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course description

## NonStop SQL/MP database management U4180S

### course overview

This 5-day course introduces the tasks and tools used by a database administrator or system manager who is responsible for the daily management and protection of a NonStop™ SQL/MP database, programs that access the database, and other associated database elements. Hands-on labs give you practical experience in performing management tasks against a database with applications.

### audience

- Database administrators
- System managers
- People responsible for availability of NonStop SQL/MP databases and applications

### benefits to you

- Review of the NonStop SQL/MP environment
- SQL/MP installation and version management
- Creating SQL/MP database base objects
- Loading, copying, appending, and reorganizing data
- DataLoader/MP
- Updating SQL/MP statistics
- Managing SQL/MP embedded programs
- Altering SQL/MP database objects
- Moving SQL/MP database objects
- Removing SQL/MP database objects
- Managing database protection and recovery using NonStop Transaction Manager/MP (TM/MP)
- Backing up and restoring SQL/MP database objects
- Database security management
- Tools for monitoring performance
- Enhancing DP2 performance
- Managing sorts
- Controlling SQL/MP processes

### prerequisites

- Concepts and Facilities course
- NonStop SQL/MP Essentials course
- Solid understanding of systems, application areas, and daily operations for both systems and applications
- Understanding of the database environment at your business

### next steps

- NonStop SQL/MP Query Design for Performance course

### to order

You can order this course online at <http://education.hp.com>. At the site, select a country, then choose "registration" or "Book a course" and fill out the online registration form.

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## NonStop SQL/MP database management (U4180S)

module	key topics
NonStop SQL/MP environment	<ul style="list-style-type: none"> <li>• Processes, structure, and objects of the NonStop SQL/MP environment</li> <li>• Locating the SQL/MP system catalog</li> <li>• Determining the number and location of SQL/MP catalogs on a system</li> <li>• Identifying and locating the objects registered in an SQL/MP database</li> <li>• Related products and additional tables they can create in the SQL/MP system catalog</li> </ul> Lab Exercise (30 minutes) NonStop SQL/MP Environment <ul style="list-style-type: none"> <li>• Locate the system catalog</li> <li>• Locate all user catalogs on a system</li> <li>• Identify the objects in the PERSNL database and their dependent objects</li> <li>• Identify what SQL/MP processes you have running for your session</li> <li>• Create a user catalog</li> </ul>
installation and version management	<ul style="list-style-type: none"> <li>• Identifying the system requirements for NonStop SQL/MP</li> <li>• Installation and initialization process of SQL/MP software</li> <li>• Version management for SQL/MP objects</li> <li>• Managing the migration of SQL/MP from one NonStop Kernel operating system release to another</li> <li>• Compatibility of SQL/MP software versions within a network</li> </ul> Lab Exercise (30 minutes) Installation and Version Management <ul style="list-style-type: none"> <li>• Identify the versions of NonStop SQL/MP, the catalog, and several objects on your system</li> </ul>
creating NonStop SQL/MP database objects	<ul style="list-style-type: none"> <li>• Planning and creating NonStop SQL/MP database objects</li> <li>• Performance considerations and guidelines for creating SQL/MP database objects</li> <li>• Query metadata for the SQL/MP objects that have been created</li> </ul> Lab Exercise (1.5 hours) Creating SQL/MP Database Objects
copying, loading, appending, reorganizing, and converting data	<ul style="list-style-type: none"> <li>• Converting an Enscribe database to a NonStop SQL/MP database</li> <li>• Use the COPY utility to load, extract, or display data</li> <li>• Using the LOAD or APPEND utilities to load data</li> <li>• Re-organizing data in key-sequenced tables and indexes</li> <li>• Archiving data from the database</li> <li>• Checking the referential integrity of the database</li> </ul> Lab Exercise (1 hour) Using Copy, Load and Append Utilities Lab Exercise (40 minutes) Reorganizing Data Lab Exercise (40 minutes) Converting an Enscribe Database to an SQL/MP Database
DataLoader/MP	<ul style="list-style-type: none"> <li>• How DataLoader/MP can be used to load and maintain database data</li> <li>• Components of DataLoader/MP (main logic, library routines, and user exits)</li> <li>• Building customized DataLoader/MP processes</li> <li>• Running DataLoader/MP processes</li> </ul>

