Every Expert was once a Novice: Getting Started with PLM 360

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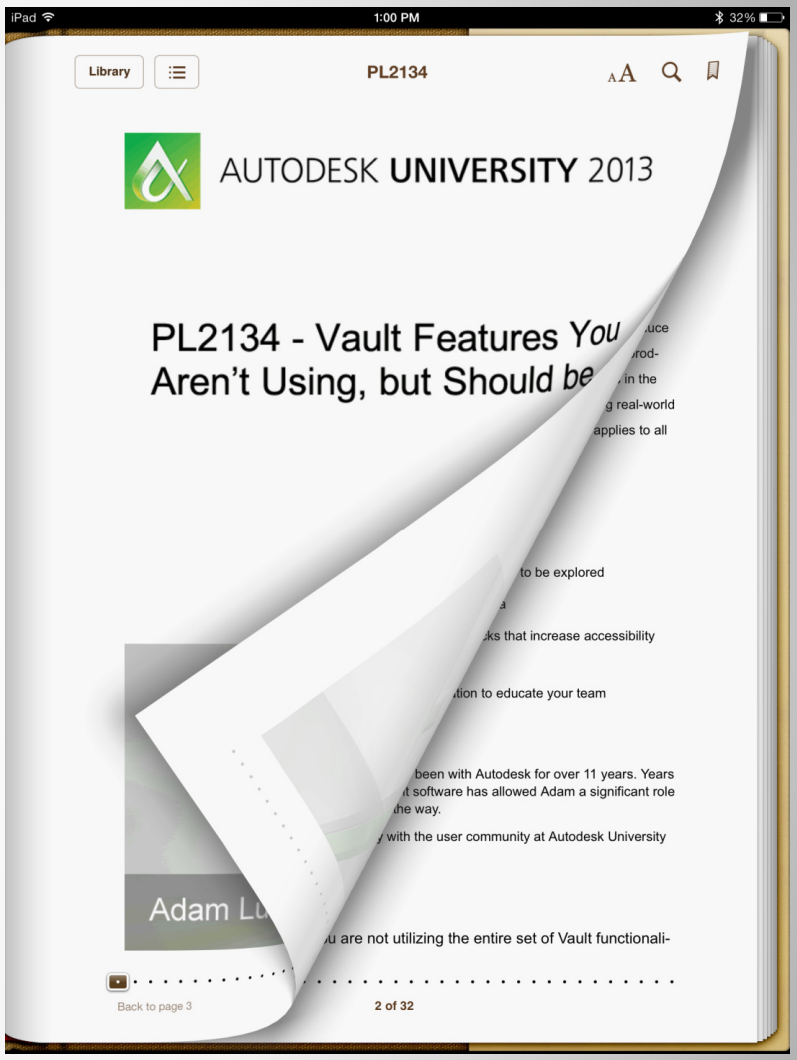
Your Instructor

Rodney is a PLM Consultant for Razorleaf Corporation. He has spent the last 10 years of his career in the Autodesk Manufacturing Channel responsible for Training, Implementation, Migration, and Solution Building. He has extensive experience around the Autodesk manufacturing products including Autodesk AutoCAD, Inventor, Vault, and PLM 360. In his current role his primary focus is the PLM 360 product. He and his team have partnered with Autodesk Consulting to provide customers with a better understanding of how PLM 360 can solve their business problems. These services include 360 scripting, training, implementation, and development.

Course Handout

- The handout for this course is available in epub or mobi format
- Find it on the AU website for this course
- Use Drop Box/Skydrive or email to your mobile device



Class summary

Autodesk® PLM 360 offers a powerful set of tools that that can be used to configure solutions to a customer's business needs. In this class, we discuss best practices for getting started in Autodesk® PLM 360 . We cover how to properly manage your project using the tool itself. This includes technical methods and examples for environment change management and roll out. The goal of this class is to enable administrators to be efficient, from planning to deployment.

Key learning objectives

At the end of this class, you will be able to:

- Describe Best Practices for Getting Started in PLM 360
- Be prepared for scripting on top of your solutions
- Recognize the importance of managing best Practices and Environment Change
- Recognize that with great flexibility in configuration, comes great responsibility

Who are You?

A few questions to learn our audience:

- How many have used Autodesk® PLM 360?
- How many have built a workspace or application in Autodesk® PLM 360?
- How many have attended other Autodesk® PLM 360 classes here at AU?
- How many have any other Autodesk University Courses Left?

Why Best Practices

Why Best Practices?

Regardless of the software being implemented or the size of the project, a few key points are common:

- Administrators are looking for tools that give them freedom to design and configure solutions to solve their business problems
- Once they have found the right tool, they will quickly begin to limit methods and practices that others should use when using that tool

Why Best Practices?

Companies that do this the best, the earliest, and more often in a software implementation project usually the most successful.

- Helps define the way a tool should be used for a given company
- Significantly reduces the learning curve of a product for new administrators
- Keeps environment configurations uniform and scalable
- Adds conformity to an implementation team trying to reach common goals

Why Best Practices?

“The Only Thing That Is Constant Is Change” – Heraclitus

It is important to note that while best practices are to be enforced, they may change over time due to product enhancements, or changes to your business process.

Configuration Naming Best Practices

Configuration Naming

A well thought out naming system configured in Autodesk® PLM 360 will increase efficiency in the following areas:

- Find / Search / Sort on Data
- Write Scripts using Workspace / Field IDs
- Manage the environment over a length of time
- Effectively manage your implementation project and team
- Separate standard App, and Autodesk® PLM 360 content from what you are using in production

Configuration Naming

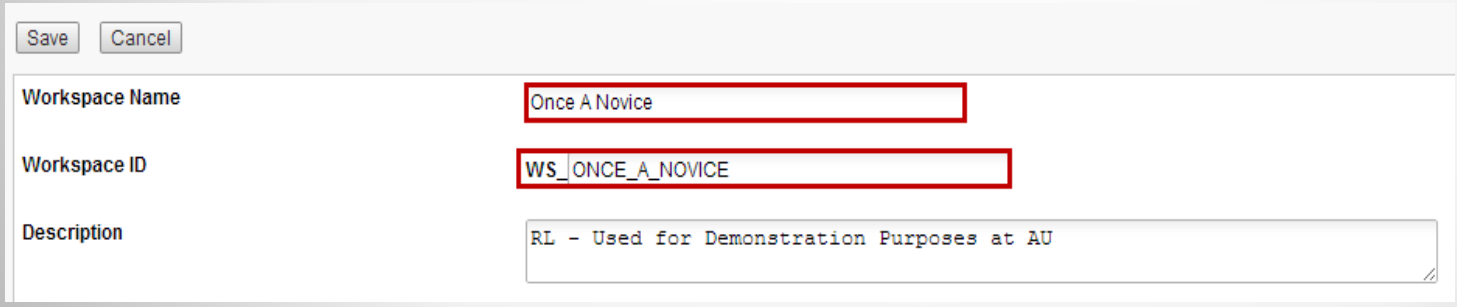
Workspace Name = Workspace ID
Keep Workspace Names and Workspace IDs Matching

