



Session: 409032

# iSeries. mySeries.

## iSeries Operations Console Advanced Connectivity

*Marvin Levi*

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## iSeries Operations Console Advanced Connectivity

- Evaluation
  - Session ID: 409032
  - Session title: iSeries Operations Console Advanced Connectivity
  - Agenda key: 53CL
  - Speaker: Marvin Levi

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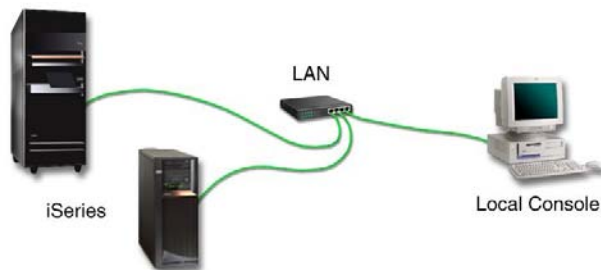
## iSeries Operations Console Advanced Connectivity

- Topics:
  - Requirements for Operations Console
  - Security
  - Migrating from Twinax to Operations Console
  - Configuring Secondary Partitions
  - Console takeover and recovery
  - Questions



## iSeries Operations Console Advanced Connectivity

- Requirements for Operations Console





## Requirements for Operations Console

- PC Operating System
  - Windows 2000 Professional
    - Recommend Service Pack 3
    - SP4? Microsoft Knowledge Base item, 824301
  - Windows 2003
  - Windows XP
    - Recommend Service Pack 1
  - Windows 98 (not supported)
  - Windows Me(not supported)
  - Windows NT Workstation 4.0 or later, with Remote Access Service installed.
    - Requires Service Pack 6
- iSeries Access for Windows
  - Latest Service Pack available



## Requirements for Operations Console

- PC Hardware requirements

Operating System (1,2)	Operations Console PC
Windows NT 4.0	Pentium 300 MHz recommended 64 MB memory minimum (128 MB recommended)
Windows 2000/2003/XP Professional	Pentium 500 MHz (P6 or equivalent compatible microprocessor) 256 MB memory minimum



## Requirements for Operations Console

- Support cards for LAN Connectivity

Card Number	Description
2744	PC1 100 Mbps Tokenring Adapter
2838	PC1 100/10 Mbps Ethernet IOA
2849	PC1 100/10 Mbps Ethernet IOA



## Requirements for Operations Console

Model	LAN console card location	Operations Console async card location for the cable
170, 250	not supported	C08
720	not supported	C09
730, 740	not supported	See the Cabling information.
270	C06, second C05	C07
800, 810	C06, second C05	C07
820	C04, second C03, third C11	C06
825	Integrated Ethernet Port, (C03, C02, C01)(1)	C06
830, SB2	C04, second C06, third C10	C02
840, SB3	C04, second C06, third C10	C02
870, 890	C04, C06, C07, C08, C09	C02

Note:  
(1) These locations will only be available if the Integrated Ethernet Port is not operational.



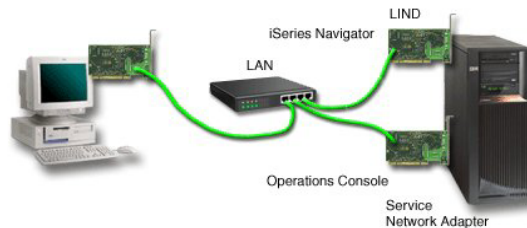
## Requirements for Operations Console

Operations Console (LAN attachment)			Operations Console (direct attachment)		
Model	Supported LAN adapters	LAN adapter locations	Supported asynchronous adapters	Asynchronous adapter locations	Cable (part number)
Table 2. Operations Console adapter and cable requirements for LAN and direct attachments					
520	2744, 2838, 2849	C5 or C2	2742, 2793, 4745, 9771	C3	97H7557
570	2744, 2838, 2849	C4 or C6	2742, 2793, 4745, 9771	C2	97H7557



