

TECHNICAL PAPER

# Installing & Configuring UNICOM® System Architect®

## Part 1: Stand-Alone Installation with Microsoft® SQL Server Express®

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## Executive Summary

This is Part 1 of a 2-part series. This article provides an overview of UNICOM® System Architect® (SA) terminology and explains the steps for installing and configuring the software to connect to Microsoft® SQL Server Express. The example is targeted for professional encyclopedias, which are one of the two types of repositories in System Architect.

Installing and configuring UNICOM® System Architect® is typically straight forward with a one-click install that provides installation of the product and an underlying Microsoft® SQL Server Express database. However, Windows security can provide some challenges for installation of Microsoft SQL Server to a Windows environment. Further complexities may be encountered if you are installing System Architect to a network environment and using a separately installed version of full-blown Microsoft® SQL Server.

This 2-part series of articles covers System Architect Version 11.4.4 or later. It describes installation in a secured environment and configuration to connect to Microsoft SQL Server (SQL Server) and Microsoft SQL Server Express in a non-shared and shared environment, targeting professional and enterprise encyclopedias. Each part also includes a Basic Troubleshooting section.

This article, Part 1 of a two-part series, provides an overview of System Architect terminology and utilities. It then walks you through the steps of installing and configuring the software to connect to SQL Server Express on a workstation targeted to professional encyclopedias.

Part 2, ***Connect System Architect to Microsoft SQL Server***, describes the steps to connect a server environment targeted to professional encyclopedias.

## Overview of System Architect

System Architect is a comprehensive enterprise architecture solution that provides fully integrated support across four keys domains: business, information, systems, and technology. It is used to capture complex knowledge about organizations and related technology.

Empowered with this knowledge, executives, decision makers, and managers can analyze and optimize current capabilities, because they will have a more thorough understanding of the organizational structures, portfolio of business strategies, business processes, information flow, applications, and technology infrastructure. The result is an enhanced collaboration between stakeholders and improvement in the organization's effectiveness to proactively respond to business changes and an enhanced ability to consider new capabilities.

In addition, System Architect is the most widely used enterprise architecture solution in support of the U.S. Department of Defense Architecture Framework (DoDAF). It provides the

capabilities for building models representing U.S. Department of Defense (DoD) architectures and automatically generates DoDAF work products and reports.

System Architect includes the Federal Enterprise Architecture Framework (FEAF) that assists the U.S. Government departments and agencies in incorporating and using the U.S. Office of Management and Budget (OMB) Reference Models, as well as the subsequent creation and publishing of OMB Exhibit 300 and Exhibit 53 reports.

# What You Need to Know Before You Start

## Terms and Utilities

Installing and configuring System Architect is a three-part process:

1. Installing the UNICOM License Server.
2. Installing the System Architect software on the workstation (laptop/workstation/network server).
3. Installing Microsoft® SQL Server® Express to your laptop/workstation or connecting System Architect to a Microsoft® SQL Server® on the network.

System Architect depends on Microsoft® Windows® features provided in the latest service packs and operating system upgrades. It has a native reporting engine to produce various reports. It also has the capability to produce Microsoft® Excel and Microsoft® Word reports. This capability requires these products to be installed on the workstation.

Consult the System Requirements tab <https://teambblue.unicomsi.com/products/system-architect/> for software and hardware requirements for System Architect and Microsoft® SQL Server.

System Architect also requires a license to unlock its various features. The licenses are available as either node-locked (user) licenses, which are tied to a specific workstation, or as floating (server) licenses. You must run UNICOM® License Server on the network or your local machine (or laptop) to serve up a System Architect license for SA to run.

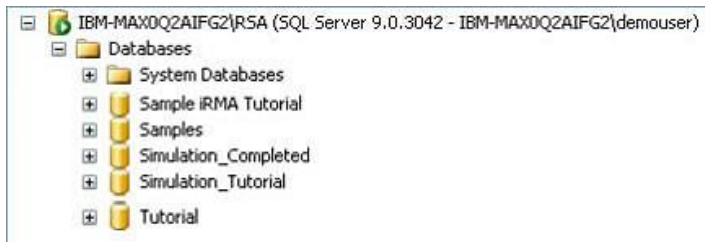
## System Architect Encyclopedias

System Architect uses a Microsoft® SQL Server® database as its underlying storage mechanism to store all diagrams and definitions, amongst other information. Each database is called an *encyclopedia*. Another term for this is the enterprise architecture (EA) *repository*. You can use one database (or encyclopedia) on the network for your EA repository, which multiple people work on at the same time. You may also create and use encyclopedias on your local machine or laptop. There are numerous ways to move information from a local encyclopedia to another (network) encyclopedia.

An encyclopedia (which is a Microsoft SQL Server database) can be created only by using System Architect. The database and its objects (tables and views) is created within a Microsoft® SQL Server instance. System Architect identifies the instance name by the *hostname* and the *instance name* in this format:

```
<hostname>\<instance name>.
```

In Figure 1, the tree view, shows a SQL Server instance called "RSA" running on a physical server with the hostname of IBM-MAX0Q2AIFG2. Within the IBM-MAX0Q2AIFG2\RSA instance are several System Architect encyclopedias, such as Tutorial and Samples.



**Figure 1. Tree view of System Architect encyclopedias**

There are two types of encyclopedias: *enterprise* and *professional*.

- **An Enterprise encyclopedia** is an encyclopedia that a System Architect administrator has put under access control by attaching it to a catalog using SA Catalog Manager, a utility that comes with System Architect. Once put under access control, the administrator grants role-based access and instance-level access for users to diagrams, definitions, and menu commands.
- **A Professional encyclopedia** is a standard System Architect encyclopedia that has not been attached to a catalog.

## Encyclopedias with Microsoft SQL Server or Microsoft SQL Server Express

Microsoft® SQL Server® and Microsoft® SQL Server® Express are RDBMS (relational database management systems) that run on platforms (physical hardware, such as workstations or servers). Both Microsoft® SQL Server and Microsoft® SQL Server Express run only on Microsoft operating systems.

Microsoft® SQL Server Express is a free, lightweight version of Microsoft® SQL Server. System Architect bundles Microsoft® SQL Server Express with its installation. The Startup wizard provides an option to install Microsoft® SQL Server Express on a workstation.

