



Global Media Management for the HP NonStop OS

QTOS DATABASE

QTOS TAPE LIBRARIANS GUIDE

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PREFACE

This book is intended for the Tape Librarian who's responsibility it is to input, track and maintain the information in the QTOS database and the Systems or Operations Manager who's responsibility it is to set up Program macro's and set system security.

Some highlights discussed in this manual are:

- Maintaining Data Sets
- Maintaining Tape Volumes
- Maintaining Vault information
- Scratching Tapes
- Running QTOS database reports
- Querying TMF Catalog information
- Cataloging and vaulting TMF tape media information
- Searching for BACKUP files
- Adding QTOS users to the security database
- Displaying and checking in offsite tapes
- Setting up QTOS macros and associated parameters

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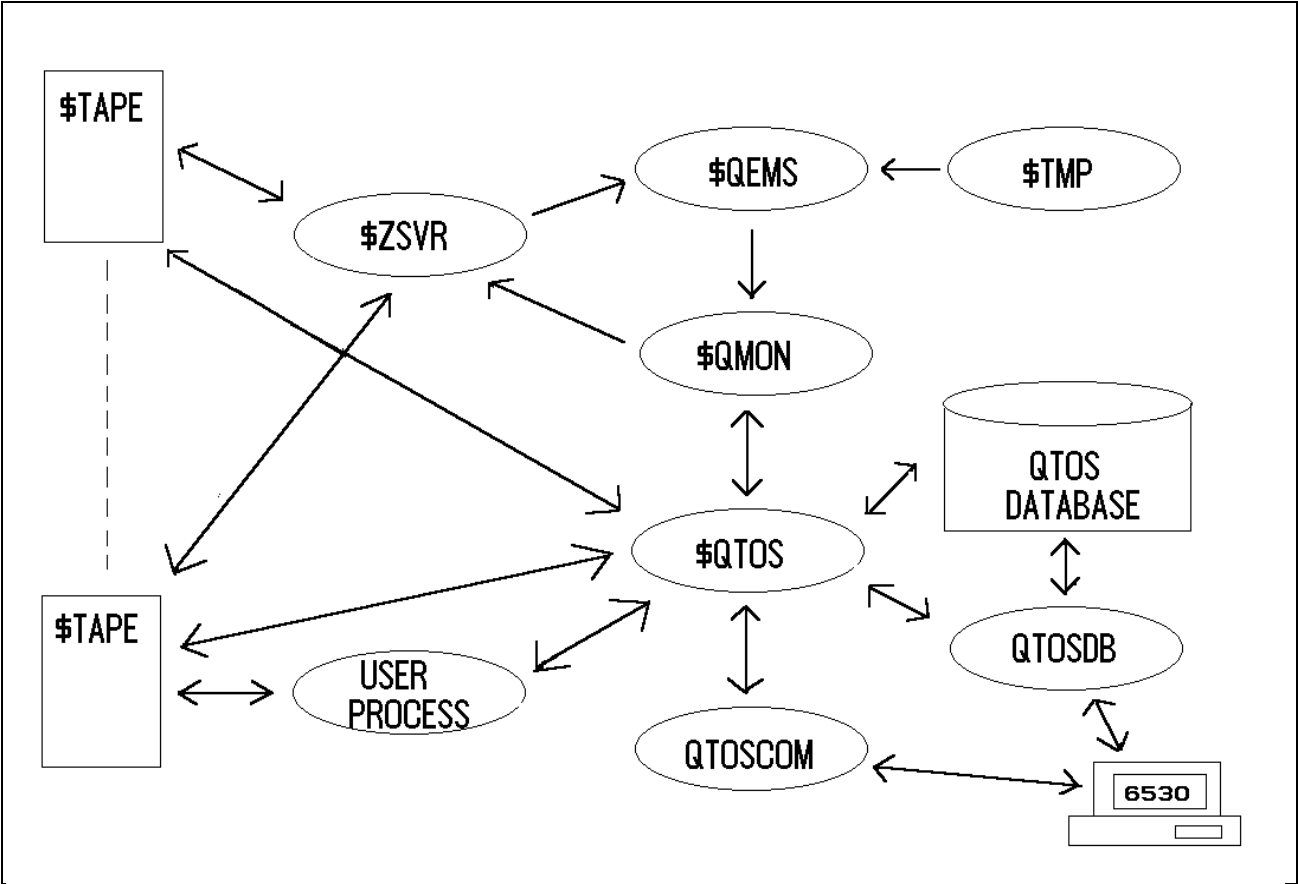
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QTOS OVERVIEW

QTOS is an automated Tape Operating System/Media Catalog for Tandem Nonstop Systems developed and copyrighted by QSA Enterprises, LLC (QSA) of Leesburg, Va.

QTOS monitors, controls and allocates tape resources by interfacing with \$ZSVR and \$TMP through the EMS system and Tapecom.



QTOS PROCESS FLOW

QTOS consists of four main programs and associated utility programs:

- | | | |
|---------|----------|---------|
| QTOS | QTOSINIT | LOADTMF |
| QTOSMON | QTOSSCR | AUTOCHO |
| QTOSCOM | QTOSRPT | |
| QTOSDB | QTOSSRV | |

QTOS PROGRAMS

QTOS

The primary program. The \$QTOS process is started at system startup time. If QTOS is running in secured mode it immediately takes ownership of all tape drives. QTOS will support 30 tape drives and Silo storage devices. \$QTOS allocates tape resources based on request through the QTOSCOM operations program. If requests are made for resources and none are available \$QTOS will queue the request and allocate resources and start the requested programs as resources become available. \$QTOS starts and monitors all programs that use tape resources and allocates media resources based on request parameters, specifically through DATA SET NAMES. \$QTOS creates the DATA SET versions from the parameters stored in the MASTER DATA SET record and updates the Media information in the Catalog. QTOS communicates with the operator through the EMS message system and an optional operators console. The operator console in the system control record can designate a disk file that all event messages are written to. Multiple systems can use the same file. \$QTOS scans the database daily for DATA SETS that have expired and automatically scratches the tapes or releases them to be scratched, depending on the designation in the DATA SET record.

QTOSMON

\$QMON is also started at system startup time. \$QMON monitors all \$ZSVR and \$TMP messages and informs \$QTOS of any change in status of tape resources (ex. mounts, unrequested tapes, TMF requirements, etc.). If QTOS is running in secured mode and an unrequested tape is mounted on any tape drive or the wrong tape is mounted, \$QMON informs \$QTOS and the tape is unloaded. The communication between \$QMON and \$QTOS insures media protection.

QTOSCOM

QTOS operations and requester program. QTOSCOM communicates directly with \$QTOS. The QTOS system is started and stopped through requests by QTOSCOM. Any programs that need to access tape resources are run through QTOSCOM. QTOSCOM is also used for system monitoring and many utility and QTOS system operations functions such as freeing tape drive resources, aborting jobs, displaying job and resource status, accepting and rejecting mounts, etc.

QTOSDB

QTOSDB is the QTOS database access program utilizing full screen display. This does not require Pathway, and is a self-contained screen format program. Through QTOSDB the system librarian and system manager set the control the operating environment of QTOS, Node name is displayed on the screens. The QTOS librarian can maintain and query records on DATA SETS, TAPE MEDIA, TAPE VAULTS, Query the TMF CATALOG for dumps and MEDIA status, quickly locate all versions of any file that has been backed up using online database listings and then select the version from the screen. Once all required files have been selected, the QTOSCOM program is used to inform \$QTOS and the selected files will be automatically restored.

QTOSSRV

QTOSSRV is the QTOS database access program interface to the QTOS CLIENT PC program. The QTOS CLIENT performs the same functions as QTOSDB and some of the functions of QTOSCOM but in a friendlier and more efficient way.

QTOS UTILITY PROGRAMS

- QTOSSCR** - This program is called by \$QTOS and QTOSDB to scratch listings and ensure all links are dropped when a DATA SET gets scratched.
- QTOSINIT** - This program is used to initialize the SYSCTL database and add the initial user. It can also be used to move the QDOS database to another volume or sub volume.
- QTOSRPT** - The QDOS system report server. It is called by QTOSDB and QDOSCOM to generate the QDOS Database reports.
- LOADTMF** - This program is used to initiate the TMF/QDOS catalog with the current information in the users TMF catalog. If TMF cataloging is selected, QDOS will then maintain and track a parallel catalog of TMF dumps, related tapes and their utilization. A pick list is generated that indicates what Vault moves have been initiated based on information in the TMF portion of the sysctl record.
- AUTOCHO** - AUTO CHECKIN program. This program will automatically check in DSN'S and tapes that are due back from offsite vaults. This program runs at the same time as the scratch process as designated in the system control record.

QTOS CONCEPTS

QTOS is an automated Tape Operating System/Media Catalog for Tandem Non-stop Systems that allows for a higher level of security and tracking of Tape media on Tandem Systems than has been previously available.

QTOS can be configured to control and allocate access to Tape Drive resources. In the secured mode, Tape Drives are only available to users that exist in the QTOS database. Any unrequested Tape mounts or Tapes that are allocated to DATA SETS are immediately dismounted. This security is for unlabeled Tapes as well as labeled Tapes.

The Media Catalog is fully automated. Tapes are allocated as they are used and can only be mounted for write access when their retention time has expired or their version level has been exceeded. DATA SETS can be designated to be scratched automatically or released to be verified for scratch. They can be manually scratched if the users security level is high enough to allow them access to the Tape scratch function. The user designates a scratch time in the system control file. Each day, at the designated time, the DATA SETS are scanned for expiration dates. Those that are designated for automatic scratch, are scratched. Those that are designated for release are flagged to be verified for scratch. They can either be scratched at the time they are verified for scratch, or be queued to be scratched at the next scan time. A report of all Tapes and Data Sets that are due to be returned from an offsite vault is also generated at scratch time.

Any DATA SETS or Tapes that are allocated or scratched are reported to the EVENT MANAGEMENT SYSTEM (EMS), written out in a report to the SPOOLER and written to an archive log in the database.

QTOS makes the use of labeled Tapes transparent for the operations personnel. All DEFINES, density, and storage allocations are controlled and issued by QTOS based on parameters stored in the DATA SET. Operators can either issue their normal BACKUP commands through QTOSCOM or set up a macro in the QTOS database and invoke it. QTOS will then monitor the job, issue all Tape requests, update the database as Tapes are used, allocate slots in a specific vault if slot processing is enabled and even maintain the listing on-line, if so designated by the DATA SET information. When the BACKUP is complete, a pick list is generated to inform the operator where to store the Tapes.

QTOS allows a user to queue Tape Drive requests. The operator will be informed of what job is started and which Tapes to mount. These tapes are selected from the scratch pool based on label prefix, vault location and a least used algorithm. With QTOS controlling the operations, operators do not have to figure out which Tapes to use, QTOS will tell them. If they mount a Tape other than the one requested by QTOS and it is a scratch Tape meeting the requirements of the DATA SET, QTOS will accept it. Otherwise QTOS will dismount the Tape, issue a warning and request a scratch Tape.

If there is a problem with a BACKUP, QTOS can be configured to automatically restart the job, beginning at the first file that was placed on the Tape that had the error. QTOS will maintain the links of this job in the database. The Tape in error will be flagged as bad and operations can check the Tape before it is returned to service. QTOS maintains an error and retry count for all Tapes in the database.

QTOS can be configured to track TMF tapes, whenever QTOS is informed that a TMF tape activity has completed, it will start the LOADTMF vault program to catalog any tapes that have been allocated and those that have been scratched. QTOS will generate a Pick List indicating which vault location the tapes are to be moved to, and, if slot processing enabled, which slot to place the Tapes in.

QTOS allows for designating many TAPE VAULTS or vaults within vaults. A rack on the computer room floor could be designated as a vault. Holding daily BACKUPS that are rotated on a seven-day basis, these Tapes would automatically be scratched and rotated based on the version retention in the DATA SET that is used for daily BACKUPS.

Data Sets can be configured to automatically move tapes to an offsite or secondary vault after successful completion of Data Set creation and tape allocation. Tapes can also be manually moved from one vault to another by changing the vault designation on the DATA SET and updating it. The Tapes for that DATA SET would then be automatically updated to reflect the new vault location. If either vault has slot processing enabled, slots are automatically allocated or deallocated based on the vaults configuration in the database. When vault locations are changed for a DATA SET, a pick list is printed instructing the user from

which vault to remove the Tapes and to which vault they are to be delivered. The Master Data Set can also be configured to calculate a return date based on the number of days a set of tapes is to remain offsite. Upon calculating this date, a report is generated during the scratch time designating what data sets and tapes are due to be returned. Also, the user can manually update the DATA SET information with the return date of the Tapes and a reference number.

QTOS security can be instituted at several levels. A user must exist in the QTOS database to have any access to Tape resources.

A user can be given controlled access to the database. If designated to have high-level access, they can update and modify any portion of the database, even those areas that are normally protected. The system manager must implement two security switches to allow this level of access, provided strictly for maintenance.

The QTOS database is accessed and maintained using the Qtos Client installed on the PC.

Qtos Client allows for ease of adding and maintaining records in the QTOS database.

Qtos Client allows the user to search on-line for specific files that have been backed up. It will display all versions of the files, the date they were backed up and the file info parameters for each file. The user can then select the files they would like RESTORED and start the RESTORE. QTOS will automatically request the correct Tapes and issue the RESTORE commands required to RESTORE the selected files, even if they span several BACKUPS.

Qtos Client can be used to display information in the TMF catalog and the status of media in the Catalog. Qtos Client will display the different generations in the TMF catalog and identify them as on-line dumps or audittrails. If QTOS has been configured for parallel cataloging, vault information, use, retry, error and clean counts and return dates can be displayed and modified.

SETTING UP THE CATALOG

The central point of reference in the QTOS CATALOG is the MASTER DATA SET. Unlike in an IBM environment, a Data Set is not to be considered a file, but a grouping under which groups of files, tapes, record extracts, etc. are stored on tape and catalogued as a group.

When creating DATA SET VERSIONS the MASTER DATA SET is used to build the DATA SET VERSION. The DSN ID of the DATA SET VERSION provides the link between Tapes, Vaults and Listings. So, before any processing can begin, we must create a MASTER DATA SET.

Several items are required to create a MASTER DATA SET:

- Which Vault do I want these tapes to come from?
- What Tape prefix of tapes (T00555, F10345, etc) in the vault do I want to use?
- Which group or user id is going to own this DATA SET?

The requirements to setup a MASTER DATA SET:

- 1). Create your users or user group that will own the DATA SET.
- 2). Create your VAULT records.
In order to add Media records, you need to put them somewhere.
- 3). Create your TAPE MEDIA records.
Add tapes to the database.
- 4). Create a Master Data Set Record

Once your USER records, VAULT records and TAPE MEDIA records exist, you can create your MASTER DATA SET records.

Once you have MASTER DATA SET records, you can use QTOS to store and track DATA SETS, TAPES, VAULT locations, even access the file listings online.

QTOS FUNCTIONS

CATALOGING TAPES AND DATA SETS

Tapes and data sets are catalogued under QTOS in several ways:

BACKUPS - Backups that are run through QTOS pass a data set name as well as the backup parameters to QTOS. This data set is used to create a data set version to catalog tapes under. The data set is also used to create defines required for labeled tape processing.

MACROS - Allows QTOS to monitor and control processes that need dynamic allocation of tapes and datasets. User applications executed under QTOS Macros allow QTOS to pass assigns and params and to verify tapes as they are mounted and to prohibit the executing process from using tapes that are already allocated to other data sets.

UPDATE - The UPDATE command under QTOSCOM allows the user to create a data set version and allocate tapes in the catalog to it. The user can also specify that the listing information be read from the tapes and used to update the database.

QTOS CLIENT - Data sets can be created and tapes manually allocated to them through the Qtos Client database access program. Vaults and Vault location is designated through Qtos Client.

USING QTOSCOM UPDATE

There are several ways to use the UPDATE command:

- 1) The dsn version and tape volumes are already in the database.
- 2) Only tape volumes are in database

If the dsn version is supplied, it is assumed that there are tape volumes in the database that are owned by that dsn version. In this case QTOSCOM retrieves the volume ids and passes them to QTOS. QTOS then prompts the operator to mount the appropriate volume when needed.

If the version is not supplied, a new version is created by QTOS and that one is used to UPDATE the tape volume records. If listing is not wanted, the database is UPDATED with the new dsn version in the dsn file, tapes file and slot file, if slot processing is enabled.

Examples:

UPDATE (monthly-backup) /out \$.#Month.UPDATE/ \$tape

The dsn version does not exist but the volume ids have been entered into the database.

Starts a restore (listonly) process and prompts the operator to mount volume ids. The listing generated by restore is analyzed and the database is UPDATED with the file information, tape volumes, slots (if indicated) and dsn.

UPDATE (monthly-backup(3)) /out \$.#Month.UPDATE/ \$tape

The dsn version exists (from a previous backup or UPDATE operation) but the file information is not in the database.

Starts a restore (listonly) process and prompts the operator to mount the volume ids associated with the dsn version. The listing generated by restore is analyzed and the database is UPDATED with the file information.

UPDATE (monthly-backup) /out \$.#Month.UPDATE/ nolist

The dsn version does not exist but the volume ids have been entered into the database. The file information is not wanted.

A restore process is not started (since we don't need the file information). The result on the database is exactly that of the first example except that the file information is not entered into the database. The operator is prompted for volume ids until <control y> is pressed.

For detailed information on the UPDATE command refer to QTOSCOM tape operations guide.

TAPE SCRATCHING

QTOS supports the scratching of tapes in several ways.

Tapes are queued for scratch in three ways:

- By version retention.
- By retention days.
- Manually.

When tapes are written on, they are allocated to a Data Set version. These tapes remain allocated to the Data Set version until their retention cycle has been reached. This retention is specified in the Master Data Set record.

To display the Master Data Set record:

Run the QTOS Client program

Logon on to the Qtos Client logon screen

Right-click on “Datasets” in the left panel of the main window and click on “Search Datasets”.

Type in the name of the MASTER DATA SET

Click the “Search” button or press ENTER.

The MASTER DATA SET will be detail panel of the main window. Right-click on the displayed dataset and click “Update”.

SCRATCH RETENTION

The RETENTION TYPE and SUBTYPE check boxes specify when tapes are to be queued for scratch

The valid selections are:

Indefinite. This Data Set and its tapes to be retained indefinitely and can be manually selected for scratch at a later date.

Version. These Data Sets are retained until the number of versions under the Data Set exceeds the number in the Versions To Retain field. The Versions To Retain field appears when the Version checkbox is clicked.

Date. The number of days, months or years from the creation of the Data Set version to retain the Version. When the Date checkbox is clicked the Days, Months and Years checkboxes appear s does the Retention input field. The Retention input field is the number of Days, Months or Years to retain the dataset versions. The retention field in the version record is calculated, stored and displayed as the actual scratch date when the version record is created.

Date (written to label). This is the same as **Date** except the Retention period will also be written to the Volume label of the tape allowing for Data base protection and label protection.

(If tapes are manually scratched they must also be scratch outside of QTOS, the retention is written to the volume label of the tape, they will not be available until the expiration).

AUTO SCRATCH OR RELEASE

The Data Set record also contains a field that specifies whether tapes are to be automatically queued for scratch when their retention cycle has been reached or queued for release, where they must be verified before they are scratched.

Click the Auto Scratch checkbox to enable Auto Scratch.

SCRATCH CYCLE

The system control record contains a field that designates scratch time. At this time each day The QTOS MONITOR scans the Data Set records for any expired Data Sets or DATA SETS that have been queued because of version expiration, and sets the RELEASE FLAG depending on the AUTO SCRATCH field in the DATA SET record and starts the Scratch process. Any DATA SETS set for "S" or "D" are automatically scratched.

QTOSCOM START SCRATCH

The QTOSCOM command START SCRATCH allows an operator with the proper security level to manually start the scratch process for any DATA SETS with a release flag set for "S" or "D". Refer to QTOSCOM User's Guide.

VERIFYING SCRATCH

THE SCRATCH QUEUE

To display the scratch queue

In the Qtos Client click on "Scratch Queue" in the left panel of the main window.

Any Data sets that are queued for RELEASE (R), SCRATCH (S), DELETE (D), PROCESSING (P) or DROP LISTING (L) are displayed.

