



***ProductCenter Database  
Merge Utility  
Release Notes***

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# **ProductCenter Database Merge Utility Release Notes**

## **Introduction**

The ProductCenter Database Merge Utility is a custom utility developed by NorthRidge Software, LLC to merge two ProductCenter databases into one. This utility will automate most (but not all) of the tasks associated with the consolidation of two ProductCenter databases. Therefore, this utility should be only used by a qualified ProductCenter administrator or consultant. There are several tasks (e.g. resource file preferences, revision numbering standards, unified security policies, etc.) that still require manual intervention. In addition, there are instances where two ProductCenter databases may share the same names for several of its objects (e.g. part numbers, file names, class names, query names, user names, etc.). Again, a ProductCenter consultant will be needed to rename these objects prior to completing the merge operation.

## **Database Roles**

The ProductCenter Database Merge Utility requires that the role of each database be defined prior to it being executed. The utility recognizes the role of the primary database as the "receiver". The receiver database will be the recipient of the merged data. In general, the receiver database should be chosen based on the total number of files it contains - this will minimize the amount of vault space file renaming required during the merge. The other database is referred to as the "sender". The data within a sender database will copied into the receiver database.

<p>Note: If the sender database has more files than the receiver database, then a warning message will be generated by the ProductCenter Database Merge Utility during the reporting and merge phases.</p>
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## ***How it Works***

The ProductCenter Database Merge Utility operates in three phases during the merge process.

### **Phase 1 - Static Tables**

The first phase is the static table data merge. The static tables are common among all ProductCenter installations. These tables are core to the ProductCenter PDM engine and created every time ProductCenter is installed. During this phase the utility performs following tasks:

1. Calculates new sequence ids for all of the static tables being merged from the sender to the receiver database.
2. Copies every row of the ProductCenter static table from the sender to the receiver database. During the copy, each sequence id is updated to ensure uniqueness in the merged database.
3. If a file is involved, then a Vault Server request is initiated to rename the id of the file in the vault space.
4. Updates the sequence ids for each static table in the newly merged database.

### **Phase 2 - Dynamic Tables**

The second phase is the dynamic table data merge. The dynamic tables are unique to each ProductCenter customer installation. These tables represent a customer specific data model. These tables are defined by customer's using the ProductCenter Forms Editor. During this phase the utility performs following tasks:

1. Calculates new sequence ids for all of the dynamic tables being merged from the sender to the receiver database.
2. Generates an Oracle SQL script containing the "COPY FROM" statements for each dynamic table found in the sender database.
3. Updates every row of during the copy operation so that each sequence id is unique in the merged database.
4. Updates the sequence ids for each dynamic table in the newly merged database.

### **Phase 3 - Vault Space Renaming**

The third phase is the renaming of the sender vault spaces. All vault spaces from the sender database must be renamed to the receiver database name. These vault spaces are unique to each customer installation and are defined in ProductCenter through the

Vault Administration facility. During this phase, the utility performs following tasks:

1. Identifies all of the vault spaces contained in the sender database.
2. Calculates the new vault space database instance names based on the receiver database name.
3. Generates a C shell script containing the UNIX move commands for each vault space found in the sender database.

### ***Importance of Testing***

The ProductCenter Database Merge Utility has successfully merged numerous production databases over the last several years (the first database merge was completed in May of 1998). Experience has shown that each ProductCenter database has its own unique "*personality*". A long-time CMS/ProductCenter customer may have experienced dozens of database upgrades over the years. The CMS/ProductCenter upgrade policy (e.g. default objects created, default sequence id values, old table names, etc.) used during that process may have introduced a unique exception with that customer's database. Usually, these issues will turn-up during the merge process in the form of a runtime error condition (e.g. an Oracle error involving a table constraint). However, an issue may not be discovered until the test and validation phase of the project. This is why it is important that both the customer and the ProductCenter consultant agree on a thorough post-merge test plan. It is only through this process that a customer can be assured that the merge was completely successful.

In most instances, a fix for an issue usually requires a minor change in the logic of the utility (e.g. assumptions about pre-populated default objects or sequence values). Should such an issue be discovered, please contact the support team at NorthRidge Software, LLC to schedule a fix and re-release of the utility.

### **General Project Requirements**

The following is a list of project requirements that should be met as part of the overall ProductCenter Database Merge project effort:

1. Due to the unique nature of each ProductCenter database instance, a test machine should be acquired for the project. This test machine should be configured with a copy of each database involved with the merge operation (receiver and sender). In addition, each vault space associated the

databases should be copied and made available during the testing effort.