The database that you create with Microsoft® SQL Server Express is exactly the same structurally as a SQL Server database created with full-blown Microsoft® SQL Server – the only difference is that Microsoft® puts a limiter on the SQL Server Express database which degrades performance after a certain number of users are using it simultaneously. It is intended for work by a single user. You can, however, take a backup (.bak) file of a database (encyclopedia) created with Microsoft® SQL Server Express, attach it to a full-blown version of Microsoft® SQL Server, and work with it as you would any encyclopedia (database) created with full-blown Microsoft® SQL Server.

## System Architect Encyclopedia Manager (SAEM)

The System Architect Encyclopedia Manager (SAEM) is a utility that provides a set of tools for maintaining System Architect encyclopedias. It is actually a lite version of Microsoft SQL Server Enterprise Manager, providing a subset of administrative functions of that tool. SAEM provides the ability to attach, detach, back up, and restore System Architect encyclopedias. It is also used to create logins to the SQL Server instances.



## The Startup Wizard

The Startup Wizard is a tool used to configure the settings for System Architect installation. You start it by selecting **Help > Startup Wizard**.

You can use the wizard for these tasks:

- Install Microsoft® SQL Server Express to the local workstation
- Connect to an existing Microsoft® SQL Server (or SQL Server Express) located on the workstation
- Connect to an existing Microsoft® SQL Server (or SQL Server Express) located on the network

The wizard also provides options for selecting a default framework and attaching example encyclopedias.

# I. Install UNICOM® License Server & Apply License

System Architect requires a valid license to enable you to run it and unlock its features. System Architect uses a UNICOM® License Server to serve up a System Architect license.

## Node-locked licenses

For a node-locked (user) license, the license is tied to a specific workstation. In such a configuration, every workstation running System Architect requires having its own specific **license.sa** file. You must also run UNICOM® License Server to serve up the license before starting System Architect on your workstation/laptop.

The steps to set up license management of System Architect are as follows:

1. Install UNICOM® license server to the network or your workstation/laptop, depending on where you will be installing/running System Architect, as follows:
  - a. Create a new folder, and extract the contents of the ult\_license.zip file into it.
  - b. Navigate to ult\_licsrv/bin/windows\_intel/64bit
  - c. Run the setup.exe for the UNICOM license server, and follow the onscreen instructions.
2. When the installation program for UNICOM License Server has finished, copy your **license.sa** file to this folder: C:\Program Files\UNICOM Global\License Server\licenses
3. Create a Named User file named **License.SA.NamedUsers**, using instructions below:
  - a. Edit the newly created **License.SA.NamedUsers** file with any text editor to specify the named user for the machine. The named user, in its entirety, should be placed underneath each licensed feature in the **License.SA.NamedUsers** file. An example is below.
  - b. The domain is your Computer Name that you can find by right-mouse clicking on your Computer properties; the username is the name you log into your computer with.

**[SA-SystemArchitect-Authorized]**

domain\user1

**[SA-DODAF-ABM-Authorized]**

domain\user1

**[SA-DODAF-Authorized]**

domain\user1

domain\user2

Complete list of Authorized Modules for System Architect:

[SA-SystemArchitect-Authorized]

[SA-ARCHIMATE3-Authorized]

```
[SA-DODAF-ABM-Authorized]
[SA-DODAF-Authorized]
[SA-FEA-Authorized]
[SA-Simulator-Authorized]
```

Here is an example of what would be in a ***License.SA.NamedUsers*** file:

```
[SA-SystemArchitect-Authorized]
ComputerName\JoeT
```

```
[SA-ARCHIMATE3-Authorized]
ComputerName\JoeT
```

```
[SA-DODAF-ABM-Authorized]
ComputerName\JoeT
```

```
[SA-DODAF-Authorized]
ComputerName\JoeT
```

```
[SA-Simulator-Authorized]
ComputerName\JoeT
```

4. Place the **License.SA.NamedUsers** file you created in the same directory as the license.sa file: C:\Program Files\UNICOM Global\License Server\licenses.
5. Select All Programs> UNICOM® Global> License Server> Manage Licenses.
6. Type i and hit Enter to import the license.sa file provided by UNICOM® Systems. Type in the path and file name of the license file and hit Enter, then close the License Manager.
7. Run the UNICOM® License Manager by selecting All Programs> UNICOM® Global> License Server> Start License Server.
8. Run System Architect.

## Floating Licenses

Floating (server) licenses are accessible on a network and are not tied to one particular workstation. Instead, the license is tied to the workstation or server where the UNICOM® License Server is installed. In such a configuration, not every workstation running System Architect requires its own license.sa file. Instead, floating licenses provide a pool of licenses that can be shared among all System Architect users – you can have an unlimited number of people use System Architect but only X at a time, where X is the number of Floating licenses you have. All floating licenses are placed in one license.sa file.

The floating configuration requires the UNICOM® License Server to be network accessible by all System Architect workstations. Each workstation running System Architect uses or "consumes" a license from the UNICOM® License Server.

## II. Install System Architect

The System Architect installation described in this article focuses on Microsoft® SQL Server Express for professional encyclopedias.

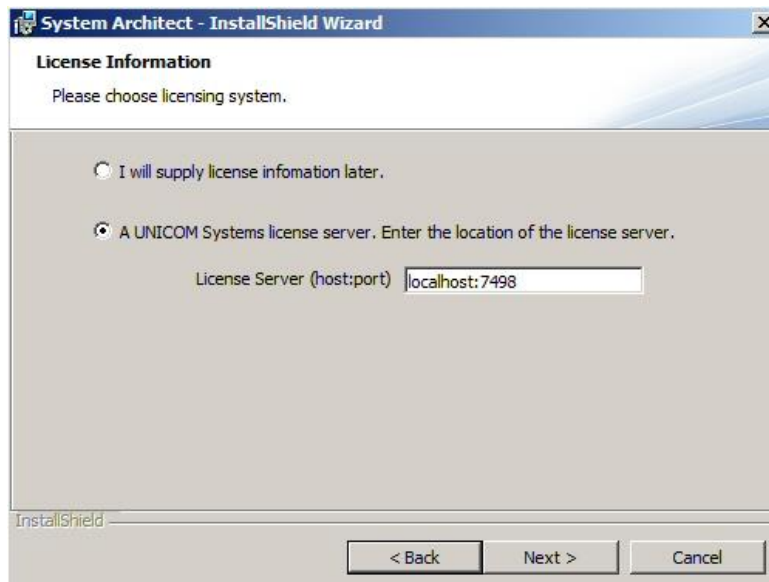
### Uninstall Previous Version of SA (If It Exists)

You must remove previous versions of System Architect from the workstation before installing a new version.