## Requirements for Operations Console

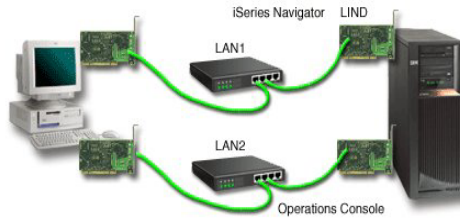
- iSeries Navigator
- XPF





## Requirements for Operations Console

- Preferred
  - iSeries Navigator
  - XPF



## iSeries Operations Console Advanced Connectivity

- Security



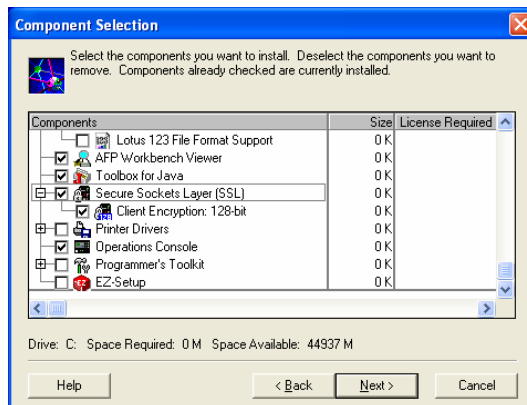
## Security

- Install Cryptographic Access Provider on the iSeries Server
- 5722-AC2 or 5722-AC3
- Install Client encryption support on the operational console
- 5722-CE2 or 5722-CE3
- 5722-AC3 and 5722-CE3 is available for V5R2 and V5R3

Cryptographic Access Provider	Client Encryption	Resulting Encryption
none	none	none
5722-AC2	5722-CE2	56 bit
5722-AC2	5722-CE3	56 bit
5722-AC3	5722-CE2	56 bit
5722-AC3	5722-CE3	128 bit

## Security

- Part of iSeries Access for Windows V5R3 install



## Security

The screenshot shows a DOS window on the left with a table of device IDs. The 'QCONSOLE' entry is circled in green. A white oval highlights the 'QCONSOLE' text in the 'Service device ID for this PC:' field of the 'Configure iSeries Operations Console' window. A blue box labeled 'Encrypted' has an arrow pointing to the password field.

Opt	Device ID	Description
-	DEM0A	MARVIN'S THINKP
-	DEM0B	MARVIN'S PC
-	DEM0C	MARVIN'S LAB PC
-	DEM0D	USED BY MARVIN
-	QCONSOLE	QCONSOLE

## Security



- Windows XP

- The above error message is received when limited authority is detected to access the XP key container file.
- Whomever creates the first Operations Console configuration on an XP machine will be the only user with authority to connect a console. This is because XP's security limits access to the key container file. This is true for administrators as well.
- The key container file is used to encrypt the access and service tools device passwords.
- CWBOPSEC executed in a DOS Window with no parameters displays help.
- Use CWBOPSEC /adminkey to set only administrator authority or CWBOPSEC /allkey to set all authority.

- Windows 2000

- In our testing we found that Windows 2000 security also limits access to the key container file. CWBOPSEC can be used here as well to resolve this issue.
- Should be able to obtain the CWBOPSEC exe from the Operations Console web site.





## iSeries Operations Console

- Migrating from Twinax to Operations Console
  - Using the current console
  - Change console type
  - Select Console type of LAN
  - Configure LAN adapter
  - Create Service Tools device ID
  - Create Service Tools user profile (if needed)
  - If secondary partition
  - Tag the LAN card
  - Tag the ECS card
  - Configure the Operations Console connection on PC



## Migrating from Twinax to Operations Console

- Change console type
- From DST select 5 to Work with DST environment
- Select 2 System devices
- Select 6 Console mode
- Choose 3 for Operations console (LAN)