2. Prior to a production merge operation, a backup and recovery procedure should be developed and approved by the appropriate IT organizations. Each site should be capable of recovering each database instance and all vault spaces if a failure occurs during the production merge.
3. A complete test plan should be developed by the customer and ProductCenter consultant to ensure that the merge operation completed successfully. This test plan should be approved by the appropriate project leaders of the project.
4. A committee should be established to oversee the normalization decisions for each database merge project. This committee may need to establish one or more of the following policies:
  - a) Standard revision numbering conventions
  - b) Standard part number sequencing conventions
  - c) Date format conventions
  - d) Security (e.g. class defaults, screen permissions, FDA related) policies
  - e) Vault space assignment rules
  - f) Replication space assignment rule
  - g) File type rules
  - h) Unified form definitions
  - i) Unified class structures
  - j) Unified groups and role
  - k) Unified business process flows (e.g. Workflows)

## **Utility Specific Requirements**

The ProductCenter Database Merge Utility has the following requirements:

1. The machine where the utility will be run from must have Oracle installed and configured to access the sender and receiver database.
2. The machine where the utility will be run from should permit TCP/IP connections to be established between the utility and any vault spaces associated with the receiver and sender databases.

3. The ProductCenter 8.4.x release must be installed and the database schema must be upgraded to "*ProdC v8.4.0*".
4. The hardware, OS and Oracle releases on the machine must be supported by the ProductCenter 8.4.x release.
5. The utility should not be run while other users are accessing either databases (receiver/sender). ProductCenter users should be blocked from accessing the databases until the merge operation has been completed.
6. The utility should be operated by a qualified ProductCenter consultant who understands the underlying ProductCenter database schema and possesses the Oracle SQL skills needed to develop custom table update scripts.

## Merge Utility Usage Notes

The ProductCenter Database Merge Utility must be invoked from the command line. It supports one the following operating modes:

### *Report*

This mode will generate a statistics report for both databases involved in the merge. For every ProductCenter table in the ProductCenter database, the report will identify the total number rows and sequence ids associated with them.

### *Analyze*

This mode will generate an analysis report for both databases involved in the merge. All ProductCenter tables which require name uniqueness will be evaluated. Duplicate names will be highlighted in the report.

### *Drop*

This mode will generate a SQL script for dropping ProductCenter tables and indexes. This can be helpful during the testing process.

### *Merge*

This mode will perform the data merge of the two databases. Each merge consists of the following phases: static tables, dynamic choice and attribute tables and vault space renaming.

**Note:** You will always be prompted to confirm the merge operation prior to continuing.

In addition, the merge utility support several command options. Each of these options is defined below.

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usage: nsdbmerge mode [switches]

mode	report	- generate statistics report.
	analyze	- analyze both databases.
	merge	- merge sender to receiver.
	drop	- generate drop table/index SQL scripts.
-log	fname	Log file name.
-rdb	name	Receiver database name.
-rlogin	name	Receiver database login name.
-rpass	password	Receiver database login password.
-sdb	name	Sender database name.
-slogin	name	Sender database login name.
-spass	password	Sender database login password.
-skipvault		Merge only the meta-data. Do not rename vault files. Only applies to merge mode.
-adminonly		Merge only the administration data. Only applies to merge mode.
-errok		Errors are OK, the operation can continue.
-verbose		Generate verbose output messages.

## What's New

This ProductCenter Database Merge Utility release includes three enhancements and two maintenance fixes. The following section provides details of this release.

### Enhancements

The following new features are included in this release.

Enhancement	Description
ProductCenter 8.4.0 Schema	The new ProductCenter 8.4.0 schema must be supported.
HPUX 11.0	The HPUX 11.0 operating system must be supported.
Oracle 8i	The Oracle 8i RDBMS must be supported.

### Maintenance Fixes

The following software defects were fixed in this release.

Defect	Description
12035	Oracle NUMBER data type is now properly supported.
12036	Row processing throughput has been improved.

## Oracle Runtime Access

The ProductCenter Database Merge Utility is a command line utility that requires SQL\*Net access from the host machine. As such, it can be run from the ProductCenter server without any additional configuration. You will need to install an Oracle client on any other host on which you wish to run the utility.

### UNIX Path

As a UNIX user, you will need to have a path to the executable, which is located in the \$CMS\_HOME/bin/arch/os directory of your ProductCenter server. This condition is met by any user that can run ProductCenter from this host.

### Windows Path

As a Windows user, you will need to either have a path to the \$CMS\_HOME/bin/x86/3 folder or you will need to change to that same folder before executing the Database Merge command. It is unlikely that you will have \$CMS\_HOME/bin/x86/3 in your path already.

## System Requirements

The following system requirements are based on the platforms on which the software has been officially validated. Please contact NorthRidge Software if you plan to run on a platform that does not appear below.

Component	Platform	Revision
PDM	ProductCenter	8.4.0
RDBMS	Oracle	8.1.7, 9.2.0
Operating System	Sun Solaris	2.8
	HP/UX	11
	MS Windows	2000, XP

## Product Licensing

The ProductCenter Database Merge Utility must be licensed for each pair of databases being merged. If you are consolidating five databases into one, then you would need the following licenses:

- One for the merge of DB 1 and DB 2
- One for the merge of DB 1 and DB 3
- One for the merge of DB1 and DB 4
- One for the merge of DB 1 and DB 5

Therefore, you would need to purchase four ProductCenter Database Merge Utility licenses from NorthRidge Software, LLC to comply with the example above.

## **Installation Notes**

Please refer to the System Requirements section of this document before installing and running the ProductCenter Database Merge Utility.

The details for the installation process are included in the ProductCenter Database Merge Utility Installation Guide.