

Sharing SAS programs between PC, Server and SAS Drug Development

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Topics

- Introduction
- SAS on PC and server
- SAS Drug Development
- Common attributes
- Sharing conventions
- Process interfaces
- Summary

SAS on PC and Server

- Treat SAS as an application
- Storage
 - Local drive
 - Network share
- “Flexible” environment
- Informal conventions
- Manual administration
- “No” audit trail
- “No” electronic signatures
- IT support

SAS Drug Development

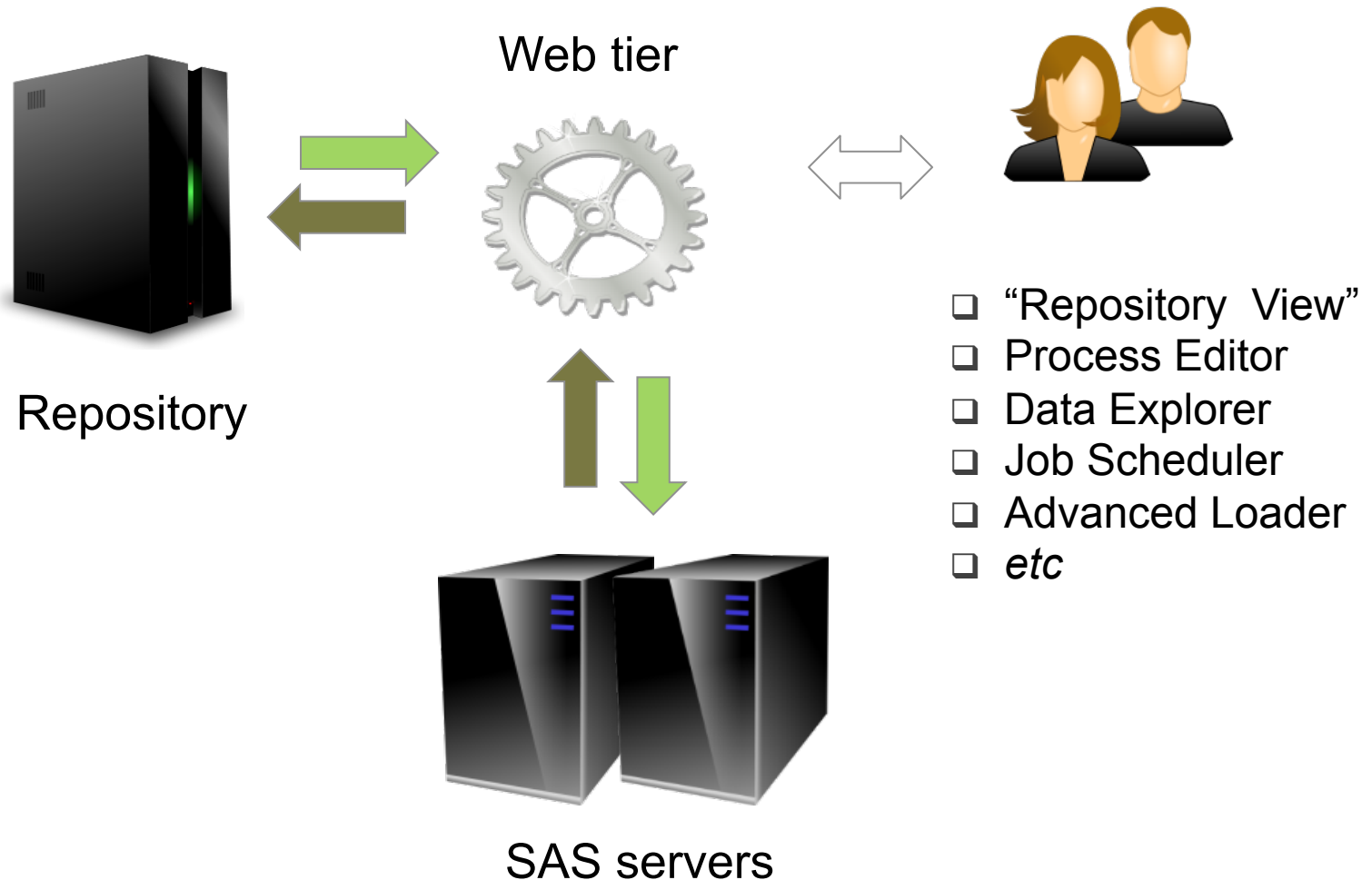
- SAS in an environment
- Storage
 - ~~Local drive~~
 - “Network” share
- Inflexible environment
- “In”-formal conventions
- Manual administration
- Audit trail
- Electronic signatures
- “SAS support”

