresh    F9=Retrieve    F12=Cancel    F17=Position to
 F22=Display entire field              F23=More options
 File copied. ←
```

Restore problems

CPF41B0 – Incorrect image catalog name specified.

Check the current location of the volume BRMS is trying to restore from in **WRKMEDBRM**. If the volume does not have a status of *ACT and the location is not the MIGRATE location, run STRMNTBRM MOVMED(*YES) on the source

and remote system and verify the volume has a status of *ACT and the location is MIGRATE. Retry the restore.

Chapter 4: Additional Resources

IBM i Migration Strategies

https://cloud.ibm.com/docs/power-iaas?topic=power-iaas-migration-strategies-power - migration-ibmi

How to Download Required Software
Start with My Entitled Systems Support at:

https://www.ibm.com/servers/eserver/ess/index.wss

IBM Cloud Storage Solutions for IBM i User's Guide

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=2ahUKEwjypYrCkMXpAhUCH80KHV69D5wQFjABegQIAxAB&url=https%3A%2F%2Fwww.ibm.com%2Fsupport%2Fknowledgecenter%2Fssw_ibm_i_73%2Ficc%2Ficcumstpdf.pdf&usg=AOvVaw01p3eqw7Tu0eqXHGmqWLsX

BRMS and Cloud Storage Solutions

https://helpsystemswiki.atlassian.net/wiki/spaces/IWT/pages/165642270/BRMS+and+Cloud+Storage+Solutions