ENTERPRISE ARCHITECT

User Guide Series

File Based Projects

Author: Sparx Systems

Date: 2022-04-19
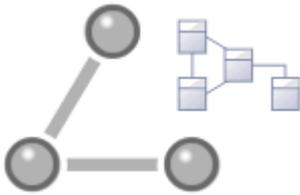
Version: 16.0

CREATED WITH ENTERPRISE ARCHITECT

Table of Contents

File Based Projects

Enterprise Architect provides a convenient light-weight, low-barrier and portable file-based repository out-of-the-box, which is ideal for modelers who want to start work immediately; with a file-based repository you can be modeling within a few minutes. All editions of Enterprise Architect support these types of repository in the form of:

- A .qea or .qeax file as a SQLite database, the default type in Enterprise Architect Release 16.0 and later (recommended in both 32-bit and 64-bit versions)
- A .feap file as a Firebird repository in all editions of Enterprise Architect
- A legacy .eap or .eapx file in all editions of Enterprise Architect except Release 16.0 64-bit
- A .eadb file as an MS Access 2007+ database

You can create your own repository from scratch, but default repositories (EABase files) are conveniently supplied in .qea, .feap and .eap formats, located in the Enterprise Architect installation directory. The EABase files act as templates for creating new projects and can be copied freely to easily allow you to create new repositories. You can tailor these repositories to suit your organization or create your own base repository.

Note that:

- QEA files are based on the well regarded open source SQLite3 code base, which has many useful tools and is extendable to meet emerging and changing needs; it does not require third party or custom drivers to be installed
- QEA files are the default file-based format, recommended and preferred for single user, single desktop, file-based modeling
- QEA files work seamlessly across Windows, Linux and Mac (the last two using Wine) on both 32-bit and 64-bit versions
- QEA files also provide basic replication support for merging changes between a replica set
- QEAX files are recommended for very small work groups sharing a file on a network share
- EAP/EAPX files are not supported under Linux/Mac but may work with additional third-party drivers
- EAP/EAPX files are generally supported under Windows, but require additional drivers installed from Microsoft

QEA files (SQLite databases) have been incorporated to better support the 64-bit version of Enterprise Architect, and to avoid dependency on various operating system capabilities.

File-based Project Tasks

Firstly, to create any file in Enterprise Architect, select one of:

- | New Project menu option
- 'Local File | New Project' option on the 'Manage Projects' dialog, or
- 'Create new' option on the Start Page

All of these options display the 'New Project' dialog; select a directory and enter a file name for your project, using an appropriate file extension.

Once the project has been saved, the 'Create from Pattern' tab (Model Wizard) displays, which makes a selection of model patterns available; select the pattern(s) to use.

Enterprise Architect adds a model containing the selected model Packages to the Browser window.

Task	Detail

Create .QEA and .QEAX Project Files	From Enterprise Architect version 16.0 onwards, .qea/.qeax is the default and recommended file based format, due to its easy of setup and general performance. • Files with the extension of .QEA support single users. • The .QEAX support muilti-user access for a small group less than five users. The internal format of both files is identical, however the .QEAX extension indicates that file sharing will be enabled. A QEAX file can be renamed back to QEA - no data transfer is required.
Create .FEAP Project Files (Firebird)	When you create a .feap file in Enterprise Architect, the system will check your input and display an error message if: • Your Firebird repository is not located on the local drive; a Firebird repository is not appropriate for a network shared project • The file path contains characters that are not in the system codepage
Create .EAP/.EAPX Project Files (MS Access Jet)	Create your project file with the .eap extension under JET 3.5 (does not support unicode text) or .eapx under JET 4 (does support unicode text). You can also copy and rename the EABase.eap or .eapx template file, and build your project up from that. Note that you cannot create or load a .eap or .eapx file in Enterprise Architect 16.0 64-bit under Wine. Under any other operating system, if the 64-bit access driver is not installed, the system prompts you to convert the file to another format such as .feap.
Create .EADB Project Files	Introduced in Enterprise Architect v16, if you have MS Access 2007+ (or the MS Access database engine) installed, you can create a .eadb project file in these ways: • Select to create a new project file and give it the .eadb file extension • Copy and rename the EABase.eadb file (in the installation folder) and build up your project from that Prior to Enterprise Architect v16 the only way to make use of MS Access 2007+ databases was with the .ACCDB ODBC driver (see the next point). However, the .eadb extension is now internally recognized by Enterprise Architect, so once MS Access 2007+ (or the database engine) is installed, Enterprise Architect can work with these databases without any further configuration, thereby greatly improving the usability of this database format. The .eadb files can be opened in all editions of Enterprise Architect, including the Professional.
Create .ACCDB Project Files	Enterprise Architect can use a MS Access 2007+ database (extension .ACCDB) as repository; however, the local machine requires either MS Access 2007 (or later) or the MS Access 2013 (or later) database engine installed. Having one of these products provides the local machine with a Microsoft Access ODBC driver that Enterprise Architect can make use of.
Location of default (EABase) repository template	The default installation directories, depending on which edition you have installed, are: • Registered Edition: C:\Program Files\Sparx Systems\EA • Trial Edition: C:\Program Files\Sparx Systems\EA Trial • Lite Edition: C:\Program Files\Sparx Systems\EA Lite A base project contains templates and reference data from which you can quickly develop your own project. Note that in addition to deriving a new model from EABase, it is also possible to start a new project by copying an existing one. While it is possible to simply 'copy'

	the EABase file at the file system level, this results in two identical models and should only be used when that is the required behavior; for example, when distributing a model to a client for verification. If you use the built in functions of Enterprise Architect to create a new model based on an existing one, Enterprise Architect will modify the unique identifiers (GUIDs) for all elements and related constructs so that the new model is essentially unique, and not a simple copy of the existing one.
Configure Project	Having created your project, there are a number of things that you might want to do to set it up for use by yourself or other team members. You might want to: • Enable Security and set up Users, Groups and Permissions • Set Project Options and Personal Preferences • Set up Technologies, Perspectives and Ribbon Sets • Create a Repository structure in the Browser • Use patterns to create initial project content • Set up Report Templates • Set up default database and programing language options
Create Custom Templates	You can customize any Enterprise Architect project as a template project - meaning that you can use it as the basis for creating other project files. This could include company standards, tutorials, frameworks and any other common piece of modeling already in-built; with careful planning you can save yourself many hours of work at project start-up.

