

 Precision Swiss Products, Inc.	Document # WI-3.2-003	Revision 1
	Effective Date 04/25/23	
Document Title Saving CMM Programs	Document Type Work Instruction	

1. Purpose:

This Work Instruction is a guide for CMM Programmers and authorized Quality Personnel to properly save CMM programs in the correct location with the correct settings and formatting.

2. Scope:

The scope of this process shall apply to all CMM Programs written at Precision Swiss Products, Inc. It will ensure High QA identifies and pulls data from CMM Program runs with the proper title formatting. It will also make clear to CMM operators the correct CMM programs they need to run based on the manufacturing operation (Op) they're checking on their part.

3. Terms, Acronyms and Definitions:

- a. **CALYPSO:** CAD-based CMM software that allows you to create dimensional measurement programs from a CAD model based on a customer's inspection requirements.
- b. **CMM:** Coordinate Measuring Machine

4. References:

- a. WI-3.2-002 (Setup CMM Program Settings)

5. Tools and Equipment:

- a. Latest version of CALYPSO: CAD-based CMM software.
- b. A calibrated Coordinate Measuring Machine (CMM) with a valid asset number.

6. Responsibilities and Authority:

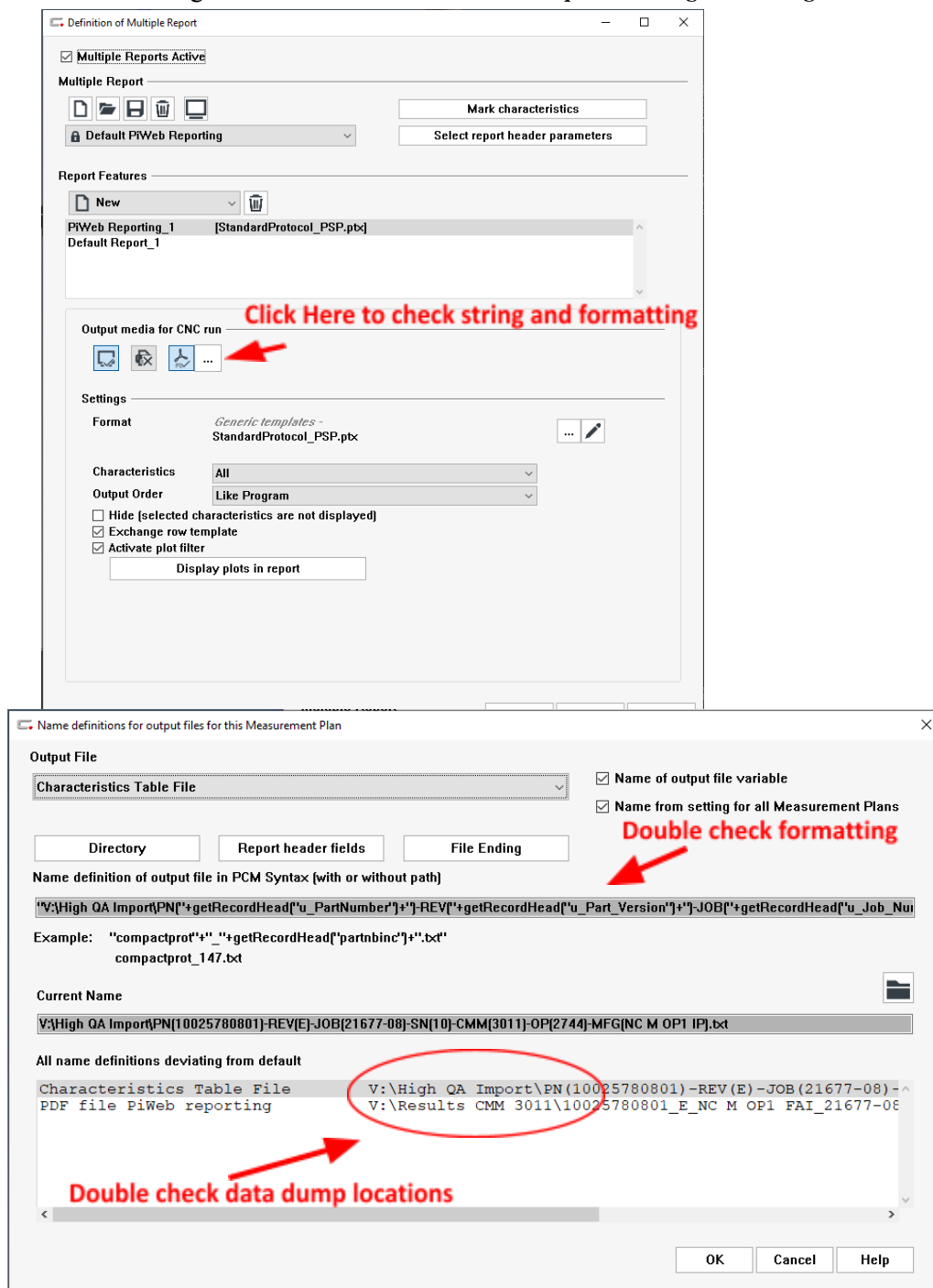
This process will be limited to trained CMM Programmers and authorized Quality Personnel.

