



LSST End-to-End Verification Environment

MagicDraw, Syndeia, and JIRA with Kanoah Tester

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MBSE Telescope Workshop II

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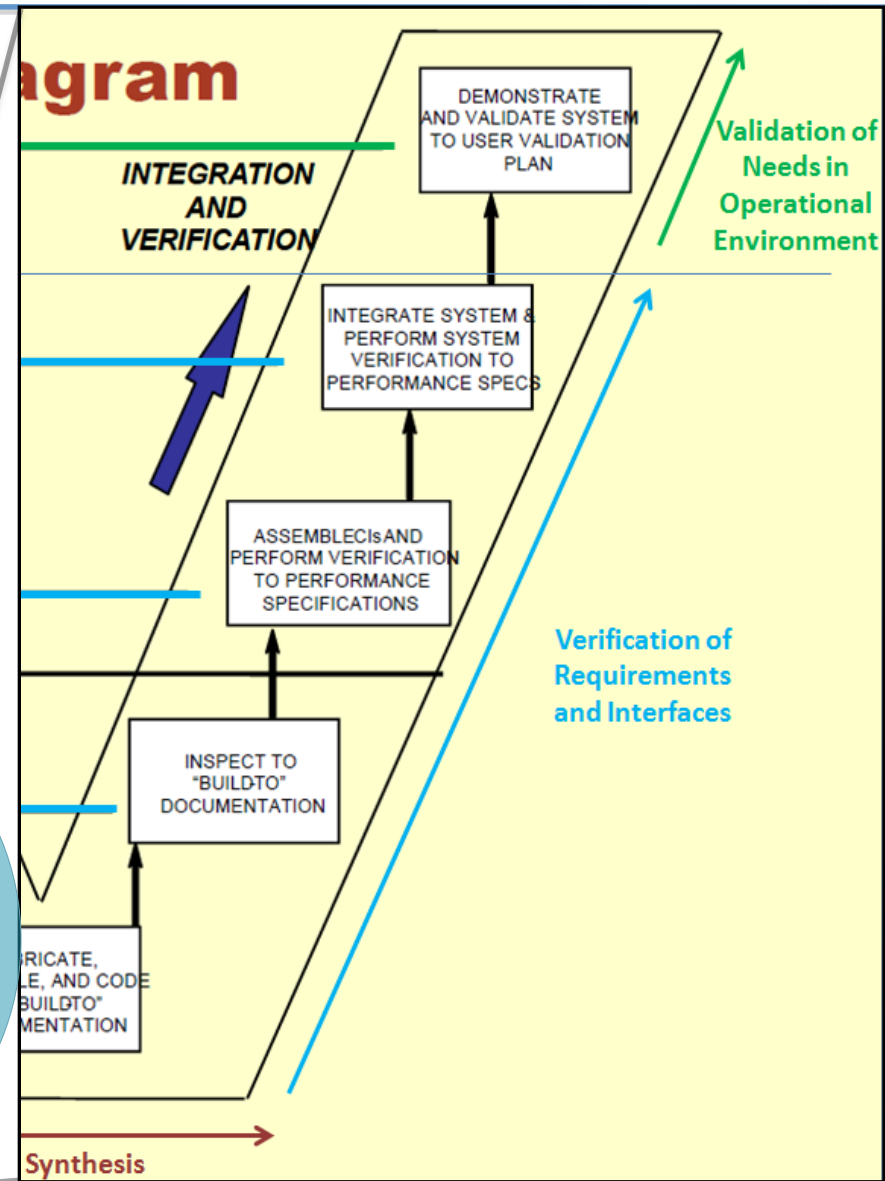
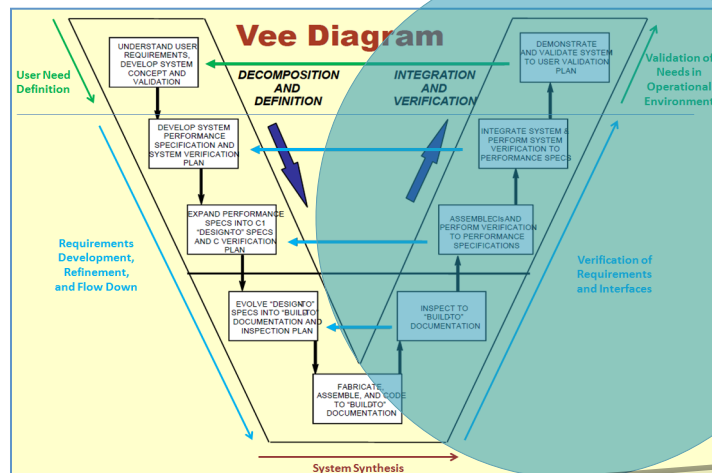


- Review of LSST's Verification Process
- Overview of implementation tools
 - MagicDraw
 - Syndeia
 - JIRA
 - Kanoah Tester add-in
- Demo Video
- Future Work