Best Practices for File Based Repositories

Single User	Simple file based repositories (.qea, .feap and .eap files) are best suited to single user development with the model file placed on the modelers local drive. This is a fast and a very efficient means of getting started in modeling a particular solution. Many models will start out as single user repositories and only later be migrated into a DBMS or Cloud-based repository for larger team access. If you need to quickly start work on a project and do some exploratory work, or you are working alone as a consultant, the .qea, .feap or .eap file format is ideal.
Small Workgroup	With all versions of Enterprise Architect it is possible to share a project file at the network file level. Note that this is a suitable solution for small workgroups (less than five members) who are collaborating on a shared model. The solution very much depends on the quality of the network connection as Enterprise Architect on the user's machine is still running all the queries and performing all database operations on a network file. Therefore, it is less suitable as collaborating users increase in number and/or the model grows larger, at which stage it is best to upsize to either a DBMS or Cloud-based architecture.
In Conjunction with Version Control	One additional scenario in which file-based repositories can be used to great effect is with a Version Control system such as SVN. If the SVN system holds the master content, then individual developers/modelers can check out the material of interest to them into a local .qea .feap or .eap file. When they have made their changes they can migrate their work back into the shared master. This style of development is quite effective, and as the import and export of model material from the Version Control system works best with single user local project files, it is a good match

	and a good use of the two technologies.
Copy of Repository for Storage or Review	A further use of the single file repository is for distribution to clients and others for review and comment, where the original model(s) is located in a DBMS or Cloud that the recipient would not have access to. As it is relatively easy to bulk copy a DBMS model to a local project file, this is a good method for passing on a model to a client or another interested party. If some of the material is restricted, it is possible to delete sections from this single file repository after the bulk copy is complete and before passing it on.
Replication	If network access is limited and DBMS and Cloud-based solutions are not possible, another possibility for team-based development is to use the built-in replication features of the file format. By creating a design master and distributing replicas to other modelers, it is possible to effectively share and contribute to a model without having direct shared access to the common model. On the down side, someone will have to perform the model merges as required and if there are replication conflicts (two changes to the same item) this will require manual resolution.

Up-sizing

A project to be easily scaled up when the team further increases in size or when organizational policy dictates. In particular, given that file based multi-user access is limited to the workgroup having fewer than 5 concurrent users, there are two good options:

- A file-based repository can be easily transferred to a DBMS-based repository using the Project Transfer feature

- The free Pro Cloud Server can be used with either a .feap file, or a free DBMS like MySQL, with both supporting unlimited users

Notes

- You can also add Model Packages to a project by clicking on the Browser window header bar and selecting the 'New Model From Pattern' menu option

Copy a Base Project

When you create a new project, you can use the Model Wizard (Start Page 'Create from Pattern' tab) to define the structure and contents. Alternatively, you can copy an existing template or base project which is already largely set up, containing company standards, tutorials, frameworks and any other common modeling structures. You can also copy an operational QEA, .QEAX, .FEAP, .EAP or .EAPX, project file to a new file location under a new name to, for example:

- Provide separate copies for individual team members
- Create an evaluation or distribution version of the project

If you intend to use an existing project file as the template for a new project, it is important to use this method rather than simply copying the .EAP file using Windows Explorer. This process provides the option to reset all the unique identifiers for Packages and elements, so that your new project is truly unique - otherwise you create an exact copy of the original project.

Access

Open the template project or existing operational project then;

Ribbon	: Save Project As

Create a new project from a base project

Option	Action
Target Project	Type the new project filename.
	You can either type in the file path as well, or click on the Browse button and browse for the required file path.
	If this is to be a shared project, store the file on a shared network resource such as a Network Server or Workgroup Server.
Source Project	Defaults to the path and name of the currently-open template or project.
Reset New Project GUIDs	If the target project is to be a different project from the source (such as when you copy a base template), select this checkbox to replace all GUIDs from the base model with fresh GUIDs in the new model.
	However, if the new project is to be a direct copy of the source, or based on a project that is under Version Control, we recommend that you deselect this checkbox to prevent duplication of Packages when the 'Get Latest' facility is used.
Save As	Click on this button to save and open the new project.

Sharing File Based Projects

Enterprise Architect offers a diverse range of functionality designed specifically for sharing projects in team-based and distributed development environments, through network deployment of model repositories, DBMS based repositories, Cloud based models, replication and Native/XMI Import/Export.

Features

Feature	Detail
Network Deployment	Network deployment is possible under three different schemas: • File based repositories • DBMS server based repositories, or • Cloud based deployment (recommended) DBMS server based repositories offer better: • Response times than files on networks, due to the inherent structure of the DBMS • Solutions when networking problems are encountered, as they have the ability to backtrack transactions caused by external breakdowns
Replication	Replication enables data interchange between .EAP based repositories and is suitable for where many different users work independently in parallel development. Modelers merge their changes into a Design Master only as required; it is recommended that a backup is carried out prior to replication. Replication cannot be performed on repositories stored on a DBMS server.
XML Import and Export	XML Import and Export can be used to export and share discrete Packages between developers; Native/XMI file enables the export of Packages into XML files that can then be imported into any model. Package control can be used to set up Packages for Version Control and to enable batch export of Packages using XMI; Version Control enables a repository to be maintained by a third-party source code control application that is used to control access and record revisions.

