

Paper 313-2011

Migrating SAS® Enterprise Guide® Projects from SAS® 9.1 to SAS® 9.2

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ABSTRACT

Migrating SAS® Enterprise Guide® projects from SAS Enterprise Guide 4.1 (which runs on SAS® 9.1) to SAS Enterprise Guide 4.2 or SAS Enterprise Guide 4.3 (which both run on SAS® 9.2) is a relatively straight forward process.

But there are a few "tricks for young players" that if you are not aware of will extend the effort required to successfully migrate.

If you are faced with migrating hundreds of user-created SAS Enterprise Guide projects, then you need to know these tricks.

This presentation outlines the options for migrating SAS Enterprise Guide projects and recommendations on when to use each approach.

INTRODUCTION

Enterprise Guide is a powerful interface, which enables users to access the capability of the SAS system. With each new version of the SAS foundation software, there is typically also a new version of Enterprise Guide released.

With the release of SAS 9.2, Enterprise Guide 4.2 was released. In 2010 in conjunction with the SAS 9.2 maintenance release 3 (M3), Enterprise Guide 4.3 was released.

Migrating from Enterprise Guide 4.1 to 4.2 or 4.3 is relatively simple; typically you just open the Enterprise Guide project in the new version and save. The project is then automatically saved in the new version format.

However there is the potential for the migration to be complex if:

- During the SAS 9.2 upgrade major changes to the SAS Foundation architecture is made, which results in changes to all relevant Enterprise Guide projects being required.
- You have a large number of user created Enterprise Guide projects, which would be time consuming to open and save, or update, manually.

Luckily SAS has provided a number of capabilities that can make migrating these Enterprise Guide projects easier.

This paper outlines how and when to use these capabilities.

OPTIONS FOR MIGRATING ENTERPRISE GUIDE PROJECTS

When migrating an Enterprise Guide project from SAS 9.1 (EG 4.1) to SAS 9.2 (EG 4.2 or 4.3) there are three main techniques that are available to achieve this. These are:

1. Open the EG 4.1 project in EG 4.2 or 4.3 and Save
This approach is suitable if there are no required changes to Server names, Libnames, paths etc
2. Utilise the Enterprise Guide Migration Wizard
This approach automatically migrates multiple EG Projects in one process
3. Manual Migration
Open the Enterprise Guide 4.1 project in Enterprise Guide 4.2 or 4.3 and manually make the necessary changes

OPTION 1: OPEN PROJECT IN EG 4.2 OR 4.3 AND SAVE

Enterprise Guide 4.2 and 4.3 are able to natively open an Enterprise Guide 4.1 project, via the standard File > Open > Project navigation.

When a 4.1 project is opened in a later version the user is presented with a message box informing that a previous version's project has been opened.

Migrating SAS® Enterprise Guide® Projects from SAS® 9.1 to SAS® 9.2, continued

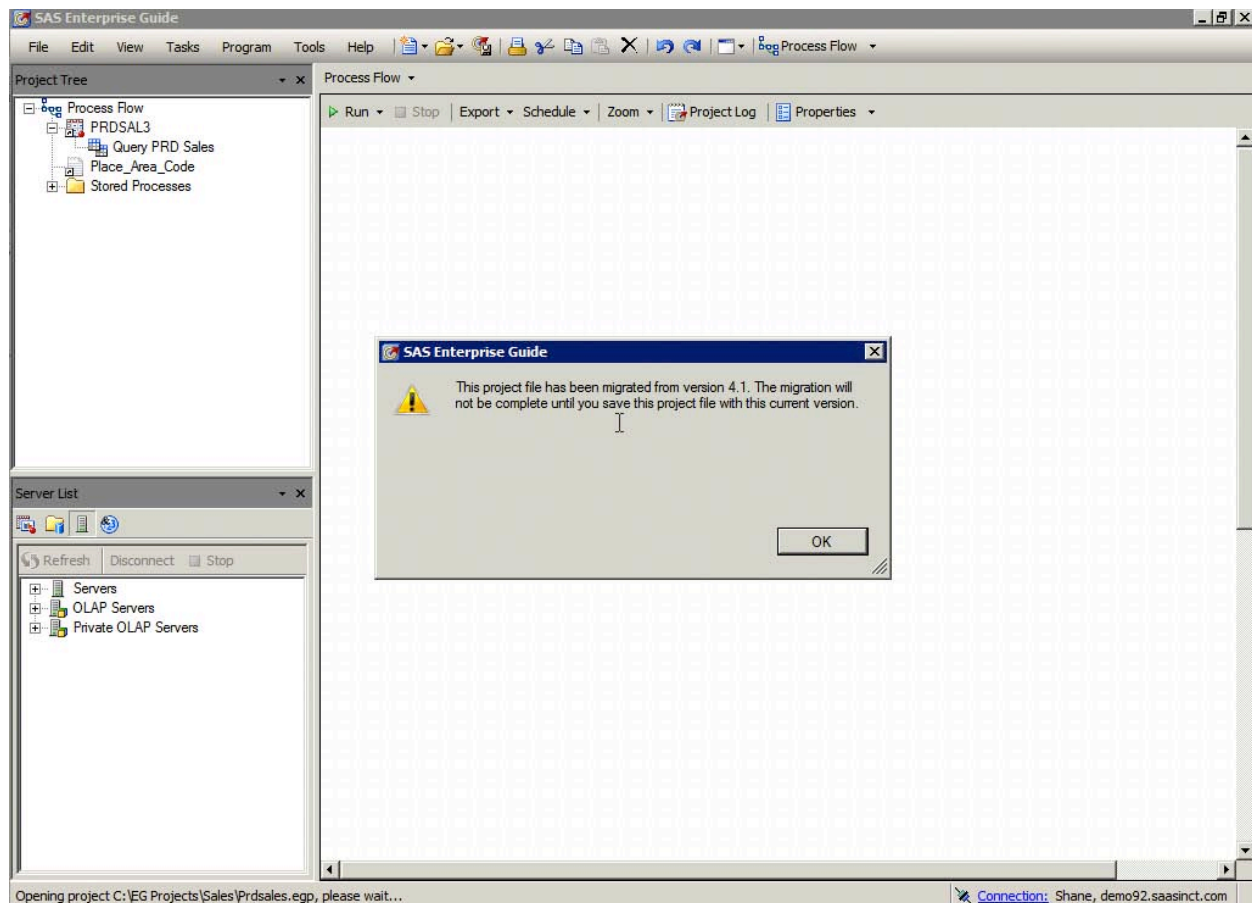


Figure 1. SAS Enterprise Guide opening 4.1 project in 4.3

When the user saves the project it is automatically saved in the new version. Migration is as simple as that.

