

SEER Enterprise Shared Database Administrator's Guide

SEER for Software Release 8.5 SEER for IT Release 3.2 SEER for Hardware Release 8.0 SEER for Manufacturing 8.4 SEER for Systems Engineering 3.2

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Galorath Incorporated Proprietary

1.	INTRODUCTION	
2.	DEFINITIONS, ACRONYMS, AND ABBREVIATIONS	
З.	ARCHITECTURE BASICS	5
R O	ELATIONAL DATABASE	5
S	QLS 5	
4.	PLATFORMS	5
D	ATABASE PLATFORMS	5
0	PERATING SYSTEMS FOR THE DATABASE SERVER	5
5.	GETTING STARTED	5
U	TILITIES	5
	5.1.1 SEER Database Set-Up Utility (for Windows)	5
	5.1.1.1 Current Limitations	6
	5.1.1.2 File Location	6
	5.1.1.5 HOW to Run the SEER Enterprise Database directly from scripts	0
	5.1.1.5 Running SEER.DAC.Tools.DbApplicationRoleSetup.exe in Command-Line Mode	8
	5.1.1.6 Troubleshooting	8
Р	REREQUISITES FOR SEER DATABASE	9
	5.1.2 Operating System	9
_	5.1.3 DBMS	9
В	ASIC STEPS	9
	5.1.4 FOI New SEER Application Installation	9 10
	5.1.4.1.1 For SQL Server (and SQL Server Express)	10
	5.1.5 For SEER Application Upgrade	10
	5.1.5.1 Upgrade from SEER-DB for SEER for Software 7.3.X	10
	5.1.5.2 Upgrade from SEER-DB for SEER for Software 8.0.X	11
	5.1.5.3 Required Administrative Privileges	11
	5.1.5.3.1 For SQL Server (and SQL Server Express)	11
	5.1.6 Tasks Performed by Utilities	11 11
	5.1.6.1 SEER Database Set-op Othity (for Wildows)	12
	5.1.7.1 Creating DBMS Logins and Database Users	12
	5.1.7.2 Configuring ODBC Data Sources for Users	12
	5.1.7.2.1 Configuring ODBC Data Source at SEER Application Runtime	12
	5.1.7.3 Setting Default SEER Database	17
	5.1.7.3.1 Setting Default SEER Database at SEER Application Runtime	17
L S	ESKTOP DATABASE	18
0	5.1.8 For "Client" Installations of a SEER Application	18
	5.1.9 For "Local" Installations of a SEER Application	18
6.	ORGANIZATIONAL STRUCTURE FOR SHARED DATABASES	19
P		10
B	Y PROJECT. PROGRAM. OR INITIATIVE	19
N	IULTIPLE DATABASES FOR THE SAME PROJECT, PROGRAM, OR INITIATIVE	19
-	6.1.1 Transferring/Copying Project Revisions between Databases	19
7.	ACCESS CONTROL	19
7	1 NETWORK AND DATABASE SERVER ACCESS	19
7	.2 DBMS Access	19

7.2.1 SQL Server (and SQL Server Express)	
7.2.1.1 Using Windows Network Authentication	
7.2.1.2 Using SQL Server Authentication	
7.2.1.3 Using Mixed-Mode Authentication	
7.3 DATABASE ACCESS	
7.3.1 SQL Server (and SQL Server Express)	
7.3.1.1 Using Windows Network Authentication	
	23 25
TABLE FERMISSIONS FOR SEER APPLICATION USERS	25
7.1.1.1 Changes to Default SEEP Database Polo	25 25
7.4.1.1 Changes to Delault SEER Database Role	25
7.3.3 Assigning Users to Database Role	25
7.3.3.1 SOL Server (and SOL Server Everyes)	20
7 3 4 Granting Explicit Table Permissions to Users	
	20
8. ODBC DATA SOURCE CONFIGURATION	
USAGE BY SEEK APPLICATION	
8.1.1 DBMS Authentication Mode and Login Dialog	
8.1.1.1 SQL Server (and SQL Server Express)	
8.1.1.1.1 Windows Network Authentication	
8.1.1.1.2 SQL Server Authentication	
GENERAL PROCEDURE	
9. DATABASE BACKUPS	37
DATABASE TRANSACTIONS AND ROLLBACKS	37
10. DATA RECOVERY	37
	27
GENERAL DATA CORRUPTION	
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA	37 37
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER	37 37
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS	37 37 37 38 38
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS <i>11.1.1</i> Connecting to a New Database to Manage	
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS <i>11.1.1</i> Connecting to a New Database to Manage <i>11.1.2</i> Managing SEER Users	
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS <i>11.1.1</i> Connecting to a New Database to Manage <i>11.1.2</i> Managing SEER Users <i>11.1.2.1</i> Adding a SEER User	
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA	
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA	
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA	
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1.1 Connecting to a New Database to Manage 11.1.2 Managing SEER Users 11.1.2.1 Adding a SEER User 11.1.2.2 Inactivating a SEER User 11.1.2.3 Activating a SEER User 11.1.3 Setting General User Permissions 11.1.3.1 Setting Access to a Specific Type of Projects for a SEER User	
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1.1 Connecting to a New Database to Manage 11.1.2 Managing SEER Users 11.1.2.1 Adding a SEER User 11.1.2.2 Inactivating a SEER User 11.1.2.3 Activating a SEER User 11.1.3 Setting General User Permissions 11.1.3.1 Setting Access to a Specific Type of Projects for a SEER User 11.1.3.2 Setting Explicit Permissions for Selected User	
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA	37 37 38 38 39 40 41 41 44 44 44 44 44 44 44 44 44 45 37 38 39 40 41 44 44 44 44 44 44 44 45 47 48
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA	37 37 38 38 38 39 40 41 41 44 44 44 44 44 44 44 44 44 44 45 47 47 48 48
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA	37 37 38 38 39 40 41 41 44 44 44 44 44 44 44 44 44 45 45 47 47 48 30 50
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA	37 37 38 38 39 40 40 41 41 44 44 44 44 44 44 44 44 44 44 5 47 47 48 48 50 50
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1 Connecting to a New Database to Manage 11.1 Managing SEER Users 11.1 Connecting to a New Database to Manage 11.1 Connecting to a New Database User 11.1 Connecting to a SEER User 11.1 Setting General User Permissions 11.1 Setting Explicit Permissions for Selected User. 11.2 Managing Database Projects 11.2 Managing or Changing Project Owner 11.2 Adding or Removing Project Permissions 11.2 Adding or Removing Project Permissions 11.2 Conceptible to Project Specific Permissions 11.2 Connecting a SEER User from Project Specific Permissions	37 37 38 38 39 40 40 41 44 44 44 44 44 44 44 44 44 5 350 50 51 54
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA	37 37 38 38 39 40 40 41 44 44 44 44 44 44 44 44 44 50 50 51 51
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1 Connecting to a New Database to Manage 11.1.2 Managing SEER Users 11.1.2 Managing SEER Users 11.1.2 Managing SEER User 11.1.2 Inactivating a SEER User 11.1.2.1 Adding a SEER User 11.1.2.2 Inactivating a SEER User 11.1.2.3 Activating a SEER User 11.1.3 Setting General User Permissions 11.1.3 Setting General User Permissions 11.1.3.1 Setting Access to a Specific Type of Projects for a SEER User 11.1.3 Setting Explicit Permissions for Selected User 11.2 MANAGING DATABASE PROJECTS 11.2.1 Assigning or Changing Project Owner 11.2.2 Adding or Removing Project Owner 11.2.2 Adding or Removing Project Owner 11.2.2 Adding or Removing Project Permissions 11.2.2.1 Adding a SEER User to Project Specific Permissions 11.2.2.2 Removing a SEER User from Project Specific Permissions 11.2.2.3 Setting Project Specific Permissions from SEER for Software 11.2.3 Viewing or Deleting Projects from the Database	37 37 38 38 38 39 40 40 41 44 44 44 44 44 44 44 44 45 47 48 48 50 51 54 54 54
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1.1 Connecting to a New Database to Manage 11.1.2 Managing SEER Users 11.1.2 Managing SEER User 11.1.2.1 Adding a SEER User 11.1.2.2 Inactivating a SEER User 11.1.2.3 Activating a SEER User 11.1.3 Setting General User Permissions 11.1.3.1 Setting Access to a Specific Type of Projects for a SEER User 11.1.3.2 Setting Explicit Permissions for Selected User 11.2.1 Assigning or Changing Project Owner 11.2.2 Adding a SEER User to Project Specific Permissions 11.2.2.1 Adding a SEER User to Project Specific Permissions 11.2.2.2 Removing a SEER User from Project Specific Permissions 11.2.2.3 Setting Project Specific Permissions 11.2.3 Viewing or Deleting Projects from the Database 11.2.3 Viewing Projects	37 37 38 38 39 40 41 41 44 44 44 44 44 44 45 47 48 48 50 51 51 54 54 55
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1.1 Connecting to a New Database to Manage 11.1.2 Managing SEER Users 11.1.2 Managing SEER User 11.1.2.1 Adding a SEER User 11.1.2.2 Inactivating a SEER User 11.1.2.3 Activating a SEER User 11.1.3 Setting General User Permissions 11.1.3.1 Setting Access to a Specific Type of Projects for a SEER User 11.1.3.1 Setting Explicit Permissions for Selected User 11.2 MANAGING DATABASE PROJECTS 11.2.1 Assigning or Changing Project Owner 11.2.2 Adding on Removing Project Permissions 11.2.2.1 Adding a SEER User to Project Specific Permissions 11.2.2.2 Removing a SEER User from Project Specific Permissions 11.2.2.3 Setting Project Specific Permissions from SEER for Software 11.2.3 Viewing or Deleting Projects from the Database 11.2.3.2 Deleting Projects	37 37 38 38 39 40 40 41 44 44 44 44 44 45 44 45 47 48 48 50 51 51 54 55 55 55
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1 Connecting to a New Database to Manage 11.1.2 Managing SEER Users 11.1.2.1 Adding a SEER User 11.1.2.2 Inactivating a SEER User 11.1.2.3 Activating a SEER User 11.1.3 Setting General User Permissions 11.1.3.1 Setting Access to a Specific Type of Projects for a SEER User 11.3.2 Setting Explicit Permissions for Selected User 11.2.1 Assigning or Changing Project Owner 11.2.2 Adding or Removing Project Permissions 11.2.2.1 Adding a SEER User to Project Specific Permissions 11.2.2.2 Removing a SEER User from Project Specific Permissions 11.2.2.3 Setting Project Specific Permissions from SEER for Software 11.2.3 Setting Project Specific Permissions 11.2.2.1 Adding a SEER User from Project Specific Permissions 11.2.2.3 Setting Project Specific Permissions from SEER for Software 11.2.3 Viewing or Deleting Projects from the Database 11.2.3.1 Viewing Projects 11.2.3.3 Deleting the Highest Revision of a Project(s)	37 37 38 38 39 40 41 41 44 44 44 44 44 44 44 45 45 45 50 51 51 54 55 55 55 55 55
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1 Connecting to a New Database to Manage 11.1.2 Managing SEER Users 11.1.2.1 Adding a SEER User 11.1.2.1 Adding a SEER User 11.1.2.1 Adding a SEER User 11.1.2.3 Activating a SEER User 11.1.2.3 Activating a SEER User 11.1.3 Setting General User Permissions 11.1.3.1 Setting Access to a Specific Type of Projects for a SEER User 11.1.3 Setting concerts 11.2.1 Assigning or Changing Project Owner 11.2.2 Adding or Removing Project Permissions 11.2.2.1 Adding a SEER User to Project Specific Permissions 11.2.2.1 Adding a SEER User from Project Specific Permissions 11.2.2.2 Removing a SEER User from Project Specific Permissions 11.2.2.3 Setting Project Specific Permissions from SEER for Software 11.2.3 Viewing or Deleting Projects from the Database 11.2.3.1 Viewing Projects 11.2.3.3 Deleting the Highest Revision of a Project(s) 11.3 CREATING AND EDITING CUSTOM FIELDS (DATABASE ATTRIBUTES)	37 37 38 38 39 40 41 41 44 44 44 44 44 44 44 44 44 50 50 51 51 54 54 55 55 55 55 56 56 56 56
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1.2 Connecting to a New Database to Manage 11.1.2 Managing SEER User 11.1.2 Managing SEER User 11.1.2.1 Adding a SEER User 11.1.2.2 Inactivating a SEER User 11.1.3 Setting General User Permissions 11.1.3.1 Setting General User Permissions 11.1.3.1 Setting Access to a Specific Type of Projects for a SEER User 11.1.3.2 Setting Explicit Permissions for Selected User. 11.2.2 MANAGING DATABASE PROJECTS 11.2.1 Assigning or Changing Project Owner 11.2.2 Adding or Removing Project Permissions 11.2.2.1 Adding a SEER User to Project Specific Permissions. 11.2.2.3 Setting Project Specific Permissions s. 11.2.2.3 Setting Project Specific Permissions for SEER for Software . 11.2.3.1 Viewing Projects from the Database 11.2.3.1 Viewing Projects . 11.2.3.2 Deleting Projects . 11.2.3.3 Deleting the Highest Revision of a Project(s). 11.3.1 Types of Custom Fields. 11.3.1 Types of Custom Fields.	37 37 37 38 38 39 40 40 41 44 44 44 44 44 44 44 44 44 44 44 50 50 51 51 54 55 55 55 55 56 56 56 56
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1 Connecting to a New Database to Manage 11.1 Setting SEER User 11.1 Setting SEER User 11.1 Setting General User Permissions 11.1 Setting Access to a Specific Type of Projects for a SEER User 11.1 Setting Access to a Specific Type of Projects for a SEER User 11.1 Setting Explicit Permissions for Selected User 11.2 MANAGING DATABASE PROJECTS 11.2 Adding or Changing Project Owner 11.2 Adding or Removing Project Permissions 11.2 Adding a SEER User to Project Specific Permissions 11.2 Adding a SEER User for M Project Specific Permissions 11.2 Setting Project Specific Permissions for SEER for Software 11.2 Viewing or Deleting Projects from the Database 11.2 So Viewing or Deleting Projects from the Database 11.2 So Deleting Projects 11.2 Configuring Custom Fields 11.3 CREATING AND EDITING CUSTOM FIELDS (DATABASE ATTRIBUTES) 11.3 Configuring Custom Fields 11.3 Configuring Custom Fields 11.3 Configuring Custom Fields 11.3 Configuring Custom Fields	37 37 37 38 38 39 40 40 41 44 44 44 44 44 44 44 44 44 44 50 50 51 51 54 55 55 55 55 56 56 56 57 57
GENERAL DATA CORRUPTION INCOMPLETE PROJECT REVISION DATA 11. SEER ENTERPRISE DATABASE MANAGER 11.1 MANAGING DATABASE USERS 11.1 Connecting to a New Database to Manage 11.1.2 Managing SEER Users 11.1.2 Managing SEER User 11.1.2.1 Adding a SEER User 11.1.2.1 Adding a SEER User 11.1.2.3 Activating a SEER User 11.1.3 Setting General User Permissions 11.1.3.1 Setting Access to a Specific Type of Projects for a SEER User 11.3.2 Setting Explicit Permissions for Selected User 11.2.1 Assigning or Changing Project Owner 11.2.2 Adding or Removing Project Owner 11.2.2 Removing a SEER User to Project Specific Permissions 11.2.2.1 Adding a SEER User to Project Specific Permissions 11.2.2.3 Setting Project Specific Permissions from SEER for Software 11.2.3 Viewing or Deleting Projects from the Database 11.2.3 Deleting the Highest Revision of a Project(s) 11.3.3 Deleting the Highest Revision of a Project(s) 11.3.1 Types of Custom Fields 11.3.3 Editing Ranges 11.3.4 Editing Ranges	37 37 37 38 38 39 40 40 41 44 44 44 44 44 44 44 45 45 47 47 48 48 50 51 51 51 55 55 55 55 55 55 55 55 55 56 56 57 57 57 57