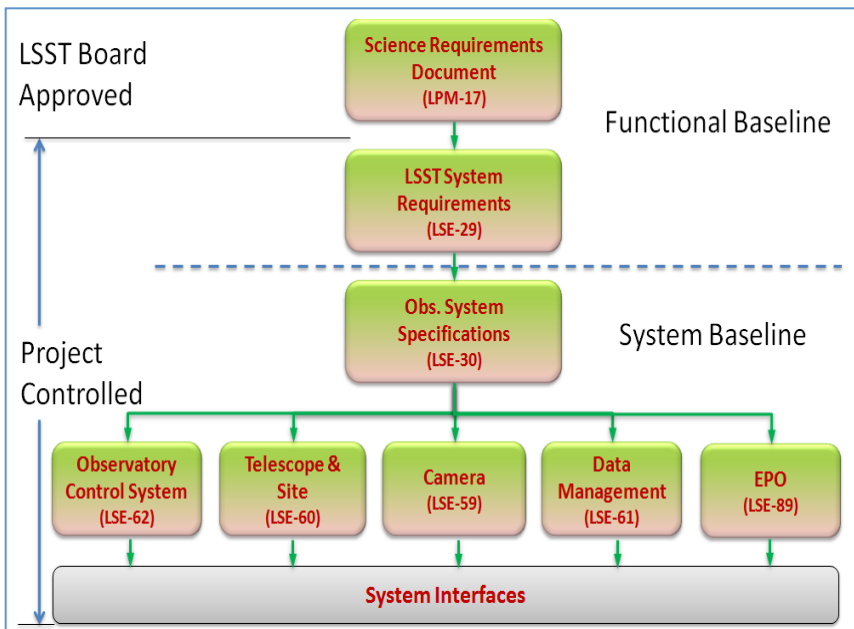
Verification & Validation on LSST



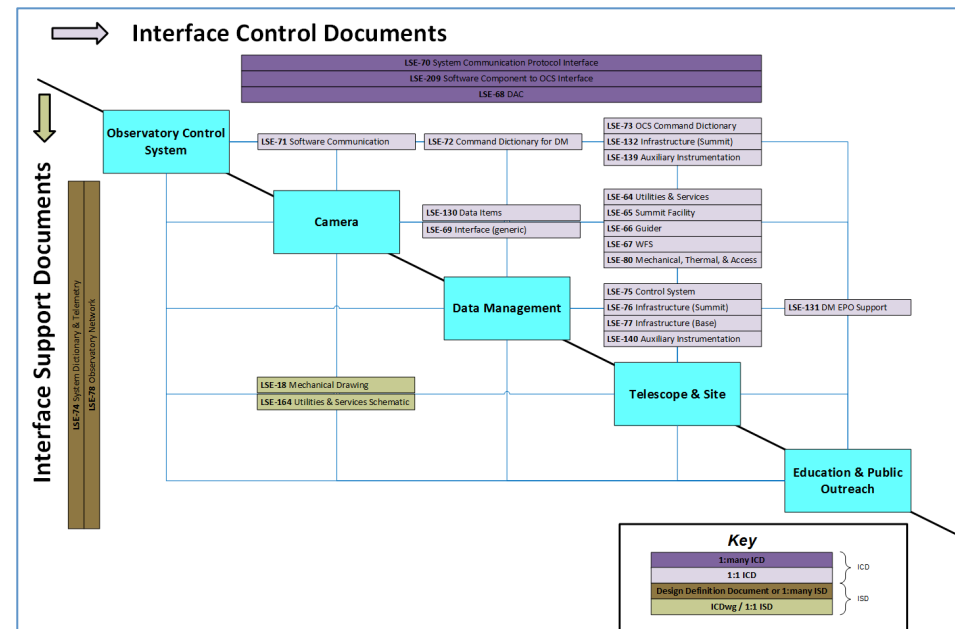
- LSE-160 *Verification and Validation Process* is the governing document for V&V on LSST
 - Establishes a consistent, project-wide process for the development of V&V plans, compliance assessments, V&V reporting, and deliverables
- Defines steps in the verification process
- Defines requirements for developing verification plans for each project-controlled requirement



