



System i
Systems management
System values

Version 6 Release 1





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Note

Before using this information and the product it supports, read the information in “Notices,” on page 191.

This edition applies to version 6, release 1, modification 0 of IBM i5/OS (product number 5761-SS1) and to all subsequent releases and modifications until otherwise indicated in new editions. This version does not run on all reduced instruction set computer (RISC) models nor does it run on CISC models.

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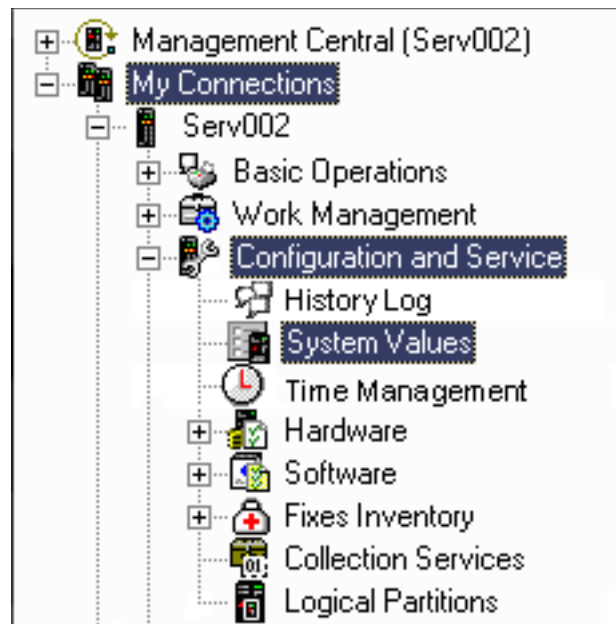
System values

System values are pieces of information that affect the system operating environment. System values are not objects on the system. Rather, system values contain control information for the operation of certain parts of the system.

You can use system values to change the system in order to define the working environment. For example, system date, library list, international characteristics, and certain security features are all set by system values.

You can manage system values using System i® Navigator or the character-based interface. The image you see shows the location of the system values function in System i Navigator. Follow the highlighted path to access system values. After you select **System Values**, you can select one of the categories of system values.

To change system values, you need *USE authority to the Change System Values (CHGSYSVAL) command. In addition, some system values require a special authority. If special authorities are needed, they are noted in the system value topics that follow.



Using System i Navigator tasks on the Web, you can manage system values with a Web browser. You can work with the system values function of System i Navigator. You can also use the time management function to work with the Time zone (QTIMZON) and Time adjustment (QTIMADJ) system values.

Related concepts:

Time management

Related tasks:

“Comparing and updating system values” on page 183

You can use System i Navigator to compare and update your system values across multiple systems in your network.

Related information:

System i Navigator tasks on the Web

PDF file for System values

You can view and print a PDF file of this information.

To view or download the PDF version of this document, select System values (about 2500 KB).

For optimal printing of the list of system values in the System value parameters topic, print it from a Web browser rather than the System values PDF. To print the list of system values in the System value parameters topic, go to System value parameters and select **File > Print**. Ensure that the paper orientation is landscape.

You can view or download these related topics:


- Time management
- Security reference

Saving PDF files

To save a PDF on your workstation for viewing or printing:

1. Right-click the PDF link in your browser.
2. Click the option that saves the PDF locally.
3. Navigate to the directory in which you want to save the PDF.
4. Click **Save**.

Downloading Adobe Reader

You need Adobe Reader installed on your system to view or print these PDFs. You can download a free copy from the Adobe Web site (www.adobe.com/products/acrobat/readstep.html) .

System value categories

You can use System i Navigator to work with the categories of system values.

System value categories	
"System values: Auditing overview" on page 3	Changes the auditing values.
"System values: Date and time overview" on page 16	Changes the date, time, and time zone information.
"System values: Devices overview" on page 22	Changes device automatic configuration and recovery values.
"System values: International overview" on page 28	Changes locale settings and format of numbers, currency, dates, and time.
"System values: Jobs overview" on page 44	Changes system-level job limits and default job priorities.
"System values: Library lists overview" on page 59	Changes the default system and user library lists.
"System values: Messages and service overview" on page 61	Changes messages, logging, and service information.
"System values: Password overview" on page 68	Changes password expiration and composition rules.
"System values: Performance overview" on page 86	Changes priority, performance adjustments, and processing values for the system.
"System values: Power control overview" on page 103	Changes power supply values.
"System values: Printing overview" on page 105	Changes basic printing values and format of printer output.
"System values: Restart overview" on page 108	Changes initial setup values and settings that affect restart.
"System values: Save and restore overview" on page 118	Changes restore and save values.
"System values: Security overview" on page 125	Changes object, user, and system security values.
"System values: Sign-on overview" on page 138	Changes sign-on values.
"System values: Storage overview" on page 144	Changes values for system storage.

System value categories

“System values: System and user defaults overview” on page 147	Displays system identification information and changes system-level values.
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These system value categories are different from the categories used in the character-based interface.

Related concepts:

“Character-based categories versus System i Navigator categories” on page 157

System value categories in System i Navigator are different from the categories in the character-based interface. In the character-based interface, system values are grouped into categories by the Type (TYPE) parameter. However, the type parameters do not correspond directly to the categories in System i Navigator.

“Obsolete system values” on page 155

These system values are no longer used by the operating system.

“Lock function of security-related system values” on page 158

Most security system values can be altered only by a user with Security administrator (*SECADM) and All object (*ALLOBJ) special authorities. To prevent even these users from changing these system values during normal operation, system service tools (SST) and dedicated service tools (DST) provide an option to lock these security values.

“Effects of system value settings on restore operations” on page 160

When you prepare for a restore operation, you need to set the restore system values so that they are compatible during a restore operation.

“Securing system access levels” on page 188

You can control the level of security by setting the password system values.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Auditing overview

You can use IBM® i auditing system values to control various auditing and other record-keeping events.

To access the auditing category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive words to describe system values. The following table provides an overview of the auditing system values available in System i Navigator (and their counterparts in the character-based interface).

To view the auditing system values, you must have All object (*ALLOBJ) or Audit (*AUDIT) special authority. If you do not have the required authority, the Auditing category of system values is not available. In System i Navigator, the Auditing category is not displayed. In the character-based interface, the auditing system values display the Not available (*NOTAVL) value with the exception that QAUDFRCLVL displays -1. You need Audit (*AUDIT) authority to change the auditing system values.

Table 1. Auditing system values

Name in System i Navigator	Description of system value	Name in character-based interface
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Table 1. Auditing system values (continued)

Name in System i Navigator	Description of system value	Name in character-based interface
Activate action auditing	Use this system value to set action auditing and specify the auditing level for specific functions.	QAUDCTL QAUDLVL QAUDLVL2
Do not audit objects in QTEMP	Use this system value to exclude objects in the QTEMP library when object-level or user-level auditing is activated.	QAUDCTL
Activate object auditing	Use this system value to have the system write a record to the audit journal each time an object being audited is accessed by a user.	QAUDCTL
Audit journal error action	Use this system value to specify the action for the system to take when audit records cannot be sent to the auditing journal because of errors that occur when the journal entry is sent.	QAUDENDACN
Maximum journal entries before writing to auxiliary storage	Use this system value to set the number of journal entries written to the auditing journal before the journal entry data moves to auxiliary storage.	QAUDFRCLVL
Default auditing for newly created objects	Use this system value to set the default object auditing value used when objects are created into a library.	QCRTOBJAUD

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:


System value finder

Auditing system values: Activate action auditing

The Activate action auditing system value is also known as QAUDCTL (*AUDLVL) and QAUDLVL (*AUDLVL2). You can use this system value to set action auditing and specify the auditing level for specific functions.

You can use a combination of these system values to activate object-level or user-level auditing.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Auditing System Values > System.

Quick reference	
Special authority	Audit (*AUDIT). Notes: 1. To view this system value, you must have Audit (*AUDIT) or All object (*ALLOBJ) special authority. If you do not have the required authority, the Auditing category is not displayed in System i Navigator. If you access this system value in the character-based interface, the Not available (*NOTAVL) value is displayed. 2. To change this system value, you must have Audit (*AUDIT) special authority.
Default value	Deselected. Action auditing is not activated.
Changes take effect	Immediately.
Lockable	Yes.  (See "Lock function of security-related system values" on page 158 for details.)

What can I do with this system value?

In the character-based interface, you can specify *AUDLVL for the QAUDCTL system value. By specifying *AUDLVL, you can use any of the auditing actions in the QAUDLVL system value. In addition, you can specify *AUDLVL2 for the QAUDLVL system value. You can use this special parameter (*AUDLVL2) to specify more auditing actions. If the QAUDLVL system value does not contain the value *AUDLVL2, the system ignores the values in the QAUDLVL2 system value.

In System i Navigator, you can select what actions to audit without differentiating between QAUDLVL2 and QAUDLVL. There is no limit on how many actions you can audit.

You can specify the following values for this system value:

Attention events (*ATNEVT)

Use this option to audit attention events. Attention events are conditions that require further evaluation to determine the condition's security significance. Use this option to audit attention events that occur on the system. This option is available only on systems running IBM i V5R4, or later.

Authorization failure (*AUTFAIL)

Use this option to audit unsuccessful attempts to sign on the system and to access objects. Use authorization failures to regularly monitor users trying to perform unauthorized functions on the system. You can also use authorization failures to assist with migration to a higher security level and to test resource security for a new application.

Communication and networking tasks (*NETCMN)

Use this option to audit violations detected by the APPN firewall. This value also audits socket connections, directory search filter and endpoint filter violations.

Job base tasks (*JOBBAS)

Use this option to audit job base functions; for example, job start and stop data. This option is not supported on systems running IBM i V5R4, or earlier.

Job tasks (*JOBDTA)

Use this option to audit actions that affect a job. Use job tasks to monitor who is running batch jobs. The Job tasks option is composed of the Job base tasks (*JOBBAS) value and the Job (thread

level) profile changes (*JOBCHGUSR) value. If you specify both of these values, you get the same auditing as if you specified the Job tasks option. This option is not supported on systems running IBM i V5R4, or earlier.

Job (thread level) profile changes (*JOBCHGUSR)

Use this option to audit changes to a thread's active user profile or its group profiles.

Object creation (*CREATE)

Use this option to audit the creation or replacement of an object. Use object creation to monitor when programs are created or recompiled. Objects created into the QTEMP library are not audited.

Object deletion (*DELETE)

Use this option to audit the deletion of all external objects on the system. Objects deleted from the QTEMP library are not audited.

Object management (*OBJMGT)

Use this option to audit an object rename or move operation. Use object management to detect copying confidential information by moving the object to a different library.

Object restore (*SAVRST)

Use this option to audit the save and restore information of an object. Use object restore to detect attempts to restore unauthorized objects.

Office tasks (*OFCSRVR)

Use this option to audit the OfficeVision licensed program. This option audits changes to the system distribution directory and the opening of a mail log. Actions performed on specific items in the mail log are not recorded. Use office tasks to detect attempts to change how mail is routed or to monitor when another user's mail log is opened.

Optical tasks (*OPTICAL)

Use this option to audit optical functions, such as adding or removing an optical cartridge or changing the authorization list used to secure an optical volume. Other functions include copying, moving, or renaming an optical file, saving or releasing a held optical file, and so on.

Printing functions (*PRTDTA)

Use this option to audit the printing of a spooled file, printing directly from a program, or sending a spooled file to a remote printer. Use printing functions to detect printing confidential information.

Program adoption (*PGMADP)

Use this option to audit the use of adopted authority to gain access to an object. Use program adoption to test where and how a new application uses adopted authority.

Security tasks (*SECURITY)

Use this option to audit events related to security, such as changing a user profile or system value. Use security tasks to detect attempts to circumvent security by changing authority, auditing, or ownership of objects, by changing programs to adopt their owner's authority, or by resetting the security officer's password.

By selecting this option, you are also selecting to audit the following:

- Security configuration
- Directory service functions
- Security interprocess communications
- Network authentication service actions
- Security run time functions
- Security socket descriptors
- Verification functions
- Validation list objects

Service tasks (*SERVICE)

Use this option to audit the use of system service tools, such as the Dump Object and Start Trace commands. Use service tasks to detect attempts to circumvent security by using service tools or collecting traces in which security sensitive data is retrieved.

Spool management (*SPLFDTA)

Use this option to audit actions performed on spooled files, including creating, copying, and sending. Use spool management to detect attempts to print or send confidential data.

System integrity violations (*PGMFAIL)

Use this option to audit object domain integrity violations such as blocked instruction, validation value failure, or domain violations. Use system integrity violation to assist with migration to a higher security level or to test a new application.

System management (*SYSMGT)

Use this option to audit system management activities, such as changing a reply list or the power-on and -off schedule. Use system management to detect attempts to use system management functions to circumvent security controls.

Network base tasks (*NETBAS)

Use this option to audit network base tasks. This option audits transactions on your network of systems. The following are some example network base tasks that are audited:

- Changes to IP rules. For example, if someone creates an IP rule that blocks traffic into or out of an IP interface, that action is audited.
- Audit state changes of a VPN (Virtual Private Network) connection going up or down. If the connection is up, the VPN connection is usable and communication between the two systems is protected. If the connection is down, either the communication is not protected or no communication is allowed at all.
- Communication between sockets from one system to another
- APPN directory search filter
- APPN end point filter

This option is available only on systems running IBM i V5R3, or later.

Network cluster tasks (*NETCLU)

Use this option to audit cluster or cluster resource group operations.

When you select this option, cluster or cluster resource group operations are audited, such as the following network cluster tasks:

- Adding, creating, or deleting a cluster node or cluster resource group operation
- Ending a cluster node or cluster resource group
- Automatic failure of a system that switches access to another system
- Removing a cluster node or cluster resource group
- Starting a cluster node or resource group
- Manually switching access from one system to another in a cluster
- Updating a cluster node or cluster resource group

This option is available only on systems running IBM i V5R3, or later.

Network failure (*NETFAIL)

Use this option to audit network failures. The following are some examples of network failures that are audited when you select this option:

- Trying to connect to a TCP/IP port that does not exist
- Trying to send information to a TCP/IP port that is not open or unavailable

This option is available only on systems running IBM i V5R3, or later.

Network socket tasks (*NETSCK)

Use this option to audit socket tasks. A socket is an endpoint on a system that is used for communication. In order for two systems to communicate, they need to connect to each other's sockets. The following are examples of socket tasks that are audited when you select this option:

- Accepting an inbound TCP/IP socket connection
- Establishing an outbound TCP/IP socket connection
- Assigning your system an IP address through DHCP (Dynamic Host Configuration Protocol)
- Inability to assign your system an IP address through DHCP because all of the IP addresses are being used
- Filtering mail. For example, when mail is set up to be filtered and a message meets the criteria to be filtered, that message is audited.
- Rejecting mail. For example, when mail is set up to be rejected from a specific system, all mail attempts from that system are audited.

This option is available only on systems running IBM i V5R3, or later.

Security configuration (*SECCFG)

Use this option to audit security configuration. The following are some examples:

- Create, change, delete, and restore operations of user profiles
- Changing programs (CHGPGM) to adopt the owner's profile
- Changing system values, environment variables, and network attributes
- Changing subsystem routing
- Resetting the security officer (QSECOFR) password to the shipped value from Dedicated Service Tools (DST)
- Requesting the password for the service tools security officer user ID to be defaulted
- Changing the auditing attribute of an object

This option is available only on systems running IBM i V5R3, or later.

Security directory services (*SECDIRSRV)

Use this option to audit changes or updates when doing directory service functions. The directory service function allows users to store files and objects. The following are some actions performed using the directory service function that are audited:

- Changing audit levels
- Changing authorities
- Changing passwords
- Changing ownerships
- Binding and unbinding successfully

This option is available only on systems running IBM i V5R3, or later.

Security interprocess communications (*SECIPC)

Use this option to audit changes to interprocess communications. The following are some examples:

- Changing ownership or authority of an IPC object
- Creating, deleting, or retrieving an IPC object
- Attaching shared memory

This option is available only on systems running IBM i V5R3, or later.

Security network authentication services (*SECNAS)

Use this option to audit network authentication service actions. The following are some examples:

- Service ticket valid
- Service principals do not match

- Client principals do not match
- Ticket IP address mismatch
- Decryption of the ticket failed
- Decryption of the authenticator failed
- Realm is not within client and local realms
- Ticket is a replay attempt
- Ticket not yet valid
- Remote or local IP address mismatch
- Decrypt of KRB_AP_PRIV or KRB_AP_SAFE checksum error
- KRB_AP_PRIV or KRB_AP_SAFE - time stamp error, replay error, or sequence order error
- GSS accept - expired credentials, checksum error, or channel bindings
- GSS unwrap or GSS verify - expired context, decrypt/decode, checksum error, or sequence error

This option is available only on systems running IBM i V5R3, or later.

Security run time tasks (*SECRUN)

Use this option to audit security run time functions. This option audits any actions that are performed while a program is running. Run time changes occur more frequently than changes not during run time. The following are some examples:

- Changing object ownership
- Changing authorization list or object authority
- Changing the primary group of an object

This option is available only on systems running IBM i V5R3, or later.

Security socket descriptors (*SECSCKD)

Use this option to audit the passing of socket or file descriptors between IBM i jobs. The descriptor is a 4-byte integer that points to an entry in a process descriptor table. This table is a list of all socket and file descriptors that have been opened by this process. Each entry in this table represents a single socket or file that this process has opened. The following are some examples:

- Giving a socket or file descriptor to another job
- Receiving a socket or file descriptor from another job
- Inability to receive a socket or file descriptor that was passed to this job. For example, the job that called the receive message command (rcvmsg()) did not have enough authority or was not running the same user profile as the job that had originally called the send message command (sendmsg()) when the descriptor was passed.

This option is available only on systems running IBM i V5R3, or later.

Security verification (*SECVFY)

Use this option to audit verification functions. The following are some examples:

- Changing a target user profile during a pass-through session
- Generating a profile handle
- Invalidating a profile token
- Generating the maximum number of profile tokens
- Generating a profile token
- Removing all profile tokens for a user
- Removing user profile tokens for a user
- Authenticating a user profile
- Starting or ending work on behalf of another user

This option is available only on systems running IBM i V5R3, or later.

Security validation tasks (*SECVLDDL)

Use this option to audit validation list objects. A validation list object is used to store data. The data is encrypted for security reasons. For example, you may have a validation list that stores user names and passwords that are used to control access to a Web page. A validation list is used rather than a database file because the validation list is more secure because it only contains user names and passwords rather than user profiles. The following are some example tasks that are audited when this option is selected:

- Adding, changing, or removing a validation list entry
- Accessing a validation list entry
- Successful and unsuccessful verification of a validation list entry

This option is available only on systems running IBM i V5R3, or later.

Not available (*NOTAVL)

This value is displayed if the user does not have authority to view the auditing value. You cannot set the system value to Not available (*NOTAVL). This value is only displayed when a user accessing the system value does not have either All object (*ALLOBJ) or Audit (*AUDIT) special authority.

Related concepts:

“Auditing system values: Activate object auditing” on page 12

The Activate object auditing system value is also known as QAUDCTL (*OBJAUD). You can use this system value to have the system write a record to the audit journal each time an object being audited is accessed by a user.

“Auditing system values: Do not audit objects in QTEMP”

The Do not audit objects in QTEMP system value is also known as QAUDCTL (*NOQTEMP). You can use this system value to exclude objects in the QTEMP library when you activate object-level or user-level auditing.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Auditing system values: Do not audit objects in QTEMP

The Do not audit objects in QTEMP system value is also known as QAUDCTL (*NOQTEMP). You can use this system value to exclude objects in the QTEMP library when you activate object-level or user-level auditing.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Auditing System Values > System.

Quick reference	
Special authority	Audit (*AUDIT). Notes: 1. To view this system value, you must have Audit (*AUDIT) or All object (*ALLOBJ) special authority. If you do not have the required authority, the Auditing category is not displayed in System i Navigator. If you access this system value in the character-based interface, the Not available (*NOTAVL) value is displayed. 2. To change this system value, you must have Audit (*AUDIT) special authority.
Default value	Deselected. Do not audit objects in the QTEMP library.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

Use the associated checkbox to specify whether you want to audit objects in the QTEMP library (*NOQTEMP). The QTEMP library is a job's temporary library, which is cleared when a job ends.

Select this value to avoid clutter in the audit journal due to a large number of operations on objects in QTEMP. When auditing is active and this option is selected, the following actions on objects in the QTEMP library are not audited:

- Creating objects
- Deleting objects
- Changing or reading objects
- Changing the authority, owner, or primary group of objects

You must specify this option with either the Activate action auditing (*AUDLVL) system value or the Activate object auditing (*OBJAUD) system value.

Related concepts:

“Auditing system values: Activate action auditing” on page 4

The Activate action auditing system value is also known as QAUDCTL (*AUDLVL) and QAUDLVL (*AUDLVL2). You can use this system value to set action auditing and specify the auditing level for specific functions.

“Auditing system values: Activate object auditing” on page 12

The Activate object auditing system value is also known as QAUDCTL (*OBJAUD). You can use this system value to have the system write a record to the audit journal each time an object being audited is accessed by a user.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Auditing system values: Activate object auditing

The Activate object auditing system value is also known as QAUDCTL (*OBJAUD). You can use this system value to have the system write a record to the audit journal each time an object being audited is accessed by a user.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Auditing System Values > System .
Special authority	Audit (*AUDIT). Notes: 1. To view this system value, you must have Audit (*AUDIT) or All object (*ALLOBJ) special authority. If you do not have the required authority, the Auditing category is not displayed in System i Navigator. If you access this system value in the character-based interface, the Not available (*NOTAVL) value is displayed. 2. To change this system value, you must have Audit (*AUDIT) special authority.
Default value	Deselected. Do not activate object auditing.
Changes take effect	Immediately.
Lockable	Yes.  (See "Lock function of security-related system values" on page 158 for details.)

What can I do with this system value?

You can specify whether the system writes a record to the audit journal each time an object being audited is accessed by a user.

Actions against objects that have an object audit value other than none (*NONE) are audited. To set an object's audit value in the character-based interface, use the Change Audit (CHGAUD) command or the Change Object Audit (CHGOBJAUD) command.

Related concepts:

"Auditing system values: Activate action auditing" on page 4

The Activate action auditing system value is also known as QAUDCTL (*AUDLVL) and QAUDLVL (*AUDLVL2). You can use this system value to set action auditing and specify the auditing level for specific functions.

"Auditing system values: Do not audit objects in QTEMP" on page 10

The Do not audit objects in QTEMP system value is also known as QAUDCTL (*NOQTEMP). You can use this system value to exclude objects in the QTEMP library when you activate object-level or user-level auditing.

Related reference:

"System value parameters" on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Auditing system values: Audit journal error action

The Audit journal error action system value is also known as QAUDENDACN. You can use this system value to specify the action to take if the system is unable to write audit entries. The system takes the specified action when audit records are not sent to the auditing journal because of errors that occur when the journal entry is sent.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Auditing System Values > Journaling .
Special authority	Audit (*AUDIT). Notes: 1. To view this system value, you must have Audit (*AUDIT) or All object (*ALLOBJ) special authority. If you do not have the required authority, the Auditing category is not displayed in System i Navigator. If you access this system value in the character-based interface, the Not available (*NOTAVL) value is displayed. 2. To change this system value, you must have Audit (*AUDIT) special authority.
Default value	Notify, then continue.
Changes take effect	Immediately.
Lockable	Yes.  (See "Lock function of security-related system values" on page 158 for details.)

What can I do with this system value?

You can specify the action to take whenever auditing is active and the system is not able to write entries to the audit journal.

If the security policy for your system requires that no processing occur without auditing, then you must set this value to **Shut down the system** (*PWRDWNSYS). For most systems, **Notify, then continue** (*NOTIFY) is the recommended value. This system value applies only to auditing entries sent by the operating system to the security audit journal (QAUDJRN).

This system value has the following values:

Notify, then continue (*NOTIFY)

A message is sent to the system operator's message queue once per hour until auditing is successfully activated.

Shut down the system (*PWRDWNSYS)

The system ends if the attempt to send the audit data to the security audit journal fails. When the system is powered on again, the system is in the restricted state. The Default auditing for newly created objects (QCRTOBJAUD) system value is set to None to turn auditing off. On the next restart, the user who signs on the system must have at least Audit (*AUDIT) and All Object (*ALLOBJ) special authority.

Not available (*NOTAVL)

This value is displayed if the user does not have authority to view the auditing value. You cannot

set the system value to Not available (*NOTAVL). This value is only displayed when a user accessing the system value does not have either All object (*ALLOBJ) or Audit (*AUDIT) special authority.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Auditing system values: Maximum journal entries before writing to auxiliary storage

The Maximum journal entries before writing to auxiliary storage system value is also known as QAUDFRCLVL. You can use this system value to set the number of journal entries written to the security auditing journal before the journal entry data moves to auxiliary storage.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Auditing System Values > Journaling .
Special authority	Audit (*AUDIT). Notes: 1. To view this system value, you must have Audit (*AUDIT) or All object (*ALLOBJ) special authority. If you do not have the required authority, the Auditing category is not displayed in System i Navigator. If you access this system value in the character-based interface, the Not available (*NOTAVL) value is displayed. 2. To change this system value, you must have Audit (*AUDIT) special authority.
Default value	System determines maximum entries.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

This system value specifies the number of journal entries written to the security auditing journal before the journal entry data moves to auxiliary storage. This system value also indicates the amount of auditing data that might be lost if the system ends abnormally. If auditing entries are moved to auxiliary storage frequently, system performance can decrease.

This system value has the following values:

System determines maximum entries (*SYS)

The system writes the journal entries to auxiliary storage only when the system, based on internal processing, determines the journal entries should be written. Using this option provides the best auditing performance, but it could also cause the most auditing data loss if the system ends abnormally.

Maximum entries (1-100)

The number of auditing journal entries written to the security auditing journal before the auditing data is written to auxiliary storage. Possible values are 1 through 100. Small values decrease the system performance. If your system requires that no entries can be lost after the operating system ends abnormally, specify 1.

Not available (*NOTAVL)

This value is displayed if the user does not have authority to view the auditing value. You cannot set the system value to Not available (*NOTAVL). This value is only displayed when a user accessing the system value does not have either All object (*ALLOBJ) or Audit (*AUDIT) special authority.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Auditing system values: Default auditing for newly created objects

The Default auditing for newly created objects system value is also known as QCRTOBJAUD. You can use this system value to set the default auditing value that is used when objects are created into a library.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Auditing System Values > New Objects.
Special authority	Audit (*AUDIT). Notes: 1. To view this system value, you must have Audit (*AUDIT) or All object (*ALLOBJ) special authority. If you do not have the required authority, the Auditing category is not displayed in System i Navigator. If you access this system value in the character-based interface, the Not available (*NOTAVL) value is displayed. 2. To change this system value, you must have Audit (*AUDIT) special authority.
Default value	None.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

This system value specifies the default object auditing value of newly created objects. The object auditing value of an object determines whether an auditing entry is sent to the system auditing journal in the QSYS library when the object is used or changed. The auditing entry is sent to the auditing journal only if auditing is currently active on the system. To start auditing, select **Activate action auditing** on the System page.

This system value has the following options:

None (*NONE)

No auditing entries are sent for the object when it is used or changed.

User settings (*USRPRF)

Auditing entries are sent for the object when it is used or changed by a user who is currently being audited. If the user who uses or changes this object is not being audited, no auditing entries are sent.

Changes to objects (*CHANGE)

Auditing entries are sent for the object when it is changed.

All access of objects (*ALL)

Auditing entries are sent for the object when it is used or changed.

Not available (*NOTAVL)

This value is displayed if the user does not have authority to view the auditing value. You cannot set the system value to Not available (*NOTAVL). This value is only displayed when a user accessing the system value does not have either All object (*ALLOBJ) or Audit (*AUDIT) special authority.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Date and time overview

You can use IBM i date and time system values to control the system's date, time, and time zone information.

To access the date and time category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive words to describe system values. The following table provides an overview of the date and time system values available in System i Navigator (and their counterparts in the character-based interface).

Table 2. Date and time system values

Name in System i Navigator	Description of system value	Name in character-based interface
System date	This system value sets the date for the system.	QDATETIME, QCENTURY, QDAYOFWEEK, QDATE, QDAY, QMONTH, QYEAR
Time of day	This system value specifies the time of the day.	QDATETIME, QTIME, QHOUR, QMINUTE, QSECOND
Leap-year adjustment	This system value specifies the leap-year adjustment.	QLEAPADJ
Time adjustment	This system value identifies the application to use for time maintenance.	QTIMADJ
Time zone	This system value specifies the time zone for the system.	QTIMZON

Table 2. Date and time system values (continued)

Name in System i Navigator	Description of system value	Name in character-based interface
Offset from UTC	This system value indicates the difference in hours and minutes between Coordinated Universal Time (UTC) and the current system time.	QUTCOFFSET

Related concepts:

Time management

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Date and time system values: System date

The System date system value is also known as QDATE, QDAY, QMONTH, QYEAR, QDAYOFWEEK, QCENTURY, and QDATETIME. You can use this system value to set the date on your system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Date and Time > Date.
Special authority	All object (*ALLOBJ).
Default value	No default value.
Changes take effect	Immediately.
Lockable	No.
Special considerations	The system date is automatically updated when the time reaches midnight, 12:00:00 a.m.. The QDAYOFWEEK system value cannot be set by the user.

What can I do with this system value?

You can specify the date to be used on your system. The date includes the month, day, and year. The system supports dates that range from 24 August 1928 to 7 June 2062. If the Year (QYEAR) system value changes to a different century, the system automatically updates the Century (QCENTURY) system value.

In the System i Navigator interface, the System date (QDATE) and Time of day (QTIME) system values have not changed. However, they are combined into one system value, QDATETIME, in the character-based interface. If you access the QDATE and QTIME system values through the character-based interface, use the QDATETIME system value rather than the QDATE or QTIME system value. In the character-based interface, the QDATE and QTIME system values are still accessible. Use the QDATE and QTIME system values only when you need to retrieve or change only one of the values. If you need to retrieve or change both values, use the QDATETIME system value.

Related concepts:

“Date and time system values: Time of day” on page 19

The Time of day system value is also known as QDATETIME, QTIME, QHOUR, QMINUTE, and QSECOND. You can use this system value to set the time on your system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Date and time system values: Leap-year adjustment

The Leap-year adjustment system value is also known as QLEAPADJ. This system value sets the leap-year adjustment on your system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Date and Time > Date.
Special authority	None.
Default value	Use Gregorian leap-year adjustment.
Changes take effect	Immediately.
Lockable	No.
Special considerations	The Leap-year adjustment system value is read-only. The system manages this system value. You cannot edit this system value.

What can I do with this system value?

This system value adjusts the system calendar for the leap year in different calendar systems. The system manages this system value. You cannot edit this system value.

Note: For systems running IBM i V5R4, or earlier, the Leap-year adjustment system value is editable. You can use this system value to set the leap-year adjustment on your system.

If your calendar year agrees with the Gregorian calendar system, select **Use Gregorian leap-year adjustment (0)**. If your calendar year differs from the Gregorian calendar system, adjust the system calendar to account for the leap year of the calendar year you are using. To make the adjustment, divide the leap year in your calendar system by 4, and then set the Leap-year adjustment system value to the value of the remainder.

For example, the Gregorian calendar year of 1984 was the year 2527 in the Thai Buddhist calendar. Because 2527 was a leap year, you divide 2527 by 4; this leaves a remainder of 3. Therefore, to adjust the system calendar for the Thai Buddhist calendar, specify 3 for the Leap-year adjustment system value.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Date and time system values: Time of day

The Time of day system value is also known as QDATETIME, QTIME, QHOUR, QMINUTE, and QSECOND. You can use this system value to set the time on your system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Date and Time > Time .
Special authority	All object (*ALLOBJ).
Default value	No default value.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the time that is used on your system. The time specifies the hour (QHOUR), minutes (QMINUTE), and seconds (QSECOND).

When you need to update the system time, a time adjustment is the preferred method. A time adjustment ensures that time is not skipped or repeated. You can specify up to a 2-hour time adjustment. If you need to update the system time by more than 2 hours, you can use multiple time adjustments to reach the time value you want. Make manual changes to the Time of day system value only if you need to change the time immediately.

If the system observes daylight saving time, you cannot change the date and time to the hour that daylight saving time affects. For example, if the system clock moves from 2:00 to 3:00 on April 6 for daylight saving time, you cannot change the time to a value that is greater than or equal to 2:00 and less than 3:00 on April 6.

In the System i Navigator interface, the System date (QDATE) and Time of day (QTIME) system values have not changed. However, they are combined into one system value, QDATETIME, in the character-based interface. If you are accessing the QDATE and QTIME system values through the character-based interface, use the QDATETIME system value rather than the QDATE or QTIME system value. In the character-based interface, the QDATE and QTIME system values are still accessible. Use the QDATE and QTIME system values only when you need to retrieve or change only one of the values. If you need to retrieve or change both values, use the QDATETIME system value.

Related concepts:

“Date and time system values: System date” on page 17

The System date system value is also known as QDATE, QDAY, QMONTH, QYEAR, QDAYOFWEEK, QCENTURY, and QDATETIME. You can use this system value to set the date on your system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Time adjustment

Date and time system values: Offset from Coordinated Universal Time (UTC)

The Offset from Coordinated Universal Time (UTC) system value is also known as QUTCOFFSET. You can use this system value to specify the difference in hours and minutes between UTC and the current system time.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Date and Time > Time.
Special authority	None.
Default value	+00:00.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the difference in hours and minutes between UTC and the current system time. A negative time indicates that the time is west of UTC and a positive time indicates that the time is east of UTC. For example, a value of -05:00 indicates that the system time is west of UTC and is equal to UTC minus 5 hours.

If you are connecting to a system running IBM i V5R3, or later, this system value is not editable. It is determined by the Time zone (QTIMZON) system value. The possible values range from -12:59 to +13:59.

If you are connecting to a system running OS/400® V5R2, or earlier, this system value is editable. The possible values range from -24:00 to +24:00.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Date and time system values: Time zone

The Time zone system value is also known as QTIMZON. This system value specifies the time zone information used to calculate the local system time. All current settings contain either the standard time or daylight saving time (DST) values depending on whether DST is in effect.

Note: If a change to a different time zone description results in a different offset, the change causes the local system time, system value QTIME, to change. In addition, the system value QUTCOFFSET changes to match this new offset.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > Time Management > Time Zones.
Special authority	All object (*ALLOBJ).
Default value	Determined by the system. For more information, see Initial time zone setting.
Changes take effect	Immediately.

Quick reference	
Lockable	No.

What can I do with this system value?

You can specify the time zone to be used on the system. You can select an IBM-supplied time zone or create your own. The time zone specifies the following time zone information:

- Offset from UTC
- Standard time names
- DST names
- DST start
- DST end
- Year offset

Note: The Year offset information is not shown on systems running IBM i V5R4, or earlier. It is also not shown if the value is zero.

You can access the Time zone system value from two locations in System i Navigator. To view the current time zone, expand *your system* > **Configuration and Service** > **System Values** > **Date and Time** > **Time**. To work with the time zones, expand *your system* > **Configuration and Service** > **Time Management** > **Time Zones**.

You can use the time management function of System i Navigator to work with this system value. Using the time management function, you can identify a time zone for the system to use. You can also identify a time maintenance application to synchronize your system time with an external time source.

Related concepts:

Initial time zone setting

Time zone

Time management

“Managing system values” on page 183

As an administrator, you can perform many tasks to help you manage system values; for example, save, configure, and lock system values.

Related tasks:

I cannot edit my time zone

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Creating a time zone

Date and time system values: Time adjustment

The Time adjustment system value is also known as QTIMADJ. You can use this system value to identify the software to use as the time maintenance application that synchronizes your system time with an external time source.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > Time Management > Time Adjustment .
Special authority	None.
Default value	No adjustment software is specified.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can identify the software used to synchronize the system time with an external time source. The system value does not enforce the software specified; it only identifies the software to use. This value should be maintained by the time adjustment software and is intended as an aid to prevent having multiple time adjustment applications conflict with each other. The system does not perform checks to verify this value or to verify whether this software is performing time adjustments.