It is important to note that Enterprise Guide 4.2 and 4.3 project files (.egp) cannot be opened in Enterprise Guide 4.1. In addition Enterprise Guide 4.2 and 4.3 do not provide the user with a warning message outlining this when they save the 4.1 project in the new version's format.

So it is important to make sure that backups of all Enterprise Guide 4.1 projects are created before attempting to upgrade them.

OPTION 2: UTILISE THE ENTERPRISE GUIDE MIGRATION WIZARD

If you need to migrate a large number of Enterprise Guide projects the Enterprise Guide Migration Wizard enables you to achieve this.

The Migration Wizard is described on the SAS Support site as:

“The Migration Wizard enables you to migrate multiple projects to the SAS Enterprise Guide 4.2 format at one time. If you have the SAS Add-In 4.2 for Microsoft Office installed, the wizard also migrates files that are used with the SAS Add-In 2.1 for Microsoft Office, such as Microsoft Word files or Microsoft Excel files. You can use the wizard to identify the projects and documents that you want to migrate and specify new locations for objects in the migrated files. The wizard converts the projects and documents to the correct format and makes global changes to the changed object references.”

So effectively the wizard allows you to automatically perform the same action as opening a 4.1 project in 4.2 or 4.3 and saving, but for large volumes of Enterprise Guide projects in one go.

More importantly it enables you to automatically make changes to certain object references within these projects in bulk.

Migrating SAS® Enterprise Guide® Projects from SAS® 9.1 to SAS® 9.2, continued

OBJECT REFERENCE CHANGES

Often an organisation will take the opportunity to make some changes to their SAS environment as part of the migration from SAS 9.1 to SAS 9.2. This may include:

- Utilising different server names for the metadata server
- Utilising different workspace server names
- Utilising different library names
- Changing the location for storing external files

Enterprise Guide projects store these object references in the .egp file, so if changes are made to these objects then the references need to be updated in each relevant Enterprise Guide project before it can be successfully executed.

THE ENTERPRISE GUIDE MIGRATION WIZARD PROCESS

Step 0

Before we start the six-step wizard process we first need to invoke the Enterprise Guide Migration Wizard.

The Wizard is installed automatically when you install Enterprise Guide 4.2 or 4.3, but importantly no windows shortcut is automatically created.

So you will need to manually invoke the MigrationWizard.exe executable file, which is typically found in either:

- C:\Program Files\SAS\EnterpriseGuide\4.2\
- C:\Program Files\SAS\EnterpriseGuide\4.3\

These locations may differ if you have installed Enterprise Guide in a different path than C:\Program Files\