7. Inputs:

- a. A properly programmed operation/machine specific CMM Program.
- b. An attached fixture setup work instruction to allow the operator to setup their part correctly.
- c. A designated CMM Program Drive (i.e. NC Programs (Y:)).

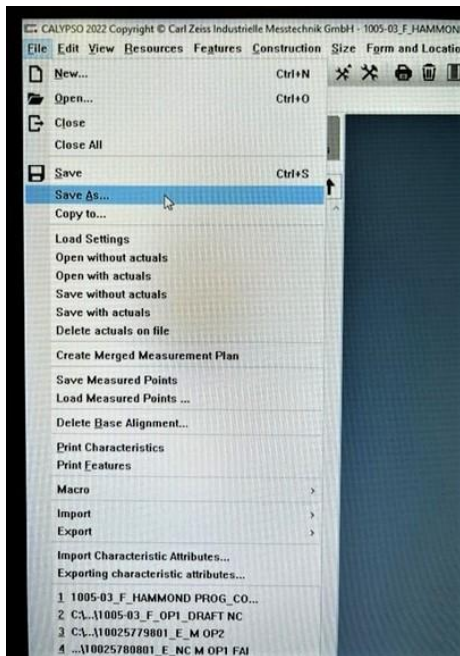
8. Instructions:

- Before saving a program, make sure all your CMM Program settings are setup correctly, and your data is routed to the correct dump folders.
 - Note:** for High-QA Text file data and PDF dumps, make sure your folder string and formatting is correct. See *WI-3.2-002: "Setup CMM Program Settings WI"*.

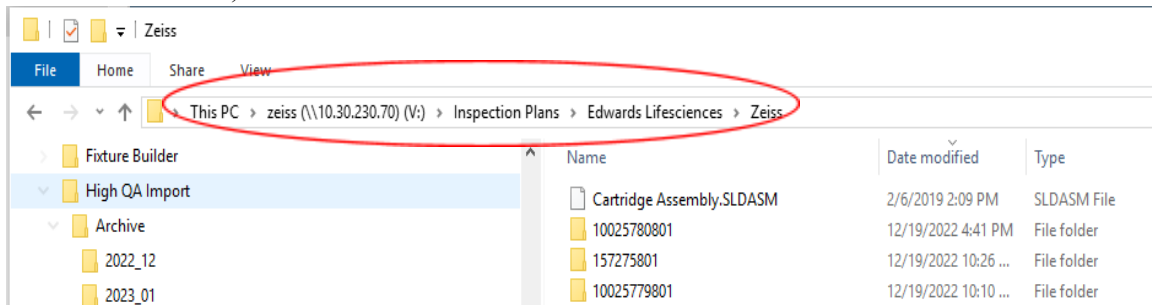


- Once all of your settings are correct, click on File>Save As...