- Use of Computed Fields
- Scripting
- Integration
- API Development

Configuration Naming

Workspace Name = Workspace ID

- Keep Workspace Names and Workspace IDs Matching
- Think ahead and plan for a name that makes since for your solution
- If a mistake is made use the Clone feature to create a workspace with the correct name



Configuration Naming

Workspace Name = Workspace ID - *Exception to the Rule*

- Autodesk® PLM 360 tenants they come preloaded with valuable applications
- To sort those that are not in Production prefix using “zz_”

Configuration Naming

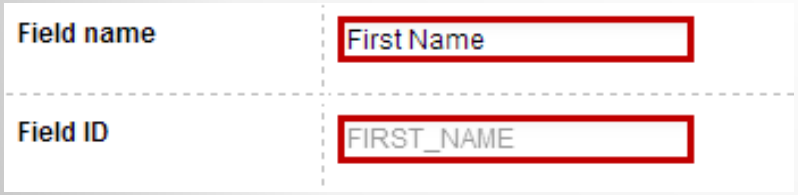
Field Name = Field ID

- Keep Workspace Fields and Field IDs Matching
- In any Application you could have hundreds of Fields
  - Use of Computed Fields
  - Scripting
  - Integration
  - API Development

Configuration Naming

Field Name = Field ID

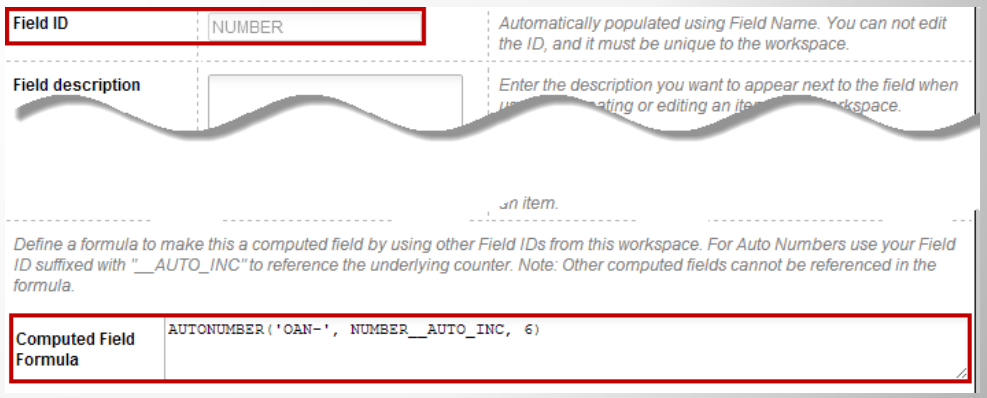
- To make things Manageable keep these the same
- If a workspace field is given a name that needs to be changed use the *Clone* Feature to create a new field with the correct name



Configuration Naming

Create a Unique Identifier

- Autodesk® PLM 360 designates a unique Identifier to each record or item called a dmsID
- Be sure that you designate a unique identifier for your workspace that users can easily identify

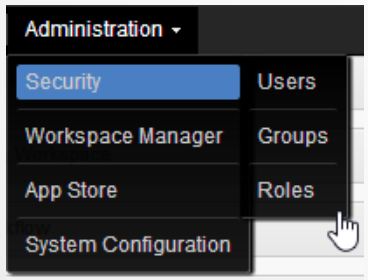


Let’s take a Look!

Configuration Naming

Roles Names

When a workspace is created in Autodesk® PLM 360 it is necessary to create Roles with Permissions to actually grant users' access to use the workspace. An administrator will have the need to create multiple Roles depending on the access that is to be provided to the workspace.

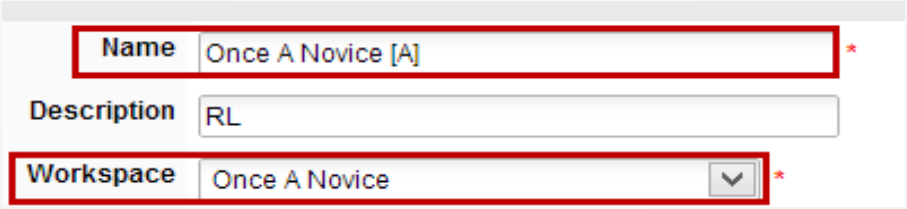


Configuration Naming

Roles Names

Create role names that are:

- Match the workspace they are created for
- Designate the roles purpose
- Are easily applied to Groups



Configuration Naming

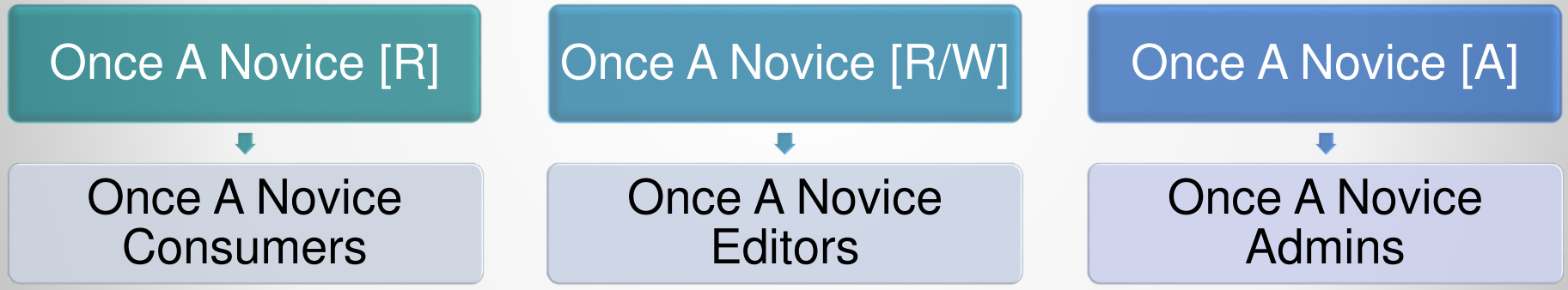
Roles Names

- [R] – Read Only Users (No Edit Capabilities – Consider Participant Licenses)
- [R/W] – Read / Write Users (Add and Edit but limited capability to Delete)
- [A] – Administrative Users – All Access to a given workspace and its capabilities
- [Permission Name – WF] – Workflow related Roles

Configuration Naming

Roles Applied to Groups

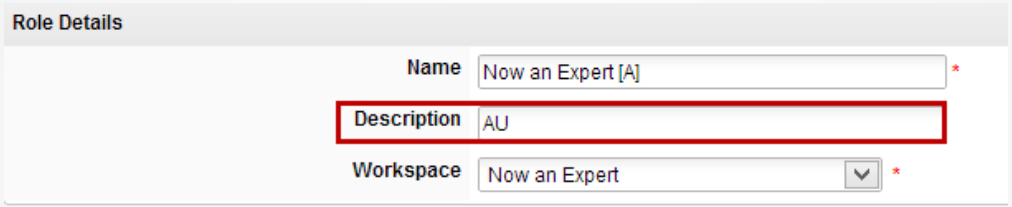
- The correctly named Roles are then easily assigned to Groups
- Plan ahead and use Group Names that make sense to your organization



Configuration Naming

Role Description

To easily identify and sort your Roles, use your organization in the description



Let’s take a Look!

Configuration Naming

Picklist Naming

Picklists should also a name that easily identifies its purpose. Some picklists will need father clarification.