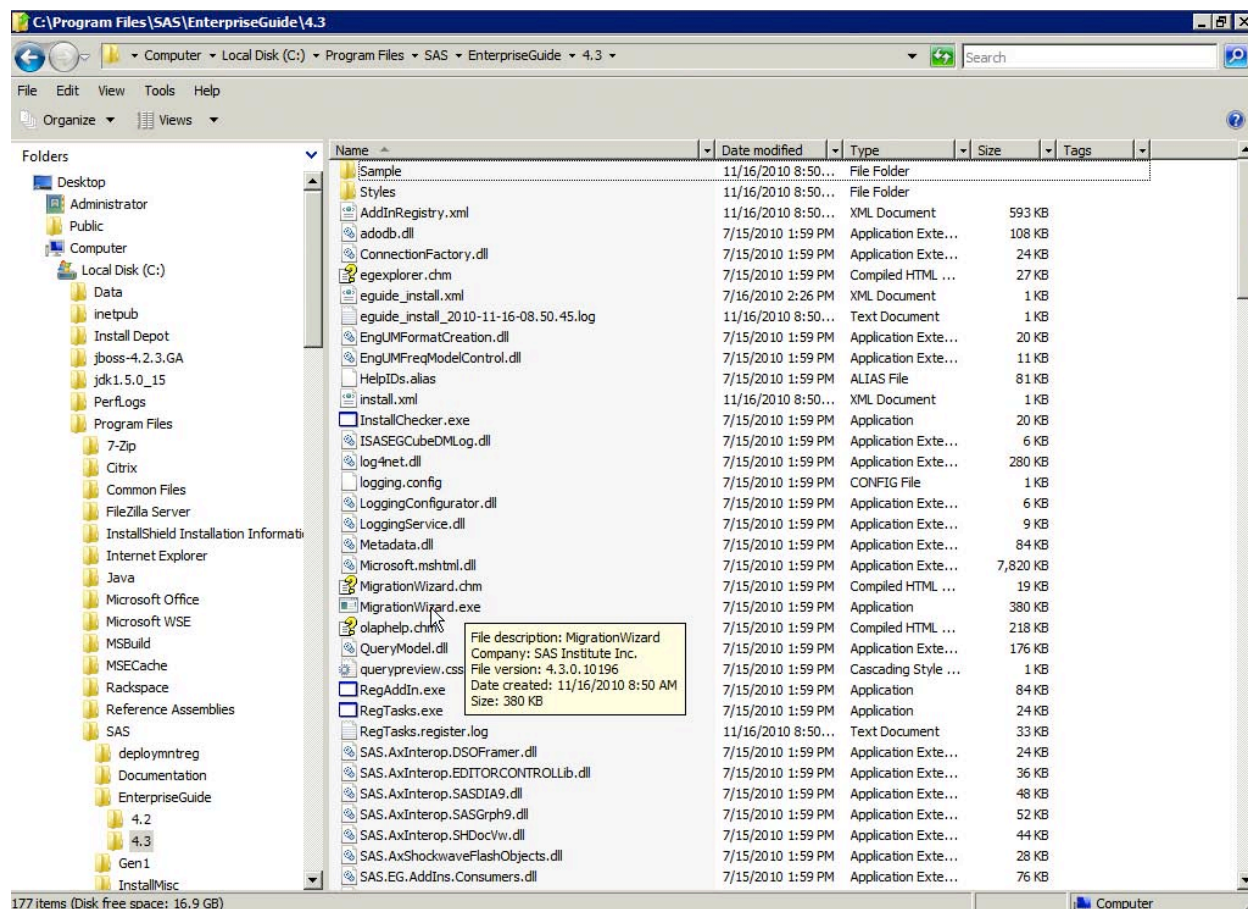


Figure 2. Typical location of MigrationWizard.exe

Migrating SAS® Enterprise Guide® Projects from SAS® 9.1 to SAS® 9.2, continued

Step 1 – Information Screen

Step one is a simple information help screen outlining what the migration wizard does.

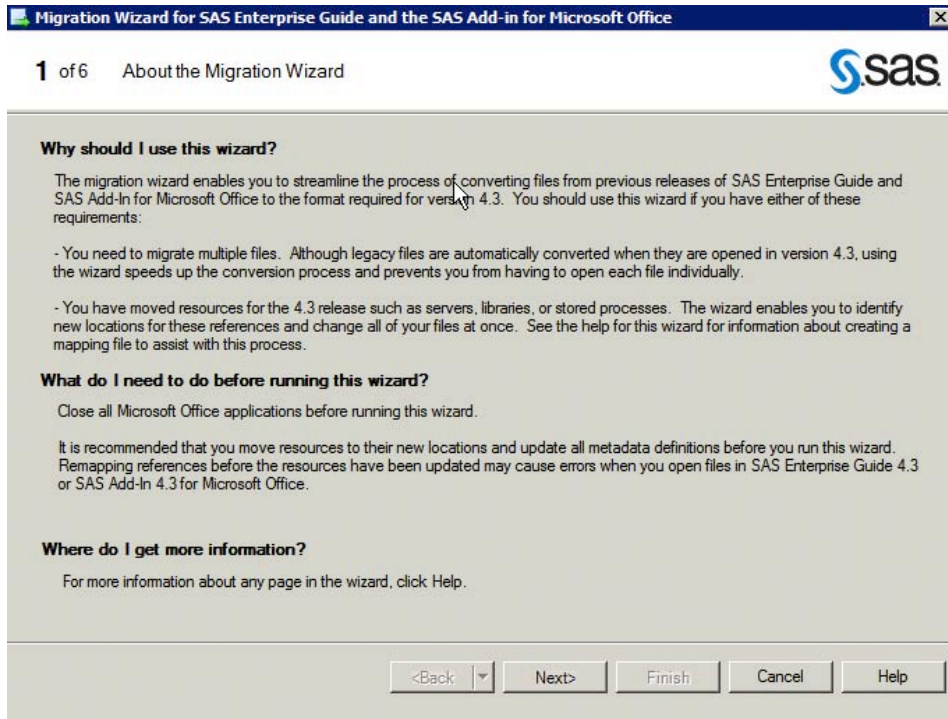


Figure 3. Enterprise Guide Migration Wizard Step 1

Step 2 – Metadata connection details

The second step is to define the connection details for the SAS 9.2 metadata server we will use for the migration.

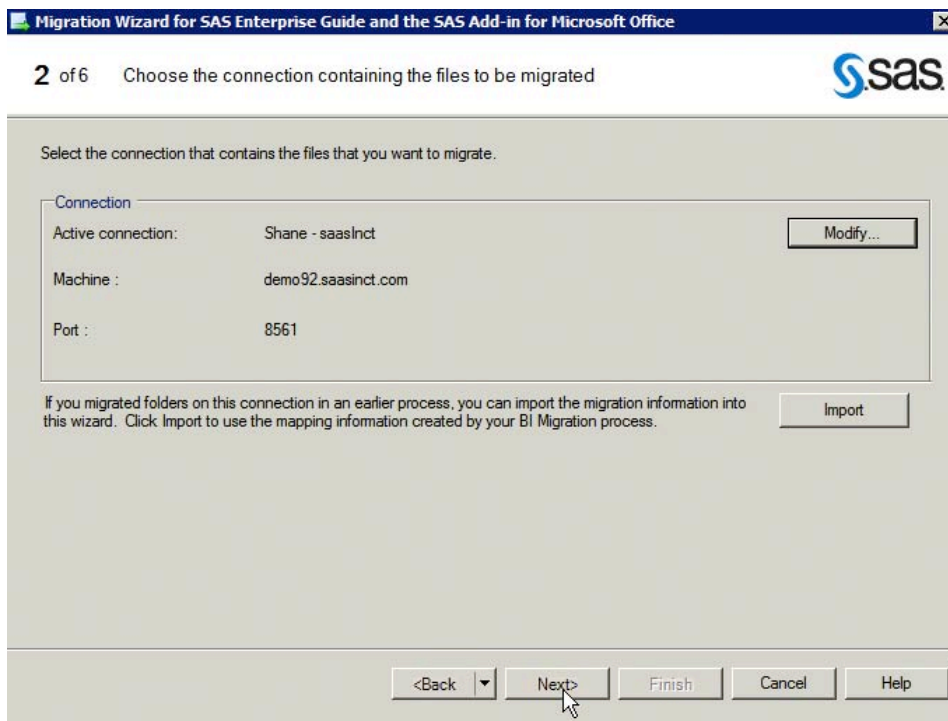


Figure 4. Enterprise Guide Migration Wizard Step 2 – Metadata connection details

Migrating SAS® Enterprise Guide® Projects from SAS® 9.1 to SAS® 9.2, continued

Step 3

The third step is to select the Enterprise Guide project files that you wish to migrate.

A simple tree view enables you to navigate to the folders that hold the Enterprise Guide projects and select entire folders or individual project files.