1. Log on to the workstation as a workstation administrator.
2. Access the control panel to uninstall any previous versions of System Architect from the workstation.

### Install SA

1. Log on to the workstation as the workstation administrator.
2. Run the System Architect installation (.exe) file, and follow the prompts.
3. Accept the license agreement.
4. Enter the Customer Information: User Name and Organization.
5. Click the option under "Install this application for:" **Anyone who uses this computer (all users)**.
6. Choose a destination location. Accept the default unless you want to specify a different location.
7. Supply license information – choose A UNICOM License server – and enter the location of the license server – for example, localhost:7498



*Figure 2. License information screen on System Architect install.*

8. Under "Please select a setup type," click **Complete** to install all of the System Architect options.
9. Click **Next**.
10. Click **Install** to install the software.
11. Click **Finish** after it is installed.

Once the install is complete, you have installed System Architect the software – but you will still need to install the Microsoft® SQL Server Express provided so that you will be able to create encyclopedias (databases) on it. Steps to do that are provided next.

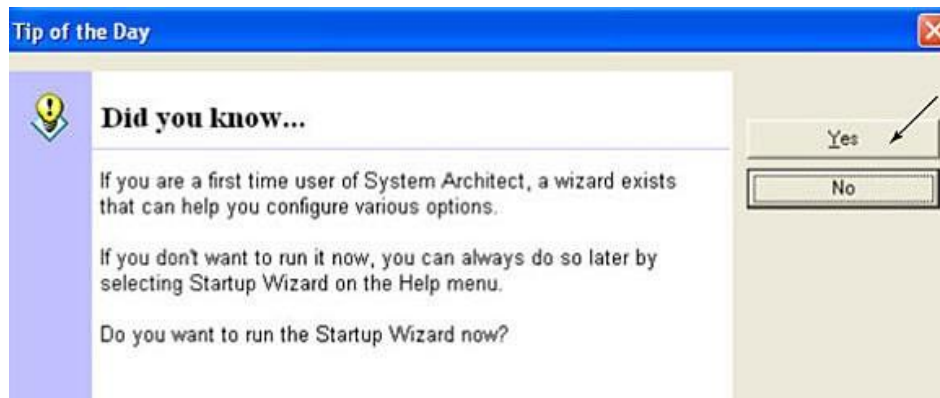
### III. Install Microsoft® SQL Server Express & Examples

System Architect requires Microsoft® SQL Server RDBMS (relational database management system) for its repository to store the diagrams and definitions. The next step is to install Microsoft® SQL Server Express on the workstation, attach the tutorial and sample encyclopedias (which are databases), and select other start-up options. The Startup Wizard automates this process.

#### Launch Startup Wizard & Install Microsoft SQL Server Express

1. Log on to the workstation as the workstation administrator
2. Start System Architect either by selecting **Start > Program Files > UNICOM Systems > UNICOM Systems Lifecycle Solutions > System Architect** or by double-clicking the **System Architect** icon on your desktop.

When you startup System Architect for the first time – the first Tip of the Day you will see will provide you with the option of starting up the Startup Wizard to allow you to install Microsoft SQL Server. You should select Yes if you have never installed Microsoft SQL Server previously. You can access the Startup Wizard at any time by selecting **Help > Startup Wizard**.



*Figure 3. Launching the Startup Wizard by selecting Yes to the first Tip of Day (alternate, select Help > Startup Wizard).*

3. Either click **Yes** to the first tip (see above) or, select **Help > Startup Wizard** to start the System Architect Wizard if did not already start automatically.
4. Click **Yes** to navigate to the next screen.
5. On the **Welcome to System Architect Startup Wizard** dialog click **Next**.
6. On the **Select options to configure** screen, click **Next** to accept the default settings.

Select options to configure (select an option to view its description):

Options	
<input checked="" type="checkbox"/>	Configure where project data will be stored
<input checked="" type="checkbox"/>	Configure startup view
<input checked="" type="checkbox"/>	Configure sample and tutorial encyclopedia projects

Figure 4. Startup Wizard default options

- Under **Configure where encyclopedia data will be stored**, select the option to install SQL Server Express locally on the workstation.

**Configure Where Encyclopedia Data Will Be Stored**

☒ Install a new instance of SQL Express on this machine (recommended)

☐ Configure advanced SQL Express options

☐ Existing SQL Server located on this machine

☐ Existing SQL Server located on the network

Figure 5. Option to Install Microsoft SQL Server Express Locally

- Click **Next** to get to the **Configure Startup View** screen.
- Click **Welcome guide**, and leave the **Default Welcome Guide Generic** option selected.
- Click **Next** to move to the **Configure Sample Encyclopedia Projects** screen.
- Make selections on which example encyclopedias to attach to the server – you can leave the default which is that they are all selected.

System Architect Startup Wizard

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**Configure Sample Encyclopedia Projects**

Available encyclopedias (select an encyclopedia to view its description):

Encyclopedia	Install
Simulation	<input checked="" type="checkbox"/>
Simulation Tutorial	<input checked="" type="checkbox"/>
DoDAF2 Tutorial	<input checked="" type="checkbox"/>
JK Enterprises	<input checked="" type="checkbox"/>
Archimate Sample	<input checked="" type="checkbox"/>

Description:

The Tutorial encyclopedia has been designed specifically for use with System Architect's basic method tutorial, which teaches you how to build parts of a simple Hotel Reservation System using business modeling, UML, and data modeling. The tutorial encyclopedia has been pre-populated with some diagrams and definitions for the Hotel Reservation System. You build upon this information while taking the Tutorial itself. (This encyclopedia's MDF file is named Tutorial.mdf)

< Back   Next >   Cancel

Figure 6. Configure Sample Encyclopedia Projects View

- Click **Next**.
- Click **Finish** to complete the installation steps.