12. SEE	R FOR SOFTWARE WORKFLOW USING SEER DATABASE	59
12.1	SETTING UP A DEFAULT DATABASE	59
12.2	CONNECTING TO SEER DATABASE	61
12.3	DISCONNECTING FROM A DATABASE	61
12.4	OPENING A PROJECT FROM A DATABASE IN SEER FOR SOFTWARE	61
12.5	SAVING A PROJECT TO A DATABASE IN SEER FOR SOFTWARE	64

1. Introduction

The SEER Enterprise Shared Database is a relational database shared between SEER for Software (SEER-SEM) SEER for IT (SEER-IT), SEER for Hardware (SEER-H), SEER for Manufacturing (SEER-MFG), and SEER for Systems Engineering (SEER-SYS). SEER-SEM, SEER-IT, SEER-H, SEER-MFG, and SEER-SYS provides users with the option of maintaining and sharing project data in a database. The purpose of this document is to provide systems and database administrators with the procedures and technical details for setting up a database for SEER application users who wish to set up desktop databases for their individual use should also read this document. SEER application users who do not intend to use the database capability do not require the information presented in this administrator's guide.

2. Definitions, Acronyms, and Abbreviations

SEER Enterprise Shared Database (SEER-DB): the relational database where data for one or more SEER applications are maintained. More specifically, SEER-DB refers to the database schema, since a user can choose to have a separate instance of SEER-DB for each SEER application, as well as to have multiple instances of SEER-DB for any given SEER application.

SEER Database: an instance of SEER-DB containing the schema extensions required for SEER-SEM, SEER-IT, SEER-H and SEER-MFG; or the database schema thereof.

SEER Applications: refers to SEER for Software (SEER-SEM), SEER for IT (SEER-IT), SEER for Hardware (SEER-H), SEER for Manufacturing (SEER-MFG), and SEER for Systems Engineering (SEER-SYS).

Local Machine: (context-sensitive) the machine where the referenced activity or task is being performed.

Remote Machine: (context-sensitive) a machine other than the machine where the referenced activity or task is being performed.

Local Database: a database on the local machine.

Remote Database: a database on a remote machine.

DBMS: Database Management System.

RDBMS: Relational Database Management System.

DSN: Data Source Name

3. Architecture Basics

Relational Database

SEER Database is a relational database.

ODBC

SEER applications accesses instances of SEER Database via the ODBC call interface.

SQLs

All data types used in the SEER Database schema are ANSI-SQL data types. While SEER applications accesses instances of SEER Database via the ODBC call interface, the underlying database queries are implemented with ANSI SQL.

4. Platforms

Database Platforms

The software design of SEER applications allows an instance of SEER Database to be hosted by any ANSI-SQLcompliant relational database management system (RDBMS), which has an ODBC driver available for the target operating system.

The current release of SEER applications has been tested for use with Microsoft SQL Server (2014, 2016, 2017, 2019 and 2022) and Microsoft SQL Server Express (2014, 2016, 2017, 2019 and 2022). The SEER Database Set-Up Utility delivered with the current release of SEER supports Microsoft SQL Server (2014, 2016, 2017, 2019 and 2022) and Microsoft SQL Server Express (2014, 2016, 2017, 2019 and 2022).

Operating Systems for the Database Server

The software design of SEER applications allows an instance of SEER Database to be hosted by a RDBMS on any operating system for which an ODBC driver is available for the given RDBMS.

The current release of SEER applications has been tested for use with a database server running Microsoft Windows (10, 11, Server 2012, Server 2012R2, Server 2016, Server 2019, and Server 2022). The SEER Database Set-Up Utility delivered with the current release of SEER applications support only Microsoft Windows (10, 11, Server 2012, Server 2012R2, Server 2016, Server 2019, and Server 2022).

5. Getting Started

Utilities

5.1.1 SEER Database Set-Up Utility (for Windows)

To perform a basic database set-up for SEER on Microsoft SQL Server (or SQL Server Express), from a Windows machine, run the SEER Database Set-Up Utility.

The SEER Database Set-Up Utility provides options to perform one or more of the following tasks.

- Create or upgrade an instance of SEER Database.
- Configure an ODBC data source, on the local machine (i.e. the machine where the utility is run), corresponding to the newly created or upgraded SEER Database.

5.1.1.1 Current Limitations

The SEER Database Set-Up Utility currently supports only Microsoft SQL Server (2014, 2016, 2017, 2019 and 2022), and Microsoft SQL Server Express (2014, 2016, 2017, 2019 and 2022). Only a Windows version of the utility is currently available.

5.1.1.2 File Location

The SEER Database Set-Up Utility is a separate download from the main edition package. Look for a link to the SEER DB Setup on your product download page. Once downloaded and extracted, look for a folder called SEER-DB Setup.

5.1.1.3 How to Run the Utility

To start the utility, run the "setup.exe" file from the SEER-DB Setup folder and follow the instructions. In order to create or upgrade a database, the user running the utility must have sufficient privileges and access to the database server.

5.1.1.4 Creating the SEER Enterprise Database directly from scripts

In certain situations it may be better to create the database directly from scripts rather than from the packaged installer. The batch file CreateSeerDb.vbs is located in the \DBSETUP subfolder of the DB installer; there are folders for MS SQL and Oracle. The following information applies to the MS SQL batch file only.

- 1. *CreateSeerDb.vbs* needs to be run as an argument to the *cscript* command in a DOS command window.
- 2. In the DOS command window, the user needs to change directory (*cd*) to the directory containing *CreateSeerDb.vbs* before running it. *CreateSeerDb.vbs* looks for SQL scripts in the current directory, and data files in the "Data" subdirectory.
- 3. Use the SQL Server "sa" login, or equivalent, to create or upgrade an instance of SEER-DB. Using a trusted connection (i.e. with the user's Windows domain login) will be fine if the user is a member of the built-in administrator role in SQL Server. However, if the user owning the database will also be set up as a SEER user, complications may arise in the setup and handling of SEER project permissions.
- 4. Run CreateSeerDb.vbs by typing "cscript CreateSeerDb.vbs [options]" in the DOS command Window where [options] are various arguments to the routine. One "option" that actually is required is the model, necessary for the creation of model-specific tables. For example, if you are creating a SEER Database for SEER-SEM, the command would be "cscript CreateSeerDb.vbs /WITHSEM". Following are specific guidance on its options; the user can alternately type "cscript CreateSeerDb.vbs /?" to get this list.
 - An "isql not found" error can be resolved using the command line option "/MSDECOMPATIBLE", which will make CreateSeerDb.vbs look for osql instead of isql. osql is installed with SQL Server client utilities as well as SQL Express (formerly MSDE), whereas isql is installed only with SQL Server on a server installation. (In a future release, we may eliminate the "/MSDECOMPATIBLE" option and have CreateSeerDb.vbs use osql for all cases.)
 - The "/MSQLNAMED" option is required for specifying a named instance of SQL Server in the <server name> argument to the "/SERVER:<server name>" option; i.e. for other than the default unnamed instance of SQL Server on a given machine.
 - The "/RDB" option is intended for SEER-HD, so the user can ignore that.
 - The "/WITHMFG" and "/ADDMFG" options are placeholders that do not do anything, since SEER-DB does not currently support MFG. The "/WITH<product code>" option tells CreateSeerDb.vbs that the user wants to create the product-specific portion of the database schema.
 - The "/ADD<product code>" option allows the user to create the product-specific portion of the database schema in an existing instance of SEER-DB. CAUTION: when using the "/ADD<product code>" option without the "/UPGRADE" option, make sure that the set of underlying SQL scripts in the directory are the same as when the target SEER-DB instance was created or last upgraded; otherwise the product-specific portion of the database schema created may be incompatible with the core database schema that already exists. In practice, it is probably best to always use the "/ADD<product code>" option in conjunction with the "/UPGRADE" option.

 The "/UPGRADE" option tells CreateSeerDb.vbs that the user wants to upgrade the target SEER-DB instance to the current version, and it will upgrade the product-specific portions of the database schema if and only if they have been previously created. Specifying the "ADD<product code>" option in conjunction with the "/UPGRADE" option tells CreateSeerDb.vbs that, in addition to upgrading the target SEER-DB instance, the user wants to also create the product-specific portion of the database schema.

```
Usage: cscript [cscript options] CreateSeerDb.vbs [options]
options:
  [/SERVER:<server name>|<IP address>]
  [/MSSQLNAMED]
  [/MSDECOMPATIBLE]
  [/DBNAME:<database name>]
  {
    [/NOCONFIRM]
    [
      /TRUSTED
      [ {/DBMSLOGIN:<DBMS login> [/PASSWORD:<password>] }
    1
    }
  {
    /SILENT
    {
      /TRUSTED
      [ {/DBMSLOGIN:<DBMS login> /PASSWORD:<password>}
    }
  }
  [/RDB]
  {
    {[/WITHSEM] [/WITHH] [/WITHMFG] [/WITHIT]}
    | {[/ADDSEM] [/ADDH] [/ADDMFG] [/ADDIT]}
    | {/UPGRADE [/ADDSEM] [/ADDH] [/ADDMFG] [/ADDIT]}
  }
  [/LOGPATH:<log file path>]
  [/OUTDIR:<output dir. path>]
  [/EXITCODEFILE:<exit-code file path>]
  [/DEBUG | /TRACE]
```

- 5. Create an ODBC DSN corresponding to the new instance of SEER Database.
- 6. Run SEER.DAC.Tools.DbApplicationRoleSetup.exe.

5.1.1.5 Running SEER.DAC.Tools.DbApplicationRoleSetup.exe in Command-Line Mode

In the DOS command window, change directory to where the EXE is. Type "SEER.DAC.Tools.DbApplicationRoleSetup /?" to print the command syntax, as shown in the screen shot below:

Command Prompt —	×
Usage Syntax:	^
SEER.DAC.Tools.DbApplicationRoleSetup [/? /help]	
<pre>SEER.DAC.Tools.DbApplicationRoleSetup [/simulate] /server:<server name=""> /dbname:<database login="" login:<sql="" name="" server="" trusted="" {="" =""> /password:<password>} [/approle_pwd_min_length:< inimum length>] [/approle_pwd_max_length:<maximum length="">] [/approle_pwd_must_have_upper /app ole_pwd_disallow_upper] [/approle_pwd_must_have_lower /approle_pwd_disallow_lower] [/approle_ wd_must_have_digit /approle_pwd_disallow_digit] [/approle_pwd_must_have_symbol /approle_pwd_ isallow_symbol]</maximum></password></database></server></pre>	> m p d v

A typical command would look like the following:

```
SEER.DAC.Tools.DbApplicationRoleSetup /server:SERVERNAME /dbname:SEERDBNAME
/login:sa /password:password
```

The command-line mode supports only SQL Server.

There are command-line arguments to specify rules for the randomly generated passwords:

- Minimum length
- Maximum length
- Must have at least one upper-case letter
- Must have at least one lower-case letter
- Must have at least one numeric digit
- Must have at least one special character
- Must not contain upper-case letters
- Must not contain lower-case letters
- Must not contain numeric digits
- Must not contain special characters

5.1.1.6 Troubleshooting

When running the scripts manually, some do not execute the first time through – Try removing ("dropping") the old database and re-installing.