Notes

• DBMS Repository support is available with the Corporate, Unified and Ultimate Editions of Enterprise Architect

Share Enterprise Architect Projects

The most efficient way of using Enterprise Architect to manage a team development is to share a project amongst a team of designers, developers and analysts.

Facilities

Facility	Detail
By Sharing a project	• Many people can work on the model at the same time and contribute their particular skill • Team members can always see what the latest changes are, keeping the team informed and up to date with the project status
You can share a project in three ways	• Place the project in a shared network directory • Use replication • Use a shared DBMS-based repository

Notes

• Project Sharing and Replication are available in the Professional, Corporate, Unified and Ultimate Editions of Enterprise Architect
• DBMS repositories are supported in the Corporate, Unified and Ultimate Editions of Enterprise Architect

Refresh View of Shared Project

When a user of a shared model checks out a Package and makes changes, other users can see those changes by refreshing their view of the Package or the changed diagram within the Package, in a number of ways.

Refresh the view

Object	Options
Project	• Right-click on the Package name in the Browser window and select the 'Contents | Reload Current Package' option, or • Press F5 to refresh the Package, or • Select the (Reload Project) icon in the Project Tools toolbar, or • Press Ctrl+Shift+F11, or • Close the project and reopen it
Diagram	• Select the 'Start > Appearance > View > Manage Views > Reload View' ribbon option, or • Right-click on the opened diagram tab in the Diagram View, and select the 'Reload <diagram name>' option

Share Projects on Network Drive

The easiest way to share a project amongst a work group of developers and analysts is to place the project file on a shared network drive, to which people connect from their workstations.

Individual developers and analysts can then open and work on the project concurrently.

Network Issues

Enterprise Architect accepts a number of concurrent connections without issue; however, there are points you should consider:

Issue	Description
Lock Outs	There can be occasional 'lock-outs' when one user tries to access or update something another user is in the process of modifying.
Other Changes	Changes to the Browser window (and other project views) are not automatically updated; to compensate for this, users must occasionally reload their project to see changes made by other users.
Diagrams	If two or more people work on the same diagram concurrently, unexpected results can occur; it is best to allow only one analyst to work on a diagram at a time.
System crashes	(.EAPX/.EAP files only) If a user's machine crashes, the network suffers an outage or a machine is turned off unexpectedly, the project file might require repair to compensate for the sudden inconsistency; a repair facility is provided ('Settings > Model > Integrity > Manage .EAPX/.EAP File > Repair .EAPX/.EAP File') to carry out this task.

Notes

- Firebird-based projects (.feap files) are not suitable for sharing over a network

Distributed Development

Enterprise Architect supports distributed development using two different techniques.

Replication

Using replication, geographically separated analysts can update and modify parts of the model in replicas, then merge these back together at a central location.

XML Import/Export

Using XML-based import/export, you can export discrete Packages to XML to share among the development team; this has several benefits over replication:

- You can assemble a model from only the parts necessary to get your job done
- You can assemble a full model if required
- You can assemble a model from different Package versions for different purposes (such as customer visible, internal release only)
- You can roll-back parts of a model as required
- There is less chance of 'collisions' between developers if each works on a discrete Package
- The process is controllable using a Version Control system, or through Package control

XML-based import/export is UML1.3 / XMI1.1 compliant; you can also write XML based tools to manipulate and extract information from XML files to enhance the development process.

XML-based Import/Export is accessed through the 'Publish > Model Exchange > Export Package' and 'Import Package' ribbon options.

Replication

Replication is a useful means of sharing projects between isolated or mobile users, enabling users or groups to work independently then merge their changes to a centralized master repository.

Although the Pro Cloud Server provides centralized repository access for distributed teams, there can be cases where parts of a group working collaboratively on a master repository, need separate repositories for working in disparate locations, but with the ability to synchronize their changes back into the master repository. This model synchronization process is achieved using model replication.

In Replication:

- A file-based repository is converted to a design master, then replicas are made of the master
- Users take the replicas away, modify the project, then return their replicas back to be synchronized with the master file.

Enterprise Architect supports replication on two file-based repository types:

- .qea and .qeax - SQLlite
- .eap and .eapx - Jet 3.5 and Jet 4.0 respectively

With a decreased support for Jet (MS Access databases), especially in 64 bit applications, replication using Enterprise Architect's SQLite file-based repository is the preferred option.

Access

Ribbon	Settings > Model > Transfer > Replication

QEA Replication

When using replication on the 64 bit version of Enterprise Architect it is necessary to use the SQLlite repository type. This includes the .qea and .qeax file types.

Access

Ribbon	Settings > Model > Transfer > Replication > QEA Replication

Guide

The following covers the key steps in the process of setting up and using replication for .qea files.