When the installation is finished, you will be prompted to enter an **Audit ID**. The Audit ID is used to track the changes made by a user to diagrams and definitions in the encyclopedia for audit purposes. Everything that you do in System Architect – create/edit/delete/open a definition, diagram, or symbol – is time stamped with your Audit ID. Later you can run reports on who did what to the architecture at what time, through the Audit ID.

14. Enter an Audit ID (for example, your log in name), and then click **OK**.

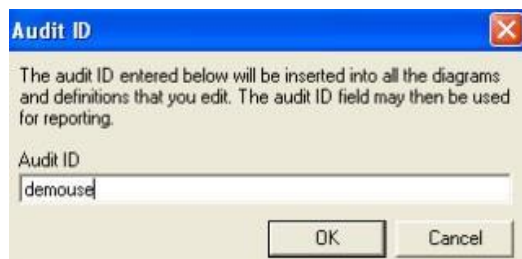


Figure 7. The “Enter Audi ID” window

## Create a Local SQL Server Express Connection

1. From the Open Encyclopedia window, click the **Existing** tab on the left.
2. Click the button under **Connection** to create a connection to the SQL instance.
3. In the next dialog window, click **New** to create the connection.
4. Under **Connection Name** in the **Connection Manager** dialog, type a name for the connection (example, Local Connection).
5. From the combination box in the form of <workstation name>\<instance name>, select the local SQL Server Express instance name. For this example, select this one:

**IBM-MAXoQ2AIFG2\RSA**

6. Click **OK**.

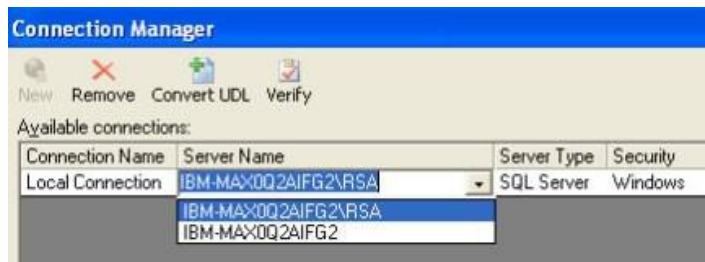


Figure 19. Create a New Connection to the Local Instance



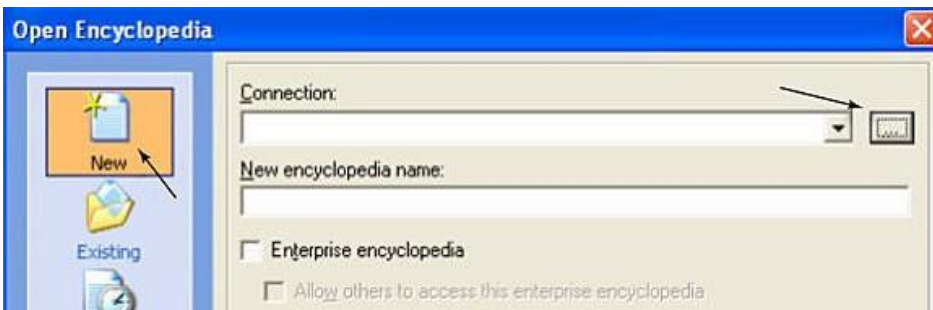
When the list of the sample encyclopedias is displayed, you can select one from the list to open it.

7. Click **Cancel** to dismiss the Open Encyclopedia dialog.
8. Click **Close** to dismiss the Tip of the Day dialog.

## Create a New Encyclopedia

To create a new Encyclopedia perform the following steps.

1. From the System Architect main page click **File > Open Encyclopedia**.
2. In the Open Encyclopedia window, click **New** to create a new System Architect encyclopedia.
3. Browse to select **Local Connection** to connect to the SQL instance.
4. Enter a name for the new encyclopedia (for example, Test).
5. Click **OK**.



*Figure 20. Create a New System Architect Encyclopedia*

6. When the Property Configuration dialog opens, click **OK** to accept the default selections.

The newly created encyclopedia opens, and the installation and configuration of System Architect is now finished.

## Installation Complete

At this point, both System Architect and SQL Server Express are installed on the workstation. A SQL Server Express instance is created. And you have created a connection to that SQL Server Express instance that has the example encyclopedias (databases) installed to it. You can create new encyclopedias as well.

So far, the workstation administrator is the only person with the rights to use System Architect and create System Architect encyclopedias. If you have installed System Architect

to your laptop, where you are naturally the administrator – then you are finished with the System Architect installation. You can now create a connection to the Microsoft SQL Server instance and open the example encyclopedias (databases) or create a new encyclopedia.

If you wish to open encyclopedias that someone provides you, or you wish to backup your encyclopedia in the future – you should do the next step – IV. Creating a Shared Folder for Encyclopedia Backups.

If you are not the only one that will be using System Architect on the workstation you have installed it to, you should perform steps V and VI of this article to complete the software configuration for non administrators.

## IV. Create a Shared Folder for Encyclopedia Backups

On Windows, Microsoft SQL Server Express services run under a special account called NT AUTHORITY\NetworkService. This account is also known as NETWORK SERVICE or SERVICE. It has minimum amount of security privileges, which minimizes network attacks on the workstation or server.

The System Architect Encyclopedia Manager (SAEM) provides System Architect administrators the ability to backup and restore System Architect encyclopedias. The backup file of an encyclopedia (or SQL Server database) has a .bak extension. When you specify to backup an encyclopedia to a backup (.bak) file, the file must be written to a shared directory that NT AUTHORITY\NetworkService has both read and write access to. To allow Network Service read and write access to the folder, the security for the folder must be modified. Follow these steps to create a shared folder and modify the security:

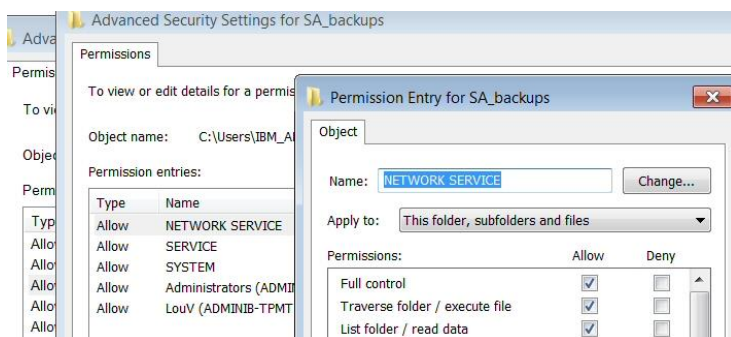
### Create a Shared Folder

Note that on older versions of Windows such as Windows XT and Windows Server 2003, you may need to uncheck “Use Simple file sharing option” on the My Documents folder to proceed with this step.