In SEER you successfully connect to the new SEER DB (from the Collaboration menu) and yet you receive an "Unable to connect to or initialize..." error when invoking File / Open from Database – Permissions may not have been correctly configured. Try running SEER.DAC.Tools.DbApplicationRoleSetup.exe.

Prerequisites for SEER Database

5.1.2 Operating System

To set up a SEER Database the host machine for the database, (i.e. the database server,) must be running Windows 2012 or above.

5.1.3 DBMS

To set up a SEER Database the host machine for the database must have an instance of one of the following DBMS's installed.

- SQL Server 2014, 2016, 2017, 2019 or 2022
- SQL Server Express 2014, 2016, 2017, 2019 or 2022

For information on other DBMS's, see the section, "Database Platforms".

Basic Steps

5.1.4 For New SEER Application Installation

There are five basic steps in setting up a SEER Database for use with a new installation of SEER applications:

- 1. Create an instance of SEER Database.
- 2. Create DBMS login(s).
- 3. Create/assign database user(s) for the new SEER Database.
- 4. Configure an ODBC data source, on each user's machine, corresponding to the new SEER Database.
- 5. Set the default SEER Database, for each user's "local" or "client" installation of SEER applications, to the new SEER Database.

The first four steps are required, in order for a user to access a SEER Database from SEER applications. The last step, setting the default SEER Database, is optional. A SEER application user can set his/her default SEER Database at any time, within the SEER application.

Note that Step 5, setting the default SEER Database for a user, can only be performed after SEER application is installed on the user's machine. All other steps can be performed before or after the installation of SEER applications.

5.1.4.1 Required Administrative Privileges

To create an instance of SEER Database, the user must have DBMS administrative privileges for the target instance of the DBMS, where the database is to be created. The SEER Database Set-Up Utility assumes the user has the appropriate administrative privileges.

5.1.4.1.1 For SQL Server (and SQL Server Express)

For SQL Server (and SQL Server Express), a user will have the required administrative privileges to create a database, if one of the following conditions is satisfied.

- The user has access to the SQL Server built-in administrator login, "sa", for the target instance of SQL Server (2014, 2016, 2017, 2019 or 2022) or SQL Server Express (2014, 2016, 2017, 2019 or 2022).
- The user has access to a SQL Server login with privileges to create a database, on the target instance of SQL Server (2014, 2016, 2017, 2019 or 2022) or SQL Server Express (2014, 2016, 2017, 2019 or 2022).
- The user is a member of the Windows built-in administrators group, "Administrators", on the machine where the target instance of SQL Server (2014, 2016, 2017, 2019 or 2022) or SQL Server Express (2014, 2016, 2017, 2019 or 2022) is located.

5.1.5 For SEER Application Upgrade

Upgrade requires that SEER-DB is installed on SQL Server (2014, 2016, 2017, 2019 or 2022) or SQL Server Express (2014, 2016, 2017, 2019 or 2022). Before running the set up for an upgrade, if the current database is installed on SQL Server 2000, it shall be moved to SQL Server 2005, 2008, 2008R2, 2012, 2014, 2016, 2017 or 2019. If SQL Server 2000 is only used for SEER-DB, it is recommended to upgrade the SQL Server 2000 to SQL Server 2014, 2016, 2017, 2019 or 2022. For details, refer to the Microsoft SQL Server (2014, 2016, 2017, 2019 or 2022) documentation.

Database set-up for an upgrade of an existing SEER application installation requires one basic step, provided one or more SEER Databases have previously been set up for the given SEER application installation site:

1. Upgrade the existing instance(s) of SEER Database.

All previously existing database user accounts remain on upgrade, but all the permissions previously granted to "SeerDbUser" database role are revoked. "SeerDbUser" database role is renamed to

"SeerDbUser_DEPRECATED" and shall be deleted manually by the database administrator.

If no SEER Database has previously been set up for the given SEER application installation site, database setup requires the same basic steps as those for a new SEER application installation.

On upgrade the owners of the projects previously saved to the database are set to "dbo", and shall be reassigned by the user with either "seer_admin_dbrole" or "seer_project_admin_dbrole" database role. (See section 11.2.3 for more details.) The assignment shall be done in order for the users to see the project in the list of projects saved to SEER-DB.

5.1.5.1 Upgrade from SEER-DB for SEER for Software 7.3.X

After completing the upgrade install, database administrator shall perform the steps described in Section 7 to add new users and redefine the existing users.

All previously existing database user accounts remain on upgrade, but all the permissions previously granted to "SeerDbUser" database role are revoked. "SeerDbUser" database role is renamed to

"SeerDbUser_DEPRECATED" and shall be deleted manually by the database administrator.

If no SEER Database has previously been set up for the given SEER application installation site, database setup requires the same basic steps as those for a new SEER application installation. Once the users are defined, the steps described in Section 11 of this guide shall be performed.

On upgrade the owners of the projects previously saved to the database from SEER for Software 7.3.X are set to "dbo", and shall be reassigned by the user with either "seer_admin_dbrole" or "seer_project_admin_dbrole" database role. (See section 11.2.4 for more details.) The assignment shall be done in order for the users to see the project in the list of projects saved to SEER-DB.

5.1.5.2 Upgrade from SEER-DB for SEER for Software 8.0.X

After completing the upgrade install, steps described in section 11.1.3 shall be performed to set General User Permissions.

5.1.5.3 Required Administrative Privileges

To upgrade an instance of SEER Database, the user must have database (i.e. dba or dbo) administrative privileges for the database to be upgraded. The SEER Database Set-Up Utility assumes the user has the appropriate administrative privileges.

5.1.5.3.1 For SQL Server (and SQL Server Express)

For SQL Server (and SQL Server Express), a user will have the required administrative privileges to upgrade a database, if one of the following conditions is satisfied.

- The user has access to the SQL Server built-in administrator login, "sa", for the target instance of SQL Server (2014, 2016, 2017, 2019 or 2022) or SQL Server Express (2014, 2016, 2017, 2019 or 2022).
- The user has access to a SQL Server login assigned to a database user mapped, in turn, to the database owner ("dbo") of the database to be upgraded.
- The user is a member of the Windows built-in administrators group, "Administrators", on the machine where the target instance of SQL Server (2014, 2016, 2017, 2019 or 2022) or SQL Server Express (2014, 2016, 2017, 2019 or 2022) is located.

5.1.6 Tasks Performed by Utilities

Utilities are available to perform one or more of the steps required in the set-up of a SEER Database. The following table lists the utilities, along with the operating system(s) and DBMS product(s) supported by each utility. For details on each utility, please refer to Section 5.1, "Utilities".

Table	5-1
-------	-----

Utility	Operating System on Local Machine	DBMS
SEER Database Set-Up	Windows	SQL Server (2014, 2016, 2017, 2019 or 2022), SQL
Utility		Server Express (2014, 2016, 2017, 2019 or 2022)

5.1.6.1 SEER Database Set-Up Utility (for Windows)

The SEER Database Set-Up Utility (for Windows) provides options to perform one or more of the following tasks.

- Create or upgrade an instance of SEER Database, on SQL Server (or SQL Server Express).
- Configure an ODBC data source, on the local machine (i.e. the machine where the utility is run), corresponding to the newly created or upgraded SEER Database on SQL Server (or SQL Server Express).

5.1.7 Manual Steps

5.1.7.1 Creating DBMS Logins and Database Users

DBMS logins and database users need to be created and assigned manually by the database administrator for a new SEER Database. A database user can be associated with a SQL user, Windows user or Windows Group. When a new SEER Database is created, a database administrator shall assign one user a "seer_admin_dbrole" database role. Then either the database administrator or a user with the "seer_admin_dbrole" database role can assign users to "seer_user_admin_dbrole" and "seer_project_admin_dbrole" database roles. For higher security, it is recommended you assign only one user per role.

For details on creating DBMS logins and database users, see the section, "Access Control".

5.1.7.2 Configuring ODBC Data Sources for Users

The SEER Database Set-Up Utility provides an option to configure an ODBC data source corresponding to the newly created or upgraded SEER Database (on SQL Server or SQL Server Express only). However, the ODBC data source can be configured only on the local machine; i.e. on the machine where the utility is run. For a shared remote database, an ODBC data source must be configured manually on each user's local machine. For details on configuring an ODBC data source, see the section, "ODBC Data Source Configuration".

5.1.7.2.1 Configuring ODBC Data Source at SEER Application Runtime

Note that an advanced user can configure new ODBC data sources while running a SEER application, provided the user knows which SEER Databases are set up for the user's version of SEER application, as well as authorized and accessible to that user. The following example demonstrates how to configure a new ODBC data source, corresponding to the desired SEER Database, while setting the default database from the SEER application. Configuring the default database is the same process in other SEER applications that support SEER Database, from "Collaboration" menu \rightarrow "Default Database".

📟 - SEER-SEM		
File Edit Estimate View Reports Charts Tools Options PMC	Collaboration Window Help	
- C C C & A A A A A A A A A A A A A A A A	Project Permissions	te e e 💀 🔤 📟 🖶 🖂 🌡 📟 🐯 🔐 🛃 🍌 ½ 🌆
	Default Database	
44	Connect to Database	
	Disconnect from Database	
	Estimate Results in Database	ER
•••		
Default Database		
ODBC Data Source Name:		
	45	
Verify Data Source		
SetCancel	Help	

Select Data Source		? 🛛
File Data Source Machine Data	Source	
Data Source Name dBASE Files Excel Files LocalServer MS Access Database Visual FoxPro Database Visual FoxPro Tables Xtreme Sample Database 2	Type User System User User User System	Description
		New
A Machine Data Source is spe "User" data sources are speci sources can be used by all use	cific to thi fic to a us ers on this	his machine, and cannot be shared. ser on this machine. "System" data s machine, or by a system-wide service.
		OK Cancel Help





Create New Data Source	
	When you click Finish, you will create the data source which you have just configured. The driver may prompt you for more information.
	System Data Source Driver: SQL Server
	< Back Finish Cancel



Create a New Data So	urce to SQL Server	×
Select a diviet in me off Access off Excel off Excel in a control off Excel in a control in a control off Excel in a control in a control off Excel in a control in a control off Excel in a control in a control off Excel in a control in a control	How should SQL Server verify the authenticity of the login ID? C With Windows NT authentication using the network login ID. With SQL Server authentication using a login ID and password entered by the user. To change the network library used to communicate with SQL Server, click Client Configuration.	
	Connect to SQL Server to obtain default settings for the additional configuration options. Login ID: SqlServerLogin1 Password:	
	< Back Next Cancel Help	

Note: sometimes for extra security a TCP/IP port number may be required since 1433 is widely known and vulnerable to attack. If planning on using a TCP/IP port number, this value may be entered in Client Configuration (see below).

Server <u>a</u> lias:	SERVER1	
Network libraries C Named Eipes C ICP/IP C Multiprotocol C NWLink IPS/SPX C AppleTalls	Connection parameters Server name: SEF Server name: Poynamically determine port Pott number: Pott number:	BVER1
C Banyan <u>V</u> INES C V <u>I</u> A C <u>O</u> ther		

By default, the "Dynamically determine port" box is checked. If you have a specific port number to use then uncheck this box and enter the value for Port number (see below).

Add Network Library Configuration					
Server <u>a</u> lias:	SERVER1	_			
Network libraries	Connection parameters	CERVER1			
ICP/IP <u>Multiprotocol</u>	<u>server name</u> .				
C NWLink IPX/SPX C AppleTalk	Po <u>r</u> t number:	1234			
C Banyan ⊻INES C VIA					
C <u>O</u> ther		OK Cancel Help			

Click OK to leave the Add Network Library Configuration dialog and return to the New Data Source setup and click Next to move to the next step shown below.

Create a New Data So	urce to SQL Server	×
Select a driver to The of Access Soft Excell Soft Excell Control Access Soft Excell Control Con	 Change the default database to: SEERDB1 Attach database filename: Attach database filename: Create temporary stored procedures for prepared SQL statements and drop the stored procedures: Only when you disconnect. When you disconnect and as appropriate while you are connected. Use ANSI quoted identifiers. Use ANSI quoted identifiers. Use the failover SQL Server if the primary SQL Server is not available. 	
	< Back Next > Cancel Help	

Create a New Data Sou	urce to SQL Server 🛛 🛛 🔀
Select a driver to mention Access of old Base To Sold Access of Sold Base To Sold Para Microsoft Tea Sold Para	 Change the language of SQL Server system messages to: English Use strong encryption for data Perform translation for character data Use regional settings when outputting currency, numbers, dates and times. Save long running queries to the log file: C:\QUERY.LOG Browse Long query time (milliseconds): 30000 Log ODBC driver statistics to the log file: C:\STATS.LOG
	< Back Finish Cancel Help



As long as the default database setting is left blank, the user will also have an opportunity to configure a new ODBC data source whenever the user selects the menu command, "Collaboration" \rightarrow "Connect to Database".

🖼 - SEER-SEM		
File Edit Estimate View Reports Charts Tools Options PMC	Collaboration Window Help	
🕒 🕑 🖪 🖶 🖥 🖉 🖉 🕘	Project Permissions	i i i i i i i i i i i i i i i i i i i
	Default Database	
AA	Connect to Database	
	Disconnect from Database	
	Estimate Results in Database	ER

Select Data Source		? 🛛
File Data Source Machine Data	Source	
Data Source Name dBASE Files Excel Files LocalServer MS Access Database Visual FoxPro Database Visual FoxPro Tables Xtreme Sample Database 2	Type User User System User User System	Description
A Machine Data Source is spe "User" data sources are spec sources can be used by all us	ecific to th ific to a us ers on this	New is machine, and cannot be shared. er on this machine. "System" data machine, or by a system-wide service.
		OK Cancel Help

5.1.7.3 Setting Default SEER Database

The SEER Database Set-Up Utility provides an option to set the default SEER Database. However, the default SEER Database can only be set on the local machine; i.e. on the machine where the utility is run. For a shared network database, the default SEER Database must be set individually on each user's local machine. To set the default SEER Database for each SEER application user, run the SEER Database Set-Up Utility on the user's local machine, and select the option to set the default SEER Database only.