## Migrating from Twinax to Operations Console

- Configure LAN adapter
  - From DST select 5 to Work with DST environment
  - Select 2 System devices
  - Select 6 Console mode
  - Choose 3 for Operations console (LAN)
  - The Verify Operations Console Adapters screen will be displayed
  - From the Verify Operations Console Adapters screen press F11
  - Enter the IP Address
  - Enter the Primary and Secondary gateway
  - Enter the Subnet mask
  - F7 to store



## Migrating from Twinax to Operations Console

- Configure LAN adapter

```
Session A [24 x 80]
File Edit View Communication Actions Window Help
Configure Service Tools LAN Adapter System:
Type choices, press Enter to verify input.

Resource name . . . . . : CHN05
Adapter type . . . . . : 2838
Adapter model . . . . . : 001
Adapter serial number . . . . . : 10-1269042

Internet address . . . . . :
Primary router address . . . . . :
Secondary router address . . . . . : 0 0 0 0
Subnet mask . . . . . : 255 255 255 0
Host name for service tools
Node . . . . . : 000000000000 (0 is default)
Duplex . . . . . : AUTO HALF, FULL, AUTO
Network speed . . . . . : AUTO 4, 10, 16, 100, AUTO
Ethernet standard . . . . . : ETHV2 ETHV2

F3=Exit F5=Load F6=Clear F7=Store F12=Cancel
F13=Deactivate F14=Activate F17=Deactivate followed by activate

10/036
```



## Migrating from Twinax to Operations Console

- Create a Service Tools Device ID

```
Session A [24 x 80]
Work with Service Tools Device IDs System:

Type option, press Enter.
1=Create          2=Reset password    3=Delete
4=Display        5=Enable           6=Disable
7=Change attributes 8=Change description

Opt Device ID Description Status
- - - - -
- DEMOA Enabled
- DEMOB Enabled
- DEMOC DEMO1 Enabled
- HARRY Enabled
- IOCHIZARD GERENTZ @ WS Enabled
- QCONSOLE QCONSOLE Enabled
- STEVED Enabled

F3=Exit F5=Refresh F12=Cancel

HR a 09/003
31 Connected to remote server (host: 127.0.0.1 using port: 3111)
```



## Migrating from Twinax to Operations Console

- Create a Service Tools User ID

```
Session A IOCS08.ws [24 x 80]
Work with Service Tools User IDs System: IOCSX8

Type option, press Enter.
1=Create          2=Change password    3=Delete
4=Display        5=Enable           6=Disable
7=Change privileges 8=Change description

Opt User ID Description Status
- - - - -
- CAWLEY Enabled
- QSECOFR QSECOFR Enabled
- QSRV QSRV Enabled
- TESTER Enabled
- TOMFOHRD RANDY TOMFOHRDE Enabled
- 11111111 11111111 Enabled
- 22222222 22222222 Enabled

F3=Exit F5=Refresh F12=Cancel

HR a 09/003
31 Connected to remote server (host: 127.0.0.1 using port: 3137)
```



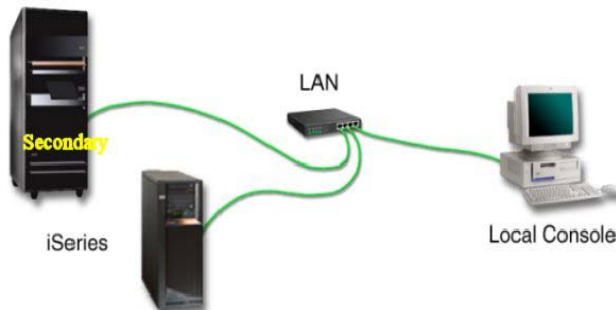
## Migrating from Twinax to Operations Console

- LAN card placement is important (slides 8 and 9)
- Remove the Twinax cable from the iSeries machine
- Required IPL or 65/21
- Can reset the iSeries QCONSOLE password by entering 7 - 65s from the control panel