- Treat SAS as an application
- Storage
 - Local drive
 - Network share
- “Flexible” environment
- Informal conventions
- Manual administration
- “No” audit trail
- “No” electronic signatures
- IT support

SAS Drug Development

SAS on PC and Server

SAS Drug Development – Inner Workings



SAS Drug Development – Configuration Parameters

- Initialisation statement
 - PC : Autoexec or %init() macro
 - Server : Autoexec or %init() macro
 - SDD : Configuration Parameters
- Configuration parameters define
 - Input / Output folder(s)
 - Input / Output data set(s)
 - Input / Output data set(s)
 - Input / Output file(s)
 - Global SAS macro variables
 - Log location
 - Base path

Configuration Parameters – Interface

The screenshot displays the SAS Process Editor interface for a program named 'printdata.sas-1'. The interface is divided into several panes:

- Left Pane (Var Name List):** A list of variables with their names and line numbers. The variable 'VARLIST' at line 7 is highlighted in green.

#	Var Name
1	*LOG*
2	*LST*
3	SDDPARMS
4	*PGM*
5	INPUTDATA
6	NOOBS
7	VARLIST
8	OUTPDF
- Top Left Pane (File Explorer):** Shows the file structure of the process, including input files, output files, and system files. The file 'printdata.sas-1(/SDD/UserFolders/EMEA/Dave Smith/Programs)' is selected.
- Top Right Pane (Code Editor):** Displays the SAS code for the process. The code is as follows:


```

1 ods pdf file = &outpdf;
2 proc print data=&inputdata &noobs ;
3   var &varlist ;
4   run;
5   ods pdf close ;
6
      
```
- Bottom Right Pane (Parameters Table):** A table listing the configuration parameters for the process. The table has columns for #, Var Name, Type, Label, Enabled, Required, and Default. The row for 'VARLIST' is highlighted in green.

#	Var Name	Type	Label	Enabled	Required	Default
1	*LOG*	SAS log	SAS log	☐	☐	SAS Log File
2	*LST*	SAS output	SAS output	☐	☐	SAS Output File
3	SDDPARMS	Process parameter va...	Process par...	☐	☐	SAS v9 Data Set (PC, Unix)
4	*PGM*	SAS program	SAS program	☐	☐	SAS Program File
5	INPUTDATA	Input data table	Please Input...	☒	☒	dem.sas7bdat- <version not available>
6	NOOBS	Boolean field	Print the ob...	☒	☐	
7	VARLIST	Variable (column) list	Variable (col...	☒	☒	
8	OUTPDF	Output file	Output file	☒	☒	PDF File
- Bottom Left Pane (Messages):** A pane for displaying messages, currently empty.

Configuration Parameters – Structure

```

/*****PACMAN*****/ DO NOT EDIT BELOW THIS LINE *****/PACMAN*****/
/*<?xml version="1.0" encoding="UTF-8"?>*/
/*<process sessionid="1df6db28:131fb34f1e1:4890" sddversion="3.5"
/* <parameters>*/
/* <parameter dependsaction="ENABLE" obfuscate="N" label="SAS lo
/* processid="P1" required="N" resolution="INPUT" enable="N" ty
/* </parameter>*/
/* <parameter dependsaction="ENABLE" obfuscate="N" label="SAS ou
/* processid="P1" required="N" resolution="INPUT" enable="N" ty
/* </parameter>*/
/* <parameter dependsaction="ENABLE" obfuscate="N" label="Proces
/* processid="P1" required="N" resolution="INPUT" enable="N" ty
/* </parameter>*/
/* <parameter dependsaction="ENABLE" obfuscate="N" label="SAS pr
/* processid="P1" required="N" resolution="INPUT" enable="N" ty
/* </parameter>*/
/* <parameter obfuscate="N" writefiles="N" label="Folder" tabnam
/* </fileset>*/
/* <description>*/
/* </description>*/
/* <parameter>*/
/* <parameter canlinktobasepath="Y" dependsaction="ENABLE" baseoption="A" id="OUT" advanced="N" enable="Y" obfuscate="N"
tabname="Parameters" resolution="INPUT" protect="N" filetype="TXT" label="Output file" required="Y" type="OUTFILE" order="6">*/
/* </parameter>*/
/* </parameters>*/
/*</process>*/
/*****/
/*****PACMAN*****/