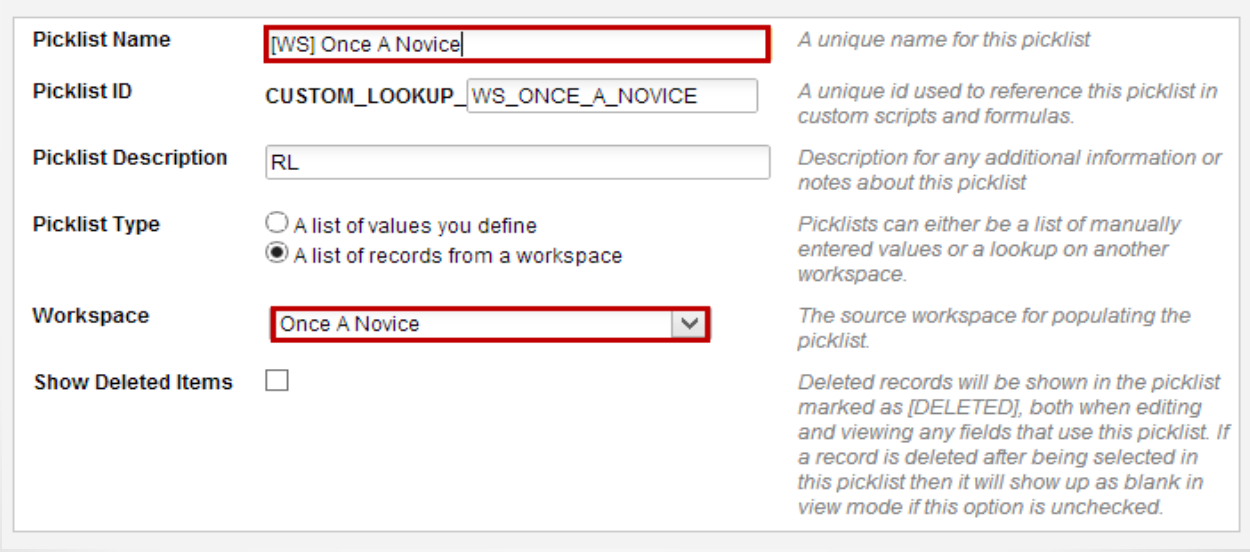
- Usually common sense names are adequate enough
- Picklists can be shared amongst many workspaces
- There are a few unique cases where the name should follow a best practice

Configuration Naming

Workspace Picklist Naming

When a pick list is created based on a Workspace it should be prefixed

- [WS] Workspace Name

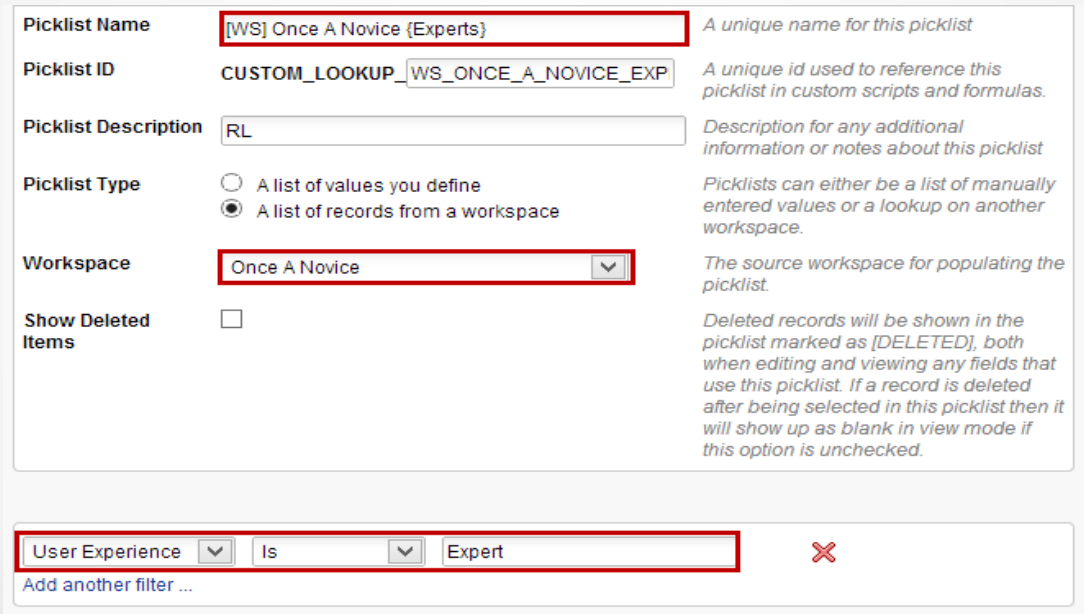


Configuration Naming

Workspace Picklist Naming

When a filter is applied to a workspace Picklist add a Qualifier

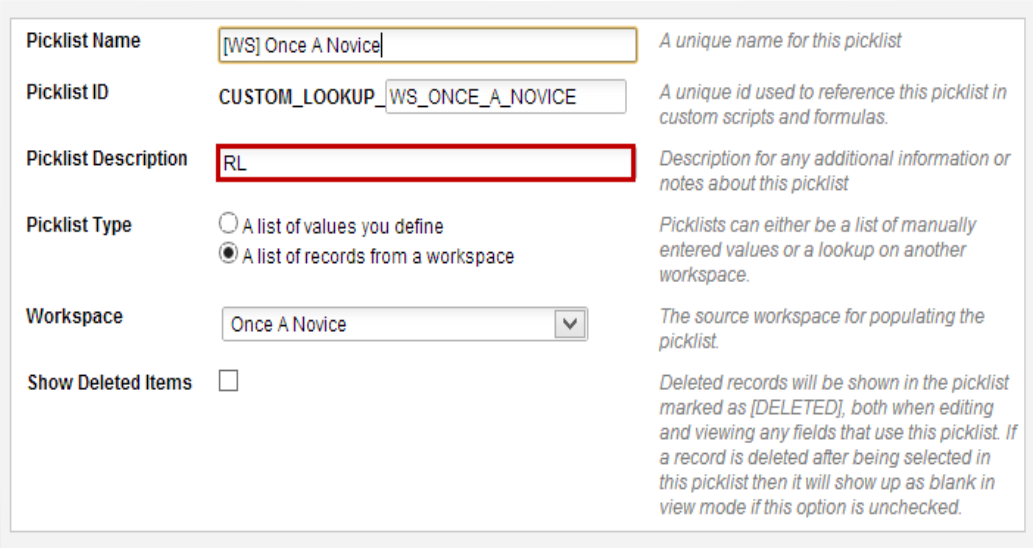
- [WS] Workspace-based picklist {Qualifier}