SEE THE SECTION ON THE [TAPE SCRATCH SCREEN](#) FOR FURTHER INFORMATION.

PARALLEL BACKUP REQUIREMENTS

In the Qtos database setup two Master Data Sets.

Master Data Set Examples. We named them PARALLEL and PARALLEL-COPY but there are no restrictions on the dataset names other than the normal dataset name rules.

The image displays two side-by-side screenshots of the 'Dataset Update' dialog box. The left window shows the 'Dataset Name' field with 'PARALLEL' entered. The right window shows the 'Dataset Name' field with 'PARALLEL-COPY' entered. Both windows have identical settings for Dataset Version (0), Security Group (QTOS), Assigned Userid (empty), Required Scratch (0), Tape Prefix (Q), Vault From (GARET), and Vault To (empty). The 'Tape Label Type Selection' section has 'Store Listings', 'Auto Restart', and 'Auto Scratch' checked, and 'Backup', 'ANSI', and 'IBM' unchecked. The 'Retention Types Selection' section has 'Date' checked, and 'Date (written to label)', 'Version', and 'Indefinite' unchecked. The 'Retention Subtype Selection' section has 'Days' checked, and 'Months' and 'Years' unchecked, with 'Days to Retain' set to 7. The 'Offsite Return Selection' section has 'Days', 'Months', and 'Years' unchecked, with 'Return' and 'Offsite Reference' empty. At the bottom of each window are 'Update' and 'Cancel' buttons.

The execution of a parallel backup is the same as any backup executed through Qtos with the exception that the two Data Sets are now entered into the command along with two tape drives enclosed with parentheses. The parallel backup may also be executed by creating an obey file or you may edit existing backup routines with the run qtoscom command below.

```
QTOSCOM-> backup(parallel,parallel-copy)/out $s.#para.bkup/($tape,$tape1),*.* WHERE MODTIME > 02 DEC 2000,LISTALL,OPEN
```

```
Run qtoscom backup (parallel,parallel-copy)/out $s.#para.bkup/($tape,$tape1),*.* WHERE MODTIME > 02 DEC 2000,LISTALL,OPEN
```

ONLINE LISTINGS

QTOS enables the user to selectively maintain listings online by DATA SET.

By selecting STORE LISTINGS on the MASTER DATA SET record the listing will be maintained on line when the files are backed up.

If the DATA SET version was manually entered into the system, the listing can be read into the DATA BASE by using the QTOSCOM UPDATE command, refer to the QTOSCOM users guide.

FILE LOCATOR

The Qtos Client can be used to search for files by file name (full name or wildcarded) or files in specific data sets. Search criteria also includes data backup up, data modified, tape volume, file size and file code.

Right-click on “Diskfiles” in the left panel of the main window and click on “Search Diskfiles”. Fill in the fields and select “Find Guardian Files”, “Find OSS Files” or “Find SQL/MX Files” and click the “Search” button.

The user can also display a detail of the file that displays all the backup information that is on a normal backup listing, and also DATA SET NAME and VERSION, the tape that contains the file, the vault it's stored in, etc.

The file or files can be selected for restore. Right-click any selected file and select “Restore” from the menu.

VAULT MOVES

VAULT processing of tapes is supported under QTOS in several ways:

- 1) There are two fields for VAULT ID on the Master Data Set Screen. The first field indicates which VAULT the scratch tapes are to be allocated from. The second VAULT ID field is an optional field that designates where the tapes are to transfer to once the Data Set Version has been successfully executed. If this field is left blank the tapes remain in the VAULT they came from.
- 2) Groups of tapes allocated to a Data Set Version can be moved between VAULT locations by updating the VAULT ID field on the Data Set Screen. This will update the Data Set Version record, the tape records and generate a VAULT MOVE report to the QTOS default spooler location as designated in the SYSTEM CONTROL record.
- 3) Individual Tapes can be moved between Vaults manually by updating their VAULT location on the QTOS Tapes Screen. If the tapes are allocated to a Data Set, they can only be updated by updating the Data Set Version record they belong to.
- 4) Data Set versions whose return date period has arrived or passed can be displayed by clicking on “Tapes Checkin” in the left panel of the main window. Any tapes that are to be checked in can be tagged and a batch check in will be initiated.

Whenever tapes are moved between Vaults, a pick list is generated that designates which Data Set Version the tapes belong to, which VAULT they are to be moved to and, if slot processing is enabled for that VAULT, which slots the tapes are to be placed in.

On the Data Set Screen there are two optional fields that relate to off site storage.

REF

This allows the user to store the reference number of the offsite facility that designates what box or location the tapes for this data set are stored in.

RETURN DATE

The date that these tapes are due to be returned from the offsite storage location. Each day when QTOS checks the database for data sets that have expired by date and QUEUES them for scratch, QTOS will also scan for Data Sets that are due to come back on site. Any Data Sets that expire and are queued for scratch that are located in an offsite VAULT will not be scratched until the Data Set Version record has been updated to reflect the tapes as being onsite. The scratch report will indicate this.

QTOS/TMF CATALOG INTERFACE

QTOS gives the user full screen query access to the TMF CATALOG.

Through QTOS the user can:

- Display scratch Tapes, Tapes in use, the status of all Tapes
- Display audittrail and auditdump generations
- Display and update tape and vault information for specific dumps
- Track and display offsite tapes and when they are due to be returned
- Display files in a specific auditdump
- Search for a specific file in an auditdump
- Search for all occurrences of a specific file
- Search for all files starting at a selected file
- Display the status of the files in the auditdump (valid, released, invalid)

In addition QTOS will track and catalog the following items:

- Storage (vault) location of tapes.
- Slot processing for allocated tapes (optional).
- Use, clean, retry and error counts.
- Storage location for entire dumps or auditdumps.
- Return dates and reference numbers for offsite storage of dumps and auditdumps

LOGGING ON TO QTOS

To start the Qtos Client (QTOS Database program)

On your pc desktop:

Double-click the Qtos Client ICON.

Type in your QTOS userid in the userid field.

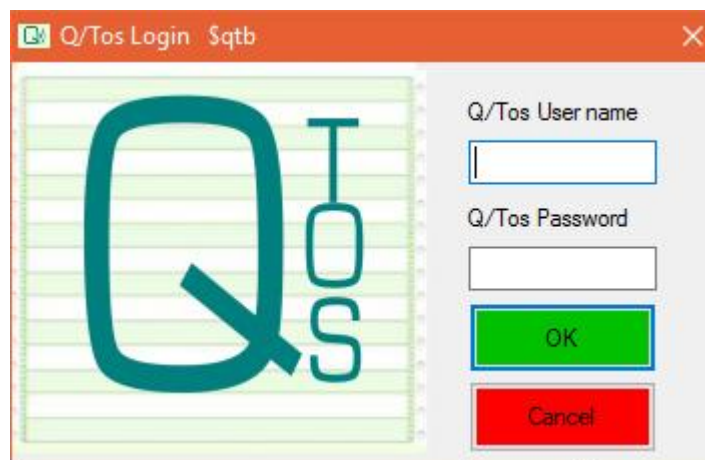
(QTOS userid is not case sensitive and always shows as upper case)

Type in your QTOS password in the password field.

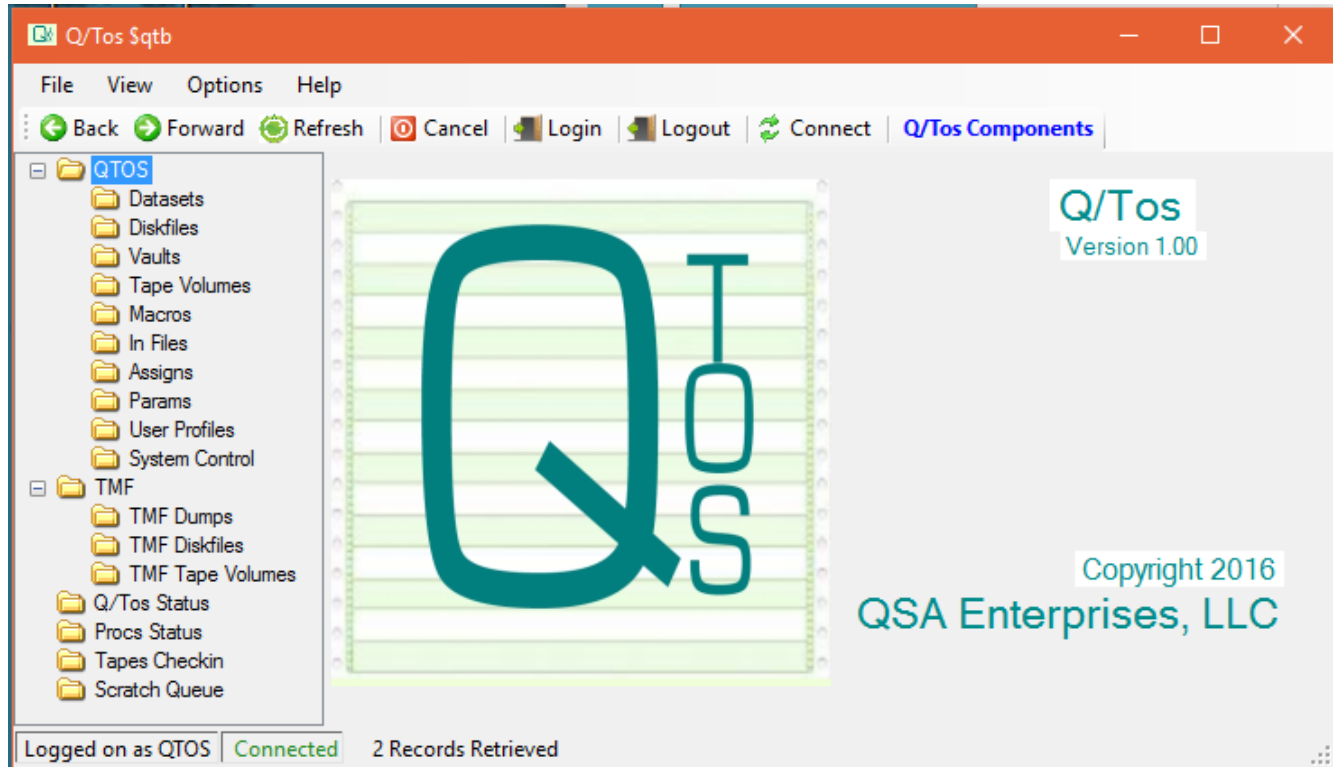
(QTOS password is case sensitive)

Click the OK box or press ENTER.

THE QTOS CLIENT LOGON SCREEN



QTOS MAIN WINDOW



The QTOS MAIN WINDOW provides access to the QTOS Database. The left panel is direct access to all items in the QTOS Database, the TMF Database and several status windows and utilities. Right-clicking on the QTOS and TMF items will produce a pop-up menu where you can select whether to LIST or SEARCH for records or to ADD new records. The STATUS, CHECKIN and SCRATCH items will produce results when clicked by either mouse button.

LIST and SEARCH results as well as the PROCS STATUS results are displayed in the right-hand panel of the main window. Right-clicking on these records produces a pop-up menu with actions to perform on the record(s) corresponding to the security level of the logon. This may include DELETE, ALTER and ADD LIKE or LIST records related to the selected record.

DATA SET MAINTENANCE

The Data Set Add/Update window is used to create and maintain Master Data Set records. QTOS uses the information contained in the Master Data Set to set up the environment required to access tape media and to create Data Set versions to track Media Catalog information.

The Data Set is the header record that uniquely identifies and references the tapes and information that is used to track the associated records. The name of the Data Set is passed to the QTOS process server and is used to set defines, select tapes, and create Data Set versions that are used to identify and track the information on the tapes.

Data Set versions are maintained in ascending sequential order, the highest numbered version being the latest version and the lowest number version being the oldest version.

DISPLAYING DATA SETS

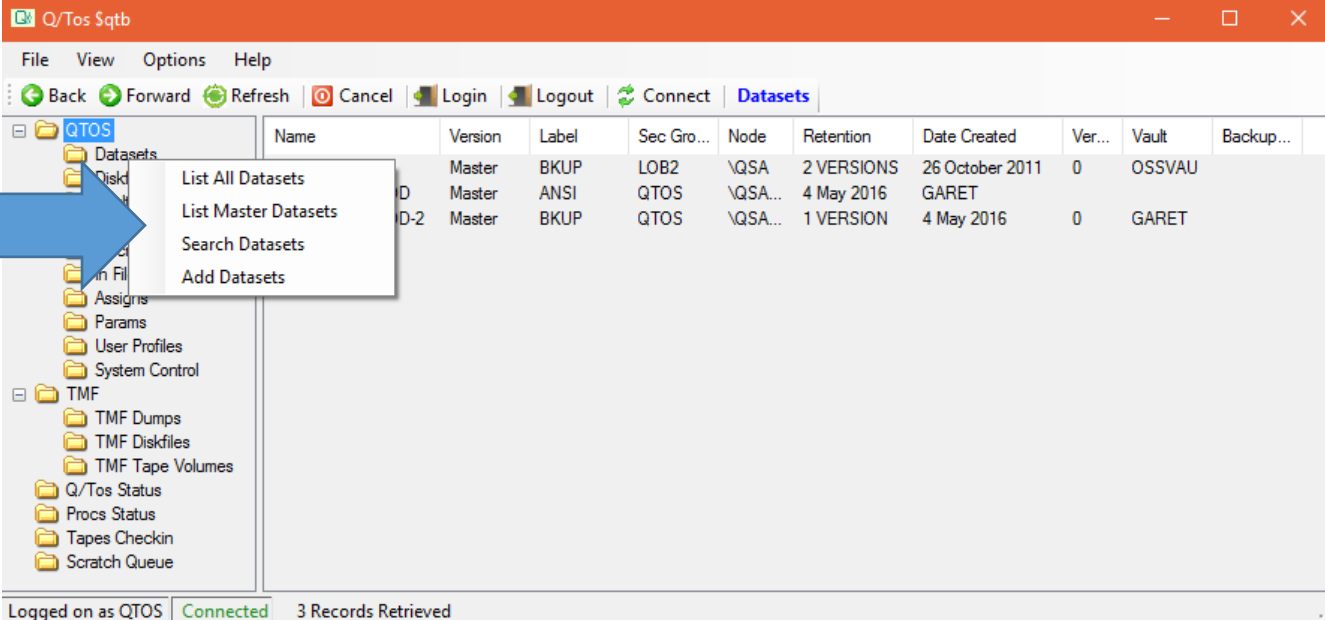
QTOS offers several options for displaying DATA SETS:

Right-click on “Datasets” in the left panel and a menu will appear.

Clicking on “List All Datasets” will retrieve every dataset record in the database, master and version, and display them in the database display panel to the right.

Clicking on “List Master Datasets” will retrieve and display every master dataset record.

Clicking on “Search Datasets” will activate the “Search Dataset” window where you can select search criteria by which QTOS will filter dataset records. There is also an option on this window to display or not display master dataset records.



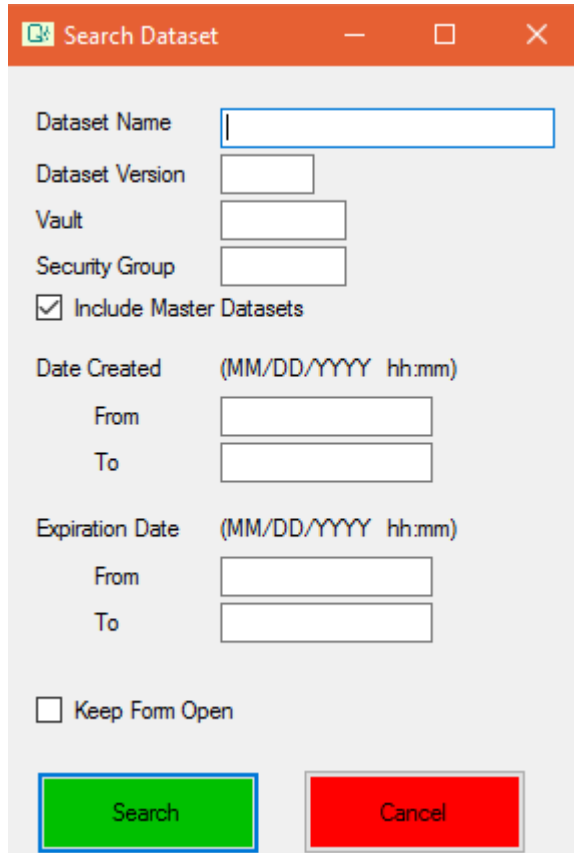
The screenshot shows the QTOS application window with the 'Datasets' menu open. A blue arrow points to the 'List All Datasets' option. The main panel displays a table of dataset records.

Name	Version	Label	Sec Gro...	Node	Retention	Date Created	Ver...	Vault	Backup...
	Master	BKUP	LOB2	\QSA	2 VERSIONS	26 October 2011	0	OSSVAU	
D	Master	ANSI	QTOS	\QSA...	4 May 2016	GARET			
D-2	Master	BKUP	QTOS	\QSA...	1 VERSION	4 May 2016	0	GARET	

Logged on as QTOS | Connected | 3 Records Retrieved

DISPLAYING MASTER DATASETS

As shown above, you can display all master datasets by right-clicking “Datasets” and clicking “List Master Datasets” from the pop-up menu. But if you want to filter the master datasets that are retrieved click “Search Datasets” from the menu. This will activate the Search Dataset window. Type the dataset name pattern in the Dataset Name field and enter 0 (zero) in the Dataset Version field. Make sure the “Include Mater Datasets” checkbox is checked and click on “Search”.



USING THE SEARCH DATASET WINDOW

DATASET NAME field:

The Dataset Name can be a complete dataset name or it can include wildcard characters, asterisk (*) and question mark (?) in any combination. You can search for FULL-BACKUP, or FULL*, or FULL??-B*.

DATASET VERSION field:

The Dataset Version is used to filter the results by a specific version. A zero (0) will get you only master datasets. A number greater than zero will get dataset records with only that version number.

VAULT field:

A value in the Vault field will filter the searched records for datasets whose tapes are grouped by the Vault (or tape pool). The Vault field can also contain wildcards the same as Dataset Name.

SECURITY GROUP field:

A value in the Security Group field will filter the searched records for datasets owned by the Security Group (or owner). The Security Group field can also contain wildcards the same as Dataset Name.

DATE CREATED and EXPIRATION DATE fields:

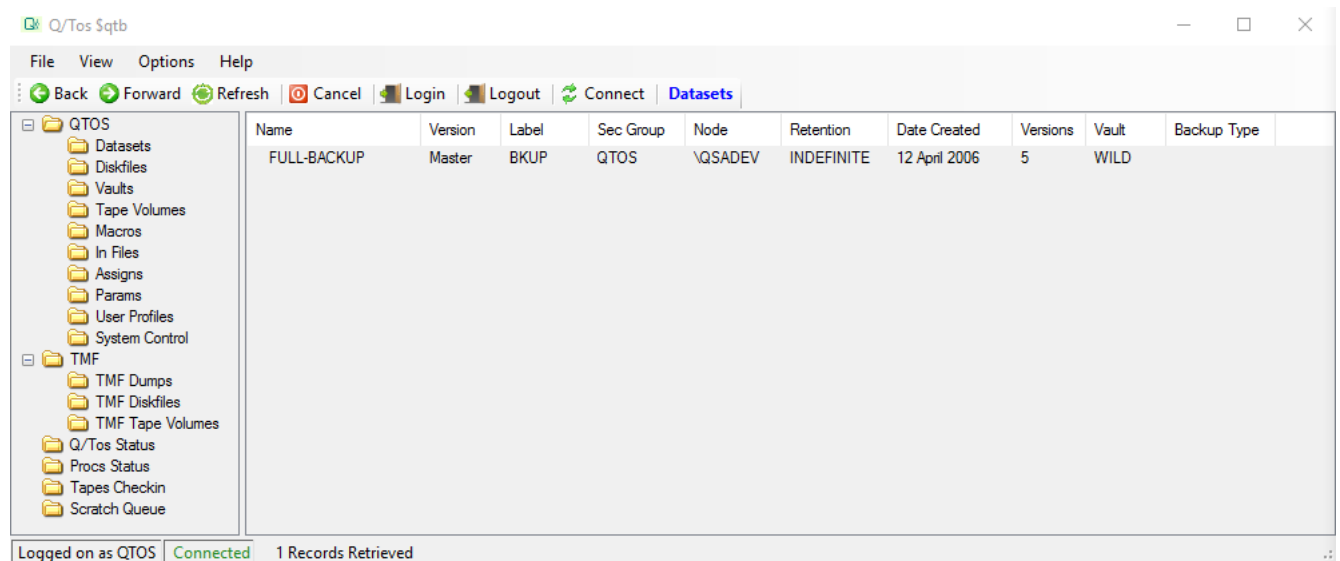
The Date Created fields filter the search results for dataset records created within a range of dates. The range can be explicitly entered by entering dates in the FROM and TO fields. This will return datasets created after and including the FROM date through those created until and including the TO date.