Time adjustment software should check this system value before starting. If this system value has an identifier for other time adjustment software, the software being started should notify the user of this potential conflict and confirm that it should be started. When no identifier is associated with this system value, the software should update this system value to identify that it is now responsible for adjusting the system clock. Time adjustment software should check this system value again before ending. This system value should be set to None (*NONE) only if the current value identifies this time adjustment software that is ending.

To work with the Time adjustment system value in System i Navigator, expand *your system* > **Configuration and Service** > **System Values** > **Date and Time** > **Configuration and Service**. To work with the time adjustment function, expand **Time Management** > **Time Adjustment**.

Related concepts:

Time maintenance application

Time management

“Managing system values” on page 183

As an administrator, you can perform many tasks to help you manage system values; for example, save, configure, and lock system values.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Devices overview

You can use IBM i devices system values to control the system's device automatic configuration and recovery values.

To access the devices category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive words to describe system values. The following table provides an overview of the devices system values available in System i Navigator (and their counterparts in the character-based interface).

Table 3. Devices system values

Name in System i Navigator	Description of system value	Name in character-based interface
Local controllers and devices	This system value sets automatic configuration for local controllers and devices.	QAUTOCFG
Remote controllers and devices	This system value sets automatic configuration for remote controllers and devices.	QAUTORMT
Pass-through devices and Telnet	This system value sets automatic configuration for pass-through devices and Telnet.	QAUTOVRT
Device naming convention	This system value specifies the device naming convention.	QDEVNAMING
Action to take when a device error occurs on the workstation	This system value sets the action to take when a device error occurs.	QDEVRCYACN

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Devices system values: Local controllers and devices

The Local controllers and devices system value is also known as QAUTOCFG. You can use this system value to set automatic configuration for local controllers and devices.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Devices > Automatic Configuration.
Special authority	None.
Default value	Selected. Allow local controllers and devices to be automatically configured.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether devices and controllers added to the system are configured automatically. For more information about what specific controllers and devices are configured, see chapter 1 in *Local Device Configuration*, SC41-5121.

If this option is not selected (0), you must manually configure any new local controllers or devices that you add to your system.

If this option is selected (1), automatic configuration is on. The system automatically configures any new local controllers or devices that are added to your system. The system operator receives a message indicating the changes to the system's configuration.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder



Local Device Configuration PDF

Devices system values: Device naming convention

The Device naming convention system value is also known as QDEVNAMING. You can use this system value to specify the device naming convention.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Devices > Automatic Configuration .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Use IBM i naming.
Changes take effect	The next time a device is configured. Existing configured device names are not changed.
Lockable	No.

What can I do with this system value?

You can specify the naming convention that is used when the system automatically creates device descriptions. These names are used when creating device descriptions for local controllers or devices that are added to your system.

This system value has the following options:

Use i5/OS naming (*NORMAL)

Use naming conventions according to IBM i standards.

Use System/36 naming (*S36)

Use naming conventions according to System/36 standards.

Use device address (*DEVADR)

Derive the device name from the device address.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Devices system values: Remote controllers and devices

The Remote controllers and devices system value is also known as QAUTORMT. You can use this system value to set automatic configuration for remote controllers and devices.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Devices > Automatic Configuration.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Selected. Allow remote controllers and devices to be automatically configured.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether to allow remote controllers and devices that connect to the system to be configured automatically. If this option is not selected (0), you must manually configure any new remote controllers or devices that connect to the system. If this option is selected (1), automatic configuration is turned on.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Devices system values: Pass-through devices and Telnet

The Pass-through devices and Telnet system value is also known as QAUTOVRT. You can use this system value to set automatic configuration for pass-through devices and Telnet.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Devices > Automatic Configuration.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Do not allow pass-through devices to be automatically configured.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify the number of virtual devices to automatically configure.

If you do not want to automatically configure any devices, do not select this option (0). This option is equivalent to 0 in the character-based interface. Devices are not automatically deleted to bring the total number down to the specified limit for this system value. Therefore, if you change from a higher value to a lower value, the system does not delete virtual devices.

Before creating devices for Telnet sessions or for passthrough sessions for which the client does not specify the name of the request, this system value will be checked to make sure the new device does not exceed the number specified for this system value. If creation of another virtual device description exceed the limit specified by this system value, the device will not be created for Telnet or passthrough. However, a request for a device for a passthrough session will **not** check the limit for this system value before creating a device description if the client specified the name on the incoming request (Start Up Record).

The system deletes virtual devices only if they are damaged, or if the device needs to be created again to change its type.

If you select **Pass-through devices and Telnet** (1), select one of the following options to specify the maximum number of devices that are configured:

No maximum number of devices (*NOMAX)

An unlimited number of virtual devices may be configured automatically.

Maximum number of devices (0-32500)

The maximum number of devices that may be configured automatically. Possible values are 0 through 32500 devices. A value of 0 indicates that automatic configuration of virtual devices is off.

Run registered exit program (*REGFAC)

The program registered for the Virtual Device Selection (QIBM_QPA_DEVSEL) exit point is called when a virtual device needs to be selected or automatically created by the system. If the program registered for the exit point does not exist or if it returns with an error, the system will handle the situation as if this system value is deselected (do not allow virtual devices to be automatically configured).

If this value is selected, the program will be called every time a virtual device is requested by a pass-through or Telnet session.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Devices system values: Action to take when a device error occurs on the workstation

The Action to take when a device error occurs on the workstation system value is also known as QDEVRCYACN. You can use this system value to set the action to take when a device error occurs.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Devices > Recovery .

Quick reference	
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Disconnect job, and send message to user's application after reconnecting.
Changes take effect	Immediately.
Lockable	Yes.  (See "Lock function of security-related system values" on page 158 for details.)

What can I do with this system value?

You can specify the action to take when an input/output (I/O) error occurs for an interactive job's workstation.

The device recovery action is not performed until the next I/O operation is performed by the job. In a LAN or WAN environment, this allows one device to disconnect and another to connect, using the same device description, before the next I/O operation for the job occurs. The job can recover from the I/O error message and continue running to the second device. To avoid this, specify a device recovery action of **Disconnect job, and return to previous request level after reconnecting** or **End the job and send message to QHST log**. These device recovery actions are performed immediately when an I/O error, such as a power off operation, occurs.

You can select the following options:

Send error message to user's application (*MSG)

Sends the I/O error message to the user's application program. The application program performs error recovery.

Disconnect job, and send message to user's application after reconnecting (*DSCMSG)

Disconnects the job. When the user signs on again, an error message is sent to the application program.

Disconnect job, and return to previous request level after reconnecting (*DSCENDRQS)

Disconnects the job. When the user signs on again, a cancel request function is performed to return control of the job back to the last request level.

End the job and send message to QHST log (*ENDJOBNO LIST)

Ends the job. A message is sent to the QHST log indicating that the job ended because of the device error. To minimize the performance impact of the ending job, the job's priority is lowered by 10, the time slice is set to 100 milliseconds and the purge attribute is set to yes.

Select **Produce a job log** (*ENDJOB), if you want the message sent to the job log and the QHST log.

Related concepts:

"Jobs system values: Time-out interval for disconnected jobs" on page 54

The Time-out interval for disconnected jobs system value is also known as QDSCJOBITV. You can use this system value to specify how long a job can be disconnected before the job is ended.

Related reference:

"System value parameters" on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: International overview

You can use IBM i international system values to view and change the system's locale values and to specify how numbers, currencies, dates, and times are displayed.

To access the international category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive words to describe system values. The following table provides an overview of the international system values available in System i Navigator (and their counterparts in the character-based interface).

Table 4. International system values

Name in System i Navigator	Description of system value	Name in character-based interface
Coded character set ID	This system value specifies the default coded character set identifier (CCSID).	QCCSID
Graphic character set/Code page	This system value sets graphic character set and code page for the system.	QCHRID
Character identifier control	This system value sets the type of CCSID conversion that occurs for display files, printer files, and panel groups.	QCHRIDCTL
Country/Region	This system value sets the country or region used by the system.	QCNTYID
Currency symbol	This system value sets the symbol to use when the system displays currency values.	QCURSYM
Date and time	This system value sets the format to use when the system displays the date. You can also specify the symbol used to separate the date and time values.	QDATFMT, QTIMSEP, QDATSEP
Decimal format	This system value specifies the format to use when the system displays numbers.	QDECFMT
Double-byte capable	This system value specifies whether the double-byte character set (DBCS) version of the system is installed.	QIGC
Coded font name	This system value specifies the coded font name used on the system.	QIGCCDEFNT
Coded font point size	This system value specifies the coded font point size used on the system.	QIGCFNTSIZ

Table 4. International system values (continued)

Name in System i Navigator	Description of system value	Name in character-based interface
Default system keyboard	This system value sets the keyboard type used on the system.	QKBDTYPE
Language	This system value sets the language used on the system.	QLANGID
Locale	This system value specifies the locale used on the system.	QLOCALE
Set job attributes based on locale	This system value sets specific job attributes based on locale.	QSETJOBATR
Sort sequence	This system value specifies the sort sequence used on the system.	QSRTSEQ

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Date and time

The Date and time system value is also known as QDATFMT, QDATSEP, and QTIMSEP. You can use these system values to set the format to use when the system displays the date and to specify the symbol used to separate the date and time.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Formats .
Special authority	None.
Default value	Varies for different countries or regions.
Changes take effect	Immediately for new jobs that enter the system after the change. This does not include jobs that are active at the time of the change.
Lockable	No.

What can I do with this system value?

You can specify date and time functions. You have the following options:

Date format (QDATFMT)

This option specifies the default date format for the system. You can choose any of the following formats for the date (the examples assume that you have selected a slash as the date separator):

- **Year Month Day**
For example: YY/MM/DD
- **Month Day Year**
For example: MM/DD/YY

- **Day Month Year**
For example: DD/MM/YY
- **Julian**
For example: YY/DDD

Date separator (QDATSEP)

This option specifies the character used to separate the date. The separator can be one of the following characters:

- Slash (/)
- Dash (-)
- Period (.)
- Comma (,)
- Blank

Time separator (QTIMSEP)

This option specifies the character that separates the parts of the time. The separator can be one of the following characters:

- Comma (,)
- Period (.)
- Colon (:)
- Blank

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Decimal format

The Decimal format system value is also known as QDECFMT. You can use this system value to set the format to use when the system displays numbers.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Formats.
Special authority	None.
Default value	Varies for different countries/regions.
Changes take effect	Immediately for new jobs that enter the system after the change. This does not include jobs that are active at the time of the change.
Lockable	No.

What can I do with this system value?

You can specify the format to use when the system displays numbers. This system value is used for the following purposes:

To determine the type of zero suppression and decimal point character used by DDS edit codes 1 through 4 and A through M.

To determine the decimal point character for decimal input fields on displays.

You can specify the following values for the Decimal format system value:

1,000.04 .04 (blank)

Use a period for a decimal point, use a comma for a three-digit grouping character, and suppress zeros to the left of the decimal point.

1.000,04 0,04 (J)

Use a comma for a decimal point, and use a period for a three-digit grouping character. Zero values to the left of the comma are written with one leading zero (0,04). This value overrides any edit codes that might suppress the leading zero.

1.000,04 ,04 (I)

Use a comma for a decimal point, use a period for a three-digit grouping character, and suppress zeros to the left of the decimal point.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Currency symbol

The Currency symbol system value is also known as QCURSYM. You can use this system value to specify the symbol used for currency.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Formats .
Special authority	None.
Default value	Varies for different countries/regions.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the currency symbol to be used on the system. You can enter any character except a blank, dash (-), ampersand (&), asterisk (*), or zero (0).

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Language

The Language system value is also known as QLANGID. You can use this system value to set the default language to use on the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Language/Characters .
Special authority	None.
Default value	Varies for different countries/regions.
Changes take effect	Immediately, but they do not affect jobs that are already started.
Lockable	No.

What can I do with this system value?

You can specify the default language to use on the system. On the Sort Sequence page, you can specify what sort sequence table to use. You have the following options:

- Use shared weight sort table associated with language
- Use unique weight sort table associated with language

The possible values depend on whether double-byte capability is installed on the system. To view whether your system is double-byte capable, see “International system values: Double-byte capable” on page 43.

This system value has the following possible values:

Afrikaans (AFR)
 Albanian (SQI)
 Arabic (ARA)
 Belgian Dutch (NLB)
 Belgian French (FRB)
 Belgium English (ENB)
 Brazilian Portuguese (PTB)
 Bulgarian (BGR)
 Byelorussian (BEL)
 Canadian French (FRC)
 Catalan (CAT)
 Croatian (HRV)
 Czech (CSY)
 Danish (DAN)
 Dutch (NLD)
 English Australian (ENA)
 English Upper Case (ENP)
 Estonian (EST)
 Farsi (FAR)
 Finnish (FIN)
 French (FRA)
 German (DEU)
 Greek (ELL)
 Hebrew (HEB)
 Hungarian (HUN)
 Icelandic (ISL)
 Irish Gaelic (GAE)
 Italian (ITA)
 Japanese Katakana (JPN)
 Korean (KOR)

Lao (LAO)
 Latvian (LVA)
 Lithuanian (LTU)
 Macedonian (MKD)
 Norwegian - Bokmal (NOR)
 Norwegian - Nynorsk (NON)
 Polish (PLK)
 Portuguese (PTG)
 Rhaeto-Romanic (RMS)
 Romanian (ROM)
 Russian (RUS)
 Serbian (SRB)
 Serbian Cyrillic (SRB)
 Serbian Latin (SRL)
 Simplified Chinese (CHS)
 Slovakian (SKY)
 Slovenian (SLO)
 Spanish (ESP)
 Swedish (SVE)
 Swiss French (FRS)
 Swiss German (DES)
 Swiss Italian (ITS)
 Thai (THA)
 Traditional Chinese (CHT)
 Turkish (TRK)
 UK English (ENG)
 US English (ENU)
 Ukrainian (UKR)
 Urdu (URD)
 Vietnamese (VIE)

Related concepts:

“International system values: Double-byte capable” on page 43

The Double-byte capable system value is also known as QIGC. You can use this system value to determine whether the double-byte character set (DBCS) version of the system is installed.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Country/Region

The Country/Region system value is also known as QCNTYID. You can use this system value to set the default country or region to use on the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Language/Characters.
Special authority	None.
Default value	Varies for different countries or regions.
Changes take effect	Immediately, but does not affect jobs already started.

Quick reference	
Lockable	No.

What can I do with this system value?

You can specify the default country or region identifier to use on the system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Country and region identifiers

Related information:

System value finder

International system values: Default system keyboard

The Default system keyboard system value is also known as QKBDTYPE. You can use this system value to set the keyboard type used on the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Language/Characters .
Special authority	None.
Default value	Varies for different countries or regions.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify a different language character set for the keyboard. When the operating system was installed, this system value was set to the appropriate keyboard value based on the language specified at that time.

This system value has the following possible values:

- Albania (ALI)
- Albania Euro Currency (ALM)
- Arabic X (CLB)
- Arabic X Euro Currency (CLE)
- Austria/Germany (AGB)
- Austria/Germany Euro Currency (AGE)
- Austria/Germany Multinational (AGI)
- Austria/Germany Multinational Euro Currency (AGM)
- Bulgaria (BGB)
- Bulgaria Euro Currency (BGE)
- Belgium Multinational (BLI)
- Belgium Multinational Euro Currency (BLM)
- Brazilian Portuguese (BRB)
- Brazilian Portuguese Euro Currency (BRE)
- Canadian French (CAB)

Canadian French Euro Currency (CAE)
Canadian French Multinational (CAI)
Canadian French Multinational Euro Currency (CAM)
Croatia, Serbia (Latin), and Slovenia (YGI)
Croatia, Serbia (Latin), and Slovenia Euro Currency (YGM)
Czech Republic (CSB)
Czech Republic Euro Currency (CSE)
Cyrillic (CYB)
Denmark (DMB)
Denmark Euro Currency (DME)
Denmark Multinational (DMI)
Denmark Multinational Euro Currency (DMM)
Estonia (ESB)
France (Azerty) (FAB)
France (Azerty) Euro Currency (FAE)
France (Azerty) Multinational (FAI)
France (Azerty) Multinational Euro Currency (FAM)
Finland/Sweden (FNB)
Finland/Sweden Euro Currency (FNE)
Finland/Sweden Multinational (FNI)
Finland/Sweden Multinational Euro Currency (FNM)
France (Qwerty) (FQB)
France (Qwerty) Multinational (FQI)
FYR (Former Yugoslav Republic of Macedonia) (MKB)
FYR (Former Yugoslav Republic of Macedonia) Euro Currency (MKE)
Greece (GKB)
Greece (GNB)
Greece Euro Currency (GNE)
Hebrew (NCB)
Hebrew Euro Currency (NCE)
Hindi (HIB) Hungary (HNB)
Hungary Euro Currency (HNE)
Iceland ICB)
Iceland Euro Currency (ICE)
Iceland Multinational (ICI)
Iceland Multinational Euro Currency (ICM)
India (Urdu) (PKB)
India (Urdu) Euro Currency (PKE)
International (INB)
International Multinational (INI)
Iran (Farsi) (IRB)
Italy (ITB)
Italy Euro Currency (ITE)
Italy Multinational (ITI)
Italy Multinational Euro Currency (ITM)
Japan (English) (JEB)
Japan English Multinational (JEI)
Japan (Kanji) and Katakana (JKB)
Japan Latin Extended (JPB)
Japan Latin Extended Euro Currency (JPE)
Japan Kanji and United States English (JUB)
Japan (Katakana)(KAB)
Korea (KOB)
Lao People's Democratic Republic (LAB)
Lao People's Democratic Republic Euro Currency (LAE)
Lithuania (LTB)

Latin 2 (ROB)
Latin 2 Euro Currency (ROE)
Latvia (LVB)
Netherlands (NEB)
Netherlands Euro Currency (NEE)
Netherlands Multinational (NEI)
Netherlands Multinational Euro Currency (NEM)
Norway (NWB)
Norway Euro Currency (NWE)
Norway Multinational (NWI)
Norway Multinational Euro Currency (NWM)
Polish (PLB)
Polish Euro Currency (PLE)
Portugal (PRB)
Portugal Euro Currency (PRE)
Portugal Multinational (PRI)
Portugal Multinational Euro Currency (PRM)
Romania (RMB)
Romania Euro Currency (RME)
Russia (RUB)
Russia Euro Currency (RUE)
Serbia (Cyrillic) (SQB)
Serbia (Cyrillic) Euro Currency (SQE)
Simplified Chinese (RCB)
Slovakia (SKB)
Slovakia Euro Currency (SKE)
Spain (SPB)
Spain Euro Currency (SPE)
Spain Multinational (SPI)
Spain Multinational Euro Currency (SPM)
Spanish Speaking (SSB)
Spanish Speaking Euro Currency (SSE)
Spanish Speaking Multinational (SSI)
Spanish Speaking Multinational Euro Currency (SSM)
Sweden (SWB)
Sweden Euro Currency (SWE)
Sweden Multinational (SWI)
Sweden Multinational Euro Currency (SWM)
Switzerland/French Multinational (SFI)
Switzerland/French Multinational Euro Currency (SFM)
Switzerland/German Multinational (SGI)
Switzerland/German Multinational Euro Currency (SGM)
Thailand (THB)
Thailand Euro Currency (THE)
Traditional Chinese (TAB)
Turkey (TKB)
Turkey (Qwerty) Euro Currency (TKE)
Turkey (F) (TRB)
Turkey (F) Euro Currency (TRE)
Ukraine (UAB)
Ukraine Euro Currency (UAE)
United Kingdom (UKB)
United Kingdom Euro Currency (UKE)
United Kingdom Multinational (UKI)
United Kingdom Multinational Euro Currency (UKM)
United States/Canada (USB)

United States/Canada Euro Currency (USE)
 United States/Canada Multinational (USI)
 United States/Canada Multinational Euro Currency (USM)
 Vietnam (VNB)
 Vietnam Euro Currency (VNE)

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Coded character set ID

The Coded character set ID system value is also known as QCCSID. You can use this system value to specify the default coded character set ID.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Language/Characters .
Special authority	None.
Default value	Varies for different countries/regions.
Changes take effect	Immediately, but they do not affect jobs that are already started.
Lockable	No.

What can I do with this system value?

Coded character set identifiers (CCSIDs) identify:

- A specific set of encoding scheme identifiers
- Character set identifiers
- Code page identifiers
- Additional coding-related information that uniquely identifies the coded graphic character representation to be used by the system.

You should specify a value based on the primary language installed on the system. Possible values range from 1 through 65535.

00001-28691: IBM-registered CCSIDs

28672-65533: Reserved

65535 or *HEX: No conversion done

On a double-byte character set (DBCS) system, this system value must be set to a mixed CCSID (a CCSID that represents both single-byte and double-byte character set and code page). On a non-DBCS system, this system value must be set to a single-byte character set (SBCS) CCSID. In System i Navigator, the International category of system values specifies whether DBCS is installed on the system. View the Double-byte capable field on the DBCS page. The coded character set and the code page of the graphical character set must always be compatible. If the coded character set is changed to a value that is not compatible with the code page of the graphical character set (QCHRID), the graphical character set is automatically changed.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Default system values for national language versions

Related information:

System value finder

International system values: Graphic character set/Code page

The Graphic character set/Code page system value is also known as QCHRID. You can use this system value to specify the graphic character set and code page for the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Language/Characters.
Special authority	None.
Default value	Varies for different countries or regions.
Changes take effect	Immediately for display files, display device descriptions, and printer files that are created, changed, or overridden after the change.
Lockable	No.

What can I do with this system value?

You can specify the default graphic character set and code page. This system value specifies the character set and code page used when CHRID(*SYSVAL) is specified for the CL commands that create, change, or override display files, display device descriptions, and printer files.

This system value might be changed automatically when the Coded character set ID (QCCSID) system value is changed. It is suggested that you change the Coded character set ID system value instead of this system value.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Character identifier control

The Character identifier control system value is also known as QCHRIDCTL. You can use this system value to specify the type of coded character set identifier (CCSID) conversion that occurs for display files, printer files, and panel groups.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Language/Characters.
Special authority	None.
Default value	Device description.

Quick reference	
Changes take effect	Immediately, but does not affect jobs that are already started unless a change job request is made.
Lockable	No.

What can I do with this system value?

You can specify the default type of CCSID conversion that occurs within a job for display files, printer files, and panel groups. You must specify the Character identifier control special value on the character identifier (CHRID) command parameter on the create, change, or override commands for display files, printer files, and panel groups before this attribute is used. This system value can be referred to for setting the character identifier control job attribute or the character identifier control user profile attribute.

This system value has the following options:

Device description (*DEVDD)

No conversion will occur.

Job (*JOBCCSID)

Coded character set ID (CCSID) conversion takes place if the device character identifier (CHRID) and job character identifier (CCSID) are different and the job character identifier (CCSID) is not 65535.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Sort sequence

The Sort sequence system value is also known as QSRTSEQ. You can use this system value to specify the sort sequence used on the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Sort Sequence .
Special authority	None.
Default value	Use hexadecimal values of characters.
Changes take effect	Immediately, but does not affect jobs already started.
Lockable	No.

What can I do with this system value?

You can specify the default sort sequence to use on the system. *Sort sequence* is the order in which characters are arranged within the computer to sort, combine, or compare data. The sort sequence tables sort characters more accurately in accordance with the cultural requirements of users. Regardless of the country or region or the single-byte coded character set language in use, you can sort lists that match a sequence consistent with your language and alphabet.

This system value has the following options:

Use hexadecimal values of characters (*HEX)

No sort sequence table is used. The hexadecimal values of the characters are used to determine the sort sequence.

Use shared weight sort table associated with language (*LANGIDSHR)

The sort sequence table used can contain the same weight for multiple characters. It is the shared weight sort table associated with the language specified on the Language/Characters page.

Use unique weight sort table associated with language (*LANGIDUNQ)

The sort sequence table used must contain a unique weight for each character in the code page. It is the unique weight sort table associated with the language specified on the Language/Characters page.

Use specific sort table

The specified name and library of the sort sequence table are used. The sort sequence table must exist in the system disk pool or in a basic user disk pool.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Coded font name

The Coded font name system value is also known as QIGCCDEFNT. You can use this system value to specify the coded font name to be used on the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > DBCS .
Special authority	None.
Default value	Varies for different countries/regions.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the name of the DBCS coded font to use when the system transforms SNA character string (SCS) data into an Advanced Function Printing data stream (AFPDS) spooled file with shift in/shift out (SI/SO) characters present in the data. A coded font associates multiple pairs of code pages and font character sets.

This system value has the following options:

None (*NONE)

No coded font is identified to the system.

coded-font-name

The name of the DBCS coded font. The coded font name can be no more than 8 characters long.

The IGC coded font must exist in the system disk pool (also known as auxiliary storage pool) or in a basic user disk pool.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Coded font point size

The Coded font point size system value is also known as QIGCFNTSIZ. You can use this system value to specify the coded font point size to use on the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > DBCS .
Special authority	None.
Default value	Selected by the system.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the point size for the double-byte coded font. The height of characters is measured in points, where 1 point is equal to 1/72nd of an inch. An 18-point font has characters that are 18/72 or 1/4 of an inch high. For example, a particular font might have available sizes of 8, 10, or 12.

This system value is used with the Coded font name (QIGCCDEFNT) system value when the system transforms an SNA character string (SCS) into an Advanced Function Printing data stream (AFPDS). These system values are also used when the system creates an AFPDS spooled file with shift in/shift out characters present in the data.

This system value has the following options:

Selected by the system (*NONE)

No font point size is identified to the system.

000.1 - 999.9

The point size for the double-byte coded font.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Locale

The Locale system value is also known as QLOCALE. You can use this system value to set the locale path for the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Locale .
Special authority	None.
Default value	The default changed from *NONE to a default locale based on the primary NLV installed. Therefore, the default value varies for different countries and regions. This change only affects new systems, or those systems that have been completely reinstalled.
Changes take effect	Immediately, but does not affect jobs already started.
Lockable	No.

What can I do with this system value?

You can set the default locale path for a job. The locale path name must be a path that specifies a locale object. A locale is an object that can determine how data is processed, printed, and displayed. Locales consist of categories that define language, cultural data, and character sets.

The system value has the following options:

None (*NONE)

Specifies that there is no default locale.

C locale (*C)

Indicates the C standard locale is to be used.

POSIX locale (*POSIX)

Indicates the POSIX standard locale is to be used. The POSIX locale is equivalent to the C locale.

System specified locale

Select a locale from the list displayed in System i Navigator.

Path name

Specify the path name of the locale to be used.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Set job attributes based on locale

The Set job attributes based on locale system value is also known as QSETJOBATR. You can use this system value to specify that certain job attributes are set to the value in a locale when the job is initiated.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > Locale .
Special authority	None.
Default value	Deselected. Do not set job attributes based on locale.

Quick reference	
Changes take effect	Immediately, but they do not affect jobs that are already started.
Lockable	No.

What can I do with this system value?

You can specify whether certain job attributes are set to the value in a locale when the job is initiated. If you select this option, you can specify any of the following job attributes:

- Date format (*DATFMT)
- Date separator (*DATSEP)
- Time separator (*TIMSEP)
- Decimal format (*DECFMT)
- Coded character set ID (*CCSID)
- Sort sequence (*SRTSEQ)

These values are set only if the value in the locale conforms to a valid value for the attribute being set. The values are set when the job is initiated.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

International system values: Double-byte capable

The Double-byte capable system value is also known as QIGC. You can use this system value to determine whether the double-byte character set (DBCS) version of the system is installed.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > International > DBCS .
Special authority	None.
Default value	Yes, double-byte capability is installed.
Changes take effect	This system value is read only. You cannot make changes to it.
Lockable	No.

What can I do with this system value?

This system value specifies whether the DBCS version of the system is installed. A DBCS is a character set in which each character is represented internally by a 2-byte code point. Languages that contain more characters than can be represented internally by 256 code points require DBCS.

For example, languages that are based on ideographic characters, such as Japanese, Chinese, and Korean, require double-byte character sets.

For IBM i V5R3, or later, double-byte capability is always installed. For OS/400 V5R2, or earlier, you must install one of the DBCS versions of IBM i to support Japanese, Chinese, or Korean.

This value is not editable; it is set by the system. You can refer to this system value in an application program.

Related concepts:

“International system values: Language” on page 31

The Language system value is also known as QLANGID. You can use this system value to set the default language to use on the system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Jobs overview

You can use IBM i jobs system values to view or change system-level job limits and other job defaults.

To access the jobs category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides a quick overview of the jobs system values available in System i Navigator (and their counterparts in the character-based interface).

Table 5. Jobs system values

Name in System i Navigator	Description of system value	Name in character-based interface
Allocate storage at restart	This system value specifies the storage used at restart for active and total jobs.	QACTJOB, QTOTJOB
Allocate additional storage as needed	This system value specifies the additional storage allocated for active jobs and total jobs.	QADLACTJ, QADLTOTJ
Allow jobs to be interrupted to run user-defined exit programs	This system value specifies how the system responds to user-initiated requests to interrupt a job to run a user-defined exit program in that job.	QALWJOBITP
Time-out interval for disconnected jobs	This system value specifies the time-out interval for disconnected jobs.	QDSCJOBITV
Maximum time for immediate end	This system value specifies the maximum amount of time for application cleanup during the immediate ending of a job.	QENDJOBMT
Time-out interval for inactive jobs	This system value specifies the time-out interval for inactive jobs.	QINACTITV

Table 5. Jobs system values (continued)

Name in System i Navigator	Description of system value	Name in character-based interface
When job reaches time-out	This system value specifies the action to take when an inactive job reaches time-out.	QINACTMSGQ
When a maximum size is reached	This system value specifies the action to take when the maximum job log size is reached.	QJOBMSGQFL
Maximum job log size	This system value specifies the maximum job log size.	QJOBMSGQMX
Initial printer output block size	This system value controls the initial size of a spooling control block (SCB).	QJOBSPLA
Produce printer output for job log	This system value specifies how the job log is produced when a job completes.	QLOGOUTPUT
Maximum jobs	This system value specifies the maximum number of jobs.	QMAXJOB
Maximum printer output files	This system value specifies the maximum number of printer output files allowed for a job.	QMAXSPLF
When a function in a multi-threaded job is not threadsafe	This system value specifies the action to take when a function is not threadsafe.	QMLTTHDACN
Detach printer output after jobs have ended	This system value specifies whether spooled files are kept with a job or detached from the job.	QSPLFACN

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Jobs system values: Allow jobs to be interrupted to run user-defined exit programs

The Allow jobs to be interrupted to run user-defined exit programs system value is also known as QALWJOBITP. You can use this system value to specify how the system responds to user-initiated requests to interrupt a job to run a user-defined exit program in that job.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Other.
Special authority	*ALLOBJ and *SECADM.

Quick reference	
Default value	Deselected.
Changes take effect	Immediately, but does not affect jobs already started.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

This system value specifies how the operating system responds to user-initiated requests to interrupt a job. Use this capability if you want to provide an exit program with the ability to interrupt a job for which the program runs. Only jobs in the active state can be interrupted.

If this option is not selected (0), the operating system does not allow jobs to be interrupted to run user-defined exit programs.

If this option is selected (1), the operating system allows jobs to be interrupted to run user-defined exit programs. For jobs that are currently active, use the Change Job Interrupt Status (QWCCJITP) API to identify if the job can be interrupted to run user-defined exit programs.

When this option is selected, you can select the following option:

All new active jobs will be interruptible

If you want all jobs becoming active to be interruptible, select this option (2). Otherwise, jobs that become active are marked by default as not interruptible (1).

If you do not want all jobs becoming active to be interruptible, do not select this option (1).

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Call Job Interrupt Program (QWCJBITP) API

Change Job Interrupt Status (QWCCJITP) API

Jobs system values: Allocate storage at restart

The Allocate storage at restart system value is also known as QACTJOB and QTOTJOB. You can use these system values to set the amount of storage used for active jobs and total jobs when the system is restarted.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Allocation .
Special authority	None.
Default value	For active jobs: 200; for total jobs: 200.
Changes take effect	At the next restart of the system.
Lockable	No.

What can I do with this system value?

You can specify the number of active jobs and total jobs for which to allocate storage when the system is restarted.

Active Jobs (QACTJOB)

The QACTJOB system value specifies the initial number of active jobs for which auxiliary storage is allocated when you restart the system. An active job is a job that has started running but has not ended. Possible values are 1 through 32767.

You can determine a new value to assign to active jobs. This value should be the estimated number of jobs that are active immediately following the system restart. To see the number of active jobs on the system in System i Navigator, select **Work Management** and then select **Active Jobs**. The total number of active jobs is shown in the status bar at the bottom of the System i Navigator window. To ensure that this number is accurate, make sure that the include criteria specifies all jobs except system jobs. Select to include everything except System in the Type field. You do not need to consider system jobs when assigning a value to the Active jobs at restart system value.

Total Jobs (QTOTJOB)

The QTOTJOB system value specifies the initial number of jobs for which auxiliary storage is allocated when the job tables are rebuilt when the system is restarted. The number of jobs is the number supported by the system at any one time, which includes the jobs on job queues, active jobs (including system jobs), and completed jobs with pending job logs or with output on output queues. Possible values are 1 through 32767.

This system value is used only when the job tables are rebuilt.

To find the number of total jobs in the system, right-click your system in System i Navigator and select **System Status**. This number should usually be kept within reason as it is a factor in the time to perform a restart and some internal searches. This might require periodic removal of jobs that have only job logs. As long as a job has one or more spooled output files attached to the job, knowledge of the job remains in the system and counts toward the display system status value.

You can also use the Detach printer output after jobs have ended (QSPLFACN) system value to control the reuse of job structures. This gives you more control of the number of jobs being processed.

You must set this value high enough so that additional storage does not need to be allocated later during the same system restart in which the job tables are rebuilt.

Related concepts:

“Jobs system values: Detach printer output after jobs have ended” on page 57

The Detach printer output after jobs have ended system value is also known as QSPLFACN. You can use this system value to specify whether printer output is kept with a job or detached from the job.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Finding jobs

Jobs system values: Allocate additional storage as needed

The Allocate additional storage as needed system value is also known as QADLACTJ and QADLTOTJ. You can use these system values to set the amount of additional storage allocated as necessary for active jobs and total jobs.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Allocation .
Special authority	None.
Default value	For active jobs: 30; for total jobs: 30.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the additional number of active jobs and total jobs for which auxiliary storage is allocated.

Active Jobs (QADLACTJ)

The QADLACTJ system value specifies the additional number of active jobs for which auxiliary storage is allocated. An active job is a job that has started running but has not ended. This auxiliary storage is allocated whenever the number of active jobs exceeds the number for which the storage has already been allocated. Possible values are 1 through 32767.

A value between 10 and 50 is recommended for this system value. Setting this number close to 1 can cause frequent interruptions when many additional jobs are needed. The number should not be set too high because the time required to add additional storage should be minimized.

Total Jobs (QADLTOTJ)

The QADLTOTJ system value specifies the additional number of jobs for which auxiliary storage is allocated when the number of jobs in the system exceeds the number for which the storage has been allocated. These jobs include jobs on job queues, active jobs, and completed jobs with pending job logs or with output on output queues. Possible values are 1 through 32767.

A value between 10 and 50 is recommended for this system value. Setting this number close to 1 can cause excessive interruptions when many additional jobs are needed. The number should not be set too high because the time required to add additional storage should be minimized.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Jobs system values: Maximum jobs

The Maximum jobs system value is also known as QMAXJOB. You can use this system value to specify the maximum number of jobs that are allowed on the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Allocation .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	163520.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the maximum number of jobs that are allowed on the system. When the number of jobs reaches this maximum, you can no longer submit or start more jobs on the system. Use this system value to limit the storage used for job tables. Possible values are 32000 through 485000.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Jobs system values: Initial printer output block size

The Initial printer output block size system value is also known as QJOBSPLA. You can use this system value to specify the initial size for the spooling control block for a job.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Printer Output .
Special authority	None.
Default value	3516.
Changes take effect	At the next restart of the system.
Lockable	No.

What can I do with this system value?

