

# Database Hosting

## Service Description

This service provides database server hosting for agency applications in the State Data Center. Databases, also known as Database Management Systems (DBMSs), are supported on Admin's virtual servers and Enterprise Storage-SAN environment.

- 1. Database Hosting – Shared:** Full database administration for agency customers who meet **all** of these criteria:
  - Agency directly manages/supports application environment;
  - Database does not contain restricted data;
  - Database does not exceed 100GB in size;
  - And agency does not require back-end access to database to alter data via inserts, updates or deletes.

Offering leverages a shared Microsoft SQL database platform.

- 2. Database Hosting – Dedicated:** Base level physical database administration services for agency customers who meet **any** of these criteria:
  - Agency uses third-party vendor(s) for managing/supporting the application environment;
  - Agency prefers to manage the database server and have access to in-house or external database administration;
  - Database contains restricted data;
  - Agency requires direct back-end access to database to alter data via inserts, updates or deletes;
  - And database exceeds 100GB in size.

This offering leverages a dedicated Microsoft SQL or Oracle RDBMS database platform.

- 3. Database Setup:** If an agency requires initial limited help preparing a database or database server for initial setup to meet specific guidelines for a project, a database administrator (DBA) can be allocated to assist.
- 4. Database – Legacy Isolation:** If an agency is unable to use a vendor-supported database version or system, Admin will assign this service offering to the agency. These database management systems are hosted on isolated infrastructure and configured to help mitigate security risks. The database and its applications are supported by the agency. Admin will determine an agency's need for this service offering on an exception basis, as this offering is not orderable by agencies.

## Service Notes\*

- Full agency database migrations into the State Data Center are not included in this service.
- This service uses Microsoft-supported versions of Microsoft SQL Server Databases or Oracle-supported versions of Oracle Databases.
- If an agency requires application database administration, Admin can recommend qualified consultants for the agency to contact.
- Customers must also purchase Enterprise Storage and one of the Virtual Servers offerings.
- Please contact Admin to help determine which database offering will best meet your business needs.

***\*See Service Detail for additional important Service Notes and Customer Responsibilities.***

## Customer Benefits

- **Cost savings** – Customers of the shared offering do not have to invest in database server software, licenses and dedicated DBA personnel.
- **Efficiency** – Customers of the shared offering share common equipment and resources which allows for more cost-efficient operations and infrastructure support.
- **Security** – Advanced configurations help maintain a high level of system security.
- **Support** – Monitoring and response by trained Admin technical staff ensures maximum utilization and minimum database server downtime.
- **Choice** – Agency chooses its own application support options: in-house expertise, leverage current vendor support and relationships, beeline contractor, or an external support company that supplies subject matter experts.

## Service Rates

Service Offering	Microsoft SQL Server Database	Oracle Database
Database Hosting – Shared	Contact ARM	Contact ARM
Database Hosting – Dedicated	Contact ARM	Contact ARM
Database Setup	Contact ARM	Contact ARM
Database Hosting – Legacy Isolation*	Contact ARM	Contact ARM

\*Note: This offering is not an orderable offering by agency customers. It is available at Admin's discretion as an exception to the standard offerings. See Service Notes section for additional detail.

## Database Hosting – Service Detail

### This Admin service includes:

Summary of Responsibilities	Database Hosting – Shared	Database Hosting – Dedicated
DML administration tasks.	Customer Application	Customer/Vendor
DDL administration tasks.	Admin	Customer/Vendor
Access and administration (e.g., sysadmin) of the core database platform (engine).	Admin	Customer/Vendor
Admin database utilities administration (patches, upgrades, etc.).	Admin	Admin
Admin database software administration (patches, upgrades, etc.).	Admin	Admin

## **Definitions**

- **DML (Data Manipulation Language):** Database administration tasks that include activities such as: retrieve, store, modify, delete, insert and update data in a database.
- **DDL (Data Definition Language):** Database administration tasks that include activities such as: creation and/or modification of the structure of database objects in a database management system.

## **For the two database hosting service offerings (Dedicated and Shared), Admin provides the following:**

### ***Database Software Installation and upgrade***

- Installation and upgrading of database management software.
- Installation and upgrading of database management utility software.
- Application of functional patches, service packs, security patches and bug fixes to database management software.
- Application of functional patches, service packs, security patches, and bug fixes to database utility software.

## **Additional features with Database Hosting – Shared service offering:**

### ***Basic Database System administration***

- Database availability monitoring.
- Database specific performance tuning and troubleshooting.
- Collaboration with agency support teams to troubleshoot database performance issues.
- Database job scheduling.
- Database data exports.