## NonStop SQL/MP database management (U4180S)

updating NonStop SQL/MP statistics

- Creating DataLoader/MP processes to load the data given a data loading scenario
  - NonStop SQL/MP statistics
  - Statistics for partitioned tables
  - How the optimizer uses statistics to calculate selectivity for predicates
  - How to update statistics
  - When to update statistics
  - Testing the impact of updating statistics in a test environment or the production environment
  - Querying the catalog for statistical information
  - Copying the production system statistics to the development system
  - Statistics performance degradation
- Lab Exercise (30 minutes)  
Updating SQL/MP Statistics

managing NonStop SQL/MP embedded programs

- Explicit compilation and automatic recompilation of NonStop SQL/MP programs
  - SQL/MP program run-time environment
  - Compiling COBOL and C embedded SQL programs in the Guardian and Open System Services (OSS) environments using native and non-native compilers
  - SQL/MP compiler options
  - Creating, implementing, and testing a compilation strategy for an SQL/MP program
  - Determining what actions make an SQL/MP program invalid
  - Detecting invalid SQL/MP programs
  - Detecting auto-recompiling SQL/MP programs
- Lab Exercise (45 minutes)  
Managing SQL/MP Embedded Programs
- Plan and implement different compiler options using two scenarios

altering NonStop SQL/MP database objects

- Altering NonStop SQL/MP objects and the impact to the database environment
  - Methods for partitioning tables and indexes
  - SQL/MP Format 2 Enabled objects and Format 1 and Format 2 partitions
- Lab Exercise (45 minutes)  
Altering SQL/MP Database Objects

moving NonStop SQL/MP database objects

- Process for moving NonStop SQL/MP objects
  - Methods to move SQL/MP objects (Recreate and Load, ALTER MOVE, DUP, Backup and Restore)
- Lab Exercise 9.1 (30 minutes)  
Moving SQL/MP Database Objects  
Lab Exercise 9.2 (30 minutes)  
Moving SQL/MP Embedded Programs

removing NonStop SQL/MP database objects

- Removing NonStop SQL/MP objects
  - Removing objects using the DROP command and PURGE and CLEANUP utilities
  - Removing data from a table or a partition of a table using PURGEDATA utility
  - Dropping a partition of a table using ALTER TABLE ... DROP PARTITION
  - Dropping a partition of an index using ALTER INDEX ... DROP PARTITION
  - TAFL GOAWAY command
- Lab Exercise (1 hour, 15 minutes)  
Removing SQL/MP Database Objects

managing database protection and recovery

- NonStop Transaction Manager/MP (TM/MP) methods of protection and recovery
- TM/MP considerations for NonStop SQL/MP objects
- Protecting SQL/MP database with TM/MP
- Online dump strategy
- Recovery strategy
- TM/MP recovery of SQL/MP objects and their catalog
- TM/MP recovery of SQL/MP objects without recovering their catalog
- Using licensed copy of SQLCI2 to insert, update, or delete metadata

## NonStop SQL/MP database management (U4180S)

backing up and restoring  
NonStop SQL/MP database  
objects

- File-mode BACKUP and RESTORE options that can be used with NonStop SQL/MP objects
- Developing protection strategies with the BACKUP and RESTORE utilities for SQL/MP objects
- Volume-mode options of the BACKUP and RESTORE utilities
- Using the tape simulator program to implement BACKUP and RESTORE options
- Possible causes for objects becoming unusable
- Locating unusable objects
- Removing unusable objects
- Identifying the appropriate tools to make objects usable
- Using the simulator program to implement Backup and Restore options

Lab Exercise (Optional, 45 minutes)

Backing Up and Restoring SQL/MP Database Objects

managing NonStop SQL/MP  
database security

- Process for securing the Nonstop SQL/MP environment
- Authorization requirements for SQL/MP operations
- SQL/MP security commands and utilities
- SQL/MP protection views
- NonStop Kernel security and the Safeguard product security characteristics
- Security for the production and development environment

Lab Exercise (1 hour)

Managing SQL/MP Database Security

tools for monitoring  
performance

- Performance tools: SQLCI, Measure product, Tandem Performance Data Collector (TPDC), and basic guidelines for monitoring performance

disk process (DP2)  
performance enhancements

- Methods to enhance the performance of the disk process

managing sorts

- Sorts available to NonStop SQL/MP
- Managing sort processes to control system resources
- Configuring serial and parallel sort operations

controlling NonStop SQL/MP  
processes

- Controlling the impact of NonStop SQL/MP processes on performance

### for more information

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