You can specify the initial size of the spooling control block for a job. (One spooling control block is available for each job in the system.) The spooling control block records information about inline spooled files and output spooled files. This value primarily affects auxiliary storage requirements and has little effect on performance. The auxiliary storage is retained for every job known to the system. Possible values are 3516 through 32767.

The allocated area consists of standard control information plus a separate set of control information for each inline spooled file. The default is 3516 bytes, which allows for about eight inline spooled files per job. If your typical job uses more than the eight inline files and you are not concerned with an additional 4 KB allocation per job, a good choice is 8192 bytes. This allows for approximately 59 inline spooled files per job.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Jobs system values: Maximum printer output files

The Maximum printer output files system value is also known as QMAXSPLF. You can use this system value to specify the maximum number of printer output files that can be created per job.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Printer Output .
Special authority	None.
Default value	9999.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the maximum number of printer output (spooled) files that can be created per job. Printer output files are not deleted when this value is changed to a lower number. Therefore, a job can have more than this maximum number of printer output files if the printer output files existed before the system value was set to a lower number. The range of values is 9999 through 999999.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Jobs system values: Maximum job log size

The Maximum job log size system value is also known as QJOBMSGQMX. You can use this system value to specify the maximum size of a job log (also known as a job message queue).

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Job Log .
Special authority	None.
Default value	16.
Changes take effect	Immediately, but the change does not affect jobs that are already started.
Lockable	No.

What can I do with this system value?

You can specify the maximum size of a job log in megabytes (MB). When this maximum size is reached for any job log, that job log is considered full and the action specified in the When maximum size is reached system value is taken. Possible values are 2 through 64 MB.

Related concepts:

“Jobs system values: When maximum size is reached”

The When maximum size is reached system value is also known as QJOBMSGQFL. You can use this system value to specify how the system should handle the job log (also known as the job message queue) when it is considered full.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Jobs system values: When maximum size is reached

The When maximum size is reached system value is also known as QJOBMSGQFL. You can use this system value to specify how the system should handle the job log (also known as the job message queue) when it is considered full.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Job Log .
Special authority	None.
Default value	Do not wrap job log. End the job.
Changes take effect	Immediately, but the change does not affect jobs that are already started.
Lockable	No.

What can I do with this system value?

You can specify how the system should handle the job message queue when it is considered full. The specified value in the Maximum job log size field indicates when a job message queue is considered full.

This system value has the following options:

Do not wrap job log. End the job. (*NOWRAP)

Do not wrap the job log. The job ends when the maximum job log size is reached.

Wrap job log. (*WRAP)

Wrap the job log. To print the messages that are being overlaid because of wrapping, select **Print overlaid messages (*PRTWRAP)**.

Related concepts:

“Jobs system values: Maximum job log size” on page 50

The Maximum job log size system value is also known as QJOBMSGQMX. You can use this system value to specify the maximum size of a job log (also known as a job message queue).

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Jobs system values: Time-out interval for inactive jobs

The Time-out interval for inactive jobs system value is also known as QINACTITV. You can use this system value to specify the time interval that the system waits before taking the action that you specify in the When job reaches time-out (QINACTMSGQ) system value.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Interactive Jobs.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Do not time-out.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

Using the Time-out interval for inactive jobs system value and the When a job reaches time-out system value, you can specify how many minutes to give a job the chance to perform an activity before the job is marked as inactive. You can also specify the action to take when the time limit for an inactive job expires.

The Time-out interval for inactive jobs system value determines when to take action on an inactive job. You specify the inactive job time-out interval in minutes. When this time limit expires, the system takes action on inactive interactive jobs. Excluded are local jobs that are currently signed on to a remote system. For example, a workstation is directly attached to System A, and System A has this system value set on. If you use pass-through or Telnet to sign on to System B, the time-out value set on System A does not affect this workstation.

This system value has the following options:

Do not time-out (*NONE)

The system does not check for inactive interactive jobs.

5-300 minutes (5-300)

The number of minutes a job can be inactive before action is taken.

Related concepts:

“Jobs system values: When a job reaches time-out” on page 53

The When a job reaches time-out system value is also known as QINACTMSGQ. You can use this system value to specify the action the system takes when a job reaches the specified time-out interval.

“Jobs system values: Time-out interval for disconnected jobs” on page 54

The Time-out interval for disconnected jobs system value is also known as QDSCJOBITV. You can use this system value to specify how long a job can be disconnected before the job is ended.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated


special parameters.

Related information:

System value finder

Jobs system values: When a job reaches time-out

The When a job reaches time-out system value is also known as QINACTMSGQ. You can use this system value to specify the action the system takes when a job reaches the specified time-out interval.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Interactive Jobs .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	End job.
Changes take effect	Immediately.
Lockable	Yes.  (See "Lock function of security-related system values" on page 158 for details.)

What can I do with this system value?

You can specify the action the system takes when an interactive job has been inactive for a specified interval of time. The interactive job can be ended or disconnected, or a message can be sent to the message queue you specify.

This system value has the following options:

End job (*ENDJOB)

The interactive job is ended, along with any secondary job and any group jobs associated with it. If there are many inactive jobs in a subsystem that are to be ended at once, the interactive response time of that subsystem may be slowed. To minimize this effect, the system changes several job attributes for each job to be ended. The job priority is lowered by 10, the time slice is set to 100 milliseconds, and the purge attribute is set to yes.

Disconnect job (*DSCJOB)

The interactive job is disconnected, as are any secondary or group jobs associated with it. If this option is used but the job cannot be disconnected, the End job option is used.

Send a message

Message CPI1126 is sent to the specified message queue. If the specified message queue does not exist or is damaged, the messages are sent to the system operator message queue.

All messages in the message queue specified by this system value are cleared during a restart. If you assign a user's message queue to this system value, the user loses all messages in the user's message queue during each restart of the system.

The message queue must exist in the system disk pool (also known as auxiliary storage pool) or in a basic user disk pool.

Related concepts:

"Jobs system values: Time-out interval for inactive jobs" on page 52

The Time-out interval for inactive jobs system value is also known as QINACTITV. You can use this system value to specify the time interval that the system waits before taking the action that you specify in

the When job reaches time-out (QINACTMSGQ) system value.

“Jobs system values: Time-out interval for disconnected jobs”

The Time-out interval for disconnected jobs system value is also known as QDSCJOBITV. You can use this system value to specify how long a job can be disconnected before the job is ended.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Jobs system values: Time-out interval for disconnected jobs

The Time-out interval for disconnected jobs system value is also known as QDSCJOBITV. You can use this system value to specify how long a job can be disconnected before the job is ended.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Interactive Jobs.
Special authority	None.
Default value	240.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify the length of time in minutes that an interactive job can be disconnected before it is ended. An interactive job can become disconnected in any of the following ways:

- When the Disconnect Job (DSCJOB) command has been issued for the job.
- When the job has been inactive for the interval that is specified for the Time-out interval for inactive jobs (QINACTITV) system value and the Disconnect job option is specified for the When job reaches time-out (QINACTMSGQ) system value.
- When an I/O error occurs at the interactive job's workstation and one of the Disconnect job options is specified for the Action to take when a device error occurs on the workstation (QDEVRCYACN) system value.

No matter how the job became disconnected, it is ended after the number of minutes specified in the Time-out interval for disconnected jobs system value. The system value has the following values:

Do not time-out (*NONE)

There is no interval between job disconnection and job end.

5-1440 minutes (5-1440)

Specify the number of minutes before the job is ended.

Related concepts:

“Jobs system values: Time-out interval for inactive jobs” on page 52

The Time-out interval for inactive jobs system value is also known as QINACTITV. You can use this system value to specify the time interval that the system waits before taking the action that you specify in

the When job reaches time-out (QINACTMSGQ) system value.

“Jobs system values: When a job reaches time-out” on page 53

The When a job reaches time-out system value is also known as QINACTMSGQ. You can use this system value to specify the action the system takes when a job reaches the specified time-out interval.

“Devices system values: Action to take when a device error occurs on the workstation” on page 26

The Action to take when a device error occurs on the workstation system value is also known as QDEVRCYACN. You can use this system value to set the action to take when a device error occurs.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Jobs system values: Produce printer output for job log

The Produce printer output for job log system value is also known as QLOGOUTPUT. You can use this system value to specify whether the operating system creates printer output that contains the job log information for a job when it is completed. The job log's printer output can contain commands run within the job and their related messages.

This system value setting does not affect the printer output for job logs produced when the message queue is full and the job specifies to print overlaid messages. After a message queue is full, the operating system ignores this system value setting and printer output is automatically created by the job. Messages in the job message queue are written to a spooled file, from which the job log can be printed. However, if the Control Job Log Output (QMHCTLJL) API used in the job specifies that the messages in the job log are to be written to a database file, these messages are written to a database file. Changes to this system value take effect immediately for jobs entering the system after the change is made.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Job Log .
Special authority	*JOBCTL.
Default value	Selected and produced by job.
Changes take effect	Immediately, but does not affect jobs already started.
Lockable	No.

What can I do with this system value?

If this option is selected, printer output for a job log is automatically created. You can use the printer output for auditing purposes and to troubleshoot problems if they occur. In addition, you must specify what creates the printer output of the job log, the job itself (*JOBEND) or the job log server (*JOBLOGSVR).

Select one of the following options in the Produced by field:

Job This option indicates that the job produces the printer output of the job log. If the job cannot produce its own printer output, the job log server produces it. For example, if the system is powered down before a job creates the printer output, the job log server creates it.

Job Log Server

This option indicates that the job log server produces the printer output. This is the recommended setting.

If this option is not selected (*PND), printer output for a job log is not automatically created. This reduces the amount of processor and storage resources consumed by unnecessary job logs. The pending job log can still be displayed or printer output can be produced at any time after the job has ended by using the Display Job Log (DSPJOBLOG) or Change Job (CHGJOB) commands.

Note: You need to delete job logs and printer output that are no longer needed. By default, pending job logs are removed along with printer output periodically by Operational Assistant. The Remove Pending Job Log (QWTRMVJL) API can also be used to remove pending job logs.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Remove Pending Job Log (QWTRMVJL) API

Job log pending

Jobs system values: When a function in a multithreaded job is not threadsafe

The When a function in a multithreaded job is not threadsafe system value is also known as QMLTTHDACN. You can use this system value to specify the action to take when a function that is not threadsafe runs in a job with multiple threads.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Threads .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Perform the function that is not threadsafe and send message to job log.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the action to take when a function that might not be threadsafe is called in a job that is running with multiple threads. Examples of functions that support this system value are CL commands and exit points that run user exit programs that are registered through the exit program registration facility.

This system value has the following options:

Do not perform the function (3)

If a function is not threadsafe, the function is not performed. This value should be used on systems that are running multithreaded jobs in production mode or on any system for which data integrity is important.

Perform the function that is not threadsafe (1)

If a function is not threadsafe, the function is performed. Do not use this value on systems that are running multithreaded jobs in production mode or on any system for which data integrity is important.

Send message to job log (2)

If you select the option **Perform the function that is not threadsafe (1)**, you can select this option to send an informational message to the job log.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Jobs system values: Detach printer output after jobs have ended

The Detach printer output after jobs have ended system value is also known as QSPLFACN. You can use this system value to specify whether printer output is kept with a job or detached from the job.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Printer Output .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Keep printer output.
Changes take effect	Immediately, except for jobs already started.
Lockable	No.

What can I do with this system value?

Use the associated checkbox to specify whether printer output (spooled files) is kept with a job or detached from the job.

Keep printer output with jobs (*KEEP)

You can display printer output by selecting **Printer Output** on jobs that have ended. The ended jobs still count toward the limit of jobs defined by the Maximum jobs system value. The job status becomes Completed (OUTQ) when the job ends.

Detach printer output from a job (*DETACH)

The job is removed from the system when the job ends. This reduces the use of system resources by allowing job structures to be recycled when the job ends. Because the job is removed from the system, you cannot use the job interfaces to work with the printer output for the job. However, this option does not delete the printer output. To view the printer output for a job that is removed from the system, open System i Navigator, select **Basic Operations**, and then select **Printer Output**. The queue lists the output.

If you choose to keep printer output with jobs and you have printer output in independent disk pools (also known as auxiliary storage pools), you need to be aware of the following restriction: printer output in independent disk pools is separate from the job. For example, the independent disk pool may be varied off and moved to a different system. While the job still exists and the disk pool is still varied on and is still on the same system as the job, you can work with the job and display printer output. But printer output in independent disk pools is not, by itself, reason enough for the job to continue to exist.

When the only printer output associated with a job is on independent disk pools, the printer output is detached from the job and the job is removed from the system.

For example, when a job completes, it contains three printer output files: File1, File2, and File3. At the user's request, File1 and File2 are either printed or deleted; however, File3 still exists. Since File3 is on an independent disk pool, the job is detached from the printer output File3. The printer output for that job is still available but the job is removed from the system.

Related concepts:

“Jobs system values: Allocate storage at restart” on page 46

The Allocate storage at restart system value is also known as QACTJOB and QTOTJOB. You can use these system values to set the amount of storage used for active jobs and total jobs when the system is restarted.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Jobs system values: Maximum time for immediate end

The Maximum time for immediate end system value is also known as QENDJOBLMT. You can use this system value to specify the amount of time for application cleanup during the immediate ending of a job.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Jobs > Cleanup .
Special authority	None.
Default value	120.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

This system value specifies the maximum amount of time (in seconds) for application cleanup during the immediate ending of a job. This is both a maximum cleanup time and a minimum amount of time needed to conclude that the signal handling procedure (SIGTERM) has encountered a problem. The signal handling procedure is set up by the application in the job and indicates how to process the incoming signals. Only jobs running applications that use signal handling procedures use this system value.

When a job being ended has a signal handling procedure for the asynchronous signal SIGTERM, the SIGTERM signal is generated for that job. When the signal handling procedure for the SIGTERM signal is given control, the procedure can take the appropriate actions to avoid undesirable results such as application data that has been partially updated. If the SIGTERM signal handler has not completed in the specified amount of time, the system ends the job.

If a job is ended in an immediate manner, the maximum time for the signal handler is specified by this system value. This system value's time limit is used when ending one job, when ending all the jobs in a subsystem, or when ending all jobs in all subsystems. After two minutes from the initial end request, the

system operator can use the End Job (ENDJOB) command with OPTION(*IMMED) to override the QENDJOB LMT value and end individual jobs immediately. Only use this command if a job is unable to perform its cleanup due to lock or wait conditions.

To allow enough time for both application cleanup and system end-of-job processing, you might need to adjust the Maximum time for immediate shutdown (QPWRDWN LMT) system value in the Restart category of system values. If you set the Maximum time for immediate end system value to a value greater than the Maximum time for immediate shut down system value, a warning message is displayed. When a power down occurs, all jobs must end within the time frame specified by the Maximum time for immediate shut down system value in order for the power down to complete in a controlled manner.

Possible values are from 30 to 3600 seconds (1 hour).

Related concepts:

“Restart system values: Maximum time for immediate shutdown” on page 112

The Maximum time for immediate shutdown system value is also known as QPWRDWN LMT. You can use this system value to specify the time limit before an immediate shutdown occurs.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Library lists overview

You can use IBM i library lists system values to view or change system-level job limits and other job defaults.

To access the library lists category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides an overview of the library lists system values available in System i Navigator (and their counterparts in the character-based interface).

Table 6. Library lists system values

Name in System i Navigator	Description of system value	Name in character-based interface
System library list	This system value specifies the initial value for the system portion of a job's library list.	QSYSLIBL
User library list	This system value specifies the initial value for the user portion of a job's library list.	QUSRLIBL

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Library lists system values: System library list

The System library list system value is also known as QSYSLIBL. You can use this system value to specify the initial value for the system portion of a job's library list.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Library Lists > System.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	QSYS, QSYS2, QHLPSYS, QUSRSYS.
Changes take effect	At the start of the next job.
Lockable	No.

What can I do with this system value?

You can view or change the system part of the library list. The list can contain as many as 15 names. When searching for an object in the library list, the system searches the system libraries before searching any user libraries. A library specified as part of the system library list cannot be deleted or renamed when the system is fully operational.

The QSYS library cannot be removed. The libraries must exist in the system disk pool or in a basic user disk pool.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Library lists system values: User library list

The User library list system value is also known as QUSRLIBL. You can use this system value to specify the initial value for the user portion of a job's library list.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Library Lists > User.
Special authority	None.
Default value	QGPL, QTEMP.
Changes take effect	At the start of the next job.
Lockable	No.

What can I do with this system value?

You can view or change the user part of the library list. The user library list contains the information you are working on. The list can contain as many as 25 names. When searching for an object in the library list, the system searches the user libraries after searching the system libraries, product library, and current library entries. A library specified as part of the user library list cannot be deleted or renamed when the system is fully operational.

The libraries must exist in the system disk pool or in a basic user disk pool.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Messages and service overview

You can use IBM i messages and service system values to change and view the system's message, logging, and service information.

To access the messages and service category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive words to describe system values. The following table provides an overview of the Messages and service system values available in System i Navigator (and their counterparts in the character-based interface).

Table 7. Messages and service system values

Name in System i Navigator	Description of system value	Name in character-based interface
Journal accounting information	This system value specifies whether to journal job use, printer output, and printer use.	QACGLVL
Message queue	This system value specifies the message queue for lines, controllers, and devices.	QCFGMSGQ
History log file size	This system value specifies the maximum records in a history log.	QHSTLOGSIZ
Problem log filter	This system value specifies whether to filter the problem log.	QPRBFTR
Minimum retention	This system value sets the minimum period for holding problem log entries.	QPRBHLDITV
Allow remote service of system	This system value specifies remote service for the system.	QRMTSRVATR
Log software problems detected by system	This system value specifies whether to log software problems that are detected by the system.	QSFWERRLOG
Service log for unmonitored escape messages	This system value specifies whether to create a service log for unmonitored escape messages.	QSRVDMP
Display status messages	This system value specifies whether to display status messages on line 24 of the character-based interface.	QSTSMMSG

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Messages and service system values: History log file size

The History log file size system value is also known as QHSTLOGSIZ. You can use this system value to specify the maximum number of records in the history log.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Messages and Service > General.
Special authority	None.
Default value	5000.
Changes take effect	The next time a history log is created.
Lockable	No.

What can I do with this system value?

You can specify the maximum number of records for each version of the history log. When a version is full (the maximum has been reached), a new version is created. You can save the full (old) version and then delete it.

Create daily (*DAILY)

Select this option if you want a new version of the history log created each day. If a history log reaches the maximum of 10,000,000 records, an additional history log is created for that day. Therefore, you can have more than one history log for each day.

Maximum records (1-10,000,000)

Select this option if you want a new history log created only when the maximum number of history records is reached. If you select this option, you must specify a maximum number of records. Possible values are 1 through 10,000,000.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Messages and service system values: Display status messages

The Display status messages system value is also known as QSTSMMSG. You can use this system value to specify whether to display status messages on line 24 of the character-based interface (5250 Emulator Session).

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Messages and Service > General.

Quick reference	
Special authority	None.
Default value	Selected. Status messages are displayed.
Changes take effect	Immediately, but does not affect jobs that are already started.
Lockable	No.

What can I do with this system value?

To show status messages, use the default value (*NORMAL). Otherwise, specify *NONE.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Messages and service system values: Message queue for lines, controllers, and devices

The Message queue for lines, controllers, and devices system value is also known as QCFGMSGQ. You can use this system value to specify the message queue that the system uses when sending messages for lines, controllers, and devices.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Messages and Service > General .
Special authority	System configuration (*IOSYSCFG).
Default value	Message queue - QSYSOPR; Library - QSYS.
Changes take effect	When you vary on the line, controller, or device description. Therefore, if you change this system value after a line, controller, or device description has been varied on, you must vary off, then vary on the configuration object to use the new value.
Lockable	No.

What can I do with this system value?

You can specify the message queue that the system uses when sending messages for lines, controllers, and devices.

The message queue specified for this system value should be created with the following attributes for best overall system behavior:

Force (FORCE)	*NO
Allow Alerts (ALWALR)	*NO
Size (SIZE)	(8,32,*NOMAX)
Wrap (MSGQFULL)	*WRAP

A message queue, QSYS/QCFGMSGQ, is provided by the system with the above characteristics.

The following line description types support this system value: Token Ring, Ethernet, DDI, X.25, Frame Relay.

The following controller description types support this system value: APPC, SNA Host, Async, Local Workstation, Remote Workstation, Virtual Workstation.

The following device description types support this system value: APPC, Printer, and Cryptographic.

The shipped value is QSYS/QSYSOPR, which results in the communications messages being sent to the system operator message queue.

The message queue must exist in the system disk pool (also known as auxiliary storage pool) or in a basic user disk pool.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Messages and service system values: Journal accounting information

The Journal accounting information system value is also known as QACGLVL. You can use this system value to specify whether to journal job use, printer output, and printer use.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Messages and Service > General.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. No accounting information sent to a journal.
Changes take effect	At the start of the next job.
Lockable	No.

What can I do with this system value?

This system value specifies the type of use information that you want the system to write to a journal. If neither option is selected (*NONE), no accounting information is written to a journal. You can select to write job usage information to a journal (*JOB) or to write printer output and printer use information to a journal (*PRINT). If either option is selected, the system accounting journal (QACGJRN) must exist in the QSYS library; if it does not exist, the change is rejected.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Messages and service system values: Problem log filter

The Problem log filter system value is also known as QPRBFTR. You can use this system value to specify whether to filter the problem log.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Messages and Service > Problems.
Special authority	None.
Default value	Do not filter.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the name of the problem log filter that you want to use. If you specify a filter name, you must include the library name where the filter resides. You can type the name of a problem log filter, or you can select **Do not filter** (*NONE), in which case no problem log filter is in use.

The filter must exist in the system disk pool (also known as an auxiliary storage pool) or in a basic user disk pool.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Messages and service system values: Minimum retention

The Minimum retention system value is also known as QPRBHLDTV. You can use this system value to set the minimum number of days a problem log entry is kept in the problem log.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Messages and Service > Problems.
Special authority	None.
Default value	30 days.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the minimum number of days a problem log entry is kept in the problem log. The time interval starts as soon as the problem is put into the log. The range for this system value is 0 through 999 days. After this time interval, you can delete the problem log entry by running the Delete Problem (DLTPRB) command.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Messages and service system values: Log software problems detected by the system

The Log software problems detected by the system system value is also known as QSFWERRLOG. You can use this system value to specify whether to log software problems that are detected by the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Messages and Service > Problems.
Special authority	None.
Default value	Selected. Software problems detected by the system are logged.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify whether software errors should be logged by the system.

- If you select to log software problems detected by the system (*LOG), the problem log is the storage place for information about errors that occur in the software of your system. The system evaluates the errors to determine whether to log these errors unconditionally or to defer the decision to log errors to the policy-based Service Monitor.

If the error is logged unconditionally, a message is sent to QSYSOPR and an entry is created in the problem log. If the reporting component provides error data, a spooled file is created to contain the data. The spooled file name is stored in the error log and problem log entries.

If the error is conditionally logged, the decision to log the error is made by the policy-based Service Monitor. If the decision is to log the problem, an entry is created in the problem log. The problem data is stored in a problem data library and the problem record entry is updated with the name of the library.

- If you select not to log software problems detected by the system (*NOLOG), no logging occurs if a software error is detected.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Messages and service system values: Service log for unmonitored escape messages

The Service log for unmonitored escape messages system value is also known as QSRVDMP. You can use this system value to specify whether to create a service log (also known as service dump) for unmonitored escape messages.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Messages and Service > Problems.
Special authority	None.
Default value	Selected. Include user jobs.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify whether to create service logs for unmonitored escape messages.

You have the following options:

- Deselect (*NONE). Do not create service logs for unmonitored escape messages.
- Include user jobs (*DMPUSRJOB).
- Include system jobs (*DMPSYSJOB).
- Include both user jobs and systems jobs (*DMPALLJOB).

If you produce and keep service logs for unusual failures, including unmonitored escape messages, IBM can better help you when you try to diagnose the problem when an unusual failure occurs. These are examples of system jobs:

- System arbiter
- Subsystem monitors
- Logical unit (LU) services
- Spool readers and writers
- Start-control-program-function (SCPF) job

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Messages and service system values: Allow remote service of system

The Allow remote service of system system value is also known as QRMTSRVATR. You can use this system value to specify remote problem analysis for the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Messages and Service > Remote.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Remote service of the system is not allowed.
Changes take effect	Immediately.

Quick reference	
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether to allow (1) or not allow (0) the system to be analyzed remotely.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Password overview

You can use IBM i password system values to control the password values and password restrictions.

To access the password category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides an overview of the password system values available in System i Navigator (and their counterparts in the character-based interface).

Table 8. Password system values

Name in System i Navigator	Description of system value	Name in character-based interface
Minimum time between password changes	This system value sets the time period that changes to a password are blocked after the last successful password change operation.	QPWDCHGBLK
Password expiration	This system value specifies when a password expires.	QPWDEXPITV
Password expiration warning interval	This system value specifies how many days before a password expires to begin displaying password expiration warning messages on the Sign-on information display.	QPWDEXPWRN
Restrict consecutive digits	This system value requires to restrict consecutive digits in passwords.	QPWDLMTAJC
Restricted characters	This system value specifies the characters to be restricted.	QPWDLMTCHR
Restrict repeating characters	This system value specifies whether to restrict repeating characters.	QPWDLMTREP

Table 8. Password system values (continued)

Name in System i Navigator	Description of system value	Name in character-based interface
Maximum password length	This system value sets the maximum length for a password.	QPWDMAXLEN
Minimum password length	This system value sets the minimum length for a password.	QPWDMINLEN
Password level	This system value sets the password level for the system.	QPWDLVL
Require a new character in each position	This system value requires that for each position in a new password, users should use a different character from the one in the same position in the previous password.	QPWDPOSDIF
Require at least one digit	This system value requires that passwords use at least one digit.	QPWDRQDDGT
Password reuse cycle	This system value specifies when a password can be used again.	QPWDRQDDIF
Password rules	This system value specifies a set of password rules that override other password system values when the system checks whether a password is formed correctly.	QPWDRULES
Password validation program	This system value specifies whether a user-written program does additional validation on passwords.	QPWDVLDPGM

Related concepts:

“Securing system access levels” on page 188

You can control the level of security by setting the password system values.

Related tasks:

“Verifying passwords when changing password levels” on page 72

Before changing the Password level (QPWDLVL) system value, verify that your user profiles contain passwords for the level you want to change to.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Password system values: Password level

The Password level system value is also known as QPWDLVL. You can use this system value to set the password level for the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Short passwords using a limited character set (0).
Changes take effect	At the next restart of the system.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)
Special considerations	<p>The Password level system value cannot be changed from 3 to a value of 0 or 1. The Password level system value must be changed from 3 to 2 and then to 0 or 1. The reason for this restriction is that all passwords used at password level 0 or 1 are removed from the system when you change to the password level 3.</p> <p>While the system is at password level 2, you need to make sure that you change your user profiles and give them a password that works at password level 0 or 1 (10 characters or less for the password) before changing from 2 to 0 or 1. Otherwise, users will not be able to sign on to your system.</p> <p>Check the user profiles to make sure that their passwords are valid for the password level to which you want to change.</p>

What can I do with this system value?

You can specify the password level used on the system.

The password level of the system can be set to allow for user profile passwords from 1 through 10 characters or to allow for user profile passwords from 1 through 128 characters.

The password level can be set to allow a passphrase as the password value. The term passphrase is sometimes used in the computer industry to describe a password value that can be very long and has few, if any, restrictions on the characters used in the password value. Blanks can be used between letters in a passphrase, which allows you to have a password value that is a sentence or sentence fragment. The only restrictions on a passphrase are that it cannot start with an asterisk (*) and trailing blanks are removed.

Changing the password level on the system from 1-10 character passwords to 1-128 character passwords requires careful consideration. If your system communicates with other systems in a network, then all systems must be able to handle the longer passwords.

Before you change this system value, see Password Level (QPWDLVL) and Planning password level changes.

This system value has the following options:

Short passwords using a limited character set. (0)

This level supports user profile passwords with a length of 1-10 characters. These characters are allowed in passwords: letters A-Z, digits 0-9, and special characters, such as dollar sign (\$), at sign (@), number sign (#), and underscore (_).

You need to use this level if your system communicates with other systems in a network that are running with a password level of 0 or is running on an operating system earlier than OS/400 V5R1M0.

You need to use this level if your system communicates with any other system that limits the length of passwords from 1-10 characters.

You need to use this level if your system communicates with the IBM i Support for Windows Network Neighborhood (IBM i NetServer) product and your system communicates with other systems using passwords from 1-10 characters.

When the password level of the system is set to this value, the operating system creates the encrypted password for use at password levels 2 and 3. The password characters used at level 0 are the same characters that are available at password levels 2 and 3.

Short passwords using a limited character set. Disable IBM i NetServer on Windows 95/98/ME clients. (1)

This level is equivalent to the support for password level 0 with the following exception. IBM i NetServer passwords for Windows 95/98/ME clients are removed from the system. If you use the client support for the IBM i NetServer product, you cannot use password level 1. The IBM i NetServer product works with Windows NT/2000/ XP/Vista clients when the password level is 1 or 3.

The IBM i NetServer product for Windows 95/98/ME cannot connect to a system where the password level is set to 1 or 3. IBM i NetServer passwords are removed from the system at these password levels because of security concerns with the weak encryption used for IBM i NetServer passwords.

Long passwords using an unlimited character set. (2)

This level supports user profile passwords from 1-128 characters. Uppercase and lowercase characters are allowed. Passwords can consist of any characters. The passwords are case sensitive.

This level is viewed as a compatibility level. When you sign on to a system, the password that you use is used to authenticate sign-on and other password tests. This level allows for a move-back operation to password level 0 or 1 as long as a password meets the length and syntax requirements of password level 0 or 1.

You can use this level for your system that communicates with the IBM i Support for Windows Network Neighborhood (IBM i NetServer) product as long as your password is 1-14 characters in length.

You cannot use level 2 if your system communicates with:

- Other systems in a network that are running with a password level of 0 or 1 or running on an operating system earlier than OS/400 V5R1M0.
- Any other system that limits the length of passwords from 1-10 characters.
- PCs that are using Client Access V5R1, or earlier.

Long passwords using an unlimited character set. Disable IBM i NetServer on Windows 95/98/ME clients. (3)

This level supports user profile passwords from 1-128 characters. Uppercase and lowercase characters are allowed. Passwords can consist of any characters and the passwords are case sensitive.

Before you change the password level to 3, see Password Level (QPWDLVL) and Planning password level changes.

Moving from password level 3 back to 0 or 1 is not allowed without first changing to password level 2. Password level 2 allows for creation of passwords that can be used at password level 0 or 1 as long as the password meets the length and syntax rules for password level 0 or 1.

You cannot use this password level 3 if your system communicates with:

- Other systems in a network that are running with a password level of 0 or 1 or running on an operating system earlier than OS/400 V5R1M0.
- Any other system that limits the length of passwords from 1-10 characters.
- The IBM i Support for Windows Network Neighborhood (IBM i NetServer) product.
- PCs that are using Client Access V5R1, or earlier.

The IBM i NetServer product works with Windows NT/2000/ XP/Vista clients when the password level is 1 or 3. The IBM i NetServer product for Windows 95/98/ME cannot connect to a system where the password level is set to 1 or 3. IBM i NetServer passwords are removed from the system at these password levels because of security concerns with the weak encryption used for IBM i NetServer passwords. The passwords are easy to decode.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Verifying passwords when changing password levels:

Before changing the Password level (QPWDLVL) system value, verify that your user profiles contain passwords for the level you want to change to.

To analyze the profiles on your system, use one of the following methods:

- The first method is to use the PRTUSRPRF (Print User Profile) command. When this command is used with the *PWDLVL value for the TYPE parameter, a report is built that contains a list of all the profiles on the system and indicates if the profile has a password for QPWDLVL 0, 1, 2, or 3. Complete the following steps to analyze your system:
 1. Type PRTUSRPRF TYPE(*PWDLVL).
 2. Type WRKSPLF (Work with spooled file).
 3. Type 5 (Display) next to the filename of the report. The filename will always be QPSECUSR.
 4. View the report to determine which profiles have passwords for the **Password level** you want to change to.
- The second method is to use the output from the DSPUSRPRF (Display User Profile) command. The DSPUSRPRF command can be used to direct user profile information for every profile on the system to an outfile. The populated outfile can be used in an application or in an interactive SQL SELECT statement to determine which profiles have passwords for the QPWDLVL you want to change to. Complete the following steps to analyze your system:

1. When you want to get the information for all the profiles on the system, you must direct the output from the DSPUSRPRF command to an outfile. When the value for the TYPE parameter is *BASIC, the outfile must be the same format as the IBM model outfile QSYS/QADSPUPB. There are two fields in the target outfile that contain the desired information. The field names are UPENPW (Y indicates the user has a password for QPWDLVL 0 and 1) and UPENPH (Y indicates the user has a password for password level 2 and 3).

If the outfile specified on the DSPUSRPRF command does not exist when the command is issued, the command will create the file. If the file exists when the DSPUSRPRF command is issued, it

must be the same format as QSYS/QADSPUPB the model outfile. It is a good idea to create the target outfile before you issue the DSPUSRPRF command. The following step is recommended, but not always required:

```
CRTDUPOBJ OBJ(QADSPUPB) FROMLIB(QSYS) OBJTYPE(*FILE) TOLIB(1111) NEWOBJ(nnnn)
```

Where 1111 is the name of an existing library where you want the target outfile to go and nnnn is the name of the target outfile.

2. If you have a large number of profiles of your system, the outfile might not hold all of the data. To ensure the outfile can handle all the data, issue the following CHGPF (Change Physical File) command against the file you just created:

```
CHGPF FILE(1111/nnnn) SIZE(*NOMAX)
```

3. Use the DSPUSRPRF command to collect the data for all the profiles on your system:

```
DSPUSRPRF USRPRF(*ALL) TYPE(*BASIC) OUTPUT(*OUTFILE) OUTFILE(1111/nnnn)
```

4. If you want to use an interactive SQL SELECT statement to examine which the profiles for valid passwords, use the following commands:

- a. Type STRSQL.

- b. Type SELECT UPUPRF, UPENPW, UPENPH FROM 1111/nnnn.

OR

You can write an application that extracts the UPENPW and UPENPH field data from your target outfile.


Related concepts:

“System values: Password overview” on page 68

You can use IBM i password system values to control the password values and password restrictions.

Password system values: Minimum password length

The Minimum password length system value is also known as QPWDMINLEN. You can use this system value to set the minimum length for a password.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Validation 1 .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	6.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify the minimum number of characters for a password. The possible values vary depending on the password level for your system. If the password level is 0 or 1, the possible values for minimum length are 1 through 10. If the password level is 2 or 3, the possible values for minimum length are 1 through 128. The minimum password length cannot be larger than the maximum password length.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated


special parameters.

Related information:

System value finder

Password system values: Maximum password length

The Maximum password length system value is also known as QPWDMAXLEN. You can use this system value to set the maximum length for a password.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Validation 1 .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	8.
Changes take effect	Immediately.
Lockable	Yes.  (See "Lock function of security-related system values" on page 158 for details.)

What can I do with this system value?

You can specify the maximum number of characters for a password. The possible values vary depending on the password level for your system. If the password level is 0 or 1, the possible values for maximum length are 1 through 10. If the password level is 2 or 3, the possible values for maximum length are 1 through 128. The maximum password length cannot be smaller than the minimum password length.

Related reference:

"System value parameters" on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Password system values: Require at least one digit

The Require at least one digit system value is also known as QPWDRQDDGT. You can use this system value to require that passwords use at least one numeric character.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Validation 1 .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Do not require a digit.
Changes take effect	Immediately.

Quick reference	
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether a numeric character is required in a new password. A value of 1 indicates that a numeric character is required, and a value of 0 indicates that a numeric character is not required. This option provides additional security by preventing users from using all alphabetic characters.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Password system values: Restrict consecutive digits

The Restrict consecutive digits system value is also known as QPWDLMTAJC. You can use this system value to restrict consecutive digits in passwords.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Validation 1 .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Consecutive digits are allowed.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether adjacent numeric characters are allowed in a password. A value of 0 indicates that adjacent characters are allowed, and a value of 1 indicates that adjacent numeric characters are not allowed. This option provides additional security by preventing users from using birthdays, telephone numbers, or a sequence of numbers as passwords.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Password system values: Restricted characters

The Restricted characters system value is also known as QPWDLMTCHR. You can use this system value to specify the characters to be restricted.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Validation 1 .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	No restricted characters.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify that certain characters are not allowed in a password, or you can specify that any characters are allowed in a password (*NONE). You can restrict characters A through Z, 0 through 9, and the following special characters: number sign (#), dollar sign (\$), at sign (@), and underscore (_).