If there is a date in the TO field but the FROM field is blank, QTOS will retrieve all records up to and including the TO date. If there is a date in the FROM field but the TO field is blank, QTOS will retrieve all records after and including the FROM date.

KEEP FORM OPEN checkbox:

Normally the search window is closed when the retrieval operation completes. But if you want to several searches you can keep the window from closing by clicking the Keep Form Open checkbox. Then exit the window when you are done by either clicking on the “X” in the upper right hand corner or by clicking the “CANCEL” button.

MASTER DATA SET DISPLAYED



Master datasets are displayed in the record display panel with the version shown as “Master” and some other relevant data, including the number or versions owned by the dataset.

Double-click the record in the display panel and the Dataset Detail window is displayed with all of the information for the selected dataset. The detail window can also be displayed by right-clicking the record and selecting “Details” from the menu.

Dataset Detail

Page Setup Print Preview Print

Dataset Name	- FULL-BACKUP
Dataset Version	- Master
Number Versions	- 5
Tape Volumes Used	- 0
Dsn Id	- 54
Label Type	- BKUP
Security Group	- QTOS
Listing Node	-
Release Flag	-
Remote Listing	-
Vault	- WILD
Vault To	-
Node Name	- \QSADEV
Retention Calculation	-
Return Date Calculation	-
Ignore Fileid	- FALSE
Retention Type	- INDEFINITE
Retention	- INDEFINITE
Date Created	- 12 April 2006
Return Date	-
Offsite Reference	-
Tape Prefix	- W
Tape Scratch	- A
Required Tapes	- 3
Auto Restart	- A
Store Listings	- Y
Assigned Userid	-

DISPLAYING DATA SET VERSIONS

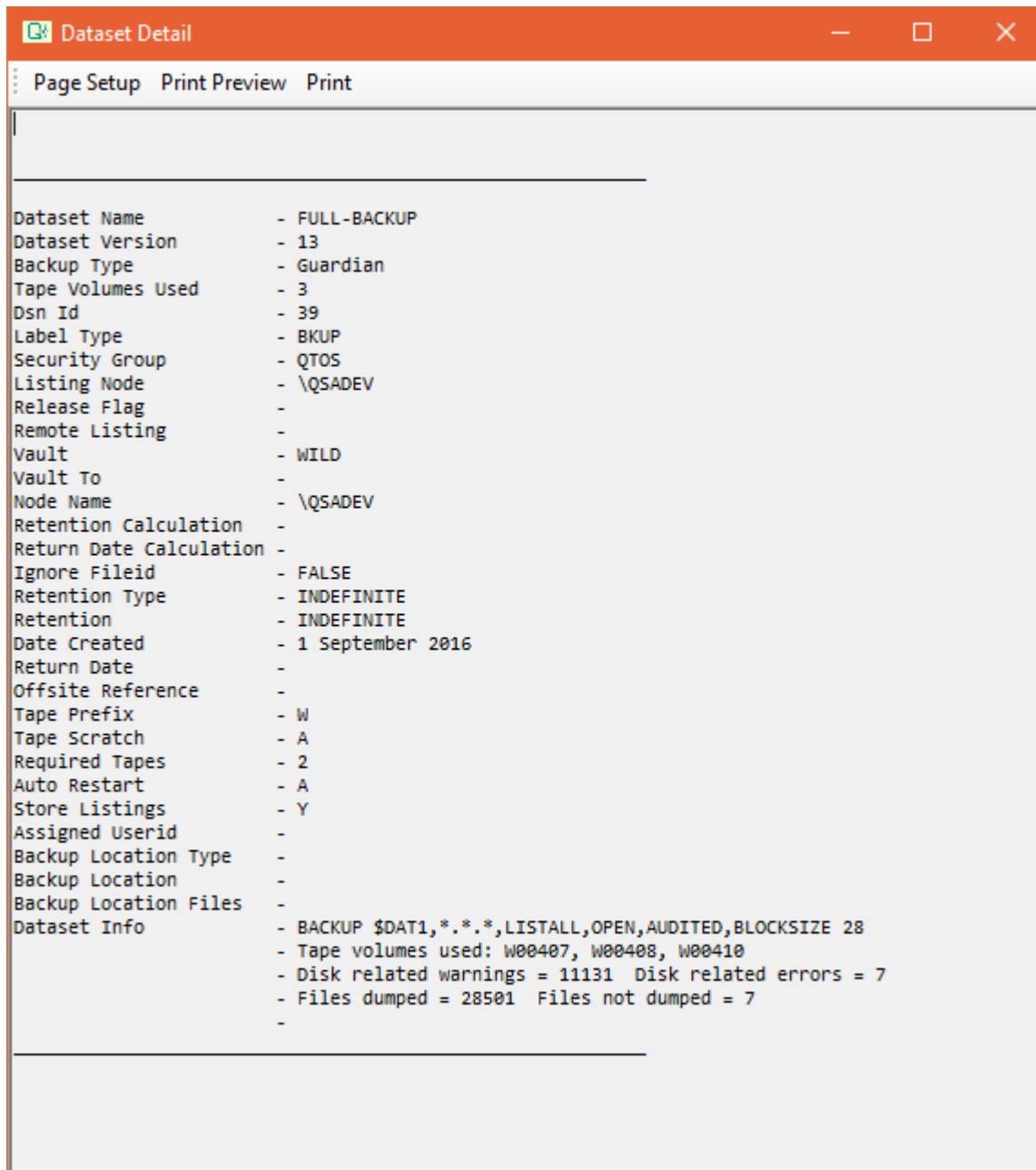
The screenshot shows the Q/Tos SqtB application window. The title bar reads "Q/Tos SqtB". The menu bar includes "File", "View", "Options", and "Help". The toolbar contains icons for "Back", "Forward", "Refresh", "Cancel", "Login", "Logout", and "Connect", along with a "Datasets" button. On the left, a tree view shows the application structure, including folders for "QTOS" (with sub-folders like Datasets, Diskfiles, Vaults, Tape Volumes, In Files, Assigns, Params, User Profiles, System Control) and "TMF" (with sub-folders like TMF Dumps, TMF Diskfiles, TMF Tape Volumes, Q/Tos Status, Procs Status, Tapes Checkin, Scratch Queue). The main panel displays a table of data set versions:

Name	Version	Label	Sec Group	Node	Retention	Date Created	Versions	Vault	Backup Type
FULL-BACKUP	10	BKUP	QTOS	\QSADEV	INDEFINITE	3 November 2015		WILD	Guardian
FULL-BACKUP	11	BKUP	QTOS	\QSADEV	INDEFINITE	2 February 2016		WILD	Guardian
FULL-BACKUP	12	BKUP	QTOS	\QSADEV	INDEFINITE	10 May 2016		WILD	Guardian
FULL-BACKUP	13	BKUP	QTOS	\QSADEV	INDEFINITE	1 September 2016		WILD	Guardian
FULL-BACKUP	14	BKUP	QTOS	\QSADEV	INDEFINITE	12 January 2017		WILD	Guardian

At the bottom of the window, a status bar indicates "Logged on as QTOS", "Connected", and "5 Records Retrieved".

Master datasets are displayed in the record display panel with the version numbers and some other relevant data, including the backup type which can be “Guardian”, “PAK” or “OSS”.

Double-click the record in the display panel and the Dataset Detail window is displayed with all of the information for the selected dataset. The detail window can also be displayed by right-clicking the record and selecting “Details” from the menu.



Version datasets contain a Datasets Info option that contains the syntax of the backup as executed and the summary information from the backup listing.

For OSS/SQLMX backups (done with Backup/Restore 2) the Dataset Info looks like this.

```
Assigned Userid -  
Backup Location Type -  
Backup Location -  
Backup Location Files -  
Dataset Info - BACKUP2 ANY DRIVE,oss /,listall on  
-  
- BRCOM JOBID = ZBR00048  
- Last error or warning occurred on page 1  
- Process elapsed time = 0:39:55.228  
- Objects processed = 2713  
- Objects backed up = 2713 Objects not backed up = 0  
- Objects not found = 0 Objects skipped = 0  
- Total tapes used = 1  
- Total Mbytes moved = 739  
- BR>  
- EXIT  
-  
-
```

And backups done using PAK contains the location of the PAK file (used by QTOS to automate restore (UNPAK) of PAK files) look like this.

```
Store Listings - Y  
Assigned Userid -  
Backup Location Type - PAK  
Backup Location - \QSADEV.$SYSTEM.SRCBKUP.A206  
Backup Location Files - 1  
Dataset Info - ARCHIVE \QSADEV.$SYSTEM.SRCBKUP.A206,($DSMSCM.QT520S.*, $DSMSCM.QT520T.*,  
- $DSMSCM.QT520T.*, $DSMSCM.QT520C.*, $DSMSCM.TCOS.*, $DSMSCM.QR100T.*,  
- $DSMSCM.QSPA500S.*, $DSMSCM.QSPOOL.*, $DSMSCM.QSPOOL3.*,  
- , $DSMSCM.QSPLPATH.*),LISTALL,OPEN  
- Files dumped = 695 Files not dumped = 0  
- Total bytes: 98994788  
- Compressed bytes: 36285132  
- 1 file created  
- \QSADEV.$SYSTEM.SRCBKUP.A206  
-  
-
```

SHOWING VERSION TAPES

Right-click on a version record to see the pop-up menu. Depending on the security settings for the QTOS USER several options will be available. Click on “Get Tapes” and the tapes records for the selected dataset version will be displayed. Click on the BACK button to return to the previous display.

DISPLAYING DSN VERSION TAPES

The screenshot shows the Q/Tos SqtB application window. The left sidebar displays a tree view with folders like Datasets, Diskfiles, Vaults, Tape Volumes, etc. The main pane shows a table of datasets. A context menu is open over the row with Name 'FULL-BACKUP', Version '12', and Date Created '10 May 2016'. The menu options include Details, Update, Scratch, Rename, Get Tapes, List All Disk Files, Search Disk Files, Restore Disk Files, and Restore OSS/SQLMX Disk Files.

Name	Version	Label	Sec Group	Node	Retention	Date Created	Versions	Vault	Backup Type
FULL-BACKUP	10	BKUP	QTOS	\QSADEV	INDEFINITE	3 November 2015		WILD	Guardian
FULL-BACKUP	11	BKUP	QTOS	\QSADEV	INDEFINITE	2 February 2016		WILD	Guardian
FULL-BACKUP	12	BKUP	QTOS	\QSADEV	INDEFINITE	10 May 2016		WILD	Guardian
FULL-BACKUP				\QSADEV	INDEFINITE	1 September 2016		WILD	Guardian
FULL-BACKUP				\QSADEV	INDEFINITE	12 January 2017		WILD	Guardian

Loaded on as QTOS | Connected | 5 Records Retrieved

The screenshot shows the Q/Tos SqtB application window with the 'Tape Volumes' tab selected. The main pane displays a table with columns: Volume, Status, Vault, Label, Use Count, Errors, Retries, In Service, Dataset, Ver..., Tap..., and Date Backed Up. The status bar indicates 'Logged on as QTOS | Connected | 3 Records Retrieved'.

Volume	Status	Vault	Label	Use Count	Errors	Retries	In Service	Dataset	Ver...	Tap...	Date Backed Up
W00413	IN USE	WILD	BKUP	3	0	0	21 January 2013	FULL-BACKUP	12	1	10 May 2016
W00400	IN USE	WILD	BKUP	4	0	0	29 June 2012	FULL-BACKUP	12	2	10 May 2016
W00403	IN USE	WILD	BKUP	5	1	0	12 April 2006	FULL-BACKUP	12	3	10 May 2016

Logged on as QTOS | Connected | 3 Records Retrieved

ADDING DATA SET RECORDS

To ADD datasets right-click “Datasets” in the left panel of the main window. This will open the Dataset Add window with all of the fields initiated.

Optionally you can right-click on a Master Dataset record in the display panel and select “Add Like This”. This will open the Dataset Add window with all of the fields populated with the values of the dataset record you selected in the display panel except the Dataset Name field. Just add the name and adjust any of the values you want to and click on Add.

The screenshot shows a window titled "Dataset Add" with a red header bar. The window contains several input fields and selection sections:

- Dataset Name:** A text input field.
- Dataset Version:** A text input field.
- Security Group:** A text input field.
- Assigned Userid:** A text input field.
- Required Scratch:** A text input field.
- Tape Prefix:** A text input field.
- Vault From:** A text input field.
- Vault To:** A text input field.

Below the input fields are three selection sections:

- Tape Label Type Selection:** Includes checkboxes for Store Listings, Auto Restart, Auto Scratch, Backup, ANSI, and IBM.
- Retention Types Selection:** Includes checkboxes for Date, Date (written to label), Version, and Indefinite.
- Retention Subtype Selection:** Includes checkboxes for Days, Months, and Years, and a Retention text input field.

At the bottom, there is an **Offsite Return Selection** section with checkboxes for Days, Months, and Years, a Return text input field, and an Offsite Reference text input field.

At the very bottom, there are two buttons: a green "Add" button and a red "Cancel" button.

The following fields are required when entering a DATA SET record.

- DATA SET NAME - Any combination of contiguous characters (maximum 24).
 - REQ. SCRATCH - When using AVR or Virtual Tape, there must be a number equivalent to the estimated number of tapes you will need for your backup.
 - TAPE PREFIX - The first character of scratch tapes to be used by the DATA SET.
 - VAULT FROM - If this DATA SET is used to identify a foreign tape, leave it blank.
 - STORE LISTING - Vault id where to get scratch tapes and store tapes, if slot processing is enabled, slots will be allocated as tapes are used.
 - AUTO RESTART - "Y" store listing online, "N" don't store listing online.
 - TAPE SCRATCH - For backups, "A" auto restart.
"N" backout records and stop
"S" don't backout records and stop.
 - LABEL TYPE - "A" scratch data set and tapes automatically when it expires.
 - RETENTION TYPE - "V" queue release records to be verified for scratch.
 - RETENTION SUBTYPE - ANSI, IBM, UNLB, BKUP.
 - RETENTION TYPE - Click the checkbox to retain the backup for DATE, VERSION, INDEFINITE or DATE but also write the retention to the volume label.
 - RETENTION SUBTYPE - Depending on what is chosen as the RETENTION TYPE the selectects will be Days, Months, Years and enter the number of days, months, years in the input field, or for Version put the number of versions to retain in the input field. There are no options for Indefinit.
- Other Items:
- ASSIGNED USERID - Declares the userid to be used when starting a backup or restore for this dataset.
 - VAULT TO - Moves the tapes records to this vault when the backup is completed. This is used for offsite storage. QTOS calculates the return date and assists in the checkin of the returned tapes.
 - OFFSITE RETURN SELECTION - Defines how many DAYS, MONTHS or YEARS the used tape volumes will remain offsite.
 - VER - 0 is the default and necessary when create a Master Dataset.
 - VER - The user can add a data set version by entering any number between 1 and 999.

Once you have entered the required data click the ADD button.

If the record was successfully added the Dataset Add window closes and the display panel on the main window is refreshed to include the newly added dataset.

This DATA SET is now available to catalog tapes and backups.

UPDATING DATA SET RECORDS

UPDATING A MASTER DATA SET

From the display panel of the main window right-click a master dataset record you want to update and select “Update” from the pop-up menu. The Dataset Update window will open with all of the fields filled in. The Dataset Name and Version fields are rendered inaccessible. Change the values you want to change and click on the “Update” button.

When a MASTER DATA SET record is updated, the changes will affect all future generations of data set versions, but not any existing generations.

The user should be aware that if they change the retention type from "D" to "V", any versions stored under the MASTER DATA SET will be available to be scratched by both their retention date and the MASTER DATA SETS version retention. If the DATA SET are to be retained until their retention date, the user might want to rename the DATA SET versions to another DATA SET.

If the user changes the VAULT field on the MASTER DATA SET record, all future scratch tapes will be picked from that vault. To update a MASTER DATA SET record, tapes will be picked from the new vault and tapes will be allocated in it. All tapes for data set versions will still reside in the VAULT specified in the version record.

If the record was successfully updated, the Dataset Update window will close and the display panel will be updated to show the changes.

DELETING DATA SET RECORDS

From the display panel of the main window right-click on a dataset record to display the pop-up window. Besides numerous other options there will be an option for deleting the record based on a few conditions.

If the record is a Version Dataset there will be an option to “Scratch” the dataset. Select this to put the dataset in the scratch queue to be deleted during the daily scratch run. You can optionally go to the scratch queue and right-click on the item and select “Scratch Dataset Now” to remove the record immediately.

If the record is a Master Dataset and there are no Version Datasets attached to it there will be an option to “Delete” the dataset.

If the record is a Master Dataset and there are Version Datasets attached to it there will not be the option to delete the record until ALL of the Version Datasets have been removed by scratching or renaming to another Master Dataset.

RENAMING A DATA SET

QTOS allows for the renaming of DATA SETs.

From the display panel of the main window right-click on a dataset record to display the pop-up window. Besides numerous other options there will be an option to rename the dataset. Click on “Rename” and an input box will open for you to enter the new name of the Dataset. Enter the new name in the input field and click the “OK” button. The input box will close and the display will update to show the changes.

RENAMING A MASTER DATA SET RECORD

If the selected DATA SET is a MASTER record and has versions under ALL OF THOSE VERSION RECORDS will be renamed to match the Master Dataset

If the MASTER DATA SET record already exists by the selected new name, the rename will be canceled and the following

message will be displayed:

Cannot rename a master dataset to the name of an existing master dataset.

If the new MASTER DATA SET does not exist, MASTER DATA SET record and all versions of it will be renamed.

RENAMING A VERSION DATA SET RECORD

If the selected DATA SET record is a version record and a MASTER DATA SET record already exists by the new name, the version record will become the latest version of the selected MASTER DATA SET record.

If a MASTER DATA SET record by the new name does not exist, a new MASTER DATA SET record will be created and the selected version record will become the first version under it.

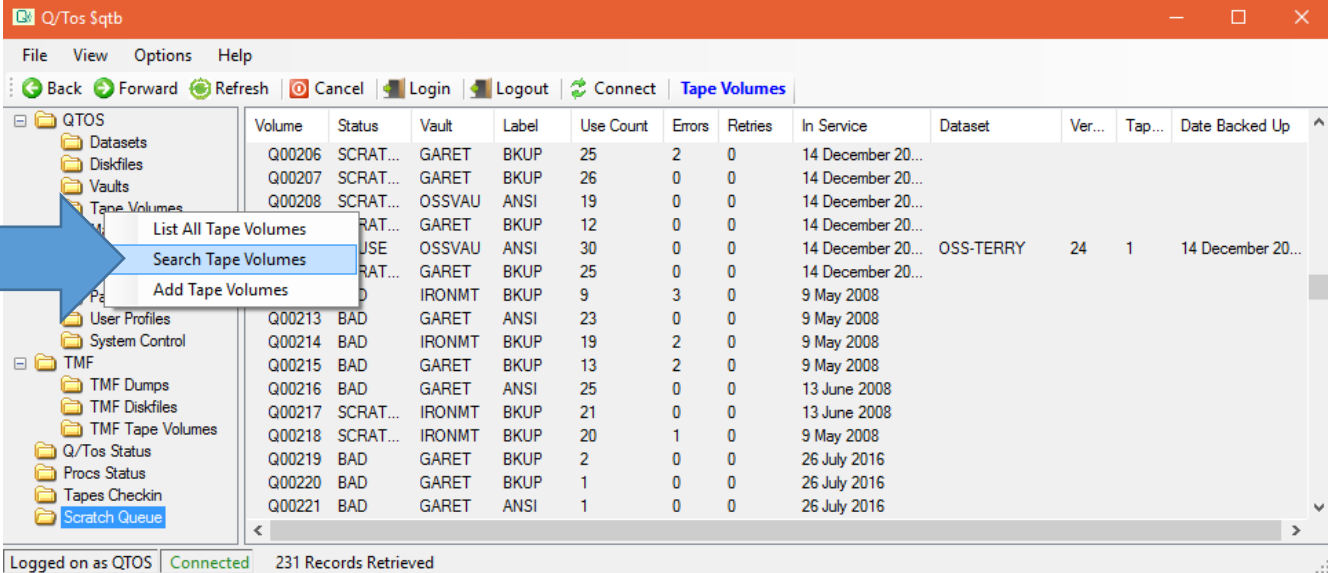
TAPE MAINTENANCE

QTOS offers several options for displaying TAPE VOLUMES:

Right-click on “Tape Volumes” in the left panel and a menu will appear.