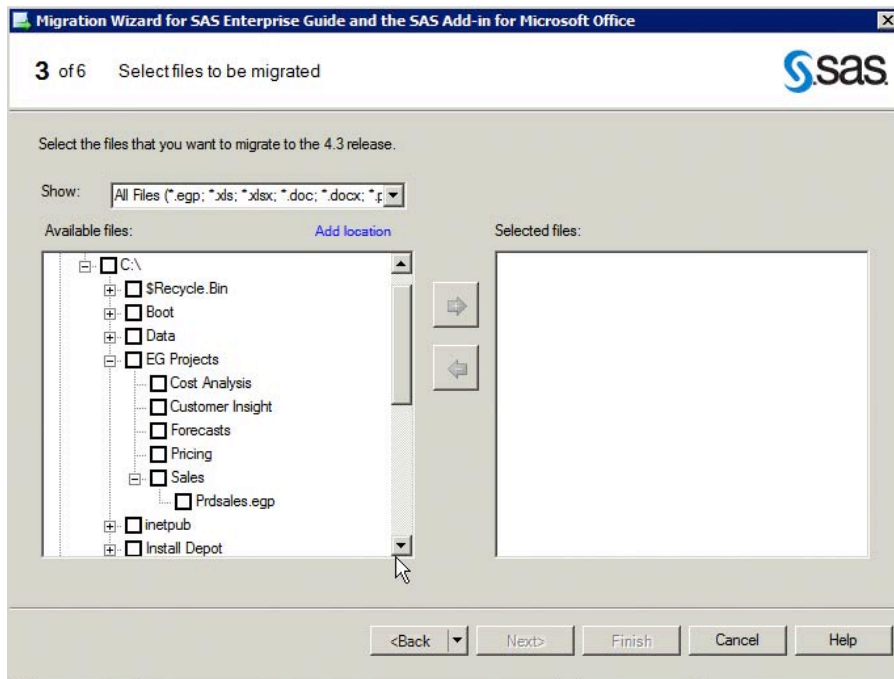


Figure 5. Enterprise Guide Migration Wizard Step 3 – Browse file system

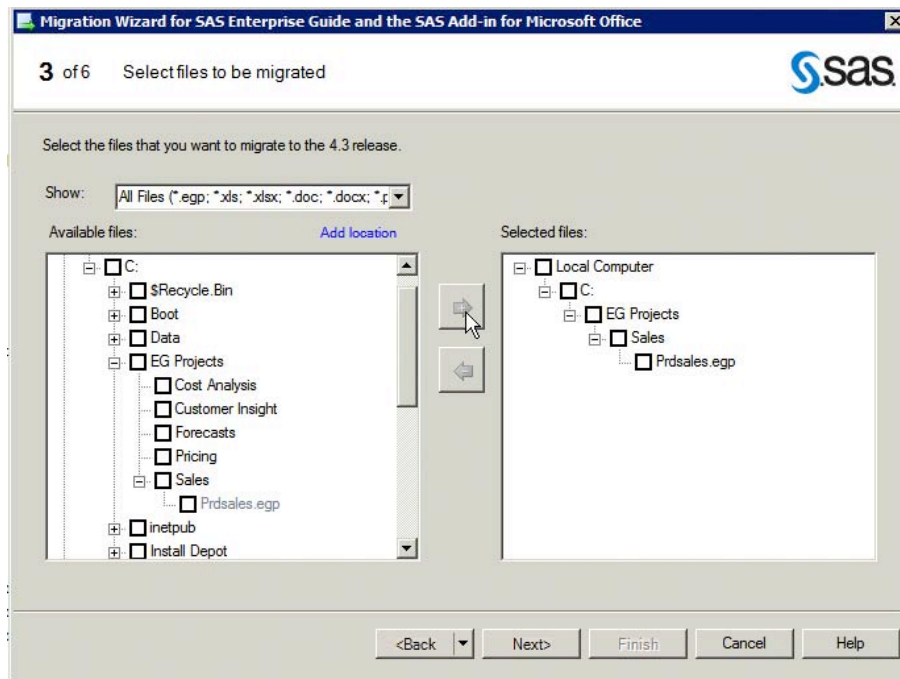


Figure 6. Enterprise Guide Migration Wizard Step 3 – Select project files

Importantly the PC that has Enterprise Guide 4.2 or 4.3 installed and is being used for the migration must have access to the folders that the Enterprise Guide projects are stored in.

Migrating SAS® Enterprise Guide® Projects from SAS® 9.1 to SAS® 9.2, continued

Step 4 – Parsing the Enterprise Guide Projects

The fourth step starts with another information help screen outlining the process which happens next.

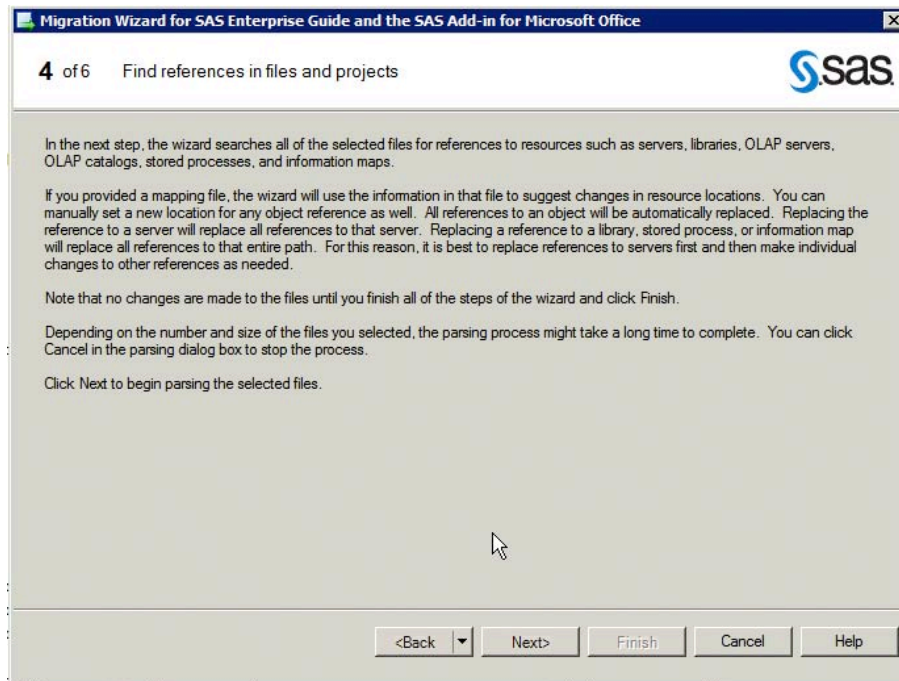


Figure 7. Enterprise Guide Migration Wizard Step 4 – Information Screen

The important piece to note is that depending on the number of Enterprise Guide projects selected and the resources available to the PC undertaking the migration the next screen may take a while to complete.