## iSeries Operations Console

- Configuring Secondary Partitions





## Configuring Secondary Partitions

- LPAR has already been created
- Create secondary
- Tag the LAN card IOP
- Tag for ECS
- Configure PC for LAN console
- Configure LAN connection on the PC that will be used for the console for the secondary
- Specify either DNS name of adapter or the IP address of LAN card (this is the information from your network administrator)
- After 'D' mode IPL (to create secondary)
- SRC's C600 4016 to C600 4031 - system looking for the console. It establishes connection and uploads IP information
- Use the ACCESS password previously configured
- UserID of 11111111 / 11111111



## Configuring Secondary Partitions

- IPL continues. Console connected.
  - NEED to set Console Type to LAN (at DST) prior to next IPL or will NOT find console
  - After a scratch install will also have to set the Console Type to LAN
  - After a scratch install will have to reset the PC service tools device ID password

## Configuring Secondary Partitions

- 22CV 410059 LPAR - Management Perspectives
- 25CH 404406 LPAR – Basics of iSeries Logical Partitioning
- 36CO 409230 LPAR by Example
- 41CI 408073 LPAR: Advanced Concepts
- 44CI 430134 LPAR Installation Issues and Recovery
- 52CI 408001 An LPAR Case Study
- 52CO 440168 Continuous Operations in an LPAR Environment

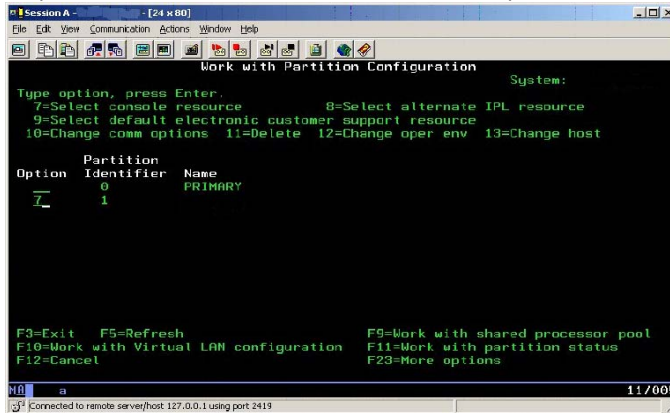
## Configuring Secondary Partitions

- Tag the LAN card IOP for Operations Console
  - Select option 11= Work with system partitions

```
Session A - .ws - [24 x 80]
File Edit View Communication Actions Window Help
Use Dedicated Service Tools (DST)
System:
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
 11. Work with system partitions
 13. Work with system security
Selection
F3=Exit F12=Cancel
21/007
Connected to remote server/host 127.0.0.1 using port 2216
```

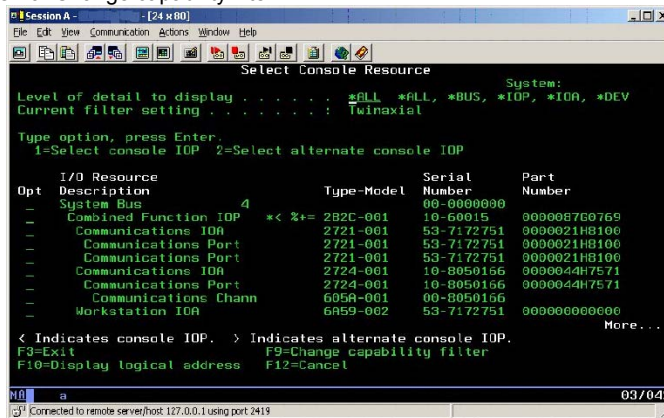
## Configuring Secondary Partitions

- Tag the LAN card IOP for Operations Console
  - Select option 7=Select console resource on the selected partition