Clicking on “List All Tape Volumes” will retrieve every tape volume record in the database and display them in the database display panel to the right.

Clicking on “Search Tape Volumes” will activate the “Search Tape Volumes” window where you can select search criteria by which QTOS will filter tape volume records.



The screenshot shows the Q/Tos SqtB application window. The left sidebar contains a tree view with folders like 'QTOS', 'Datasets', 'Diskfiles', 'Vaults', 'Tape Volumes', 'User Profiles', 'System Control', 'TMF', 'TMF Dumps', 'TMF Diskfiles', 'TMF Tape Volumes', 'Q/Tos Status', 'Procs Status', 'Tapes Checkin', and 'Scratch Queue'. The 'Tape Volumes' folder is selected, and a context menu is open over it with options: 'List All Tape Volumes', 'Search Tape Volumes', and 'Add Tape Volumes'. A blue arrow points to the 'Search Tape Volumes' option. The main panel displays a table of tape volume records with the following columns: Volume, Status, Vault, Label, Use Count, Errors, Retries, In Service, Dataset, Ver..., Tap..., and Date Backed Up. The table contains 12 rows of data.

Volume	Status	Vault	Label	Use Count	Errors	Retries	In Service	Dataset	Ver...	Tap...	Date Backed Up
Q00206	SCRAT...	GARET	BKUP	25	2	0	14 December 20...				
Q00207	SCRAT...	GARET	BKUP	26	0	0	14 December 20...				
Q00208	SCRAT...	OSSVAU	ANSI	19	0	0	14 December 20...				
		RAT...	GARET	BKUP	12	0	14 December 20...				
		USE	OSSVAU	ANSI	30	0	14 December 20...	OSS-TERRY	24	1	14 December 20...
		RAT...	GARET	BKUP	25	0	14 December 20...				
		D	IRONMT	BKUP	9	3	9 May 2008				
Q00213	BAD	GARET	ANSI	23	0	0	9 May 2008				
Q00214	BAD	IRONMT	BKUP	19	2	0	9 May 2008				
Q00215	BAD	GARET	BKUP	13	2	0	9 May 2008				
Q00216	BAD	GARET	ANSI	25	0	0	13 June 2008				
Q00217	SCRAT...	IRONMT	BKUP	21	0	0	13 June 2008				
Q00218	SCRAT...	IRONMT	BKUP	20	1	0	9 May 2008				
Q00219	BAD	GARET	BKUP	2	0	0	26 July 2016				
Q00220	BAD	GARET	BKUP	1	0	0	26 July 2016				
Q00221	BAD	GARET	ANSI	1	0	0	26 July 2016				

Logged on as QTOS Connected 231 Records Retrieved

USING THE TAPE VOLUME SEARCH WINDOW

TAPE VOLUME NAME field:

The Tape Volume Name can be a complete tape volume name or it can include wildcard characters, asterisk (*) and question mark (?) in any combination. You can search for Q00100, or T*, or F??5*.

VAULT NAME field:

A value in the Vault name field will filter the searched records for tapes grouped by the Vault (or tape pool). The Vault field can also contain wildcards the same as Tape Volume Name.

DATASET field:

The Dataset Name can be a complete dataset name or it can include wildcard characters, asterisk (*) and question mark (?) in any combination. You can search for FULL-BACKUP, or FULL*, or FULL??-B*.

DATASET VERSION field:

The Dataset Version is used to filter the results by a specific version. A zero (0) is invalid because master datasets have no tape volumes assigned to them. A number greater than zero will get dataset records with only that version number. This is usually used in tandem with Dataset.

DSN ID field:

The DSN ID is the relative record number of a record in the dataset file. This can be retrieved from the Dataset Detail window. This is used in place of the Dataset and Version combination.

TAPE VOLUME STATUS fields:

Click on the types of Status you want to filter the results by. Any combination is allowed.

TAPE VOLUME LABEL fields:

Same as the Tape Volume Status. Click on the types of Status you want to filter the results by. Any combination is allowed.

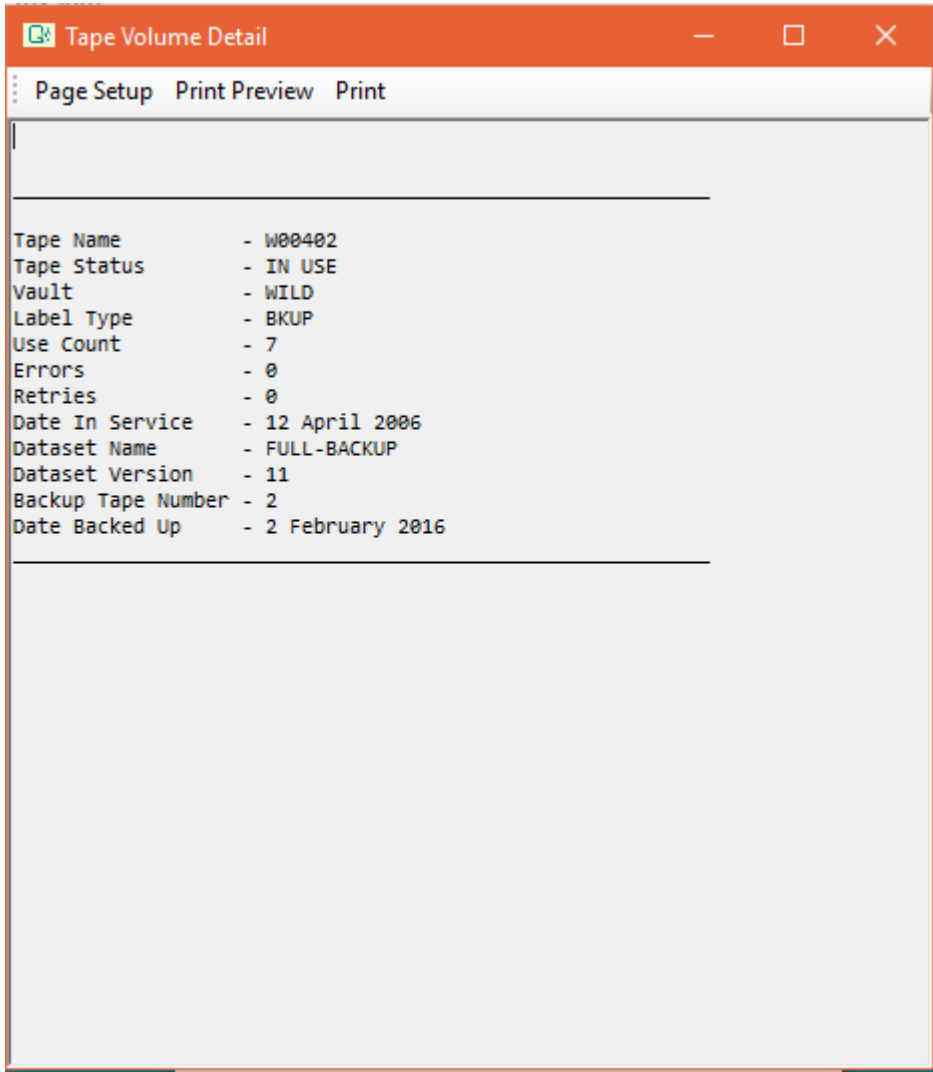
KEEP FORM OPEN checkbox:

Normally the search window is closed when the retrieval operation completes. But if you want to several searches you can keep the window from closing by clicking the Keep Form Open checkbox. Then exit the window when you are done by either clicking on the “X” in the upper right hand corner or by clicking the “CANCEL” button.

TAPE RECORD DISPLAYED

Volume	Status	Vault	Label	Use Count	Errors	Retries	In Service	Dataset	Ver...	Tap...	Date Backed Up
V00309	SCRATCH	IRONMT	ANSI	0	0	0	28 September 2...				
V00500	SCRATCH	IRONMT	BKUP	0	0	0	10 February 2006				
V00501	SCRATCH	IRONMT	BKUP	0	0	0	10 February 2006				
V00502	SCRATCH	IRONMT	BKUP	0	0	0	10 February 2006				
V12345	SCRATCH	IRONMT	BKUP	0	0	0	16 February 2007				
VTS003	SCRATCH	IRONMT	BKUP	1	0	0	4 October 2005				
W00400	IN USE	WILD	BKUP	4	0	0	29 June 2012	FULL-BACKUP	12	2	10 May 2016
W00401	IN USE	WILD	BKUP	4	0	0	12 April 2006	QSA-FULL	1	1	31 July 2015
W00402	IN USE	WILD	BKUP	7	0	0	12 April 2006	FULL-BACKUP	11	2	2 February 2016
W00403	IN USE	WILD	BKUP	5	1	0	12 April 2006	FULL-BACKUP	12	3	10 May 2016
W00404	IN USE	WILD	BKUP	6	0	0	12 April 2006	FULL-BACKUP	11	3	2 February 2016
W00405	IN USE	WILD	BKUP	3	0	0	12 April 2006	FULL-BACKUP	10	1	3 November 2015
W00406	IN USE	WILD	BKUP	4	0	0	12 April 2006	FULL-BACKUP	11	1	2 February 2016
W00407	IN USE	WILD	BKUP	4	0	0	12 April 2006	FULL-BACKUP	13	1	1 September 2016
W00408	IN USE	WILD	BKUP	4	0	0	12 April 2006	FULL-BACKUP	13	2	1 September 2016
W00409	BAD	WILD	BKUP	3	0	0	12 April 2006				
W00410	IN USE	WILD	BKUP	4	0	0	12 April 2006	FULL-BACKUP	13	3	1 September 2016

Tape Volumes are displayed with creation date, status and location information. If a tape volume is IN USE the dataset information is also displayed. Double-click on a tape volume or right-click and select “Detail” will open a detail window.



ADDING TAPE MEDIA RECORDS

The screenshot shows a dialog box titled "Tape Volume Add". It has a title bar with a minimize, maximize, and close button. The main area contains the following elements:

- Tape Volume Name:** A text input field.
- Tapes To Add:** A numeric input field containing the value "1".
- Vault Name:** A text input field.
- Tape Label Type Selection:** A panel with three checkboxes: "Backup Labels", "ANSI Labels", and "IBM Labels".
- Tape Status Selection:** A panel with six checkboxes: "Scratch", "Bad", "Assigned", "Foreign", "Needs Cleaning", and "In Use".
- Buttons:** A green "Add" button and a red "Cancel" button.

The following fields are required when adding TAPE MEDIA records to the database.

TAPE VOLUME NAME

- The physical Tape Label number of the TAPE MEDIA. If this is a labeled tape, it is also the internal Tape label. The label contains 6 characters, it may begin with (2) two ALPHA characters (ex. AB0001, Q00110). If it is a foreign, it can contain any 6 characters.

VAULT NAME

- This must be a valid vault location where the tape is to be located.

TAPE LABEL TYPE-

- Click the label type that matches the tape label defined when the tape was labeled.

TAPE STATUS

- Click the tape status type that will be assigned the tape volume(s) when added to the database.

The Tapes To Add tells QTOS how many tapes to add with these attributes. The first tape added will be the tape volume in the Tape Volume Name field. Subsequent tapes will be added with the numeric part of the tape volume name increased by 1 for each additional tape volume.

After all of the tape volumes are added the Tape Volume Add window will close and the display will refresh to show the new tape volumes.

UPDATING TAPE MEDIA RECORDS

Right-click on a tape volume in the display panel and select "Update". Change the information and click on the "Update" button.

DELETING TAPE MEDIA RECORDS

Select the records from the display panel that you want to delete. Right-click on any of the selected records and click on "Delete". A prompt will appear to confirm the deletion. Click on "YES" to delete the records. This option will not be shown for tape volumes in an IN USE status.

VAULT MAINTENANCE

Right-click on “Vaults” in the left panel and a menu will appear.

Clicking on “List All Vaults” will retrieve every tape vault record in the database and display them in the database display panel to the right.

Since the number of tape vaults will be generally small there are no search options for vaults.

ID	Name	Vault Type	Silo	Slot...	From Slot	To Slot	Address	City	State	Zip C...	Contact Name	Phone Number
GARET		Local	No	No			100 DRY MILL ROA...	LEESBURG	VA	20175	DAWN MALONE O...	703-771-9447
GARET2		Off Site	No	No			100 DRY MILL ROA...	LEESBURG	VA	20175	DAWN MALONE O...	703-771-9447
GMAN		Local	No	No			100 DRY MILL ROA...	LEESBURG	VA	20175	DAWN MALONE O...	703-771-9447
IRONMT		Off Site	No	Yes	600	625	100 DRY MILL ROA...	LEESBURG	VA	20175	DAWN MALONE O...	703-771-9447
OFSITE	OFSITE VAULT	Off Site	No	No								
ONEMOR	ONE	Virtual Library	No	No								
OSSVAU		Virtual Library	Yes	No								
PAK		Local	No	No								
PAKIT		Local	No	No								
QSA	QSA	Local	No	No							TERRY	
QSATMF		Off Site	No	No								
TMFSCR		Local	No	No								
VTS	VIRTUAL TAPE SERVER	Virtual Library	No	No			100 DRY MILL ROA...	LEESBURG	VA	20175	TERRY MALONE	703-771-9447
WILD		Local	No	No								

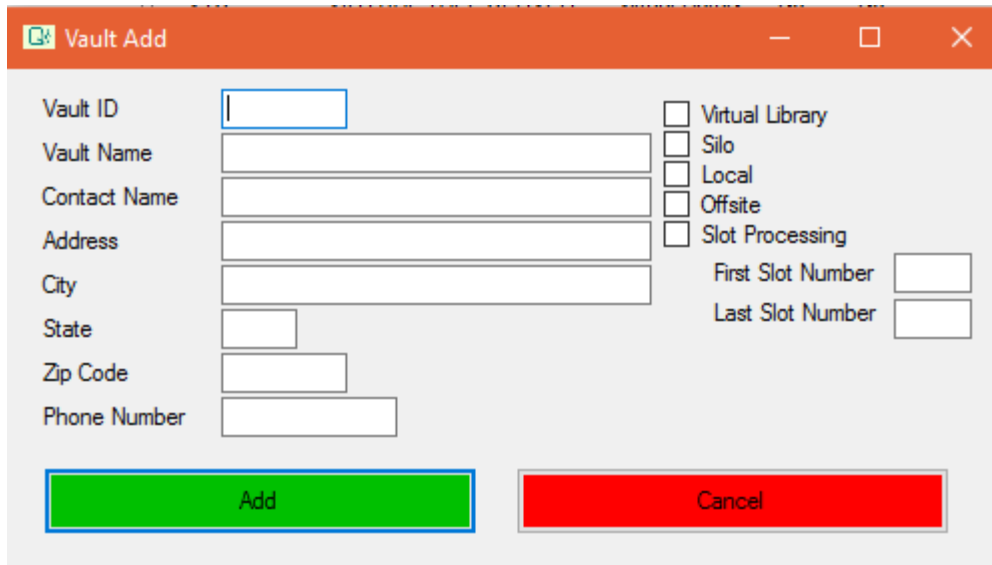
Logged on as QTOS | Connected | 14 Records Retrieved

```

Page Setup  Print Preview  Print

Vault ID      - GARET
Vault Name    -
Vault Location - Local
Vault is Silo - No
Do Slot Processing - No
First Slot    -
Last Slot     -
Vault Address - 100 DRY MILL ROAD UNIT 101
Vault City    - LEESBURG
Vault State   - VA
Vault Zip Code - 20175
Contact Name  - DAWN MALONE OR TERRY MALONE
Phone Number  - 703-771-9447
    
```

ADDING VAULT RECORDS



The only required fields are VAULT ID, VAULT LOC and SLOT PROCESSING.

VAULT LOC - One of the checkboxes, either Virtual Library, Silo, Local or Offsite.

SLOT PROCESSING - Slot Processing checkbox, checked is on, unchecked is off.

SILO SEE BELOW

If a Silo or Virtual Library location is indicated tapes will be pre-allocated with a status of "?" when a job starts and will be updated to "I" (inuse) when they are opened. Any unused tapes will be returned to the scratch pool. Slot processing must be disabled when the vault location is a Silo or Virtual Library.

If the Slot Processing field is checked, the slot range fields must be entered.

Any range of slots low to high is valid (1 to 500, 400 to 1000, etc.)

Refer to the Section on Slot Processing for more information.

Once you have entered the required data, click the Add button.

UPDATING VAULT RECORDS

Right-click the Vault record on the display panel and select "Update". Change the fields to the desired contents and click the "Update" button.

DELETING VAULT RECORDS

Select the Vault records that you want to delete, right-click and select "Delete". A message box is opened to verify the delete. Click on "YES" to complete the delete operation.

SLOT PROCESSING

ENABLING SLOT PROCESSING

Slot processing can be enabled when the record is first added or the record can be updated to enable slot processing.

If the Slot Processing field is checked, the slot range field must be entered.

Any range of slots low to high is valid (1 to 500, 400 to 1000, etc.)

This allows for establishing several Vault Id's for a range of Slots.

(ex. QSA-DAILY 1 TO 8, QSA-WEEKLY 20 TO 200, QSA-MONTHLY 201 TO 1000, etc.)

UPDATING SLOT RANGE

If the Slot requirements of a Vault increases, the Slot range can be increased by updating the slot range on the Vault record.

If the slot range of the Vault record is 100 to 300, the low or high end of the slots can be increased.

(ex. SLOT RANGE 50 to 300 or, 100 to 500 or, 1 to 500, etc.)

Modify the Slot Range fields.

Click the "Update" button.

DISABLING SLOT PROCESSING

To disable slot processing on a Vault,

Enter spaces in the SLOT RANGE fields and uncheck the Slot Processing checkbox.