### ***Database System Level Configuration***

- Coordination with Admin Enterprise Storage teams to allocate storage for initial database installation based on Admin database storage best practices.
- Work with the agency application data owners to determine future storage needs.
- Creation of the database/database instance.
- Creation of the database tablespaces/database files.
- Creation of the database schema owners.
- Grant database system privileges to agency application owners.
- Manage the database instance configuration settings, including the amount of server memory and how it is allocated.
- Control and monitor the number of concurrent user connections.
- Work with the server system administrators to configure server operating system parameters.
- Work with the server system administrators to configure and apply the relevant operating system patches.

### ***Database Systems Maintenance***

- Administration of databases to ensure that each Admin-managed database is available during the defined target availability hours.

- Maintenance of databases to ensure that each Admin-hosted database is performing optimally during the defined target availability hours.
- Documentation of major changes to the database servers.

#### ***Database Systems Support and Monitoring***

- Ensure databases are sized properly.
- Ensure database logs are sized properly.
- Increase/add storage for database files as required.
- Configure new storage space for database files as required.
- Execute the necessary parameter adjustments to the system configuration settings for performance optimization.
- Responsive support to unscheduled service outages in a timely manner.
- Escalation of database system software problems to vendor standard for resolution.
- Proactive monitoring of database with Admin monitoring tools.
- Leverage database diagnostic information to assist with agency database issue resolution. Admin will work to determine and solve any database infrastructure issues and relay needed information to the customer.

## **Related Services**

A Database Hosting customer might also be interested in this Admin service which is offered separately:

- Data Backup

## **Service Level Objectives**

#### ***Service Level Targets***

TBD

## **Additional Service Notes**

#### ***General***

- Admin will ensure the agency has remote database server access per specifications provided in the project planning phase.
- Agencies will be responsible for purchasing client remote access licenses for remote access.
- Admin will coordinate with the agency for any planned Admin changes or outages that will affect the agency's server environment through the DTO Service Desk notification system as a result of the Admin change management process.
- In addition to the DML tasks identified in the "this Admin service includes" section, administration and development tasks related to the application layer are the responsibility of the customer. In most cases, the primary responsibility for the identification of a DBMS problem will be the responsibility of Admin. If Admin determines a problem is application or DDL/DML related, then Admin will inform the customer of the underlying issue and the

responsibility to resolve the identified issue will be transferred to the customer for final resolution. It is the customer's primary responsibility to ensure it has adequate technical support for their application, as this is not a responsibility of Admin. There are many options for support from in-house technical resources, software support contracts, Beeline and other outside vendors that supply subject matter experts.

- Requests for installations, adds, moves or changes will be billed to the requesting agency under the Database Setup service offering. If the amount of work exceeds four hours, this may be identified as a project and incur additional fees.
- The standard maintenance window is Saturday from 8 a.m. to noon. Microsoft patches are applied during maintenance windows, 10 days after release. Patches are occasionally applied sooner based on the risk of the unpatched vulnerability.
- Admin will support Microsoft SQL Server databases that qualify for vendor support (mainstream and extended). Admin will require an agency customer to upgrade to a vendor supported version of the Microsoft database prior to Microsoft extended support expiration.
- Admin will support Oracle RDBMS server databases that qualify for vendor support. Admin will require an agency customer to upgrade to a vendor supported version of the Oracle database prior to Oracle support expiration.
- For Shared Database customers, specialty database utilities such as Idera and/or compliance and security software licenses are included in the rate; for dedicated database hosting, these charges will be passed through to the customer.
- Data backup services are not included in the default rate. Customer agencies must purchase the data backup service.

### ***Database Hosting – Shared***

- In addition to the General Database Hosting Service Notes, the following items apply to the Database Hosting – Shared Services:
  - System administrator privileges to the database engine will not be granted to the customer agency for advanced database administration activities. Admin will manage the database engine environment for all tenants of the shared database environment.
  - Admin is not allowed to alter, insert, update or delete data in customer databases. All database data updates must be performed through the associated application.
  - Vendor partners are not allowed access to a database hosted in the shared offering. If a vendor partner requires access to a customer agency's database, then the customer agency should select the dedicated offering. If requirements change over time and subsequently require vendor access, the customer will be migrated into the "Dedicated" database offering and pay the associated rate.
  - Database client licenses costs are included in the rate.
  - Idera database utility software (e.g., SQL Safe Backup) license costs are included in the rate.
  - Agency customers will receive up to 1GB of storage space. Customer agencies that need additional storage space beyond the 1GB of space must purchase the **Enterprise Storage** service.
  - A database sized at 100GB or less can reside in the shared offering. If a database exceeds 100GB, the customer will be migrated into the "Dedicated" database offering and pay the associated rate.