## Configuring Secondary Partitions

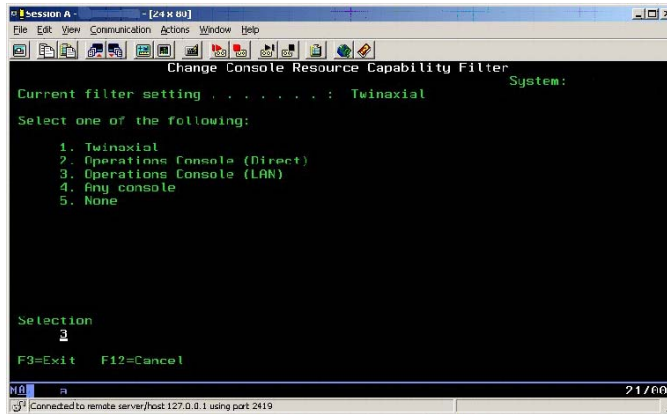
- Tag the LAN card IOP for Operations Console
  - Press F9=Change capability filter





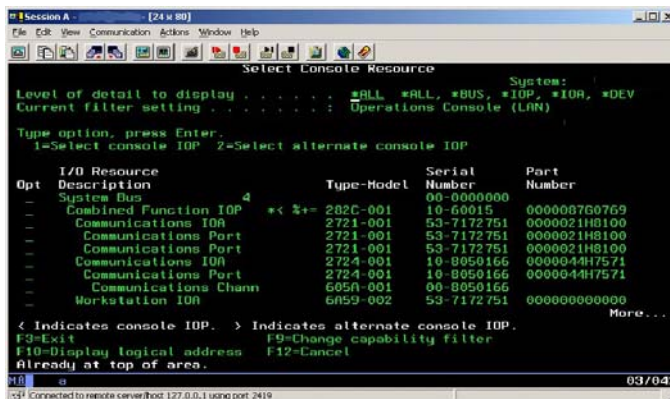
## Configuring Secondary Partitions

- Select option 3. Operations Console (LAN)



## Configuring Secondary Partitions

- Enter option 1=Select console IOP on the IOP you wish to use
- < Operations Console, + ECS, > Alternate Console





## Configuring Secondary Partitions

- Tag for ECS
- Select option 9=Select default electronic customer support resource

```

Session A - [24 x 60]
File Edit View Communication Actions Window Help
Work with Partition Configuration System:
Type option, press Enter.
7-Select console resource      8-Select alternate IPL resource
9-Select default electronic customer support resource
10-Change come options 11-Delete 12-Change oper env 13-Change heat

Partition
Option Identifier Name
  0             PRIMARY
  1

F9=Exit  F5=Refresh  F9=Work with shared processor pool
F10=Work with Virtual LAN configuration  F11=Work with partition status
F12=Cancel  F23=More options

11/09E
Connected to remote server/host:127.0.0.1 using port 2419

```

## Configuring Secondary Partitions

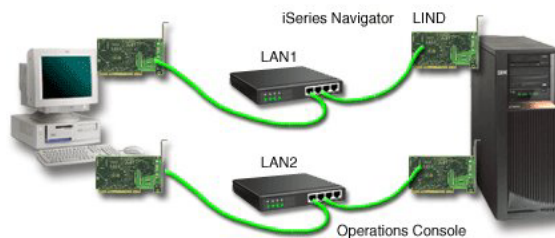
- The LAN adapter attached to the selected IOP will now be activated on the next D-Mode IPL for LIC install.
- The IP configuration must have been setup on the console PC and the console PC must be on the "local LAN" with the system.
- The LAN adapter will be able to be used for the console on the D-Mode IPL for LIC install and the first A-Mode IPL after the LIC install only.
- You must set the DST console type to Operations Console (LAN) for the console to be available on the LAN for future IPLs.
- Must also set the console type to Operations Console whenever you scratch install and must reset the PC Service Device ID password.