```

Common Attributes

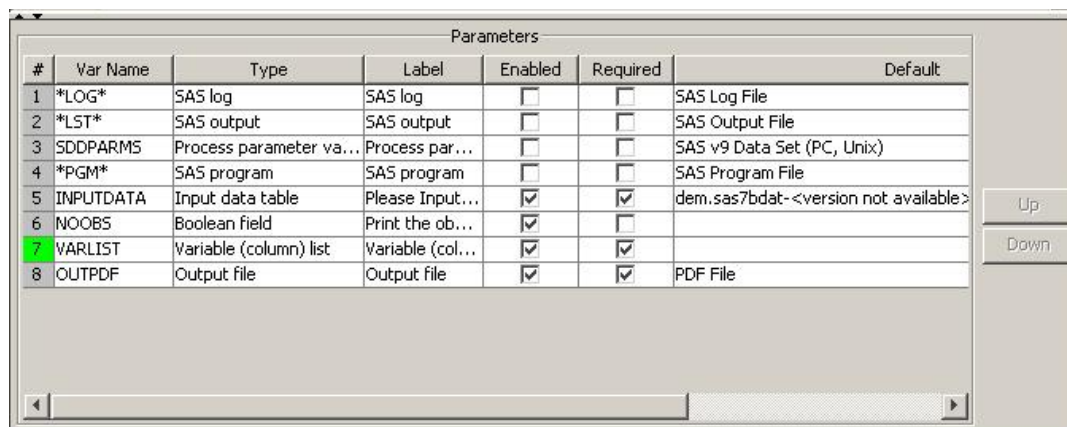
- Initialisation statement
 - PC : Autoexec or %init() macro
 - Server : Autoexec or %init() macro
 - SDD : Configuration Parameters
- A generic perspective
 - Data locations
 - Input locations and files
 - Output locations and files
 - “Input” and “Output” formats

Sharing Conventions

- Use existing tools
- “Automatic”
- Natural to environment
 - SAS on PC
 - SAS on Server
 - SAS Drug Development
 - ... and others
- Flexible to an organisation
 - Sponsor
 - Contract Research Organisations (CROs)
 - Third parties

Standard for SAS Drug Development

- Initialisation statement
- Define
 - Input / Output folder(s)
 - Input / Output data set(s)
 - Input / Output data set(s)
 - Input / Output file(s)
 - Global SAS macro variables
 - Log location
 - Base path

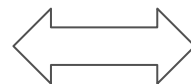


#	Var Name	Type	Label	Enabled	Required	Default
1	*LOG*	SAS log	SAS log	☐	☐	SAS Log File
2	*LST*	SAS output	SAS output	☐	☐	SAS Output File
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6	NOOBS	Boolean field	Print the ob...	☒	☐	
7	VARLIST	Variable (column) list	Variable (col...	☒	☒	
8	OUTPDF	Output file	Output file	☒	☒	PDF File

Standard for SAS PC and Server

- Initialisation statement
- Standardise
 - Libraries
 - Input / Output file(s)
 - Input / Output folder(s)
 - Global SAS macro variables
 - Log location
 - Root folder

- Initialisation statement
- Define
 - Input / Output folder(s)
 - Input / Output data set(s)
 - Input / Output data set(s)
 - Input / Output file(s)
 - Global SAS macro variables
 - Log location
 - Base path