Configuration Naming

Picklist Description

To easily identify and sort your Roles, use your organization in the description



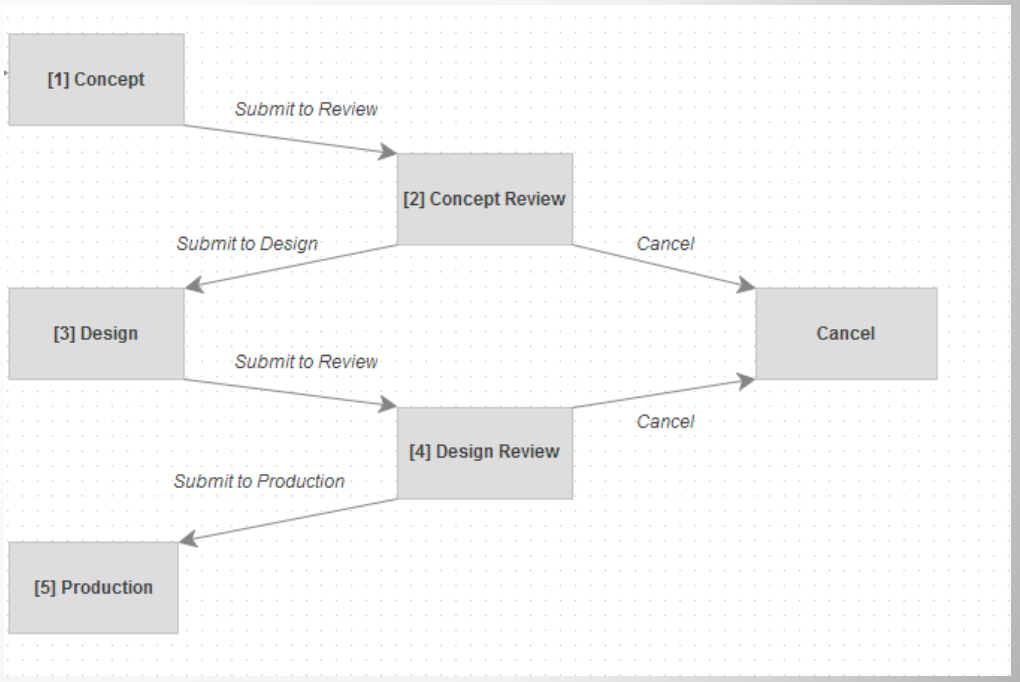
Let’s take a Look!

Workflow Best Practices

Workflow Best Practices

When creating a workflow in Autodesk® PLM 360 there are a number of best practices that should be considered

- Naming Permissions
- Simple Creation of Permissions
- Correctly Assigning Permissions To Roles, and Groups
- Consider use with Milestones

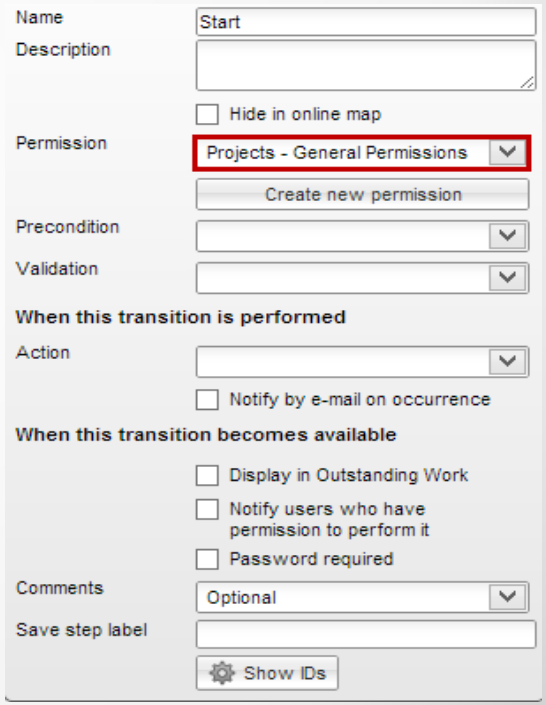


Workflow Best Practices

Workflow Permissions

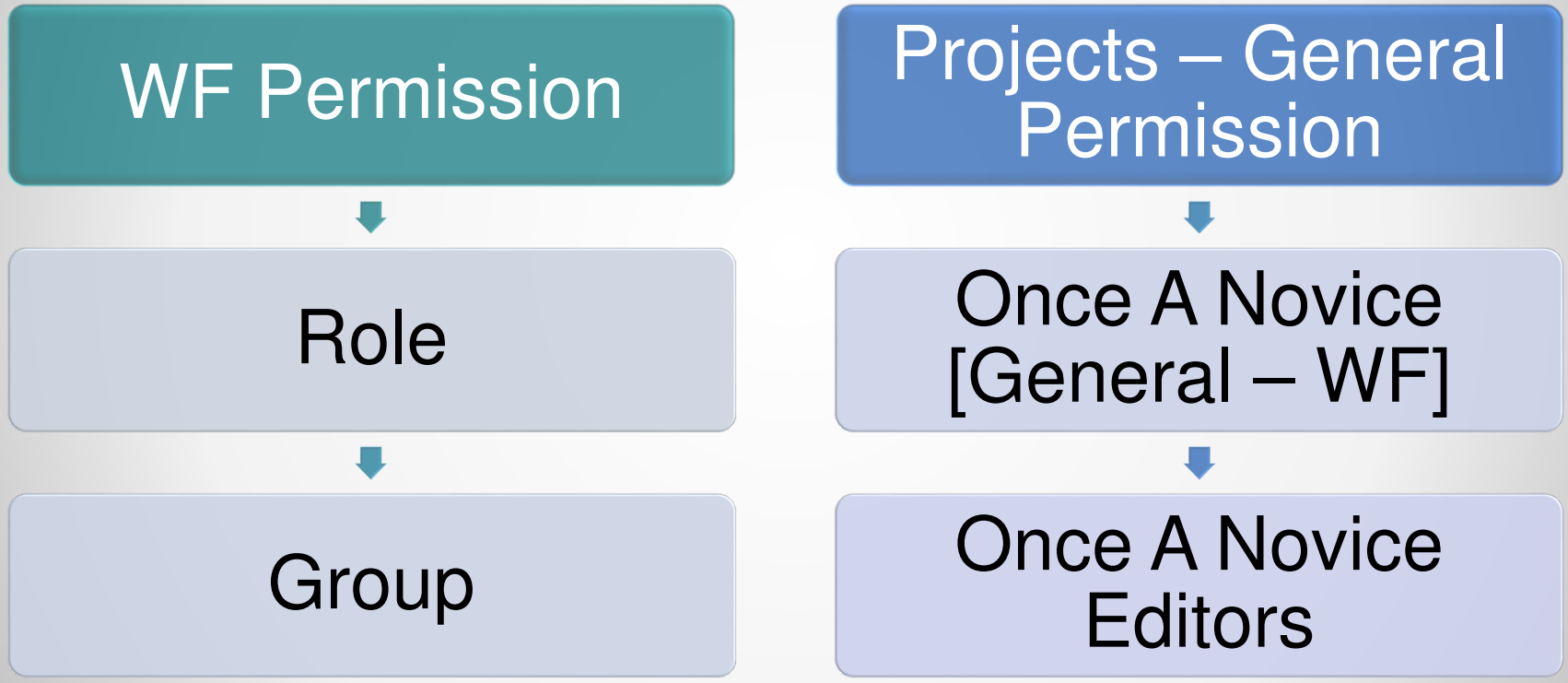
When naming Permissions use the Workspace Name or acronym to which it applies and the general purpose of the permission

- Projects – General Permissions
- Projects – Cancel Permissions



Workflow Best Practices

Workflow Permissions Applied



Workflow Best Practices

Workflow Permission Creation – Keep it Simple

When creating a workflow it is possible to generate many different permissions, even on per transition. Plan ahead and keep it Simple

