



Objective and Result

I worked with the technical coordinator and implementation team to develop and document a configuration management plan for the files associated with the use of a new software tool within my organization. I identified the roles and responsibilities, determined the naming convention, and version control, and selected the approved configuration management system for release. After gathering the information into the document, I edited the document, reviewed the information with the SMEs and released the configuration management plan to the in-house configuration management system.

CONFIGURATION MANAGEMENT PLAN, MECHANICAL COMPUTER-AIDED DESIGN AND ELECTRICAL COMPUTER-AIDED DESIGN, DESIGN FOR MANUFACTURING AND ASSEMBLY RULESET

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1. INTRODUCTION

Design for Manufacturing and Assembly (DFMA) is the process of designing parts, components and products to ensure less error and lower costs in manufacturing practices. DFMA principles and best practices are designed to ensure concurrent engineering occurs during both the design and production phase. Science and Technology Company (STC) organizations have implemented DFMA guidelines as described in DG123456, *Design Guide Implementation of Design for Manufacturing and Assembly Principles* [1].

Part of the DFMA practice includes the use of available software tools that incorporate the STC Design for Manufacturability (DFM) guides. Two of those software tools are Sample Tool and Sample Tool Two. Sample Tool is used for Mechanical Computer-Aided Design (MCAD) and Sample Tool Two for Electrical CAD (ECAD). The two tools provide automatic fabrication and assembly analysis that can be incorporated at every successive step of the design process. This is done through the creation of rulesets. Rulesets are manufacturing parameters that once incorporated into Sample Tool and Sample Tool Two compare designs and evaluate those designs to detect violations of various manufacturing processes.

1.1. Scope

Section 2 provides guidance for the configuration management of rulesets utilized at STC for DFMA-based software tools such as Sample Tool and Sample Tool Two. Section 3 provides a recommendation on communicating the release of the latest effective version of the rulesets to the STC design community by using PDMLink. Section 4 provides the recommended steps in PDMLink for configuring and releasing the rulesets to the STC design community.

2. CONFIGURATION MANGEMENT PLAN

2.1. Roles and Responsibilities

One of the subject matter experts (SME) of the latest ruleset(s) for Sample Tool and Sample Tool Two is responsible for uploading and communicating the release of the latest ruleset to the STC design community. The design community is defined as anyone who has an interest in the released ruleset, i.e., designer and members.

Configuration Identification

2.2. Effective Version Release

- 2.2.1. The effective version of the rulesets will be the latest released version in PDMLink. While Work in Progress (WIP) ruleset files may be housed in PDMLink, only the released (REL) version is considered to be approved for use. The recommended

communication method for this release (*see* Section 3) is an automated communication e-mail sent to the STC design community. This e-mail is initially set up through a subscription service and is automatically triggered once a file state has been changed from WIP to REL in PDMLink.

2.3. Naming Conventions

2.3.1. Electrical Computer-Aided Design

The naming convention of the rulesets for ECAD have been agreed upon by the STC and is as follows:

- [Location of Use Name]_[Class]_[Descriptor]
- Example: Science_CLASS_1_1-1_outer_A

2.3.2. Mechanical Computer-Aided Design

The naming convention for the rulesets for MCAD have been agreed upon by the STC and is as follows:

- [Location of Use Name]_[Manufacturing Process]_[DFM Guide]
- Example: STC_Machined_Parts_DFM123456

3. RECOMMENDED PROCESS FOR RELEASE COMMUNICATION

The recommended process for communicating the effective version release of the ruleset is through PDMLink. As the DFMA designated configuration management repository, PDMLink features a built-in subscription service. A one-time subscription can be set up when an effective version of the ruleset is released to PDMLink, and an automated e-mail communicating the ruleset release will be sent to the STC design community. Any future change to the REL state of the effective version of the ruleset will automatically trigger a communication e-mail.

4. RECOMMENDED RULESET CONFIGURATION AND COMMUNICATION PROCEDURE

Currently, MCAD rulesets are released by the STC for use by MCAD. While a copy of the latest ruleset is stored in PDMLink, the communication of the released ruleset is the responsibility of the STC. The Sample Tool Two rulesets for ECAD are managed and released by STC ECAD. While the process is currently only recommended for use by ECAD, the steps for ruleset configuration and release communication in PDMLink is applicable for both Sample Tool and Sample Tool Two.

4.1. Uploading to PDMLink

NOTE: The following steps are based on the assumption that a Creo PDMLink workspace is being used for release.



Figure 1. Creo PDMLink Workspace

NOTE: While the graphics shown in the following sections show the process for ECAD rulesets, the same steps apply for MCAD.