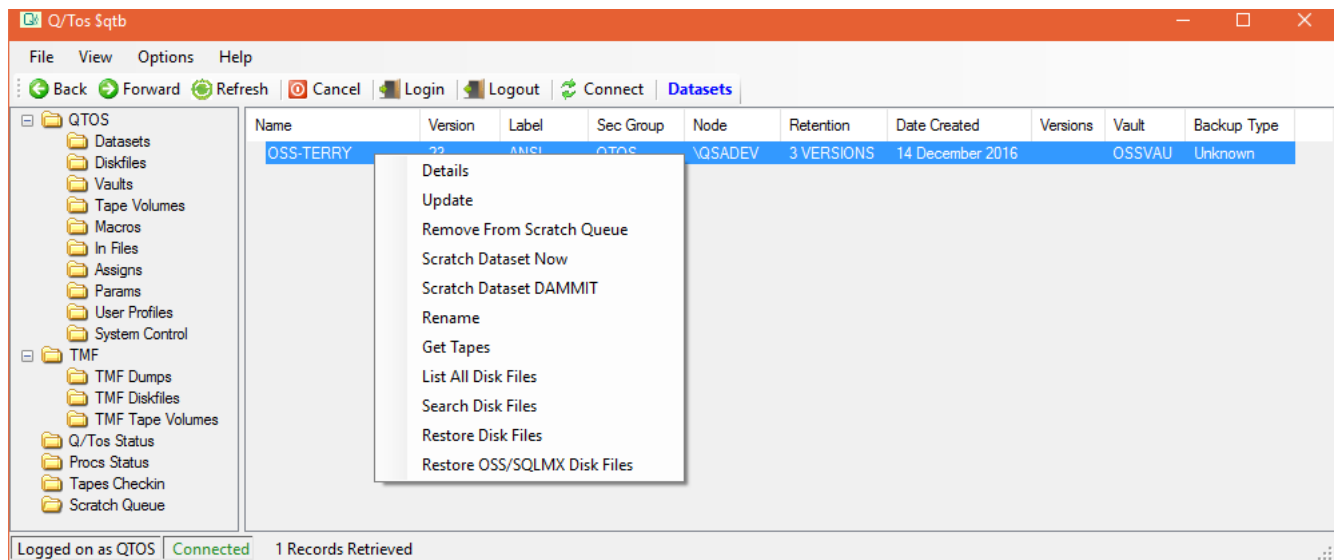
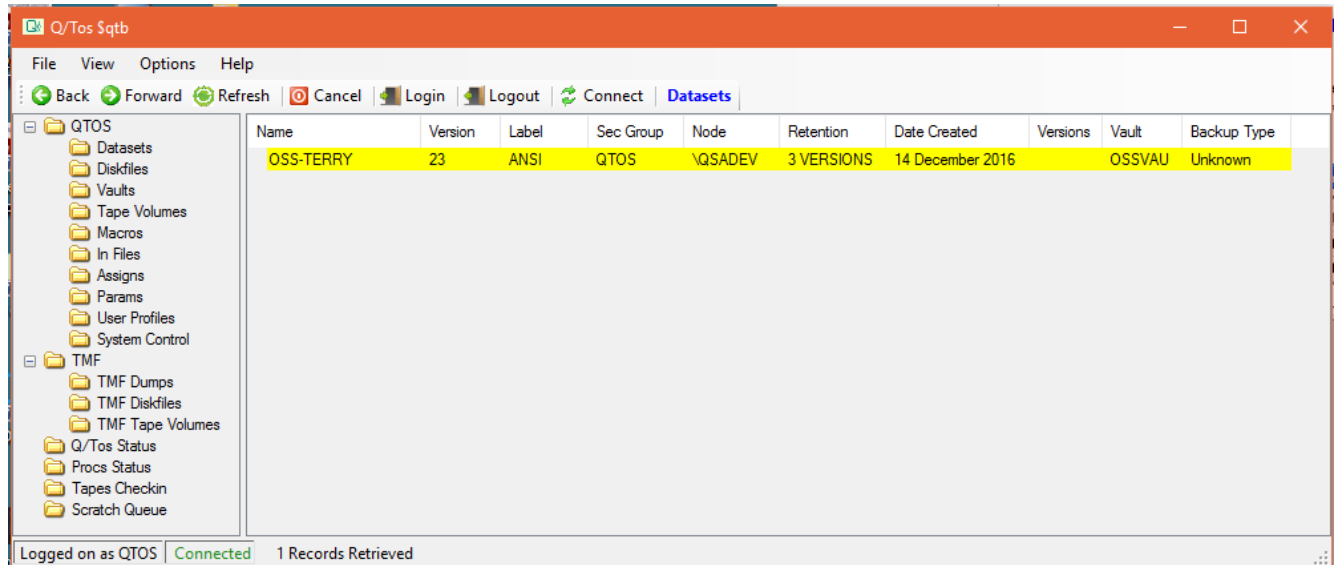
Click the "Update" button.

TAPE SCRATCH SCREEN

THE SCRATCH QUEUE

Click on Scratch Queue in the left panel of the main window. The datasets in the scratch queue will appear in the display panel. The records are highlighted in yellow to show they are on the scratch queue when displayed by other operations.

TAPE SCRATCH QUEUE DISPLAYED



Since the dataset in the scratch queue is still valid all operations can be performed on that dataset.

But, since the dataset is in the scratch queue, there are some other actions that can be performed.

Remove From Scratch Queue – resets the scratch flag and returns the dataset to its original state.

Scratch Dataset Now - starts the scratch program to eliminate this dataset only

QTOS CHECK IN SCREEN

Click on Tapes Checkin in the left panel of the main window. The datasets ready to be checked in will appear in the display panel.

The data base is scanned for any Data Sets that

- a) Have been queued for scratch and they are located in an offsite vault
(these will be displayed in reverse video)
- b) the return date has been reached or exceeded.

The TMF catalog will then be scanned for

- a) Any TMF Serial's that have been deleted by TMF but have not been deleted by QTOS because they are in an offsite vault.
(these will be displayed in reverse video)
- b) Any TMF serial's where the return date has been reached or exceeded.

CHECKING IN QTOS AND TMF TAPES

Select the datasets to be checked in, right-click any of the selected items and click on "Check In".

QTOS will then update the selected version record with the vault that is displayed in the VAULT-TO field on the screen (this will be the vault id retrieved from the Master Data Set record for each item), clear the return date and the offsite reference and update any associated tape records with the new vault.

A CHECK IN report will be generated.

AUTO CHECK IN

QTOS will allow for automatic check in of offsite tapes. (warning-not recommended, tapes are not visually verified). This option is designated in the SYSTEM CONTROL RECORD.

SEARCHING AND DISPLAYING DISK FILES

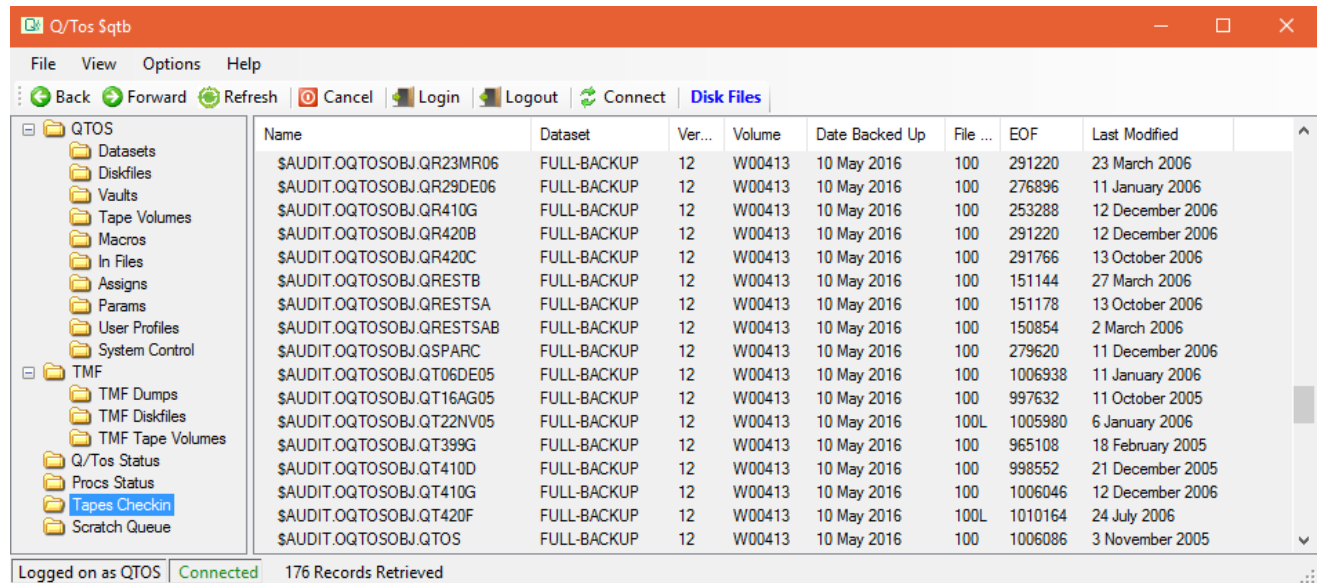
QTOS offers several options for displaying DISK FILES:

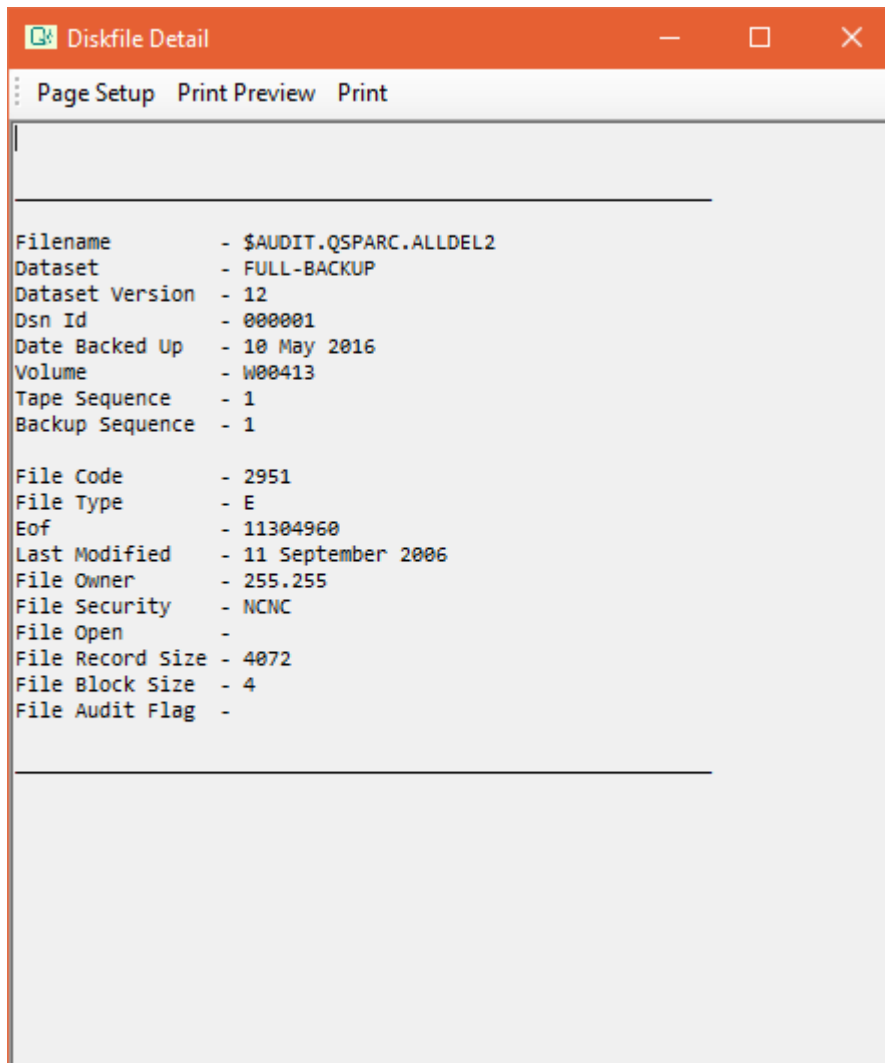
Right-click on “Diskfiles” in the left panel and a menu will appear.

Clicking on “List All Diskfiles” will retrieve every tape diskfile record in the database and display them in the database display panel to the right.

Clicking on “Search Diskfiles” will activate the “Search Diskfiles” window where you can select search criteria by which QTOS will filter diskfile records.

When the display panel is showing dataset records, right-click on a dataset record and select “List All Disk Files” from the menu to retrieve all disk files backed up on that dataset version.





The DISK FILE SEARCH window can be used to search for files by file filename (all files by a specific name wildcards in the filename, or files in specific data sets, date backed up range, modification date of the file, files on a tape volume, file EOF and file code. Any combination of the search criteria is allowed.

All of the From/To fields follow the same rules.

If both the From and To fields contain data, that defines the search range inclusively.

If only the From field has data then QTOS returns records starting at the From field value.

If only the To field has data then QTOS returns records until the To field value has been surpassed.

Disk File Search

Disk File Name

Dataset Name

Dataset Version

Dsn Id

Find Guardian Files
 Find OSS Files
 Find SQL/MX Files

Date Search (MM/DD/YYYY hh:mm)

Date Dumped
From
To

Date Modified
From
To

Tape Volume

EOF From
To

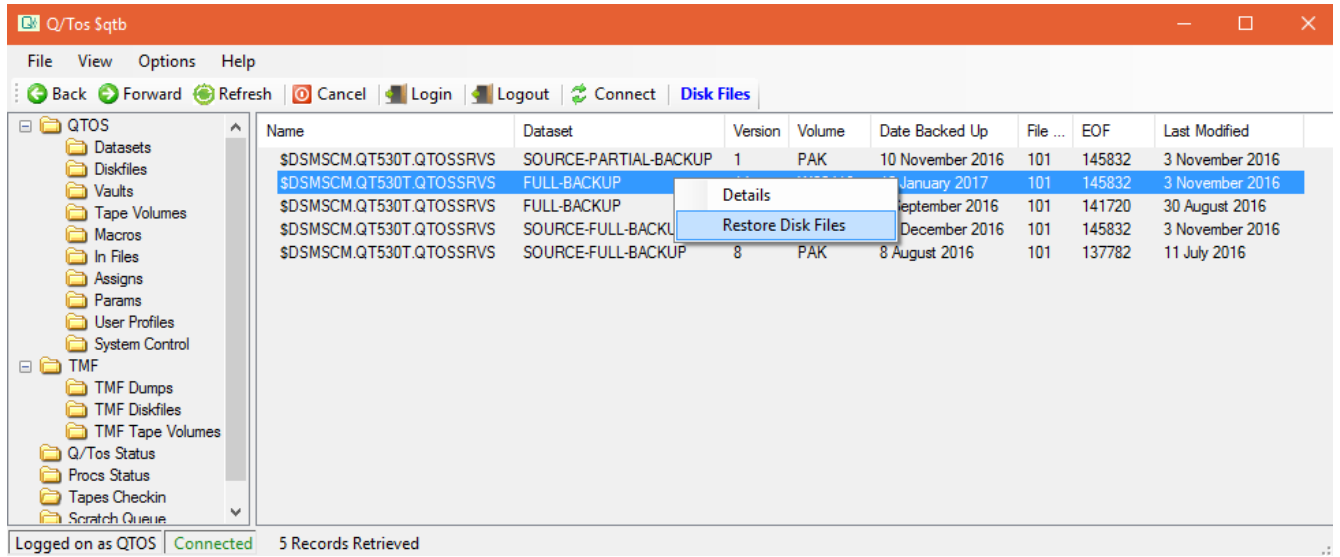
File Code

Keep Form Open

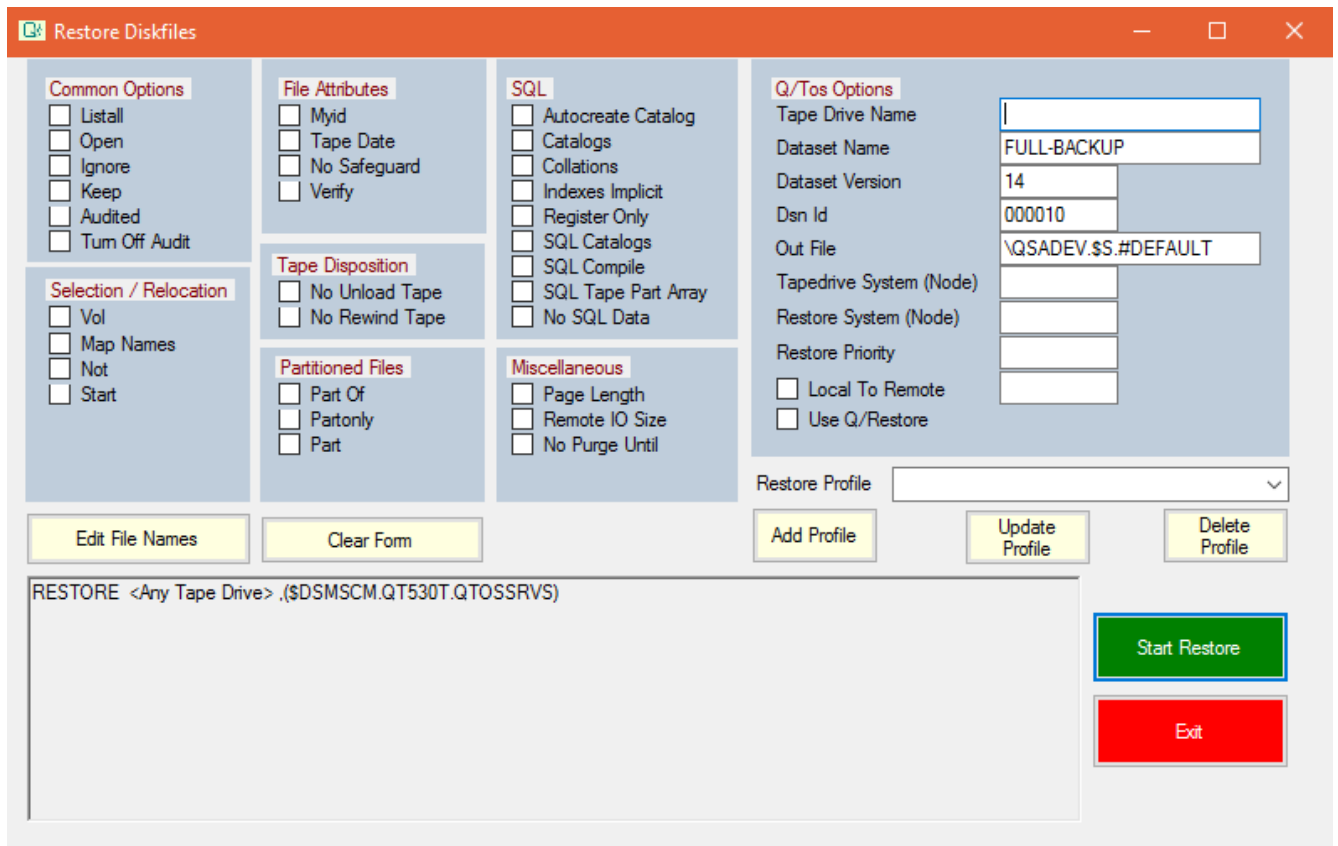
Search **Exit**

RESTORING FILES FROM THE FILES DISPLAY

After retrieving diskfile records you can restore them from the QTOS client. Select the file or files you want to restore, right-click one of the selected records and click on “Restore Disk Files”.



This opens the Restore Diskfiles window with all of the available information populating the forms.



Common Options

- Listall
- Open
- Ignore
- Keep
- Audited
- Turn Off Audit

File Attributes

- Myid
- Tape Date
- No Safeguard
- Verify

SQL

- Autocreate Catalog
- Catalogs
- Collations
- Indexes Implicit
- Register Only
- SQL Catalogs
- SQL Compile
- SQL Tape Part Array
- No SQL Data

Q/Tos Options

Tape Drive Name:

Dataset Name:

Dataset Version:

Dsn Id:

Out File:

Tapedrive System (Node):

Restore System (Node):

Restore Priority:

Local To Remote

Use Q/Restore

Restore Profile:

Selection / Relocation

- Vol
- Map Names
- Not
- Start

Tape Disposition

- No Unload Tape
- No Rewind Tape

Partitioned Files

- Part Of
- Partonly
- Part

Miscellaneous

- Page Length
- Remote IO Size
- No Purge Until

Buttons: Edit File Names, Clear Form, Add Profile, Update Profile, Delete Profile

Syntax Box: RESTORE <Any Tape Drive> .(\$DSMSCM.QT530T.QTOSSRV\$)

Buttons: Start Restore, Exit

All of the restore options are check boxes. If an option requires additional info an input box is opened to accept the data. To remove this type of option, click the option and remove the text in the input box. When the box is closed the option will be unchecked.

The syntax box at the bottom of the window is read-only and is used to show the syntax as it is built.

The Profiles box is used to store repeatedly utilized options. See the QTOS CLIENT USER GUIDE for a full description. Below is the result of selecting a Profile called COMMON-OPTIONS to fill out the syntax.