- Create a General Permissions permission
- Use this through your early testing and development
- Consider Validation scripting to block transitions that have requirements to be filled
  - Fields Required, Approvals, Tasks Management

Workflow Best Practices

Workflow Permission Creation – Keep it Simple

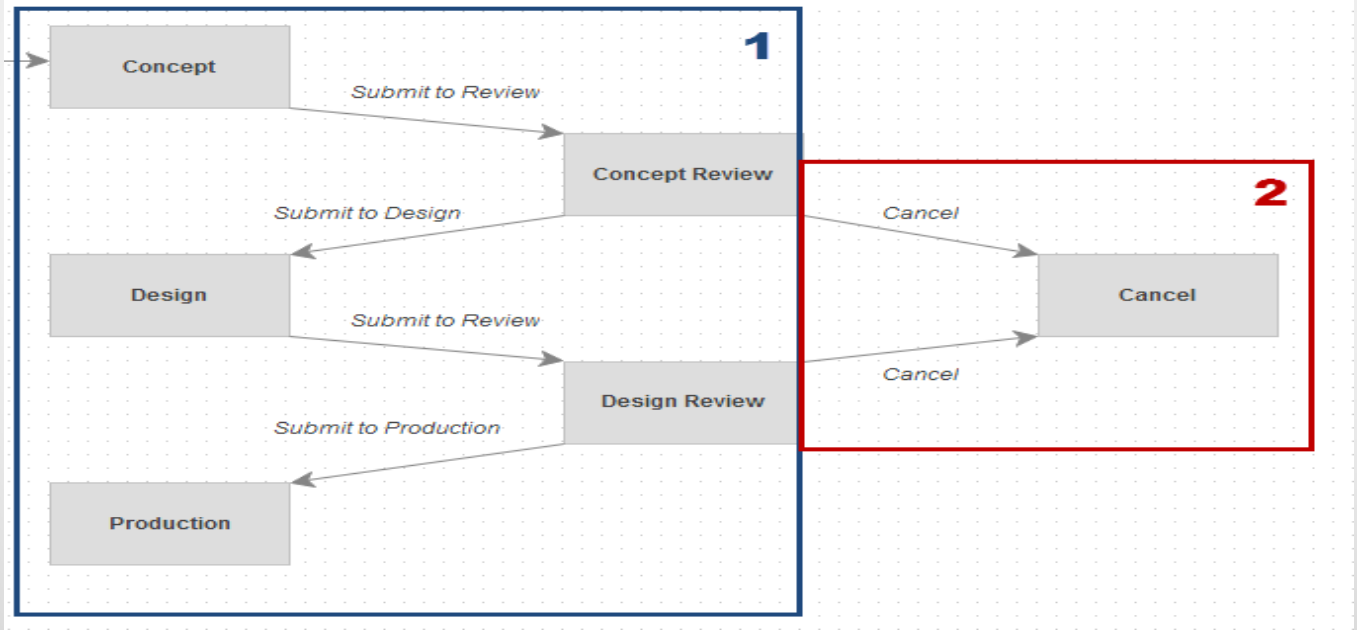
Go back and carefully evaluate where additional workflow permissions are required

- Migration Workflows
- Restricting or Giving groups of People Reject / Cancel Permissions
- Block Hidden Transitions and Workflow states from Workflow Actions

Workflow Best Practices

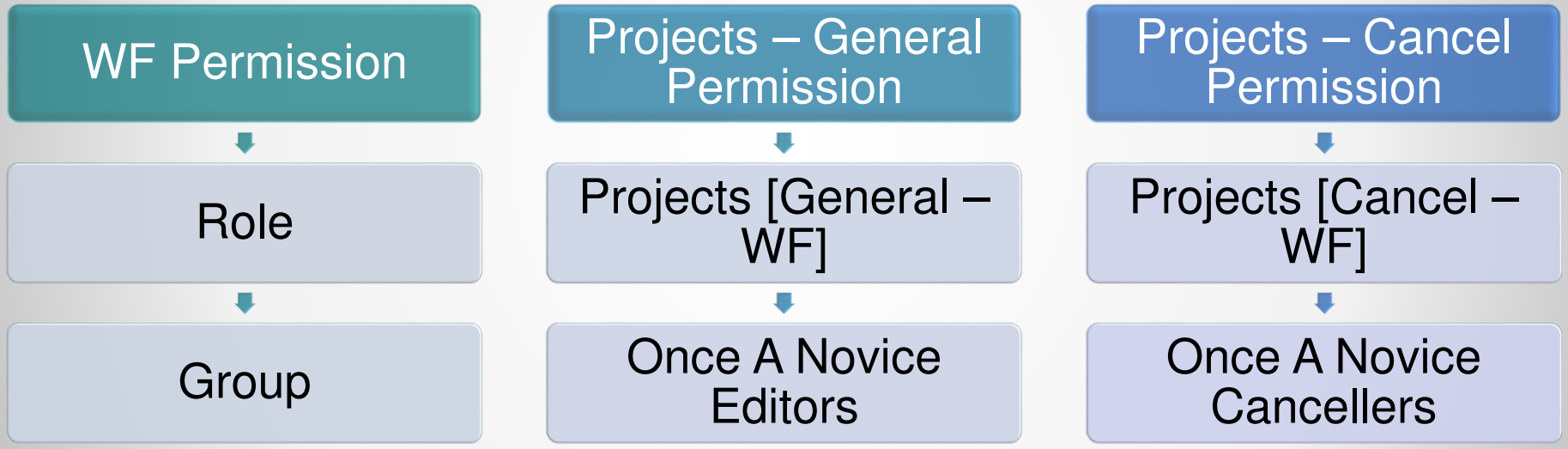
Workflow Permission Creation – Keep it Simple

1. General Permissions Applied
2. Cancel Permissions Applied



Workflow Best Practices

Assigning Permissions to a dedicated Role



Workflow Best Practices

Assigning Permissions to a dedicated Role

Assign each workflow permission to its own role separate of other roles (R/W, R, A) for each workspace.

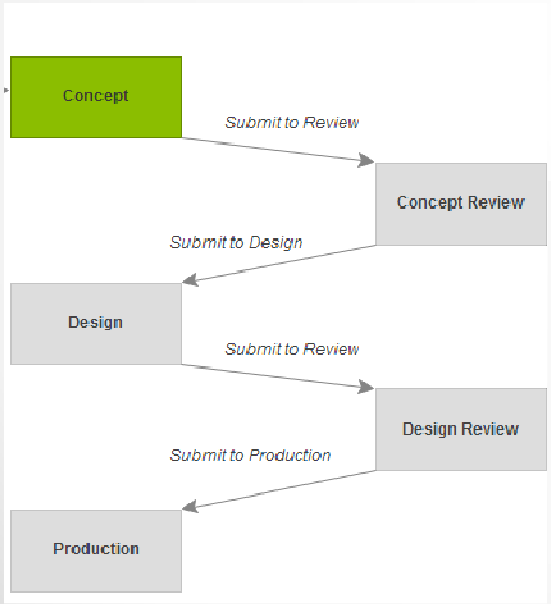
- This greatly simplifies
  - Telling where workflow permissions are used
  - Understand what groups have which permissions in a workflow
- Remember a User with out the correct Workflow permissions Can not
  - Promote an Item
  - Add Grid Rows
  - Add Attachments
  - Modify Item Details

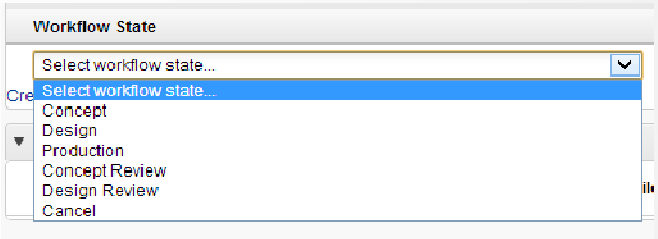
Let’s take a Look!