1. From Windows Explorer, navigate to the drive or folder where you want to create the shared folder – a recommendation is that you use your My Documents folder (example: c:\Document and Settings\All Users\Documents).
2. Create a new folder in My Documents (example, right-mouse click on My Documents and select **New > Folder** or select **File > New > Folder**) and give it a name to represent the fact it will hold System Architect backup databases to share – example saDBShare.

## Modify Security Settings for the New Folder

1. Right-click on the new folder (in this example, **saDBShare**), and select the **Security** tab.
2. In the **Security** tab, click the **Advanced** button.
3. With System selected, click the **Change Permissions** button.
4. Click to clear the toggle choice **Replace all child object permissions with inheritable permissions from this object**.
5. Select **Add**.
6. In the **Select User or Group** dialog, for the object name, type NETWORK.
7. Click **Check Names**.
8. Select **NETWORK SERVICE**, and then click **OK**.
9. In the **Select User or Group** dialog box, click **OK**.
10. In the **Permission Entry** dialog box, click **Allow** for the **Full Control** permission – all other permissions below it will automatically toggle themselves on as well.



**Figure 8. Specifying Network Service Access for SA Backup folder**

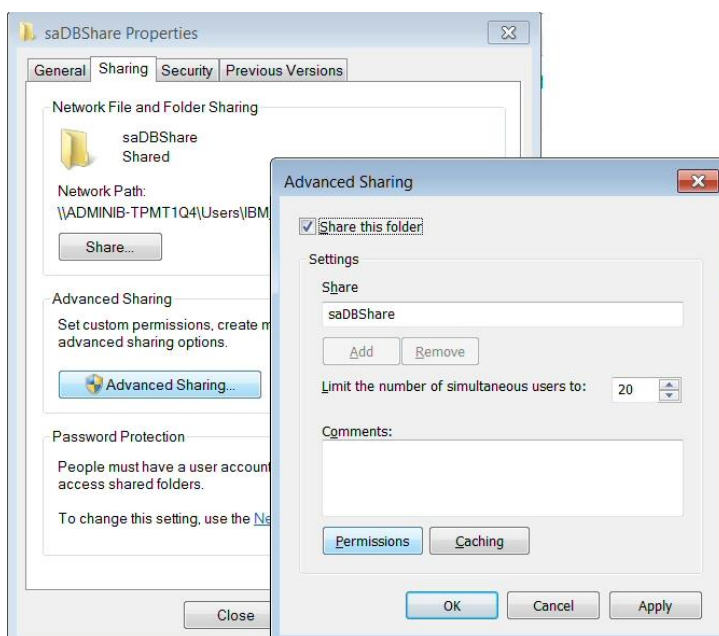
11. Click **OK**.
12. Repeat the steps to add **SERVICE**.
13. In the **Advanced Security Setting** window, optionally click **Apply**, and click **OK** (if it is available to be clicked; Windows should automatically apply the changes).

You can now use this folder to place .bak files which represent backup encyclopedias (databases) and use the Restore from File option in SAEM to restore them to your Microsoft SQL Server instance as encyclopedias. You can also use the SAEM option to Backup to File to store a backup of an encyclopedia (.bak file) to this folder.

## Share the folder and modify the permissions

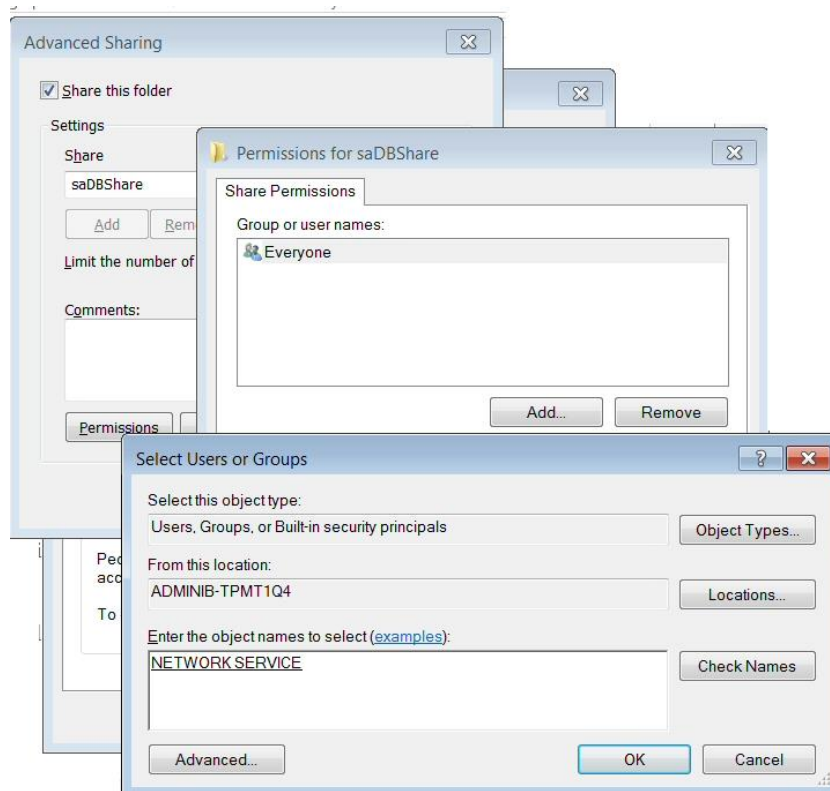
In the previous section you learned how to create a folder with sufficient permissions to use to backup encyclopedias as .bak files, and restore .bak files to an encyclopedia on a Microsoft SQL Server instance using SAEM. But you are the only one with access to that folder. In this section, we cover how to allow other Windows accounts to be able to use this folder.