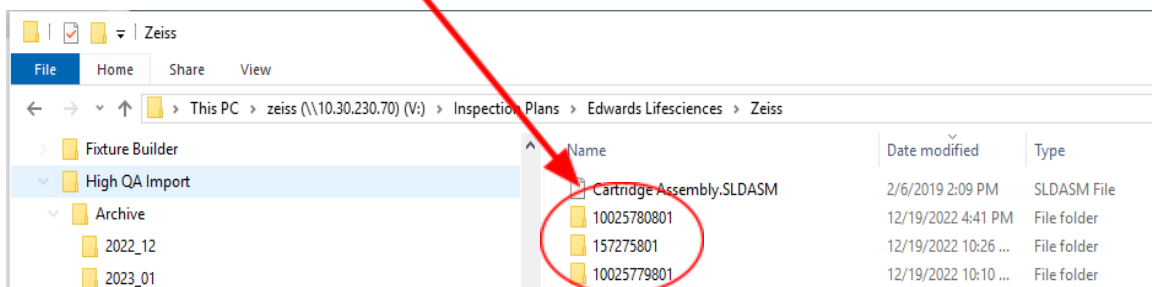
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- Depending on your network's drive, navigate to where CMM programs are stored (see string path below for reference).



- Once in the proper program storage folder, if one does not already exist, create a part folder inside the customer folder with just the part number (no Rev. or underscores).



- Open the folder. Once inside, depending on the program operation (Op) the program runs/inspects, name your program with the proper nomenclature using the following list:

Nomenclature for IM Manufacturing Operations

WHAT GOES IN THE CMM MFG OPERATION SECTION:

LOCATION	MFG DEPT 1 INITIAL	OP #	TYPE OF INSPECTION	METHOD
NC	M	OP1	FAI	CMM

** We will always have **LOCATION, TYPE OF INSPECTION AND METHOD**

COMPLETE PROGRAM (IF NEEDED) WOULD HAVE THE FOLLOWING

LOCATION	OP #	METHOD
NC	COMP	CMM

IF THERE ARE MULTIPLE CMM OPERATIONS FOR ONE MANUFACTURING OPERATION, FORMAT THE OP # AS FOLLOWS (UNDERSCORE, THEN INCREMENTAL CMM OP #):

LOCATION	MFG DEPT 1 INITIAL	OP #	TYPE OF INSPECTION	METHOD
NC	M	OP1_1	FAI	CMM
NC	M	OP1_2	FAI	CMM

ABBREVIATIONS:

M: MILLING

S: SWISS

L: LATHE

E: EDM

W: WATERJET

A: ASSEMBLY

NC: NORTH CAROLINA

CA: CALIFORNIA

CMM: ANY ZEISS MACHINE

KEY: KEYENCE MACHINE

MAN: MANUAL

FAI: FIRST ARTICLE

IP: IN PROCESS (SPC)