1. Select Tools/Import to Workspace from within the DFMA PDMLink Workspace location.



Figure 2. Import to Workspace Option

2. Select the Add icon.

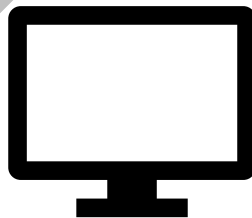


Figure 3. Add Icon

3. Select the file and click the **Open** button.



Figure 4. Open Button for Ruleset File

4. Click the **Next** button and then click the **Finish** button.



Figure 5. Next Button



Figure 6. Finish Button

5. Verify the ruleset appears in the workspace as a new object.



Figure 7. New Ruleset Object

6. Select the appropriate file and select the Check In file icon.



Figure 8. Ruleset File Check in

7. Select the appropriate Rule Files folder for the ruleset by clicking the folder icon in the Location column.



Figure 9. Location Icon for Ruleset

8. Navigate to the appropriate Rule Files subfolder location and click the **OK** button.



Figure 10. Location Verification

9. Click the **Finish** button.



Figure 11. Finish Button

4.2. Version Control

NOTE: The effective version approved for use is always the latest released version.

NOTE: Changing the state to REL triggers an automatic communication e-mail, as described in Section 4.3.

1. Select the appropriate file for release and select Set State from the Edit drop-down menu.



Figure 12. Set State for Release

2. Select REL from the Target State drop-down menu and then click the **OK** button.



Figure 13. Release Option

3. Verify the ruleset is in the released state (REL).



Figure 14. Released State

4.3. Subscription Creation

NOTE: This step only has to be done one time during the initial posting of the effective ruleset to create automated notifications to the STC design community. Once created, any time the file is changed to the released (REL) State (as described in 4.2), the change triggers an automated communication to be sent to the subscribers.

1. Navigate to the appropriate Rule Files folder and select the ruleset.
2. Select Subscribe under the Actions drop-down menu.



Figure 15. Subscribe Option

3. Click the Life Cycle State and select REL from the drop-down menu.
4. Click the **Next** button.

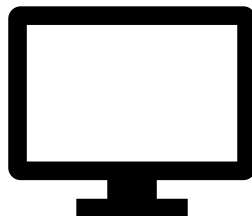


Figure 16. Life Cycle State Selection

5. Click the **Find** button under the To:, CC:, or Bcc: as appropriate.



Figure 17. Find Subscribers

6. Select User from the Search for drop-down menu, type in the appropriate name, and click the **Search** button.



Figure 18. Search for Participants

NOTE: Asterisks can be used as wild cards when searching for a name. Multiple names can be added by using a semicolon to separate the names.

7. Click the **Add** button to add the appropriate name to the participant list and click the **OK** button.

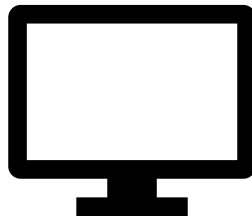


Figure 19. Adding Participant to List

8. Verify the name(s) are in the appropriate To:, CC: and Bcc: selection and click the **Next** button.



Figure 20. Subscription Next Button

9. Type in a subject line and a message, and click the **Finish** button.



Figure 21. Ruleset Email

4.4. Revising an Existing Ruleset in PDMLink

NOTE: Because the release e-mail is triggered by the REL State (*see* Section 4.3) an e-mail will not be sent to the STC design community if a ruleset is modified (WIP), unless a specific subscription for this option is created.

1. Complete the steps in Section 4.1 to upload a ruleset.
2. Select the appropriate file and click the Revise icon.



Figure 22. Revise Icon

3. Verify the next available revision (e.g., “B”) is listed in the New Revision column and click the **OK** button.



Figure 23. Available Revision

4. Select the file and click the Check Out icon of the newly created revision of the file.

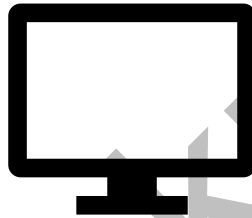


Figure 24. Check Out for Revision

5. Select Import to Workspace from the Tools drop-down menu.



Figure 25. Import to Workspace

6. Click the Add icon.



Figure 26. Add Icon

7. Navigate to the appropriate Rule Files folder containing the updated ruleset, select the file and click the **Open** button.



Figure 27. Updated Ruleset File

8. Click the **Finish** button.



Figure 28. Finish Button

9. Verify the file now appears as modified in the workspace.



Figure 29. Modified File

10. Select the file and select the Check In icon.



Figure 30. Check in Modified File

11. Add, at a minimum, the following comments:
- Date or event of approved changes, e.g. “meeting held on 9/29/23 to approve changes”
 - What changes were made from previous version
 - Names of those who approved changes, i.e., STC and/or SMEs
12. Click the **Finish** button.

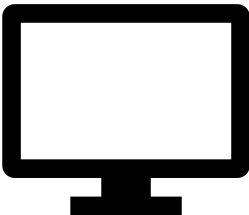


Figure 31. Comments for Revision

13. Refer to Section 4.2 to change the state from WIP to REL of the revised file.

5. ACRONYMS

| Title | Definition |
|-------|---------------------------------------|
| DG | Design Guide |
| DFM | Design for Manufacturability |
| DFMA | Design for Manufacturing and Assembly |
| ECAD | Electrical Computer-Aided Design |
| MCAD | Mechanical Computer-Aided Design |
| REL | Released |
| SME | Subject Matter Expert |
| STC | Science and Technology Company |
| WIP | Work in Progress |

6. REFERENCES

[1] DG123456, "Design Guide Implementation for Design for Manufacturing and Assembly Principles," Science and Technology Company, Location.