Facility	Detail
Create a Master	Convert a base repository into a replication master repository.
Create Replicas	Create replicas from the master repository. These replicas can then be posted off-site and worked on it as required.
Synchronize	When a work-cycle is complete, the replica repositories can be returned for synchronization with the master repository.
	When synchronizing, all changes in the master and the replica are propagated in both directions, ensuring they both finally contain the same information.
QEA Merge Rules	Enterprise Architect follows these rules in merging:
	• Additions are cumulative; that is, two replicas each creating three new Classes result in six new Classes after merging
	• Deletions prevail over modifications; if one replica changes a Class name and other deletes the Class, merging replicas results in both files losing the Class
	Conflicting modifications appear in the 'Resolve Replication Conflicts' dialog.
Avoid Change Collisions	If two or more people make changes to the same element, Enterprise Architect arbitrarily overwrites one person's change with the other's; to avoid this, different users should work on different Packages.
	However, since Enterprise Architect does not enforce this rule, it is possible for users' work to conflict; to minimize difficulties, please note these guidelines:
	• If users are likely to have worked in the same area of the model, they should both witness the synchronization and confirm that they are happy with the net result
	• If small pieces of information have been lost, they should be typed into one of the merged models after synchronization
	• If a large piece of information has been lost (for example, an overwritten large Class note) use the 'Resolve Replication Conflicts' dialog
Disable or Remove Replication Features	If you have converted a project to a design master but now want to disable the replication features, you can remove Replication; ensure that you back up all your

	files first.

Design Masters - QEA

Creating a master repository is the first step when working with Enterprise Architect's replication. This process converts an existing QEA repository to a master repository. This master repository provides a base for creating QEA replicas that can be modified independently and later synchronized back to the master.

Access

Ribbon	Settings > Model > Transfer > Replication > QEA Replication > Make Design Master

Create a design master

Step	Action
1	Create a back-up of the required .qea or .qeax repository.
2	Open the repository
3	Select the 'Make Design Master' menu option and follow the on-screen instructions.

Master usage

Once created you can work with the master and/or replica files as normal. Any changes applied on the master will be propagated to the replicas on synchronization. This can be useful where there are requirements or foundation classes that are only updated by higher level teams on the master.

Create Replicas - QEA

A replica QEA repository is one of several copies of a QEA master repository. You create replicas of the master repository for users to modify independently then synchronize these back to the master.

You can create as many replicas as needed. It is recommended to give these meaningful names to help identify each replica. For example if the master is called "Model.qea" then suitable names could be "Model-ReplicaDevGrpA.qea" or "Model-Janes-Replica.qea". This will help identify the replica when synchronizing changes back to the master and help avoid mistakes synchronizing the wrong file.

Access

Ribbon	Settings > Model > Transfer > Replication > QEA Replication > Create New Replica

Create a replica

Step	Action
1	First create a replication master repository, then select the 'Create New Replica' menu option and follow the on-screen instructions.
2	Edit the replica over time and, when required, return the file for merging with the master repository.
3	As the merge updates the replica with any changes on the master repository, for future work, ensure that you use the merged replica from the master.

Notes

- In the Corporate, Unified and Ultimate Editions of Enterprise Architect, if security is enabled you must have 'Manage Replicas' permission to create a replica.
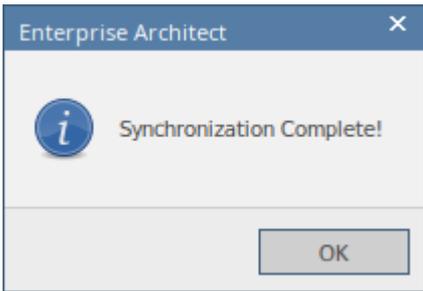
Synchronize Replicas - QEA

The process of synchronizing replicas to a master involves merging the changes made to each replica with the changes in the master repository. This updates each replica with all the changes ready for distribution.

Access

Ribbon	Settings > Model > Transfer > Replication > QEA Replication > Synchronize Replicas...

Synchronize replicas

Step	Action
1	Open the master repository file.
2	Select the 'Synchronize Replicas...' option.
3	In the file selection dialog, locate and select the required replica repository to merge with the master repository.
4	Where there are no conflicts, in that changes are on separate items in each repository, then the replication will finish with the dialog:
5	Where there are conflicts occurring due to a change on the same item in the master and in the replica, for example, an Element's name is changed in both, then the *Resolve conflict* dialog is opened for user interaction in resolving the conflict(s).
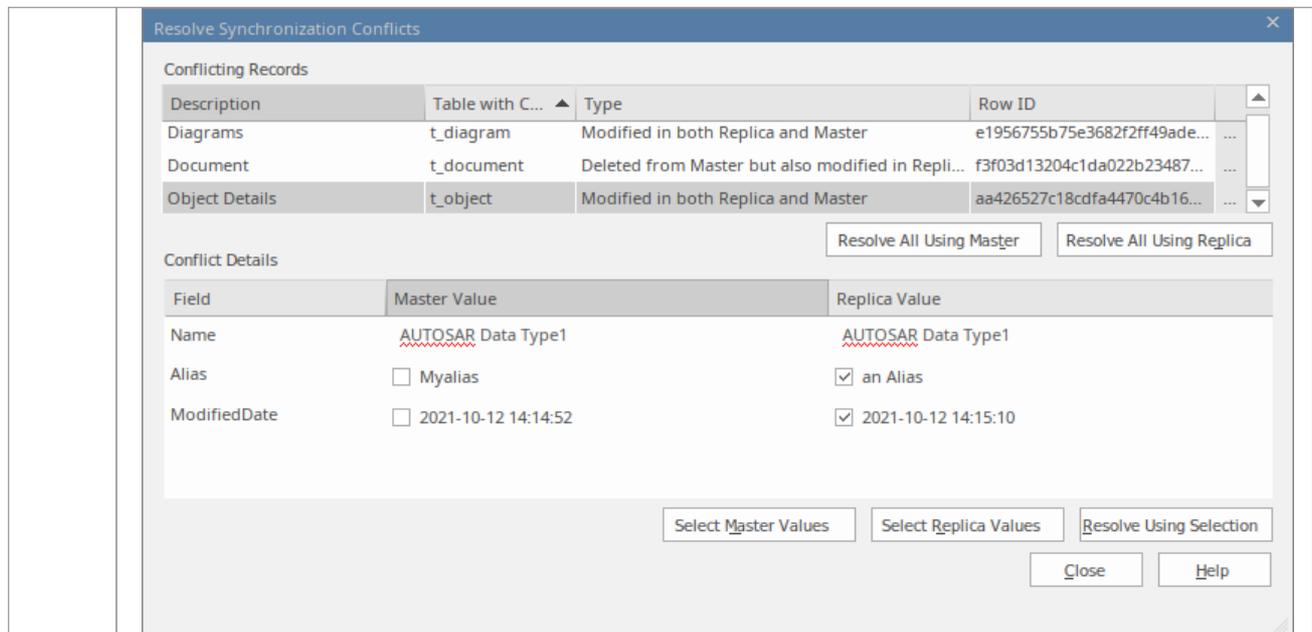
For more details see the *Resolve Conflicts - QEA* Help topic.