You can use this option to provide additional security by preventing users from using specific characters, such as vowels, in a password. Restricting vowels prevents users from forming actual words for their passwords. You can specify up to 10 restricted characters.

This system value is not enforced when the password level is 2 or 3. This system value can be changed at password level 2 or 3, but will not be enforced until the password level is changed to a value of 0 or 1.

The suggested setting is A, E, I, O, and U. You may also want to restrict special characters (#, \$, and @) for compatibility with other systems.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Password system values: Restrict repeating characters

The Restrict repeating characters system value is also known as QPWDLMTREP. You can use this system value to specify whether to restrict repeating characters in passwords.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Validation 1 .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Characters may be used more than once.

Quick reference	
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether repeating characters are allowed in a password. This option provides additional security by preventing users from specifying passwords that are easy to guess, such as the same character repeated several times.

When the password level is 2 or 3, the test for repeated characters is case sensitive. This means that a lowercase character is not the same as an uppercase character.

This system value has the following values:

Characters may be used more than once (0)

The same characters can be used more than once in a password.

Characters may not be used more than once (1)

The same character cannot be used more than once in a password.

Characters may not be used consecutively (2)

The same character can be used more than once, but it cannot be used consecutively in a password.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Password system values: Require a new character in each position

The Require a new character in each position system value is also known as QPWDPOSDIF. You can use this system value to require that for each position in a new password, users should use a different character from the one in the same position in the previous password.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Validation 1 .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. A new character in each position is not required.
Changes take effect	Immediately.

Quick reference	
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether users can use the same character at the same position in a new password. If you specify 1, users are prevented from specifying a character in a new password that corresponds to the same character in the same position in the previous password. For example, new password DJS2 cannot be used if the previous password is DJS1 (the D, J, and S are in the same positions). If you specify 0, users can use the same character at the same position in a new password.

When the password level is 2 or 3, the test for new characters is case sensitive. This means that a lowercase character is not the same as an uppercase character.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Password system values: Password reuse cycle

The Password reuse cycle system value is also known as QPWDRQDDIF. You can use this system value to specify when a password can be used again.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Validation 1 .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	After 1 password.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify how many of the previous passwords are checked for a duplicate password. This option provides additional security by preventing users from specifying passwords that they have used previously. This option also prevents a user whose password has expired from changing the password and then immediately changing it back to the old password.

This system value has the following values:

- After 1 password (0)

- After 4 password (8)
- After 6 password (7)
- After 8 password (6)
- After 10 password (5)
- After 12 password (4)
- After 18 password (3)
- After 24 password (2)
- After 32 password (1)

The suggested setting is after 10 passwords (5). Select a value of 10 or more to prevent the use of repeated passwords. It is recommended to use a combination of the Password expiration value and the Password reuse cycle value to prevent a password from being reused for at least 6 months. For example, select **30 days** for **Password Expiration** (days after last change) and **After 10 passwords** for **Password re-use cycle**. This means a typical user, who changes passwords when warned by the system, will not repeat a password for approximately 9 months.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Password system values: Password expiration

The Password expiration system value is also known as QPWDEXPITV. You can use this system value to specify when a password expires.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Expiration .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Never expire.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether user passwords expire. You can control the number of days allowed before a password must be changed. If a user attempts to sign on after the password has expired, the system gives the user an opportunity to change the password, and then the user is allowed to sign on.

The suggested setting is from 30 to 90 days.

This system value has the following options:

Never expire (*NOMAX)

Users are not required to change their passwords.

Days after last change (1-366)

Specify the number of days before users are required to change their passwords. Select a value from 1 through 366.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Password system values: Password expiration warning interval

The Password expiration warning interval system value is also known as QPWDEXPWRN. You can use this system value to specify how many days before a password expires to begin displaying password expiration warning messages on the Sign-on information display.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Expiration .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	7.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify how many days before a password expires to begin displaying password expiration warning messages on the Sign-on information display.


The range of values is 1 to 99.

Note: This system value is not valid on systems running IBM i V5R4, or earlier.

Password system values: Minimum time between password changes

The Minimum time between password changes system value is also known as QPWDCHGBLK. You can use this system value to specify the time period during which changes to a password are blocked after the last successful password change operation.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).

Quick reference	
Default value	None.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)
Special considerations	This system value does not restrict password changes that are made by the Change User Profile (CHGUSRPRF) command.

What can I do with this system value?

You can specify the minimum time between changes to a password.

This system value has the following options:

None (*NONE)

There is no restriction on how frequently a user can change a password.


1-99 hours (1-99)

The number of hours a user must wait after the last successful password change operation before the user can change the password again.

Note: This system value is not valid on systems running IBM i V5R4, or earlier.

Password system values: Password validation program

The Password validation program system value is also known as QPWDVLDPGM. It specifies whether a user-written program does additional validation on passwords. This system value is not available in System i Navigator.

Quick reference	
Location	Character-based interface.
Special Authority	All object (*ALLOBJ) and security administrator (*SECADM).
Changes take effect	The next time a password is changed.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

This system value provides the ability for a user-written program to do additional validation on passwords. The current and new passwords are passed to the validation program without encryption. The validation program could store passwords in a database file and compromise security on the system. The recommended setting for this system value is *NONE.

You can specify the following options:

*NONE

No validation program is used.

*REGFAC

The validation program name is retrieved from the registration facility.

program-specification

The name of the validation program. This option is only valid if the system is operating at QPWDLVL 0 or 1. These are the possible library values:

*LIBL The library list is used to locate the validation program.

*CURLIB

The current library for the job is used to locate the validation program. If no library is specified as the current library for the job, QGPL is used.

library-name

Specify the name of the library where the validation program is located.

The program must exist in the system disk pool (also known as auxiliary storage pool) or in a basic user disk pool.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Password system values: Password rules

The Password rules system value is also known as QPWDRULES. You can use this system value to a set of password rules that override other Password system values when the system checks whether a password is formed correctly.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Password > Validation 2 .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Use the validation system values on the Validation 1 tab.
Changes take effect	The next time a password is changed.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether to use the existing password validation system values or to use the values that you specify in the Password rules (QPWDRULES) system value. You can specify up to 50 15-character values for this system value.

This system value has the following options:

Use the validation system values on the Validation 1 tab (*PWDSYSVAL).

This option indicates that other existing password validation system values are used to control the password characteristics; for example, the Restrict consecutive digits (QPWDLMTAJC) system value, the Restricted characters (QPWDLMTCHR) system value, the Restrict repeating characters (QPWDLMTREP) system value, the Maximum password length (QPWDMAXLEN) system value, the Minimum password length (QPWDMINLEN) system value, the Require a new character in each position (QPWDPOSDIF) system value, and the Require at least one digit system value (QPWDRQDDGT) system value.

If you use this option, you cannot specify any other value with it.

Use the following validation rules. Certain corresponding system values on the Validation 1 tab will be ignored.

If you use this option, you set or change the Password rules (QPWDRULES) system value using special values chosen from the list of controls on the tab. The following table shows the special values you can specify for this system value.

If special values are specified for the QPWDRULES system value, then the values specified for the QPWDLMTAJC, QPWDLMTCHR, QPWDLMTREP, QPWDMAXLEN, QPWDMINLEN, QPWDPOSDIF, and QPWDRQDDGT system values are ignored. The values specified for the QPWDRULES system value are used when the system checks password composition.

Table 9. Special values for the Password rules system value

Field in GUI	Value in GUI or in the character-based interface	Description
Password lengths: Minimum length	*MINLEN nnn , where nnn is the minimum length.	This value specifies the minimum number of characters. <ul style="list-style-type: none"> If the Password level (QPWDLVL) system value is 0 or 1, use the range of values from 1 to 10. If the Password level (QPWDLVL) system value is 2 or 3, use the range of values from 1 to 128. <p>Notes:</p> <ol style="list-style-type: none"> The Minimum length value (*MINLENnnn) must be less than or equal to the maximum length value (*MAXLENnnn). If no Minimum length value (*MINLENnnn) is specified, a value of 1 (*MINLEN1) is assumed.
Password lengths: Maximum length	*MAXLEN nnn , where nnn is the maximum length.	This value specifies the maximum number of characters. <ul style="list-style-type: none"> If the Password level (QPWDLVL) system value is 0 or 1, use the range of values from 1 to 10. If the Password level (QPWDLVL) system value is 2 or 3, use the range of values from 1 to 128. <p>Notes:</p> <ol style="list-style-type: none"> The Maximum length value (*MAXLENnnn) must be greater than or equal to the Minimum length value (*MINLENnnn). If no Maximum length value (*MAXLENnnn) is specified, a value of 10 (*MAXLEN10) is assumed for systems operating with a Password level (QPWDLVL) value of 0 or 1, and 128 (*MAXLEN128) for systems operating with a Password level (QPWDLVL) value of 2 or 3.

Table 9. Special values for the Password rules system value (continued)

Field in GUI	Value in GUI or in the character-based interface	Description
Restrict repeating characters	<ul style="list-style-type: none"> • Characters can be used more than once. (No value is set in the character-based interface.) • *CHRLMTAJC. Characters cannot be used consecutively. • *CHRLMTREP. Characters cannot be used more than once. 	This value specifies whether a password can contain repeated character values.
Letter characters: Minimum number	*LTRMIN n , where n is the minimum number of letter characters.	<p>This value specifies the minimum number of letter characters that must occur in the password.</p> <p>The range of values is 0 to 9.</p> <p>If you do not select this value, no value is set. The default is 0.</p> <p>Note: If specified, the Minimum number value (*LTRMINn) must be less than or equal to the Maximum number value (*LTRMAXn).</p>
Letter characters: Maximum number	*LTRMAX n , where n is the maximum number of letter characters.	<p>This value specifies the maximum number of letter characters that can occur in the password.</p> <p>The range of values is 0 to 9.</p> <p>If you do not select this value, no value is set.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. If both the Minimum number value (*LTRMINn) and the Maximum number value (*LTRMAXn) are specified, the Maximum number value must be greater than or equal to the Minimum number value. 2. If the Require a minimum number of lowercase and uppercase letters value (*MIXCASEn) is specified, the Maximum number value (*LTRMAXn) must be greater than or equal to twice the *MIXCASEn value.
Letter characters: Restrict consecutive letters	*LTRLMTAJC	This value specifies whether consecutive letters can be used in a password.
Digits: Minimum number	*DGTMIN n , where n is the minimum number of digits.	<p>This value specifies the minimum number of digits that must occur in the password.</p> <p>Note: If specified, the Minimum number value (*DGTMINn) must be less than or equal to the Maximum number value (*DGTMAXn).</p>
Digits: Maximum number	*DGTMAX n , where n is the maximum number of digits.	<p>This value specifies the maximum number of digits that can occur in the password.</p> <p>Note: The Maximum number value (*DGTMAXn) must be greater than or equal to the Minimum number value (*DGTMINn).</p>
Digits: Restrict consecutive digits	*DGTLMATAJC	This value specifies whether consecutive digits can be used in a password.

Table 9. Special values for the Password rules system value (continued)

Field in GUI	Value in GUI or in the character-based interface	Description
Special characters: Minimum number	*SPCCHRMIN n , where n is the minimum number of special characters.	This value specifies the minimum number of special characters that must occur in the password. The range of values is 0 to 9. Note: If specified, the Minimum number value (*SPCCHRMIN n) must be less than or equal to the Maximum number value (*SPCCHRMAX n).
Special characters: Maximum number	*SPCCHRMAX n , where n is the maximum number of special characters.	This value specifies the maximum number of special characters that can occur in the password. The range of values is 0 to 9. Note: The Maximum number value (*SPCCHRMAX n) must be greater than or equal to the Minimum number value (*SPCCHRMIN n).
Special characters: Restrict consecutive special characters	*SPCCHRLMTAJC	This value specifies whether consecutive special characters can be used in a password.
First character: Restrict from being a digit	*DGTLMTFST	This value specifies whether the first character of the password can be a digit. Note: You cannot specify this value if you have already specified the Restrict from being a letter value (*LTRLMTFST) and the Restrict from being a special character value (*SPCCHRLMTFST).
First character: Restrict from being a letter	*LTRLMTFST	This value specifies whether the first character of the password can be a letter. Notes: 1. You cannot specify this value if you have already specified the Restrict from being a digit value (*DGTLMTFST) and the Restrict from being a special character value (*SPCCHRLMTFST). 2. For systems operating with a Password level (QPWDLVL) value of 0 or 1, you cannot specify the Restrict from being a letter value (*LTRLMTFST) and the Restrict from being a special character value (*SPCCHRLMTFST) concurrently.
First character: Restrict from being a special character	*SPCCHRLMTFST	This value specifies whether the first character of the password can be a special character. Notes: 1. You cannot specify this value if you have already specified the Restrict from being a digit value (*DGTLMTFST) and the Restrict from being a letter value (*LTRLMTFST). 2. For systems operating with a Password level (QPWDLVL) value of 0 or 1, you cannot specify the Restrict from being a letter value (*LTRLMTFST) and the Restrict from being a special character value (*SPCCHRLMTFST) concurrently.
Last character: Restrict from being a digit	*DGTLMTLST	This value specifies whether the last character of the password can be a digit. Note: You cannot specify this value if you have already specified the Restrict from being a letter value (*LTRLMTLST) and the Restrict from being a special character value (*SPCCHRLMTLST).

Table 9. Special values for the Password rules system value (continued)

Field in GUI	Value in GUI or in the character-based interface	Description
Last character: Restrict from being a letter	*LTRLMTLST	This value specifies whether the last character of the password can be a letter. Note: You cannot specify this value if you have already specified the Restrict from being a digit value (*DGTLMTLST) and the Restrict from being a special character value (*SPCCHRLMTLST).
Last character: Restrict from being a special character	*SPCCHRLMTLST	This value specifies whether the last character of the password can be a special character. Note: You cannot specify this value if you have already specified the Restrict from being a digit value (*DGTLMTLST) and the Restrict from being a letter value (*LTRLMTLST).
Require a new character in each position from previous password	*LMTSAMPOS	This value specifies whether the same character can be used in a position corresponding to the same position in the previous password.
Restrict user profile in password	*LMTPRFNAME	This value specifies whether the uppercase password value can contain the complete user profile name in consecutive positions.
Require a minimum number of lowercase and uppercase letters	*MIXCASE n , where n is 0 to 9.	This value specifies whether the password must contain at least n uppercase and lowercase letters. Note: If the Letter characters maximum number value (*LTRMAX n) is specified, the Maximum number value (*LTRMAX n) must be greater than or equal to twice the *MIXCASE n value.
Require characters from at least three of the following types of characters: uppercase letters, lowercase letters, digits, and special characters	*REQANY3	This value specifies whether to allow the password to contain characters from the following four types of characters: uppercase letters, lowercase letters, digits, and special characters. Note: When the system is operating with a Password level (QPWDLVL) value of 0 or 1, this value has the same effect as specifying *DGTMIN1, *LTRMIN1, and *SPCCHRMIN1.

Note: This system value is not supported on systems running IBM i V5R4, or earlier.

System values: Performance overview

You can use IBM i performance system values to view and change priority, performance adjustments, and processing values for the system.

To access the performance category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides a quick overview of the performance system values available in System i Navigator (and their counterparts in the character-based interface).

Table 10. Performance system values

Name in System i Navigator	Description of system value	Name in character-based interface
Base memory pool maximum eligible threads	This system value specifies the maximum number of eligible threads for the base memory pool.	QBASACTLVL
Base memory pool minimum size	This system value specifies the minimum base memory pool.	QBASPOOL

Table 10. Performance system values (continued)

Name in System i Navigator	Description of system value	Name in character-based interface
Communications arbiter jobs at restart	This system value specifies the number of communications arbiter system jobs that are available to process work for controllers and devices.	QCMNARB
Communications configuration recovery	This system value specifies whether communications recovery attempts are made and how many attempts to take.	QCMNRCYLMT
Allow background database statistics collection	This system value specifies the types of requests for database file statistics collection that are allowed to be processed by system job QDBFSTCCOL.	QDBFSTCCOL
Dynamically adjust job priorities of interactive jobs	This system value sets the job priorities of interactive jobs	QDYNPTYADJ
Dynamically adjust job priorities within priority bands	This system value sets the task scheduling policy.	QDYNPTYSCD
Lock libraries in a user job's library search list	This system value prevents other jobs from deleting or renaming the libraries in the search list.	QLIBLCKLVL
Maximum eligible threads	This system value specifies the maximum number of eligible threads.	QMAXACTLVL
Machine memory pool size	This system value specifies the size of the machine memory pool.	QMCHPOOL
Available display station pass-through server jobs	This system value specifies the number of pass-through server jobs that are available to process IBM i display station pass-through, System i Access workstation function (WSF), and other 5250 emulation programs on programmable workstations.	QPASTHRSVR
Automatically adjust memory pools and activity levels	This system value specifies when to automatically adjust memory pools and activity levels.	QPFRADJ
Parallel processing for queries and indexes	This system value specifies whether to use parallel processing.	QQRYPDEGREE
Database query time limit	This system value sets the time limit for a database query.	QQRYTIMLMT
Automatically adjust thread resources	This system value specifies whether the system should dynamically make adjustments to the affinity of threads currently running on the system.	QTHDRSCADJ

Table 10. Performance system values (continued)

Name in System i Navigator	Description of system value	Name in character-based interface
Thread affinity	This system value specifies whether secondary threads have affinity to the same group of processors and memory as the initial thread.	QTHDRSCAFN
Move interactive jobs to base pool at end of time slice	This system value specifies whether to move interactive jobs to the base pool at the end of the time slice.	QTSEPOOL

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Dynamically adjust job priorities of interactive jobs

The Dynamically adjust job priorities of interactive jobs system value is also known as QDYNPTYADJ. You can use this system value to set the job priorities of interactive jobs.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Selected. Dynamically adjust job priorities of interactive jobs is turned on.
Changes take effect	At the next restart of the system.
Lockable	No.

What can I do with this system value?

You can specify whether the priority of interactive jobs is dynamically adjusted to maintain the high performance of batch job processing on your systems. In the character-based interface, a value of 1 indicates that this system value is turned on, and a value of 0 indicates that this system value is turned off. This adjustment capability is effective only on systems that have different interactive and noninteractive throughput capabilities. For this adjustment capability to be effective, these systems must also have the Dynamically adjust priorities within priority bands (QDYNPTYSCD) system value turned on.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Dynamically adjust job priorities within priority bands

The Dynamically adjust job priorities within priority bands system value is also known as QDYNPTYSCD. You can use this system value to specify whether to dynamically adjust job priorities. The task scheduler uses this system value to determine the scheduling of jobs for the processor.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Selected. Dynamically adjust job priorities within priority bands is turned on.
Changes take effect	At the next restart of the system.
Lockable	No.

What can I do with this system value?

This system value sets the task scheduling policy. A change to this system value takes effect at the next IPL. You can select to use the static priority scheduling policy (0) or the dynamic priority scheduling policy (1). Under both policies, the scheduler favors lower numeric priority values over higher numeric priority values (priority 0 is the most favorable and priority 99 is the least favorable).

A task is the basic unit of program processing in the system. All jobs, processes, and threads run as tasks and are subject to the task scheduling policy. High priority tasks have low numerical priority value, and low priority tasks have high numerical priority value.

Static priority scheduling

Under the static priority scheduling policy, when multiple tasks are ready to run, the scheduler assigns the processor to the highest priority task (the task with the lowest numerical priority value) and uses round-robin scheduling to break ties. The operating system does not alter the assigned priority values (priorities are fixed). You must use the static scheduling policy with caution because a CPU bound high priority task can monopolize the CPU to the exclusion of lower priority tasks (tasks with higher numerical priority value).

Dynamic priority scheduling

Under the dynamic priority scheduling policy, priorities are divided into two ranges: the fixed range (priorities 0-9) and the dynamic range (priorities 10-99).

Priorities 0-9, which are always more favorable than the priorities in the dynamic range, are treated using the static priority scheduling policy when the scheduler assigns the processor. Therefore, you must use priorities 0-9 with caution.

Tasks of priorities 10-99 are dynamically scheduled.

When assigning the processor to a task, the scheduler refers to the task's cost. A task's cost is the task's initial cost plus the cost that results from the task waiting for service. High priority tasks have high initial cost while low priority tasks have low initial cost. Higher priority tasks accumulate cost faster than lower priority tasks.

The scheduler assigns the processor to the task that has the highest cost when multiple tasks are ready to run. Therefore, high priority tasks get better service than low priority tasks, and all tasks get service. The

dynamic priority scheduling policy reduces the risk of starvation because the lowest priority tasks get service when their costs exceed those of high priority tasks.

The priorities of tasks in the dynamic range are not fixed. When a task uses more CPU or I/O than it should use, if several tasks are waiting to be processed, the system might temporarily modify the task's priority, making the task less favorable so that other tasks can use system resources.

Priorities 10-99 are grouped into bands. The difference in relative favorability between priorities of the same band is much less significant than the difference in relative favorability between priorities of different bands. Some bands might also have CPU and I/O limits defined. For example, on a particular system, the priorities might be grouped into bands as follows:

Band 1	priorities 10-16
*Band 2	priorities 17-22
*Band 3	priorities 23-35
Band 4	priorities 36-46
Band 5	priorities 47-51
Band 6	priorities 52-89
Band 7	priorities 90-99
* CPU and I/O limits are defined for the band.	

When dynamic priority scheduling is in use, CPU and I/O limits are imposed on the transactions of jobs in the dynamic priority range. When a job has exceeded its CPU or I/O limits, the system might temporarily reduce the job's priority to favor jobs that have not exceeded their limits. When this occurs, the job's priority is typically reduced enough to move to the next lower priority band until the job completes the current transaction. When the transaction is completed, the job's priority is restored. For example, a job of priority 17 might be temporarily reduced to priority 23.

Related reference:

"System value parameters" on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Automatically adjust memory pools and activity levels

The Automatically adjust memory pools and activity levels system value is also known as QPFRADJ. You can use this system value to specify when to automatically adjust memory pools and activity levels.

Activity level refers to the maximum number of threads that can compete for memory and processor resources (maximum eligible threads at the same time).

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Memory Pools .
Special authority	None.
Default value	At system restart and periodically after restart selected.
Changes take effect	Immediately. (However, if At system restart is selected, you need to restart the system.)

Quick reference	
Lockable	No.
Special considerations	If At System Restart is selected, no adjustments are made until you restart the system.

What can I do with this system value?

You can specify when to automatically adjust memory pools and activity levels. If you select to have the system adjust memory pool sizes and activity levels, you can specify that these adjustments occur at system restart (1), periodically after restart (2), or both (3). If you do not select system restart or periodically after restart, no automatic adjustment is done (0).

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Maximum eligible threads

The Maximum eligible threads system value is also known as QMAXACTLVL. You can use this system value to specify the maximum number of eligible threads.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Memory Pools .
Special authority	None.
Default value	No maximum.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the number of threads that can compete at the same time for memory and processor resources. For all active subsystems, the sum of all threads running in all memory pools cannot exceed the value you specify. If a thread cannot be processed because the activity level has been reached, the thread waits until another thread reaches a time slice or a long wait.

This system value has the following values:

No maximum (*NOMAX)

This is the suggested setting.

1-32767

Specify the maximum number of eligible threads.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Machine memory pool size

The Machine memory pool size system value is also known as QMCHPOOL. You can use this system value to specify the size of the machine memory pool.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Memory Pools.
Special authority	None.
Default value	20.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the size of the machine memory pool in megabytes (MB). A *memory pool* is a logical division of memory (storage) that is reserved for processing a job or group of jobs. The machine memory pool contains highly shared machine and operating system programs. Be careful when you change the size for this memory pool because system performance might be impaired if the memory pool is too small.

The machine-enforced minimum value varies depending on the memory size of the machine. The system automatically increases the actual size of the machine memory pool to the machine-enforced minimum value if you specify a smaller value.

If the system has increased the actual size of the machine memory pool, you can determine the actual machine-enforced minimum value for the machine disk pool (pool 1). To view the minimum value for this disk pool in System i Navigator, expand *your system* > **Work Management > Memory Pools.**

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Base memory pool minimum size

The Base memory pool minimum size system value is also known as QBASPOOL. You can use this system value to specify the minimum size for the base memory pool.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Memory Pools.
Special authority	None.
Default value	5% of the main storage with a minimum value of 2000 KB.
Changes take effect	Immediately.

Quick reference	
Lockable	No.

What can I do with this system value?

You can specify the minimum size of the base memory pool in megabytes (MB). A *memory pool* is a logical division of memory (storage) that is reserved for processing a job or group of jobs. The base memory pool contains all memory not allocated by other pools. This pool is specified in the subsystem description as *BASE.

In some circumstances, a machine function may be using storage allocated to the base pool. If this is so, and if the change to the system value would reduce the allocation to less than 256 KB (kilobytes) plus the amount needed by the machine, the system value is changed immediately. However, the actual base pool size will not be reduced below 256 KB plus the amount needed by the machine until the storage in use is released by the machine.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Base memory pool maximum eligible threads

The Base memory pool maximum eligible threads system value is also known as QBASACTLVL. You can use this system value to specify the maximum number of eligible threads for the base memory pool.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Memory Pools .
Special authority	None.
Default value	6.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the maximum number of eligible threads for the base memory pool. A *memory pool* is a logical division of memory (storage) that is reserved for processing a job or group of jobs.

The maximum number of eligible threads specifies the maximum number of system and user threads that can compete at the same time for storage in the base storage pool. This pool is listed as **Base** in the lists of active pools and shared pools.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

Performance system values: Move interactive jobs to base pool at end of time slice

The Move interactive jobs to base pool at end of time slice system value is also known as QTSEPOOL. You can use this system value to specify whether to move interactive jobs to the base pool at the end of the time slice.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Memory Pools.
Special authority	None.
Default value	Deselected. Do not move interactive jobs to base pool at end of time slice.
Changes take effect	When the next job is started. Active jobs are not changed.
Lockable	No.

What can I do with this system value?

You can specify whether to move interactive jobs to another memory pool when they reach the end of the time slice. When you use this option, a job is moved back to the pool where it was originally running when a long wait occurs. This can help minimize the effect on the interactive response time of other interactive jobs when one interactive job is performing a long-running function.

In the character-based interface, this system value has the following values:

***NONE**

Jobs are not moved to the base storage pool when time-slice end is reached.

***BASE**

Jobs are moved to the base pool when time-slice end is reached.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Communications configuration recovery

The Communications configuration recovery system value is also known as QCMNRCYLMT. You can use this system value to specify whether to make communications recovery attempts and how many attempts to make.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Communications.
Special authority	None.
Default value	Do not attempt to recover.

Quick reference	
Changes take effect	The next time a communications configuration recovery object is varied on. A change to this system value does not affect a communications configuration object that is already varied on.
Lockable	No.

What can I do with this system value?

You can specify whether to attempt to recover from a communications failure. If you select to attempt to recover, you must specify the number of recovery attempts before the system sends messages and the time interval in which the recovery attempts must occur.

Possible values for the number of recovery attempts are 0 through 99. Possible values for the time interval are 0 through 120 minutes.

If the number of recovery attempts is exceeded within the specified time interval, an inquiry message is sent. The inquiry messages go to the configured message queue, which might be the system operator message queue or some other message queue.

If recovery attempts are made but do not exceed the number of recovery attempts within the specified time interval, the count of recovery attempts is reset when the time interval restarts.

If your server is attached to a ROLM computerized branch exchange, the recovery attempts value should never be 0. Recovery attempts are necessary for the server to establish a connection using the ROLM CBX's inbound modem pool.

When you use the Communications configuration recovery system value, consider the following information:

- If the number of attempts is greater than 0 and the time interval is equal to 0, an infinite number of recovery attempts is made; this is not recommended because of the system resources that may be used and because performance may be affected.
- If the connection between the iSeries and a personal computer using APPC fails on a local area network (LAN) and the server attempts to recover the connection, unnecessary work is placed on the system.

Note: If automatic communications error recovery is not used, manual recovery is necessary, which requires operator intervention. A good compromise is to set the automatic recovery limits to just one retry.

- Use a count limit of 0 and a time interval of more than 0 to turn off second-level error recovery. Turning off second-level recovery may cause the devices and controllers to go into recovery pending (RCYPND) state. A message indicating that an operator intervention is required is sent to QSYSOPR, or the configured message queue. Use manual recovery either to respond to the message in QSYSOPR or the configured message queue, or to vary the objects off and back on.

Note: First-level error recovery is still done. On a LAN, the Inactivity Timer is used to determine if the remote system is still available. Once the inactivity time expires, first-level error recovery is driven by the LANFRMRTY parameter and the LANRSPTMR parameter.

- Write applications that can determine if a failure has occurred, and then handle the errors.
 - Monitor the error messages in QSYSOPR, or the configured message queue, when they occur and handle the condition.

- Monitor the status of the configuration objects by using the Retrieve Configuration Status (QDCRCFGS) and List Configuration Descriptions (QDCLCFGD) application program interfaces (APIs).

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Communications arbiter jobs at restart

The Communications arbiter jobs at restart system value is also known as QCMNARB. You can use this system value to specify the number of communications arbiter system jobs that are available to process work for controllers and devices.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Communications.
Special authority	Job control (*JOBCTL).
Default value	System calculated.
Changes take effect	At the next restart of the system.
Lockable	No.

What can I do with this system value?

You can specify the number of communications arbiter system jobs that are available to process work for controllers and devices. Work for controllers and devices includes input/output requests that are sent to devices and events related to making devices available for use.

This system value has the following options:

0 (0) No communications arbiter jobs. The system arbiter (QSYSARB) and QLUS system jobs perform the work that the communications arbiter jobs normally do. This setting should only be used if IBM service recommends it.

1-99 (1-99)

Specify the number of communication arbiter system jobs that are started.

System calculated (*CALC)

The system computes the number of communication arbiter system jobs. This is the recommended setting.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Available display station pass-through server jobs

The Available display station pass-through server jobs system value is also known as QPASTHRSVR. You can use this system value to specify the number of pass-through server jobs that are available to process IBM i display station pass-through, System i Access workstation function (WSF), and other 5250 emulation programs on programmable workstations.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Communications .
Special authority	Job control (*JOBCTL).
Default value	System calculated.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the number of pass-through server jobs that are available to process IBM i display station pass-through and other 5250 emulation programs on programmable workstations that connect to IBM i using Advanced Program-to-Program Communication (APPC) or Advanced Peer-to-Peer Networking (APPN).

The server jobs are not needed for Telnet and Virtual Terminal (VTM) APIs. Therefore, if you only use Telnet and VTM, you might want to decrease the value specified for the number of pass-through server jobs.

This system value has the following options:

System calculated (*CALC)

The operating system calculates the number of pass-through server jobs. This is the recommended setting.

0-100 jobs (0-100)

Specify the number of pass-through server jobs that are available to process IBM i display station pass-through, System i Access workstation function (WSF), and other 5250 emulation programs on programmable workstations that connect to IBM i using Advanced Program-to-Program Communication (APPC) or Advanced Peer-to-Peer Networking (APPN).

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Parallel processing for queries and indexes

The Parallel processing for queries and indexes system value is also known as QQUERYDEGREE. You can use this system value to specify whether to use parallel processing.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Database .

Quick reference	
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Do not allow parallel processing.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify whether to allow parallel processing and specify the type of parallel processing. Parallel processing allows different processors to run at the same time so that the system can perform queries and indexes faster.

Types of parallel processing include input/output (I/O) parallel processing and symmetric multiprocessing (SMP). For I/O parallel processing, the database manager can use multiple tasks for I/O auxiliary storage processing for each query. Processing for the central processing unit (CPU) is still done serially. For SMP, the CPU and I/O processing are assigned to tasks that run the query in parallel. Actual CPU parallelism requires a system with multiple processors. SMP parallelism is used only if the system feature DB2® Symmetric Multiprocessing for i5/OS is installed.

This system value has the following options:

Do not allow parallel processing (*NONE)

No parallel processing is allowed for database query processing.

Use multiple processes for input/output (*IO)

The database query optimizer can use any number of tasks for I/O parallel processing for queries. SMP parallel processing is not allowed.

Use multiple processes for input/output, queries, and indexes (*OPTIMIZE)

The query optimizer can use any number of tasks for either I/O or SMP parallel processing for queries. If you select to use multiple processes for input/output, queries, and indexes, you can also select to **Use all active memory in memory pool (*MAX)**. Using all active memory allows the query optimizer to choose an access plan that might consume more of the system resources, but would provide faster run time for a given query.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Database query time limit

The Database query time limit system value is also known as QQRYTIMLMT. You can use this system value to set the time limit for a database query.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Database.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).

Quick reference	
Default value	No maximum.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the query processing time limit that is compared with the estimated time that a query must run. The time limit determines if the database query can start.

This system value has the following options:

No maximum (*NOMAX)

There is no maximum number of estimated elapsed seconds.

0-2147352578 (0-2147352578)

This option specifies the number of seconds that is compared with the estimated number of elapsed seconds that are required to run a query. If the number of estimated elapsed seconds is greater than this value, the query is not started. 2147352578 seconds is approximately 68 years.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Lock libraries in a user job's library search list

The Lock libraries in a user job's library search list system value is also known as QLIBLCKLVL. You can use this system value to prevent other jobs from deleting or renaming the libraries in the search list. System jobs, subsystem monitor jobs, and secondary threads do not lock libraries in their library search list.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Library Lists .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Selected. Lock libraries in a user job's library search list is allowed.
Changes take effect	When the next job is started. Active jobs are not changed.
Lockable	No.

What can I do with this system value?

You can lock libraries in a user job's library search list (1) to prevent other jobs from deleting or renaming the libraries in the search list. System jobs, subsystem monitor jobs, and secondary threads do not lock libraries in their library search list. Otherwise, the libraries in a user job's library search list are not locked (0).

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Allow background database statistics collection

The Allow background database statistics collection system value is also known as QDBFSTCCOL. You can use this system value to specify the types of requests for database file statistics collection that are allowed to be processed by the system job QDBFSTCCOL.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Database .
Special authority	None.
Default value	Allow user-created and system-generated database statistics.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the types of requests for database file statistics collection that are allowed to be processed by system job QDBFSTCCOL. However, this system value does not affect statistical collections that are requested either by a user or automatically by the database manager to be processed in the foreground.

The creator of a database file statistics collection request can specify either immediate or background processing. When immediate is specified, the statistics collection will be performed within the requester's process and control is not returned until the statistics collection is complete. The processing of immediate statistics collection requests are not affected by the setting of this system value. However, when background is specified, the request is queued to system job, QDBFSTCCOL, and control is returned immediately to the requesting process.

System job, QDBFSTCCOL, can select to process requests from either user-created requests, system-generated requests, or both based on the value of this system value. Requests which are not selected will remain queued until either the system job is ready to process the request or the system value is changed to allow requests of that type to be processed.

When this system value is changed to a more restricted value, the processing of statistic collection requests in progress in the statistics system job, that are not allowed at the new value, is ended. Their processing is restarted when this system value is changed back to a value that allows their processing.

From the following types of requests, you can select one type, both types (*ALL), or neither (*NONE):

User-created requests (*USER)

This indicates that user requested database file statistics collections are allowed to be processed by the database statistics system job.

System-generated requests (*SYSTEM)

This indicates that system-generated database file statistics collections are allowed to be processed by the database statistics system job.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Automatically adjust thread resources

The Automatically adjust thread resources system value is also known as QTHDRSCADJ. You can use this system value to specify whether the system dynamically makes adjustments to the affinity of threads that are currently running on the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Affinity .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Selected. Automatically adjust.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify whether the system should dynamically make adjustments to the affinity of threads that are currently running on the system. If some resources are being used more than others, the system can reassign some of the threads running on the more heavily used resources to have affinity to the less used resources.