FIN: FINAL INSP

PRE1: PRE-OUTSIDE PROCESS

PO1: POST OUTSIDE PROCESS

COMP: COMPLETE PROGRAM

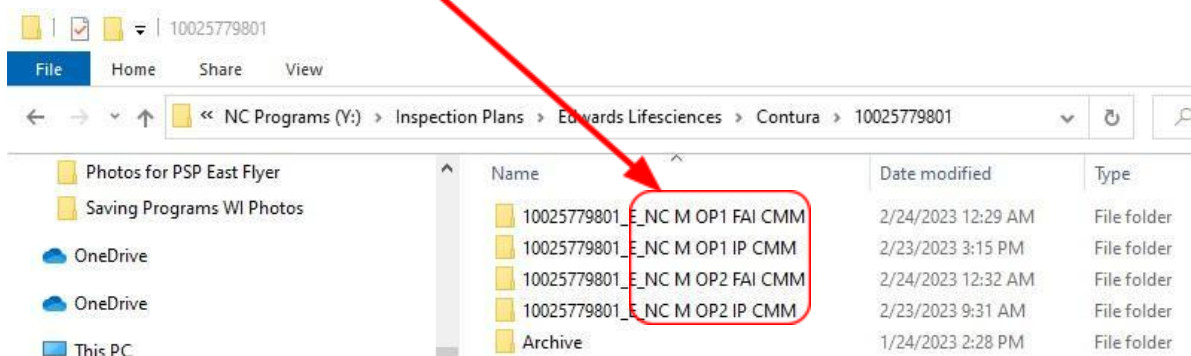
NORTH CAROLINA OPERATION EXAMPLES

NC PRE1 CMM
 NC PRE1 MAN
 NC PRE1 KEY
 NC PO1 CMM
 NC PO1 MAN
 NC PO1 KEY
 NC FIN CMM
 NC FIN MAN
 NC FIN KEY
 NC M OP1 FAI KEY
 NC M OP1 IP KEY
 NC M OP1 FAI CMM
 NC M OP1 IP CMM
 NC M OP1 FAI MAN
 NC M OP1 IP MAN

CALIFORNIA OPERATION EXAMPLES

CA PRE1 CMM
 CA PRE1 MAN
 CA PRE1 KEY
 CA PO1 CMM
 CA PO1 MAN
 CA PO1 KEY
 CA FIN CMM
 CA FIN MAN
 CA FIN KEY
 CA M OP1 FAI KEY
 CA M OP1 IP KEY
 CA M OP1 FAI CMM
 CA M OP1 IP CMM
 CA M OP1 FAI MAN
 CA M OP1 IP MAN

- Once your program has the **correct title**, click save.