When you click next the migration wizard will start to parse all the selected Enterprise Guide Projects.

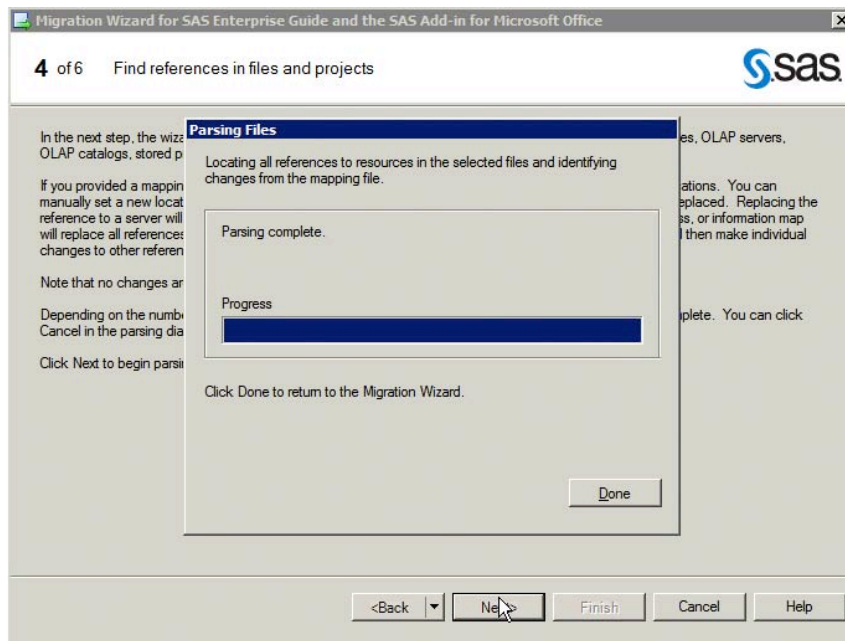


Figure 8. Enterprise Guide Migration Wizard Step 4 – Parsing

During the parsing the Migration Wizard is collating a list of all libraries, tables, stored processes, external files that are referenced in the selected Enterprise Guide project files.

Migrating SAS® Enterprise Guide® Projects from SAS® 9.1 to SAS® 9.2, continued

Step 5 – Create mapping's

The fifth step is to define the replacement values for any object references found in the selected Enterprise Guide projects.

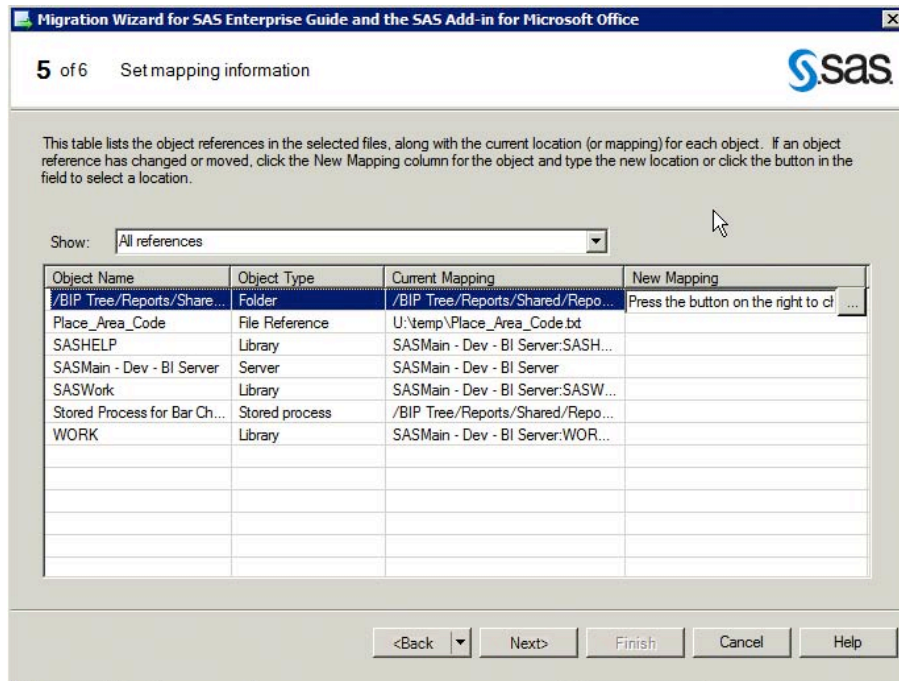


Figure 9. Enterprise Guide Migration Wizard Step 5 – Mapping

A list of objects is displayed, along with the current reference (Current Mapping) and entry box for the New Mapping.

Depending on the object type a selection window is also available to make it easier to define the new mapping based on metadata in the SAS 9.2 environment.