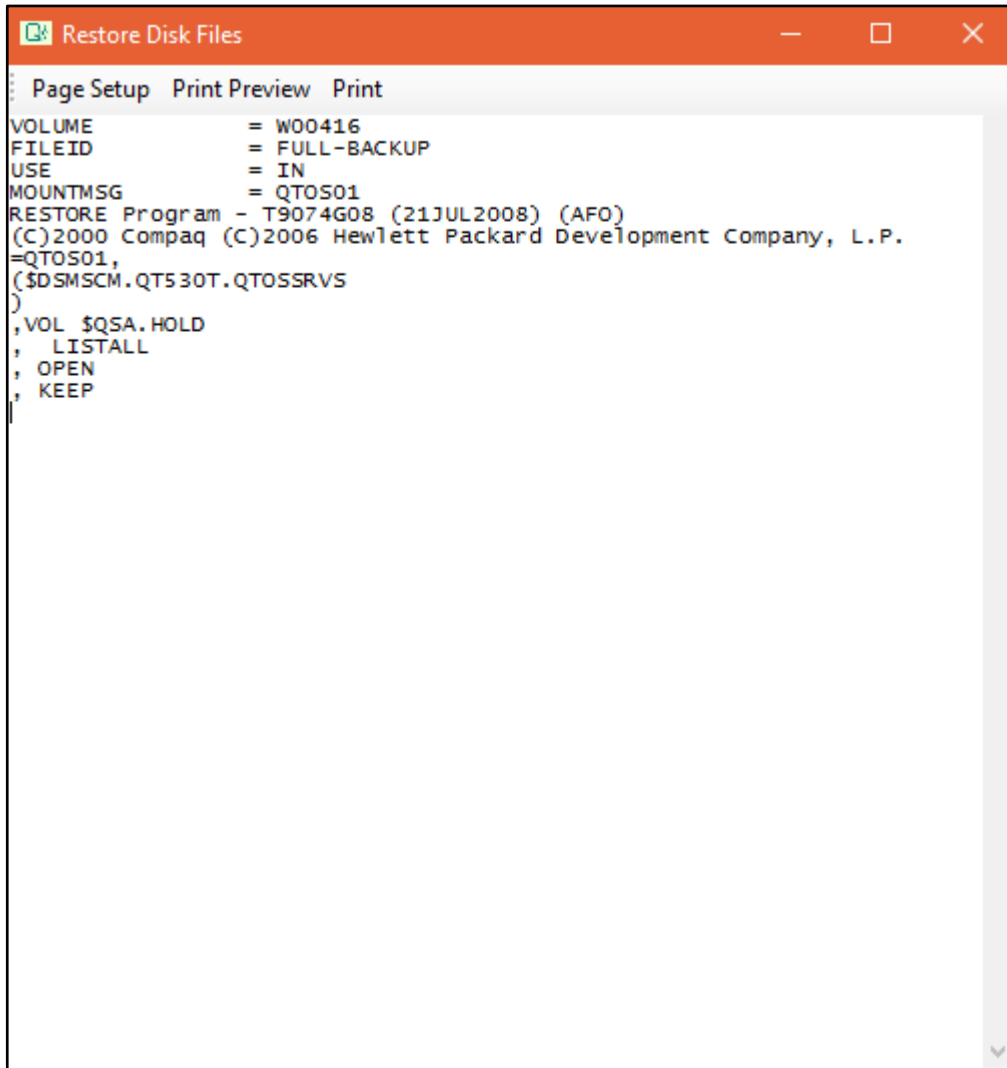
Restore Diskfiles

<p>Common Options</p> <input checked="" type="checkbox"/> Listall <input checked="" type="checkbox"/> Open <input type="checkbox"/> Ignore <input checked="" type="checkbox"/> Keep <input type="checkbox"/> Audited <input type="checkbox"/> Turn Off Audit	<p>File Attributes</p> <input type="checkbox"/> Myid <input type="checkbox"/> Tape Date <input type="checkbox"/> No Safeguard <input type="checkbox"/> Verify	<p>SQL</p> <input type="checkbox"/> Autocreate Catalog <input type="checkbox"/> Catalogs <input type="checkbox"/> Collations <input type="checkbox"/> Indexes Implicit <input type="checkbox"/> Register Only <input type="checkbox"/> SQL Catalogs <input type="checkbox"/> SQL Compile <input type="checkbox"/> SQL Tape Part Array <input type="checkbox"/> No SQL Data	<p>Q/Tos Options</p> <p>Tape Drive Name: <input type="text"/></p> <p>Dataset Name: FULL-BACKUP</p> <p>Dataset Version: 14</p> <p>Dsn Id: 000010</p> <p>Out File: \QSADEV.\$S.#DEFAULT</p> <p>Tapedrive System (Node): <input type="text"/></p> <p>Restore System (Node): <input type="text"/></p> <p>Restore Priority: 120</p> <input type="checkbox"/> Local To Remote <input type="checkbox"/> Use Q/Restore
<p>Selection / Relocation</p> <input checked="" type="checkbox"/> Vol <input type="checkbox"/> Map Names <input type="checkbox"/> Not <input type="checkbox"/> Start	<p>Tape Disposition</p> <input type="checkbox"/> No Unload Tape <input type="checkbox"/> No Rewind Tape	<p>Partitioned Files</p> <input type="checkbox"/> Part Of <input type="checkbox"/> Partonly <input type="checkbox"/> Part	<p>Miscellaneous</p> <input type="checkbox"/> Page Length <input type="checkbox"/> Remote IO Size <input type="checkbox"/> No Purge Until

Restore Profile: COMMON-OPTIONS

```
RESTORE <Any Tape Drive> ,(SDSMSCM.QT530T.QTOSSRV) , LISTALL, OPEN, KEEP, VOL $QSA.HOLD
```


Click the “Start Restore” button to start the restore process. A Restoe Disk Files progress window opens and reports the restore listing output in real time.



QTOS/TMF CATALOG

QTOS can be configured to track and catalog TMF tapes. QDOS does not alter or affect TMF in any way. It builds a parallel database to keep track of TMF online dumps, audittrail dumps, tape locations, utilization, clean, error and retry counts. If the user doesn't want QDOS to track TMF tapes, indicate this by setting the CATALOG TMF ? field in the system control to "N".

IF QDOS has been configured to track TMF tapes, whenever QDOS is informed that a TMF tape activity has completed, it will start the LOADTMF vault program to catalog any tapes that have been allocated and those that have been scratched. QDOS will generate a Pick List indicating where the tapes are to be moved to. If the Vaults have slot processing enabled, QDOS will also designate what slot to place the Tapes in which vault.

QTOS can be used to display the TMF catalog directly and to parallel catalog items that the TMF catalog does not support, such as vault locations, utilization counts, error and retries, return dates and slot processing.

The user has the option whether to use QDOS to parallel catalog.

If QDOS cataloging of TMF tapes is not enabled, the user can still use the QDOSDB screens to query the TMF catalog.

QDOSDB enables the user to directly query the TMF catalog and:

- Display scratch tapes, tapes in use, the status of all tapes.
- Display audittrail and Auditdump generations.
- Display the media (tapes) of auditdumps or audittrails.
- Display files that have been dumped.
- Search for specific files in a specific dump.
- Search for all occurrences of a specific file.
- Search for all files starting at a selected file.
- Display the status of the files in the auditdump. (Valid, released, invalid).
- Query TMF catalog on another system running QDOS.

In addition QDOS will track and catalog the following items:

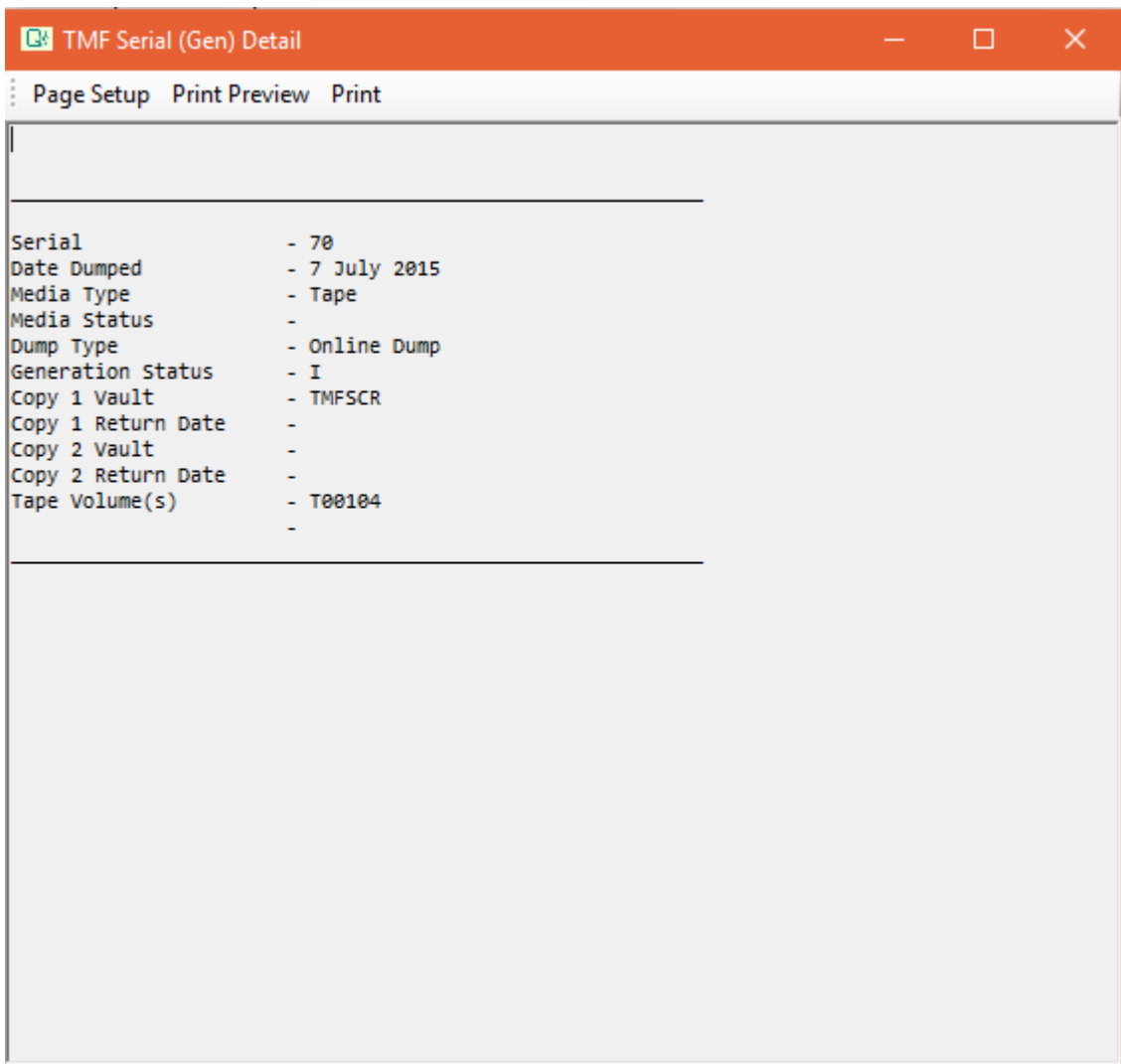
- Storage (vault) location of tapes.
- Slot processing for allocated tapes (optional).
- Use, clean, retry and error counts.
- Return dates and reference numbers for offsite storage of dumps and auditdumps.

TMF IN QTOS

Serial	Dump Date and Time	Media Type	Dump Type	Copy 1 Vault	Copy 2 Vault
71	7 July 2015	Tape	Online Dump	TMFSCR	
70	7 July 2015	Tape	Online Dump	TMFSCR	
67	7 July 2015	Tape	Online Dump	TMFSCR	

All information displayed on the QTOS/TMF GENERATIONS SCREEN, with the exception of the vault location, is read directly from the TMF catalog.

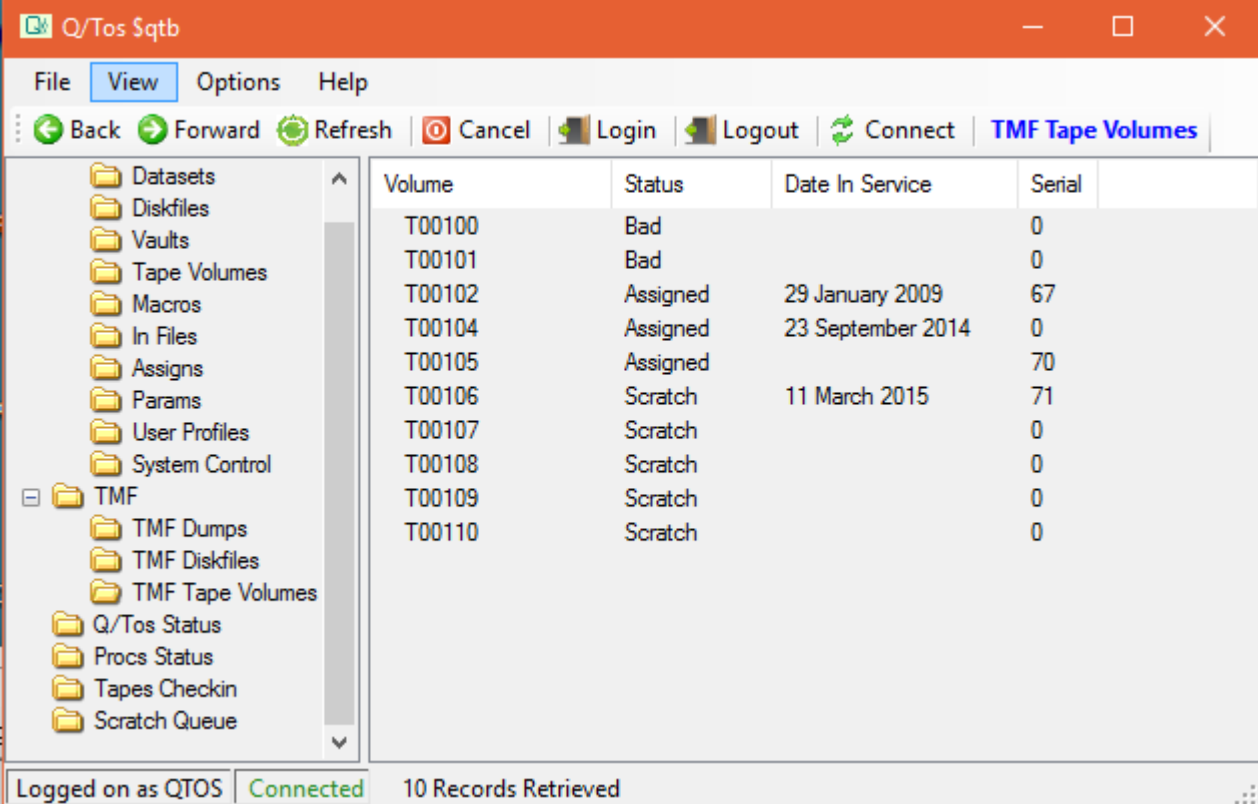
TMF audittrail and auditdump generations are displayed by right-clicking “TMF Dumps” in the left panel and clicking “List All TMF Dumps”. Right-click any Dump record to show the pop-up menu with the options, “Details”, “List All TMF Disk Files” and “Search TMF Disk Files”.



TMF TAPES

The Tape Media record contains information that identifies the tape by location, if it is in use and by which DUMP, an error, retry and use count, the date it was placed in service.

If tapes have been added to the TMF catalog since QTOS/TMF was initialized, the LOADTMF program will add the TMF tape records to the database when they are allocated. LOADTMF is run by \$QTOS whenever a change to the TMF database is detected.



The screenshot shows the Q/Tos Sqtb application window. The title bar reads "Q/Tos Sqtb". The menu bar includes "File", "View", "Options", and "Help". Below the menu bar is a toolbar with buttons for "Back", "Forward", "Refresh", "Cancel", "Login", "Logout", "Connect", and "TMF Tape Volumes". The main area is divided into a left sidebar and a central table. The sidebar contains a tree view of folders: Datasets, Diskfiles, Vaults, Tape Volumes, Macros, In Files, Assigns, Params, User Profiles, System Control, TMF (expanded), TMF Dumps, TMF Diskfiles, TMF Tape Volumes, Q/Tos Status, Procs Status, Tapes Checkin, and Scratch Queue. The central table displays the following data:

Volume	Status	Date In Service	Serial
T00100	Bad		0
T00101	Bad		0
T00102	Assigned	29 January 2009	67
T00104	Assigned	23 September 2014	0
T00105	Assigned		70
T00106	Scratch	11 March 2015	71
T00107	Scratch		0
T00108	Scratch		0
T00109	Scratch		0
T00110	Scratch		0

At the bottom of the window, a status bar shows "Logged on as QTOS", "Connected", and "10 Records Retrieved".

TMF Tapes Detail

Page Setup Print Preview Print

Volume Name	- T00106
Volume Part Number	- -1
Volume Copy Number	- -1
Date In Service	- 11 March 2015
Media Status	- Scratch
Vault	- TMFSCR
Tape Density	-
Tape Size	- 0
Use Count	- 1
Use Since Cleaned	- 1
Clean Count	- 1
Error Count	- 0
Retry Count	- 0
Serial	- 71
Serial Reel Copy	- 1
Serial Reel Number	- 1

TMF Tape Volu... — □ ×

Tape Volume Name

Tape Part Number

Tape Copy Number

Tape Volume Status

Scratch

Assigned

Released

Bad

Search

Cancel

SEARCH TMF TAPE VOLUMES

Search for TMF Tape Volumes by volume name (with wildcards), Tape Part, Tape Copy and/or by Tape Status.

TMF DUMP FILES

QTOS can be used to query the TMF catalog file listings directly.

The screenshot shows the Q/Tos SqtB application window. The title bar reads "Q/Tos SqtB". The menu bar includes "File", "View", "Options", and "Help". Below the menu bar is a toolbar with icons for "Back", "Forward", "Refresh", "Cancel", "Login", "Logout", and "Connect", along with the text "TMF Disk Files".

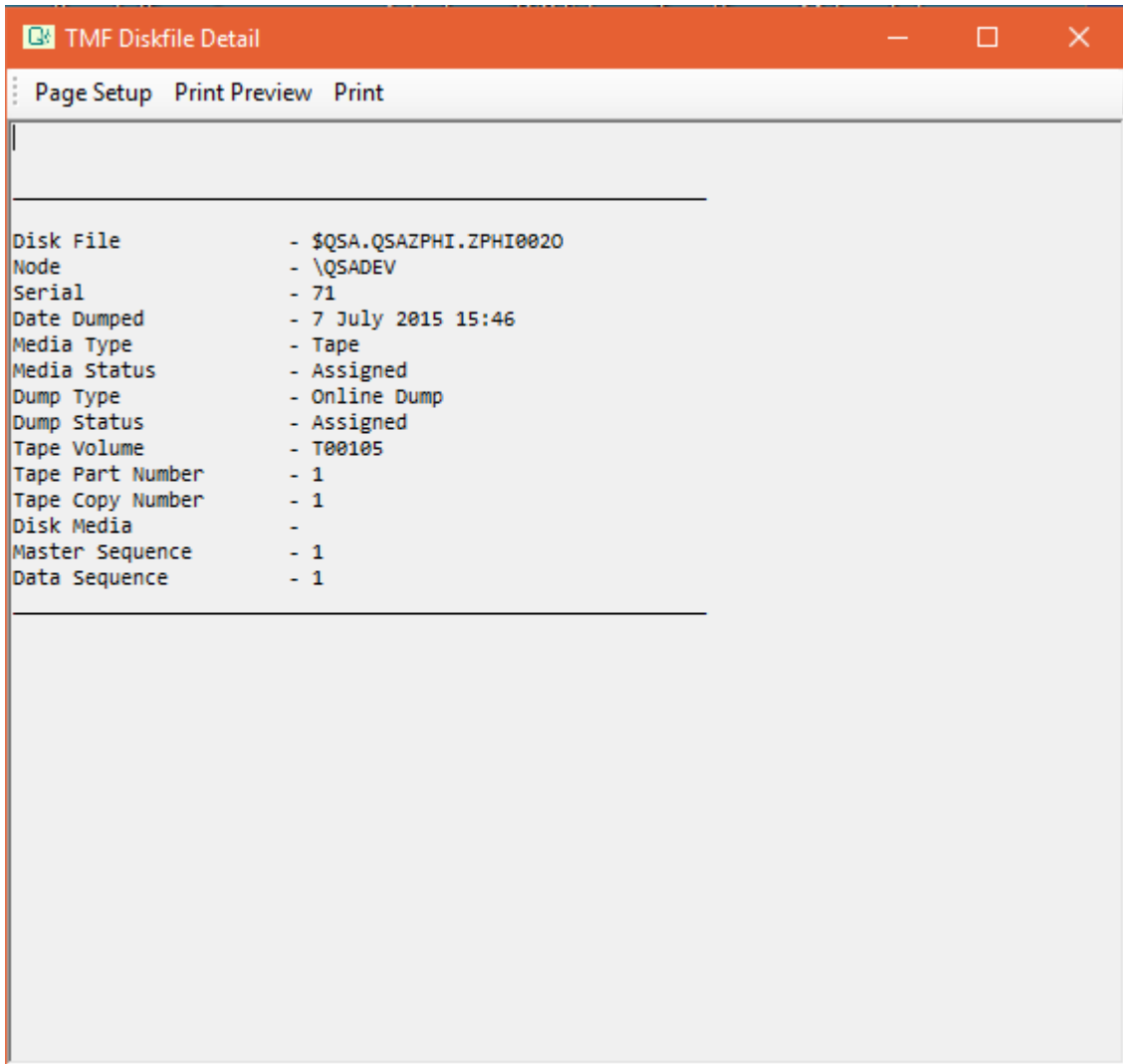
The main area is divided into two panes. The left pane is a tree view showing a directory structure:

- Datasets
- Diskfiles
- Vaults
- Tape Volumes
- Macros
- In Files
- Assigns
- Params
- User Profiles
- System Control
- TMF (expanded)
 - TMF Dumps
 - TMF Diskfiles
 - TMF Tape Volumes
- Q/Tos Status
- Procs Status
- Tapes Checkin
- Scratch Queue

The right pane displays a table of TMF dump files with the following columns: "Disk File", "Serial", "Dump Date and Time", "Media Type", "Dump Type", and "Tape Volume".