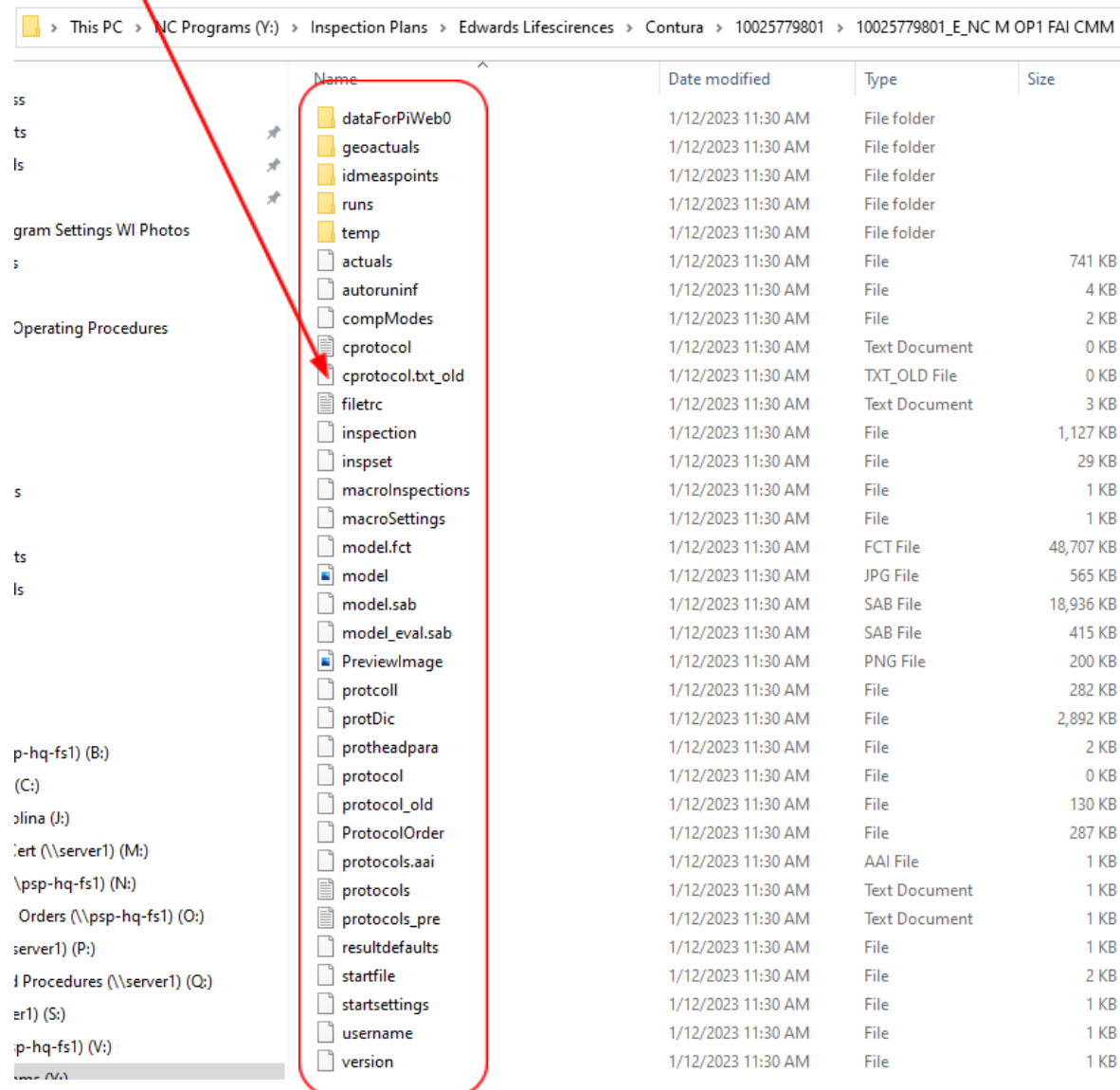


- CALYPSO will automatically begin saving all of your program parameters.
- Execute a test run and make sure that all of your settings and data routing were setup correctly

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9. Quality Records:

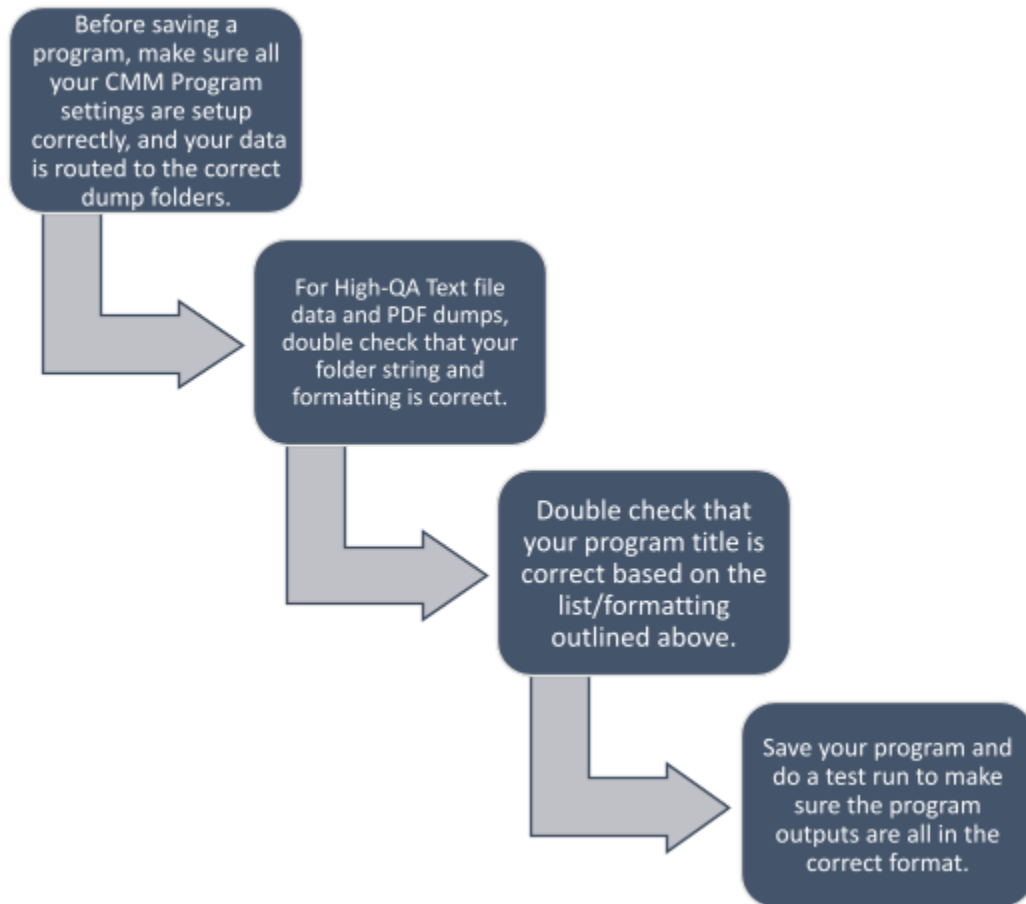
The following folders and records are automatically produced when saving a CMM Program, including a usable **CMM Inspection Plan Program** that can be loaded and ran from CALYPSO:



Name	Date modified	Type	Size
dataForPiWeb0	1/12/2023 11:30 AM	File folder	
geoactuals	1/12/2023 11:30 AM	File folder	
idmeaspoints	1/12/2023 11:30 AM	File folder	
runs	1/12/2023 11:30 AM	File folder	
temp	1/12/2023 11:30 AM	File folder	
actuals	1/12/2023 11:30 AM	File	741 KB
autoruninf	1/12/2023 11:30 AM	File	4 KB
compModes	1/12/2023 11:30 AM	File	2 KB
cprotocol	1/12/2023 11:30 AM	Text Document	0 KB
cprotocol.txt_old	1/12/2023 11:30 AM	TXT_OLD File	0 KB
filetrc	1/12/2023 11:30 AM	Text Document	3 KB
inspection	1/12/2023 11:30 AM	File	1,127 KB
inspset	1/12/2023 11:30 AM	File	29 KB
macroInspections	1/12/2023 11:30 AM	File	1 KB
macroSettings	1/12/2023 11:30 AM	File	1 KB
model.fct	1/12/2023 11:30 AM	FCT File	48,707 KB
model	1/12/2023 11:30 AM	JPG File	565 KB
model.sab	1/12/2023 11:30 AM	SAB File	18,936 KB
model_eval.sab	1/12/2023 11:30 AM	SAB File	415 KB
PreviewImage	1/12/2023 11:30 AM	PNG File	200 KB
protcoll	1/12/2023 11:30 AM	File	282 KB
protDic	1/12/2023 11:30 AM	File	2,892 KB
protheadpara	1/12/2023 11:30 AM	File	2 KB
protocol	1/12/2023 11:30 AM	File	0 KB
protocol_old	1/12/2023 11:30 AM	File	130 KB
ProtocolOrder	1/12/2023 11:30 AM	File	287 KB
protocols.aai	1/12/2023 11:30 AM	AAI File	1 KB
protocols	1/12/2023 11:30 AM	Text Document	1 KB
protocols_pre	1/12/2023 11:30 AM	Text Document	1 KB
resultdefaults	1/12/2023 11:30 AM	File	1 KB
startfile	1/12/2023 11:30 AM	File	2 KB
startsettings	1/12/2023 11:30 AM	File	1 KB
username	1/12/2023 11:30 AM	File	1 KB
version	1/12/2023 11:30 AM	File	1 KB

10. Outputs:

Saving CMM Programs using this process will allow High QA to identify and pull data from CMM Program runs with the proper title formatting. It will also make clear to CMM operators the correct CMM programs they need to run based on the manufacturing operation (Op) they're checking on their part.

11. Flow Chart:

Revision History			
Revision	Description of Change	Approver	Effective Date
1	Initial Release	Daniela Kozar	04/25/23

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