1. Select the **Sharing** tab in the **Properties** dialog of the **saDBShare** (our example name) folder, and click the **Share** button.
2. From the drop-down, select **Everyone**.
3. Click the **Share** button.
4. Click the **Advanced Sharing** button.
5. In the **Advanced Sharing** dialog, toggle the choice **Share this Folder**.



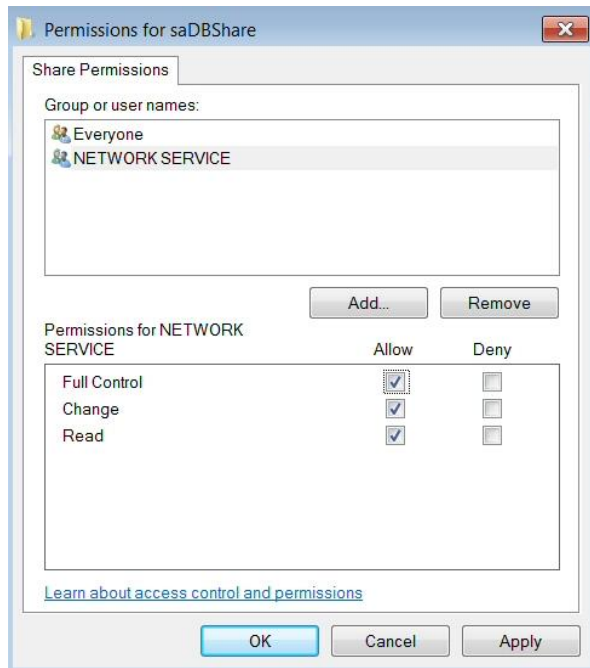
*Figure 9. Specifying Folder Sharing Options*

6. Click the **Permissions** button.
7. In the **Permissions for saDBShare** dialog, click **Add**.
8. In the **Select Users or Groups** dialog, type **NETWORK SERVICE**, and then click **Check Names**. If **NETWORK SERVICE** is not found, type **NETWORK** instead.



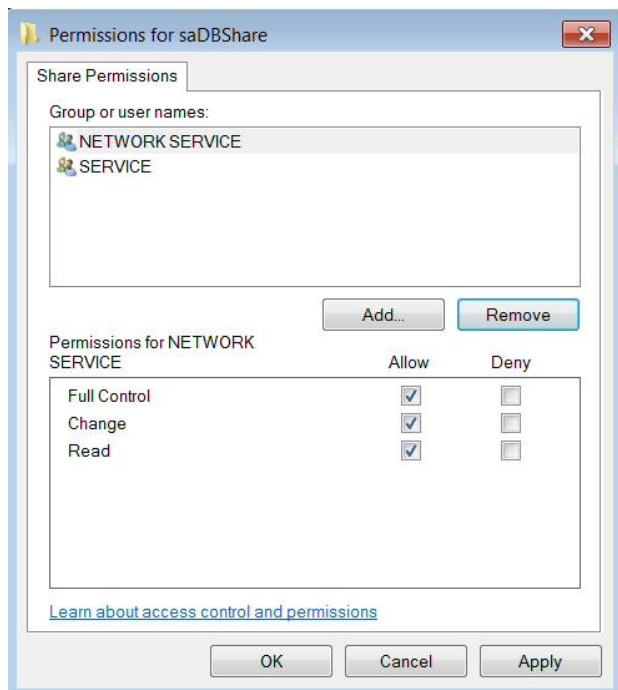
*Figure 10. Specifying Folder Advanced Sharing Options*

9. Click **OK**.
10. In the **Permissions for** dialog box, select **NETWORK SERVICE**, and then for the **Full Control**, click **Allow**.



*Figure 11. Adding Network Service Sharing Option*

1. Click **Apply**.
2. Repeat the steps for **SERVICE**.
3. In the **Permissions for** dialog box, select **Everyone**, and click **Remove**.  
NETWORK SERVICE (or NETWORK) and SERVICE now show under Group or user names.



*Figure 12. Completing Service & Network Service Sharing Options*

4. Click **Apply**, and then click **OK**.
5. In the **Advanced Sharing** dialog, click **Apply** and then **OK**.
6. In the **Properties** dialog box, click **Apply**, and then **OK** to close the window.

**Tip:**

To back up and restore System Architect encyclopedias by using the Encyclopedia Manager, you can connect to this shared folder by using its Universal Naming Convention (UNC) format (\\computername\saDBShare) or by using the mapped drive.

## V. Grant the BUILTIN\Users Group SQL Server Roles

To allow System Architect users access to Microsoft SQL Server or SQL Server Express instances and encyclopedias, SQL Server security uses either Windows authentication (for local or domain users) or SQL Server authentication (for users defined within SQL Server by the database administrator). For this example, you will use Windows authentication.

So far, the workstation administrator is the only person with the rights to use System Architect and create System Architect encyclopedias. If you have installed System Architect to your laptop, where you are naturally the administrator – then you are finished with the System

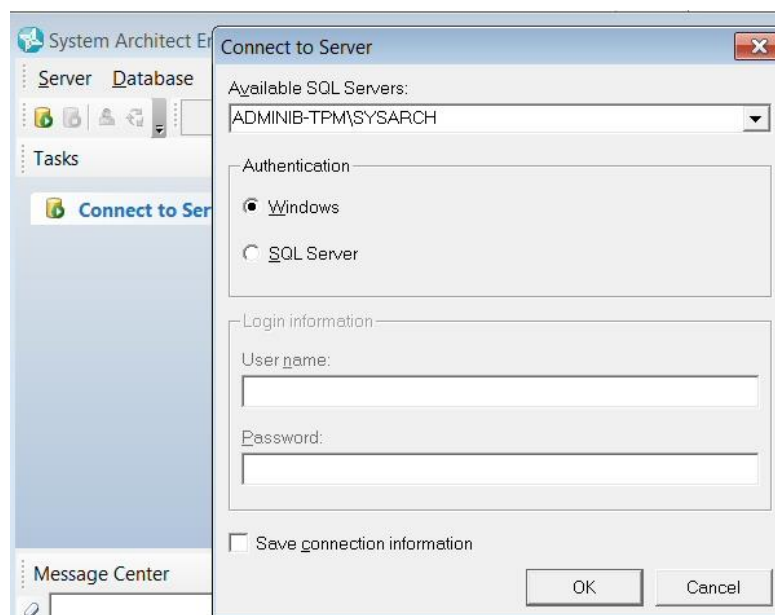
Architect installation. You can run System Architect, and create new encyclopedias or open existing ones (by selecting File, Open Encyclopedia).