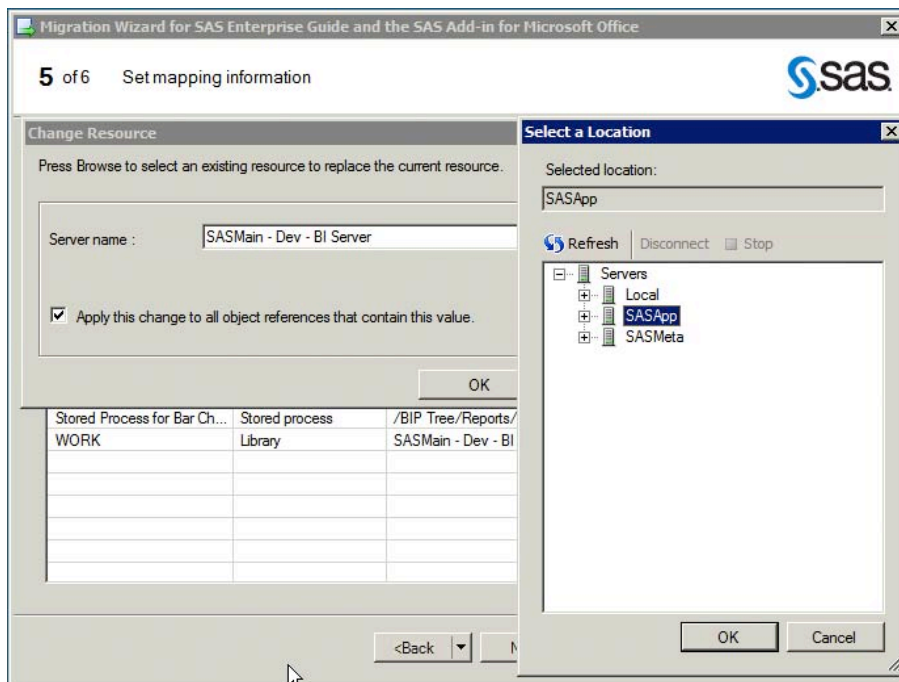


Figure 10. Enterprise Guide Migration Wizard Step 5 – Mapping Selection Window

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Step 6 – Run migration process

The sixth and final step is to run the migration.

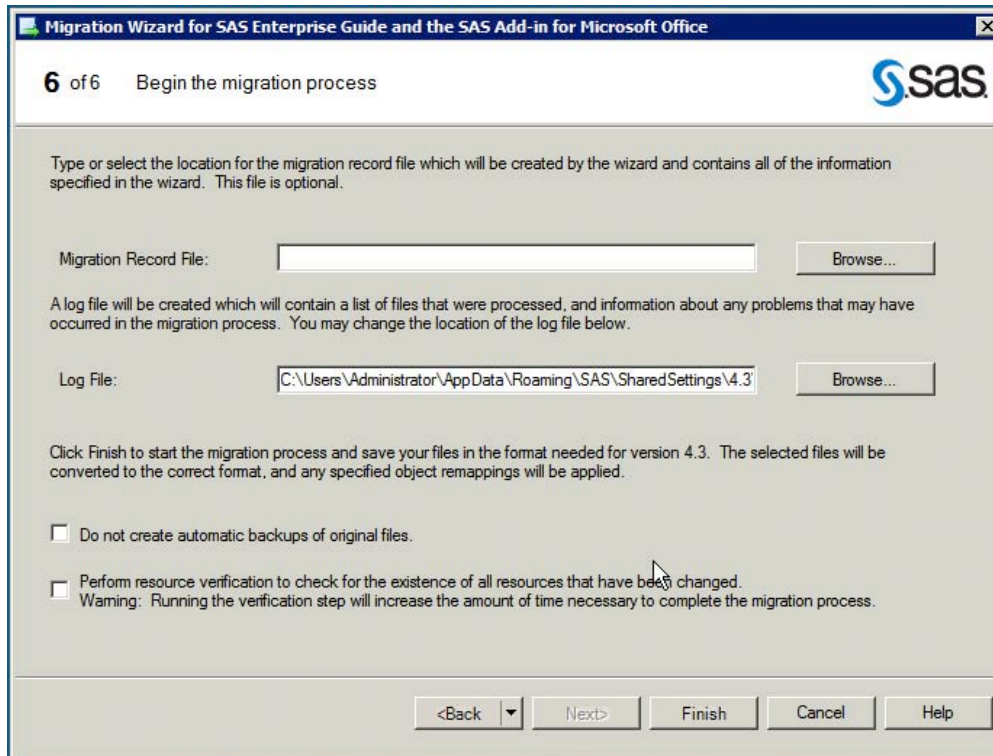


Figure 11. Enterprise Guide Migration Wizard Step 6 – Run Migration

When you click finish the Migration Wizard will migrate all the selected Enterprise Guide projects to the new version and update all the relevant object references to the new values based on the mappings previously created.

You can choose to save a Migration Record File, which is optional. This will save a copy of the mappings in a file that can be utilised for subsequent migrations. This is useful because:

- Sometimes the Migration Wizard may unexpectedly fail; the Migration Record File enables you to rerun the wizard without having to redefine all the mappings.
- We have experienced issues with migrating large numbers of Enterprise Guide projects, the Migration Record File enables you to run the migration multiple times for a subset of project files without having to recreate the mappings manually

One thing to note is that the Migration Record File capability does not work in SAS 9.2 Maintenance Release 2 (M2), but does work in SAS 9.2 Maintenance Release 3 (M3).

The Migration Wizard also automatically creates copies of the Enterprise Guide 4.1 projects in an Archive folder as part of the migration process, and this can be optionally turned off.

OPTION 3: MANUAL MIGRATION

Sometimes it may be more efficient to manually migrate a single Enterprise Guide project by manually changing the relevant object references.

The process to perform this is:

- Open in Enterprise Guide 4.1 project in Enterprise Guide 4.2 or 4.3 and Save
- Manually replace server references
- Manually replace library references
- Manually repoint/relink tables
- Manually repoint/relink external files
- Rerun the Enterprise Guide file import wizard to relink external files

Migrating SAS® Enterprise Guide® Projects from SAS® 9.1 to SAS® 9.2, continued

MANUAL MIGRATION PROCESS

Open the project in Enterprise Guide 4.2 or 4.3 and open the Project Maintenance wizard via Tools > Project Maintenance menu.