5.1.7.3.1 Setting Default SEER Database at SEER Application Runtime

Note that the default SEER Database can be set at any time within a SEER application, using the menu command, "Collaboration" \rightarrow "Default Database". The user can select an existing ODBC data source, as well as configure a new ODBC data source, corresponding to the desired SEER Database. The following example demonstrates how to set the default SEER Database using an existing ODBC data source. For an example on configuring a new ODBC data source, see the section, "Configuring ODBC Data Source at SEER Application Runtime", above.

B - SEER-SEM		
File Edit Estimate View Reports Charts Tools Options PMC	Collaboration Window Help	
D 🗘 🖓 🖨 🔒 🛔 🖉 🖉 🚺	Project Permissions	i te te te 🖬 🔤 🕂 🖂 🌡 🔤 🚟 🛃 🖉 🥵
66	Default Database	
	Connect to Database	
	Disconnect from Database	
	Estimate Results in Database	ER
Default Database		
ODBC Data Source Name:		
Verify Data Source	Help	

Select Data Sourc	e						?	×
File Data Source	Machine Data	Source						
Data Source Nar	me	Tupe	Descript	ion				
dBASE Files Excel Files LocalServer MS Access Data SEERSEM D91 Visual FoxPro Da Visual FoxPro Da Xtreme Sample D	base tabase bles atabase 2	User User System User System User User System	SEER-S	EM Datab	ase 1 or	n SERVI	ER1	
						Nev	v	
A Machine Data "User" data sour sources can be r	Source is spe ices are specif used by all use	cific to thi iic to a use ers on this	s machine er on this i machine,	e, and cani machine. ' or by a sys	not be sl ''System stem-wic	hared. 1'' data Je servic	e.	
			ок 🔓	Ca	ncel		Help	
SQL Server Login]				X			
Data Source:	SEER-SEM D	OB1		OK				
🔲 Use Trusted Cor	nnection			Cano	el			
Login ID:	SqlServerLo	gin1		Hel	P			
Password:	*******	¢		Option	\$ >>			
Default Database						_	1	×
ODBC Data Source	Name: SEEF	-SEM DB	1					
Verify [Data Source		-1				4	
Set	- LJ _	Cancel			H	lelp		

Desktop Database

A SEER application user, with a "local" or "client" installation of a SEER application, can have a local SEER Database for the user's sole use, on the user's own machine. The use of a local SEER Database does not preclude the use of remote/network SEER Databases.

Shared Database

5.1.8 For "Client" Installations of a SEER Application

SEER application users, with "client" installations of a SEER application, can share one or more remote/network SEER Databases, on one or more network machines (i.e. database servers). The database server can be, but is NOT required to be, the same machine on which the "network" installation of SEER application resides.

5.1.9 For "Local" Installations of a SEER Application

While it is feasible for SEER users with "local" installations of a SEER application to share one or more network SEER Databases, this type of set up requires the users' organization to enforce the following constraint.

• The "local" installations of a SEER application, for all users sharing any given network database, are of the same version (for example: If SEER-SEM 8.1.16 is the current version, all SEER Database users must have SEER-SEM 8.1.16. Any version lower than SEER-SEM 8.1.16 will not be able to save to the SEER Database).

6. Organizational Structure for Shared Databases

By Organizational Group

A SEER Database can be set up for an organizational group within the company or organization.

By Project, Program, or Initiative

Alternatively, a SEER Database can be set up for each project, program, or initiative, to be accessed across the company or organization.

Multiple Databases for the Same Project, Program, or Initiative

Multiple SEER Databases can be used for the same project, program, or initiative. However, SEER application project revisions are tracked independently in each database, and the reconciliation and/or synchronization of SEER application project revisions between two databases are NOT supported. The same limitations apply when a user maintains revisions of a project in a local database, in conjunction with a shared remote database.

6.1.1 Transferring/Copying Project Revisions between Databases

In order to transfer or copy a SEER application project revision from one SEER Database to another, the project revision must be opened from the source database and saved as a new "major baseline" in the destination database.

7. Access Control

Access control for a SEER Database, like any other database, is managed through a combination of access controls on the network, on the database server machine, on the DBMS, and on the SEER Database.

7.1 Network and Database Server Access

Access controls on the network and on the database server machine are beyond the scope of this document, and they are the responsibility of the user's IT organization.

7.2 DBMS Access

7.2.1 SQL Server (and SQL Server Express)

SQL Server (and SQL Server Express) supports two authentication modes for access to the DBMS: Windows network authentication and SQL Server authentication. SEER applications support, via ODBC, both modes of authentication for accessing the SEER Database on SQL Server (or SQL Server Express). This section describes how to grant a Windows user access to a SQL Server (or SQL Server Express) instance, for the desired authentication mode. For related information on the configuration of ODBC data sources, see the section, "ODBC Data Source Configuration".

7.2.1.1 Using Windows Network Authentication

To use Windows network authentication to access a SEER Database on SQL Server (or SQL Server Express), no SQL Server logins need to be created. However, each user's Windows network login needs to be added, as a

Windows User or Windows Group, to the target SQL Server (or SQL Server Express) instance. For details, refer to the Microsoft SQL Server (2014, 2016, 2017, 2019 or 2022) documentation.

The following example demonstrates how to grant a user's Windows network login access to a SQL Server (or SQL Server Express) instance, using the SQL Server Enterprise Manager.

🖃 🚞 Security 👘			
🖃 🧰 Logins	New Login		
🐴 sa	Filter	•	
🗉 🚞 Server		·	
🕀 🧰 Credei	Start PowerShell		
Server Ob Benlication	Reports	•	
E D Manageme	Refresh		
- d			
Select a name			
🚰 General	🔄 Script 👻 🚺 Help		
😭 Server Roles 🖙 User Mapping	Login name:	Domain1\User1	Search
Securables	Windows authentication	Domain 10361	
🚰 Status	SQL Server authentication		
	Password:		1
	– Confirm password:		1
	Specify old password		_
	Old password:		1
	Enforce password policy		_
	Enforce password expira	ation	
	✓ User must change passv	word at next login	
	Mapped to certificate	· · · · · · · · · · · · · · · · · · ·	
	🔘 Mapped <u>t</u> o asymmetric key	· · · · · · · · · · · · · · · · · · ·	
0	Map to Credential	×	Add
Lonnection	Mapped Credentials	Credential Provider	1
Server: SUBVERSION			
Connection: SeerAdmin			
View connection properties			
Program			Pamaua
Progress De Boodu			<u>Hemove</u>
	Default <u>d</u> atabase:		
	Default language:	<detault></detault>	
		ОК	Cancel

7.2.1.2 Using SQL Server Authentication

To use SQL Server authentication to access a SEER Database on SQL Server (or SQL Server Express), a SQL Server login must be created by a database administrator for each user who needs to access that database before running SEER for Software with SEER-DB and SEER Enterprise Database Manager. For details, refer to the Microsoft SQL Server (2014, 2016, 2017, 2019 or 2022) documentation.

The following example demonstrates how to create a SQL Server login on a SQL Server (or SQL Server Express) instance, using the SQL Server Enterprise Manager.

🖃 🚞 Security			
E Logins	New Login		
🐣 Sa	Filter 🕨		
	Start PowerShell		
	Reports •		
🗄 🧰 Manageme	Refresh		
		2	
🖥 Login - New			
Select a page	🔄 Script 🝷 🚺 Help		
😭 Server Roles	Login <u>n</u> ame:	SqlServerLogin1	S <u>e</u> arch
Securables	 <u>Windows authentication</u> 		
Status	SQL Server authentication		
	Password:	•••••	
	Confirm password:	•••••	
	Specify old password		
	<u>O</u> ld password:		
	Enforce password policy	,	
	Enforce password expira	ation	
	🔽 User must change passv	vord at next login	
	Mapped to certificate	×	
	Mapped to asymmetric key		
Carrowkie	Map to Credential		Add
Connection	Mapped Credentials	Credential Provider	
SUBVERSION			
Connection: SeerAdmin			
View connection properties			
Progress			Remo <u>v</u> e
Ready	Default <u>d</u> atabase:	master 🗸 🗸	
-415-	Default language:	<default></default>	
			Cancel

7.2.1.3 Using Mixed-Mode Authentication

To allow users the choice between Windows network authentication and SQL Server authentication (i.e. mixedmode authentication), set up each user for both Windows network authentication and SQL Server authentication; as described in the sections above. For details, refer to the Microsoft SQL Server (2014, 2016, 2017, 2019 or 2022) documentation.

7.3 Database Access

7.3.1 SQL Server (and SQL Server Express)

For each user who needs to access a SEER Database on SQL Server (or SQL Server Express), a database user must be created on that database, regardless of the SQL Server authentication mode to be used. In addition, each user's database user name needs to be associated with (i.e. given access from) the user's login to the SQL Server (or SQL Server Express) instance, with the minor variations described below. For details, refer to the Microsoft SQL Server documentation.

7.3.1.1 Using Windows Network Authentication

To use Windows network authentication, each user's database user name needs to be associated with that user's Windows network login, in the target SQL Server (or SQL Server Express) instance.

The following example demonstrates how to create a database user on a SQL Server (or SQL Server Express) database, and associate it with a user's Windows network login, using the SQL Server Enterprise Manager.



🔋 Database User - New		
Select a page	🔄 Script 🝷 🚺 Help	
Securables Extended Properties	<u>U</u> ser name:	Domain1\User1
	⊙ <u>L</u> ogin name:	Domain1\User1
	<u>C</u> ertificate name:	
	◯ <u>K</u> ey name:	
	⊖ <u>W</u> ithout login	
	<u>D</u> efault schema:	
	Schemas <u>o</u> wned by this user:	
	Owned Schemas	
	db_accessadmin	
	db_backupoperator	≡
	db_datareader	
	db_datawriter	_
	db_ddladmin	
Connection	db_denydatareader	
Server: SUBVERSION	Database role <u>m</u> embership:	
Connection	Role Members	A
Connection: SeerAdmin	db_owner	
View connection properties	db_securityadmin	
	seer_admin_dbrole	
Progress	seer_project_admin_dbrole	
Deedu	seer_project_create_dbrole	
Heady	seer_project_modify_dbrole	
-4p-	seer_project_view_dbrole	<u>×</u>
		OK Cancel

7.3.1.2 Using SQL Server Authentication

To use SQL Server authentication, each user's database user name needs to be associated with that user's SQL Server login, in the target SQL Server (or SQL Server Express) instance.

The following example demonstrates how to create a database user on a SQL Server (or SQL Server Express) database, and associate it with a SQL Server login, using the SQL Server Enterprise Manager.

🖃 间 SEM80					
표 🚞 Database Dia	표 🚞 Database Diagrams				
표 🚞 Tables					
표 🚞 Views					
표 🚞 Synonyms					
표 🚞 Programmabil	ity				
표 🚞 Service Broke	r				
표 🚞 Storage					
🖃 🚞 Security					
🖃 🚞 User			L.		
	New User				
<u>k</u>	Filter	•			
<u>.</u>					
<u>.</u>	Policies	•			
A	Facets				
🗄 🧰 Role					
🗄 🧰 Sche	Start PowerShell				
🗄 🧰 Asyı	Describe				
🕀 🛄 Cert	Reports	,			
🗄 🧰 Sym	Refresh		L		

,

🚺 Database User - New		
Select a page	🔄 Script 👻 🚺 Help	
Extended Properties	User name:	SqlServerLogin1
	Login name:	
Connection	db_datawine db_ddladmin db_denydatareader	~
Server: SUBVERSION Connection: SeerAdmin	Database role membership: Role Members db_securityadmin compare admin dbrole	
Progress Ready	seer_project_admin_dbrole	
		OK Cancel

Table Permissions for SEER Application Users

7.3.2 SEER Database Roles

7.4.1.1 Changes to Default SEER Database Role

In earlier releases of SEER-DB, when a new SEER Database was created from the SEER Database Set-Up Utility, a default database role for SEER application users, named "SeerDbUser", was created on the new database. The "SeerDbUser" database role was granted all of the table access permissions required by SEER applications. When upgrading SEER Database, all user accounts remain but all the permissions previously granted to "SeerDbUser" database role are revoked. The "SeerDbUser" database role is then renamed to "SeerDbUser_DEPRECATED", and the database administrator shall delete the role manually.

7.4.1.2 SEER Database Roles

There are three levels of admins, each with certain user assignment rights:

Seer_admin_dbrole – The "super" admin. This admin level can do anything the two following admin roles can do, in addition to actually defining any pre-existing database user as a "SEER User". This role also can assign a user's general permissions; for example, a given user may only be able to browse projects.

Seer_user_admin_dbrole – Like the Seer_admin_dbrole, this role also can define any pre-existing database user as a "SEER User". However, SEER user creation is this role's only purpose.

Seer_project_admin_dbrole – Used to administer SEER Users' relations to specific SEER projects, this role can assign project-specific permissions to individual users, and can also make a specific user the "Owner" of a project.

There also is the "SEER User" who:

- Can have varying <u>general</u> and <u>project-specific</u> permissions according to what has been specified by the admin roles above, or a specific project's owner.
- May be assigned as the "Owner" of a specific SEER project, and thus able to set other users' level of access to that project (project-specific permissions).
- If made the "Owner" of a project, may also transfer ownership to another user.