In the character-based interface, specify 1 if you want the system to dynamically make adjustments to the affinity of threads; otherwise, specify 0.

If you have specified to group secondary threads using the Thread affinity (QTHDRSCAFN) system value, the threads within one process are all moved as a group. If jobs have been logically grouped with the routing entry or prestart job entry, the entire group is moved together. If this option is selected, the system attempts to distribute work evenly across all the system's resources.

Related concepts:

“Performance system values: Thread affinity” on page 102

The Thread affinity system value is also known as QTHDRSCAFN. You can use this system value to specify whether secondary threads are grouped with the initial thread (thread level). You can use it to specify the degree to which the system tries to maintain the affinity between threads and the subset of resources they are assigned to (level of affinity).

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Performance system values: Thread affinity

The Thread affinity system value is also known as QTHDRSCAFN. You can use this system value to specify whether secondary threads are grouped with the initial thread (thread level). You can use it to specify the degree to which the system tries to maintain the affinity between threads and the subset of resources they are assigned to (level of affinity).

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Performance > Affinity .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Thread affinity: Secondary threads do not use same processors and memory as initial thread. Level of affinity: Threads use any resource.
Changes take effect	Immediately, but not for jobs already started.
Lockable	No.

What can I do with this system value?

You can specify whether secondary threads have affinity to the same group of processors and memory as the initial thread. You can also specify the degree to which the system tries to maintain the affinity between threads and the subset of system resources they are assigned to.

A change to this system value takes effect immediately for all jobs that become active after the change, but only if they retrieve their affinity values from the system value. Jobs and threads that are currently active will continue to run with the affinity values they were started with. New jobs and threads that get their affinity values from jobs that are currently active, (for example, batch immediate jobs or secondary threads that inherit attributes from the initial thread), will continue to use the values stored in the initiating job or thread, rather than the current system value.

In addition, use the Automatically adjust thread resources (QTHDRSCADJ) system value to distribute the use of system resources.

Thread affinity

This value specifies whether secondary threads are grouped with the initial thread. Select one of the following options:

Secondary threads use same processors and memory as initiating thread (*GROUP)

This option indicates that secondary threads have a preference for the same group of processors and memory as the initial thread. Multithreaded workloads that share data between the threads within a job might perform better when this option is used.

Secondary threads do not use same processors and memory as initiating thread (*NOGROUP)

This option indicates that secondary threads do not have a preference for the same group of processors and memory as the initial thread. Workloads that use the full processing power of a system might perform better when this option is used.

Level of affinity

This value specifies the degree to which the threads try to use the subset of system resources for which they have a preference. Select one of the following options:

Threads only use resources they have affinity to (*HIGH)

Threads will only use the subset of system resources they have affinity to, and will wait until they become available.

Threads use any resource (*NORMAL)

Threads will use any processor or memory in the system if the resources they have affinity to are not readily available.

Related concepts:

“Performance system values: Automatically adjust thread resources” on page 101

The Automatically adjust thread resources system value is also known as QTHDRSCADJ. You can use this system value to specify whether the system dynamically makes adjustments to the affinity of threads that are currently running on the system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Power control overview

You can use IBM i power control system values to control the system's power supply values.

To access the power control category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides an overview of the power control system values available in System i Navigator (and their counterparts in the character-based interface).

Table 11. Power control system values

Name in System i Navigator	Description of system value	Name in character-based interface
When power failure occurs	This system value specifies the action to take when a power failure occurs.	QUPSDLYTIM
Message queue and library	This system value specifies the message queue that receives uninterruptible power supply messages and the library where the specified message queue is found.	QUPSMMSGQ

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Power control system values: When power failure occurs

The When power failure occurs system value is also known as QUPSDLYTIM. You can use this system value to specify the action to take when a power failure occurs.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Power Control > General.
Special authority	None.
Default value	200.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can select the action to take when using an uninterruptible power supply during power failure.

On some partitioned systems, this system value can only be changed from the primary partition.

This system value has the following options:

Automatically power down the entire system (0)

The system automatically powers down when system utility power fails.

Power down system after time interval (1-99999)

Specify the delay time in seconds before the utility power fails.

Power down system, retain power on main tower (*BASIC)

The system assigns the appropriate wait time (in seconds).

Power down system, system assigns delay time (*CALC)

The system assigns the appropriate wait time (in seconds).

Do not automatically power down system (*NOMAX)

The system does not start any action on its own.

Related concepts:

Logical partitions

“System and user defaults system values: Model number” on page 148

The Model number system value is also known as QMODEL. You can use this system value to view the model number of your system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Power control system values: Message queue and library

The Message queue and library system value is also known as QUPSMMSGQ. You can use this system value to specify the message queue that receives uninterruptible power supply messages and the library where the specified message queue is found.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Power Control > General.

Quick reference	
Special authority	None.
Default value	Message queue - QSYSOPR; Library - QSYS.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the name of a message queue that receives uninterruptible power supply messages.

If the message queue is not the system operator message queue, then all uninterruptible power supply messages are also sent to the system operator message queue. This system value is meaningful only if your system has the battery power unit feature and has an uninterruptible power supply attached.

When a change in power activates the uninterruptible power supply, this message queue receives the uninterruptible power supply activated message (CPF1816). If the action to take when power failure occurs is set to not automatically power down the system, the following conditions must be met or the system immediately begins to power down.

- The message queue specified in this system value must exist.
- If the message queue is a workstation message queue (or system operator), it must be in break or notify mode.
- If the message queue is not a workstation message queue, it must be allocated by a job.

For all other uninterruptible power supply messages, the message queue does not have to be allocated, or in break or notify mode. If this system value does not specify the name of a valid message queue, a message is sent to the system operator indicating the notification failure, and the system continues processing.

The specified message queue is cleared during a restart. If you assign this value a user's message queue, the user loses all messages in the specified message queue during each restart.

The message queue must exist in the system disk pool (also known as auxiliary storage pool) or in a basic user disk pool.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Printing overview

You can use IBM i printing system values to control how the system's printer output is formatted and control the default device description.

To access the printing category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides an overview of the printing system values available in System i Navigator (and their counterparts in the character-based interface).

Table 12. Printing system values

Name in System i Navigator	Description of system value	Name in character-based interface
Default printer	This system value sets the default printer for the system.	QPRTDEV
Format when using Print key	This system value specifies whether border or header information is included when the Print key is pressed.	QPRTKEYFMT
Printed page footer	This system value specifies whether to print text at the bottom of listings and separator pages.	QPRTTXT

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Printing system values: Default printer

The Default printer system value is also known as QPRTDEV. You can use this system value to specify the default printer for the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Printing > General.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	PRT01.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify the default printer for the system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Printing system values: Format when using Print key

The Format when using Print key system value is also known as QPRTKEYFMT. You can use this system value to specify whether to include border and header information when the Print key is pressed.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Printing > General.
Special authority	None.
Default value	Include header information.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can choose whether to include a border (*PRTBDR), a header (*PRTHDR), both (*PRTALL), or none (*NONE) when the Print key is pressed.

For example, if you select to display border and header information when you press the Print key, a header containing the device name and the user name is written above the screen print for identification purposes. Also, a border composed of asterisks is written around the screen print. Line numbers are also added in both of the side margins in the screen print.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Printing system values: Printed page footer

The Printed page footer system value is also known as QPRTTXT. You can use this system value to specify whether to print text at the bottom of listings and separator pages.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Printing > General.
Special authority	None.
Default value	Deselected. No text is printed at the bottom of listings and separator pages.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify whether to print text at the bottom of listings and separator pages. The text you specify for this system value can be up to 30 characters in length.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System values: Restart overview

You can use IBM i restart system values to change and view when to restart the system and what happens when the system is restarted.

These system values include values that apply to initial program load (IPL). To access the restart category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides an overview of the restart system values available in System i Navigator (and their counterparts in the character-based interface).

Table 13. Restart system values

Name in System i Navigator	Description of system value	Name in character-based interface
Previous system ending status	This system value states the previous ending status.	QABNORMSW
Controlling subsystem/library	This system value specifies the controlling subsystem and the library.	QCTLBSBD
Wait for database recovery before completing restart	This system value specifies whether to wait for database recovery before completing the restart.	QDBRCVYWT
Allow scheduled restart	This system value sets the date and time for a scheduled restart.	QIPLDATTIM
Previous restart type	This system value specifies how the previous restart occurred.	QIPLSTS
Type of restart	This system value specifies the type of restart for your system.	QIPLTYPE
Maximum time for immediate shutdown	This system value specifies the time limit before an immediate shutdown occurs.	QPWRDWNLMT
Allow auto-restart after power failure	This system value specifies whether to allow automatic system restart when power returns.	QPWRRSTIPL
Allow remote power-on and restart	This system value specifies whether remote power-on and system restart can be started over a telephone line.	QRM TIPL
If console problem occurs	This system value specifies the action to take when a console problem occurs during an attended restart operation.	QSCPFCONS
Printers started	This system value specifies whether printers were started at the time of the previous system restart operation.	QSTRPRTWTR

Table 13. Restart system values (continued)

Name in System i Navigator	Description of system value	Name in character-based interface
Startup program to set up system	This system value specifies the program used to set up the system.	QSTRUPPGM

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Type of restart

The Type of restart system value is also known as QIPLTYPE. You can use this system value to specify the type of restart for your system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Unattended.
Changes take effect	At the next restart of the system.
Lockable	No.

What can I do with this system value?

You can specify how to handle the restart operation of your system. This system value has the following options:

Unattended (0)

No displays that require user interaction are shown during the restart operation. The normal sign-on display is shown when the restart is complete. If the system is in manual mode, the **Unattended** operating mode changes to the **Attended** operating mode with dedicated service tools.

Attended (1)

All dedicated service tools functions are available along with the full set of restart displays.

Attended, console in debug mode (2)

This option restarts the system and leaves the controller QCTL and device QCONSOLE varied on. Select this option only for problem analysis because it prevents other devices on the workstation controller from being used.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Automatically restart after power failure

The Automatically restart after power failure system value is also known as QPWRRSTIPL. You can use this system value to specify whether to automatically restart the system when power returns.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Do not allow automatic restart after power failure.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify whether the system should automatically restart when utility power returns after a power failure. In the character-based interface, a value of 1 indicates that the system should automatically restart, and a value of 0 indicates that the system should not automatically restart.

On partitioned 8xx models, you can select this option only on the primary partition. To select this option on the primary partition, use System i Navigator. Whether a secondary partition is restarted at the same time as the primary partition depends on the Restart option selected for the secondary partition.

On partitioned 5xx models, you must change this system value from the Advanced System Management (ASM) interface of the service processor. Attempts to change this value through the standard system value interfaces fail with an error message referencing a service processor failure. The partitions only restart when the system is restarted if the partition's automatic power restart is armed. Automatic power restart is armed for partitions that are powered on. Automatic power restart might or might not be armed for partitions that are powered off.

Note: Automatic power restart is armed for IBM i partitions that power off due to utility failure.

On 5xx models that are not partitioned, you can also set this system value using System i Navigator.

Related concepts:

Logical partitions

“System and user defaults system values: Model number” on page 148

The Model number system value is also known as QMODEL. You can use this system value to view the model number of your system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Allow remote power-on and restart

The Allow remote power-on and restart system value is also known as QRMTIPL. You can use this system value to specify whether remote power-on and system restart can be started over a telephone line.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > General.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Do not allow remote power-on and restart.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

If you allow remote power-on and restart (1), any telephone call causes the system to restart. In the character-based interface, a value of 0 indicates that remote power-on and restart is not allowed.

On partitioned 8xx models, you can select this option only on the primary partition. To select this option on the primary partition, use System i Navigator. Whether a secondary partition is restarted at the same time as the primary partition depends on the Restart option selected for the secondary partition.

On partitioned 5xx models, you must change this system value from the Advanced System Management (ASM) interface of the service processor. Attempts to change this value through the standard system value interfaces fail with an error message referencing a service processor failure. A restart of the partitions when the system restarts depends on the Restart option selected for the partition in its Hardware Management Console profile.

On 5xx models that are not partitioned, you can also set this value using System i Navigator.

Using partitions, you can distribute resources within a single physical system to make it function as if it were two or more independent systems.

Related concepts:

Logical partitions

“System and user defaults system values: Model number” on page 148

The Model number system value is also known as QMODEL. You can use this system value to view the model number of your system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Allow scheduled restart

The Allow scheduled restart system value is also known as QIPLDATTIM. You can use this system value to set the date and time for a scheduled restart.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > General.

Quick reference	
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Do not allow scheduled restart.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

You can specify a date and time when an automatic restart should occur.

You can set this system value independently in each partition. Partitions allow you to distribute resources within a single physical system to make it function as if it were two or more independent systems. If the primary partition is powered down at the time an automatic restart should occur in a secondary partition, the restart will not occur. When the primary partition does restart, the secondary partition is restarted if its restart date and time is past due.

The secondary partition will not restart if it was configured with a restart action of hold.

This system value has two parts, date and time.

Date Specifies the date a restart will automatically occur on the system. The date cannot be more than 11 months after the current date.

Time Specifies the time on the specified date that a restart will automatically occur on the system. The time must be at least 5 minutes after the current time.

If the date and time have already occurred when the system is powered down or the system is running when the date and time occur, no restart is performed. After the scheduled restart occurs once, no further restarts are scheduled.

If the system observes Daylight Saving Time, you cannot change the date and time to the hour that Daylight Saving Time affects. For example, if the system clock moves from 2:00 to 3:00 on April 6 for Daylight Saving Time, you cannot change the time to a value that is greater than or equal to 2:00 and less than 3:00 on April 6th.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Maximum time for immediate shutdown

The Maximum time for immediate shutdown system value is also known as QPWRDWNLMT. You can use this system value to specify the time limit before an immediate shutdown occurs.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > General .
Special authority	None.
Default value	900 seconds.

Quick reference	
Changes take effect	Immediately.

What can I do with this system value?

You can specify the maximum amount of time (in seconds) to wait for the system to power down normally after a user has requested an immediate power-down, or after a user has requested a controlled power-down and the time specified on the delay parameter has expired. This time limit value is ignored when a user requests a power-down after a power failure has occurred on a system with an uninterruptible power supply.

If the value is set to 0 (or a very small value), a time-out condition occurs, and the system does not finish the power-down operation even though the system processing has ended.

In addition, this value should be set to a value greater than the Maximum time for immediate end (QENDJOB LMT) system value. (To change the Maximum time for immediate end system value, expand **Configuration and Service > System Values > Jobs**, and then select **Cleanup**.)

Related concepts:

“Jobs system values: Maximum time for immediate end” on page 58

The Maximum time for immediate end system value is also known as QENDJOB LMT. You can use this system value to specify the amount of time for application cleanup during the immediate ending of a job.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Startup program to set up system

The Startup program to set up system system value is also known as QSTRUPPGM. You can use this system value to specify the program used to set up the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > Setup .
Special authority	None.
Default value	Library: QSYS; startup program: QSTRUP.
Changes take effect	The next time the controlling subsystem is started.
Lockable	No.

What can I do with this system value?

You can specify the name of the program called from an autostart job when the controlling subsystem is started. This program performs setup functions, such as starting subsystems and printers. If you do not specify the name of a program, the autostart job ends normally without calling a program.

The default startup program does the following:

- Starts the QSPL subsystem for spooled work.

- Releases the QS36MRT and QS36EVOKE job queues if they were held (these are used by the System/36 environment).
- Starts Operational Assistant cleanup, if allowed.
- Starts all printers unless a user specified otherwise in the Restart requiredties.
- Starts the QSERVER and QUSRWRK subsystems. If the controlling subsystem is QCTL, the default startup program starts the QINTER, QBATCH, and QCMN subsystems.

The program must exist in the system disk pool (also known as auxiliary storage pool) or in a basic user disk pool. The startup program is not called when the system is started in the restricted state.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Controlling subsystem/library

The Controlling subsystem/library system value is also known as QCTLSBSD. You can use this system value to specify the controlling subsystem and the library.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > Setup.
Special authority	None.
Default value	Controlling subsystem - QBASE; Library - QSYS.
Changes take effect	At the next restart of the system.
Lockable	No.

What can I do with this system value?

You can specify the first subsystem to start after you restart the system. One subsystem must be active while the system is running. This is the controlling subsystem. Other subsystems can be started and stopped.

If this subsystem description cannot be used (for example, it is damaged), the backup subsystem description QSYSSBSD in the library QSYS can be used. A subsystem description specified as the controlling subsystem cannot be deleted or renamed once the system is fully operational.

The subsystem description must exist in the system disk pool (also known as auxiliary storage pool) or in a basic user disk.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: If console problem occurs

The If console problem occurs system value is also known as QSCPFCONS. You can use this system value to specify the action to take when a console problem occurs during an attended restart operation.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > Recovery .
Special authority	None.
Default value	Continue restart unattended.
Changes take effect	At the next restart of the system.
Lockable	No.

What can I do with this system value?

You have the following options:

Continue restart unattended (1)

Continues the restart in an unattended mode rather than an attended mode. By selecting this option, the restart will continue even if a console problem occurs.

End restart (0)

Ends the restart when the console is no longer operational during an attended restart.

You should select **End restart** if there are no workstations other than the console on the system or if the controlling subsystem supports only the console and does not start other subsystems that support other workstations.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Wait for database recovery before completing restart

The Wait for database recovery before completing restart system value is also known as QDBRCVYWT. You can use this system value to specify whether to wait for database recovery before completing the restart operation.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > Recovery .
Special authority	None.
Default value	Deselected. Do not wait for database recovery before completing restart.
Changes take effect	At the next restart of the system.
Lockable	No.

What can I do with this system value?

This system value indicates when recovery of database files is performed during an unattended restart operation. The database recovery after an abnormal end of a system can take a while to complete. If you do not want to wait for it to complete before the system becomes available, do not select this option. This is equivalent to 0 in the character-based interface. A value of 1 indicates that this option is selected.

Recovery of database files may include rebuilding the access path at the end of the restart operation. If this option was selected when the database files were created, database recovery may take a while.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Previous system ending status

The Previous system ending status system value is also known as QABNORMSW. You can use this system value to view the previous ending status of your system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > Previous .
Default value	No default value.
Changes take effect	This system value is read-only. You cannot change this system value.
Lockable	No.

What can I do with this system value?

You can view whether the previous end of the system was normal (0) or abnormal (1).

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Previous restart type

The Previous restart type system value is also known as QIPLSTS. You can use this system value to view how the previous restart operation occurred.

Quick reference	
Location:	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > Previous .
Default value	No default value.

Quick reference	
Changes take effect:	This system value is read-only. You cannot change this system value.
Lockable	No.

What can I do with this system value?

You can view which of the following types of restart occurred at the time of the last restart operation:

Operator panel restart (0)

The restart occurred when requested from the operator panel or from Dedicated Service Tools (DST) for a secondary partition.

Automatic restart after power restored (1)

The restart occurred automatically when power was restored after a power failure. You can specify this type of restart in the Restart options on the General page.

Restart (2)

The restart occurred when a user requested to power-down the system and restart it.

Time-of-day restart (3)

The restart occurred automatically on the date and time specified for Scheduled restart on the General page.

Remote restart (4)

A remote restart occurred. You can specify this type of restart in the Restart options on the General page.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Restart system values: Previous restart - printers started

The Previous restart - printers started system value is also known as QSTRPRTWTR. You can use this system value to view whether printers were started at the time of the previous system restart operation.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Restart > Previous.
Default value	No default value.
Changes take effect	This system value is read-only. You cannot change this system value.
Lockable	No.

What can I do with this system value?

You can view whether printers were started at the time of the previous system restart operation. This system value states either yes (1) or no (0) depending on whether the printers were started.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Save and restore overview

You can use IBM i save and restore system values to control specific save and restore properties.

To access the save and restore category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides an overview of the save and restore system values available in System i Navigator (and their counterparts in the character-based interface).

Table 14. Save and restore system values

Name in System i Navigator	Description of system value	Name in character-based interface
Allow restore of security sensitive objects	This system value specifies the objects with security-sensitive attributes to be restored during the installation of software fixes.	QALWOBJRST
Convert objects during restore	This system value specifies whether to convert program objects during the restore operation.	QFRCCVNRST
Save access paths	This system value specifies whether to save access paths.	QSAVACCPH
Verify object signatures during restore	This system value specifies whether to restore objects without signatures or with signatures that are not valid.	QVIFYOBJRST

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Save and restore system values: Convert objects during restore

The Convert objects during restore system value is also known as QFRCCVNRST. You can use this system value to force program conversion during the restore operation.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Save and Restore > Conversion .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).

Quick reference	
Default value	Level 1.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify the level of conversion you want to perform. For each level, you can see a list of objects that are converted before being restored. The following object types can be converted during a restore operation, depending on whether the objects meet one of the requirements for conversion for the level you select:

- Program (*PGM)
- Service program (*SRVPGM)
- SQL package (*SQLPKG)
- Module (*MODULE)

The setting on this system value can also prevent some objects from being restored. If an object meets a requirement to be converted but fails conversion, it will not restore. However, all objects that have a valid signature from a system-trusted source will be restored without conversion.

The setting on this system value is used when you specify the system value (*SYSVAL) value for the Force object conversion (FRCOBJCVN) parameter on the restore commands (such as the Restore (RST) command, the Restore Library (RSTLIB) command, the Restore Object (RSTOBJ) command, and the Restore Licensed Program (RSTLICPGM) command). By specifying *SYSVAL, you can turn on and turn off conversion for the entire system by changing the system value. By specifying FRCOBJCVN (*YES *ALL), you can override any value of the Convert objects during restore system value.

If an object meets at least one condition specified by this system value, it will be converted.

For example, if you specify level 3, the objects to convert include these:

- Objects with validation errors
- Objects that require conversion for use
- Objects that may have been tampered with

This system value has the following values:

Level 0 (0)

Restore all objects without conversion.

Level 1 (1)

Objects with validation errors are converted.

Level 2 (2)

Objects requiring conversion to be used on the current version of the operating system or on the current machine are converted. Objects with validation errors are also converted.

Level 3 (3)

Objects suspected of having been tampered with, objects containing validation errors, and objects requiring conversion to be used by the current version of the operating system or on the current machine are converted.

Level 4 (4)

Objects that contain validation errors, that require conversion for use, or that are suspected of having been tampered with are converted. Objects that contain sufficient creation data and do not have a valid digital signature are also converted.

Level 5 (5)

Objects that contain validation errors, that require conversion for use, that are suspected of having been tampered with, or that contain sufficient creation data are converted.

Level 6 (6)

Objects that contain validation errors, that require conversion for use, that are suspected of having been tampered with, or that do not have a valid digital signature are converted.

Level 7 (7)

All objects are converted.

For all levels, if an object meets a requirement to be converted but fails conversion, it will not restore. Objects that do not need to be converted will restore without conversion. When an object is converted, the digital signature of the object will be removed. Also, any object that is converted will be changed to user state, its validation errors will be corrected, and it will no longer be suspected of having been tampered with.

The restore system values work together when restoring objects.

Related concepts:

“Effects of system value settings on restore operations” on page 160

When you prepare for a restore operation, you need to set the restore system values so that they are compatible during a restore operation.

Related tasks:

“Configuring system values for a restore operation” on page 186

After you plan how you want a restore operation to function, use System i Navigator to set the system values to reflect how to handle the restore operation. At this point, your system is ready for a restore command.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Save and restore system values: Allow restore of security sensitive objects

The Allow restore of security sensitive objects system value is also known as QALWOBJRST. You can use this system value to specify the objects with security-sensitive attributes to be restored during the installation of software fixes.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Save and Restore > Objects .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	All objects selected.
Changes take effect	At the start of the next restore operation.

Quick reference	
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can select the following types of objects to be restored:

System state programs (*ALWSYSSTT)

Allow programs, service programs, and modules with the system-state or inherit-state attribute to be restored.

Programs that adopt their owner (*ALWPGMADP)

Allow programs, service programs, and modules that adopt their owner's authority to be restored.

Programs that have the S_ISUID (set-user-id) attribute enabled (*ALWSETUID)

Allow restore of files that have the S_ISUID (set-user-ID) attribute enabled.

Programs that have the S_ISGID (set-group-id) attribute enabled (*ALWSETGID)

Allow restore of files that have the S_ISGID (set-group-ID) attribute enabled.

Programs with validation errors (*ALWVLDERR)

Allow programs, service programs, and modules that have validation errors or that have been tampered with to be restored.

Allow restore of security-sensitive objects while installing software fixes (*ALWPTF)

Allow system-state or inherit-state programs, service programs, modules, objects that adopt authority, objects that have the S_ISUID (set-user-ID) attribute enabled, and objects that have the S_ISGID (set-group-ID) attribute enabled to be restored to the system during a PTF install.

This value must be selected before installing software fixes (PTFs).

The system checks this system value before restoring any object with security-sensitive attributes. These checks occur during the installation of program temporary fixes (PTFs) and restore of licensed programs. However, the system does not check this value during the installation of the operating system. This system value gives your system additional integrity protection. You can prevent anyone from restoring a system state object or an object that adopts authority.

The restore system values work together when restoring objects.

Related concepts:

“Effects of system value settings on restore operations” on page 160

When you prepare for a restore operation, you need to set the restore system values so that they are compatible during a restore operation.

Related tasks:

“Configuring system values for a restore operation” on page 186

After you plan how you want a restore operation to function, use System i Navigator to set the system values to reflect how to handle the restore operation. At this point, your system is ready for a restore command.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Save and restore system values: Verify object signatures during restore

The Verify object signatures during restore system value is also known as QVIFYOBJRST. You can use this system value to specify whether to restore objects without signatures or with signatures that are not valid.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Save and Restore > Signatures .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Verify object signatures on restore; allow restore of objects without signatures.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify the policy to be used for object signature verification during a restore operation. This value applies to the following types of objects: programs (*PGM), commands (*CMD), service programs (*SRVPGM), SQL packages (*SQLPKG), and modules (*MODULE). It also applies to stream file (*STMF) objects that contain Java™ programs.

If Digital Certificate Manager is not installed on the system, all objects are treated as unsigned when the system determines the effects of this system value on those objects during a restore operation.

Program, service program, and module objects that are created on a system running IBM i V5R4, or earlier, are treated as unsigned when they are restored to a system running IBM i V6R1. Likewise, program, service program, and module objects that are created or converted on a system running IBM i V6R1 are treated as unsigned when they are restored to a system running IBM i V5R4, or earlier.

The system value has the following options:

Do not verify object signatures on restore. (1)

Do not verify signatures on the restore operation. Restore user-state objects regardless of their signature.

Do not use this option unless you have a large number of signed objects to restore that might fail their signature verification for some acceptable reasons. In general, it is dangerous to restore objects with signatures that are not valid on your system.

Verify object signatures on restore; allow restore of user-state objects without signatures and with signatures that are not valid. (2)

Verify signatures on the restore operation. Restore unsigned commands and user-state objects. Restore signed commands and user-state objects, even if their signatures are not valid.

Use this option only if some specific objects that you want to restore have signatures that are not valid. In general, it is dangerous to restore objects with signatures that are not valid on your system.

Verify object signatures on restore; allow restore of user-state objects without signatures. (3)

Verify signatures on the restore operation. Restore unsigned commands and user-state objects. Restore signed commands and user-state objects only if their signatures are valid.

You can use this option for normal operations when you expect that some of the objects you load are unsigned, but you want to ensure that all signed objects have signatures that are valid. This is the default value.

Verify object signatures on restore; allow restore of user-state objects with signatures that are not valid. (4)

Do not restore unsigned user-state objects. Restore signed user-state objects, even if their signatures are not valid.

Use this option if some specific objects that you want to restore have signatures that are not valid, but you do not want the possibility of unsigned objects being restored. In general, it is dangerous to restore objects with signatures that are not valid on your system.

Verify object signatures on restore; do not allow restore of user-state objects without signatures or with signatures that are not valid. (5)

Do not restore unsigned user-state objects. Restore signed user-state objects only if their signatures are valid.

This option is the most restrictive. Use this option when the only objects that you allow to be restored are those that have been signed by trusted sources.

Objects that have the system-state attribute and objects that have the inherit-state attribute are required to have valid signatures from a system-trusted source. Objects in Licensed Internal Code fixes are also required to have a valid signature from a system-trusted source. If these objects do not have a valid signature, they cannot be restored, regardless of the value of the QVIFYOBJRST system value.

Some command (*CMD) objects have a signature that does not cover all parts of the object. Some parts of the command are not signed while other parts are only signed when they contain a non-default value. This type of signature allows some changes to be made to the command without invalidating its signature. Examples of changes that will not invalidate these types of signatures include:

- Changing command defaults
- Adding a validity checking program to a command that does not have one
- Changing the 'where allowed to run' parameter
- Changing the 'allow limited users' parameter

If you want, you can add your own signature to these commands that includes these areas of the command object.

The restore system values work together when restoring objects.

Related concepts:

Object signing and signature verification

“Effects of system value settings on restore operations” on page 160

When you prepare for a restore operation, you need to set the restore system values so that they are compatible during a restore operation.

Related tasks:

“Configuring system values for a restore operation” on page 186

After you plan how you want a restore operation to function, use System i Navigator to set the system values to reflect how to handle the restore operation. At this point, your system is ready for a restore command.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Save and restore system values: Save access paths

The Save access paths system value is also known as QSAVACCPH. You can use this system value to specify whether to save access paths.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Save and Restore > Access Paths.
Special authority	None.
Default value	Selected. Save access paths.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

This system value indicates whether the logical file access paths are saved during a save operation. An *access path* is the order in which records in one or more database files are organized for processing by a program. A value of 1 indicates that access paths are saved, and a value of 0 indicates that access paths are not saved.

When a save command (SAVLIB, SAVOBJ, SAVCHGOBJ, SAVRSTLIB, SAVRSTOBJ, or SAVRSTCHG) is performed, the save access paths parameter value is determined by this system value when ACCPTH(*SYSVAL) is specified. When ACCPTH(*YES) or ACCPTH(*NO) is specified, this system value is ignored. If access paths are to be saved, the process that saves access paths increases the time for the save operation and the amount of media that you use. However, by having the access paths saved, you significantly reduce the amount of time it takes to recover a system because the access paths do not need to be rebuilt.

The access paths are saved only in the following cases:

- All members on which the access paths are built are included in the save operation.
- The access paths are valid and intact at the time of the save operation.

The system checks to ensure the integrity of the access paths. Any discrepancies found by the system will result in the access paths being rebuilt.

Related tasks:

“Planning system values for a restore operation” on page 185

Before running a restore operation, you must plan what type of restore you want to perform. Then, configure your system values to the required settings to meet your needs. Then, when a restore operation is performed, you will have the correct settings specified on your system.

“Configuring system values for a restore operation” on page 186

After you plan how you want a restore operation to function, use System i Navigator to set the system values to reflect how to handle the restore operation. At this point, your system is ready for a restore command.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Security overview

You can use IBM i security system values to control object, user, and system security values.

To access the security category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides an overview of the security system values available in System i Navigator (and their counterparts in the character-based interface).

Table 15. Security system values

Name in System i Navigator	Description of system value	Name in character-based interface
Allow these objects in . . .	This system value specifies where to allow user domain objects that bypass authority checking and cannot be audited.	QALWUSRDMN
Default authority for newly created objects in QSYS.LIB file system	This system value specifies the default authority for objects that do not specify the authority.	QCRTAUT
Allow server security information to be retained	This system value sets server security information to be retained.	QRETSVRSEC
Use registered exit programs to scan the root (/), QOpenSys, and user-defined file systems	This system value specifies whether objects in the root (/), QOpenSys, and user-defined file systems should be scanned by exit programs registered with any of the integrated file system scan-related exit points.	QSCANFS
Scan control	This system value specifies scan control options.	QSCANFSCTL
Security level	This system value sets the level of security for your system.	QSECURITY
Allow use of shared or mapped memory with write capability	This system value specifies whether users are allowed to use shared memory or mapped memory stream files.	QSHRMEMCTL
Secure Sockets Layer cipher specification list	This system value defines the System SSL cipher specification list.	QSSLCSL

Table 15. Security system values (continued)

Name in System i Navigator	Description of system value	Name in character-based interface
Secure Sockets Layer cipher control	This system value specifies whether the system or a user controls the SSL cipher specification list (QSSLCSL) system value.	QSSLCSLCTL
Secure Sockets Layer protocols	This system value specifies the Secure Sockets Layer (SSL) protocols supported by the System SSL.	QSSLPCL
Users who can cause programs to use adopted authority from calling programs	This system value specifies which users can work with programs with adopted authorities.	QUSEADPAUT

Related concepts:

“Security system values: Server authentication interval” on page 156

The Server authentication interval system value is also known as QSVRAUTITV. This system value is no longer used by the operating system. This system value specifies how long a user with adopted authority can access the adopted program.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Security reference

Security system values: Security level

The Security level system value is also known as QSECURITY. You can use this system value to set the level of security for your system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Protect from undocumented system interfaces (40).
Changes take effect	At the next restart of the system.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You have the following options:

No passwords are needed and users have authority to all resources (10)

The system does not require a password to sign on. The user has access to all system resources. Security level 10 is not available unless your system is already running at this level. If you change from security level 10 to 20, 30, 40 or 50, you cannot change back to level 10.

Passwords are required and users have authority to all resources (20)

The system requires a user name and password to sign on. The user has access to all system resources. Only a security officer or someone with security administrator (*SECADM) authority can create user profiles.

Passwords are required and users' access is based on their authority (30)

All requirements of security level 20 are met. The user must have the specific authority required to access all system resources. Only user profiles created with security officer (*SECOFR) security class are given all object (*ALLOBJ) authority automatically.

Protect from undocumented system interfaces (40)

All requirements of security level 30 are met. Programs fail if they try to access objects through interfaces that are not supported. If a job specifies a user profile, users must have the use authority attribute to the profile in addition to the use authority attribute to the job they want to use.

Enhance protection of system interfaces (50)

All requirements of security level 40 are met. Programs fail if they try to pass unsupported parameter values to supported interfaces or if they try to access objects through interfaces that are not supported.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Security system values: Allow server security information to be retained

The Allow server security information to be retained system value is also known as QRETSVRSEC. You can use this system value to set system security information to be retained.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Server security information is not retained.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can determine whether the security data needed by a server to authenticate a user on a target system through client/server interfaces is retained on the host system. In the character-based interface, a value of

1 indicates that the security information is retained, and a value is 0 indicates that the security information is not retained.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Security system values: Users who can cause programs to use adopted authority from calling programs

The Users who can cause programs to use adopted authority from calling programs system value is also known as QUSEADPAUT. You can use this system value to specify which users can work with programs with adopted authorities.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	All users.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can define which users can create, change and update programs that use the authority of the program which called them. The specified users can work with programs that have the use adopted authority attribute set to yes (USEADPAUT(*YES)).

A user is able to create a program (Program A) that uses the authority of another program (Program B) when Program A is called by Program B.

This system value has the following options:

All users (*NONE)

All users can create, change, or update programs and service programs to use the authority of the program which called them if the user has the necessary authority to the program or service program.

Authorization list

An authorization list is used to secure objects with similar security needs. Authority can be granted to the list rather than to the individual objects.

The user's authority is checked against the specified authorization list. This authority cannot come from adopted authority. If the user has at least the USE authority attribute in the specified authorization list, the user can create, change, or update programs or service programs that use the authority of the program which called them.

If the specified authorization list does not exist, the operation being attempted will not complete. A message is sent indicating this. If more than one operation is requested on the command or API, and the authorization list does not exist, the operation is not performed. If the command being attempted when the authorization list cannot be found is Create Pascal Program (CRTPASPGM) or Create Basic Program (CRTBASPGM), the result is a function check. This is a type of error. It is not a security check.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Security system values: Default authority for newly created objects in QSYS.LIB file system

The Default authority for newly created objects in QSYS.LIB file system system value is also known as QCRTAUT. You can use this system value to specify the default authority for objects that do not specify the authority.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > Public Authority .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Change.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify the public authority for newly created objects. When a user creates a new object and does not specify the authority level for the object, the authority level specified for this system value is used.

This system value has the following options:

Change (*CHANGE)

Allows the public to change newly created objects.

Use (*USE)

The public may view, but not change, newly created objects.