### **Database Hosting – Dedicated**

- In addition to the General Database Hosting Service Notes, the following items apply to the Database Hosting – Dedicated Services:
  - System administrator privileges to the database engine will be granted to the customer agency for advanced database administration tasks.
  - Database client licenses costs will be passed through to the agency customers. The database licensing costs are not included in the rate.
  - Idera database utility software (e.g., SQL Safe Backup) license costs will be passed through to the agency customer.
  - Specialty database utilities such compliance and security software licenses are also not included in the rate. License costs for these products will be passed directly to the customer agency.
  - Agency customers must purchase the Enterprise Storage service. This service offering does not include disk storage for database hosting.

### **Database Hosting – Legacy Isolation**

- This environment may result in reduced application functionality in order to mitigate security risks inherit in the legacy database software environment.
- This offering will have reduced support (e.g., patching is no longer available). This offering is primarily focused on protecting the broader Admin application and infrastructure environment from security risk introduced by hosting legacy database software.
- The environment is composed of dedicated security hardware and software components. The costs of these components and the associated labor are bundled into this rate. Examples of additional security, and related costs, associated with this offering include, but are not limited to: separated VLAN, restricted user access, additional firewalls to isolate the legacy database from the mainstream network, etc.

## **Customer vs. Admin Responsibilities**

This section identifies in detail Admin and customer responsibilities for these service offerings.

Responsibilities	Database Hosting – Dedicated		Database Hosting – Shared	
	Admin	Customer	Admin	Customer
<b>Database Support Requirements</b>				
Identify application requirements for the database.		X		X
Identify data security requirements.		X		X
Identify data backup and retention requirements.		X	X	
Identify data archive and purge requirements.		X		X
Identify data recovery time objectives.		X		X
<b>Database Software Procurement, Installation and Configuration</b>				

Responsibilities	Database Hosting – Dedicated		Database Hosting – Shared	
	Admin	Customer	Admin	Customer
Procurement of database management server software (base DBMS licenses).	X		X	
Procurement of database management server software (client licenses); cost passed through to customer.	X		X	
Procurement of database management server utility software.	X		X	
Database management system software installation and configuration.	X		X	
Database management system software utility installation and configuration.	X		X	
Database management system software version upgrades.	X		X	
Database management system software utility version upgrades.	X		X	
Apply functional patches, service packs, security patches and bug fixes to database management software.	X		X	
Apply functional patches, service packs, security patches and bug fixes to database utility software.	X		X	
Create the database/database instance.		X	X	
Create the database tablespaces.		X	X	
<b>Database Support Activities</b>				
Provide first level support for vendor supported database.		X	X	
Provide first level support for issues with the database.		X	X	
Monitor status of database systems as defined by agency customer and Admin.	X	X	X	
Develop and document standards and acceptance criteria to promote applications database changes from development and/or test into production.		X		X
Coordinate activities for moving code from development and/or test environments to production via change management process.		X		X
Execute activities to support releases to production via change management process for database management.		X		X
<b>Database Monitoring and Fault Management</b>				

Responsibilities	Database Hosting – Dedicated		Database Hosting – Shared	
	Admin	Customer	Admin	Customer
Define requirements for database performance monitoring.		X	X	X
Implement database monitoring tool.	X		X	
Monitor database software environment on a 24/7 basis.		X	X	
Automated monitoring of database instance availability on a 24/7 basis.	X		X	
Monitor and respond to application database alerts and events per incident management process.		X	X	X
<b>Database Performance and Capacity Management</b>				
Agency deployment plans and user growth forecasts.		X		X
Define requirements for performance/capacity planning monitoring tools.		X	X	X
Implement and maintain tools for performance/capacity planning and management.		X	X	
Define performance indicators and establish thresholds to monitor database performance against indicators.		X	X	X
Provide analysis and report on database performance trends and exceptions.		X	X	
Recommend corrective action to resolve database performance and capacity problems.		X	X	X
Implement corrective actions approved by the change management process.		X	X	X
<b>Database Maintenance</b>				
Coordinate and schedule maintenance activities with customer change management process.		X	X	
Install database security patches.		X	X	
<b>Database Security</b>				
Ability to add/remove users for pre-defined active directory groups for user access for application roles.		X		X
Ability to manage users on Microsoft SQL server.		X	X	

All services are delivered in compliance with State of South Carolina Information Security policies, as presented in SCDIS-200.