Workflow Best Practices

Using Numbers in your Workflow (Milestone Related)

When creating a workflow that will be used with Milestones it is important to know the order in which the workflow states are going to be reached.



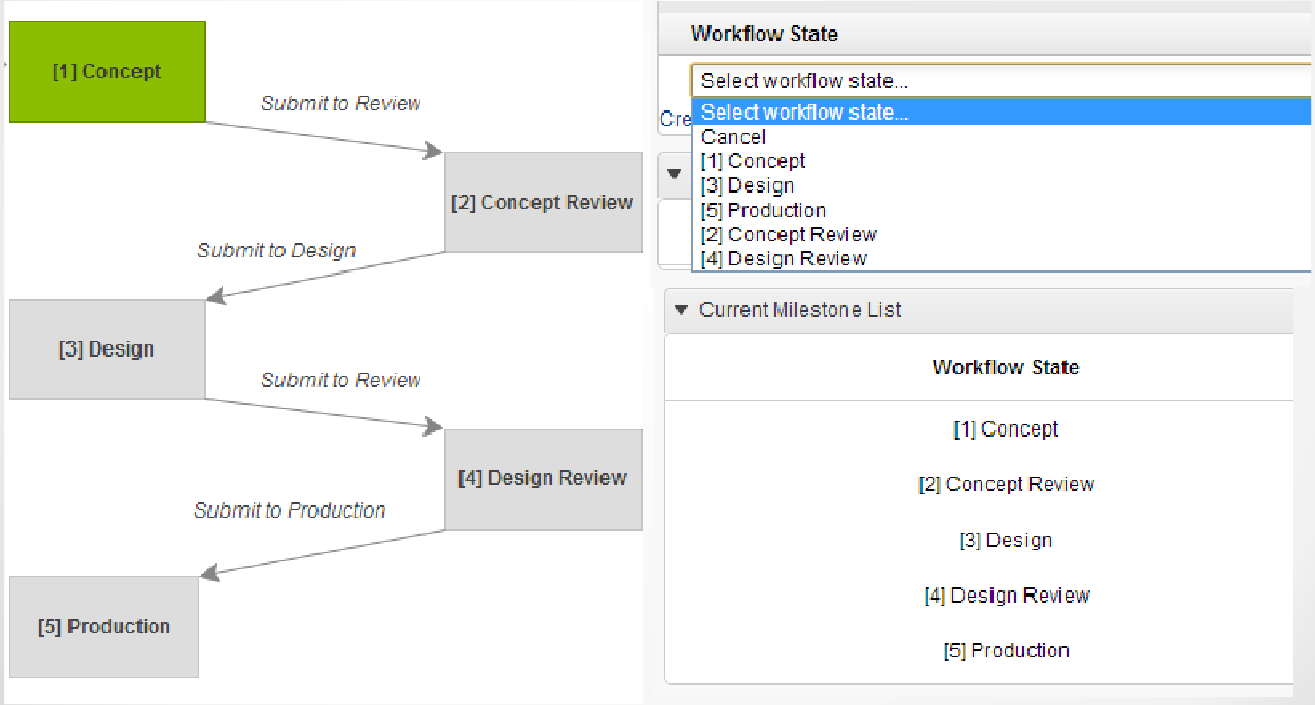


Current Milestone List

Workflow State	Milestone event
Production	Leave state
Concept Review	Leave state
Concept	Leave state
Design	Leave state
Design Review	Leave state
Production	Leave state

Workflow Best Practices

Using Numbers in your Workflow (Milestone Related)



Let’s take a Look!

General Scripting Best Practices

Scripting Best Practices

A little scripting experience can go a long way when building custom solutions in Autodesk® PLM 360. As with normal configuration there are a number of Best Practices to consider

- Script Naming
- Script Headers and Revision (Title Blocks for your scripts)
- Commenting Scripts Effectively
- Using and Managing Library Scripts

Scripting Best Practices

Script Naming

As administrators and developers generate scripts they need to easily be able to identify what scripts are for.

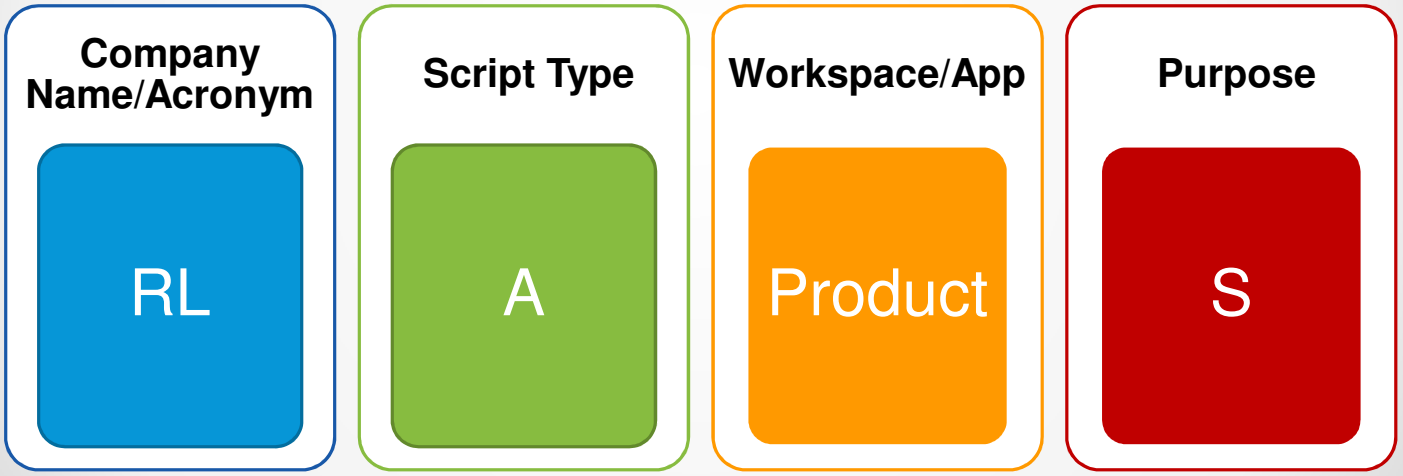
Consider the following needs:

- Distinguish Scripts that are in Production Use from the OOTC solutions
- Effectively Mange Scripts between Autodesk® PLM 360 and another program used for script development