6	The details on the number of updates on each side are listed in the System Output window:
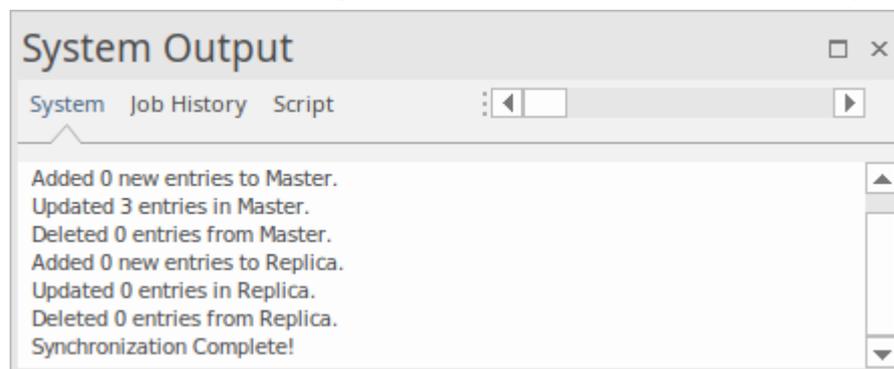
Notes

- Information is copied both ways, including deletes, updates and inserts; both projects end up containing identical information
- If this process generates 'conflicting changes' errors, you should review and, if necessary, resolve these conflicts
- In the Corporate, Unified and Ultimate Editions of Enterprise Architect, if security is enabled you must have 'Manage Replicas' permission to create a replica

Resolve Conflicts - QEA

If two or more people each work on the same Element/Object in their respective replica/master repositories, then when attempting to synchronize these, the replication engine has a problem resolving which change is to be synched to both. To resolve this, you need to select which of the two conflicting changes should be saved to the master or to the replica. To facilitate this, at the end of the synchronisation, all conflicting changes will be displayed in the *Resolve Synchronization Conflicts* dialog:
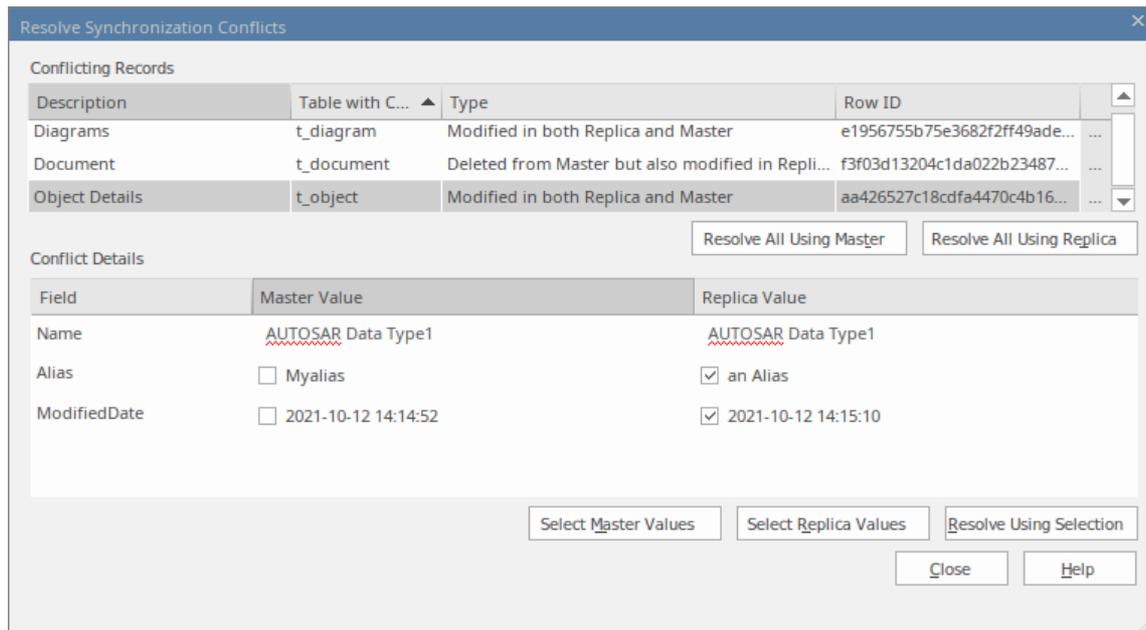
Resolve Synchronization Conflicts

The *Resolve Synchronization Conflicts* dialog provides a list of conflicts and a variety of means to resolve these. This process can be worked through by:

- Resolving all to the master
- Resolving all to the replica
- Resolving on a record-by-record basis or, more narrowly, by individual fields.