All (*ALL)

Allows all users of the system, except those given an authority less than **All**, to completely control the newly created objects. These users will be able to read, change, delete, and manage the security of these objects.

Exclude (*EXCLUDE)

The public is not allowed to use the newly created objects.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Security system values: Allow use of shared or mapped memory with write capability

The Allow use of shared or mapped memory with write capability system value is also known as QSHRMEMCTL. You can use this system value to specify whether users are allowed to use shared or mapped memory with write capability.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > Shared Memory .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Selected. Shared or mapped memory with write capability is allowed.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether users are allowed (1) or are not allowed (0) to use shared memory or mapped memory stream files. By allowing this option, users can use shared-memory APIs (for example, shmat() - Shared Memory Attach API), and can use mapped memory objects that have stream files (for example, mmap() - Memory Map a File API). Allowing access to shared memory and mapped memory stream files is recommended for environments where pointers can be shared among programs, which might be running in different jobs. However, this setting is not recommended for environments with higher security requirements.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Security system values: Allow these objects in

The Allow these objects in system value is also known as QALWUSRDMN. You can use this system value to specify where to allow user domain objects that bypass authority checking and cannot be audited.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > User Domain Objects .

Quick reference	
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	All libraries and directories.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can select where to allow user domain objects that cannot be audited. If your system has a high security requirement, you should allow only user domain objects of type *USRSPC, *USRIDX, and *USRQ in the QTEMP library. These objects are the user domain object types that are not auditable. At security level 50, the QTEMP library cannot be used to pass data between jobs. This system value has the following options:

All libraries and directories (*ALL)

This option allows objects that are not auditable in all libraries and directories. The system has multiple file systems. Libraries are part of the QSYS file system, and directories are part of a POSIX file system. Directories are referred to as being part of the root or QOpenSys file system.

QTEMP library and in the following

Specify where to allow objects that are not auditable, in addition to the QTEMP library. You can select one of the following options:

All directories (*DIR)

This option allows objects that are not auditable in all directories, in addition to the QTEMP library.

Selected libraries

Specify libraries in which to allow objects that are not auditable. This system value indicates specific libraries that can contain user domain versions of user objects. You can list up to 50 libraries. If you specify a list of library names, applications that currently work with user domain user objects might fail if they use objects in libraries not specified in the list.

library-name

Specify the name of the library that you want to add. You can type a library name or use **Browse** to locate a library.

Selected libraries

Specify the libraries that can contain objects that are not audited.

Note: To reduce a possible security exposure, create the library in the system disk pool, in a basic user disk pool, or in all the independent disk pools before adding the library to this system value. Also, give the library a public authority of *EXCLUDE.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Security system values: Use registered exit programs to scan the root (/), QOpenSys, and user-defined file systems

The Use registered exit programs to scan the root (/), QOpenSys, and user-defined file systems system value is also known as QSCANFS. You can use this system value to specify whether objects in the root (/), QOpenSys, and user-defined file systems should be scanned by exit programs registered with any of the integrated file system scan-related exit points.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > Scan .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Selected. Use registered exit programs to scan file systems.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether objects in the root (/), QOpenSys, and user-defined file systems should be scanned by exit programs registered with any of the integrated file system scan-related exit points (*ROOTOPNUD) or not (*NONE). Only stream file objects that are in Type 2 (*TYPE2) directories are scanned.

If this system value is specified to scan objects, the scan control options specified in the Scan control (QSCANFSCTL) system value are used.

Related concepts:

Integrated file system concepts

*TYPE2 directories

“Security system values: Scan control”

The Scan control system value is also known as QSCANFSCTL. You can use this system value to specify whether to use the default scan control options or to specify specific scan control options.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Security system values: Scan control

The Scan control system value is also known as QSCANFSCTL. You can use this system value to specify whether to use the default scan control options or to specify specific scan control options.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > Scan .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Use default scan control options.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify scanning options for the Use registered exit programs to scan the root (/), QOpenSys, and user-defined file systems (QSCANFS) system value. These options control the integrated file system scanning on the system when exit programs are registered with any of the integrated file system scan-related exit points.

This system value has the following options:

Use default scan control options (*NONE specified)

The system uses the following scanning options when calling the registered exit programs:

- Perform write access upgrades
- Fail close request if scan fails during close
- Scan on next access after object has been restored

Use specified scan control options

Select which scanning options the system should use when calling the registered exit programs. Select from the following options:

Scan accesses through file servers only (*FSVRONLY specified)

By selecting this option, only accesses from a file server to the iSeries server are scanned. Accesses through the Network File System (NFS) are scanned as well as other file server methods. However, native or direct connections to the iSeries server are not scanned. If this option is not selected, all accesses will be scanned no matter if you connect directly to the iSeries or through a file server.

Fail request if exit program fails (*ERRFAIL specified)

By selecting this option, you are specifying to fail the request or operation which triggered the call to the exit program, if there are errors when the exit program is called. Possible errors may be that the program is not found or the program is not coded requiredly to handle the exit program request. If this happens, the requested operation receives an indication that the object failed a scan. If this option is not selected, the system will skip the failing exit program and treat the object as if it was not scanned by this exit program.

Perform write access upgrades (*NOWRTUPG not specified)

By selecting this option (*NOWRTUPG not specified), you are specifying to allow the iSeries system to upgrade the access for the scan descriptor passed to the exit program to include write access, if possible. Use this option if you want the exit program to be able to fix or modify objects even though they were originally opened with read-only access. If this option is not selected, the system will not upgrade the access to include write access.

Use 'only when objects have changed' attribute to control scan (*USEOCOATR specified)

By selecting this option, the system will use the specification of the 'object change only' attribute to only scan the object if it has been modified (not also because scan software has indicated an update). If this is not specified, this 'object change only' attribute will not be used, and the object will be scanned after it is modified and when scan software indicates an update.

Fail close request if scan fails during close (*NOFAILCLO not specified)

When this option is selected (*NOFAILCLO not specified), the system will fail the close request if an object failed a scan during close processing. This option only applies to close requests.

If this option is **not** selected (*NOFAILCLO specified), the system will not fail the close request if an object failed a scan even if the **Fail request if exit program fails** option is selected.

For example, if the **Fail request if exit program fails** option is selected and this option is not selected, the system will not send a failure indication even though an object failed a scan during close processing. But, the object will be marked as failing a scan.

Scan on next access after object has been restored (*NOPOSTRST not specified)

By selecting this option (*NOPOSTRST not specified), objects will be scanned at least once after being restored no matter what its object scan attribute is. If the object scan attribute is that 'the object will not be scanned,' the object will be scanned once after being restored. If the object scan attribute is that 'the object will only be scanned if it has been modified since the last time it was scanned,' the object will be scanned after being restored because the restore will be treated as a modification to the object.

If this option is not selected (*NOPOSTRST specified), objects will not be scanned just because they are restored. Scanning depends on the object's scanning attribute.

In general, it is good practice to scan restored objects at least once. However, you may not select this option if you know that the objects being restored were scanned before they were saved or they came from a trusted source.

Only stream file objects that are in Type 2 directories are scanned.

Related concepts:

"Security system values: Use registered exit programs to scan the root (/), QOpenSys, and user-defined file systems" on page 132

The Use registered exit programs to scan the root (/), QOpenSys, and user-defined file systems system value is also known as QSCANFS. You can use this system value to specify whether objects in the root (/), QOpenSys, and user-defined file systems should be scanned by exit programs registered with any of the integrated file system scan-related exit points.

Integrated file system concepts

*TYPE2 directories

Related reference:

"System value parameters" on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Security system values: Secure Sockets Layer protocols

The Secure Sockets Layer protocols system value is also known as QSSLPCL. You can use this system value to specify the Secure Sockets Layer (SSL) protocols supported by the System SSL.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > System SSL .
Special authority	Input/output (I/O) system configuration (*IOSYSCFG), all object (*ALLOBJ), and security administrator (*SECADM).
Default value	Use the protocols determined by the system for the release.
Changes take effect	Immediately for all subsequent System SSL sessions.
Lockable	Yes.  (See "Lock function of security-related system values" on page 158 for details.)

What can I do with this system value?

The System SSL property page lists all the SSL protocol versions supported by the System SSL.

You have the following options:

Use the protocols determined by the system for the release (*OPSYS)

This is the default setting.

Specify the protocols to be supported

If you select this option, you must select at least one of the following options:


- **Transport Layer Security version 1.2** (*TLSV1.2)
- **Transport Layer Security version 1.1** (*TLSV1.1)
- **Transport Layer Security version 1.0** (*TLSV1)
- **Secure Sockets Layer version 3.0** (*SSLV3)
- **Secure Sockets Layer version 2.0** (*SSLV2)

Note: This system value is not supported on systems running IBM i V5R4, or earlier.

Security system values: Secure Sockets Layer cipher control

The Secure Sockets Layer cipher control system value is also known as QSSLCSLCTL. You can use this system value to specify whether the system or a user controls the Secure Sockets Layer cipher specification list (QSSLCSL) system value.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > System SSL .
Special authority	Input/output (I/O) system configuration (*IOSYSCFG), all object (*ALLOBJ), and security administrator (*SECADM).
Default value	Use system-defined.
Changes take effect	Immediately for all subsequent System SSL sessions.

Quick reference	
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You have the following options:

Use system-defined (*OPSYS)

The Secure Sockets Layer cipher specification list (QSSLCSL) system value is read-only. Its values are automatically modified to contain the list of cipher suites supported by the System SSL. If you use this option, the QSSLCSL system value is automatically updated with new cipher suite capabilities when you install or upgrade to a future release of the operating system.


Use user-defined (*USRDFN)

The QSSLCSL system value is editable. If you use this option, additional cipher suite capabilities are not added automatically when you move to a future release of the operating system. You have to determine if any new cipher suites are available and manually add the new cipher suites to the QSSLCSL system value if you want the System SSL to support them.

Note: This system value is not supported on systems running IBM i V5R4, or earlier.

Security system values: Secure Sockets Layer cipher specification list

The Secure Sockets Layer cipher specification list system value is also known as QSSLCSL. You can use this system value to define the System SSL cipher specification list.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Security > System SSL .
Special authority	Input/output (I/O) system configuration (*IOSYSCFG), all object (*ALLOBJ), and security administrator (*SECADM).
Default value	*RSA_AES_128_CBC_SHA *RSA_RC4_128_SHA *RSA_RC4_128_MD5 *RSA_AES_256_CBC_SHA *RSA_3DES_EDE_CBC_SHA *RSA_DES_CBC_SHA *RSA_EXPORT_RC4_40_MD5 *RSA_EXPORT_RC2_CBC_40_MD5 *RSA_NULL_SHA *RSA_NULL_MD5
Changes take effect	Immediately for all subsequent System SSL sessions.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

If you specify the Use user-defined (*USRDFN) option for the Secure Sockets Layer cipher control (QSSLCSLCTL) system value, you can define the Secure Sockets Layer cipher specification list (QSSLCSL) system value. If the QSSLCSLCTL system value is system defined, the QSSLCSL system value is read-only.

The System SSL property page lists all the SSL protocol values supported by System SSL. System SSL uses the sequence of the values in the QSSLCSL system value to order the default cipher specification list. The default cipher specification list entries are system defined and can change with different releases. If a default cipher suite is removed from the QSSLCSL system value, the cipher suite is removed from the default list. The default cipher suite is added back to the default cipher specification list when it is added back into the QSSLCSL system value. The System SSL property page lists all the SSL protocol values supported by System SSL. System SSL uses the sequence of the values in the QSSLCSL system value to order the default cipher specification list. The default cipher specification list entries are system defined and can change with different releases. If a default cipher suite is removed from the QSSLCSL system value, the cipher suite is removed from the default list. The default cipher suite is added back to the default cipher specification list when it is added back into the QSSLCSL system value. » The default cipher specification list values, but not order, can also be changed by using System Service Tools (SST) Advanced Analysis command **SSLCONFIG**.« You cannot add other cipher suites to the default list beyond the set that the system defines » as eligible« for the release.

You cannot add a cipher suite to the QSSLCSL system value if the required SSL protocol value for the cipher suite is not set for the Secure Sockets Layer protocols (QSSLPCL) system value.

This system value can have the following values:

*RSA_AES_128_CBC_SHA

Use the RSA encoding algorithms for the Advanced Encryption Standard (AES) cipher with cipher block chaining (CBC) and 128 bit keys. Use Secure Hash Algorithm (SHA) for generating message authentication codes (MAC).

| *RSA_AES_128_CBC_SHA256

| Use the RSA encoding algorithms for the AES cipher with CBC and 128 bit keys. Use Secure Hash Algorithm 256 (SHA256) for generating MAC.

| *RSA_AES_256_CBC_SHA256

| Use the RSA encoding algorithms for the AES cipher with CBC and 256 bit keys. Use SHA256 for generating MAC.

| *RSA_NULL_SHA256

| Use the RSA encoding algorithms but do not use any cipher. Use SHA256 for generating MAC.

*RSA_RC4_128_SHA

Use the RSA encoding algorithms for Rivest Cipher 4 (RC4) and 128 bit keys. Use SHA for generating MAC.

*RSA_RC4_128_MD5

Use the RSA encoding algorithms for the RC4 cipher and 128 bit keys. Use message digest algorithm 5 (MD5) for generating MAC.

*RSA_AES_256_CBC_SHA

Use the RSA encoding algorithms for the AES cipher with CBC and 256 bit keys. Use SHA for generating MAC.

*RSA_3DES_EDE_CBC_SHA

Use the RSA encoding algorithms for the Triple Data Encryption Standard (3DES) cipher with the encrypt/decrypt/encrypt (EDE) and CBC modes and 168 bit keys. Use SHA for generating MAC.

***RSA_DES_CBC_SHA**

Use the RSA encoding algorithms for the Data Encryption Standard (DES) cipher with the CBC mode and 56 bit keys. Use SHA for generating MAC.

***RSA_EXPORT_RC2_CBC_40_MD5**

Use the RSA encoding algorithms for Rivest Cipher 2 (RC2) with the CBC mode and 40 bit keys. Use MD5 for generating MAC.

***RSA_EXPORT_RC4_40_MD5**

Use the RSA encoding algorithms for the RC4 cipher and 40 bit keys. Use MD5 for generating MAC.

***RSA_NULL_SHA**

Use the RSA encoding algorithms but do not use any cipher. Use SHA for generating MAC.

***RSA_NULL_MD5**

Use the RSA encoding algorithms but do not use any cipher. Use MD5 for generating MAC.

***RSA_RC2_CBC_128_MD5**

Use the RSA encoding algorithms for the RC2 cipher with the CBC mode and 128 bit keys. Use MD5 for generating MAC.

***RSA_3DES_EDE_CBC_MD5**

Use the RSA encoding algorithms for the 3DES cipher with the EDE and CBC modes and 168 bit keys. Use MD5 for generating MAC.

***RSA_DES_CBC_MD5**

Use the RSA encoding algorithms for the DES cipher with the CBC mode and 56 bit keys. Use MD5 for generating MAC.

Note: This system value is not supported on systems running IBM i V5R4, or earlier.

System values: Sign-on overview

You can use sign-on system values to control the sign-on values and other initial values for all users.

To access the sign-on category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides an overview of the sign-on system values available in System i Navigator (and their counterparts in the character-based interface).

Table 16. Sign-on system values

Name in System i Navigator	Description of system value	Name in command interface
Display sign-on information	This system value specifies whether sign-on information is displayed when users sign on to a system.	QDSPSGNINF
Maximum number of device sessions a user can have	This system value sets the maximum number of device sessions a user can have.	QLMTDEVSSN
Restrict privileged users to specific device sessions	This system value specifies whether users with all object (*ALLOBJ) and service (*SERVICE) special authority need explicit authority to specific workstations.	QLMTSECOFR

Table 16. Sign-on system values (continued)

Name in System i Navigator	Description of system value	Name in command interface
When maximum is reached	This system value specifies the action to take when the maximum number of sign-on attempts is reached.	QMAXSGNACN
Incorrect sign-on attempts	This system value sets how many incorrect sign-on attempts a user is allowed.	QMAXSIGN
Remote sign-on	This system value specifies information regarding remote sign-on.	QRMTSIGN

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Sign-on system values: Incorrect sign-on attempts

The Incorrect sign-on attempts system value is also known as QMAXSIGN. You can use this system value to specify how many incorrect sign-on attempts a user is allowed.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Signon > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	3.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify how many incorrect sign-on attempts a user is allowed. A message is sent to the system message queue if the system message queue exists; otherwise, it is sent to the system operator. A sign-on attempt is incorrect whenever any of the following errors occurs:

- A user ID is not valid.
- A password is not valid.
- The user profile does not have authority to the device from which the user ID was entered.

A sign-on attempt is not counted as an incorrect attempt whenever any of the following situations occurs:

- Passwords are required and the user profile specifies that no password is needed. The user receives a message saying that no password is associated with the user profile.
- The program or menu names are not valid.

- The user profile does not exist and the system is configured at security level 10.
- The current library specified is not found.

This system value has the following values:

No maximum (*NOMAX)

No maximum number of sign-on attempts.

Maximum number (1-25)

Maximum number of sign-on attempts allowed.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Sign-on system values: When maximum is reached

The When maximum is reached system value is also known as QMAXSGNACN. You can use this system value to specify the action to take when the maximum number of sign-on attempts is reached.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Signon > General.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Disable user and device.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

If you specify a maximum number of sign-on attempts allowed, you can also specify how the system reacts when the maximum number of consecutive incorrect sign-on attempts is reached.

This system value has the following options:

Disable device (1)

Vary off device if limit is reached. If the controlling subsystem is in the restricted state (so that only one device in it can be used) and the device is varied off, the system is ended and control panel lights on the control panel turn on to indicate that you must restart the system.

Disable user (2)

Disable user profile if limit is reached. If a profile is disabled, it must be enabled again before a user can sign on.

Disable user and device (3)

Vary off device and disable user profile if limit is reached.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Sign-on system values: Display sign-on information

The Display sign-on information system value is also known as QDPSGNINF. You can use this system value to specify whether sign-on information is displayed when users sign on to a system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Sign-on > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Do not display sign-on information.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether at sign-on users see an informational display that shows the date and time of the last sign-on and the number of unsuccessful sign-on attempts since the last sign-on. In the character-based interface, a value of 1 indicates that the sign-on information is displayed, and a value of 0 indicates that the sign-on information is not displayed.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Sign-on system values: Maximum number of device sessions a user can have

The Maximum number of device sessions a user can have system value is also known as QLMTDEVSSN. You can use this system value to set the number of device sessions that a user can have concurrently.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Sign-on > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	No limit.
Changes take effect	Immediately.

Quick reference	
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can use this system value to limit device sessions to a user. This does not prevent the user from using group jobs or making a system request at the workstation.

This system value has the following options:

No limit (0)

Do not limit device sessions.

Device sessions 1-9

The user is limited to one to nine device sessions.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.


Related information:

System value finder

Sign-on system values: Restrict privileged users to specific device sessions

The Restrict privileged users to specific device sessions system value is also known as QLMTSECOFR.

You can use this system value to specify whether users with all object (*ALLOBJ) and service (*SERVICE) special authority need explicit authority to specific workstations.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Sign-on > General.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Deselected. Users are not restricted to specific device sessions.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify whether users with all object (*ALLOBJ) and service (*SERVICE) special authority need explicit authority to specific workstations. In the character-based interface, a value of 1 indicates that these users need explicit authority to specific workstations, and a value of 0 indicates that they do not need explicit authority.

Related reference:

“System value parameters” on page 162


You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Sign-on system values: Remote sign-on

The Remote sign-on system value is also known as QRMTSIGN. You can use this system value to specify remote sign-on information.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Sign-on > Remote .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Always display sign-on.
Changes take effect	Immediately.
Lockable	Yes.  (See “Lock function of security-related system values” on page 158 for details.)

What can I do with this system value?

You can specify the following remote sign-on options:

Always display sign-on (*FRCSIGNON)

All remote sign-on sessions are required to go through normal sign-on processing.

Allow sign-on to be bypassed (*SAMEPRF)

The system allows the user to bypass sign-on.

If you select to bypass sign-on, you can also specify Verification (*VERIFY) to verify source and target user IDs or to verify user IDs on the target system. The sign-on is still bypassed, but the user ID is verified before it is allowed access to the system.

- **Source and target user IDs must match**

For 5250 display station pass-through or workstation functions, you can bypass the remote sign-on panel when the source and target user profile names are the same.

- **Verify user ID on target system**

After verifying that the user has access to the system, the system allows the user to bypass the sign-on panel.

Reject remote sign-ons (*REJECT)

This option allows no remote sign-on for 5250 display station pass-through or for workstation functions. When this option is selected, users can still sign on to the system by using Telnet. These sessions go through normal sign-on processing. If you want to reject all Telnet requests to the system, end the Telnet server.

Invoke user-written exit program

You can specify a program and library to decide which remote sessions are allowed and which

user profiles can be automatically signed on from which locations. The program must exist in the system disk pool (also known as auxiliary storage pool) or in a basic user disk pool.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: Storage overview

You can use IBM i storage system values to change storage behavior values of the system.

To access the storage category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides an overview of the storage system values available in System i Navigator (and their counterparts in the character-based interface).

Table 17. Storage system values

Name in System i Navigator	Description of system value	Name in character-based interface
Automatically clean up unused printer output storage	This system value sets automatic clean up for unused printer output storage and specifies the retention period.	QRCLSPLSTG
When maximum usage is reached	This system value specifies the action to take when the storage pool has reached its maximum.	QSTGLOWACN
Maximum system disk pool usage	This system value specifies the maximum amount of storage space that can be used.	QSTGLOWLMT

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Storage system values: Automatically clean up unused printer output storage

The Automatically clean up unused printer output storage system value is also known as QRCLSPLSTG. You can use this system value to set automatic cleanup for unused printer output storage and to specify the retention period.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Storage > General .
Special authority	None.

Quick reference	
Default value	Selected. Automatically clean up unused printer output storage with a retention period of 8 days.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

This value allows automatic removal of empty spool database members. If this option is not selected (*NOMAX), spooled database members are automatically removed. Select this option if you want a maximum retention level. Then, specify the retention period in days.

You have the following options when specifying the retention periods:

0 (*NONE)

All empty members are deleted. The value results in additional system overhead when creating spooled files. Serious degradation of system performance can result.

1-366 (1-366)

Specify the number of days that empty spool database members are kept for new spooled file use. If the members are still empty after the specified number of days, they are deleted by the system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Storage system values: Maximum system disk pool usage

The Maximum system disk pool usage system value is also known as QSTGLOWLMT. You can use this system value to specify the maximum percentage of used storage allowed in the system disk pool (also known as auxiliary storage pool 1).

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Storage > General .
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	95%.
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

In System i Navigator, you specify the maximum percentage of used storage allowed. If you use the character-based interface, you specify the percentage of storage to remain available (the lower limit). For example, if you specify 95% in System i Navigator for the Maximum system disk pool usage system value, the value shown in the character-based interface for the QSTGLOWLMT system value is 5.00.

When the available storage in the system disk pool has reached the limit specified in this system value, the action specified for the When maximum usage is reached (QSTGLOWACN) system value is taken.

Related concepts:

“Storage system values: When maximum usage is reached”

The When maximum usage is reached system value is also known as QSTGLOWACN. You can use this system value to specify the action to take when the system disk pool has reached its maximum utilization.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Storage system values: When maximum usage is reached

The When maximum usage is reached system value is also known as QSTGLOWACN. You can use this system value to specify the action to take when the system disk pool has reached its maximum utilization.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > Storage > General.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Send message to system operator and message queue.
Changes take effect	Immediately. However, if the available storage is already at the maximum, the change will have no effect until the storage has dropped below the maximum and then reached the maximum again.
Lockable	No.

What can I do with this system value?

You can specify the action to take when the available storage in the system disk pool (also known as auxiliary storage pool) has reached the maximum usage specified in the Maximum system disk pool usage (QSTGLOWLMT) system value.

You can specify any of the following actions:

Send message to system operator and system message queue (*MSG)

Message CPI099C is sent to the system message and system operator queues. This message is also sent for the other actions.

Send message to service users (*CRITMSG)

Message CPI099B is sent to the users specified in the service attributes to receive critical messages. Only users who are signed on at a workstation are notified.

Run registered exit programs (*REGFAC)

A job is submitted to call exit programs registered for the auxiliary storage lower limit action (QIBM_QWC_QSTGLOWACN) exit point.

No action is taken if the system is in the restricted state.

If you select this action and available storage reaches the maximum limit, you cannot start a subsystem while the system is in the restricted state.

End system to restricted state (*ENDSYS)

The system is ended to the restricted state.

No action is taken if the system is already in the restricted state.

If you select this action and available storage reaches the maximum limit, you cannot start a subsystem while the system is in the restricted state.

Immediately power down and restart system (*PWRDWSYS)

The system is powered down immediately and restarted.

No action is taken if the system is in the restricted state.

If you select this action and available storage reaches the maximum limit, you cannot start a subsystem while the system is in the restricted state.

If the available storage has reached the maximum limit during a restart and the action is not **Send message to system operator and system message queue**, the system will come up in the restricted state.

You cannot start a subsystem when the following conditions exist:

- The available storage is below the limit.
- The action is **Run registered exit programs**, **End system to restricted state**, or **Immediately power down and restart system**.
- The system is in the restricted state.

To start the subsystem, perform these actions:

- Reduce the available storage.
- Change the action to **Send message to system operator and system message queue (*MSG)** or to **Send message to service users (*CRITMSG)**.

No action is taken if the following occurs:

- Available storage drops below the limit.
- The system is in the restricted state.
- The action is one of the last three options shown above.

The action is repeated every 30 minutes if the available storage is still at the maximum level.

Related concepts:

“Storage system values: Maximum system disk pool usage” on page 145

The Maximum system disk pool usage system value is also known as QSTGLOWLMT. You can use this system value to specify the maximum percentage of used storage allowed in the system disk pool (also known as auxiliary storage pool 1).

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System values: System and user defaults overview

You can use IBM i system and user defaults system values to control system-level values.

To access the system and user defaults category of system values from System i Navigator, select **Configuration and Services** and then select **System Values**.

System i Navigator uses descriptive names for system values. The following table provides an overview of the system and user defaults system values available in System i Navigator (and their counterparts in the character-based interface).

Table 18. System and user defaults system values

Name in System i Navigator	Description of system value	Name in command interface
Assistance level	This system value sets the assistance level for you system.	QASTLVL
Attention program	This system value specifies the attention program to use on your system.	QATNPGM
Console name	This system value displays the console name for your system.	QCONSOLE
Use type-ahead feature	This system value sets the type-ahead function. You can also select to use the Attention key buffering option.	QKBDBUF
Model number	This system value displays the model number of your system.	QMODEL
Processor feature code	This system value displays the processor feature code for your system.	QPRCFEAT
Processor multitasking	This system value specifies whether processor multitasking is on, off, or system controlled.	QPRCMLTTSK
Default user environment	This system value sets the default user environment.	QSPCENV
Serial number	This system value displays the serial number for your system.	QSRLNBR

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System and user defaults system values: Model number

The Model number system value is also known as QMODEL. You can use this system value to view the model number of your system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > System and User Defaults > System.
Default value	Machine dependent.
Changes take effect	This system value is read-only. You cannot change this system value.
Lockable	No.

What can I do with this system value?

You can view this system value. You cannot edit this system value. This value is the same for each partition on a system and identifies the type of model on which the IBM i operating system is installed. The model number uses the following format, where *xx* represents the specific model number:

5 *xx*: Specifies models 520, 550, 570, and 595.

8 *xx*: Specifies models 800, 810, 825, 870, and 890.

Related concepts:

“Power control system values: When power failure occurs” on page 103

The When power failure occurs system value is also known as QUPSDLYTIM. You can use this system value to specify the action to take when a power failure occurs.

“Restart system values: Automatically restart after power failure” on page 110

The Automatically restart after power failure system value is also known as QPWRRSTIPL. You can use this system value to specify whether to automatically restart the system when power returns.

“Restart system values: Allow remote power-on and restart” on page 110

The Allow remote power-on and restart system value is also known as QRMTIPL. You can use this system value to specify whether remote power-on and system restart can be started over a telephone line.

“System and user defaults system values: Processor multitasking” on page 154

The Processor multitasking system value is also known as QPRCMLTTSK. You can use this system value to specify whether multitasking is on, off, or system controlled.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System and user defaults system values: Serial number

The Serial number system value is also known as QSRLNBR. You can use this system value to view the serial number of your system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > System and user defaults > System.
Default value	Machine dependent.
Changes take effect	This system value is read-only. You cannot change this system value.
Lockable	No.

What can I do with this system value?

You can view this system value. The serial number is used as a means of identification. This number depends on what version, release, and model of the IBM i operating system you have installed. The system serial number is the same for each partition on a system. An example of a serial number is 1001003. You cannot edit this value.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System and user defaults system values: Processor feature code

The Processor feature code system value is also known as QPRCFEAT. You can use this system value to view the processor feature code for your system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > System and User Defaults > System.
Default value	Machine dependent.
Changes take effect	This system value is read-only. You cannot change this system value.
Lockable	No.

What can I do with this system value?

You can view this system value. This value specifies the processor feature code level of the system. This number identifies the processor which is the part of the computer system that operates on data. The processor feature system value is the same for each partition on a system. You cannot edit this value.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System and user defaults system values: Console name

The Console name system value is also known as QCONSOLE. You can use this system value to view the console name for your system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > System and User Defaults > System.
Default value	QCONSOLE.
Changes take effect	This system value is read-only. You cannot change this system value.

Quick reference	
Lockable	No.

What can I do with this system value?

You can view this system value. This value specifies the name of the display device that is the console. The system changes this value when the console is varied on. You cannot edit this value.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System and user defaults system values: Assistance level

The Assistance level system value is also known as QASTLVL. You can use this system value to specify the assistance level for your system users.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > System and User Defaults > User .
Special authority	None.
Default value	Basic.
Changes take effect	The next time a user signs on to the system.
Lockable	No.

What can I do with this system value?

You can control the level of displays available for users of the system. Displays intended for less experienced users provide a higher level of assistance than displays intended for expert users.

This system value has the following values:

Basic (*BASIC)

Operational assistant level of system displays is available.

Intermediate (*INTERMED)

Intermediate level of system displays is available.

Advanced (*ADVANCED)

Advanced level of system displays is available.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System and user defaults system values: Attention program

The Attention program system value is also known as QATNPGM. You can use this system value to specify the attention program to use on the system.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > System and User Defaults > User.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Use operational assistant.
Changes take effect	The next time a user signs on to the system.
Lockable	No.

What can I do with this system value?

You can specify the program to call when you press the Attention key.

This system value has the following options:

Use operational assistant (*ASSIST)

The operational assistant main menu appears when you press the Attention key.

None (*NONE)

No attention program is called when you press the Attention key.

program-name

Specify the program to be called when you press the Attention key. The program must exist in the system disk pool (also known as auxiliary storage pool) or in a basic user disk pool.

Library

Specify the library of the program to be called when you press the Attention key. If you specify **Use library list**, the system automatically sets the value of the library to the value where the program name is found. The next time you open the system and user defaults system values, the library name is displayed.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System and user defaults system values: Default user environment

The Default user environment system value is also known as QSPCENV. You can use this system value to set the default user environment.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > System and user defaults > User.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	IBM i.

Quick reference	
Changes take effect	The next time a user signs on to the system.
Lockable	No.

What can I do with this system value?

You can specify the system environment that is used as the default for all users. This system value has the following options:

IBM i (*NONE)

This option specifies the IBM i system environment when you sign on.

System/36 (*S36)

This option specifies the System/36 environment when you sign on.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System and user defaults system values: Use type-ahead feature

The Use type-ahead feature system value is also known as QKBDBUF. You can use this system value to set the type-ahead function. You can also select to use the Attention key buffering option.

Quick reference	
Location	From System i Navigator, expand <i>your system</i> > Configuration and Service > System Values > System and user defaults > User.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	Selected. Use type-ahead feature.
Changes take effect	The next time a user signs on to the system.
Lockable	No.

What can I do with this system value?

You can specify whether to use the type-ahead feature (*TYPEAHEAD) and the Attention key buffering option. The type-ahead feature allows the system to remember a series of key strokes.

For example, if you regularly press option 2, then you have to wait for the next display before specifying option 4. With the type-ahead feature, you can type 2 and then 4 immediately without waiting for the next display. When the next display opens, the system remembers that 4 was specified.

If you select the type-ahead option, you can also select to use Attention key buffering option.

Use Attention key buffering option

This option specifies whether the Attention key buffering option is turned on. If this option is turned on (*YES), the system remembers that the Attention key was pressed. If this option is turned off, the value is *NO.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System and user defaults system values: Processor multitasking

The Processor multitasking system value is also known as QPRCMLTTSK. You can use this system value to specify whether multitasking is on, off, or system controlled.

You can work with this system value from the character-based interface; it is not available in System i Navigator.

Quick reference	
Location	Character-based interface.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	System controlled (2).
Changes take effect	The next time the system is restarted.
Lockable	No.

What can I do with this system value?

You can control processor multitasking. This system value controls whether the hardware processes only one or more than one task at a time on a processor.

This system value has the following values:

Off (0)

Each processor supports the processing of only one task at any moment.

On (1) Processors can concurrently process multiple tasks.

System controlled (2)

Processors can concurrently process multiple tasks. The system-controlled state also enables the operating system to occasionally limit a processor to processing one task at most.

The value that you specify should be based on performance and is workload dependent. By allowing multiple tasks per processor, the performance capacity of the system tends to increase. Therefore, the system processes more work. By limiting processors to run single tasks, the system tends to allow individual tasks to run faster.

Changes to the system value do not take effect until the next IPL. If you request a change to the state of on (1) or system controlled (2), the change takes effect only if the processor hardware supports the concept of simultaneous multithreading (SMT) or hardware multithreading (HMT). If unsupported, the system value change does not take effect.

On partitioned 8xx models, all partitions inherit the current value from the primary partition. Thus, only changes to the system value of the primary partition become effective. In order for changes to take effect, you need to perform an IPL operation for the primary partition. The default value is on (1) if supported by the system hardware. Otherwise the default value is off (0).

On 5xx models, the current value is partition independent. Thus, changes to the system value of a partition become effective only for that partition. In order for changes to take effect, you need to perform an IPL operation for that partition. The default value is system controlled (2).

The shipped value is system controlled (2); however, the value might change after the first IPL by the system automatically because the shipped value is not supported by the hardware on all systems. The shipped value might change after the first IPL. The following table describes various system environments and what the value changes to after the first IPL.

Primary or secondary partition attribute	Multitasking supported on the hardware	System model	Value after first IPL	Supported values
Primary or nonpartitioned	Yes	8xx models	1 (on)	On (1) or off (0)
Primary or nonpartitioned	No	8xx models	0 (off)	Off (0)
Secondary	Yes	8xx models	Inherits current value from primary partition	On (1) or off (0)
Secondary	No	8xx models	Inherits current value from primary partition	Off (0)
Not applicable ¹	Yes	5xx models	2 (system controlled)	On (1), off (0) or system controlled (2)
Not applicable ¹	No	5xx models	2 (system controlled)	Off (0) or system controlled (2)

¹ This type of model does not distinguish between primary or secondary partitions. Rather it is a partitioned system managed by the Hardware Management Console.

Note: To find out whether your system's hardware supports multitasking, you can change this system value to on (1) and then perform an IPL operation for the system. If the change takes effect, multitasking is supported. If the value does not change after the IPL, multitasking is not supported by the hardware.

Related concepts:

Determining when to use simultaneous multithreading

“System and user defaults system values: Model number” on page 148

The Model number system value is also known as QMODEL. You can use this system value to view the model number of your system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Obsolete system values

These system values are no longer used by the operating system.

The system value names are still allowed on the character-based system value interfaces because some programs might continue to reference these system values. However, the values they are set to are not used by the operating system. The system values are only provided as a reference.

The following table is a list of system values that are no longer used by the operating system.