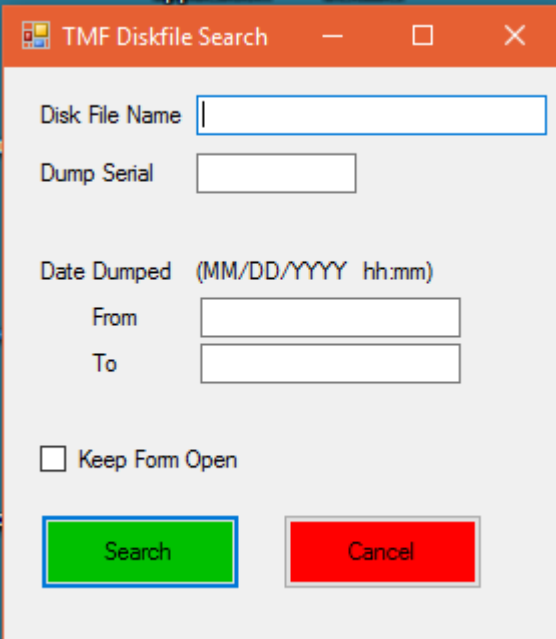
Disk File	Serial	Dump Date and Time	Media Type	Dump Type	Tape Volume
\$QSA.OLDOBJ.SILOTAPE	67	7 July 2015 14:50	Tape	Online Dump	T00102
\$QSA.OLDOBJ.STRTLIST	70	7 July 2015 15:11	Tape	Online Dump	T00104
\$QSA.OLDOBJ.STRTLIST	67	7 July 2015 14:50	Tape	Online Dump	T00102
\$QSA.OLDOBJ.SYSCTL	70	7 July 2015 15:11	Tape	Online Dump	T00104
\$QSA.OLDOBJ.SYSCTL	67	7 July 2015 14:50	Tape	Online Dump	T00102
\$QSA.OLDOBJ.TAPECONV	70	7 July 2015 15:11	Tape	Online Dump	T00104
\$QSA.OLDOBJ.TAPECONV	67	7 July 2015 14:50	Tape	Online Dump	T00102
\$QSA.OLDOBJ.TAPEDEL	70	7 July 2015 15:11	Tape	Online Dump	T00104
\$QSA.OLDOBJ.TAPEDEL	67	7 July 2015 14:50	Tape	Online Dump	T00102
\$QSA.OLDOBJ.TIMEROUT	70	7 July 2015 15:11	Tape	Online Dump	T00104
\$QSA.OLDOBJ.TIMEROUT	67	7 July 2015 14:50	Tape	Online Dump	T00102
\$QSA.OLDOBJ.VAULT	70	7 July 2015 15:11	Tape	Online Dump	T00104
\$QSA.OLDOBJ.VAULT	67	7 July 2015 14:50	Tape	Online Dump	T00102
\$QSA.QSAZPHI.ZPHI0020	71	7 July 2015 15:46	Tape	Online Dump	T00105
\$QSA.QSAZPHI.ZPHI0021	71	7 July 2015 15:46	Tape	Online Dump	T00105
\$QSA.QSAZPHI.ZPHI0022	71	7 July 2015 15:46	Tape	Online Dump	T00105

At the bottom of the window, a status bar shows "Logged on as QTOS", "Connected", and "148 Records Retrieved".



FINDING FILES

To display all dumps of a file by exact file name right-click “TMF Diskfiles” in the left panel and select “Search TMF Diskfiles”.



The image shows a dialog box titled "TMF Diskfile Search". It contains the following fields and controls:

- Disk File Name:** A text input field with a blue border.
- Dump Serial:** A text input field.
- Date Dumped:** A label with the format "(MM/DD/YYYY hh:mm)".
- From:** A text input field for the start date.
- To:** A text input field for the end date.
- Keep Form Open:** A checkbox.
- Search:** A green button.
- Cancel:** A red button.

Type in the desired filename (EX., \$DATA1.SQLCTA2.FILES) and click on the “Search” button. You can also search by Dump Serial number or both, name and number.

QTOS REPORTS

QTOS TAPE CHECK IN REPORT

The QTOS Tape Check In Report shows the tapes and their associated versions that are in offsite vaults where the return date has been reached (tomorrows date or exceeded). These tapes are not necessarily due to be scratched. The report also lists tapes that have been queued for scratch and are located in an offsite vault. The TMF catalog is scanned for any TMF Serials that have been deleted by TMF but have not been deleted by QTOS because they are in an offsite vault. Also any TMF serials where the return date has been reached or exceeded. In this example, L and U are the Data Set Names. 0004, 0008, 0010, and 0012 are the versions. The slot number is listed on the far right.

THE FOLLOWING DATA SETS HAVE BEEN CHECKED IN - 05/24/1993 13:39

CHECKING IN - L(0004) - NO VAULT MOVE REQUIRED

Q00110 CHECKED IN FOR VAULT QSA

L(0004) CHECKED IN

CHECKING IN - L(0007) - MOVING FROM VAULT TANDEM TO VAULT QSA

Q00114 MOVED FROM VAULT TANDEM TO VAULT QSA (000010)

Q00113 MOVED FROM VAULT TANDEM TO VAULT QSA (000011)

Q00108 MOVED FROM VAULT TANDEM TO VAULT QSA (000012)

Q00102 MOVED FROM VAULT TANDEM TO VAULT QSA (000013)

L(0007) CHECKED IN

CHECKING IN - L(0008) - MOVING FROM VAULT TANDEM TO VAULT QSA

Q00115 MOVED FROM VAULT TANDEM TO VAULT QSA (000049)

Q00116 MOVED FROM VAULT TANDEM TO VAULT QSA (000050)

Q00117 MOVED FROM VAULT TANDEM TO VAULT QSA (000051)

Q00125 MOVED FROM VAULT TANDEM TO VAULT QSA (000052)

Q00126 MOVED FROM VAULT TANDEM TO VAULT QSA (000053)

Q00127 MOVED FROM VAULT TANDEM TO VAULT QSA (000054)

Q00128 MOVED FROM VAULT TANDEM TO VAULT QSA (000055)

Q00112 MOVED FROM VAULT TANDEM TO VAULT QSA (000056)

Q00103 MOVED FROM VAULT TANDEM TO VAULT QSA (000057)

Q00109 MOVED FROM VAULT TANDEM TO VAULT QSA (000058)

Q00119 MOVED FROM VAULT TANDEM TO VAULT QSA (000059)

Q00122 MOVED FROM VAULT TANDEM TO VAULT QSA (000060)

L(0008) CHECKED IN

CHECKING IN - U(0010) - MOVING FROM VAULT TANDS TO VAULT QSA

U00038 MOVED FROM VAULT TANDS TO VAULT QSA (000061)

U00041 MOVED FROM VAULT TANDS TO VAULT QSA (000062)

U00045 MOVED FROM VAULT TANDS TO VAULT QSA (000063)

U00046 MOVED FROM VAULT TANDS TO VAULT QSA (000064)

U00047 MOVED FROM VAULT TANDS TO VAULT QSA (000065)

U(0010) CHECKED IN

CHECKING IN - U(0012) - MOVING FROM VAULT TANDS TO VAULT QSA

U00055 MOVED FROM VAULT TANDS TO VAULT QSA (000066)

U00056 MOVED FROM VAULT TANDS TO VAULT QSA (000067)

U00057 MOVED FROM VAULT TANDS TO VAULT QSA (000068)

U00058 MOVED FROM VAULT TANDS TO VAULT QSA (000069)

U00059 MOVED FROM VAULT TANDS TO VAULT QSA (000070)

U(0012) CHECKED IN

CHECKING IN TMF(00000280) - NO VAULT MOVE REQUIRED

TMF034 CHECKED IN FOR VAULT QSA

TMF129 CHECKED IN FOR VAULT QSA

TMF131 CHECKED IN FOR VAULT QSA

TMF133 CHECKED IN FOR VAULT QSA

TMF135 CHECKED IN FOR VAULT QSA

TMF137 CHECKED IN FOR VAULT QSA

TMF139 CHECKED IN FOR VAULT QSA

TMF141 CHECKED IN FOR VAULT QSA
TMF143 CHECKED IN FOR VAULT QSA
TMF145 CHECKED IN FOR VAULT QSA
TMF(00000280) CHECKED IN

CHECKING IN TMF(00000280) - COPY 2 - MOVING TAPES FROM VAULT TANDS TO VAULT Q
TMF036 MOVED FROM VAULT TANDS TO VAULT QSA (000071)
TMF130 MOVED FROM VAULT TANDS TO VAULT QSA (000072)
TMF132 MOVED FROM VAULT TANDS TO VAULT QSA (000073)
TMF134 MOVED FROM VAULT TANDS TO VAULT QSA (000074)
TMF136 MOVED FROM VAULT TANDS TO VAULT QSA (000075)
TMF138 MOVED FROM VAULT TANDS TO VAULT QSA (000076)
TMF140 MOVED FROM VAULT TANDS TO VAULT QSA (000077)
TMF142 MOVED FROM VAULT TANDS TO VAULT QSA (000078)
TMF144 MOVED FROM VAULT TANDS TO VAULT QSA (000079)
TMF146 MOVED FROM VAULT TANDS TO VAULT QSA (000080)
TMF(00000280) - COPY 2 -CHECKED IN

CHECKING IN TMF(00000281) - NO VAULT MOVE REQUIRED
TMF038 CHECKED IN FOR VAULT QSA
TMF(00000281) CHECKED IN

CHECKING IN TMF(00000281) - COPY 2 - MOVING TAPES FROM VAULT TANDS TO VAULT Q
TMF039 MOVED FROM VAULT TANDS TO VAULT QSA (000081)
TMF(00000281) - COPY 2 -CHECKED IN

QTOS SCRATCH REPORT

The QTOS Scratch Report is automatically generated by QTOS whenever the scratch process is started, at which time QTOS scans the database for any Data Sets whose retention has expired. A report is generated whether the scratch process is automatic (scratch time designated in the System Control Record) or manual (designated from the Tape Scratch Screen. This report generates a list of all the Data Set Versions that have been scratched and their associated tape volumes. The report provides the DSN ID (the number linking the version to the tapes) and tape volumes with their corresponding slot location, if applicable. If the tapes have been scratched successfully, the listing records will be deleted (the number of deleted listings shown in parentheses) and a message that the scratch has been completed for the Data Set and Version will appear showing the actual scratch date and time.

If your operation is functioning with a centralized catalog, QTOS will generate the scratch report only from the system where the centralized catalog resides so there is one report. If tapes are being scratched manually, a report is generated on the selected system.

```
05/24/1993 14:19 - BEGINNING SCRATCH OF MONTHLY(0003) - DSN ID #000029
05/24/1993 14:19 - NO TAPES TO SCRATCH FOR DATA SET MONTHLY(0003)
05/24/1993 14:19 - COMPLETED SCRATCH OF DATA SET MONTHLY(0003) - DSN ID #000029

05/24/1993 14:19 - BEGINNING SCRATCH OF L(0007) - DSN ID #000030
05/24/1993 14:19 - VAULT QSA - THE FOLLOWING TAPES HAVE BEEN SCRATCHED
05/24/1993 14:19 - Q00114 (000010) Q00113 (000011) Q00108 (000012) Q00102 (000013)
05/24/1993 14:19 - BEGIN DELETING LISTING RECORDS FOR L(0007)
05/24/1993 14:19 - COMPLETED DELETING 000098 LISTINGS - L(0007)
05/24/1993 14:19 - COMPLETED SCRATCH OF DATA SET L(0007) - DSN ID #000030

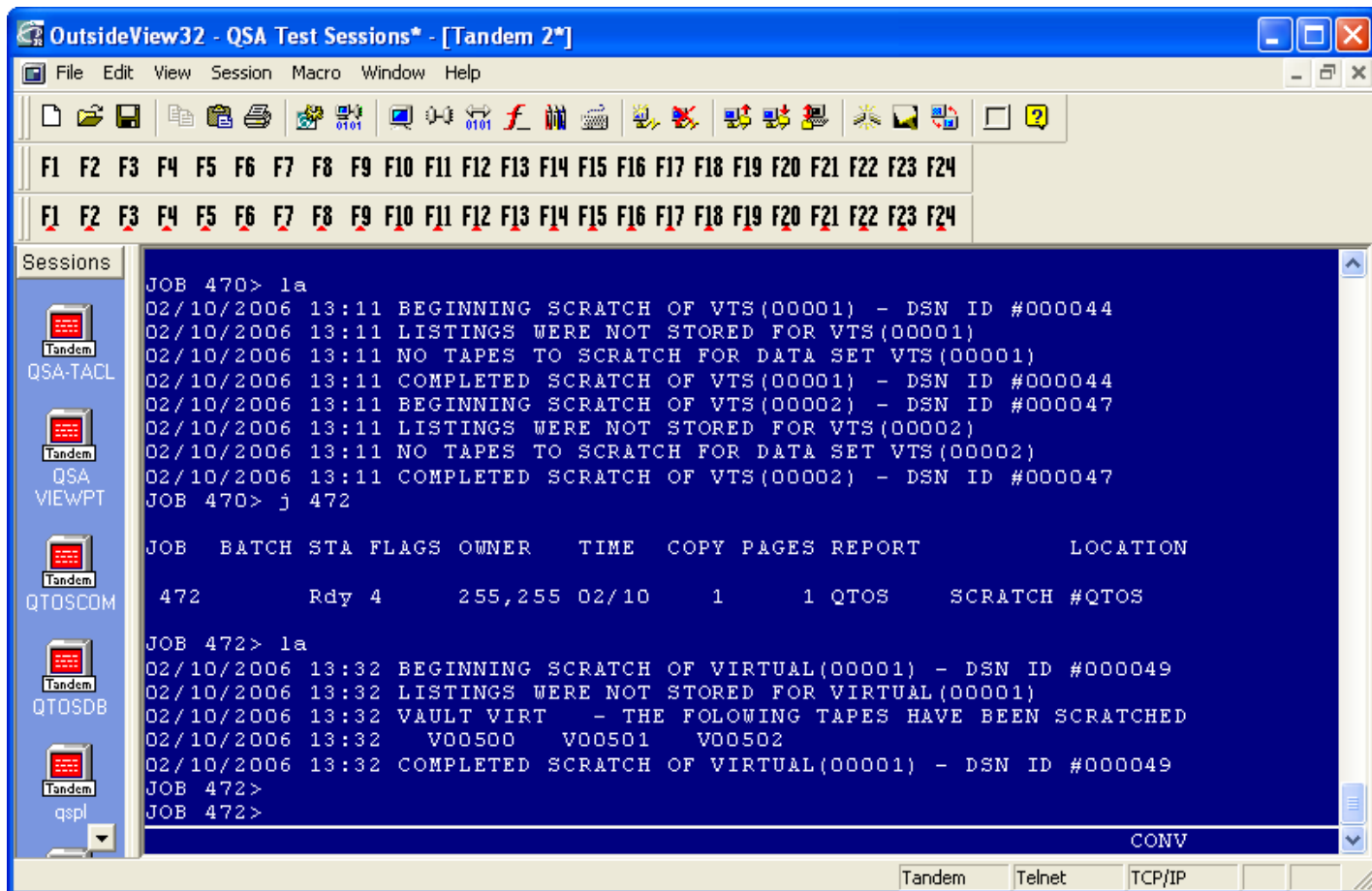
05/24/1993 14:19 - BEGINNING SCRATCH OF LR(0003) - DSN ID #000034
05/24/1993 14:19 - VAULT QSA - THE FOLLOWING TAPES HAVE BEEN SCRATCHED
05/24/1993 14:19 - I00004 (000003)
05/24/1993 14:19 - BEGIN DELETING LISTING RECORDS FOR LR(0003)
05/24/1993 14:19 - COMPLETED DELETING 000003 LISTINGS - LR(0003)
05/24/1993 14:19 - COMPLETED SCRATCH OF DATA SET LR(0003) - DSN ID #000034

05/24/1993 14:19 - CANNOT SCRATCH MONTHLY(0004) - TAPES ARE IN OFF SITE VAULT TANDEM
```

If there are no tapes to scratch, check to see if the listing resides on another system inaccessible to QTOS. Also check the scratch status of the tapes on the QTOS Scratch Queue to see if there is a "P" in the REL column (designating the Data Set is in use). In this case, the system may have crashed or QTOS may have been stopped incorrectly before the actual creation of the backup.

If the tapes are in an offsite vault, they must be returned before they can be scratched.

This is an example of a SCRATCH REPORT:



QTOS OFFSITE RETRIEVAL REPORT

This report is generated daily at scratch time by QTOS which scans the database for any Data Set Version records whose return date is less than or equal to tomorrows date. The report specifies which QTOS tapes and TMF tapes are scheduled to be returned from an offsite vault. The report provides the following information: tape volume id, date of creation and date of return, vault and slot location, and Data Set and Version identification. If TMF is being catalogued, all the systems will have their own separate Retrieval Reports, as TMF through QTOS is not centralized.

OFFSITE DATA SETS SCHEDULED TO BE RETURNED ON OR BEFORE 05/25/1993

DATA SET	VERSION	CREATE DATE	RETURN DATE	OFFSITE REFERENCE	VAULT	VOLUMES(SLOT)
MONTHLY	4	03/24/1993	04/24/1993	BIN 375	TANDEM	T00301 T00302 T00303 T00304 T00305 T00306 T00307 T00308 T00309 T00310 T00311 T00312 T00313 T00314 T00315 T00316 T00317 T00318 T00319 T00320 T00321 T00322 T00323 T00324 T00325 T00326 T00327 T00328 T00329 T00330 T00331 T00332 T00333 T00334
MONTHLY	5	04/24/1993	05/20/1993	BIN 375	TANDS	T00336(82) T00337(83) T00338(84) T00339(85) T00340(86) T00341(87) T00342(88) T00343(89) T00344(90) T00345(91) T00346(92) T00347(93) T00348(94) T00349(95) T00350(96) T00351(97) T00352(98) T00353(99) T00354(100) T00355(101) T00356(102) T00357(103) T00358(104) T00359(105)

TMF OFFSITE DATA SETS SCHEDULED TO BE RETURNED ON OR BEFORE 05/25/1993

SERIAL NUMBER	RETURN DATE	OFFSITE REFERENCE	VAULT	VOLUMES
282	08/13/1991		QSA	TMF040(20)
282	08/18/1991		TANDS	TMF041(13)
283	08/14/1991		QSA	TMF042(21)
283	08/19/1991		TANDS	TMF043(14)

284	08/17/1991	QSA	TMF044(22)	
284	08/22/1991	TANDS	TMF045(15)	
285	08/18/1991	QSA	TMF046(23) TMF048(24)	TMF050(25)
			TMF052(26) TMF054(27)	
			TMF056(28) TMF059(29)	TMF061(30)
			TMF093(31) TMF097(32)	
285	08/23/1991	TANDS	TMF047(16) TMF049(17)	TMF051(18)
			TMF053(19) TMF055(20)	
			TMF057(21) TMF060(22)	TMF063(23)
			TMF094(24) TMF099(25)	
286	08/19/1991	QSA	TMF065(33)	
286	08/24/1991	TANDS	TMF067(26)	
287	08/20/1991	QSA	TMF001(34)	
287	08/25/1991	TANDS	TMF002(27)	
288	08/21/1991	QSA	TMF004(35)	
288	08/26/1991	TANDS	TMF006(28)	

QTOS PICKLIST/VAULT MOVE REPORT

This report is generated by QTOS at the time of a successful creation of a Data Set Version such as at the time of a Backup. If the spooler report designates

Picklist, then there is no vault move associated with the tapes. If the spooler report designates Vault Move then the Master Data Set has within its defines

a specification that the tapes be transferred to another vault.