<u>General</u> permissions are the following; see Section 11.1.3 of the DB admin guide for detail on what these permissions specifically enable:

- Create projects
- View all project names
- View all projects
- Modify all projects
- View selected projects
- Modify selected projects

Project-specific permissions are the following:

- View
- Modify

Attributes for the project-specific permissions are:

- Allow (Note: IF Modify = 'Allow' THEN View = 'Allow')
- Deny

• No permission – permits a user to inherit permission from Windows group or database roles.

	Permissi	Custom Fields			
Role	Set <u>general</u> permissions	Set project- specific permissions	Assign project owner	Create SEER user (must already be a DB user)	Create and Manage Custom Fields
seer_admin_dbrole	Yes	Yes	Yes	Yes	Yes
seer_user_admin_dbrole				Yes	
seer_project_admin_dbrole		Yes	Yes		
{SEER user who is a project owner}		Yes	Yes		

The following table summarizes the permissions information presented in this section:

7.3.3 Assigning Users to Database Role

A database administrator can manage users through a combination of access controls on the network, on the database server machine, on the DBMS, and on the SEER Database.

7.3.3.1 SQL Server (and SQL Server Express)

The following example demonstrates how to assign a database role to a database user, from the "Database User" dialog, in the SQL Server Enterprise Manager. Note that the database role can also be assigned at the time the database user is created, from the same "Database User" dialog.



🧊 Database User - Databas	eOwner		
Select a page	🛒 Script 🝷 🖪 Help		
😭 General			
Extended Properties	User name:	DatabaseOwner	
	Login name:	DatabaseOwner]]
	Certificate name:		
	○ Key name:		
	◯ <u>W</u> ithout login		
	Default schema:	dbo	
	Schemas owned by this user:		
	Owned Schemas		~
	db_accessadmin		
	db_backupoperator		=
	db_datareader		
	db_datawriter		_
	🔲 db_ddladmin		
Connection	db_denydatareader		
	db. depudatawriter		<u> </u>
Server: SUBVERSION	Database role <u>m</u> embership:		
Connection	Role Members		~
SeerAdmin	db_owner		
View connection properties	db_securityadmin		
	seer_admin_dbrole		
Progress	seer_project_admin_dbrole		=
t logioss	seer_project_create_dbrole		
Ready	seer_project_modify_dbrole		
4 ¹² A	seer_project_view_dbrole		~
	<u> </u>		cel
			<u> </u>

The following example demonstrates how to assign a database role to a database user, from the "Database Role Properties" dialog, in the SQL Server Enterprise Manager.



🥫 Database Role Properties	- seer_project_admin_dbrole	
Select a page	🕰 Script 🝷 👔 Help	
iar General Iar Securables Iar Extended Properties	Role name: seer_project_admin_dbrole Owner: dbo	
	Schemas owned by this role:	
	Owned Schemas	^
	db.	
	db_securityadmin	
	db_owner	
	db_backupoperator	~
	Members of this role:	
	DatabaseOwner	
Connection	seer_admin_dbrole	
Server: SUBVERSION		
Connection: SeerAdmin		
View connection properties		
Progress		
C) Ready	Add	R <u>e</u> move
	ОК	Cancel

🏖 Select Database User or Role	\mathbf{X}
Select these object types:	
Users, Database roles	Object Types
Enter the object names to select (examples):	
Enter the object hames to select (<u>examples</u>).	
	<u>C</u> heck Names
	Browse
	ancel Help

🙈 Select Database User or Role	
Select these object types:	
Users, Database roles	Object Types
Enter the object names to select (<u>examples</u>):	-
[DatabaseOwner]	Check Names
	Browse
ОК	Cancel Help

7.3.4 Granting Explicit Table Permissions to Users

Alternatively, permissions can be granted explicitly to the database user created for each SEER application user other than "seer_admin_dbrole", "seer_project_admin_dbrole" database roles. To insure that a SEER application user has all the table access permissions required by the SEER application, grant to each database user the same permissions granted to the "seer_project_admin_dbrole" database role.

8. ODBC Data Source Configuration

Usage by SEER Application

SEER applications access a SEER Database via ODBC. Therefore, each SEER application user must have an ODBC data source configured for each SEER Database the user will access.

ODBC security concerns: The ODBC connection strings are transmitted from the local machine to the database server through the organization's private network or VPN. The connection strings are never transmitted through the internet or intranet using HTTP/HTTPS. With the exception of the SEER Browser, SEER products are not web-based applications vulnerable to HTTP/HTTPS transmissions.

8.1.1 DBMS Authentication Mode and Login Dialog

SEER application delegates all user authentication to the target DBMS, when attempting to connect to a SEER Database. The DBMS login dialog displayed to a SEER application user is dependent on the particular DBMS, as well as the Windows ODBC driver for that DBMS on the user's machine.

8.1.1.1 SQL Server (and SQL Server Express)

SQL Server (and SQL Server Express) supports two authentication modes: Windows network authentication and SQL Server authentication. The authentication mode(s) supported is a configuration property particular to each SQL Server (or SQL Server Express) instance. However, the authentication mode set in the ODBC data source configuration will be the default authentication mode used by the ODBC driver to connect to the corresponding database. For the best user experience, a user's ODBC data source corresponding to a SEER Database should be configured with an authentication mode consistent with the authentication mode(s) configured for the target SQL Server (or SQL Server Express) instance. In addition, it should be consistent with the type of DBMS login assigned to that user; i.e. Windows network login and/or SQL Server login. For details on DBMS and database access, see the section, "Access Control".

8.1.1.1.1 Windows Network Authentication

If a SEER application user's ODBC data source (corresponding to the target SEER Database) is configured for Windows network authentication, no login dialog will be displayed, when the user attempts to connect to the database. The ODBC driver will attempt to connect to the database using a "trusted" connection. In order for the connection to succeed, the user's Windows network login must have been granted access to the target SQL Server (or SQL Server Express) instance, as well as access to the target database on it. For details on DBMS and database access, see the section, "Access Control".

8.1.1.1.2 SQL Server Authentication

If a SEER application user's ODBC data source (corresponding to the target SEER Database) is configured for SQL Server authentication, a SQL Server login dialog will be displayed, when the user attempts to connect to the database. The user will have the option to enter a SQL Server login ID and password, or to connect using a "trusted" connection. If the user chooses to connect using a "trusted" connection, Windows network authentication is used. If the user enters a SQL Server login ID and password, SQL Server authentication is used. In order for the connection to succeed using SQL Server authentication, the target SQL Server (or SQL Server Express) instance must have been configured for SQL Server (or mixed-mode) authentication. In addition, the SQL Server login entered by the user must exist on the target SQL Server (or SQL Server Express) instance, as well as have access, via an associated database user name, to the target database on it. For details on DBMS and database access, see the section, "Access Control".



General Procedure

This section describes the general procedure for creating and configuring an ODBC data source to access a database (via ODBC). The procedure presented is for a minimal ODBC data source configuration. The information is intended for systems administrators who are new to ODBC data source configuration, and for users who wish to configure their own ODBC data sources. Beginners can also use the *SEER Database Set-Up Utility* to configure a basic ODBC data source corresponding to a SEER Database. For details on ODBC data source configuration, please refer to the Windows online help and other documentation from Microsoft.

To set up an ODBC data source corresponding to a database, follow the procedure described in this section. Note that the ODBC-driver-specific details presented are for Microsoft SQL Server (or SQL Server Express).

STEP 1. Open the ODBC Data Source Administrator dialog, as follows.

- **a.** Open the Control Panel.
- b. From the Control Panel, open "Administrative Tools".
- c. From "Administrative Tools", open "ODBC Data Sources (64-bit)".



Control Panel > All Control Panel Items > Administrative Tools >

^	Name	Date modified	Туре	Size
	🌮 Microsoft Azure Services	7/16/2016 6:19 AM	Shortcut	2 KB
	📷 ODBC Data Sources (32-bit)	7/16/2016 6:18 AM	Shortcut	2 KB
	靋 ODBC Data Sources (64-bit)	7/16/2016 6:18 AM	Shortcut	2 KB
	Performance Monitor	7/16/2016 6:18 AM	Shortcut	2 KB

- **STEP 2.** In the "ODBC Data Source Administrator" dialog, select the "System DSN" or "User DSN" tab. To configure an ODBC data source shared by all users on the system, select the "System DSN" tab. To configure an ODBC data source visible only to the user who created it (i.e. yourself), select the "User DSN" tab. Note that, to create a system DSN, one must be logged into Windows as "Administrator", a user in the "Administrators" group, or a user with administrative privileges.
- **STEP 3.** In the "System DSN" or "User DSN" tab of the "ODBC Data Source Administrator" dialog, click on "Add".

ODBC Data Source /	Administrator (64-bit)			×
User DSN System DSN	File DSN Drivers Trac	ng Connection Pooling	About	
System Data Sources:				
Name	Platform Driver		A <u>d</u>	d
			<u>R</u> em	ove
			<u>C</u> onfig	jure
<			>	
This is a 32- Administrato	bit System DSN. It can only b r.	e removed or configured	with the 32-bit ODBC D	ata Source
		OK Can	cel <u>A</u> pply	Help

- **STEP 4.** In the "Create New Data Source" dialog, do the following.
 - a. Scroll down the list of drivers and look for an item named "SQL Server Native Client".
 - b. Select the item named "SQL Server Native Client".
 - c. Click on "Finish".
 - d. Observe that a new dialog titled "Create a New Data Source to SQL Server" appears.

NOTE: Additional ODBC Drivers are supported: SQL Server and ODBC Driver for SQL Server

Create New Data Source	Select a driver for which you want to set up a data source	×
	Name \^ Microsoft Excel Driver (*xls, *xlsx, *xlsm, *xlsb) 1 ODBC Driver 11 for SQL Server 2 ODBC Driver 13 for SQL Server 2 Oracle in OraClient 11g_home1 1 SQL Server 1 SQL Server Native Client 11.0 2 SQL Server Native Client RDA 11.0 2	
	< > > < Cancel	

STEP 5. In the first screen of the "Create a New Data Source to SQL Server" dialog, do the following.

- **a.** In the "Name" field type a name by which the user(s) will refer to this ODBC data source and, in turn, the target database. This name is referred to as the data source name (DSN).
- **b.** In the "Description" field, optionally type a description for this ODBC data source.
- **c.** In the "Server" field, select or type the server name of the target SQL Server (or SQL Server Express) instance; or type "(local)" for the local machine. For a named instance of SQL Server (or SQL Server Express), append "\<instance name>" to the server name, where <instance

name> is the name of the SQL Server (or SQL Server Express) instance; e.g. "(local)\SQLEXPRESS_SEERDB".

d. Click on "Next".

Create a New Data So	urce to SQL Server
Select a divide two Select a divide two off Access off Access	This wizard will help you create an ODBC data source that you can use to connect to SQL Server. What name do you want to use to refer to the data source? Name: SEER-SEM DB1 How do you want to describe the data source? Description: SEER-SEM Database 1 on SERVER1 Which SQL Server do you want to connect to? Server: SERVER1
	Finish Next>

- **STEP 6.** In the second screen of the "Create a New Data Source to SQL Server" dialog, do the following.
 - **a.** To access the target SQL Server (or SQL Server Express) with Windows network authentication, select the option, "With Windows NT authentication ...". To access the target SQL Server (or SQL Server Express) with SQL Server authentication, select the option, "With SQL Server authentication ...".
 - **b.** Verify that the option "Connect to SQL Server to obtain default settings ..." is selected.
 - c. For SQL Server authentication, enter the SQL Server login and password to use when connecting to the target SQL Server (or SQL Server Express). Note that this SQL Server login and password is used to connect to SQL Server to obtain default settings during the data source configuration. This SQL Server login is will also be displayed as the default login, whenever the user(s) try to connect to the target SQL Server (or SQL Server Express) via this ODBC data source.
 - d. Click on "Next".

Create a New Data So	urce to SQL Server	×
Select a divertiment Access of the solution of	How should SQL Server verify the authenticity of the login ID?	
	< Back Next> Cancel Help	_

STEP 7. This is an optional step is only required if you have a specific TCP/IP port number if desired for extra network security.

In the same Create a new Data Source to SQL Server dialog, click on "Client Configuration" button.

- A new dialog called Add Network Library Configuration will open up. a.
- In the Add Network Library Configuration dialog (below) uncheck the Dynamically determine b. port box and enter the port number value below. In my example, I used "1234" as a port number. Click on "OK".

Add Network Library Configura	ation	X
🧕 Server <u>a</u> lias:	SERVER1	_
Network libraries	Connection parameters	
O Named Pipes	Server name:	SERVER1
• ICP/IP		1
C Multiprotocol	Dynamically determine port	
© NWLink IP⊠/SPX	Port number:	1234
C AppleTal <u>k</u>	-	
C Banyan ⊻INES		
C V <u>I</u> A		
© <u>O</u> ther		
		OK Cancel Help

- STEP 8. In the third screen of the "Create a New Data Source to SQL Server" dialog, do the following.
 - a. Select the option, "Change the default database to".
 - b. From the drop-down list under the option, "Change the default database to", select the item corresponding to the name of the target database, (on the target SQL Server or SQL Server Express instance).
 - c. Click on "Next".

C.

Create a New Data So	urce to SQL Server 🛛 🔀
Select a diverto	Change the default database to:
me solt Access I	SEERDEN
Soft Excel [
N Store Toll ODB	Create temporary stored procedures for prepared SQL statements and drop the stored procedures:
Sul Sav	 Only when you disconnect. When you disconnect and as appropriate while you are connected
	Use ANSI quoted identifiers.
19422 142224	Use ANSI nulls, paddings and warnings.
	Use the failover SQL Server if the primary SQL Server is not available.
	< Back Next > Cancel Help

- STEP 9. In the fourth and last screen of the "Create a New Data Source to SQL Server" dialog, do the following.
 - Accept all defaults. a.
 - b. Click on "Finish".
 - Observe that a new dialog titled "ODBC Microsoft SQL Server Setup" appears. C.