Name in System i Navigator	Description of system value	Name in character-based interface	Release removed
Not Available ¹	Spooling control block additional storage	QADLSPLA	V5R1
Not Available ¹	Automatic system disabled reporting	QAUTOSPRPT	V5R1
Not Available ¹	Book and book shelf search path	QBOOKPATH	V5R1
Not Available ¹	Job message queue initial size	QJOBMSGQSZ	V5R1
Not Available ¹	Job message queue maximum initial size	QJOBMSGQTL	V5R1
Server authentication interval	Server authentication interval	QSVRAUTITV	V5R2

¹ The system value was never in System i Navigator; therefore, it does not have a System i Navigator name.

Related concepts:

“System value categories” on page 2

You can use System i Navigator to work with the categories of system values.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Security system values: Server authentication interval

The Server authentication interval system value is also known as QSVRAUTITV. This system value is no longer used by the operating system. This system value specifies how long a user with adopted authority can access the adopted program.

Quick reference	
Location	Character-based interface.
Special authority	All object (*ALLOBJ) and security administrator (*SECADM).
Default value	2880 minutes (48 hours).
Changes take effect	Immediately.
Lockable	No.

What can I do with this system value?

This system value specifies the amount of time a user with adopted authority may access an adopted program. The interval refers to how long the authentication is valid after using the server authentication

entry to authenticate. You may specify a value from 1 to 108000. The authentication expires at the end of the interval specified. You cannot access an object after the authentication expires. A value of 108000 specifies 7 1/2 days.

Regardless of how you set this value, it will not affect the operating system. The operating system no longer uses this system value.

Related concepts:

“System values: Security overview” on page 125

You can use IBM i security system values to control object, user, and system security values.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Character-based categories versus System i Navigator categories

System value categories in System i Navigator are different from the categories in the character-based interface. In the character-based interface, system values are grouped into categories by the Type (TYPE) parameter. However, the type parameters do not correspond directly to the categories in System i Navigator.

The groups of system values in the character-based interface can be used with the TYPE parameter:

*ALC Allocation system values

*DATTIM

Date and time system values

*EDT Editing system values

*LIBL Library list system values

*MSG Message and logging system values

*SEC Security system values

*STG Storage system values

*SYSCTL

System control system values

For example, the Auditing level (QAUDLVL) system value is in the Auditing category in System i Navigator. However, in the character-based interface, the system value's type parameter specifies *SEC (security), so this system value is grouped with the security-related system values.

Related concepts:

“System value categories” on page 2

You can use System i Navigator to work with the categories of system values.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System value concepts

These concepts give you a basic foundation for understanding system values; for example, how to lock and unlock system values and how system values affect a restore operation.

Lock function of security-related system values

Most security system values can be altered only by a user with Security administrator (*SECADM) and All object (*ALLOBJ) special authorities. To prevent even these users from changing these system values during normal operation, system service tools (SST) and dedicated service tools (DST) provide an option to lock these security values.

Only some system values can be locked.

The default value is Yes; therefore, users can change security-related system values.

The following table identifies the system values that are affected by this option. Both the System i Navigator name and the character-based name are specified.

Table 19. Lockable system values

Auditing system values

Activate action auditing	QAUDLVL QAUDLVL2
Activate object auditing	QAUDCTL
Audit journal error action	QAUDENDACN
Default auditing for newly created objects	QCRTOBJAUD
Maximum number of journal entries in auxiliary storage	QAUDFRCLVL

Device system values

Action to take when a device error occurs	QDEVRCYACN
Local controllers and devices	QAUTOCFG
Pass-through devices and Telnet	QAUTOVRT
Remote controllers and devices	QAUTORMT

Jobs system values

Allow jobs to be interrupted	QALWJOBITP
Time-out interval	QDSCJOBITV
When job reaches time-out	QINACTMSGQ

Password system values

Maximum password length	QPWDMAXLEN
Minimum password length	QPWDMINLEN
Minimum time between password changes	QPWDCHGBLK
Password expiration	QPWDEXPITV
Password expiration warning interval	QPWDEXPWRN
Password level	QPWDLVL
Password reuse cycle	QPWDRQDDIF
Password rules	QPWDRULES
Password validation program	QPWDVLDPGM
Require a new character in each position	QPWDPOSDIF
Require at least one digit	QPWDRQDDGT
Restrict repeating characters	QPWDLMTREP
Restricted characters	QPWDLMTCHR
Restrict consecutive digits	QPWDLMTAJC

Messages and service system values

Allow remote service of system	QRMTSRVATR
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Table 19. Lockable system values (continued)

Save and restore system values

Allow restore of security sensitive objects	QALWOBJRST
Convert objects during restore	QFRCCVNRST
Verify object signatures on restore	QVFYOBJRST

Security system values

Allow server security information to be retained	QRETSVRSEC
Allow these objects in	QALWUSRDMN
Allow use of shared or mapped memory with write capability	QSHRMEMCTL
Default authority for newly created objects in QSYS.LIB file system	QCRTAUT
Scan control	QSCANFSCTL
Security level	QSECURITY
Secure Sockets Layer cipher control	QSSLCSLCTL
Secure Sockets Layer cipher specification list	QSSLCSL
Secure Sockets Layer protocols	QSSLPCL
Use registered exit programs to scan the root (/), QOpenSys, and user-defined file systems	QSCANFS
Users who can work with programs with adopted authority	QUSEADPAUT

Sign-on system values

Display sign-on information	QDSPSGNINF
Incorrect sign-on attempts	QMAXSIGN
Maximum number of device sessions a user can have	QLMTDEVSSN
Remote sign-on	QRMTSIGN
Restrict privileged users to specific device session	QLMTSECOFR
When maximum is reached	QMAXSGNACN

If you specify **No** for **Allow security-related system values changes**, users cannot change security-related system values. If you need to change a security-related system value, the Allow security-related system values changes parameter must be changed to **Yes** in SST.

If you specify **Yes** for **Allow security-related system values changes**, users with the required authorities can change security-related system values. Even though the security-related system values are unlocked, you still need Security administrator (*SECADM) and All object (*ALLOBJ) special authorities to change them. If you do not want to allow users to change a security-related system value, the Allow security-related system values changes parameter must be changed to **No** in SST.

Related concepts:

“System value categories” on page 2

You can use System i Navigator to work with the categories of system values.

Related tasks:

“Locking and unlocking security-related system values” on page 184

To prevent users from changing security-related system values during normal operation, system service tools (SST) and dedicated service tools (DST) provide an option to lock these security values.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

Effects of system value settings on restore operations

When you prepare for a restore operation, you need to set the restore system values so that they are compatible during a restore operation.

When preparing for a restore operation, it is important to know and understand how the following system values work together to restore objects.

- Verify object signatures during restore (QVFYOBJRST)
- Convert objects during restore (QFRCCVNRST)
- Allow restore of security-sensitive objects (QALWOBJRST)

When an attempt is made to restore an object onto the system, these three system values work together as filters to determine if the object is allowed to be restored, or if it is converted during the restore. The first filter is the Verify object on restore (QVFYOBJRST) system value. It controls the restore of some objects that can be digitally signed. The second filter is the Convert objects during restore (QFRCCVNRST) system value. You use this system value to specify whether to convert programs, service programs, SQL packages, and module objects during the restore operation. It can also prevent some objects from being restored. Only objects that can get past the first two filters are processed by the third filter. The third filter is the Allow restore of security-sensitive objects (QALWOBJRST) system value. It specifies whether objects with security-sensitive attributes can be restored.

When a restore operation is performed, you must set the Force object conversion (FRCOBJCVN) parameter and the Convert objects during restore system value to compatible settings. Otherwise, you will receive an error message and the restore operation will fail. The following table identifies which settings are compatible and which ones fail.

FRCOBJCVN parameter	QFRCCVNRST system value	Outcome of restore command
*SYSVAL	0,1,2,3,4,5,6, or 7	The Convert objects during restore (QFRCCVNRST) system value is used.
*NO	0	No objects are converted and everything is restored without conversion.
*NO	1	Only objects with validation errors are converted and everything else is restored without conversion.
*NO	2-7	Not compatible. An error message is sent to the system administrator and nothing is restored and nothing is converted.
*YES *RQD	0, 1 or 2	Only objects with validation errors or objects that require conversion to be used on the current release are converted.
*YES *RQD	3-7	Not compatible. An error message is sent to the system administrator and nothing is restored and nothing is converted.
*YES *ALL	0, 1, 2, 3, 4, 5, 6 or 7	FRCOBJCVN (*YES *ALL) overrides any QFRCCVNRST value and all objects are converted and restored if they are successfully converted.

In order for an object to be restored successfully, the object must pass the three system values that work together during a restore operation: Verify object signatures during restore (QVFYOBJRST), Force conversion on restore (QFRCCVNRST), and Allow restore of security-sensitive objects (QALWOBJRST). However, if the Force object conversion (FRCOBJCVN) parameter and Force conversion on restore (QFRCCVNRST) system value are not compatible, no conversion occurs and nothing is restored.

Force object conversion (FRCOBJCVN)

The following are possible values for the **Force object conversion** (FRCOBJCVN) parameter:

*SYSVAL

The objects are converted based on the value of the Force conversion on restore (QFRCCVNRST) system value. This is the default value.

*YES *ALL

All objects are converted regardless of their current format. However, if the objects do not have the data required for machine translation, the objects are not restored. Conversion increases the time of the restore operation, but avoids the need to convert the objects when they are first used. This setting overrides the Force object conversion system value.

*YES *RQD

The objects are converted only if they require conversion to be used by the current operating system. If the objects require conversion but do not have the data required for machine translation, the objects are not restored. Conversion increases the time of the restore operation, but avoids the need to convert the objects when they are first used.

*NO No objects are converted during the restore operation.

Convert objects during restore (QFRCCVNRST)

The following are possible values for the **Convert objects during restore** (QFRCCVNRST) system value:

Level 0 (0)

Restore all objects without conversion.

Level 1 (1)

Objects with validation errors are converted.

Level 2 (2)

Objects that require conversion to be used on the current version of the operating system or on the current machine are converted. Objects with validation errors are also converted.

Level 3 (3)

Objects that are suspected of having been tampered with, objects that contain validation errors, and objects that require conversion to be used on the current version of the operating system or on the current machine are converted.

Level 4 (4)

Objects that contain validation errors, that require conversion for use, or that are suspected of having been tampered with are converted. Objects that contain sufficient creation data and do not have a valid digital signature are also converted.

Level 5 (5)

Objects that contain validation errors, that require conversion for use, that are suspected of having been tampered with, or that contain sufficient creation data are converted.

Level 6 (6)

Objects that contain validation errors, that require conversion for use, that are suspected of having been tampered with, or that do not have a valid digital signature are converted.

Level 7 (7)

All objects are converted.

For all levels, if an object meets a requirement to be converted but fails conversion, it will not restore. Objects that do not need to be converted will restore without conversion. When an object is converted, the digital signature of the object will be removed. Also, any object that is converted will be changed to user state, its validation errors will be corrected, and it will no longer be suspected of having been tampered with.

Related concepts:

“System value categories” on page 2

You can use System i Navigator to work with the categories of system values.

“Save and restore system values: Convert objects during restore” on page 118

The Convert objects during restore system value is also known as QFRCCVNRST. You can use this system value to force program conversion during the restore operation.

“Save and restore system values: Allow restore of security sensitive objects” on page 120

The Allow restore of security sensitive objects system value is also known as QALWOBJRST. You can use this system value to specify the objects with security-sensitive attributes to be restored during the installation of software fixes.

“Save and restore system values: Verify object signatures during restore” on page 122

The Verify object signatures during restore system value is also known as QVIFYOBJRST. You can use this system value to specify whether to restore objects without signatures or with signatures that are not valid.

“Preparing system values for a restore operation” on page 185

System values play a vital role in restore operations. It is essential that you plan and configure the system values that affect a restore operation. You need to take some necessary precautions for a successful restore operation.

Related tasks:

“Planning system values for a restore operation” on page 185

Before running a restore operation, you must plan what type of restore you want to perform. Then, configure your system values to the required settings to meet your needs. Then, when a restore operation is performed, you will have the correct settings specified on your system.

Related reference:

“System value parameters”

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

System value parameters

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

The character-based system value name corresponds to a system value field in System i Navigator and the character-based special parameter corresponds to a possible value in System i Navigator.

The following table provides a complete list of system values (using the character-based names) and their associated special parameters. The table provides a summary of information that you might need to work with the system value in the character-based interface. The types and lengths specified in this table apply to CL commands. This differs from the Retrieve System Values (QWCRSVAL) API, which uses binary types rather than decimal types. For example, the Retrieve System Value (RTVSYVAL) command expects decimal types while the Retrieve System Values (QWCRSVAL) API returns binary types.

If you are familiar with the System i Navigator name (also referred to as a field on the System i Navigator interface) and cannot find the character-based system value name in the following table, use the System value finder to display a category of system values. Each category identifies the System i Navigator system value names and the character-based names.

Note: For optimal printing of the list of system values in this topic, you need to print it from a Web browser. To print this topic from a Web browser, select **File > Print**. Ensure that the paper orientation is landscape.

The following table identifies all of the system values using their character-based names and the character-based parameter values (Possible values column) for each system value.

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QABNORMSW	Previous system ending status	Restart	CHAR	1	0	0 Normal. 1 Abnormal.
QACGLVL	Journal accounting information	Auditing	CHAR	80	*NONE	*NONE No journaling. *JOB Journal job resource use. *PRINT Journal printer output.
QACTJOB ¹	Allocate storage at restart for active jobs	Jobs	DECIMAL	(5 0)	200	1-32767
QADLACTJ ¹	Allocate additional storage as needed for active jobs	Jobs	DECIMAL	(5 0)	30	1-32767
QADLSPLA ²	Additional storage to add to the spooling control block	Jobs	DECIMAL	(5 0)	Not available	Specify the additional storage to add to the spooling control block.
QADLTOTJ ¹	Allocate additional storage as needed for total jobs	Jobs	DECIMAL	(5 0)	30	1-32767
QALWJOBITP	Allow jobs to be interrupted to run user-defined exit programs	Jobs	CHAR	1	0	0 The system will not allow jobs to be interrupted to run user-defined exit programs. All new jobs becoming active will default to be uninterruptible. 1 The system will allow jobs to be interrupted to run user-defined exit programs. All new jobs becoming active will default to be uninterruptible. 2 The system will allow jobs to be interrupted to run user-defined exit programs. All new jobs becoming active will default to be interruptible.

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QALWOBJRST	Allow restore of security sensitive objects	Save and restore	CHAR	150	*ALL	<p>*ALL All objects are restored.</p> <p>*NONE Do not allow objects with security-sensitive attributes to be restored.</p> <p>*ALWSYSSTT System-state and inherit-state attribute objects are restored.</p> <p>*ALWPGMADP Programs and service programs with the adopt attribute are restored.</p> <p>*ALWPTF Allow system-state or inherit-state programs, service programs, modules, objects that adopt authority, objects that have the S_ISUID (set-user-ID) attribute enabled, and objects that have the S_ISGID (set-group-ID) attribute enabled to be restored to the system during a PTF installation.</p> <p>*ALWSETUID Allow restore of files that have the S_ISUID (set-user-ID) attribute enabled.</p> <p>*ALWSETGID Allow restore of files that have the S_ISGID (set-group-ID) attribute enabled.</p> <p>*ALWVLDERR Allow objects with validation errors or suspected of having been tampered with to be restored.</p>
QALWUSRDMN	Allow user domain objects in libraries	Security	CHAR	500	*ALL	<p>*ALL All libraries and integrated file system directories on the system can contain user domain objects.</p> <p>*DIR Any SOM object in a directory in the integrated file system can contain user domain objects. *DIR does not apply to the QSYS and QDLS file systems. *DIR is mutually exclusive with *ALL.</p> <p><i>library-name</i> A list of library names that can contain user domain objects.</p>
QASTLVL	Assistance level	Security	CHAR	10	*BASIC	<p>*BASIC Operational Assistant level.</p> <p>*INTERMED Intermediate level.</p> <p>*ADVANCED Advanced level.</p>
QATNPGM	Attention program	System and user defaults	CHAR	20	*ASSIST	<p>*ASSIST Operational Assistant main menu.</p> <p>*NONE No attention program.</p> <p><i>program-name</i> The specified program is used.</p>

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QAUDCTL ¹	Activate action auditing	Auditing	CHAR	50	*NONE	<p>*NONE No auditing.</p> <p>*OBJAUD Objects are audited.</p> <p>*AUDLVL Actions are audited.</p> <p>*NOQTEMP QTEMP objects are not audited.</p> <p>*NOTAVL The user is not allowed to view the auditing system value.</p>
QAUDENDACN	Audit journal error action	Auditing	CHAR	10	*NOTIFY	<p>*NOTIFY Notification sent to security auditing journal.</p> <p>*PWRDWN SYS System ends with a system reference code (SRC).</p> <p>*NOTAVL The user is not allowed to view the auditing system value.</p>
QAUDFRCLVL	Maximum journal entries before writing to auxiliary storage	Auditing	DECIMAL	(5 0)	*SYS	<p>*SYS System writes the journal entries to disk pool. Equivalent to the decimal value 0.</p> <p>-1 The user is not allowed to view the auditing system value.</p> <p>1-100 The number of security auditing journal entries.</p>
QAUDLVL ¹	Activate action auditing - available actions	Auditing	CHAR	160	Deselected	<p>*AUDLVL2 Both QAUDLVL and QAUDLVL2 system values will be used to determine the security actions to be audited.</p> <p>*ATNEVT Attention events.</p> <p>*AUTFAIL Authorization failures.</p> <p>*CREATE Object creations.</p> <p>*DELETE Deletions of external objects on the system are audited.</p> <p>*JOBBAS Job base functions are audited.</p> <p>*JOBCHGUSR Changing a thread's active user profile or its group profiles is audited.</p> <p>*JOBDTA Actions that affect a job.</p> <p>*NETBAS Network base functions.</p> <p>*NETCLU Cluster resource group.</p> <p>*NETCMN Networking and communications functions.</p> <p>*NETFAIL Network failures.</p> <p>*NETSCK Sockets tasks.</p> <p>*NONE No actions are audited.</p> <p>*OBJMGT Generic object tasks.</p> <p>*OFCSRV OfficeVision licensed program.</p> <p>*OPTICAL Optical functions are audited.</p> <p>*PGMADP Adopting authority from a program owner.</p> <p>*PGMFAIL Integrity violations (for example, blocked instruction, validation value failure, and domain violation).</p> <p>*PRDTA Printing functions.</p>

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
						<p>*SAVRST Save and restore information.</p> <p>*SECCFG Security configuration.</p> <p>*SECDIRSRV Directory service functions.</p> <p>*SECIPC Interprocess communications.</p> <p>*SECNAS Network authentication service actions.</p> <p>*SECRUN Security run time functions.</p> <p>*SECCKD Socket descriptors.</p> <p>*SECURITY Security-related functions.</p> <p>*SECVFY Use of verification functions.</p> <p>*SECVLDL Validation list objects.</p> <p>*SERVICE Use of the system service tools.</p> <p>*SPLFDA Spooled file.</p> <p>*SYSMGT System management functions.</p> <p>*NOTAVL The user is not allowed to view the auditing system value.</p>
QAUDLVL2 ¹	Auditing level extension	Auditing	CHAR	990	*NONE	<p>*AUTFAIL Authorization failures.</p> <p>*ATNEVT Attention events.</p> <p>*CREATE Object creations.</p> <p>*DELETE Deletions of external objects on the system are audited.</p> <p>*JOBBAS Job base functions are audited.</p> <p>*JOBCHGUSR Changing a thread's active user profile or its group profiles is audited.</p> <p>*JOBDTA Actions that affect a job.</p> <p>*NETBAS Network base functions.</p> <p>*NETCLU Cluster resource group.</p> <p>*NETCMN Networking and communications functions.</p> <p>*NETFAIL Network failures.</p> <p>*NETSCK Sockets tasks.</p> <p>*NONE No actions are audited.</p> <p>*OBJMGT Generic object tasks.</p> <p>*OFCSR OfficeVision licensed program.</p> <p>*OPTICAL Optical functions are audited.</p> <p>*PGMADP Adopting authority from a program owner.</p> <p>*PGMFAIL Integrity violations (for example, blocked instruction, validation value failure, and domain violation).</p> <p>*PRDTA Printing functions.</p>

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
						<p>*SAVRST Save and restore information.</p> <p>*SECCFG Security configuration.</p> <p>*SECDIRSRV Directory service functions.</p> <p>*SECIPC Interprocess communications.</p> <p>*SECNAS Network authentication service actions.</p> <p>*SECRUN Security run time functions.</p> <p>*SECCKD Socket descriptors.</p> <p>*SECURITY Security-related functions.</p> <p>*SECVFY Use of verification functions.</p> <p>*SECVLDL Validation list objects.</p> <p>*SERVICE Use of the system service tools.</p> <p>*SPLFDTA Spooled file.</p> <p>*SYSMGT System management functions.</p> <p>*NOTAVL The user is not allowed to view the auditing system value.</p>
QAUTOCFG	Local controllers and devices	Devices	CHAR	1	1	<p>0 Automatic configuration is off.</p> <p>1 Automatic configuration is on.</p>
QAUTORMT	Remote controllers and devices	Devices	CHAR	1	1	<p>0 Automatic configuration is off.</p> <p>1 Automatic configuration is on.</p>
QAUTOSPRPT ²	Automatic system disabled reporting	System and user defaults	CHAR	1	0	<p>0 Reporting is off.</p> <p>1 Reporting is on.</p>
QAUTOVRT	Pass-through devices and Telnet	Devices	DECIMAL	(5 0)	0	<p>0 Automatic configuration of virtual devices is off.</p> <p>1-32500 The number of virtual devices to have automatically configure.</p> <p>*NOMAX No maximum number of virtual devices. Equivalent to the decimal value 32767.</p> <p>*REGFAC The program registered for the Virtual Device Selection (QIBM_QPA_DEVSEL) exit point. Equivalent to the decimal value -1.</p>
QBASACTLVL	Base memory pool maximum eligible threads	Performance	DECIMAL	(5 0)	6	1-32767 threads.
QBASPOOL	Base memory pool minimum size	Performance	DECIMAL	(10 0)	2000 KB	256-2147483647 MB.
QBOOKPATH ²	Book path	System and user defaults	CHAR	315	'/QDLS/ QBKBOOKS/ BOOKS'	directory-name
QCCSID	Coded character set ID	International	DECIMAL	(5 0)	65535	1-65535
QCENTURY ¹	Century	Date and time	CHAR	1	None.	<p>0 Years 1928-1999.</p> <p>1 Years 2000-2062.</p>
QCFGMSGQ	Message queue for lines, controllers and devices	Messages and service	CHAR	20	QSYSOPR QSYS	Message queue name and library name.
QCHRID	Graphic character set/Code page	International	CHAR	20	Varies for different countries or regions.	1-32767 for the character set identifier and 1-32767 for the code page identifier.

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QCHRIDCTL	Character identifier control	International	CHAR	10	*DEV D	<p>*DEV D The *DEV D special value performs the same function as on the CHRID command parameter.</p> <p>*JOBCCSID The *JOBCCSID special value performs the same function as on the CHRID command parameter.</p>
QCMNARB	Communications arbiter jobs at restart	Performance	CHAR	10	*CALC	<p>*CALC Operating system calculates the number of communication arbiter jobs.</p> <p>0-99 The number of communication arbiter jobs.</p>
QCMNRCYLMT	Communications configuration recovery	Performance	CHAR	20	0 0	The first 10 characters contain the count limit right-justified. The last 10 characters contain the time interval right-justified.
QCNTYID	Country/Region	International	CHAR	2	Varies for different countries or regions.	Country or region ID.
QCONSOLE	Console name	System and user defaults	CHAR	10	QCONSOLE	QCONSOLE or specified name.
QCRTAUT	Default authority for newly created objects in QSYS.LIB file system	System and user defaults	CHAR	10	*CHANGE	<p>*CHANGE Allows you to change the contents of an object.</p> <p>*ALL Allows you to read, change, delete, and manage the security of an object.</p> <p>*USE Allows you to create an object, to display the contents of an object, or to refer to the contents of an attached object when a command being requested must access attached objects and their contents.</p> <p>*EXCLUDE Allows no access to an object.</p>
QCRTOBJAUD	Default auditing for newly created objects	Auditing	CHAR	10	*NONE	<p>*NONE No auditing.</p> <p>*USRPRF Auditing depends on the user profile.</p> <p>*CHANGE Audits changes.</p> <p>*ALL Audits when used or changed.</p> <p>*NOTAVL The user is not allowed to view the auditing system value.</p>
QCTLSBSD	Controlling subsystem/library	Restart	CHAR	20	QBASE QSYS	The first 10 characters contain the subsystem description name right-justified. The last 10 characters contain the library name right-justified.
QCURSYM	Currency symbol	International	CHAR	1	Varies for different countries or regions.	Any character except blank, hyphen (-), ampersand (&), asterisk (*), or zero (0).
QDATE ¹	Date	Date and time	CHAR	6	No default value.	Depends on the date format being used.
QDATETIME ¹	Date and time	Date and time	CHAR	20	No default value.	Specifies QDATE and QTIME.
QDATFMT ¹	Date format	Date and time	CHAR	3	Varies for different countries or regions.	This system value can be YMD, MDY, DMY, or JUL (Julian format), where Y equals year, M equals month, and D equals day.
QDATSEP ¹	Date separator	Date and time	CHAR	1	Varies for different countries or regions.	Slash (/), dash (-), period (.), comma (,), or blank.
QDAY ¹	Day	Date and time	CHAR	3	No default value.	1-366

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QDAYOFWEEK ¹	Day of the week	Date and time	CHAR	4	No default value.	<p>*SUN Sunday</p> <p>*MON Monday</p> <p>*TUE Tuesday</p> <p>*WED Wednesday</p> <p>*THU Thursday</p> <p>*FRI Friday</p> <p>*SAT Saturday</p>
QDBFSTCCOL	Allow background database statistics collection	Performance	CHAR	10	*ALL	<p>*ALL User and system requests.</p> <p>*USER User requests.</p> <p>*SYSTEM System requests.</p> <p>*NONE No requests.</p>
QDBRCVYWT	Wait for database recovery before completing restart	Restart	CHAR	1	0	<p>0 Does not wait for database recovery.</p> <p>1 Waits for database recovery.</p>
QDECFMT ¹	Decimal format	Date and time	CHAR	1	Varies for different countries or regions.	<p>blank Use a period for a decimal point, a comma for a 3-digit grouping character, and zero-suppress to the left of the decimal point.</p> <p>J Use a comma for a decimal point and a period for a 3-digit grouping character. The zero-suppression character is in the second position (rather than the first) to the left of the decimal notation. Balances with zero values to the left of the comma are written with one leading zero (0,04). The J entry also overrides any edit codes that might suppress the leading zero.</p> <p>I Use a comma for a decimal point, a period for a 3-digit grouping character, and zero-suppress to the left of the decimal point.</p>
QDEVNAMING	Device naming convention	Devices	CHAR	10	*NORMAL	<p>*NORMAL Naming conventions should follow iSeries standards.</p> <p>*S36 Naming conventions should follow System/36 standards.</p> <p>*DEVADR Device names are derived from the device address.</p>
QDEVRCYACN	Action to take when a device error occurs on the workstation	Devices	CHAR	20	*DSCMSG	<p>*MSG Send the I/O error message to the user's application program.</p> <p>*DSCENDRQS Disconnect the job. When the user signs on again, a cancel request function is performed to return control of the job back to the last request level.</p> <p>*DSCMSG Disconnect the job. When the user signs on again, an error message is sent to the user's application.</p> <p>*ENDJOB End the job. A job log is produced for the job.</p> <p>*ENDJOBNO LIST End the job. A job log is not produced for the job.</p>

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QDSCJOBTV	Time-out interval for disconnected jobs	Jobs	CHAR	10	240	5-1440 The range of the disconnect interval. *NONE There is no disconnect interval.
QDSPGNINF	Display sign-on information	Sign-on	CHAR	1	0	0 No. 1 Yes.
QDYNPTYADJ	Dynamically adjust job priorities of interactive jobs	Performance	CHAR	1	1	0 Off. 1 On.
QDYNPTYSCD	Dynamically adjust job priorities within priority bands	Performance	CHAR	1	1	0 Off. 1 On.
QENDJOBMT	Maximum time for immediate end	Jobs	DECIMAL	(5 0)	120	30-3600 seconds.
QFRCCVNRST	Convert objects during restore	Save and restore	CHAR	1	1	0 Do not convert anything. 1 Objects with validation errors are converted. 2 Objects requiring conversion to be used on the current version of the operating system or on the current machine are converted. Objects with validation errors are also converted. 3 Objects suspected of having been tampered with, objects containing validation errors, and objects requiring conversion to be used by the current version of the operating system or on the current machine are converted. 4 Objects that contain sufficient creation data to be converted and do not have valid digital signatures are converted. 5 Objects that contain sufficient creation data are converted. 6 All objects that do not have valid digital signatures are converted. 7 All objects are converted.
QHOUR ¹	Hour	Date and time	CHAR	2	No default value.	00-23
QHSTLOGSIZ	History log file size	Messages and service	DECIMAL	(8, 0)	5000	1-10,000,000 The number of records. *DAILY Specifies that a new version of the history log will be created each time the date in the history log messages changes, or when the current log version reaches the maximum size of 10,000,000 records.
QIGC	Double-byte capable	International	CHAR	1	1	0 A DBCS version is not installed. 1 A DBCS version is installed.
QIGCCDEFNT	Coded font name	International	CHAR	20	Varies for different countries or regions.	First 10 characters contain the coded font name and the last 10 characters contain the library name. *NONE - No coded font is identified to the system.

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QIGCFNTSIZ	Coded font point size	International	DECIMAL	(4 1)	*NONE	<p>*NONE There is no defined double-byte coded font point size. Equivalent to the decimal value 0.</p> <p>1-9999 The double-byte coded font point size in tenths. For example, a value of 9999 in binary would be 999.9.</p>
QINACTIV	Time-out interval for inactive jobs	Jobs	CHAR	10	*NONE	<p>*NONE The system does not check for inactive interactive jobs.</p> <p>5-300 The number of minutes a job can be inactive before action is taken.</p>
QINACTMSGQ	When a job reaches time-out	Jobs	CHAR	20	*ENDJOB	<p>*DSCJOB Interactive job is disconnected.</p> <p>*ENDJOB Interactive job is ended.</p>
QIPLDATTIM	Allow scheduled restart	Restart	CHAR	20	*NONE	<p>*NONE No automatic IPL.</p> <p>CYYMMDDHHMMSS C is the century, YY is the year, MM is the month, DD is the day, HH is the hour, MM is the minute, and SS is the second. A 0 for the century flag indicates years 19xx, and a 1 indicates years 20xx.</p>
QIPLSTS	Previous restart type	Restart	CHAR	1	0	<p>0 Operator panel IPL.</p> <p>1 Automatic IPL after power restored.</p> <p>2 Restart IPL.</p> <p>3 Time-of-day IPL.</p> <p>4 Remote IPL.</p>
QIPLTYPE	Type of restart	Restart	CHAR	1	0	<p>0 Unattended.</p> <p>1 Attended with dedicated service tools.</p> <p>2 Attended with console in debug mode.</p>
QJOBMSGQFL	When maximum size is reached	Jobs	CHAR	10	*NOWRAP	<p>*NOWRAP Do not wrap.</p> <p>*WRAP Wrap to the beginning and start filling again.</p> <p>*PRTWRAP Wrap the message queue and print the messages that are being overlaid because of the wrapping.</p>
QJOBMSGQMX	Maximum job log size	Jobs	DECIMAL	(5 0)	16	2-64 MB.
QJOBMSGQSZ ²	Job message queue initial size	Jobs	DECIMAL	(5 0)	Not Available	1-16384
QJOBMSGQTL ²	Job message queue maximum initial size	Jobs	DECIMAL	(5 0)	Not Available	1-16384
QJOBSPLA	Initial printer output block size	Jobs	DECIMAL	(5 0)	3516	3516 - 32767 bytes.
QKBDBUF	Default system keyboard	System and user defaults	CHAR	10	*TYPEAHEAD	<p>*TYPEAHEAD Type-ahead is on and Attention key buffering is off.</p> <p>*NO Type-ahead and Attention key are off.</p> <p>*YES Type-ahead and Attention key are on.</p>

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QKBDTYPE	Default system keyboard	System and user defaults	CHAR	3	Varies for different countries or regions.	Specifies the language character set for the keyboard.
QLANGID	Language	International	CHAR	3	Varies for different countries or regions.	Specifies the language identifier.
QLEAPADJ	Leap-year adjustment	Date and time	DECIMAL	(5 0)	0	0 Gregorian. 1-3 Adjustment in years.
QLIBLCKLVL	Lock libraries in a user job's library search list	Performance	CHAR	1	1	0 Not locked. 1 Locked.
QLMTDEVSSN	Maximum number of device sessions a user can have	Sign-on	CHAR	1	0	0 Do not limit device sessions. 1-9 The number of device sessions that a user is limited to.
QLMTSECOFR	Restrict privileged users to specific device sessions	Sign-on	CHAR	1	1	0 A user with *ALLOBJ or *SERVICE special authority can sign on to any device. 1 A user with *ALLOBJ or *SERVICE special authority can sign on only to devices to which they have explicit authority.
QLOCALE	Locale	International	CHAR	1024	Varies for different countries and regions.	*NONE No locale object is specified. *C A predefined locale object is to be used. *POSIX A predefined locale object is to be used. <i>Path name</i> Specified locale path name.
QLOGOUTPUT	Produce printer output for job log	Jobs	CHAR	10	*JOBEND	*JOBEND The job log is produced by the job itself. If the job cannot produce its own job log, the job log is produced by a job log server. *JOBLOGSVR The job log is produced by a job log server. *PEND The job log is not produced. The job log remains pending until removed.
QMAXACTLVL	Maximum eligible threads	Performance	DECIMAL	(5 0)	*NOMAX	*NOMAX No maximum. Equivalent to the decimal value 32767. 2-32767 The maximum number of eligible threads.
QMAXJOB	Maximum jobs	Jobs	DECIMAL	(10 0)	163520	32000 - 485000 jobs.
QMAXSGNACN	When maximum is reached	Sign-on	CHAR	1	3	1 Varies off the device. 2 Disables the user profile. 3 Varies off the device and disables the user profile.
QMAXSIGN	Incorrect sign-on attempts	Sign-on	CHAR	6	3	1-25 The maximum number of sign-on attempts allowed. *NOMAX No maximum number of sign-on attempts.
QMAXSPLF	Maximum printer output files	Jobs	DECIMAL	(10 0)	9999	9999 - 999999 files.
QMCHPOOL	Machine memory pool size	Performance	DECIMAL	(10 0)	20	Pool size in megabytes (MB).
QMINUTE ¹	Minute	Date and time	CHAR	2	No default value.	0-59

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QMLTHDACN	When a function in a multi-threaded job is not threadsafe	Jobs	CHAR	1	2	<p>1 Perform the function that is not threadsafe without sending a message.</p> <p>2 Perform the function that is not threadsafe and send an informational message.</p> <p>3 Do not perform the function that is not threadsafe.</p>
QMODEL	Model number	System and user defaults	CHAR	4	No default value.	4 character value that specifies the model number.
QMONTH ¹	Month	Date and time	CHAR	2	No default value.	1-12
QPASTHRSVR	Available display station pass-through server jobs	Performance	CHAR	10	*CALC	<p>*CALC Operating system calculates the number of server jobs.</p> <p>0-100 The number of server jobs.</p>
QPRADJ	Automatically adjust memory pools and activity levels	Performance	CHAR	1	2	<p>0 No performance adjustment.</p> <p>1 Performance adjustment at IPL.</p> <p>2 Performance adjustment at IPL and dynamically.</p> <p>3 Dynamic performance adjustment.</p>
QPRBFTR	Problem log filter	Messages and service	CHAR	20	*NONE	Character list of up to two 10-character values in which the first value is the problem filter name and the second is the library name. *NONE - No problem filter is in use.
QPRBHLDTV	Minimum retention	Messages and service	DECIMAL	(5 0)	30	0-999 days.
QPRCFEAT	Processor feature code	System and user defaults	CHAR	4	No default value.	4 character value in user-written programs.
QPRCMLTTSK	Processor multitasking	System and user defaults	CHAR	2	2	<p>0 Multitasking is off.</p> <p>1 Multitasking is on.</p> <p>2 System controlled.</p>
QPRIDEV	Default printer	Printing	CHAR	10	PRT01	Specifies the default printer.
QPRKEYFMT	Format when using Print key	Printing	CHAR	10	*PRTHDR	<p>*NONE Border and header information is not included.</p> <p>*PRTBDR Border information is included.</p> <p>*PRTHDR Header information is included.</p> <p>*PRTALL Border and header information is included.</p>
QPRITXT	Printed page footer	Printing	CHAR	30	*BLANK	<p>0-30 Characters of text for page footer.</p> <p>*NONE No page footer text.</p>
QPWDCHGBLK	Minimum time between password changes	Password	CHAR	10	*NONE	<p>*NONE There is no restriction on how frequently a user can change a password.</p> <p>1-99 The number of hours users must wait after the last successful password change operation before they can change the password again.</p>
QPWDEXPITV	Password expiration	Password	CHAR	6	*NOMAX	<p>*NOMAX A password can be used an unlimited number of days.</p> <p>1-366 The number of days before a password cannot be used.</p>

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QPWDEXPWRN	Password expiration warning interval	Password	DECIMAL	(5 0)	7	1-99 The number of days before a password expires to begin displaying password expiration warning messages on the Sign-on information display.
QPWDLMTAJC	Restrict consecutive digits	Password	CHAR	1	0	0 Adjacent digits are allowed. 1 Adjacent digits are not allowed.
QPWDLMTCHR	Restricted characters	Password	CHAR	10	*NONE	Specified characters are restricted. *NONE - No characters are restricted.
QPWDLMTREP	Restrict repeating characters	Password	CHAR	1	0	0 Characters can be used more than once. 1 Characters cannot be used more than once. 2 Characters can be used more than once but cannot be repeated consecutively.
QPWDLVL	Password level	Password	DECIMAL	(5 0)	0	0 Passwords with 1-10 characters are supported. 1 Passwords with 1-10 characters are supported and NetServer passwords are removed. 2 Passwords with 1-128 characters are supported. 3 Passwords with 1-128 characters are supported and NetServer passwords are removed.
QPWDMAXLEN	Maximum password length	Password	DECIMAL	(5 0)	8	1-10 if QPWLVL is 0 or 1 1-128 if QPWLVL is 2 or 3
QPWDMINLEN	Minimum password length	Password	DECIMAL	(5 0)	6	1-10 if QPWLVL is 0 or 1 1-128 if QPWLVL is 2 or 3
QPWDRQSDIF	Require a new character in each position	Password	CHAR	1	0	0 The same characters can be used in a position corresponding to the same position in the previous password. 1 The same characters cannot be used in a position corresponding to the same position in the previous password.
QPWDRQDDGT	Require at least one digit	Password	CHAR	1	0	0 A numeric digit is not required. 1 A numeric digit is required.
QPWDRQDDIF	Password reuse cycle	Password	CHAR	1	0	0 Can be the same. 1 Different than previous 32 passwords. 2 Different than previous 24 passwords. 3 Different than previous 18 passwords. 4 Different than previous 12 passwords. 5 Different than previous 10 passwords. 6 Different than previous 8 passwords. 7 Different than previous 6 passwords. 8 Different than previous 4 passwords.