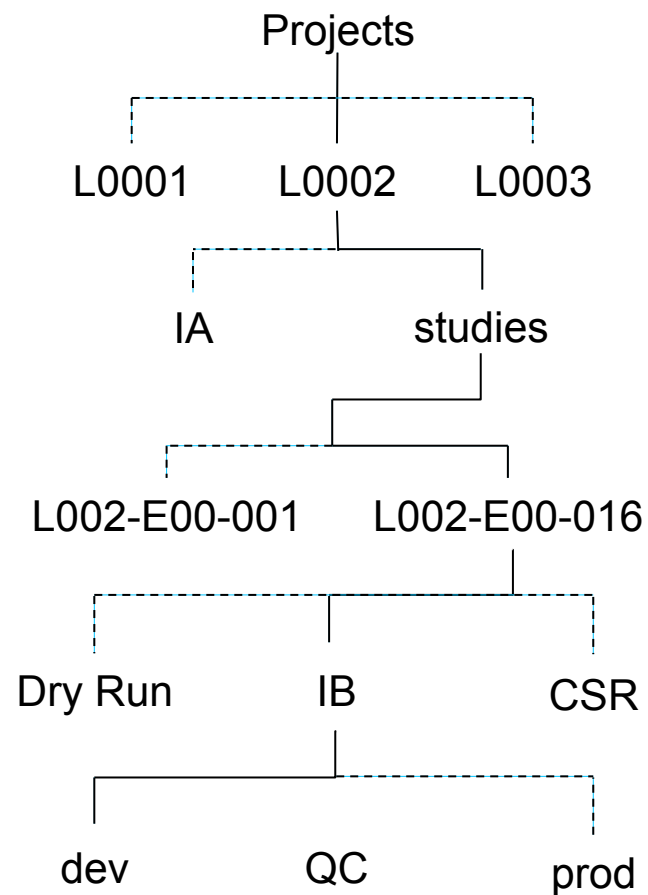
Translate

Standard Macros

Function	Description
meta()	Defines context information that is usually defined by a program location within a directory structure
library()	Defines a SAS library for accessing one or more data sets and format catalogs
dataset()	Identifies a data set for required input data set, resulting output data set, or both.
file()	Defines an input file
output()	Defines an output destination (folder) or a specific output file.
define()	Defines one or more global macro variables with or without default values.

%meta() Standard Macro

- Context for a program
- Single location to define
 - Compound
 - Project
 - Protocol
 - Study
 - Reporting event
 - Stage
 - Purpose
 - Name
 - Tags
- Common nomenclature



%library() Standard Macros

- Natural reference for SAS PC and Server
- Technically folder
 - Data sets
 - Format catalogs
 - (Input / Output files)
- “SAS Name” reference

%dataset() and %file() Standard Macros

- “Tweaks”
- %dataset() macro
 - SDD : Input / Output Table
 - SAS on PC and server : *synonym* to %library() macro
- %file() macro
 - Intended for input file(s)
 - File (FILENAME) or global macro variable reference
 - Output files use %output()

%output Standard Macro

- Natural reference
- A single file of specified type
 - SAS PC and server : Any type
 - SDD : Specific types
- Multiple files in a single folder

%define() Standard Macro

- “Solely for SAS Drug Development”
- Configuration parameters
 - Represented as global macro variables in a program
 - Default is to assume a configuration parameter
 - “Tells” SDD to ignore global macro variable name
- No validation on SAS PC and server

Standard Process

- Import / Export process
 - Standard paradigm
 - Native to the environment
- Minimise manual intervention
- Other environment “Not required”
- Not restricted to one organisation
- Adaptable

Process Interfaces – Import

SAS PC and Server



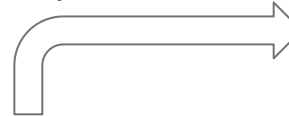
Advanced Loader



%meta()
%library()
%dataset()
%file()
%output()
%define()



Import Process



SAS Drug Development



Configuration
Parameters

Process Interfaces – Export

SAS PC and Server



SAS Drug Development

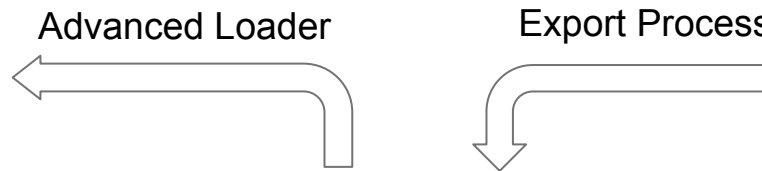


Advanced Loader

Export Process

%meta()
%library()
%dataset()
%file()
%output()
%define()

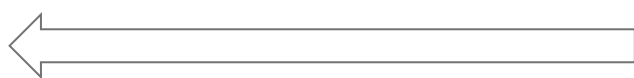
Configuration
Parameters



Extending SAS Drug Development

SAS PC and Server

SAS Drug Development



Advanced Loader

Import Process



%meta()
%library()
%dataset()
%file()
%output()
%define()

Configuration
Parameters



Summary

- On the negative
 - Import / Export process is an additional process
 - Restricted by standards
 - Native interfaces
 - Restricted to programs
- On the positive
 - Less manual intervention
 - Native environment
 - Simplified sharing between environments
 - Increase control of content transfers
 - “Validation” of configuration parameters
 - Documented chain of events
 - Increased control of standards
 - No new “system” or “application”

Questions & Comments

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