Scripting Best Practices

Script Naming

RL_A_Product_S



Scripting Best Practices

Script Naming

Script Type Acronyms

- A = Action
- V = Validation
- C = Condition
- L = Library

Purpose Type Acronyms

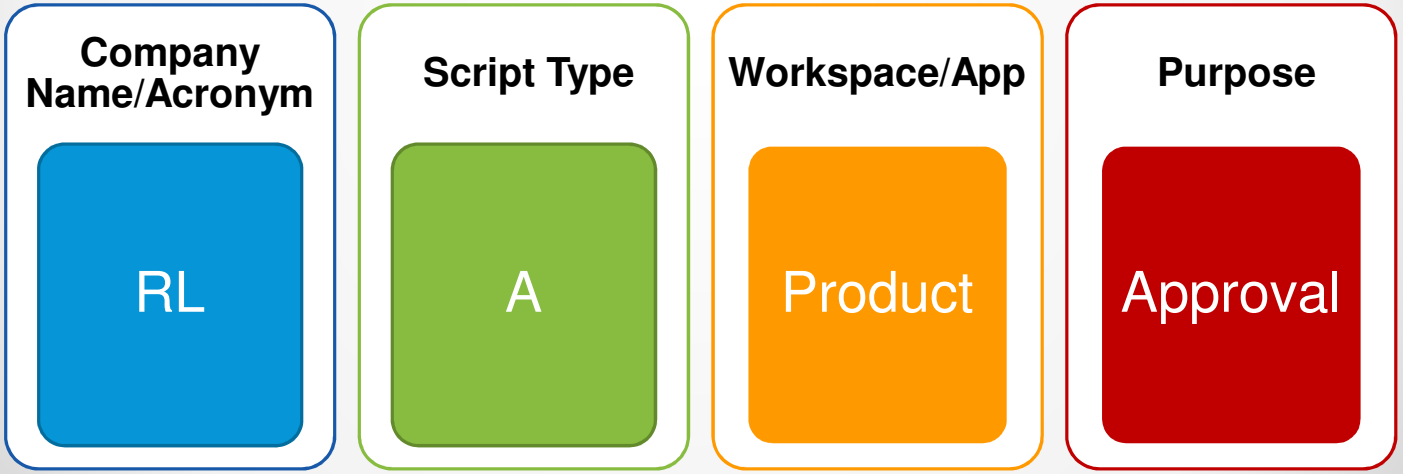
- S = Spawning
- CG = Copy Grid
- MS = Milestone Creation
- PM = Project Management
- AT = Auto Transition

Scripting Best Practices

Script Naming

When a Script is written and does not fall into a purpose type, a short name is assigned to that section of the name.

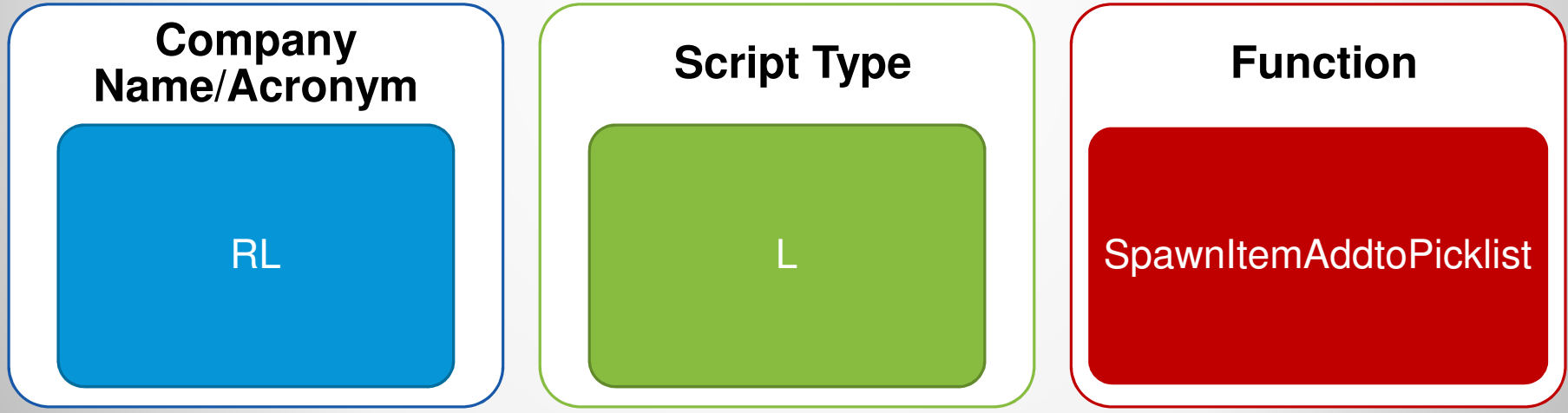
RL_A_Product_Approval



Scripting Best Practices

Script Naming – Library

RL_L_SpawnItemAddtoPicklist



Scripting Best Practices

Script Headers and Revision (Title Block for Your Scripts)

A script Header contains important, highly useful information that can be used to the Scripts:

- Name
- Purpose
- Constraints
- Import
- Author / Revision Author
- Change History
- Portability if created or managed in another program

Scripting Best Practices

Script Headers and Revision (Title Block for Your Scripts)

```
/*****************************************************************************************
Name: RL_A_Product_S
Description:
   This script was designed to Spawn all necessary documents required for a Product
Imports:
RL_L_SpawnItemAddtoPicklist
Constraints:
Fields:
Documents: Associated Product
Products: Spawned Document Fields; Fields must use a linking Picklist [WS] Documents

Revisions:
Date                 Modified By          Company          Description of Change
==========           ==============       =========        =======================
2013-12-5                RAC                Razorleaf              Initial Creation
*****************************************************************************************/
```

Scripting Best Practices

Script Commenting

Commenting scripts with notes as you build your scripts is important, although it can be a tedious practice, and takes a little extra time, below are some common reasons this is important:

- Revisiting a script for further development after a long period of time has passed
- Developing scripts in a group of administrators
- Further developing scripts created by others

Scripting Best Practices

Script Commenting & Variables

Create your variable names with care, and although commenting is good don't overdo it.

```
//Establish template variables

var templateItem = loadItem(505);
var headerText = templateItem.HEADER_TEMPLATE;
var bodyText = templateItem.BODY_TEMPLATE;
var tableHeaderText = templateItem.TABLE_HEADER_TEMPLATE;
var rowText = templateItem.ROW_TEMPLATE;
var altRowText = templateItem.ALTERNATING_ROW_TEMPLATE;
var footerText = templateItem.FOOTER_TEMPLATE;
var tableseparator = templateItem.TABLESEPARATOR;
var pageFooter = templateItem.PAGEFOOTER_TEMPLATE;
```

```
//build the report:
htmlOutput = headerText;
htmlOutput += bodyText;

//Build the table header:
var outHeaderText = tableHeaderText;
tableHeaderText = tableHeaderText.replace("@@item@@",cleanText(item.TEST_ID));

htmlOutput += tableHeaderText;

//loop the grid and build the report
for (var i in gridItems)
{
    var outRowText = rowText            //get the template text
    var gridRowVal = gridItems[i];      //get the row

    if (!isEven(i))
    {
        outRowText = altRowText;     //switch to alternate row if applicable
    }
    var newDate = getFormattedDate(gridRowVal.DATE_LOGGED);
    outRowText = outRowText.replace("@@date@@",newDate);
    outRowText = outRowText.replace("@@name@@",cleanText(gridRowVal.NAME));
    outRowText = outRowText.replace("@@description@@",cleanText(gridRowVal.DESCRIPTION));
```

Scripting Best Practices

Library Scripts - Functions

Library scripts contain functions that are then used in Action, Condition, and Validation scripts. Using library scripts for commonly used functions greatly reduces repetitive scripting, consolidates scripting efforts, and creates consistency across a development team

- RL_L_addDaysToDate

```
function addDaysToDate (startDate, daysToAdd) {
var futureDate = new Date();
var dayOfMonth = startDate.getDate();
futureDate.setDate(dayOfMonth+daysToAdd);
return futureDate;
}
```

Find other Useful Functions in your Handout

Scripting Best Practices

Library Scripts Separation

- Avoid the urge to compile many functions into a common library.
- It greatly simplifies the management of the scripts, and aids troubleshooting efforts.

