Course Data Sheet

HP NonStop SQL/MP Database Management

Course description

This course introduces the tasks and tools needed for the daily management and protection of a NonStop™ SQL/MP database. It also covers 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.

Course ID	00071730
HP product number	U4180S
Course format	ILT
Course length	5 day(s)
Skill level	Foundational
Delivery languages	English
Related certifications	• Master ASE - HP NonStop Systems Support [2007] • Master ASE - HP NonStop Solution Architect [2007] • ASE - HP NonStop Systems • CSE - HP NonStop Kernel • CSD - HP NonStop Application Developer (expired)
In preparation for these exams	Selected items from this course are included in these exams: • NonStop Structured Query Language (SQL) • NonStop Kernel System Mgmt. and Operations

Register for this course.
Find this course in the Training calendar and click the "Register" link in the last column to begin your registration.

Who should attend

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

Prerequisites

• 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
For complete prerequisites and requirements to achieve any of the related certifications or upgrade paths, see the certification description on the HP ExpertOne website.

Topics

- NonStop SQL/MP environment
  - Processes, structure, and objects of the NonStop SQL/MP environment
  - Locating the SQL/MP system catalog
  - Determining the number and location of SQL/MP catalogs on a system
  - Identifying and locating the objects registered in an SQL/MP database
  - Related products and additional tables they can create in the SQL/MP system catalog
    Lab Exercise (30 minutes)
    NonStop SQL/MP Environment
  - Locate the system catalog
  - Locate all user catalogs on a system
  - Identify the objects in the PERSNL database and their dependent objects
  - Identify what SQL/MP processes you have running for your session
  - Create a user catalog

- Installation and version management
  - Identifying the system requirements for NonStop SQL/MP
  - Installation and initialization process of SQL/MP software
  - Version management for SQL/MP objects
  - Managing the migration of SQL/MP from one NonStop Kernel operating system release to another
  - Compatibility of SQL/MP software versions within a network
    Lab Exercise (30 minutes)
    Installation and Version Management
  - Identify the versions of NonStop SQL/MP, the catalog, and several objects on your system

- Creating NonStop SQL/MPdatabase objects
  - Planning and creating NonStop SQL/MP database objects
  - Performance considerations and guidelines for creating SQL/MP database objects
  - Query metadata for the SQL/MP objects that have been created
    Lab Exercise (1.5 hours)
    Creating SQL/MP Database Objects

- Copying, loading, appending, reorganizing, and converting data
  - Converting an Enscribe database to a NonStop SQL/MP database
  - Use the COPY utility to load, extract, or display data
  - Using the LOAD or APPEND utilities to load data
  - Reorganizing data in key-sequenced tables and indexes
  - Archiving data from the database
  - Checking the referential integrity of the database

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
  - How DataLoader/MP can be used to load and maintain database data
  - Components of DataLoader/MP (main logic, library routines, and user exits)
  - Building customized DataLoader/MP processes
  - Running DataLoader/MP processes
  - Creating DataLoader/MP processes to load the data given a data loading scenario

- Updating NonStop SQL/MP statistics
  - 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 (Re-create 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
  - TACL 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

- 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

Objectives

After completing this course, you should be able to do the following:

- Manage and protect a NonStop™ SQL/MP database.
- Understand the programs that access the database and other associated database elements.

How to register

View the HP ExpertOne Global Training Calendar to register for the trainings offering that best meets your needs.

Policies, fees and cancellations

Course fees may vary and are established and collected by the training center delivering the course. Cancellation fees may apply. Contact your HP Authorized Training Partner for their respective policies.

For more information

HP ExpertOne: www.hp.com/go/ExpertOne-ContactUs
HP ExpertOne Training: www.hp.com/go/ExpertOneTraining

© Copyright 2014 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Created January 2014, Rev. 1