## Configuring Secondary Partitions

- LAN Console uses BOOTstrap Protocol (BOOTP) to configure the iSeries service IP communication stack. This IP stack configuration plus iSeries serial number is requested in the wizard setup.
- Set up PC based on your IP address information - from your network administrator - and instructions in Operations Console Setup guide.
- The iSeries system, activates the LAN card and broadcasts BOOTP requests.
- The PC replies with the information submitted during this setup.
- The iSeries then stores and uses the configuration information.
- \*\* Place the PC and iSeries on the same network (a one-time set up requirement)

## Configuring Secondary Partitions

- Place the PC and iSeries on the same network (a one-time set up requirement)





## Configuring Secondary Partitions

- Configure the PC for LAN Console
  - Specify the secondary's partition number

The dialog box is titled "Configure iSeries Operations Console - Specify Service Host Name". It contains a blue sidebar with a PC icon and a server rack icon with a question mark. The main text area contains the following instructions:

To configure an Operations Console connection, you must specify the iSeries service host name. If the connection has never been assigned or configured before, you will be assigning the name and network data in this wizard.

For an existing configuration, match the existing service host name defined in Dedicated Service Tools (DST). To find the service host name, go into DST and use the Configuration Service Tools Adapter display.

Note: The service host name is the name that identifies the card used for Operations Console. It may not be the TCP/IP address of the server or name of the PC.

What is the service host name of the iSeries server secondary partition you are connecting to?

Secondary partition service host name:

Target secondary partition:

Buttons: < Back, Next >, Cancel, Help



## Configuring Secondary Partitions

- Configure the PC for LAN Console
  - Enter the serial number of the iSeries machine and the secondary's IP information.

The dialog box is titled "Configure iSeries Operations Console - Specify Interface Information - SECONDARY". It contains a blue sidebar with a PC icon and a server rack icon with a question mark. The main text area contains the following instructions:

What is the TCP/IP information and serial number of the iSeries server to which you are making a service connection?

Secondary partition service host name: SECONDARY

Service TCP/IP Address: 1.1.1.1

Service subnet mask:

Service gateway address 1:

Service gateway address 2:

iSeries serial number:

Buttons: < Back, Next >, Cancel, Help



## Configuring Secondary Partitions

- Configure the PC for LAN Console
  - There will be a device ID for each secondary.

**Configure iSeries Operations Console - Specify Service Tools Device ID - SECONDARY**

To use restricted iSeries functions securely using a LAN connection, you must specify the following information. This protects access to iSeries service functions such as the console and remote control panel.

For new configurations, QCONSOLE can be used as the default. For existing configurations, this information must match the corresponding service tools device ID and password on the iSeries server.

Service tools device ID for this PC:

Password:

Confirm password:

< Back   Next >   Cancel   Help



## Configuring Secondary Partitions

- Configure the PC for LAN Console
  - Enter an access password. Can be the same as other configurations.

**Configure iSeries Operations Console - Specify Access Password - SECONDARY**

On the previous panel you specified the Operations Console service tools device ID and password on the PC. Now you need to specify a password to protect the console service tools device ID.

You will use this password every time you start Operations Console and make a LAN connection to the server.

Access Password for Operation Console Service Tools Device ID

New Password:

Confirm password:

< Back   Next >   Cancel   Help



## iSeries Operations Console

- Console takeover and recovery
  - Microsoft Winsock layer
  - Not an Alternate Console
  - Always get green on black
  - Console modes are honored
  - After a successful takeover, whether from the same device or a different device, all data sent to the console will be delivered
  - If the outage was long enough and there were many screens buffered, the screen refreshes will be rapid, but all screen data will be sent until the console is up-to-date
  - When the takeover option is turned off a console-capable device will bypass the signon screen and be taken directly to the screen showing current console status