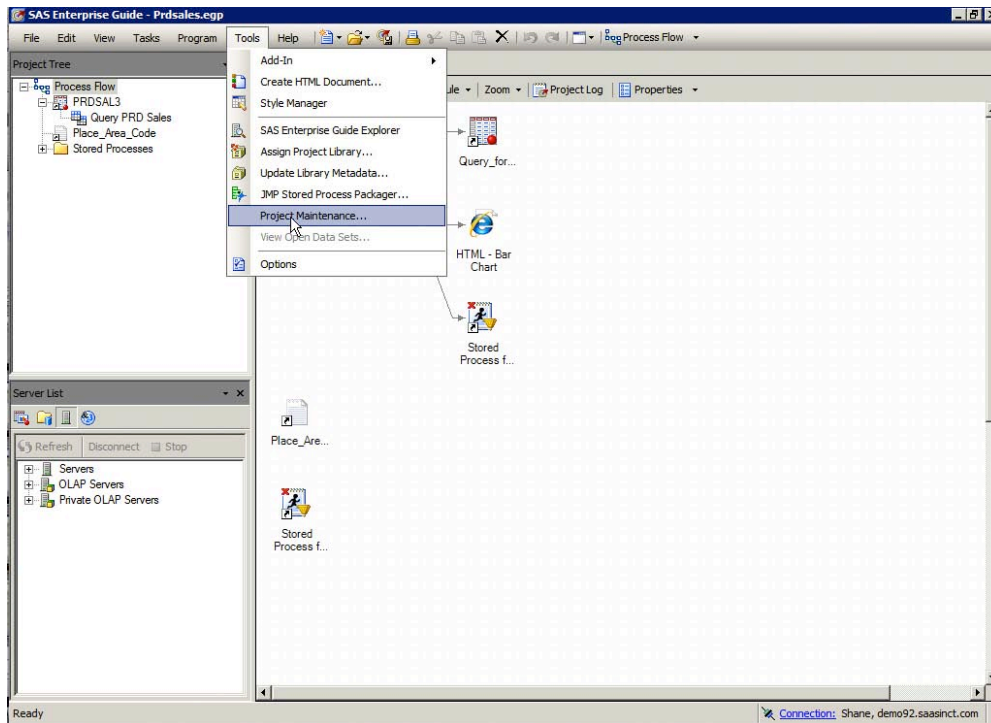


Figure 12. Enterprise Guide Manual Migration – Invoking Project Maintenance

An information message will be displayed confirming you wish to go into maintenance mode.

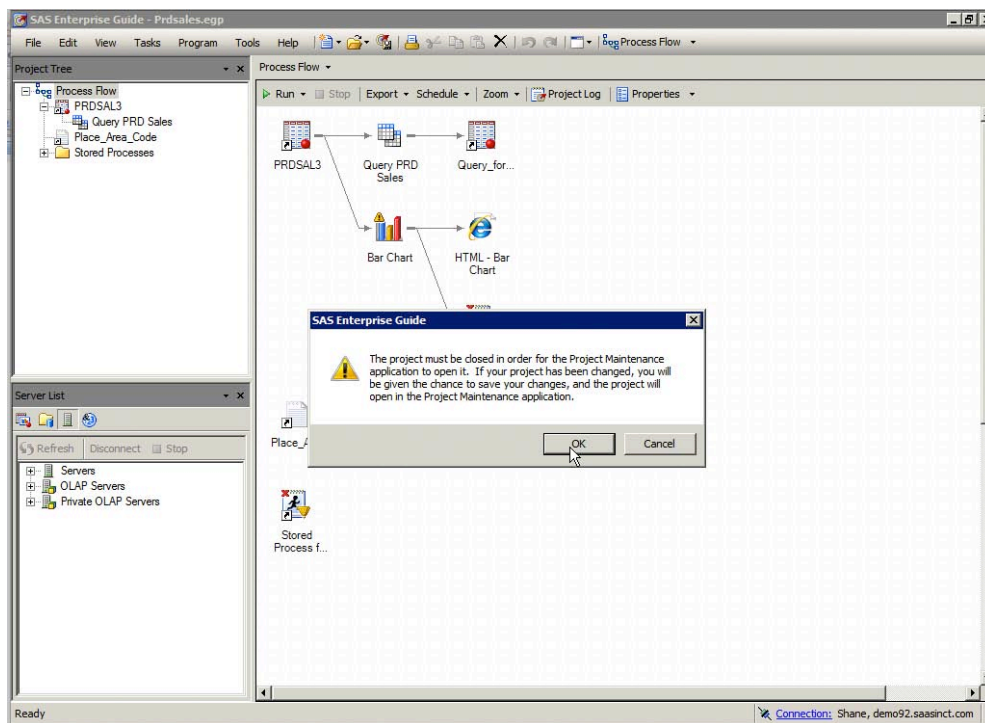


Figure 13. Enterprise Guide Manual Migration – Invoking Project Maintenance Confirmation

Migrating SAS® Enterprise Guide® Projects from SAS® 9.1 to SAS® 9.2, continued

From within the Project Maintenance window you are able to manually change object references.

For example changing the metadata connection details for the project.

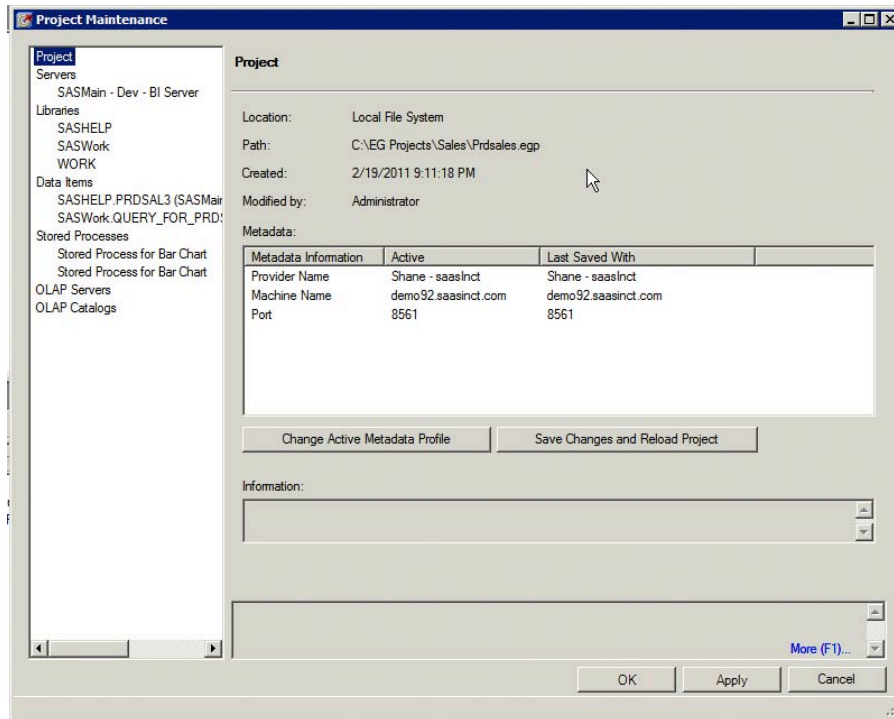


Figure 14. Enterprise Guide Manual Migration – Changing Metadata Server References

