

# COMMONWEALTH OF PENNSYLVANIA DEPARTMENT'S OF HUMAN SERVICES, INSURANCE, AND AGING

## INFORMATION TECHNOLOGY STANDARD

Name Of Standard: <b>RDMS Physical Implementation</b>	Number: <b>STD-DMS003</b>
Domain: <b>Data</b>	Category: <b>RDMS Physical Implementation</b>
Date Issued: <b>08/23/2007</b>	Issued By Direction Of: 
Date Revised: <b>09/28/2016</b>	Clifton Van Scyoc, Dir of Division of Technical Engineering

### Abstract:

Within the Database Management Section, the Database Integrity Unit is responsible for database backups and recovery on the UNISYS 2200 mainframe.

The Database Administration Unit is responsible for reviewing and ensuring that all database requests adhere to the Department of Human Services (DHS) Naming Conventions for Unisys 2200 RDMS databases.

The Database Design Unit is responsible for physical database design, schema/subschema creation, and production implementation.

### General:

This document contains the Department of Human Services (DHS) Bureau of Information Systems (BIS) standards for the physical implementation of a relational database management system (RDMS) on a UNISYS 2200 mainframe.

### Standard:

#### **RDMS Schema Creation**

All RDMS schemas are created by the CREATE SCHEMA statement. All RDMS schemas are owned by the database administrators, who have the sole authorization to create, change or drop tables within a specific schema. For information and guidelines on creating a RDMS schema, see Unisys 2200 Relational Data Management System Administration Guide.

## RDMS Naming Conventions

### Schema Name

The RDMS Schema Name - must be at least 10 characters. Alphanumeric codes adhering to the following RDMS format:

RDMS FORMAT = RNNAAEEEF

Where: R = designates a relational schema and is a fixed character.

NN = is a sequential number (21-75) value assigned to uniquely identify the database.

AAA = A three alpha character abbreviation for the applications system supported by this database. Examples are: R04DQR for Disqualified Recipient, R12CJI for Common Judicial Inquiry, etc.

EEE = Designates the environment in which the schema was tailored to operate. PRD = Production, DEV = Development, TRN = Training, SAT = Systems Acceptance, INT = Integration, DBI = Database Integrity Research and Development

F = Designates the function which the schema was tailored to perform. Where 0 = Operational.

Thus R20EOLPRDO is the Production operational relational schema for the Encounter Online database.

### Table Name

The name consisting of Tnnn\_XX...X (a maximum of up to 30 characters (all capitalized) per table name, including underscores (\_) as separators) where 'T' indicates a RDMS Table, nnn designates a three digit sequential table number (see file DPWDMS\*TABLE-FILE on Host IKE-C for a list of available table numbers) and XX...X is an alphanumeric description of table.

### Page Size

All page sizing exercises for physical database designs are conducted with database pages of 448, 896, or 1,792 words. It is important to keep page sizes as standard as possible to avoid fragmenting the page buffer and therefore degrading database management system performance in general.

### Table Size

The table size is based on several factors including the number of rows (volume) in the table, the number of columns, the size of the columns, the primary keys and the size of the primary keys and if indices are involved.

### Data Access Control

Creation of RDMS tables for production applications systems must include the 'DATA ACCESS CONTROL IS ACTIVE' clause to establish RDMS access control. The Database Integrity Unit administers access control privileges. The Applications Developer is responsible for supplying a User-ID for use with the RDMS portion of the application.

### Column Name

The name consisting of Tnnn\_XX...X (maximum of up to 30 characters (all capitalized) per column name, including underscores (\_) as separators where Tnnn relates the column to its table (nnn would be the same

as the table number) and XX...X is an alphanumeric description of the column that would fit the data dictionary standards.

### **Primary Key Name**

The name consists of Tnnn\_PK where Tnnn relates it to the table number and 'PK' indicates Primary Key.

### **Foreign Key Name**

The name consists of Tnnn\_FK where Tnnn relates it to the table number and 'FK' indicates Foreign Key.

### **Secondary Index Name**

The name consists of Tnnn SI<sub>m</sub> where Tnnn relates to the table number and 'SI' indicates a secondary index and if multiple secondary indices are needed, then m indicates a sequential number to make the index unique within each table.

Example: T133\_SI\_1, T133\_SI\_2, etc.

### **Storage-Area Name**

The storage-area name is the same as the table name and there is one table per storage area. Storage area definitions must be created in the repository through UREP (Universal repository). For definitions and examples of how to create and install RDMS storage areas, see the Unisys 220 UREP Administration Guide. The following eight attributes and their settings have been made standard:

- ADD CHECKSUM NO
- ADD COMPRESSION ON
- ADD INITIAL-PAGES (same as MAXIMUM-PAGES)
- ADD MAXIMUM-PAGES (same as INITIAL\_PAGES)
- ADD RECOVERED TRUE
- ADD AUDITED TRUE (This should be FALSE for all other environments)
- ADD LOCK-STRATEGY PAGE
- ADD KEEP-ASSIGNED FALSE

## **RDMS Naming Conventions**

### **Physical File Name**

A physical file name consists of a 6 character file qualifier followed by an asterisk (\*) and up to a 12 character file name. The following are valid qualifiers that designate what environment each physical file will reside: DEVDMS INTDMS SATDMS DPWDMS TRNDMS DBIDMS

- DEVDMS = Development
- INTDMS = Integration
- SATDMS = Systems Acceptance Testing
- DPWDMS = Production
- TRNDMS = Training
- DBIDMS = Database Integrity Research and Development

Examples of physical file names are TRNDMS\*T034-INSCAR RDMS storage-area INSCAR within Training environment) and DPWDMS\*T040-SSN RDMS storage-area SSN within Production environment).

### **Cataloging a Physical File by Environment**

All physical files are cataloged according to the environment in which they will exist. (See above list for valid file qualifiers). When a physical file size for Production is determined, the Database Design Unit communicates with the original requestor, who in turn forwards physical file requirements to Division of Infrastructure Management and Operations, Infrastructure Operations Section in order to request mass storage. When mass storage is available, the Database Integrity Unit physically catalogs the file on HSHA. Assignments are made with MIN and MAX track assignments the same.

The Database Integrity Unit catalogs all production files after the Database Design Unit has provided a physical file size. The Database Design Unit catalogs all non-production files for test environments (DEV, INT, SAT, TRN, DBI) as needed.

## Backups and Recovery

Contingency planning for recovery from hardware/software failures is a responsibility of the Database Integrity Unit. Coordination of procedures takes place with systems development and operations. To request a non routine backup schedule, complete a [Request for Database Service](#) form by following the instructions at [Instructions for Completing a Database Request](#) and email to PW, DBRequests.

## Implementation for Production Database

During the final phase of system development there is a critical need to insure all individual users and operational support personnel are informed and aware of the planned implementation.

An advanced documented implementation plan is prepared and distributed to all areas well in advance. Explanation of their involvement, requirements, and supportive responsibilities is outlined. An implementation meeting must be held where questions and problems can be addressed and resolved.

## Exemptions from this Standard:

There will be no exemptions to this standard.

## Refresh Schedule:

All standards and referenced documentation identified in this standard are subject to review and possible revision annually or upon request by the DHS Information Technology Standards Team.

## Standard Revision Log:

Change Date	Version	Change Description	Author and Organization
08/23/2007	2.0	Reviewed and updated.	P. Gillingham
09/01/2010	3.0	Reviewed and updated.	DBI, P. Gillingham
09/28/2016	3.1	Reviewed and updated.	DBI, P. Gillingham