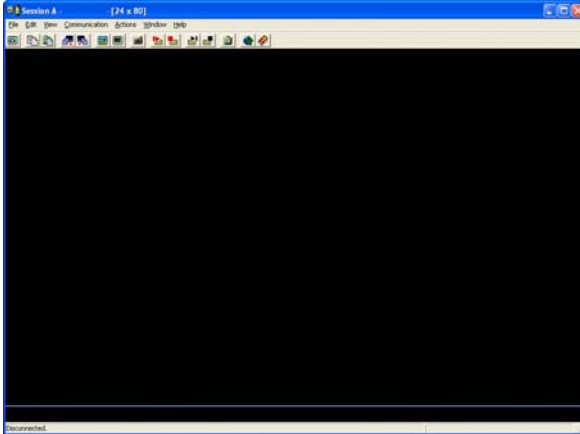
## iSeries Operations Console

- Console takeover and recovery
- A new function consisting of control panel functions 65 and 21 has been created to aid in the recovery or debug of Operations Console problems. It will allow the user to do the following:
  - Change the console mode value.
  - Clear the associated LAN adapter's associated data used for Operations Console or the service tools server
  - Deactivate and reactivate the LAN adapter associated data used for Operations Console or the service tools server
  - Dump all the flight recorders commonly associated with Operations Console
    - This will reduce the need for main storage dumps which causes tremendous impact to the users.
- All of the above function can also be done on an SST screen via native macro.



## iSeries Operations Console

- Where is the console?



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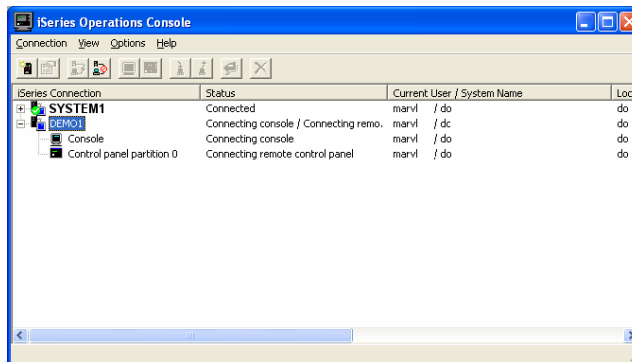
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## iSeries Operations Console

- Where is the console?



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## iSeries Operations Console

- Console takeover and recovery

```
Session A ws [24 x 80]
File Edit View Communication Actions Window Help
Console Information Status System:
Date and time for previous signon . . . : 04/14/04 10:36:47
Previous action taken date and time . . : 04/14/04 10:37:15
Current console user ID . . . . . : 11111111
Current console type . . . . . : 3
Take over the console . . . . . : YES
PC internet address . . . . . : 9.10.111.67
Server internet address . . . . . : 9.5.251.32
Server resource name . . . . . : CMN05
Server adapter type . . . . . : 2838
Server adapter model . . . . . : 001
Server adapter serial number . . . . . : 10-1269042
Frame ID . . . . . : 1
Card slot . . . . . : C03
Current console device ID . . . . . : DEM0R
F9=Exit F10=Takeover console connection F12=Cancel
HR a R 01/001
[3] Connected to remote server Host: 127.0.0.1 using port 3111
```



## iSeries Operations Console

- Console takeover and recovery

```
Session A [24 x 80]
File Edit View Communication Actions Window Help
Takeover Console Connection From Another User System:
Resume console connect at signon . . . _ 1=YES, 2=NO
Press Enter to confirm your choice to takeover the console
from another user.
Press F12 to return to the previous display.
F12=Cancel
HR a R 04/042
[3] Connected to remote server Host: 127.0.0.1 using port 3111
```



## iSeries Operations Console

- Scenario 1 – Changing console mode from direct to LAN
  - 65 / 21 A602500A (Read mode)
  - 65 / 21 A603500B (Edit mode, increment value)
  - 21 A603500C (Set value)