However, if you have installed System Architect to a machine that will be used by others, users who belong to the BUILTIN\Users group are not automatically granted rights to connect to SQL Server nor can they create or use System Architect encyclopedias.

## Grant dbcreator and sysadmin roles

The next step is to grant the Windows BUILTIN\Users group *dbcreator* and *sysadmin* roles. System Architect users who belong to this group will be able to create and modify System Architect encyclopedias within the SQL Server Express instance. This task is accomplished by using the System Architect Encyclopedia Manager (SAEM) utility.

1. Log on to the workstation as a workstation Administrator.
2. Click **Start > All Programs > UNICOM Systems > UNICOM Systems Lifecycle Solutions > System Architect > SAEM for SQL Server.**
3. Click **Server > Connect** to create a connection to the SQL Server instance.
4. From the drop-down menu, select the local SQL Server Express instance. The SQL instance is in the form of <local hostname>\<instance name>.
5. Select **Windows** for authentication.
6. Press **OK**.



**Figure 13 . Use Windows Authentication to connect to a SQL Server**

Now, grant BUILTIN\Users group *dbcreator* and *sysadmin* roles:



7. Click **Server > Logins** to see a list of existing Windows users and groups.
8. Select the **BUILTIN\Users** group.



Name	Type	Database	Language
BUILTIN\Administrators	Windows Group	master	English
<b>BUILTIN\Users</b>	Windows Group	master	English
IBM-MAX0Q2AIFG2\demouser	Windows User	master	English
IBM-MAX0Q2AIFG2\SAstandardUsers	Windows Group	master	English
IBM-MAX0Q2AIFG2\SQLServer2005MSSQLuser\$IBM-MAX0Q2AIFG2\RSA	Windows Group	master	English
NT AUTHORITY\SYSTEM	Windows User	master	English
sa	Standard	master	English

Figure 14. Edit BUILTINUsers Group properties

10. Click the **Edit the selected login** icon to edit the properties for the Windows BUILTIN\Users group.
11. From the Properties window, click the **Server Roles** tab.
12. Check both **sysadmin** and **dbcreator** options to give the group administrator rights to the SQL Server Express instance and the ability to create encyclopedias within the instance.
13. Click **OK**, and close the Login Properties window.
14. Click **Server > Disconnect** to disconnect from the SQL Server instance.
15. Close the SAEM (SQL Server) utility.

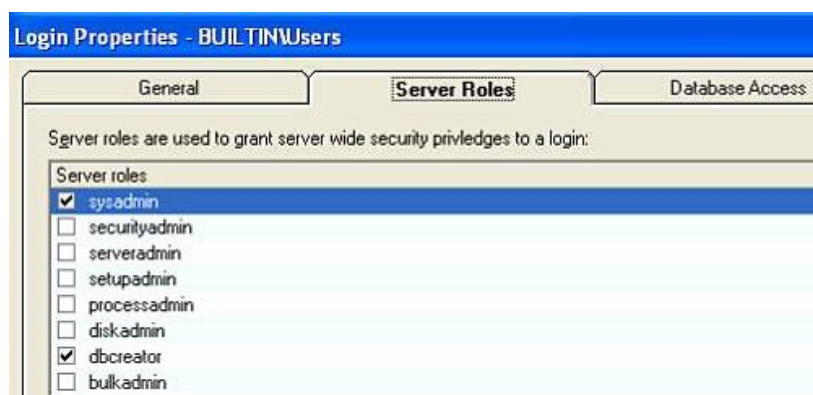


Figure 15. Use the check boxes to grant server roles

Users who belong to the BUILTIN\Users group now have the security rights that are necessary to use System Architect to connect to the local SQL Server Express instance and create encyclopedias. They are also considered the *database owners* of these encyclopedias.

## VI. Connect to SQL Server Express as Local or Domain User

You have finished the workstation administrator's tasks for System Architect installation and configuration. Non-administrative users of the workstation can now log in to the workstation and start the software. You can proceed with these steps:

1. Log off of the workstation as a workstation administrator.
2. Log on to the workstation as a *local* or *domain* user.
3. Start System Architect (which automatically activates the Startup Wizard).
4. Either click **Yes** to the first tip in the Tip of the Day dialog (see Figure 3) or, select **Help > Startup Wizard** to start the **System Architect Wizard** if did not already start automatically.
5. On the **Welcome to System Architect Startup Wizard** screen, click **Next**.
6. From the **Configure Where Encyclopedia Data Will Be Stored** dialog, click **Next** to accept the defaults.
7. Select the **Existing SQL Server Located on this machine** option to connect to the local SQL Server Express instance.
8. Click Next.



Figure 16. Select a server to host System Architect encyclopedias

9. From the **Available Local SQL Servers** window, select the local SQL Server Express instance name.  
(For this example: IBM-MAXoQ2AIFG2\RSA)



*Figure 17. Select the local SQL Server Instance*

10. Click **Next**.
11. For the Connection Information option, select **Use Windows authentication**.

#### Connection Information

Information is needed in order to connect to the selected server

- ☒ Use Windows authentication (recommended)
- ☐ Use SQL Server authentication

*Figure 18. Specify Windows Authentication for the Local SQL Server*

12. Click **Next** to navigate through the rest of the screens.
13. Click **Finish** to dismiss the **Summary of User Selections** window.
14. When prompted, enter an **Audit ID**. The Audit ID is a name that you create that will be tracked as you create/edit/delete architecture information in System Architect. Every diagram, symbol, and definition that you create/edit/delete/open will be tracked by a date/time stamp and your Audit ID, so that reports can be run to see what users did what to the architecture at what time and date.
15. Click **OK**.