Scripting Best Practices

Library Script General Practice

- **Plan ahead and understand your entire solution before sitting down to automate**

Implementation Best Practices

Implementation Best Practices

General Implementation Best Practices

Remember your implementation is about more than just the picks and Clicks!

- People, Process, Technology
- Map it, Build it, Use it (Sounds Simple Right)
- PLM for your PLM

Implementation Best Practices

People Process Technology

- People:
  - Who understands the process?
  - Who would give constructive feedback during early testing?
  - Who will be the PLM Champion(s)

Implementation Best Practices

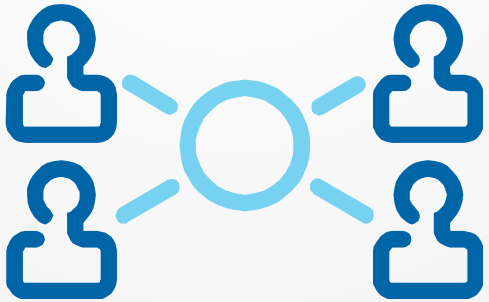
People Process Technology

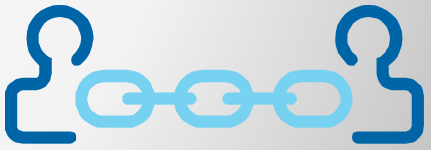
- People:
  - Build the right Team
  - Facilitate Constructive Meetings
  - Build Champions
  - Get people talking

Implementation Best Practices

People Process Technology

- Process:
  - What is the current process?
  - Is the process already documented?
  - What is good about the current process?
  - What is broken in the current process?





Implementation Best Practices

People Process Technology

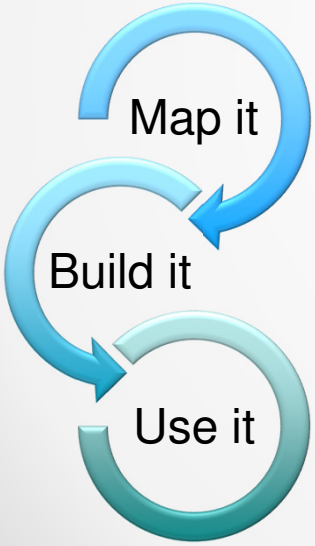
- Technology:
  - Know the technology you're implementing
  - Consider the impact of new technology on old technology
  - Even the best tools, and thorough process cannot guarantee success without the right people.

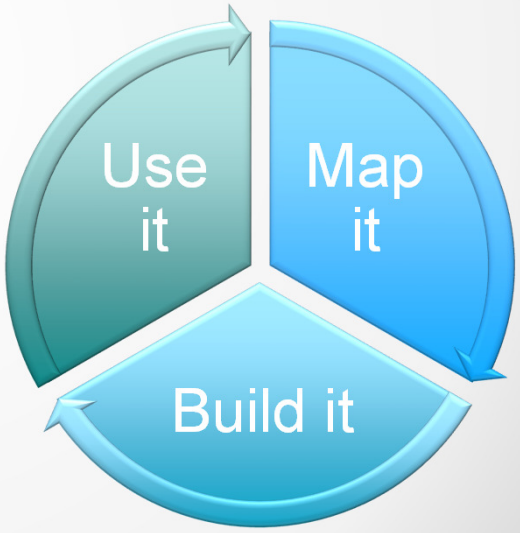
Implementation Best Practices

Map it, Build it, Use it

Think:

- Iterative Development
- Rinse and Repeat





Implementation Best Practices

PLM for your PLM

Our PLM projects often have the same project and process management needs as the solutions we are developing inside Autodesk® PLM 360.

- A great way to get more familiar with the tool
- Support your implementation efforts
- Project Management, Training, Configuration Management

Join The Discussion!

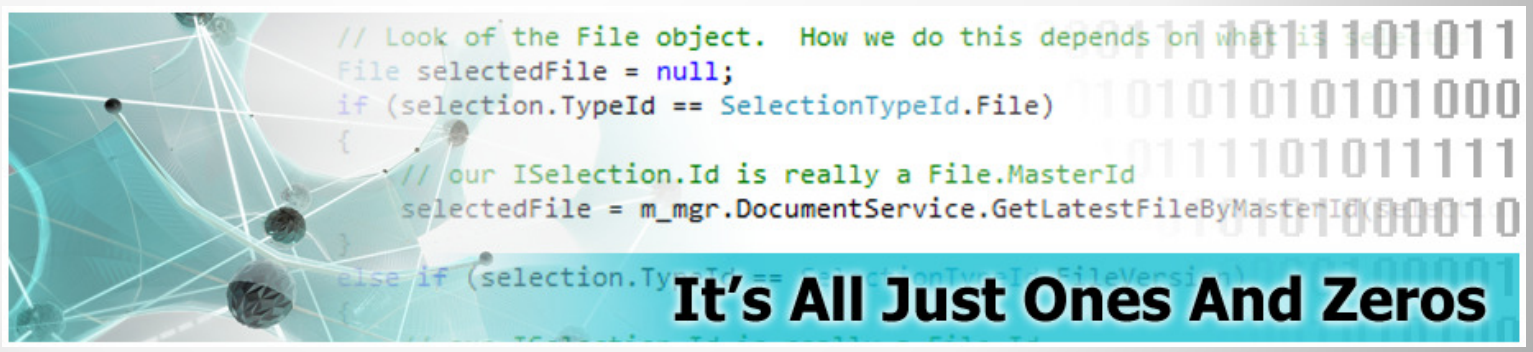
- Autodesk customers and industry partners ask questions and share information about Autodesk products.
- Regularly monitored by Autodesk employees
- PLM 360 discussion forum
  - http://forums.autodesk.com/t5/PLM-360-General/bd-p/705

Resources – Under the Hood

- Autodesk Vault and Autodesk PLM 360
- Allan O'Leary, Brian Schanen and Michelle Stone
- Great source of tips and tricks for Vault and PLM 360
- http://underthehood-autodesk.typepad.com/blog/

Resources – It's All Just Ones and Zeros

- Blog for Vault API developers
- Doug Redmond – Autodesk developer
- http://justonesandzeros.typepad.com/
- http://www.youtube.com/user/ItsAllJust1sAnd0s



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