Create a New Data So	urce to SQL Server 🛛 🛛 🗙
Select a diviet in me on Access T on di dase T in cont Access T on di dase T in cont Access T in cont Pare port ODBr on DBr on DBr on Select a diviet in in cont Access T in cont Ac	 Change the language of SQL Server system messages to: English Use strong encryption for data Perform translation for character data Use regional settings when outputting currency, numbers, dates and times. Save long running queries to the log file:
-Hal	C:\QUERY.LOG Browse
	Long query time (milliseconds): 30000
	Log ODBC driver statistics to the log file:
	C. Val M. I a. Lucid
	< Back Finish Cancel Help

- **STEP 10.** Test the configuration of the new ODBC data source, as follows.
 - a. In the "ODBC Microsoft SQL Server Setup" dialog, click on "Test Data Source...".
 - In the "SQL Server ODBC Data Source Test" dialog, verify that the test results show "TESTS COMPLETED SUCCESSFULLY".
 - c. In the "SQL Server ODBC Data Source Test" dialog, click on "OK".

ODBC Microsoft SQL Server Setup	×
A new ODBC data source will be created with the followin configuration:	Ig
Microsoft SQL Server ODBC Driver Version 03.81.9042 Data Source Name: SEER-SEM DB1 Data Source Description: SEER-SEM Database 1 on SERVER Server: SERVER1 Database: SEERDB1 Language: [Default] Translate Character Data: Yes Log Long Running Queries: No Log Driver Statistics: No Use Integrated Security: No Use Regional Settings: No Prepared Statements Option: Drop temporary procedures on disconnect Use Failover Server: No Use Failover Server: No Use ANSI Quoted Identifiers: Yes Use ANSI Quoted Identifiers: Yes Data Encryption: No	1
Test Data Source	ancel



- **STEP 11.** Complete the configuration of the new ODBC data source, as follows.
 - **a.** In the "ODBC Microsoft SQL Server Setup" dialog, click on "OK".
 - **b.** Optionally, in the "ODBC Data Source Administrator" dialog, scroll down the list of data sources to verify that your new data source has been added.
 - c. In the "ODBC Data Source Administrator" dialog, click on "OK".

ODBC Microsoft SQL Server Setup	×
A new ODBC data source will be created with the following configuration:	
Microsoft SQL Server ODBC Driver Version 03.81.9042 Data Source Name: SEER-SEM DB1 Data Source Description: SEER-SEM Database 1 on SERVER1 Server: SERVER1 Database: SEERDB1 Language: (Default) Translate Character Data: Yes Log Long Running Queries: No Log Driver Statistics: No Use Integrated Security: No Use Regional Settings: No Prepared Statements Option: Drop temporary procedures on disconnect Use Failover Server: No Use Failover Server: No Use ANSI Quoted Identifiers: Yes Use ANSI Quoted Identifiers: Yes Data Encryption: No	
Test Data Source OK Can	cel

S.	ODBC [Data Source Ac	dministrate	or (64-bit	t)					×
ι	lser DSN	System DSN	File DSN	Drivers	Tracing	Connection	Pooling	About		
	System Da	ata Sources:								
	Name		Platform	Driver					Add	
	SEERD SEER-IT	B [3-0_LaborRole:	64-bit s 64-bit	SQL Se Microso	rver Nativ ft Access	e Client 11.0 Driver (*.mdb,	*.accdb)	Remove	
	SEER-IT	[3-0_Lookup	64-bit	Microso	ft Excel D	river (*xls, *xl	sx, *xlsm	n, *xde	Configure	
	<							>		
	An ODBC System data source stores information about how to connect to the indicated data provider. A System data source is visible to all users of this computer, including NT services.									
						ОК	Cano	cel	Apply Hel	p

STEP 12. Close "Administrative Tools".

9. Database Backups

Regularly scheduled backups of SEER Databases containing critical data are strongly recommended.

Database Transactions and Rollbacks

The current release of SEER applications does not support database transactions and rollbacks. Therefore, backups of SEER Databases are particularly important for the current release of SEER application.

10. Data Recovery

General Data Corruption

If a general data corruption occurs in a SEER Database, data should be recovered from the most current database backup.

Incomplete Project Revision Data

In the event data for a SEER application project revision is partially saved to the database, due to a network failure or other system-related failure, please contact technical support at Galorath Incorporated.

11. SEER Enterprise Database Manager

SEER Enterprise Database Manager is a SEER collaboration tool designed to create user accounts and access privileges, assign a project owner and specific access permissions for SEER projects saved to SEER-DB. It can also be used to setup and configure database custom fields.

SEER Enterprise Database Manager installs separately from SEER Applications and SEER Database. To install, run setup.exe from the SEER Enterprise Database Manager folder of your SEER DB Setup package. Once installed, it can be launched from the start menu under the SEER\SEER Data Access Components menu item. Or you may run **SEER.DAC.Tools.EnterpriseManager.exe** directly from the installation folder C:\Program Files \SEER\SEER-DB Manager,



11.1 Managing Database Users

"Seer_admin_dbrole" database role has the privileges of both "seer_user_admin_dbrole" and "seer_project_admin_dbrole". "Seer_admin_dbrole" database role user can set access permissions to SEER Database for other users initially added by a database administrator, change project owners and set project specific permissions. Only "Seer_admin_dbrole" database role user can assign General User Permissions to a specific type of project data (i.e. SEER for Software).

Users with "seer_admin_dbrole" and "seer_user_admin_dbrole" database role can run SEER Enterprise Database Manager to define the users initially added by a database administrator who have access to the target SEER Database.

Users with "seer_admin_dbrole" and "seer_project_admin_dbrole" database roles can run SEER Enterprise Database Manager to assign Project Owners and Project Specific Permissions.

Users other than "seer_admin_dbrole" and "seer_project_admin_dbrole" database role users can assign project specific permissions to other users for the projects they own but cannot modify any other settings.

Once the SEER Database has been installed and the database administrator has created the appropriate DB logins and user accounts (as described in section 7), an administrator with the database role of "seer_admin_dbrole" or "seer_user_admin_dbrole" can proceed to create SEER Users that correspond to these DB users (described in section 11.2.2 below).

After SEER User is mapped to DB user, "seer_admin_dbrole" database role user can provide the user with access to application specific projects and their general permission profile under General User Permission.

By creating a SEER User that maps to a particular database login and adding the user to "Users having explicit permissions" under General User Permissions for a specific type of project data, it grants that user explicit permissions (see section 11.2.3). Whereas database users operate within the context of the database (tables,

queries, etc.), SEER Users operate within the context of the collaboration features (locking projects, saving projects, etc).

Note: database roles cannot be assigned using SEER Enterprise Database Manager; DBMS logins and database users need to be created first and assigned manually by database administrator once a new SEER Database is created.

11.1.1 Connecting to a New Database to Manage

Select the menu command, "Database" \rightarrow "New Database to Manage".

💀 SEER Enterprise Database Manager		. 🗆 🛛
Database Access Control Window		
Connect		
Disconnect	Summary	
New Database to Manage		
	Database Server:	
	Database:	
	Login Name:	

In Select Data Source dialog window, activate Machine Data Source tab and select DSN for the database to connect to from the existing DSNs.

Once the connection is established, the database will be listed under Servers tree.

😸 SEER Enterprise Database Manager			
Database Access Control Window			
 Servers SUBVERSION Databases SEM80 	Summary Database Server: Database: Login Name:	SUBVERSION SEM80 SeerAdmin	

11.1.2 Managing SEER Users

Logged in as "seer_admin_dbrole" or "seer_user_admin_dbrole" database role user, select the menu command, "Access Control" \rightarrow "Users".

🔜 SEER En	terprise Database Manager			
Database	Access Control Window			
1	Users	1		
Servers	Project Owners Project Permissions	Summary Database Server: Database: Login Name:	SUBVERSION SEM80 SeerAdmin	

🖶 SEER Enterprise Database Manager		
Database Access Control Window		
	Summary SEER Users	
	Users you are authorized to view:	
SEM80	Inactive SEER User Database User or Role	
	🍰 🔲 SEER Administrators seer_admin_dbrole	
	👗 🗌 SeerUser1 SeerDBUser1	
	SeerUser2 SeerDBUser2	
	New Modify More Columns >	
	Close	
]	

11.1.2.1 Adding a SEER User

Click New button on Users tab to invoke SEER User dialog.

🖶 SEER Enterprise Database Manager		_ 🗆 🗙
Database Access Control Window		
Servers Databases SEM80	Summary SEER Users Users you are authorized to view: SEER User SEER User or Role Name: Database User or Role Name: Type: Full Name: Comments: Inactive New Modify More Column	Ins >>
<u></u>	<u></u>	:

From SEER User dialog click on Browse button, then select the user from the list of users and roles in the database administrator authorized list. Highlight the selection and click OK. SEER User Name is automatically populated on Database User selection.

💀 SEER En	terprise Database Manager		
Databas	Select Database User or Rol		
: Serv	Database users and roles you are au	uthorized to view:	
	Name	▲ Туре	
	🎄 dbo	Database User	
	💩 guest	Database User	
	💑 public	Database Role	
	🝰 seer_project_admin_dbrole	Database Role	
	å seer_project_create_dbrole	Database Role	
	å seer_project_modify_dbrole	Database Role	
	💑 seer_project_view_dbrole	Database Role	Inactive
	💑 seer_user_admin_dbrole	Database Role	
	🍰 seer_user_admin_dbrole	Database Role	OK Cancel
	🌡 SeerDBUser3	Database User	
			More Columns >>
		OK Cancel	Close

🖳 SEER Enterprise Database Manager		
Database Access Control Window		
<u>:</u>		
Servers Si	ummary SEER Users	
⊡ SUBVERSION ⊟ Databases		
	🔜 SEER User	
	SEER User Name:	SeerUser3
	Database User or Role Name:	SeerDBUser3
	Туре:	Database User
	Full Name:	
	Comments:	
		Inactive
	New Modify	More Columns >>
		Ciuse

11.1.2.2 Inactivating a SEER User

Highlight the SEER User in the "Users you are authorized to view" list on SEER Users tab, click Modify button, and then check Inactivate box.

11.1.2.3 Activating a SEER User

To activate a previously inactivated user, highlight the SEER User in the "Users you are authorized to view" list on SEER Users tab, click Modify button, and then uncheck Inactivate box.

11.1.3 Setting General User Permissions

"Seer_admin_dbrole" database user can assign general permission profile and explicit permissions for accessing specific types of projects per user. Logged in as "seer_admin_dbrole" database role user, select the menu command "Access Control" \rightarrow "General User Permissions".

	🔜 SEER Enterprise Database Manager				
Γ	Database	Access Control	Window		
		Users			
	Servers	General Use	er Permissions	Immary	
	🖨 SHR				

11.1.3.1 Setting Access to a Specific Type of Projects for a SEER User

Select Type of project data.

Click Add Button to add a SEER User, highlight the user in the list, and click OK.
--

11.1.3.2 Setting Explicit Permissions for Selected User

Check all the boxes that apply to a specific user and click Apply button to save the changes.

🔜 SEER Enterprise Database Manager		
Database Access Control Window		
 Gervers SUBVERSION □ Databases □ SEM80 	Summary General User Permissions Use this form to control which users have access to projects and their general permission profile. P specific changes from these general permissions can be made on the Project Specific Permissions Type of project data to control.	roject- form.
	SEER for Software	•
	Users having explicit permissions:	
	SEER User	
	Useri	
	0.2612	~
	Add <u>R</u> emove	
	Explicit permissions for selected user	
	Permission Allow Deny	
	Create Projects	
	View All Project Names	
	View All Projects	
	Modify All Projects	
	View Select Projects	
	Modify Select Projects	
	OK Close A	\pply
]	.:

Create Projects	Permission to create projects, view and modify only the specific user's created project.
View All Project	Permission to see the list of all projects saved to SEER-DB for the type of project data.
Names	
View All Projects	Permission to view all projects saved to SEER-DB for the type of all project data.
Modify All Projects	Permission to view and modify all projects saved to SEER-DB for the type of all project
	data.
View Selected	Permission to view only selected projects for which View permission is set to Allow
Projects	under the Project Specific Permission.
Modify Select	Permission to view and modify only selected projects for which Modify permission is set
Projects	to Allow under the Project Specific Permission.

- In the context of explicit permissions (i.e. during administration), "No Permission" is as "Inherit Permission". In the context of effective permissions (i.e. when using SEER-SEM), "No Permission" is as "Not Allowed".
- When determining a user's effective permissions, a "Deny" setting on a permission, regardless of its position in the permission hierarchy and its position in the inheritance chain, always overrides any and all "Allow" settings in the permission hierarchy and inheritance chain.
- In order for a user to view a given project, the "View Select Projects" permission for the "SEER for Software" project type in General User Permission and the "View" permission for the given project in Project Specific Permission must both be granted.