For this process the two lists in the dialog cover:

List	Entries
Conflicting Records	The top list shows the database row that has a conflict, and the type of conflict. Click on the [...] button, on the end of the row, to either: • Copy details or • Find the item in the Browser or in a Diagram. Click on an entry to show the details in the *Conflict Details* list.
Conflicting Details	On selection of an item in *Conflicting Records* the bottom list *Conflicting Details* will show the individual fields that were modified in both the master and the replica repositories.

Resolving conflicts

Button	Action
Resolve All Using Master	On clicking the button *Resolve All Using Master* - all the changes in the master are written to the replica.
Resolve All Using Replica	On clicking the button *Resolve All Using Replica* - all the changes in the replica are written to the master.
Resolve Using Selection	In the *Conflict details list*, you have the option: • Click on the *Select Master Values* button. This ticks all items in the *Master Value* column • Click on the *Select Replica Values* button. This ticks all items in the *Replica Value* column • Use the tick-boxes to select specific values to be updated to both repositories. Post selecting one of the above you can then write the update using the button *Resolve Using Selection*.

Considerations

Consideration	Detail
Avoid the problem	Ensure that each team member always works in a separate area of the model within their replica.
Conflict cannot be resolved	If a conflict cannot be resolved yet, you can close the conflict window. Where a conflict is not resolved, the master and replica files will be left as they are. The Synchronization can be re-run later, and the conflict will be listed again.

Remove Replication - QEA

Given that the replication requires extra detail there are many additions to a replication repository's structure. This makes the repository size considerably larger. If, at some point, you decide not to use the replication feature any more, you can remove the replication data.

As the synchronization of the replicas should be completed before this, only a master can have the replication removed. The replica repositories, being duplicates, can be discarded.

Access

Ribbon	Settings > Model > Transfer > QEA Replication > Remove Replication

Remove replication from your model

Step	Action
1	Open the .QEA file.
2	Select: Settings > Model > Transfer > QEA Replication > Remove Replication

EAP Replication

Replication is supported for .eap files and .eapx files. These files are based on the Microsoft Jet database formatting (MS Access), and support the Jet replication.

Note: with decreased support for Jet/DAO, especially in 64 bit applications, replication using Enterprise Architect's new SQLite file-based repository format (.qea file) is the preferred option.

Access

Ribbon	Settings > Model > Transfer > Replication

Guide

The process to set up replication is basically the same as for .eap files, as for .qea files. To use replication:

Facility	Detail
Create a Master	Convert the base project into a design master.
Create Replicas	Create replicas from the design master. These replicas can then be posted off-site and worked on it as required.
Synchronize	When a work-cycle is complete, the replica repositories can be returned for synchronization with the master repository. When synchronizing, all changes in the master and the replica are propagated in both directions, ensuring they both finally contain the same information.
Enterprise Architect Merge Rules	Enterprise Architect follows these rules in merging: • Additions are cumulative; that is, two replicas each creating three new Classes result in six new Classes after merging • Deletions prevail over modifications; if one replica changes a Class name and other deletes the Class, merging replicas results in both files losing the Class Conflicting modifications appear in the 'Resolve Replication Conflicts' dialog.
Upgrades and Replicas	When you upgrade your version of Enterprise Architect, you must not open a replica until you have opened the design master and then synchronized the replicas with the master; you cannot directly upgrade a replica.
Avoid Change Collisions	If two or more people make changes to the same element, Enterprise Architect arbitrarily overwrites one person's change with the other's; to avoid this, different users should work on different Packages. However, since Enterprise Architect does not enforce this rule, it is possible for users' work to conflict; to minimize difficulties, please note these guidelines: • If users are likely to have worked in the same area of the model, they should both witness the synchronization and confirm that they are happy with the net result • If small pieces of information have been lost, they should be typed into one of

	the merged models after synchronization
	• If a large piece of information has been lost (for example, an overwritten large Class note) use the 'Resolve Replication Conflicts' dialog
Disable or Remove Replication Features	If you have converted a project to a design master but now want to disable the replication features, you can remove Replication; ensure that you back up all your files first.

Design Masters - EAP

A design master is the first converted Enterprise Architect project that supports replication. You create the master project from which you create replicas that can be modified independently of the master project and re-merged later.

Access

Ribbon	Settings > Model > Transfer > EAP Replication > Make Design Master

Create a design master

Step	Action
1	Take a back-up of the required Enterprise Architect project.
2	Select the project in the Browser window.
3	Select the 'Make Design Master' menu option and follow the on-screen instructions.

Create Replicas - EAP

A replica is one of several copies of the design master of an Enterprise Architect project. You create the copy of the master project for you or another user to modify independently and re-merge later.

Access

Ribbon	Settings > Model > Transfer > EAP Replication > Create New Replica

Create a replica

Step	Action
1	First create a design master, then select the 'Create New Replica' menu option and follow the on-screen instructions.
2	Edit the replica over time and, when required, return the file for merging with the design master.

Notes

- In the Corporate, Unified and Ultimate Editions of Enterprise Architect, if security is enabled you must have 'Manage Replicas' permission to create a replica

Synchronize Replicas - EAP

Synchronizing replicas combines the changes made to each file. You can:

- Merge the changes made to each replica with the design master, so that a new set of replicas with all changes can be generated and distributed
- Combine the changes made to two replicas, should it be necessary for two team members to combine their work

Access

Ribbon	Settings > Model > Transfer > EAP Replication > Synchronize Replicas

Synchronize replicas

Step	Action
1	Open the design master project file (or the first required replica).
2	Select the 'Synchronize Replicas' menu option.
3	Locate and select the (second) required replica to merge the open project and the replica.