MOVE THE FOLLOWING TAPES FROM VAULT CAPITOL TO QSA FOR MONTHLY-BACKUP(0007)

Q00114 TO SLOT NUMBER - 000010

Q00113 TO SLOT NUMBER - 000011

Q00108 TO SLOT NUMBER - 000012

Q00102 TO SLOT NUMBER - 000013

MACRO MAINTENANCE

QTOS macros enable the system operations personnel to have a controlled database of operation parameters for tape functions. Instead of having in files and obey files that reference in files, the user can build a database of parameters, file sets and run requests that are referenced by QTOS macros. This helps ensure a consistency of file sets and security of the in files.

User programs that write directly to tape must be imbedded in MACRO's. This allows QTOS to control the execution of these programs and pass parameters and assigns to them.

The QTOS macro subsystem consists of 4 screens and is accessed through the QTOSDB program.

- PROGRAM MAINTENANCE screen
- INFILE screen
- PARAMS screen
- ASSIGNS screen

The Macros Add/Update window functions are:

Designate the program to be run (Backup, PAK, QSparc, user program)

Designate the Data Set to be used

(for defines and allocation of data set versions)

Designate the infile (required for Backup)

(Located Internally to QTOS or Externally in an edit file)

Designate the name of the optional internal ASSIGN parameters

(required for user programs to assign the logical tape drive name and file assigns)

Designate the name of the optional internal PARAMS

Set the optional startup Parameters for the Program

MACRO ADD/UPDATE WINDOW

There are three windows below the MACRO screen. They are the INFILE window, the ASSIGN window and the PARAMS window. The ASSIGN and the PARAM windows are ignored for backup and restores.

Assigns and **Params** can be passed from **QTOSCOM** to user programs. The assigns and params passed by QTOSCOM will override any that are defined in the QTOS database. ASSIGNS must be designated for user programs to designate the tape drive logical name and any files that are to be accessed.

A user can designate either an internal or external infile on the macro screen. An internal file is a QTOS database infile. An external infile is a standard guardian edit file.

The screenshot shows a window titled "Macro Add" with a red header bar. The window is divided into three main sections:

- Required Information:** Contains fields for "Macro Name" and "Dataset Name". Below these are checkboxes for "Internal In File (in Q/Tos DB)", "External In File (Edit File)", "Backup", "Restore", "Other Program", "Write Tape", and "Read Tape". There is also an "In File" text field.
- Startup Options:** Contains fields for "Out File", "Home Term", "Process Name", "CPU", "Priority", "Assigns", "Params", "Swap File", "Lib File", and "Memory Pages".
- Incremental Backup Options:** Contains a "Secondary Dataset Name" field and two checkboxes: "Update Timestamp When Primary Dataset Completes" and "Update Timestamp When Secondary Dataset Completes".

At the bottom of the window, there is a "Macro Description" text area and two buttons: a green "Add Macro" button and a red "Cancel" button.

ADDING PROGRAM MACRO RECORDS

The following fields are required when adding program macro records.

- MACRO NAME - The name you use to invoke and display the macro parameters.
- DATA SET NAME - The name of the DATA SET to use for version and define creation.
- PROGRAM - Click the checkbox for Backup, Restore or Other Program. If Other Program is checked type the program name (PAK, QSparc...) in the input box to the right.
- IN FILE - Click either the Internal In File or External In File checkbox. If the infile is internal, type the Infile Name in the In File field as it is stored in the QTOS DB Infile file. If the infile is external, type the fully qualified diskfile name in the In File field.
- INPUT/OUTPUT - Click the Write Tape or Read Tape checkbox to indicate the tape I/Os.

The following are all optional:

- OUT FILE - A file or spooler location to direct any output information to.
- HOME TERM - The home terminal to use when QTOS starts the process.
- PROCESS NAME - The process name to use when QTOS starts the process.
- CPU - The cpu to start the process in when QTOS starts the process.
- PRIORITY - The process priority to use when QTOS starts the process.
- ASSIGNS - The ASSIGNS name in the QTOS database.
- PARAMS - The PARAMS name in the QTOS database.
- SWAP FILE - The swap file to use when QTOS starts the process.
- LIB FILE - The library file to use when QTOS starts the process.
- MEMORY PAGES - The memory pages to use when QTOS starts the process.

INCREMENTAL BACKUP OPTIONS

QTOS manages the timestamp for incremental backups through the MACRO configuration. For this, you will need two datasets created. A dataset that is used for the FULL backups, and a that is used for the INCREMENTAL backups.

The dataset for the FULL backup, considered the SECONDARY DATASET on this window, does not need a Macro created for it but the dataset for the INCREMENTAL backups, the PRIMARY DATASET, does. The timestamp used for the incremental backup is stored and updated in this Macro record. Type the name of the FULL (or SECONDARY) backup dataset in the Macro configuration SECONDARY DATASET NAME. Then click on the checkboxes for "Update Timestamp When Primary Dataset Completes" and for "Update Timestamp When Secondary Dataset Completes". This causes the timestamp to be updated at the completion of the FULL and the INCREMENTAL backups.

MACRO DESCRIPTION - Optional description of this macro's purpose in life.

Once you have entered the required data, click the "Add Macro" button.

USING QTOS MACROS FOR PARTIAL BACKUP

The QTOS Macro window allows QTOS a mechanism to automatically propagate timestamps for partial backups and to use a common infile for both full and partial backups that does not need to be modified for partial date-time changes. The following fields are used by QTOS to determine whether this macro is a partial backup and when to store the timestamp in the database.

Update Timestamp When Primary Dataset Completes checkbox when checked causes QTOS to update the timestamp field when a version is created that matches the DATASET NAME field in the Macro record.

Update Timestamp When Secondary Dataset Completes checkbox when checked causes QTOS to update the timestamp field when a version is created that matches the SECONDARY DATASET NAME field in the Macro record.

If either or both of these checkboxes are checked this macro is automatically updated for a partial backup and the text, PARTIAL<MMMM DD YYYY HH:MM> will be appended to the end of the backup command stream or from an edit file specified in the INFILE field of the MACRO screen.

· **Secondary Dataset Name** - The name of the Data Set Name to be used as the Secondary Data set to cause QTOS to update the TIMESTAMP field.

TIMESTAMP UPDATE

Whenever QTOS has successfully completed a backup of any kind, it will search the MACRO database for the Data Set Name of the Data Set Version it has just completed. QTOS will update the TIMESTAMP field if:

1. The Data Set Version QTOS just completed = The Data Set Name in the Macro record, and “Update Timestamp When Primary Dataset Completes” is checked.
2. The Data Set Version QTOS just completed = the Secondary DSN in the Macro record and the “Update Timestamp When Secondary Dataset Completes” is checked.

- QDOS finds **MONTHLY-BACKUP** in the Macro named **MONTHLY-MACRO**.
- QDOS will not update the **TIMESTAMP** field because the Partial Designator checkboxes are unchecked meaning that this Macro has not been designated for partial backups.

WEEKLY-PARTIAL MACRO

Weekly Partial Backup that will only backup files that have been modified since a backup was catalogued and completed under the data Set **WEEKLY-BACKUP** or **MONTHLY-BACKUP**, whichever was run last.

- The Data Set Name field is **WEEKLY-BACKUP**.
- The Secondary DSN field is **MONTHLY-BACKUP**.
- Update Timestamp When Primary Dataset Completes is checked
- Update Timestamp When Secondary Dataset Completes is checked

Macro Update

Required Information

Macro Name:

Dataset Name:

Internal In File (in Q/Tos DB) Backup
 External In File (Edit File) Restore
 Other Program
 Write Tape
 Read Tape

In File:

Startup Options

Out File: Assigns:

Home Term: Params:

Process Name: Swap File:

CPU: Lib File:

Priority: Memory Pages:

Incremental Backup Options

Secondary Dataset Name:

Update Timestamp When Primary Dataset Completes
 Update Timestamp When Secondary Dataset Completes

Macro Description

- QTOS finds **MONTHLY-BACKUP** in the Macro named **WEEKLY-PARTIAL**.
- QTOS will update the Timestamp field because the Partial Designator field specifies to update the Timestamp field for Both the Data Set Name (**WEEKLY-BACKUP**) and the Secondary DSN (**MONTHLY-BACKUP**).

DAILY-PARTIAL MACRO

Daily Partial Backup that will only backup files that have been modified since a backup was completed under the Data Set **DAILY-BACKUP** or **MONTHLY-BACKUP**, whichever was run last.

This Macro is set up to be run as the **FIRST** daily partial after the **MONTHLY-BACKUP** (to initialize the Timestamp field of **DAILY-PARTIAL-MACRO**).

- The Data Set Name field is **DAILY-BACKUP**
- The Secondary DSN field is **MONTHLY-BACKUP**.
- Update Timestamp When Primary Dataset Completes is checked
- Update Timestamp When Secondary Dataset Completes is checked

Macro Update

Required Information

Macro Name:

Dataset Name:

Internal In File (in Q/Tos DB) Backup

External In File (Edit File) Restore

Other Program:

In File: Write Tape

Read Tape

Startup Options

Out File: Assigns:

Home Term:

Process Name: Params:

CPU: Swap File:

Priority: Lib File:

Memory Pages:

Incremental Backup Options

Secondary Dataset Name:

Update Timestamp When Primary Dataset Completes

Update Timestamp When Secondary Dataset Completes

Macro Description:

- QTOS finds **MONTHLY-BACKUP** in the Macro named **DAILY-PARTIAL**
- QTOS will update the Timestamp field because the Partial Designator field specifies to update the Timestamp field for Both, either the Data Set Name **DAILY-BACKUP** or the SECONDARY DATASET NAME **WEEKLY-BACKUP**.

QTOS INFILE SCREEN

The QTOS infile window allows the user to setup and specify infiles in the internal catalog database. This helps to integrate the operations functions and allows the operations manager to switch between screens and see what parameters are being used. The contents of the infile are to be treated the same as an edit file. As with an external infile or a command at the QTOSCOM prompt, the tape drive name can be replaced with an sterisk (*) to allow the open of a tape volume from any tape drive.

The INFILE SCREEN is equivalent to a regular in file that is used in a run statement from TACL, such as :
BACKUP/in \$system.system.infile,out \$\$.#test/

The QTOS INFILE name can be 16 characters long and can contain special characters.

Line continuations in a QTOS INFILE do not require ampersands "&" but do not break in the middle of words between lines.

Infile Name: MOD-BACKUP|

Maximum 76 characters per line

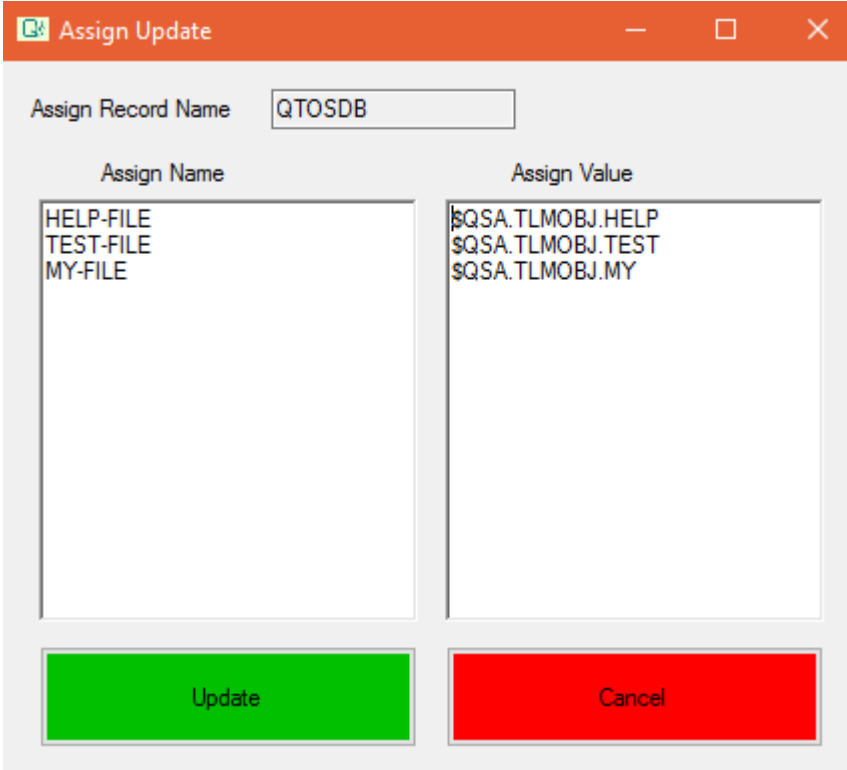
```
$TAPE2.($DATA.**,$DATA1.**,$DATA2.**,$DATA3.**,  
$SYSTEM.**.WHERE MODTIME > @@ @@@ @@@
```

Update Infile Cancel

QTOS ASSIGNS

The QTOS assign window allows the user to setup and specify assigns in the internal catalog database. This helps to integrate the operations functions and allows the operations manager to switch between screens and see what parameters are being used. The contents of the assigns screen are to be treated the same as an edit file. These assigns are passed to the executing process started by QTOS and specified in the QTOS MACRO that references these assigns.

Any number of QTOS program macros can reference the same ASSIGN data.



The screenshot shows a window titled "Assign Update" with a standard Windows-style title bar (minimize, maximize, close buttons). Below the title bar is a text field labeled "Assign Record Name" containing the text "QTOSDB".

Assign Name	Assign Value
HELP-FILE	\$QSA.TLMOBJ.HELP
TEST-FILE	\$QSA.TLMOBJ.TEST
MY-FILE	\$QSA.TLMOBJ.MY

At the bottom of the window are two buttons: a green "Update" button on the left and a red "Cancel" button on the right.

QTOS PARAMS

The QTOS macro param screen allows the user to setup and specify params in the internal catalog database. This helps to integrate the operations functions and allows the operations manager to switch between screens and see what parameters are being used. The contents of the params screen are to be treated the same as an edit file. These params are passed to the executing process started by QTOS and specified in the QTOS MACRO that references these params.

The PARAMS WINDOW is used by the QTOS PROGRAM MACRO'S to designate PARAMS to be used during startup of the program.

PARAMS are optional based on the needs of the user programs ,

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DATE-OF-REPORT 061391

Any number of QTOS program macros can reference the same PARAMS data.

The screenshot shows a window titled "Param Add" with a standard Windows-style title bar (minimize, maximize, close buttons). Below the title bar, there is a text field labeled "Param Record Name" containing the text "GENERAL-PARMS". Below this, there is a table with two columns: "Param Name" and "Param Value". The table contains two rows of data:

Param Name	Param Value
PRINT-OUTPUT	Y
DO-TRACE	N

At the bottom of the window, there are two buttons: a green "Add" button on the left and a red "Cancel" button on the right.

AD HOC REPORTS

All of the status and detail windows in the QTOS Client are printable. So you can create a report from any query for any item (dataset, diskfile, tape volume, macro, vault ...). The format, including column widths is duplicated for the printed report.

Example:

Disk File Search

Disk File Name

Dataset Name

Dataset Version

Dsn Id

Find Guardian Files

Find OSS Files

Find SQL/MX Files

Date Search (MM/DD/YYYY hh:mm)

Date Dumped

From

To

Date Modified

From

To

Tape Volume

EOF From

To

File Code

Keep Form Open

Search **Exit**

Search for Diskfiles named QTOSSRC backed up from 10/01/2016 to the present.

Name	Dataset	Version	Volume	Date Backed Up	File Code	EOF	Last Modified
\$DSMSCM.QT520T.QTOSSRC	SOURCE-PARTIAL-BACKUP	1	PAK	10 November 2016	101	828686	18 October 2016
\$DSMSCM.QT530T.QTOSSRC	SOURCE-PARTIAL-BACKUP	1	PAK	10 November 2016	101	850354	18 October 2016
\$AUDIT.QT410T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	650606	13 July 2005
\$AUDIT.QT420T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	659332	6 December 2005
\$DSMSCM.QT520T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	829814	29 November 2016
\$DSMSCM.QT530T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	849294	15 December 2016
\$\$SYSTEM.OFFSTBK.QTOSSRC	FULL-BACKUP	14	W00415	12 January 2017	700	13385052	7 January 2016
\$\$SYSTEM.SRCFILES.QTOSSRC	FULL-BACKUP	14	W00415	12 January 2017	101	2178	7 January 2016
\$\$SYSTEM.STARTUP.QTOSSRC	FULL-BACKUP	14	W00415	12 January 2017	101	110	6 January 2016
\$DSMSCM.QT520T.QTOSSRC	SOURCE-FULL-BACKUP	9	PAK	13 December 2016	101	829814	29 November 2016
\$DSMSCM.QT530T.QTOSSRC	SOURCE-FULL-BACKUP	9	PAK	13 December 2016	101	857236	13 December 2016

Logged on as QTOS | Connected | 11 Records Retrieved

QTOS returns this result.

Name	Dataset	Version	Volume	Date Backed Up	File Code	EOF	Last Modified
\$DSMSCM.QT520T.QTOSSRC	SOURCE-PARTIAL-BACKUP	1	PAK	10 November 2016	101	828686	18 October 2016
\$DSMSCM.QT530T.QTOSSRC	SOURCE-PARTIAL-BACKUP	1	PAK	10 November 2016	101	850354	18 October 2016
\$AUDIT.QT410T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	650606	13 July 2005
\$AUDIT.QT420T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	659332	6 December 2005
\$DSMSCM.QT520T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	829814	29 November 2016
\$DSMSCM.QT530T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	849294	15 December 2016
\$\$SYSTEM.OFFSTBK.QTOSSRC	FULL-BACKUP	14	W00415	12 January 2017	700	13385052	7 January 2016
\$\$SYSTEM.SRCFILES.QTOSSRC	FULL-BACKUP	14	W00415	12 January 2017	101	2178	7 January 2016
\$\$SYSTEM.STARTUP.QTOSSRC	FULL-BACKUP	14	W00415	12 January 2017	101	110	6 January 2016
\$DSMSCM.QT520T.QTOSSRC	SOURCE-FULL-BACKUP	9	PAK	13 December 2016	101	829814	29 November 2016
\$DSMSCM.QT530T.QTOSSRC	SOURCE-FULL-BACKUP	9	PAK	13 December 2016	101	857236	13 December 2016

Loaded on as OTOS | Connected | 11 Records Retrieved

To print the results, click on “File” on the menu bar and select “Print” or “Print Preview”.

Print preview

Close Page 1

Disk Files (G:\qtossr\10/01/2016\;);

Page 1

Name	Dataset	Version	Volume	Date Backed Up	File Code	EOF	Last Modified
SDSMSCM.QT520T.QTOSSRC	SOURCE-PARTIAL-BACKUP	1	PAK	10 November 2016	101	828686	18 October 2016
SDSMSCM.QT530T.QTOSSRC	SOURCE-PARTIAL-BACKUP	1	PAK	10 November 2016	101	850354	18 October 2016
SAUDIT.QT410T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	650606	13 July 2005
SAUDIT.QT420T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	659332	6 December 2005
SDSMSCM.QT520T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	829814	29 November 2016
SDSMSCM.QT530T.QTOSSRC	FULL-BACKUP	14	W00416	12 January 2017	101	849294	15 December 2016
SSYSTEM.OFFSTBK.QTOSSRC	FULL-BACKUP	14	W00415	12 January 2017	700	13385052	7 January 2016
SSYSTEM.SRCFILES.QTOSSRC	FULL-BACKUP	14	W00415	12 January 2017	101	2178	7 January 2016
SSYSTEM.STARTUP.QTOSSRC	FULL-BACKUP	14	W00415	12 January 2017	101	110	6 January 2016
SDSMSCM.QT520T.QTOSSRC	SOURCE-FULL-BACKUP	9	PAK	13 December 2016	101	829814	29 November 2016
SDSMSCM.QT530T.QTOSSRC	SOURCE-FULL-BACKUP	9	PAK	13 December 2016	101	857236	13 December 2016

This is a print preview but the printed copy looks the same. Also, the orientation of the paper (landscape or portrait) is determined by the width of the print data or it can be setup using the “Print Setup” option in the menu.