You will then see the Open Encyclopedia dialog. The next steps are to create a SQL Server Express connection, browse the sample encyclopedias, and create a new one. To do this, follow the same steps provided above in section III, Install Microsoft® SQL Server Express & Examples -- for creating a Local SQL Server Express connection, opening the example encyclopedias, and creating new encyclopedias.

## Configure Subsequent Workstations

You can install and configure System Architect on additional workstations by repeating the process described in this article.

## VII. Basic Troubleshooting

Instructions follow for how to handle the following problems or tasks:

### SQL Server login failure

Use either the domain\username or username@fully\_qualified\_domain format to log in.

### SQL Server does not exist or access denied



*Figure 21. Error Message: SQL Server does not exist*

1. Ensure that SQL Server Express is installed properly.
2. Ensure that the SQL Server protocols are enabled and that SQL services are running.

### SQL Server Services will not start

1. Disable anti-virus software.
2. Restart the SQL services.

### SQL Server Express failed to install on Windows XP

The Startup Wizard displays an error during the installation and configuration of SQL Server Express on Windows XP. This error is related to a conflict with the MSXML 6 Parser. The work around is to use the Windows Installer CleanUp utility to remove references to MSXML

To do this, follow these steps:

1. Download the [Windows Installer Cleanup](#) utility from Microsoft Support. .
2. Run the utility.
3. Select **MSXML 6** from the list, and then click **Remove**.
4. Reboot the workstation.
5. Start **System Architect** and re-run the System Architect **Startup Wizard**.

## Windows Installer Cleanup Utility Failed to Install

1. Download and install the Microsoft® Visual Basic Script ([VBScript](#)).
2. Reboot the workstation.
3. Re-run the Windows Installer Cleanup Utility.

## NT AUTHORITY\NETWORK SERVICE (Network Service) issues

Follow the instructions in Section IV, **Create a Shared Folder to Store Encyclopedia Backups**, to resolve the issue.

## Appendix

### Enable Microsoft SQL Server Network Protocols

SQL Server Express is usually installed as a named instance. The named instance is identified by the network name of the computer and the instance name that you specify during installation. The TCP and Named Pipes network protocols are installed by SQL Server Express setup. However, the services are sometimes disabled by default, so you must explicitly enable them.

1. Log on to the workstation as the workstation administrator
2. Right-click the **My Computer** icon on your desktop and select **Manage** from the drop-down menu to open the Computer Management window.
3. Expand **Services and Applications**.
4. Expand **SQL Server 2012 Network Configuration** (name will vary depending on version of SQL Server installed).
5. Select **Protocols for RSA**, where **RSA** is the instance name.
6. Ensure that the Shared Memory, TCP/IP, and Named Pipes protocols are enabled.

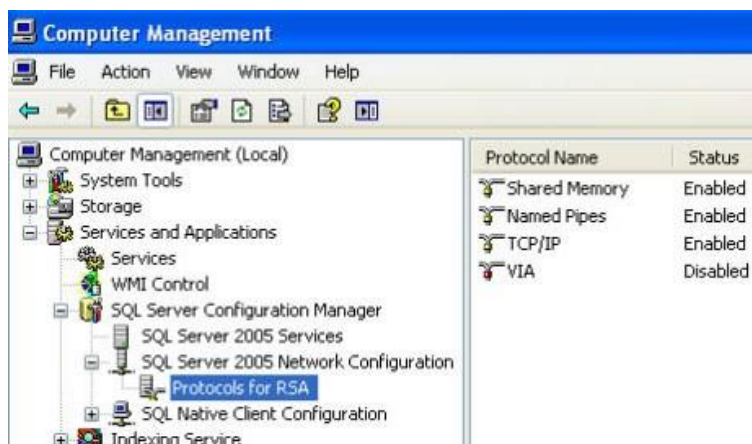
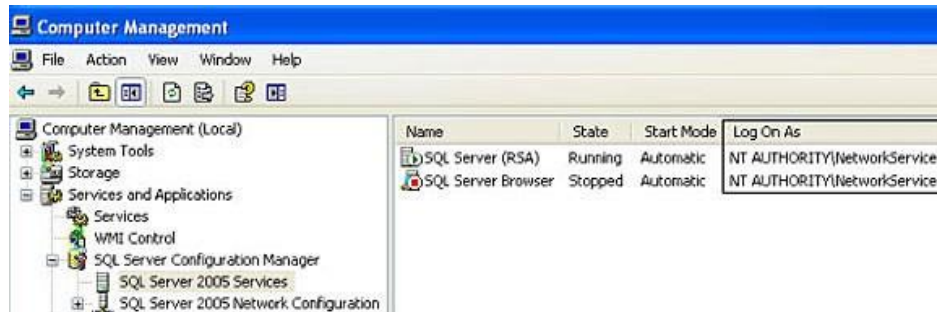


Figure 22. Enable SQL Server Protocols

The next step is to restart the SQL server service for the instance for the changes to take effect.

1. Under Computer Management, expand **SQL Server Configuration Manager** if it is not already expanded from

2. Click **SQL Server 2005 Services**.
3. Right-click **SQL Server (RSA)**, where RSA is the instance name.
4. Ensure that **NT AUTHORITY\NetworkService** is the services owner (the next section explains more about that service).
5. Click **Restart** to stop and then restart the SQL server service



*Figure 23. Restart Microsoft SQL Server service*

## Resources

### Learn

- Learn more about UNICOM® System Architect®:
  - Browse the product page UNICOM® System Architect® at <http://unicomsi.com/products/system-architect/>
  - Watch videos of UNICOM® System Architect® on its YouTube channel, [SystemArchitectTrain](#).
  - Explore the [UNICOM Customer Support Portal](#) for System Architect technical resources and best practices.

### Discuss

- Participate in the [System Architect LinkedIn forum](#), where you can share information about methods, frameworks, and tool implementations. Discussions include tool-specific technical discussions about System Architect.
- Follow UNICOM® System Architect® on:
  - [Facebook.com\SystemArchitect](#),
  - [Twitter](#) (@SystemArchitect), and
  - [YouTube \(SystemArchitectTrain\)](#),

and add your comments and requests.