- In order for a user to modify a given project, the "Modify Select Projects" permission for the "SEER for Software" project type in General User Permission and the "Modify" permission for the given project in Project Specific Permission must both be granted.
- Granting a user the "View All Projects" permission for the "SEER for Software" project type allows the user to view all SEER-SEM projects, with the exception of projects for which the "View" permission is set to "Deny" for that user.
- Granting a user the "Modify All Projects" permission for the "SEER for Software" project type allows the user to modify all SEER-SEM projects, with the exception of projects for which the "Modify" permission is set to "Deny" for that user.
- Setting a user's "View Select Projects" permission for the "SEER for Software" project type to "No Permission" or "Deny" has the effect of NOT allowing the user to view ANY SEER-SEM projects. Note the distinction between this setting and a "No Permission" or "Deny" setting for the "View All Projects" permission, which means the user is NOT allowed to view ALL SEER-SEM projects.
- Setting a user's "Modify Select Projects" permission for the "SEER for Software' project type to "No Permission" or "Deny" has the effect of NOT allowing the user to modify ANY SEER-SEM projects. Note the distinction between this setting and a "No Permission" or "Deny" setting for the "Modify All Projects" permission, which means the user is NOT allowed to modify ALL SEER-SEM projects.

11.2 Managing Database Projects

11.2.1 Assigning or Changing Project Owner

Logged in as "seer_admin_dbrole" or "seer_project_admin_dbrole" database role user or a current project owner, select the menu command, "Access Control" \rightarrow "Project Owners".

🔜 SEER Ent	terprise Database Manager	
Database	Access Control Window	
1	Users	
😑 Servers	General User Permissions	Immary SEER Users
⊜ SUB	Project Specific Permissions	
	Project Owners	

Click Browse button to select a SEER for Software project from the list of projects currently saved to SEER-DB.

💀 SEER Enterprise	Database Manager				
Database Access C	ontrol Window				
<u> </u>					
Servers		Summary SEER Users	Project Owner		
Databases	Han in the	- Project			
SEM80	🔚 Select Project				
	Projects you are aut	thorized to view:			
	Name	🔺 Туре	Comments	Category	
	WATCHER	SEM	Project included	Sample Project	
				K Cancel	
				OK Close	Apply

Once the project is selected, in the "Change owner to:" list on Project Owner tab select the SEER User who owns the project by checking the box, and then click Apply to save the changes.

🖶 SEER Enterprise Database Manager		
Database Access Control Window		
Database Access Control Window	Summary SEER Users Project Owner Project Name: WATCHER Type: SEER-SEM Owner [DatabaseOwner] Change owner to: SEER User SEER User Full Name SeerAdmin User1 SEER User3 SEER UserAdmin SEER UserAdmin SEER Administrators	
	OK Close A	pply
		.::

11.2.2 Adding or Removing Project Permissions

Logged in as "seer_admin_dbrole" or "seer_project_admin_dbrole" database role user or a current project owner, select the menu command, "Access Control" \rightarrow "Project Specific Permissions".

🔜 SEER En	terprise Database Manager		
Database	Access Control Window		
1	Users		
🖃 Servers	General User Permissions	ary SEER U	sers Project Owner
🖨 SUB	Project Specific Permissions		
	Project Owners		
		atabase Server:	SUBVERSION
	D	atabase:	SEM80
		ogin Name:	SeerAdmin

Click Browse button to select a SEER for Software project from the list of projects currently saved to SEER-DB.

💀 SEER Enterprise D)atabase Manager				
Database Access Co	ntrol Window				
<u>.</u>					
Servers		Summary SEER Users	Project Owner Project	ct Permissions	
E Databases	Soloot Drojoot				
· SEM8U	Select Project				
	Projects you are au	horized to view:			
		▲ Туре	Comments	Category	
	WATCHER	SEM	Project included	. sample Project	
				OK Cancel	
		9			

11.2.2.1 Adding a SEER User to Project Specific Permissions

Once the project is selected, click Add button on Project Specific Permissions tab and select a user from the "SEER Users to choose from" list by highlighting the user name and clicking OK.

💀 SEER Enterprise D	Database Manager	_ 🗆 🗙
Database Access Co	ontrol Window	
<u> </u>		
Servers	Summary SEER Users Project Owner Project Permissions	
Databases	E Select SEER User(s)	
	SEER users to choose from:	
	SEER User 🔺 Full Name	
	👗 SeerAdmin	
	Liseri	
	User2	
	La Seta	
	SEER Administrators SEER Administrators	
	OK Cancel	
	OK Close Ap	ply
)	.:

In "Explicit permissions for users" table select permissions for View and Modify using the dropdown boxes.

😸 SEER Enterprise Database Manager	
Database Access Control Window	
Servers SUBVERSION Databases SEM80	Summary General User Permissions Use this form to control user access for a specific project, when access needs to be different from the general user permissions. Project Name: WATCHER Type: SEER for Software Owner SeerAdmin Explicit permissions for users: SEER User View Modify User1 No permission Alow Dery Ok Close

Setting Modify permission to Allow sets View permission to Allow by default.

All Project Specific Permissions accept 3 possible settings: Allow, No Permission, or Deny. "Allow" means explicitly grant the permission to the given user. "No Permission" means do not explicitly grant the permission to the given user, but the user can inherit the permission from Windows groups or database roles. "Deny" means explicitly deny the permission for the given user, regardless of the user's permission inherited from Windows groups or database roles.

In order for a user to view a given project, the "View Select Projects" permission for the "SEER for Software" project type in General User Permission and the "View" permission for the given project in Project Specific Permission must both be granted.

In order for a user to modify a given project, the "Modify Select Projects" permission for the "SEER for Software" project type in General User Permission and the "Modify" permission for the given project in Project Specific Permission must both be granted.

💀 SEER Enterprise Database Manager	
Database Access Control Window	
Servers SUBVERSION Databases SERMOD SEER Users Project Owner Project Specific Permissions Use this from to control user access for a specific project, when access needs to be different from the ger user permissions. Project Name: WATCHER User WATCHER Explicit permissions for users: SEER User View Modify User1 Allow Allow SEER User Allow Dery Allow Dery	neral
	.:

11.2.2.2 Removing a SEER User from Project Specific Permissions

Highlight the user's name in "Explicit permissions for users" list and click Remove button, then click Apply to save the changes.

11.2.2.3 Setting Project Specific Permissions from SEER for Software

A SEER user connected to SEER Database as "seer_admin_dbrole" or "seer_project_admin_dbrole" database role user or a current project owner can add or remove Project Specific Permissions directly from SEER for Software when the project, previously saved to SEER Database, is open by selecting the menu command, "Collaboration" \rightarrow "Project Permissions". The process of assigning permissions within SEER for Software is identical to the one in the SEER Enterprise Database Manager.



11.2.3 Viewing or Deleting Projects from the Database

Logged in as "seer_admin_dbrole" or "seer_project_admin_dbrole" database role user, select the menu command, "Access Control" \rightarrow "Project List".

11.2.3.1 Viewing Projects

Select the SEER project type to view from the pick list. By default, "All" SEER project types will be selected.

Sele	Select project type to view:							
All	All (7 projects)							
Sele	Select projects to be deleted:							
	Project Name	Project Type	Comments	Category	Owner	Highest Revision	Date and Time	Revised By
	COTS Samples	SEM	Sample project included	Sample Project	[GA\SGUserC]	2.0.0.0	10/31/2012 9:21:00 AM	[GA\SGUserC]
	ERP Example	SEM	Sample project included	Sample Project	[GA\SGUserA]	1.1.0.0	10/3/2012 9:17:16 AM	[GA\SGUserA]
	Hummer H-2	н	Sample project included	Sample Project	[GA\SGUserC]	1.0.0.0	9/4/2012 9:24:40 AM	[GA\SGUserC]
	Illinois Outreach	SEM	Sample project included	Sample Project	[GA\SGUserA]	1.2.0.0	10/11/2012 9:19:42 AM	[GA\SGUserA]
	Multi-Vendor ATR Impl	SEM	Sample project included	Sample Project	[GA\SGUserC]	1.0.0.0	8/11/2012 9:06:41 AM	[GA\SGUserC]
	Notional Sensor II	н	Sample project included	Sample Project	[GA\SGUserA]	1.0.0.0	8/2/2012 9:27:35 AM	[GA\SGUserA]
	Trading Support System	SEM	Sample project included	Sample Project	[GA\SGUserA]	1.0.0.0	9/5/2012 9:05:49 AM	[GA\SGUserA]
De	Delete Project(s) Delete Highest Revision(s) Close							

11.2.3.2 Deleting Projects

In the project list, select the project(s) to be deleted by selecting the checkbox next to the project name. Click Delete Project(s) button to permanently delete the selected projects. When a project is deleted, all project data will be lost. As a precaution, a warning message is displayed to confirm the deletion.

Delete Proj	ect 🛛 🔍
	Warning! About to permanently delete the following project(s). All project data will be lost. Are you sure you want to proceed? COTS Samples Hummer H-2 Multi-Vendor ATR Implementation Notional Sensor II
	Yes No

11.2.3.3 Deleting the Highest Revision of a Project(s)

In the project list, select the project(s) to have the highest revision deleted by selecting the checkbox next to the project name. Click Delete Highest Revision(s) button to permanently delete the highest revision of the selected projects. When the highest revision of a project is deleted, all revision data will be lost. As a precaution, a warning message is displayed to confirm the deletion.

Delete Hig	hest Revision
	Warning! About to permanently delete the highest revision(s) of the following project(s). All revision data will be lost. Are you sure you want to proceed? ERP Example Illinois Outreach
	Yes No

11.3 Creating and Editing Custom Fields (Database Attributes)

Logged in as "seer_admin_dbrole" database role user, select the menu command, "Custom Fields" \rightarrow "Manage Custom Fields".

Projects saved in SEER-DB have some general identifying fields such as project name, category, owner and dates saved. Custom fields allow you to define additional and specific project attributes. Configuring of custom fields is accomplished with SEER-EDM through the manage custom fields menu option. Once configured, users can specify the database project attributes at project save time. Users may also search on projects using any of the custom fields as a search criteria.

Custom fields are applicable to all project estimate types (SEER-SEM, SEER-IT, SEER-H, SEER-MFG, and SEER-SYS) saved to the database.

11.3.1 Types of Custom Fields

There are a total of 200 custom fields that may be configured:

- 50 picklist
- 50 text
- 50 numeric
- 50 date

Туре	Description
Picklist	Picklist fields will present a drop down list of choices for the user to select. You may limit entry to the list of choices or you may allow users to enter text in addition to what is offered in the list. List items may be up to 64 characters in length.
Text	Text fields will present a free-form text entry field, up to 255 characters.
Date	Date fields will allow the user to enter a date. Entry of dates may be restricted to a specified range.
Numeric	Numeric fields will allow the user to enter any numeric value. Entry of numeric values may be restricted to a specified range.

11.3.2 Configuring Custom Fields

To configure a custom field, use SEER-EDM and select the Manage Custom Fields menu item. The list of custom fields will be presented. This is where you may add, change, deactivate, or remove custom fields.

•	🖫 Custom Project Fields 🛛 🕹														
Г		Order	Full Name	Short Name	Туре		Description	Range (Click to Edit)	Active	Required	Changeable at Revision	SEM	IT/SYS	Н	MFG
	•	0	Project Code	Prj Code	Picklist	\sim	Management assigned code to be use	_not yet assigned_, xzk	\checkmark			\checkmark	\checkmark	\checkmark	
		0	Project Sponsor	Sponsor	Text	\sim	Indicate who is sponsoring the project.	N/A				\checkmark			
		0	Date Approved	Approved	Date	\sim	Indicate the date the project was appro	From Any To Any	\checkmark			\checkmark	\checkmark	\checkmark	
		0	Budget Ceiling	Max Budget	Numeric	\sim	Maximum budget allocated before addit	From Any To Any	\checkmark			\checkmark	\checkmark	\checkmark	
	Add Remove OK Cancel Apply														

Each custom field has several attributes that will determine how it can be utilized by users.

Column	Description					
Order	Set the display order of the custom attribute in the Database Project Attributes dialog. If not set, they will appear in the order entered.					
Full Name	The maximum length is 32 characters.					
Short Name	The maximum length is 12 characters.					
Туре	Select from one of the available types: Picklist, Text, Date, and Numeric.					
Description	Optional information describing the custom field. This will be presented to the user when setting custom fields and can act as brief guidance for that field.					
Range (Click to Edit)	For a Picklist type, specify the pick list selection options. There is an option to restrict the user to select from the specified. If this option is not selected, the user can type a new entry. For a Date type, specify the range of allowable dates. The default setting is no limit. You can set the range to be after a date, before a date, or between two dates. For a Numeric type, specify the range for the value. The default setting is no limit. You can set the range to have a lower limit (minimum of zero), an upper limit, or be between two values. For a Text type, this field is not applicable.					

Active	Select this option to make the custom field active. If it is not selected, the custom field will not appear in the Database Project Attributes dialog and the user will not be able to use it when saving a project to the database. The default setting is the option is selected.
Required	Select this option to make the custom field a required attribute. The user will not be able to save a project to the database unless an entry/selection has been made. The default setting is the option is not selected. In the SEER application, an '*' character will be displayed next to the attribute and a footnote will be displayed: *Indicates a required attribute.
CAR	CAR = Changeable at Revision. Select this option to allow the user to change the value of the custom field at the revision level. The default setting is the option is selected. In the SEER application, an '+' character will be displayed next to the attribute and a footnote will be displayed: +Attribute is not editable at the revision level (except by owner or admin).
SEM	Select this option to make the custom field available for SEER-SEM projects.
IT/SYS	Select this option to make the custom field available for SEER-IT/SEER-SYS projects.
Н	Select this option to make the custom field available for SEER-H projects.
MFG	Select this option to make the custom field available for SEER-MFG projects.