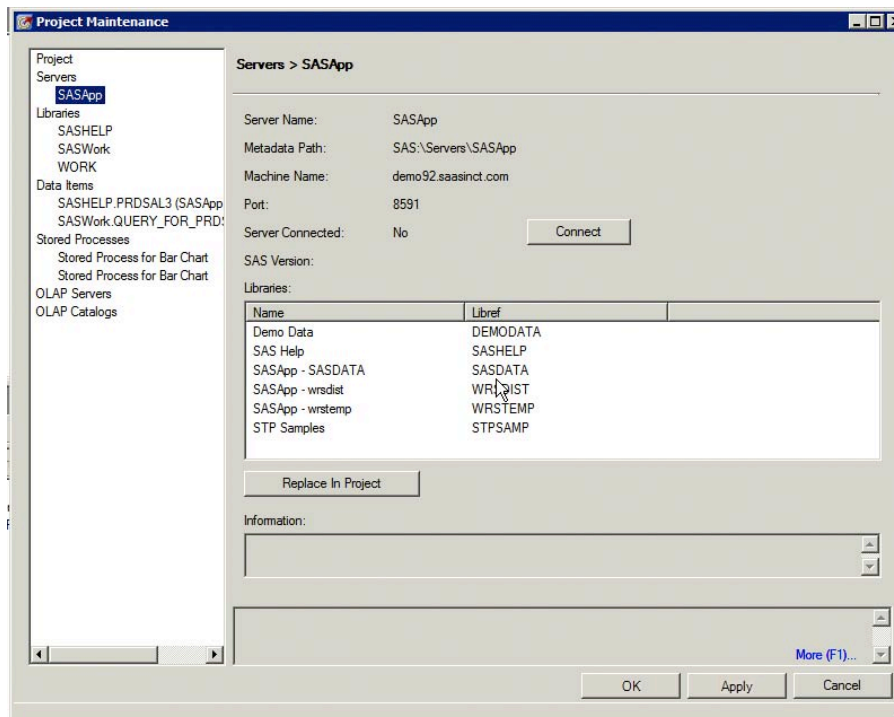


Figure 15. Enterprise Guide Manual Migration – Changing Library References

Migrating SAS® Enterprise Guide® Projects from SAS® 9.1 to SAS® 9.2, continued

POSSIBLE MIGRATION ISSUES

Enterprise Guide 4.2 and 4.3 included some major changes to core functionality.

These changes often resulted in additional effort when migrating Enterprise Guide projects that made extensive use of these capabilities. These include:

- Import Wizard/Process completely re-written
- Computed columns in Query Nodes completely re-written
- Prompt framework completely re-written
 - We have experienced some issues with Date Formats when migrating projects
- Security can be applied at an Enterprise Guide function level via Metadata roles and effect migrated Enterprise Guide projects

One of the major issues we encountered was due to the fact that most Enterprise Guide projects were created by users, and each user typically undertook similar tasks in a myriad of different ways. Things to watch out for include:

- Hard coded file paths
- Hardcoded libname statements
- Linked SAS code paths (i.e. calls to external .sas program files)

ENTERPRISE GUIDE VERSION COMPATABILITY

Enterprise Guide version's are closely linked to the version of SAS Foundation you are running, which means a number of compatibility issues exist which you should be aware. These include:

- Enterprise Guide version 4.1 projects cannot be run on SAS 9.2 servers
- Enterprise Guide version 4.2 and 4.3 projects cannot be run on SAS 9.1 servers
- Once converted Enterprise Guide 4.2 or 4.3 projects cannot be opened in Enterprise Guide 4.1
- Enterprise Guide 4.2 and 4.3 no longer have the option for standalone repositories, they must use a metadata repository
- You can run Enterprise Guide 4.1, Enterprise Guide 4.2 and Enterprise Guide 4.3 on the same PC (you might experience conflicting DLLs see SAS Note 33988)

CONCLUSION

Migrating Enterprise Guide projects is dependent on the number of projects to be migrated, who created them and what changes were made during the upgrade to the SAS 9.2 platform.

Our recommendations when undertaking an Enterprise Migration as part of a SAS 9.2 upgrade:

- Keep Server names, library name, file paths, etc the same if you can
- Use the Enterprise Guide Migration Wizard if possible, but you will need to open and run each Enterprise Guide project manually to actually test if it migrated successfully
- Don't underestimate how long each project takes to migrate and test

REFERENCES

- [Migration to SAS Enterprise Guide 4.3](http://support.sas.com/documentation/cdl/en/enclnt/62806/HTML/default/p0e61ms0e25pr0n1wz7dbi8l3b3g.htm)
Available at: <http://support.sas.com/documentation/cdl/en/enclnt/62806/HTML/default/p0e61ms0e25pr0n1wz7dbi8l3b3g.htm>
- [Using the Migration Wizard](http://support.sas.com/documentation/cdl/en/enclnt/62806/HTML/default/n1say3dhjl5nz2n19dox33fswe6t.htm)
Available at: <http://support.sas.com/documentation/cdl/en/enclnt/62806/HTML/default/n1say3dhjl5nz2n19dox33fswe6t.htm>
- [37956 - The Mappings file in the Migration Wizard of SAS® Enterprise Guide® 4.2 cannot be used](http://support.sas.com/kb/37/956.html)
Available at: <http://support.sas.com/kb/37/956.html>
- [40598 - Unhandled exception error when migrating SAS® Enterprise Guide® files using the Migration Wizard in the SAS® Add-In for Microsoft Office directory](http://support.sas.com/kb/40/598.html)
Available at: <http://support.sas.com/kb/40/598.html>

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