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QPWDRULES	Password rules	Password	CHAR	750	*PWDSYSVAL	<p>*PWDSYSVAL Password system values (use existing password system values).</p> <p>*CHRLMTAJC Limit adjacent (same) characters.</p> <p>*CHRLMTREP Limit repeated (same) characters.</p> <p>*DGTLMTAJC Limit adjacent digits.</p> <p>*DGTLMTFST Limit first character from being a digit.</p> <p>*DGTLMTLST Limit last character from being a digit.</p> <p>*DGTMAX_n Maximum number of digit characters (0 to 9).</p> <p>*DGTMIN_n Minimum number of digit characters (0 to 9).</p> <p>*LMTSAMPOS Limit the same character from being used in a position corresponding to the same position in the previous password.</p> <p>*LMTPRFNAME Limit profile name in password.</p> <p>*LTRLMTAJC Limit adjacent letters.</p> <p>*LTRLMTFST Limit first character from being a letter.</p> <p>*LTRLMTLST Limit last character from being a letter.</p> <p>*LTRMAX_n Maximum number of letter characters (0 to 9).</p> <p>*LTRMIN_n Minimum number of letter characters (0 to 9).</p> <p>*MAXLEN_{mmn} Maximum number of characters (where <i>mmn</i> is 1 to 10 if QPWLVL is 0 or 1, 1 to 128 if QPWLVL is 2 or 3).</p> <p>*MINLEN_{mmn} Minimum number of characters (where <i>mmn</i> is 1 to 10 if QPWLVL is 0 or 1, 1 to 128 if QPWLVL is 2 or 3).</p>

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
						<p>*MIXCASE# Mixed case characters (0 to 9).</p> <p>*REQANY3 Require characters from any of 4 types (uppercase, lowercase, digits, and special characters).</p> <p>*SPCCHRLMTAJC Limit adjacent special characters.</p> <p>*SPCCHRLMTFST Limit first character from being a special character.</p> <p>*SPCCHRLMTLST Limit last character from being a special character.</p> <p>*SPCCHRMAX# Maximum number of special characters (0 to 9).</p> <p>*SPCCHRMIN# Minimum number of special characters (0 to 9).</p>
QPWDLVDPGM	Password validation program	Password	CHAR	20	*NONE	<p>*NONE No validation program is used.</p> <p>*REGFAC The validation program name is retrieved from the registration facility.</p> <p><i>program-specification</i> The name of the validation program. This option is only valid if the system is operating at QPWDLVL 0 or 1.</p>
QPWRDWNLMT	Maximum time for immediate shutdown	Restart	DECIMAL	(5 0)	900 seconds.	1-32767 seconds.
QPWRRSTIPL	Allow auto-restart after power failure	Restart	CHAR	1	0	<p>0 Automatic IPL is not allowed.</p> <p>1 Automatic IPL is allowed.</p>
QQRYPDEGREE	Parallel processing for queries and indexes	Performance	CHAR	10	*NONE	<p>*NONE No parallel processing is allowed.</p> <p>*IO Any number of tasks may be used when the database query optimizer chooses to use I/O parallel processing for queries.</p> <p>*OPTIMIZE The query optimizer can choose to use any number of tasks for either I/O or SMP parallel processing to process the query.</p> <p>*MAX The query optimizer can choose to use either I/O or SMP parallel processing to process the query.</p>
QQRYTIMLMT	Database query time limit	Performance	CHAR	10	*NOMAX	<p>*NOMAX No maximum number.</p> <p>0-2147352578 Number of seconds.</p>
QRCLSPLSTG	Automatically clean up unused printer output storage	Storage	CHAR	10	8	<p>*NOMAX No maximum retention interval.</p> <p>*NONE No retention interval.</p> <p>1-366 The number of days empty spool database members are kept for new spooled file use.</p>

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QRETSVRSEC	Allow server security information to be retained	Security	CHAR	1	0	<p>0 Do not retain the security-related information.</p> <p>1 Retain the security-related information.</p>
QRMTIPL	Allow remote power-on and restart	Restart	CHAR	1	0	<p>0 Remote power on and IPL are not allowed.</p> <p>1 Remote power on and IPL are allowed.</p>
QRMTSIGN	Allow remote power-on and restart	Restart	CHAR	20	*FRCSIGNON	<p>*FRCSIGNON All remote sign-on sessions are required to go through normal sign-on processing.</p> <p>*SAMEPRF When the source and target user profile names are the same, the sign-on may be bypassed for remote sign-on attempts.</p> <p>*VERIFY After verifying that the user has access to the system, the system allows the user to bypass the sign-on.</p> <p>*REJECT No remote sign-on is allowed.</p>
QRMTSRVATR	Allow remote service of system	Messages and service	CHAR	1	0	<p>0 Remote service attribute is off.</p> <p>1 Remote service attribute is on.</p>
QSAVACPTH	Save access paths	Save and restore	CHAR	1	1	<p>0 Do not save access paths.</p> <p>1 Save access paths.</p>
QSCANFS	Use registered exit programs to scan the root(/), QOpenSys, and user-defined file systems	Security	CHAR	200	*ROOTOPNUD	<p>*NONE No file system objects are scanned.</p> <p>*ROOTOPNUD Root (/), QOpenSys and user-defined file system objects are scanned.</p>
QSCANFCTL	Scan control options	Security	CHAR	200	*NONE	<p>*NONE Default controls are used.</p> <p>*ERRFAIL Fail operation if exit program errors are encountered.</p> <p>*FSVONLY Only scan accesses through file servers.</p> <p>*NOFAILCLO Close requests are not failed if there is a scan failure.</p> <p>*NOPOSTRST Objects are scanned when changed, not just because they are restored.</p> <p>*NOWRTUPG The system does not attempt to upgrade the access to include write.</p> <p>*USEOCOATR Scanning depends on the object change only attribute.</p>
QSCPFCONS	If console problem occurs	Restart	CHAR	1	1	<p>0 End system.</p> <p>1 Continue the IPL unattended.</p>
QSECOND ¹	Second	Date and time	CHAR	2	No default value.	00-59

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QSECURITY	Security level	Security	CHAR	2	40	<p>10 The system does not require a password to sign on.</p> <p>20 The system requires a password to sign on.</p> <p>30 The system requires a password to sign on, and users must have authority to access objects and system resources.</p> <p>40 The system requires a password to sign on, and users must have authority to access objects and system resources.</p> <p>50 The system requires a password to sign on, and users must have authority to access objects and system resources. Security and integrity of the QTEMP library and user domain (*USRxxx) objects are enforced.</p>
QSETJOBATR	Set job attributes based on locale	International	CHAR	160	*NONE	<p>*NONE No attributes are set.</p> <p>*CCSID Coded character set identifier.</p> <p>*DATFMT Date format.</p> <p>*DATSEP Date separator.</p> <p>*DECfmt Decimal format.</p> <p>*SRTSEQ Sort sequence.</p> <p>*TIMSEP Time separator.</p>
QSFWERRLOG	Log software problems detected by the system	Messages and service	CHAR	10	*LOG	<p>*LOG Software errors are logged.</p> <p>*NOLOG No logging occurs.</p>
QSHRMEMCTL	Allow use of shared or mapped memory with write capability	Security	CHAR	1	1	<p>0 Not allowed.</p> <p>1 Allowed.</p>
QSPCENV	Default user environment	System and user defaults	CHAR	10	*NONE	<p>*NONE iSeries environment is used.</p> <p>*S36 System/36 environment is used.</p>
QSPLFACN	Detach printer output after jobs have ended	Jobs	CHAR	10	*KEEP	<p>*KEEP Do not detach.</p> <p>*DETACH Detach.</p>
QSR LNBR	Serial number	System and user defaults	CHAR	8	No default value.	8 character serial number.
QSRTSEQ	Sort sequence	International	CHAR	20	*HEX	<p>*HEX No sort sequence table.</p> <p>*LANGIDSHR Table can contain the same weight for multiple characters.</p> <p>*LANGIDUNQ Table must contain a unique weight for each character.</p> <p><i>sort sequence table name</i> The name and library of the table.</p>

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QSRVDMP	Service log for unmonitored escape messages	Messages and service	CHAR	10	*DMPUSRJOB	<p>*DMPALLJOB Service logs are created for all jobs.</p> <p>*DMPSYSJOB Service logs are created only for system jobs, not for user jobs.</p> <p>*DMPUSRJOB Service logs are created only for user jobs, not for system jobs. System jobs include the system arbiter, subsystem monitors, LU services process, spool readers and writers, and the start-control-program-function (SCPF) job.</p> <p>*NONE Do not request logs for any jobs.</p>
QSSLCSL	Secure Sockets Layer cipher specification list	Security	CHAR	1280	<p>Assuming that the QSSLPCL value is *OPSYS and the QSSLCSLCTL value is *OPSYS, the default has the following values:</p> <p>*RSA_AES_128_CBC_SHA</p> <p>*RSA_RC4_128_SHA</p> <p>*RSA_RC4_128_MD5</p> <p>*RSA_AES_256_CBC_SHA</p> <p>*RSA_3DES_EDE_CBC_SHA</p> <p>*RSA_DES_CBC_SHA</p> <p>*RSA_EXPORT_RC4_40_MD5</p> <p>*RSA_EXPORT_RC2_CBC_40_MD5</p> <p>*RSA_NULL_SHA</p> <p>*RSA_NULL_MD5</p>	<p>*RSA_AES_128_CBC_SHA Use the RSA encoding algorithms for the Advanced Encryption Standard (AES) cipher with cipher block chaining (CBC) and 128 bit keys. Use Secure Hash Algorithm (SHA) for generating message authentication codes (MAC).</p> <p>*RSA_RC4_128_SHA Use the RSA encoding algorithms for Rivest Cipher 4 (RC4) and 128 bit keys. Use SHA for generating MAC.</p> <p>*RSA_RC4_128_MD5 Use the RSA encoding algorithms for the RC4 cipher and 128 bit keys. Use message digest algorithm 5 (MD5) for generating MAC.</p> <p>*RSA_AES_256_CBC_SHA Use the RSA encoding algorithms for the AES cipher with CBC and 256 bit keys. Use SHA for generating MAC.</p> <p>*RSA_3DES_EDE_CBC_SHA Use the RSA encoding algorithms for the Triple Data Encryption Standard (3DES) cipher with the encrypt/decrypt/encrypt (EDE) and CBC modes and 168 bit keys. Use SHA for generating MAC.</p> <p>*RSA_DES_CBC_SHA Use the RSA encoding algorithms for the Data Encryption Standard (DES) cipher with the CBC mode and 56 bit keys. Use SHA for generating MAC.</p> <p>*RSA_EXPORT_RC2_CBC_40_MD5 Use the RSA encoding algorithms for Rivest Cipher 2 (RC2) with the CBC mode and 40 bit keys. Use MD5 for generating MAC.</p>

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
						<p>*RSA_EXPORT_RC4_40_MD5 Use the RSA encoding algorithms for the RC4 cipher and 40 bit keys. Use MD5 for generating MAC.</p> <p>*RSA_NULL_SHA Use the RSA encoding algorithms but do not use any cipher. Use SHA for generating MAC.</p> <p>*RSA_NULL_MD5 Use the RSA encoding algorithms but do not use any cipher. Use MD5 for generating MAC.</p> <p>*RSA_RC2_CBC_128_MD5 Use the RSA encoding algorithms for the RC2 cipher with the CBC mode and 128 bit keys. Use MD5 for generating MAC.</p> <p>*RSA_3DES_EDE_CBC_MD5 Use the RSA encoding algorithms for the 3DES cipher with the EDE and CBC modes and 168 bit keys. Use MD5 for generating MAC.</p> <p>*RSA_DES_CBC_MD5 Use the RSA encoding algorithms for the DES cipher with the CBC mode and 56 bit keys. Use MD5 for generating MAC.</p>
QSSLCCTL	Secure Sockets Layer cipher control	Security	CHAR	10	*OPSYS	<p>*OPSYS Use system-defined.</p> <p>*USRDFN Use user-defined.</p>
QSSLPL	Secure Sockets Layer protocols	Security	CHAR	100	*OPSYS	<p>*OPSYS Use the protocols determined by the system for the release.</p> <p>*TLSV1 Transport Layer Security version 1.0.</p> <p>*SSLV3 Secure Sockets Layer version 3.0.</p> <p>*SSLV2 Secure Sockets Layer version 2.0.</p>
QSTGLOWACN	When maximum usage is reached	Storage	CHAR	10	*MSG	<p>*MSG Message CPI099C is sent to the QSYSMSG and the QSYSOPR message queues.</p> <p>*CRITMSG Message CPI099B is sent to the user who is specified by the Critical messages to user service attribute. Service attributes can be changed by using the Change Service Attributes (CHGSRVA) command.</p> <p>*REGFAC A job is submitted to run any exit programs that are registered for the QIBM_QWC_QSTGLOWACN exit point.</p> <p>*ENDSYS The system is ended and left in the restricted state.</p> <p>*PWRDWN SYS The system is powered down immediately and restarted.</p>
QSTGLOWLMT ³	Percentage of storage to remain available	Storage	DECIMAL	(7 4)	5	0-100 percent.

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QSTRPRTWTR	Previous restart - printers started	Restart	CHAR	1	1	0 Printer writers not started. 1 Printer writers started.
QSTRUPPGM	Startup program to set up system	Restart	CHAR	20	*QSTRUP QSYS	*NONE No program called. <i>program-name</i> The first 10 characters contain the program name, and the last 10 characters contain the library name.
QSTMSG	Display status messages	Messages and service	CHAR	10	*NORMAL	*NORMAL Status messages are displayed. *NONE Status messages are not displayed.
QSVRAUTIV ²	Server authentication interval	System and user defaults	DECIMAL	(6 0)	2880	0-108000 minutes.
QSYSLIBL	System library list	Library lists	CHAR	150	QSYS, QSYS2, QHLPSYS, QUSRSYS	Up to 10 characters for each library name.
QTHDRSCADJ	Automatically adjust thread resources	Performance	CHAR	1	1	0 No automatic adjustment. 1 Thread resources are automatically adjusted.
QTHDRSCAFN	Thread affinity	Performance	CHAR	20	*NOGROUP *NORMAL	*NOGROUP No grouping of threads. *GROUP Secondary threads are grouped. *NORMAL Threads can use any resources. *HIGH Threads only use resources it has affinity to.
QTIMADJ	Time adjustment	Date and time	CHAR	30	*NONE	*NONE No software identified. <i>identifier-name</i> The identifier of the time maintenance application.
QTIME	System time	Date and time	CHAR	9	No default value.	Specify the hour, minutes, and seconds.
QTIMSEP ¹	Time separator	Date and time	CHAR	1	Varies for different countries or regions.	1 Colon (:) 2 Period (.) 3 Comma (,) 4 Blank
QTIMZON	Time zone	Date and time	CHAR	10	Varies for different countries or regions.	<i>time-zone-identifier</i> 10 character identifier name.
QTOTJOB ¹	Total jobs	Jobs	DECIMAL	(5 0)	200	1-32767
QTSEPOOL	Move interactive jobs to base pool at end of time slice	Performance	CHAR	10	*NONE	*NONE Jobs are not moved to the base storage pool when time-slice end is reached. *BASE Jobs are moved to the base pool when time-slice end is reached.
QUPSDLYTIM	When power failure occurs	Power control	CHAR	20	200	*BASIC The system assigns the appropriate wait time. *CALC The system assigns the appropriate wait time. *NOMAX Starts no action. 0 Automatically powers down the system. 1-99999 Powers down the system after the specified number of seconds.
QUPSMGQ	Message queue and library	Power control	CHAR	20	QSYSOPR QSYS	Message queue name and library name.

System value	System i Navigator name	Category	Type	Length	Default value	Possible values
QUSEADPAUT	Users who can cause programs to use adopted authority from calling programs	Security	CHAR	10	*NONE	<p>*NONE All users can create, change, and update programs and service programs that use adopted authority.</p> <p>authorization-list-name The authorization list to which a user must have at least *USE authority to create, change, and update programs and service programs that use adopted authority.</p>
QUSRLIBL	User library list	Library lists	CHAR	250	QGPL QTEMP	Up to 10 characters for each library name.
QUTCOffset	Offset from UTC	Date and time	CHAR	5	+0000	Depends on the version and release of the system.
QVfyOjRST	Verify object signatures during restore	Save and restore	CHAR	1	3	<p>1 Do not verify signatures on restore. Restore all objects regardless of their signature.</p> <p>2 Verify signatures on restore. Restore unsigned commands and user-state objects. Restore signed commands and user-state objects, even if the signatures are not valid. Restore inherit-state and system-state objects only if they have valid signatures.</p> <p>3 Verify signatures on restore. Restore unsigned commands and user-state objects. Restore signed commands and user-state objects only if the signatures are valid. Restore inherit-state and system-state objects only if they have valid signatures.</p> <p>4 Verify signatures on restore. Do not restore unsigned commands and user-state objects. Restore signed commands and user-state objects, even if the signatures are not valid. Restore inherit-state and system-state objects only if they have valid signatures.</p> <p>5 Verify signatures on restore. Do not restore unsigned commands and user-state objects. Restore signed user-state objects only if the signatures are valid. Restore inherit-state and system-state objects only if they have valid signatures.</p>
QYEAR ¹	Year	Date and time	CHAR	2	No default value.	0-99
Notes:						
1	In System i Navigator, this system value is grouped with other character-based system values. Therefore, the topic specific to this system value discusses all of the system values associated with it in System i Navigator. For example, the QTIME system value is called Time of day in System i Navigator and it uses QTIME, QDATETIME, QHOUR, QMINUTE, and QSECOND.					
2	The operating system no longer uses this system value.					
3	In System i Navigator, the Maximum system disk pool usage (QSTGLOWLMT) system value is the maximum percentage of used storage allowed. In the character-based interface, this system value specifies the disk pool lower limit versus the maximum allowed.					

Related concepts:

“Character-based categories versus System i Navigator categories” on page 157

System value categories in System i Navigator are different from the categories in the character-based interface. In the character-based interface, system values are grouped into categories by the Type (TYPE) parameter. However, the type parameters do not correspond directly to the categories in System i Navigator.

“Obsolete system values” on page 155

These system values are no longer used by the operating system.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Retrieve System Values API

Related information:

System value finder

Managing system values

As an administrator, you can perform many tasks to help you manage system values; for example, save, configure, and lock system values.

You can manage system values using System i Navigator tasks on the Web. You can work with system values using a Web browser. You can work with the system values function of System i Navigator and use the time management function to work with the Time zone (QTIMZON) and Time adjustment (QTIMADJ) system values.

Related concepts:

Time management

“Date and time system values: Time zone” on page 20

The Time zone system value is also known as QTIMZON. This system value specifies the time zone information used to calculate the local system time. All current settings contain either the standard time or daylight saving time (DST) values depending on whether DST is in effect.

“Date and time system values: Time adjustment” on page 21

The Time adjustment system value is also known as QTIMADJ. You can use this system value to identify the software to use as the time maintenance application that synchronizes your system time with an external time source.

Related reference:

Retrieve System Values (QWCRSVAL) API

Related information:

System i Navigator tasks on the Web

Comparing and updating system values

You can use System i Navigator to compare and update your system values across multiple systems in your network.

As an administrator, you can manage system values across multiple systems. You can compare the system values on a model system to one or more target systems and then update the target system values to match the values of the model system. If you prefer, you can generate a list that shows the differences in values between the model system and the target system rather than actually changing the values on the target system.

Be sure you have current system value inventories on your target systems. It is possible to have your model system be a target system if you have collected inventory for the model system. You can also export any system values inventory to a PC file. These PC files provide a history of the inventory and allow you to work with the data in a spreadsheet program or other application.

To compare and update your system values, follow these steps:

1. From System i Navigator, expand **Management Central > Endpoint Systems, System Groups, or My Connections**.
2. Right-click an endpoint system or a system group that you want to be your target system, select **System Values**, and then select **Compare and Update**.
3. Complete the fields on the **Compare and Update** menu.
 - a. Select the name of the model system against which you want to compare the target system or systems.
 - b. Select the categories and values that you want to include in the compare. For each system value that you want to update on the target system, select that item from the **Update** column.
 - c. Verify the target system or systems that are selected.
4. Click **OK** to perform the task immediately or click **Schedule** to run the task at a later time.

Related concepts:

“System values,” on page 1

System values are pieces of information that affect the system operating environment. System values are not objects on the system. Rather, system values contain control information for the operation of certain parts of the system.

“Working with system values inventory” on page 190

You can collect an inventory of the system values on any endpoint system that is running OS/400 V5R1, or later.

Completing the security wizard

If you are unsure about how to set security-related system values or want to examine your current security policy, complete the Security wizard.

This wizard can automatically configure your system to the correct system value settings for your company. You are provided with many options of how to carry out your configuration. The following are some options that the wizard allows you to do:

- Automatically configure your system's system values based on the information you provide
- Save your report so you can configure your system at a later date
- Print a report that includes the recommended system value settings for your system with the implications of such settings

To access the Security wizard, complete the following steps:

1. From System i Navigator, expand *your system*.
2. Right-click **Security**.
3. Select **Configure**.
4. Complete the Security wizard.

Locking and unlocking security-related system values

To prevent users from changing security-related system values during normal operation, system service tools (SST) and dedicated service tools (DST) provide an option to lock these security values.

You must use DST if you are in recovery mode because SST is not available during this mode. Otherwise, use SST to lock or unlock the security-related system values.

To lock or unlock security-related system values with the Start System Service Tools (STRSST) command, follow these steps:

1. Open a character-based interface.
2. On the command line, type STRSST.
3. Type your service tools user name and password.

4. Select option 7 (Work with system security).
5. Type **1** to unlock security-related system values or **2** to lock security-related system values in the **Allow security-related system values changes** parameter.

Note: You must have a service tool profile and password to lock or unlock the security-related system values.

To lock or unlock security-related system values using dedicated service tools (DST) during an attended IPL of a system recovery, follow these steps:

1. From the **IPL** or **Install the System** display, select option 3 to Use Dedicated Service Tools.

Note: This step assumes that you are in recovery mode and are performing an attended IPL.

2. Sign on to DST using your service tools user name and password.
3. Select option 13 (Work with system security).
4. Type **1** to unlock security-related system values or **2** to lock security-related system values in the **Allow security-related system values changes** parameter.

To view a list of system values are controlled by this lock function, see Lock function of security-related system values.

Related concepts:

“Lock function of security-related system values” on page 158

Most security system values can be altered only by a user with Security administrator (*SECADM) and All object (*ALLOBJ) special authorities. To prevent even these users from changing these system values during normal operation, system service tools (SST) and dedicated service tools (DST) provide an option to lock these security values.

Preparing system values for a restore operation

System values play a vital role in restore operations. It is essential that you plan and configure the system values that affect a restore operation. You need to take some necessary precautions for a successful restore operation.

Related concepts:

“Effects of system value settings on restore operations” on page 160

When you prepare for a restore operation, you need to set the restore system values so that they are compatible during a restore operation.

“Running a restore command” on page 187

After you plan how you want a restore operation handled and configure your system values settings, you are ready to run the restore command. However, you need to take more precautions to restore single objects or an entire system.

Planning system values for a restore operation

Before running a restore operation, you must plan what type of restore you want to perform. Then, configure your system values to the required settings to meet your needs. Then, when a restore operation is performed, you will have the correct settings specified on your system.

To plan how you want objects restored on the system, answer the following questions based on your company's needs:

1. How cautious do you want to be about what is restored?
 - Setting **Convert objects during restore** to **Level 0 (0)** is the least restrictive state and **Level 7 (7)** is the most restrictive.
2. What objects do you want to allow to be restored?
3. Do you want to allow the Force object conversion (FRCOBJCVN) parameter to override the Convert objects during restore (QFRCCVNRST) system value?

The Convert objects during restore value might be overridden. To see a list of compatible values for the Convert objects during restore system value and the Force object conversion parameter on the restore command, see the Effects of system value settings on restore operations topic.

4. What checking do you want performed for object signatures?
5. Do you want to save access paths?
6. Do you want to scan objects on the next access after the restore operation is complete? This additional scan impacts the performance of the system and might not be necessary. You need to consider what objects you are restoring and what kind of performance impact the scan might cause. Before determining whether to scan objects, consider the following information:
 - Scanning might not be necessary if you are restoring your own objects that were saved with the option to scan objects and not save objects that failed the scan.
 - Scanning might not be necessary if you are restoring objects that are coming from a trusted source.

Now that you have planned how you want the system values to handle a restore operation, you are ready to configure the system values for a restore operation.

Related concepts:

“Effects of system value settings on restore operations” on page 160

When you prepare for a restore operation, you need to set the restore system values so that they are compatible during a restore operation.

“Save and restore system values: Save access paths” on page 124

The Save access paths system value is also known as QSAVACCPH. You can use this system value to specify whether to save access paths.

Related tasks:

“Configuring system values for a restore operation”

After you plan how you want a restore operation to function, use System i Navigator to set the system values to reflect how to handle the restore operation. At this point, your system is ready for a restore command.

Configuring system values for a restore operation

After you plan how you want a restore operation to function, use System i Navigator to set the system values to reflect how to handle the restore operation. At this point, your system is ready for a restore command.

To set the required system values in System i Navigator, follow these steps:

1. From System i Navigator, expand *your system* > **Configuration and Service** > **System Values**.
2. Select **Save and Restore**.
3. On the Conversion page, set the Convert objects during restore system value to the way you want to handle object conversion.
4. On the Signatures page, set the Verify object signatures on restore system value to the way you want to handle signatures of objects.
5. On the Objects page, select the objects you want to allow to be restored in the Allow restore of security sensitive objects system value.
6. On the Access paths page, select whether access paths are saved in the Save access paths system value.
7. Click OK to close the Save and Restore system values.
8. Optional: To scan objects on the next access after the object is restored, follow these steps:
 - a. Select **Security** to open the Security system values.
 - b. On the Scan page, select **Use registered exit programs to scan the root (/), QOpenSys, and user-defined file systems**. For more information about registering exit programs, see Scan option.
 - c. Select **Use specified scan control options**.
 - d. Select the **Scan on next access after object has been restored** option.

- e. Click **OK** to close the Security system values.

Related concepts:

“Save and restore system values: Convert objects during restore” on page 118

The Convert objects during restore system value is also known as QFRCCVNRST. You can use this system value to force program conversion during the restore operation.

“Save and restore system values: Verify object signatures during restore” on page 122

The Verify object signatures during restore system value is also known as QVIFYOBJRST. You can use this system value to specify whether to restore objects without signatures or with signatures that are not valid.

“Save and restore system values: Allow restore of security sensitive objects” on page 120

The Allow restore of security sensitive objects system value is also known as QALWOBJRST. You can use this system value to specify the objects with security-sensitive attributes to be restored during the installation of software fixes.

“Save and restore system values: Save access paths” on page 124

The Save access paths system value is also known as QSAVACCPH. You can use this system value to specify whether to save access paths.

Scanning support

“Running a restore command”

After you plan how you want a restore operation handled and configure your system values settings, you are ready to run the restore command. However, you need to take more precautions to restore single objects or an entire system.

Related tasks:

“Planning system values for a restore operation” on page 185

Before running a restore operation, you must plan what type of restore you want to perform. Then, configure your system values to the required settings to meet your needs. Then, when a restore operation is performed, you will have the correct settings specified on your system.

Running a restore command

After you plan how you want a restore operation handled and configure your system values settings, you are ready to run the restore command. However, you need to take more precautions to restore single objects or an entire system.

Before performing a restore operation, verify that the Force conversion on restore system value is compatible with the Force object conversion parameter on the restore command. For more information about the compatibility of these two settings, see “Effects of system value settings on restore operations” on page 160.

Related concepts:

“Preparing system values for a restore operation” on page 185

System values play a vital role in restore operations. It is essential that you plan and configure the system values that affect a restore operation. You need to take some necessary precautions for a successful restore operation.

Related tasks:

“Configuring system values for a restore operation” on page 186

After you plan how you want a restore operation to function, use System i Navigator to set the system values to reflect how to handle the restore operation. At this point, your system is ready for a restore command.

Related information:



Recovering your system PDF

Saving system values

Each time you change a system value, you need to save the system values.

Saving the system values is critical to your system if any of the following situations occur:

- You have a disaster and have to restore your entire system.
- A system value or all system values become damaged.

In any situation, if you save your current system values settings, you will not lose your system value information.

System values are stored in the system library, QSYS. You save the QSYS library when you do the following:

- Use the Go Save command menu and select option 21 (Entire system) to save the entire system.
- Use the Go Save command menu and select option 22 (System data only) to save only system data.
- If you use the Backup, Recovery, and Media Services for IBM i plug-in, use *SYSTEM (which backs up the entire system) or *SYSGRP (which backs up all system data) backup policies.

If you need to recover your entire system, you automatically restore your system values when you restore the operating system. You can also save your system information using the Save System Information (SAVSYSINF) command.

Related information:



Recovering your system PDF

Saving system information

Securing system access levels

You can control the level of security by setting the password system values.

For example, if your company has recently added a system that runs highly confidential financial applications, you need to reassess your company's system security policy. In general, your company follows a moderately strict security policy. So, rather than completely rewriting the policy, you decide to restrict sign-on access to the new finance system by tightening the password rules.

To secure entry into the finance system, you must complete the following tasks:

- Set a policy that states that passwords must not be trivial and must not be shared.
- Set system values to help you enforce the new policy. (See Table 20.)

In addition, you might also want to provide users with this information:

- A list of the criteria for passwords.
- Examples of passwords that are and are not valid. (See Table 21 on page 189.)
- Suggestions for how to think of a good password.

The following table lists the recommended password system value settings to implement your new password requirements. (These values can be changed depending on how strict you want to control sign-on access.)

Table 20. System value settings

Name in System i Navigator	Recommended value	Name in character-based interface
Password expiration	60 days	QPWDEXPITV
Restrict consecutive digits	Yes	QPWDLMTAJC

Table 20. System value settings (continued)

Name in System i Navigator	Recommended value	Name in character-based interface
Password level	3 (See note 1.)	QPWDLVL
Maximum password length	8 characters	QPWDMAXLEN
Minimum password length	6 characters	QPWDMINLEN
Require a new character in each position	Yes	QPWDPOSDIF
Require at least one digit	Yes	QPWDRQDDGT
Password reuse cycle	10 passwords	QPWDRQDDIF
Password validation program	None (See note 2.)	QPWDVLDPGM
Restrict repeating characters	Characters may not be used consecutively	QPWDLMTREP
Restricted characters	A,E,I,O,U,@,#, and \$	QPWDLMTCHR

Notes:

1. You might not be able to use password level 3 if you need to connect to or from a system running OS/400 V5R1, or earlier, or to or from a system that does not support long passwords.
2. To change this system value, you must use the character-based interface. It is not available in System i Navigator. Open a character-based interface and type the following command:
CHGSYSVAL VALUE(QPWDVLDPGM) VALUE('*NONE')

The following table provides examples of good and bad passwords.

Table 21. Example passwords

Password	Details
JohnDoe	Bad. Do not use a name. Also, no digits are used.
112000	Bad. Do not use a date that can be identified with you.
aaaxyz	Bad. Uses more than 2 consecutive characters and uses a character that is not allowed (a). Also, no digit is used.
cm2s0j	Good. Meets all the criteria for a good password.
c0mptr	Good. Meets all the criteria for a good password.
Mfc1RB	Good. Meets all the criteria for a good password. The strategy for this password uses the first letter of each word in a sentence, 'My favorite color is Royal Blue.' It also replaces the vowel with a number and uses a combination of upper and lower case characters.

By completing these steps, you have tightened sign-on access to the finance system by changing the password system values. You can alter the values for each of the password system values to meet the security level for your company. This example has provided one way that the password system values can work together to produce a moderately strict environment.

Related concepts:

“System value categories” on page 2

You can use System i Navigator to work with the categories of system values.

“System values: Password overview” on page 68

You can use IBM i password system values to control the password values and password restrictions.

Related reference:

“System value parameters” on page 162

You can set or view system values in System i Navigator. However, if you want to code a program to set or retrieve a system value, you need to use the character-based system value name and its associated special parameters.

Related information:

System value finder

Working with system values inventory

You can collect an inventory of the system values on any endpoint system that is running OS/400 V5R1, or later.

After you have collected these inventories, use System i Navigator to compare the system values on a model system to those on selected target systems. You can also choose to update the system values on the target systems to match those on the model system.

You will want to make sure that your system values inventories are current before doing a compare and update of system values on your systems. The **Compare and Update** window shows the date and time that the system values inventory was last collected on the target systems. You need a current inventory because the inventory data for the endpoints is used to do the compare and update. To collect inventory on a system or group, right-click the endpoint system or system group, select **Inventory**, and then select **Collect**.

You can also export your system values inventory to a PC file. These PC files provide a history of the inventory and allow you to work with the data in a spreadsheet program or other application. To export a system values inventory, right-click the endpoint system or system group, select **System Values**, and then select **Export**. You can also click the **Export** button from the Compare and Update window.

Related tasks:

“Comparing and updating system values” on page 183

You can use System i Navigator to compare and update your system values across multiple systems in your network.

Appendix. Notices

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