11.3.3 Editing Ranges

Picklists

Proje	Project Code List Options X							
	Paste Restrict user list entry to the options specified							
	Option Text	SEM	IT/SYS	Н	MFG	^		
	not yet assigned	\checkmark	\checkmark	\checkmark	\checkmark			
	xzk33872845	\checkmark	\checkmark	\checkmark	\checkmark			
	kxn74675499	\checkmark	\checkmark	\checkmark	\checkmark			
	scv96842472			\checkmark	\checkmark			
	vtj93545376			\checkmark	\checkmark			
	xzt84927335	\sim		\checkmark	\checkmark			
	ugx62683839	\sim		\checkmark	\checkmark			
	knj96375549	\sim	\checkmark	\checkmark	\checkmark			
	vrv66974365		\checkmark	\checkmark	\checkmark			
	vfh45339675	\checkmark	\checkmark	\checkmark	\checkmark			
	qar22779676	\checkmark	\checkmark	\checkmark	\checkmark	~		
<		1			>	1		
			OK		Cancel			

Picklist ranges can be typed in the list presented. If the list is long or available in text form somewhere, it may be copied to the clipboard and pasted in using the paste button. Picklist items are not automatically sorted and should be entered in the order in which you want them to appear.

If you want to limit user entries strictly to the listed items, check "Restrict user list entry to the options specified".

Use the SEM, IT/SYS, H & MFG checkboxes to limit certain picklist choices to certain estimate types.

Dates

Date Approved Range		—
Specify a valid range for this field.		
From 🛛 🔽 No Limit	To	📝 No Limit
10/31/2012	10/31/2	012 🔍 🗸
Help	ОК	Cancel

Numeric

Budget Ceiling Range	N	×
Specify a valid range for this field.	3	
From 👿 No Limit	To	📝 No Limit
0		0
Help	ОК	Cancel

11.3.4 Deactivating and Removing Custom Fields

If a custom field is no longer needed or desired you may deactivate or remove it. Deactivating a custom field maintains the data in the database, but users may no longer set it, change it or search on it. If no project data has been set for a custom field and it is not wanted, it can be removed. You cannot remove a custom field if project data has been entered.

12. SEER for Software Workflow Using SEER Database

The database functionalities in SEER applications have been designed with an emphasis on supporting the typical work flow of a cost analyst. The applications has been designed to offer the benefits of a database, such as shared data and multi-user support (i.e. concurrency), without sacrificing usability.

Unlike the users in a traditional transaction-oriented business process, a cost analyst typically performs tradeoffs on parts of a cost estimate for a relatively long period of time, before saving the work. It is with this work flow in mind, that changes made by a user, to a SEER application project opened from the database, are not committed individually and immediately to the database. Instead, all changes are saved to the database, as a project revision, when the user selects the menu command, "Save to Database" (or "Save to Database As").

12.1 Setting up a Default Database

Select the menu command, "Collaboration" \rightarrow "Default Database".

🖼 - SEER-SEM		
File Edit Estimate View Reports Charts Tools Options PMC	Collaboration Window Help	
🕒 🕑 🖪 🖶 🖥 🖉 🖉 🕘 🛛	Project Permissions	i i i i i i i i i i i i i i i i i i i
	Default Database	
A A	Connect to Database	
	Disconnect from Database	
	Estimate Results in Database	ER

A Default Database dialog will appear to select ODBC Data Source Name of the database.

Default Database		×
ODBC Data Source Name:		<u>ل</u>
		43
Verify Data Source		
Sat Cancel	Hala	
Lancel	пер	

Click Browse to select Data Source.



See section "Configuring ODBC Data Source at SEER Application Runtime" for more details on how to create a data source at SEER application runtime.

Click Verify Data Source after selecting the data source, and then click Set.

Select the menu command, "Collaboration" \rightarrow "Connect to Database".

12.2 Connecting to SEER Database



If a Default Database is already set, then the user just needs to login.

SQL Server Lo	gin	×
Data Source:	SEER-SEM DB1	ОК
🔲 Use Trusted	Connection	Cancel
Login ID:	SqlServerLogin1	Help
Password:	*******	Options >>

If a Default Database is not set, the user will need to specify the ODBC Data Source for the database before providing a login.

12.3 Disconnecting from a Database

Select the menu command, "Collaboration" \rightarrow "Disconnect from Database".

🗃 - SEER-SEM		
File Edit Estimate View Reports Charts Tools Options PMC	Collaboration Window Help	
	Project Permissions	te te te 🖬 🔤 🖧 🗠 🌡 🔤 😆 🔐 🛃 🚣 🖉 🛐
	Default Database	
	Connect to Database	
	Disconnect from Database	
	Estimate Results in Database	ER
	by G A L O R	ат н

In order to connect to another database, the user shall disconnect from the current database first.

12.4 Opening a Project from a Database in SEER for Software

Select the menu command, "File" \rightarrow "Open from Database".

***	- SEER-SEM																
File	Edit Estimate View Reports Charts Tools Options PMC Collaboration	Wir	indow	Help													
	New Ctrl+N	Ð	ĒΧ	6	22	₩E 1	<u> </u>				1000 ·	/ 🤵	0100	.	4	14	
2	Open Ctrl+O	š e	造	Y	Lø	Li L	- <u>-</u> -	4 <u>7</u> I	-6-					-			62
	Open from Database																
	Close																
	Save Ctrl+S		6			FF	D'										
	Save As				0	EE	N										
	Save to Database	I .	by C	зА	LO	RAI	гн										
	Save to Database As	I .															
	Save As Scenario	to: 0	Galorat Lice	th Inco	orporate expires:	d, El Se 12/31/2	gundo 010	CA sr	: 9999	99							
	Merge Subproject		2.00			1210 112	0.0										
	Merge Subproject(s) from Database																
	Load From Scenario																
ъ	Print Ctrl+P										_						
	Print Preview																
	Publish Reports																
	Properties																
	1 C:\Program Files\SEER\SEM8-0-3\PROJECTS\WATCHER.PRJ																
	2 C:\Program Files\SEER\SEM8-0-3\PROJECTS\Illinois Outreach.PRJ	+	in	-	~												
	Exit				d												

Then select a project to open from a list of projects currently saved to SEER Database. The users can see only the projects they own and the projects that have View or Modify permissions assigned to them.

If a user has View permission only, a warning message will appear upon opening the project that the user does not have permission to modify the project. "Only I can save the next revision" box becomes disabled.

SEER-SEM			
File Edit Estimate View Reports Charts T	ools Options PMC Collaboration Window Help		
P 🖻 🖥 🖻 🖨 🖉 🕨	9 CH 🕑 🖬 🗕 🗟 🖻 🚳 🖺 🗄 🗄	12 12 12 12 12 12 12 12 12 12 12 12 12 1	🔡 🌃 🔣 👍 💯 🌆
00			
	<u> </u>		
	Open Project from Database		
	Project Name Comments	Category Latest Rev	
	COTS Samples User1 Trading2A Project included during installation	Sample Project 1.1 Sample Project 3.1	
	Trading3A Project included during installation	Sample Project 1.0	
Open Project	rom Database		
(i) You of	nly have nermission to view the project "COTS Samples Liser1". You will not	t be able to save any changes to this project in the data	hase.
4			
	OK Cancel]	
	Revision: 1.1		
	Unly the following user can save the next revision:		
	Only I can save the next revision.		
	Open Cancel	Help	
	Copyright Galorath Incorporated. For legal and contact informa	ation, please see Help / About	
Ready			

When a user with Modify permission opens a project and checks "Only I can save the next revision" box, other users with Modify permission will not be able to save the next revision.

🖼 - SEER-SEM	
File Edit Estimate View Reports Charts Tools Options PMC Collaboration Window Help	
	🔒 🗵 🜆
- SEER [®]	
Open Project from Database	
Project Name Comments Category Latest Rev COTS Samples User1 Sample Project 1.1 Trading2A Project included during installation Sample Project 3.1 Trading3A Project included during installation Sample Project 1.0	
The project "COTS Samples User1" is locked for revision by the member "User1". Do you still want to open the project?	
Conju the following user can save the next revision: User1	
Only I can save the next revision.	
Upen Cancel Help	
Lopynght valorath incorporated. For legal and contact information, please see Help / About	
Ready	.;;

Clicking Yes opens the project for viewing but no modifications to the project can be saved. The name of the user locking the project for revision appears in "Only the following user can save the next revision" field when any other users open the project.

Open Project fro	m Database		×
Project Name COTS Samples Us	Comments	Category Sample Project	Latest Rev 1.1
Trading3A Trading3A	Project included during installation Project included during installation	Sample Project Sample Project	3.1 1.0
<			>
Project Name: CO	ITS Samples User1		
Revision: 1.1	Select Latest Revision		
Only the follow	ing user can save the next revision: User1		1
Only I can	save the next revision.		
	Open Cancel	Help	

12.5 Saving a Project to a Database in SEER for Software

Select the menu command, "File" \rightarrow "Save to Database".

***	COTS Samples User1 - SEER-SEM	
File	Edit Estimate View Reports Charts Tools Options PMC Collaboration	Window Help
	New Ctrl+N	8 IX 🔊 🗉 🗧 🔄 IP IA 🖬 🔤 🖳 🖊 🗶 🔝 🔛 🔛 🖉 🗛 💋 🌆
	Open Ctrl+O	
1	Open from Database	
	Close	Based Sizing PMC Snapshots Labor Category Allocation
	Save Ctrl+S	ples
	Save As	Input Parameters Are Entered At Lower Levels.
	Save to Database	This Level Summarizes Details Described In Lower Level WBS Elements.
	Save to Database As	To Input, Position The WBS On A Lower Level WBS Element
	Save As Scenario	Using The Mouse Or Cursor Keys. To Create An Element For Estimation, Choose Insert WBS Element
	Merge Subproject	From The Edit Menu Or Press The 'Insert' Key.

If a project already exists in SEER-DB, selecting Save to Database option allows the user to save the project only as a new revision or a new major baseline.

🗃 COTS Samples User1 - SEER-SEM	
File Edit Estimate View Reports Charts Tools O	ptions PMC Collaboration Window Help
o 🖓 🔂 🗿 🗿 🖌 o o	🎽 🕑 📰 🗭 😫 🕲 🗒 💺 💺 😫 🔛 🔤 🚟 🔂 🏅 🔛 🚟 🚜 💋 🌆
Project WBS	🛱 Inputs
	Parameters Function Based Sizing PMC Snapshots Labor Category Allocation
I I I I Tactical Simulation	PROJECT: COTS Examples
- 0 1.1.1: COTS Initialization & Con - 0 1.1.2: NEW User, Simulator, & C - 1.1.3: Simulation Support Tool	This Level Summarizes Details Described in Lower Level WBS Elements. To Input, Position The WBS On A Lower Level WBS Element
 I.1.4: Graphical Display Tool I.1.5: COTS Glue Code 	Save Project to Database
- 1.2: Simulation - From Scratch	By:
□ 1.3.1: Transaction Server	Change Description:
 I.3.2: Front End/Back End Report I.3.3: License Fees 	
1.4: Zippy Fast Solution	
1.4.2: User Configuration	
	Revision: 1.2 Base Revision: 1.1
	Save As Next Major Baseline
	Locked for Revision by: User1
PAVORITES SPECIFY SIZING ASSUMPTIONS	
SPECIFY PROJECT ASSUMPTIONS SPECIEV PRODUCTIVITY ASSUMPTIONS	
ANALYSIS & TRADE-OFFS	Development Schedule Months 36.17
⊕ジ SEER-SEM CLASSICS ⊕ジ PMC	Development Effort Hours 228,818 Position selection in
	Development Base Year Cost 26,494,700 Maintenance Schedule Months 59.99 Project WBS on a
	Maintenance Effort Months 856.41 Defect Prediction 314
	Rollup values are sums of the lower level WBS elements. For Mon lower level WBS element
<	
Ready	W85 Elements: 16

Selecting Save to Database As option allows the user to save a project as a new revision, a new major baseline or a new project under a different name.

📟 COTS Samples User1 - SEER-SEM		
File Edit Estimate View Reports Charts Tools C	ptions PMC Collaboration Window Help	
🗋 🖻 🔚 🖿 🖨 😓 🖻 🕪 🔇	📲 🕲 📑 📑 📑 📳 🕲 🕸 😫 🛤 📾	너 🎖 🔤 🐹 🔢 🛃 🖉 🛃
Project WBS		
A	Save Project to Database As	
Σ 1: COTS Examples	COTS Samples User1	
I.1: Tactical Simulation	Trading2A Trading3A	els.
 1.1.1: COTS Initialization & Con 1.1.2: NEW User, Simulator, & E 		WBS Elements.
 I.1.3: Simulation Support Tool 		6 Element
1.1.4: Graphical Display Tool		WBS Element
- 1.1.5: COTS Gide Code		ey.
🚽 💻 1.3: Retail USA e-commerce	Project Name: COTS Samples User1	a Menu
 I.3.1: Transaction Server I.3.2: Front End/Back End Renor 		, Menu.
1.3.3: License Fees	Category: Sample Project	
1.4: Zippy Fast Solution	Project Comments:	
 I.4.1: ezip Transaction Server I.4.2: User Configuration 		
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Ready	WBS Elements: 16	

If a user does not have the permission to modify the project but attempts to save it to the database, a warning message appears.



If a user has Modify permission but the project is locked by another user, the name of the user locking the project will show in "Locked for Revision by" field and a warning message will be issued when attempting to save.

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Project WBS Inputs → ∑ 1: COTS Examples Parameters → 1.1: Tactical Simulation PROJECT: COTS Examples → 1.1: 2: NEW User, Simulation, & Corr Input Parameters Are Entered At Lower Levels. → 1.1: 2: NEW User, Simulator, & Corr This Level Summarizes Details Described In Lower Level WBS Elements. → 1.1: 3: Simulation Support Tool To Input, Position The WBS On A Lower Level WBS Elements.
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