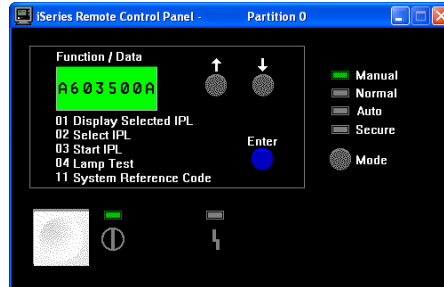
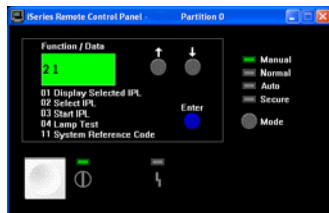
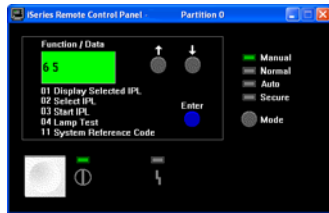


## iSeries Operations Console

- Scenario 1 – Changing console mode from LAN to direct
  - 25 / 26 (CE mode, if needed)
  - 65 / 21 A603500A (Initial read back console mode value)
  - 65 / 21 A604500B (Entered edit mode and incremented value by one, if on a server supporting HMC)
  - 65 / 21 A6C3500B (increment value by one again)
  - 65 / 21 A6A3500B (increment value by one again)
  - 65 / 21 A6DD500B (increment value by one again)
  - 65 / 21 A601500B (increment value by one again)
  - 65 / 21 A602500B (increment value by one again but this is now the value we want)
  - 21 A602500C (The last 21 sets the value; causes SLIC to clean up LAN connection data, if any; activates async line)



## iSeries Operations Console

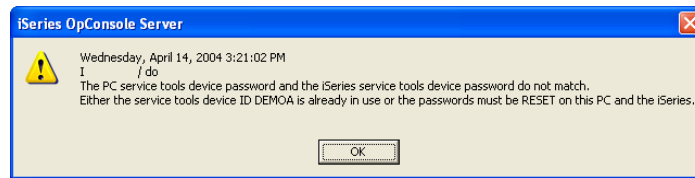


## iSeries Operations Console

- 65+21 can also assist recovery or gather data in addition to changing the console mode value
  - A6C3500B will clear the LAN adapter's data
    - This is the equivalent to doing a PF6 (clear) when on the screen showing the LAN adapter's network data) and a PF7 to store it
  - A6A3500B will cause the LAN adapter to deactivate and then reactivate
    - This is the same as doing a PF17 on the screen showing the LAN adapter's network data
  - A6DD500B will dump all Operations Console related flight recorders to vlogs (except D-mode where vlog support isn't present)
    - The vlogs will be 4A00 major code

## iSeries Operations Console

- Console takeover and recovery
  - Recovery of console takes about 75 seconds
  - PC auto resynchronizes the device ID
    - In V5R3 you will get a specific error message indicating the need to reset the device ID password. Only then should you perform a reset.
  - 7-65s will reset the host device ID



## iSeries Operations Console Advanced Connectivity

- Summary
  - Requirements for Operations Console
  - Security
  - Migrating from Twinax to Operations Console
  - Configuring Secondary Partitions
  - Console takeover and recovery

Questions?



## iSeries Operations Console Advanced Connectivity

- References
  - For PC Console physical planning information refer to the following link in the iSeries Technical Studio:
    - [http://www.redbooks.ibm.com/tstudio/Planning/pc\\_index.htm](http://www.redbooks.ibm.com/tstudio/Planning/pc_index.htm)
  - iSeries Operations Console is part of the iSeries Access for Windows family. Use the following link for the latest Client Access information, including Service Packs:
    - <http://www-1.ibm.com/servers/eserver/iseries/access/caprod.htm>
  - For updated documentation involving iSeries Operations Console refer to the iSeries Operations Console Support at:
    - For user-related information regarding iSeries Operations Console refer to the iSeries Information Center at:
      - <http://publib.boulder.ibm.com/Pubs/Html/as400/infocenter.html>
    - iSeries Access for Windows Operations Console Setup Guide



## iSeries Operations Console Advanced Connectivity

- Evaluation
  - Session ID: 409032
  - Session title: iSeries Operations Console Advanced Connectivity
  - Agenda key: 53CL
  - Speaker: Marvin Levi

Thank you for Attending!



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