

# Introducing ArcSDE Implementation for PostgreSQL

## Transcript

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Welcome to the Educational Services Podcast series. My name is Kasia Tuszynska, and I am an ArcSDE Product Engineer working on the project to implement ArcSDE on PostgreSQL. With the release of ArcGIS Server 9.3, ArcSDE—a technology of ArcGIS Server that facilitates the storage of spatial data in relational databases—will increase support for PostgreSQL 8.3.0.

In this podcast, I will address some of the most frequently asked questions related to this project. I will introduce Postgres, and discuss the supported geodatabase functionality, as well spatial data storage types, supported platforms, and installation.

PostgreSQL (or Postgres for short) is an open-source database developed and maintained by an open-source online community. Postgres is a relational database management system that provides a comparable level of functionality, scalability, and performance to DB2, Informix, SQL Server, or Oracle. Postgres is released with a Berkeley Software Distribution, or BSD license; therefore, it is free.

The implementation of ArcSDE for Postgres supports full geodatabase functionality. You and your users will be able to perform any workflow on ArcSDE for Postgres, as you would on any other ArcSDE implementation. From the perspective of a user, there will be no difference between interacting of data stored on Postgres, DB2, Informix, SQL Server, or Oracle.

You will be able to use any ArcGIS client application to interact with data stored in Postgres. So, you could use ArcCatalog to connect to data sources, load and manage data, assign dataset privileges, or compress your database. In ArcMap, you can create and edit data, create cartographic maps, or MXDs to be used by an ArcGIS Server map service.

You also have all of the geodatabase functionality at your disposal: creating topologies and geometric networks, versioning, archiving, replication, and relationship classes, to name a few, or the usage of any ArcGIS extension. Data residing in Postgres can be used by ArcIMS services or ArcGIS Server services.

To make it easier to make a direct connection to Postgres, the Postgres client libraries are included in every ArcGIS Client application. Therefore, you will be able to connect to any ArcSDE instance on Postgres without having to install an additional Postgres component on your client machine.

On the database level, the storage of spatial data has been provided in the form of an ESRI-developed, user-defined spatial type called ST\_Geometry, which follows in the footsteps of ESRI's ST\_Geometry

spatial type used in DB2, Informix, and Oracle. The ST\_Geometry type comes with OGC-compliant SQL functions, which you can use to interact with data directly on the database level. It is able to store the data in Postgres in a compressed (shape) format, natively understood by the geodatabase.

In addition to the ST\_Geometry type, ArcSDE for Postgres will also support a spatial type distributed through the PostGIS application developed by Refrations Research, which is an open-source spatial type. The currently supported version of PostGIS is 1.3.2. PostGIS comes with its own set of OGC-compliant SQL functions, which can be used to communicate with the data directly on the database level. ArcSDE enables data stored in the PostGIS spatial type to participate in most geodatabase functionality, with limited functionality in the Survey and Cadastral extensions. Through ArcSDE, data stored in the PostGIS type can be loaded and managed through ArcCatalog, edited in ArcMap, and participate in ArcIMS and ArcGIS Server services.

Because Postgres is a free database, ESRI will be able to distribute its installation along with the installation of ArcSDE, as long as Postgres's installation wizards or packages are available for a particular operating system. Currently, we support ArcSDE for Postgres as a 32-bit application on Windows 2003 Server, Red Hat 4 Linux, as well as Suse 10 Linux. In the future, we also hope to support Spark Solaris 10.

If you are installing on a Windows operating system, you will be able to execute the ArcSDEPostgreSQL.exe installation wizard provided by ESRI, and it will allow you to install Postgres, as well as ArcSDE, and complete with the ArcSDE Post Installation setup. So with a single wizard, you can set up your entire data storage environment. Packaged with a Postgres installation, you will also find a GUI-management program for Postgres, called pgAdminIII, which is similar to Enterprise Managers for SQL Server or Oracle.

If you're interested in storing your data on the PostGIS user-defined spatial type, be aware that PostGIS is *not* automatically installed; therefore, you will have to enable the Application Stack Builder option on the PostgreSQL Installation options dialog, when executing the ArcSDEPostgreSQL.exe installation wizard. It will launch a separate dialog where you can choose to install PostGIS.

If you're installing on a Linux platform, you will be able to execute the create\_pgdb.sde shell script to install Postgres on Red Hat Linux. For Suse, the Postgres installation needs to be compiled from source. The remainder of the installation process is the same for both Linux flavors. The setup\_pgdb.sde shell

script will prepare the Postgres cluster for ArcSDE and the install script will install ArcSDE, followed by a manual post installation.

If you're interested in storing your data on the PostGIS user-defined spatial type on a Linux platform, the installation of PostGIS would also need to be compiled from source, which you can download from the PostGIS parent company, Refractions Research.

This podcast addressed the implementation of ArcSDE on the PostgreSQL database management system, to be available with the 9.3 release of ArcGIS Server. This will allow you to store data in two spatial types: *ST\_Geometry*—developed by ESRI, and PostGIS geometry type—developed by Refractions Research. Both data types come with SQL functions allowing you to interact with the spatial data on the SQL level. Data from both types can participate in geodatabase functionality, and be used through ArcGIS clients.

ArcSDE for Postgres can be installed on Windows 2003 Server through a wizard, and Red Hat 4 Linux and Suse10 Linux through shell scripts.

Thank you for listening. For in-depth information and specific topics related to the implementation of ArcSDE and Postgres, please refer to the ArcGIS Desktop for Server Help.