Notes

- Information is copied both ways, including deletes, updates and inserts; both projects end up containing identical information
- If this process generates 'conflicting changes' errors, you should review and, if necessary, resolve these conflicts
- In the Corporate, Unified and Ultimate Editions of Enterprise Architect, if security is enabled you must have 'Manage Replicas' permission to create a replica

Remove Replication - EAP

Replication makes many changes to the database structure of your model, so the model file becomes considerably larger with additional information; you might, therefore, decide not to use the replication feature any more.

Access

Ribbon	Settings > Model > Transfer > EAP Replication > Remove Replication

Remove replication from your model

Step	Action
1	Open a .EAP file (any .EAP file, other than the one having replication removed) - the menu option is not available if no file is open.
2	Select the 'Remove Replication' menu option. The 'Remove Replication Wizard' dialog displays.
3	Enter the full path and file name of the project to have replication removed. Click on the Next button. If the project displays Version Number 7.0 this indicates that Auditing is enabled. Auditing should be disabled before proceeding (see *Notes*).
4	Enter the full path and file name of the base Enterprise Architect model (with no replication) to act as template. Click on the Next button.
5	Enter the full path and required file name for the output file. Click on the Next button.
6	Select whether to have a log file created and, if so, enter a file name for the log file.
7	Click on the Run button to begin removing replication. Enterprise Architect creates a new project containing all the model information. Your model has now had replication removed, and should be considerably smaller.

Notes

- You cannot remove replication from a model with Auditing enabled - if you want to remove replication:
1. Disable Auditing.
2. If prompted to do so, allow Enterprise Architect to roll back the database version.

3.   Remove replication.

Upgrade Replicas - EAP

A new release of Enterprise Architect might contain changes to the underlying project structure, such as more tables or changed queries. If you use Replication, you must take care with your upgrade.

Considerations

Consideration	Detail
Open Design Master Project first	After installing the new version of Enterprise Architect, it is very important that you open the design master before opening any of the replicas with the updated version.
Changes to the database design	Changes to the database design in a replicated project can ONLY be done to the design master; trying to update a replica at best does nothing, and at worst causes the update of the master to fail.
Propagate Changes	Design changes are propagated through to the replicas the next time the replicas are synchronized with the master.
Alternatively	One other strategy is to remove replication from a copy of the replica set, upgrade that project and convert it into a new design master from which new replicas are created.

Resolve Conflicts - EAP

If two or more people each work on the same model object in their respective replicas between synchronizations, the replication engine has problems in resolving which change is the master. You need to select which of two conflicting changes you should save to the Design Master and/or replicas, where a substantial piece of information has been overridden by a user and you want to retrieve it.

Access

Ribbon	Settings > Model > Transfer > EAP Replication > Resolve Replication Conflicts

Considerations

Consideration	Detail
Avoid the problem	Ensure that each team member always works in a separate area of the model within their replica.
Check for conflicts	After synchronizing replicas, open the 'Resolve Conflicts' dialog (see next table) and check if there were any conflicts.
Response to conflicts	When a project record has been modified in different ways by different users, the replication engine selects one of the conflicting values based on rules within the JET replication manager.
	However, the replication engine stores the discarded changes and flags the conflict on the 'Resolve Conflicts' dialog so that you can choose to roll in the discarded change instead.
	Normally it is not necessary or desirable to examine conflicts, since they represent relatively inconsequential pieces of information that can very easily be modified through the normal Enterprise Architect interface; for example, by moving a diagram element.
	The only case in which the 'Resolve Conflicts' dialog should be used is where a substantial piece of information has been overridden by a user, and you want to retrieve it.

Resolve conflicts in changes to the same model object in two separate replicas

Step	Action
1	Synchronize a replica with the Design Master, and display the 'Resolve Conflicts' dialog.
2	In the 'Table with Conflicts' list, click on the entry that is likely to contain the lost information.

3	Click on each entry in the Conflicting Records list.
	When the lost information appears in the Conflict Details list, click on the Overwrite with Conflict button.
4	In the 'Conflicting Records' list, you can also copy each Row ID to the clipboard by right-clicking on the row and selecting the 'Copy to Clipboard' menu option.
	You can locate the object that is in conflict in the Browser window or diagrams, by right-clicking on it and selecting the 'Find in Project Browser' or 'Find in Diagrams' option.

Create a Project in a MS Access 2007 Database

With the release of Enterprise Architect v16, while it is still possible to utilize MS Access 2007 (.ACCDB) based repositories using an ODBC based connection, the introduction of the .EADB file type greatly simplifies the creation process. Therefore Sparx Systems recommends that all new MS Access 2007 based repositories should be created as .EADB. But these instructions remain for historical purposes.

The .ACCDB database format was introduced with MS Access 2007 and remains the format for all versions of MS Access since. In order for Enterprise Architect to be able to read data from a MS Access 2007, databases the local machine must have the appropriate ODBC driver (*Microsoft Access Driver (*.mdb, *.accdb)*) installed. The ODBC driver (and supporting file) are installed by either having MS Access 2007 (or later) or the MS Access 2013 (or later) redistributables (sometimes referred to as the Access Database Engine or ACE) installed. MS Access requires a license, while the redistributables can be freely downloaded from the Microsoft website.

To create a project in a MS Access 2007 database, you work through these stages:

- Stage 1: Obtain the EABase.accdb file
- Stage 2: Create ODBC DSN
- Stage 3: Connect to the Repository
- Stage 4: (optional) Transfer an existing repository into the MS Access 2007 database

Prerequisites

- *MS Access 2007* (or later) or *MS Access 2013 Access Database Engine* (or later) is installed on the local machine

1. Obtain the EABase.accdb file

Step	Action
1.1	Download *eabase-XXXX-accdb.zip* (where XXXX is the latest schema version number) from the Sparx Systems website, and unzip the file contained within to a temporary location.
1.2	Move file EABaseXXXX.accdb to an appropriate location on your local hard drive and at the same time rename the file to something meaningful for the current project.

2. Create ODBC DSN

Step	Action
2.1	The Windows Operating System includes two different versions of the ODBC administrative tool, one for 32 bit and the other for 64 bit applications. Therefore you need to open the 'Open Data Source Administrator' that corresponds to the architecture of your Enterprise Architect application. The easiest way to achieve this is to use Enterprise Architect's build-in ribbon option: 'Settings > User Tools > ODBC Data Sources'. The ODBC Data Source Administrator window displays.
2.2	The DSN can be saved as either a User or System DSN, if you have administrator privileges on the local machine then we would suggest saving the DSN as a System DSN, otherwise your only option is to

		create a User DSN.
2.3		Click on the Add button.
		The 'Create New Data Source' dialog displays, enabling you to add a new DSN.
2.4		Select 'MS Access Driver (*.mdb, *.accdb)' from the list.
		Note: Make sure NOT to select 'MS Access Driver (*.mdb)' *without* the '*.accdb'; this is the older driver and does not work with MS Access 2007 databases.
2.5		Click on the Finish button.
		The 'ODBC Microsoft Access Setup' dialog is displayed.
2.6		Enter these configuration details:
		• **Data Source Name**: (DSN), a unique name for the connection
		• **Description**: (optional) description of the DSN
2.7		Click on the Select button to display the Select Database screen. Use this to browse for and select the database file, which was renamed in step 1.2 above.
2.8		Click on the OK button on the Select Database screen.
2.9		Click on the OK button on the ODBC Microsoft Access Setup screen. This will save the ODBC DSN.
2.10		If the test succeeds, click on the OK button to complete the configuration.
		If the test does not succeed, review your settings.

3. Connect to the Repository

Step	Action
3.1	Open the 'Data Link Properties' dialog using one of these methods:
	• Keyboard Shortcut: Ctrl+O : Connect to Server
	• Start Page	Server Connection (direct to 'Open Server Connection' dialog)
	•	Open Project : Connect to Server
	• Start Page : Manage Projects : Connect to Server
3.2	On the 'Provider' tab select 'Microsoft OLE DB Provider for ODBC Drivers', click on the Next >> button.
3.3	Select the ODBC DSN defined in Stage 2 in the 'Use data source name' combo; click on the Test Connection button.
3.4	Once step 3.3 is successful, click on the OK button to open the repository.
	If the test does not succeed, review your settings.

4. Transfer existing repository contents

This step is only required if your new MS Access 2007 repository should be loaded with the contents of another repository, if you are wanting

4.1. Perform a Project Integrity Check

To avoid any potential data issues with the source repository, a Project Integrity Check should be performed. While this step is optional, Sparx Systems do recommend that it is performed.

Step	Action
4.1.1	Using Enterprise Architect, open the source project .EAP/.EAPX file.
4.1.2	Select the 'Settings > Model > Integrity > Project Integrity' ribbon option.
4.1.3	Ensure that in the 'Action' panel 'Report Only' is selected, and that all checkboxes in the 'Checks to Run' panel are selected, then click on the Go button.
4.1.4	If Enterprise Architect detects that the existing model contains integrity issues, they will be listed in the main panel at the bottom of the dialog. These issues should be resolved before continuing with the project transfer.

4.2. Transfer Source Project to an Empty .ACCDB File

From Enterprise Architect Release 16.0 onwards, there is an alternative to the .accdb file that is easier to use; this is the Access .eadb file. Enterprise Architect uses .EADB as the extension to connect to the file using the Access ODBC driver. See the *File Based Projects* Help topic.

Note that if the .eap or .eapx file has replication enabled, this must be removed before performing the transfer. See the *Remove Replication* Help topic.

Step	Action
4.2.1	Open Enterprise Architect. (If the 'Open Project' dialog displays, click on the Cancel button to open with no project loaded.)
4.2.2	Select the 'Settings > Model > Transfer > Full Project Transfer via Connection' ribbon option. The 'Project Transfer' dialog displays.
4.2.3	In the 'Transfer Type' panel, select 'File to DBMS'.
4.2.4	In the 'Source Project' field, click on the [...] button and browse for and select the name of the .eap or .eapx file to copy to the repository.
4.2.5	At the right of the 'Target Project' field, click on the [...] button and click on the 'ODBC Connection Wizard' option. The 'Datalink Properties' dialog displays.

4.2.6	Select 'Microsoft Office 12.0 Access Database Engine OLE DB Provider' from the list. Click on the Next button.
4.2.7	Obtain an empty MS Access 2007 base project from the Sparx Systems *DBMS Based Repositories* web page, and rename the file to suit the intended purpose.
4.2.8	On the 'Data Source Details' page of the 'Datalink Properties' dialog, type in the full path to the Access 2007 .ACCDB file. Click on the OK button to return to the 'Project Transfer' dialog.
4.2.9	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
4.2.10	Click on the Transfer button to begin the data transfer process. When the process is complete, you will have created your project in an Access 2007 database and can open it directly from Enterprise Architect, browsing for the .EADB file location in the 'Open Project' dialog.

Notes

- Connecting to DBMS based Repositories is available in the Enterprise Architect Corporate, Unified and Ultimate Editions
- If you do not have Access 2007, you can download the Access Database Engine from the Microsoft downloads site