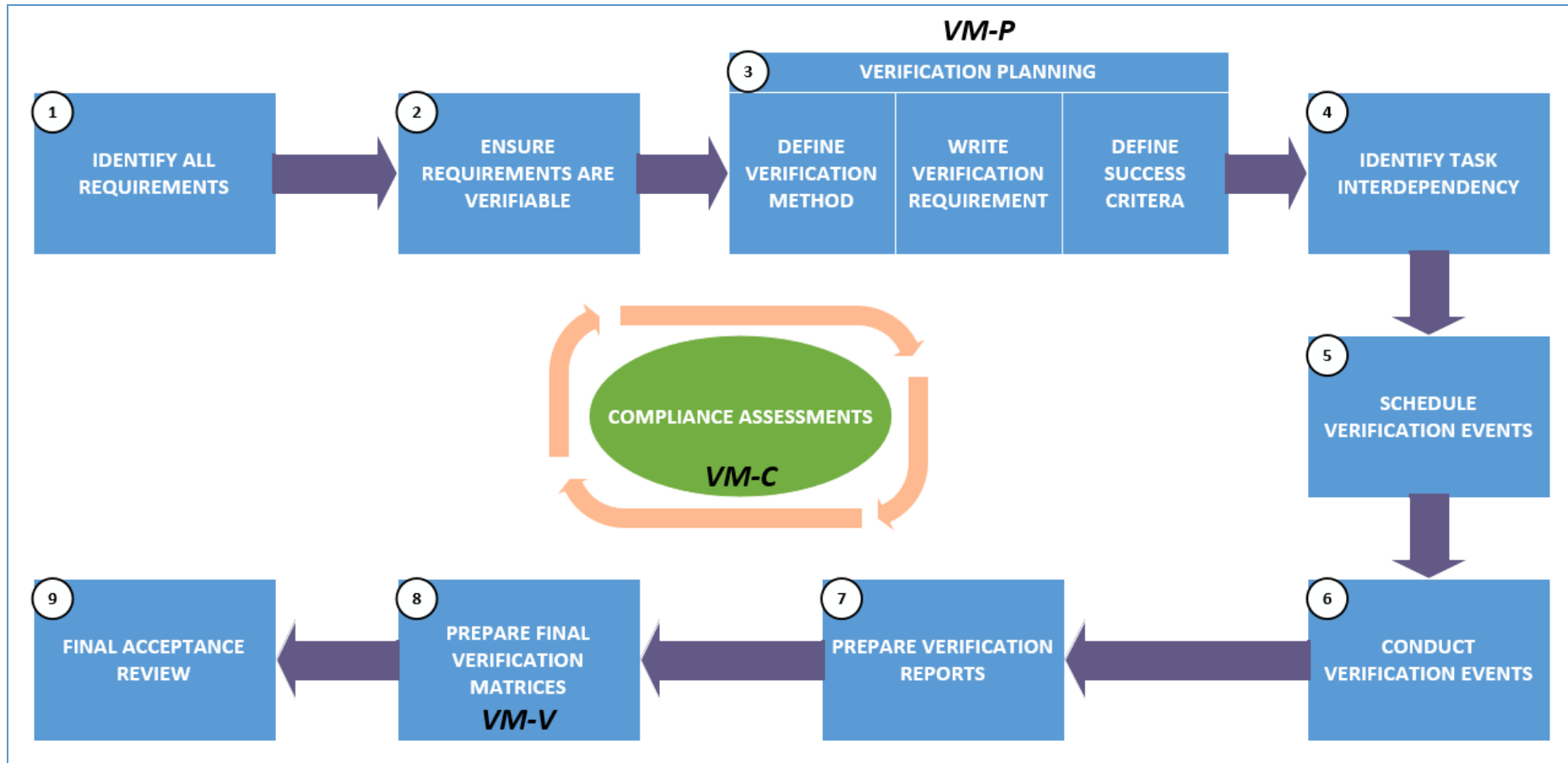
- Applies to all Project-Controlled requirements:
 - Specifications
 - Requirements Documents
 - Interface Control Documents (ICDs)
- Each “shall” statement in each of these documents must be formally verified



Project-Controlled Specifications



Project-Controlled ICDs

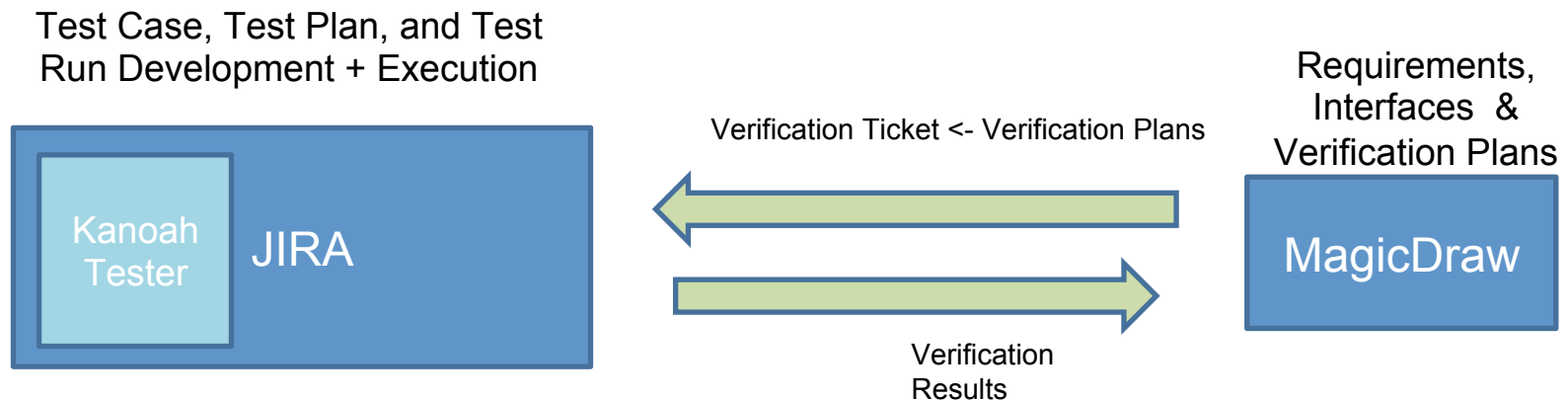


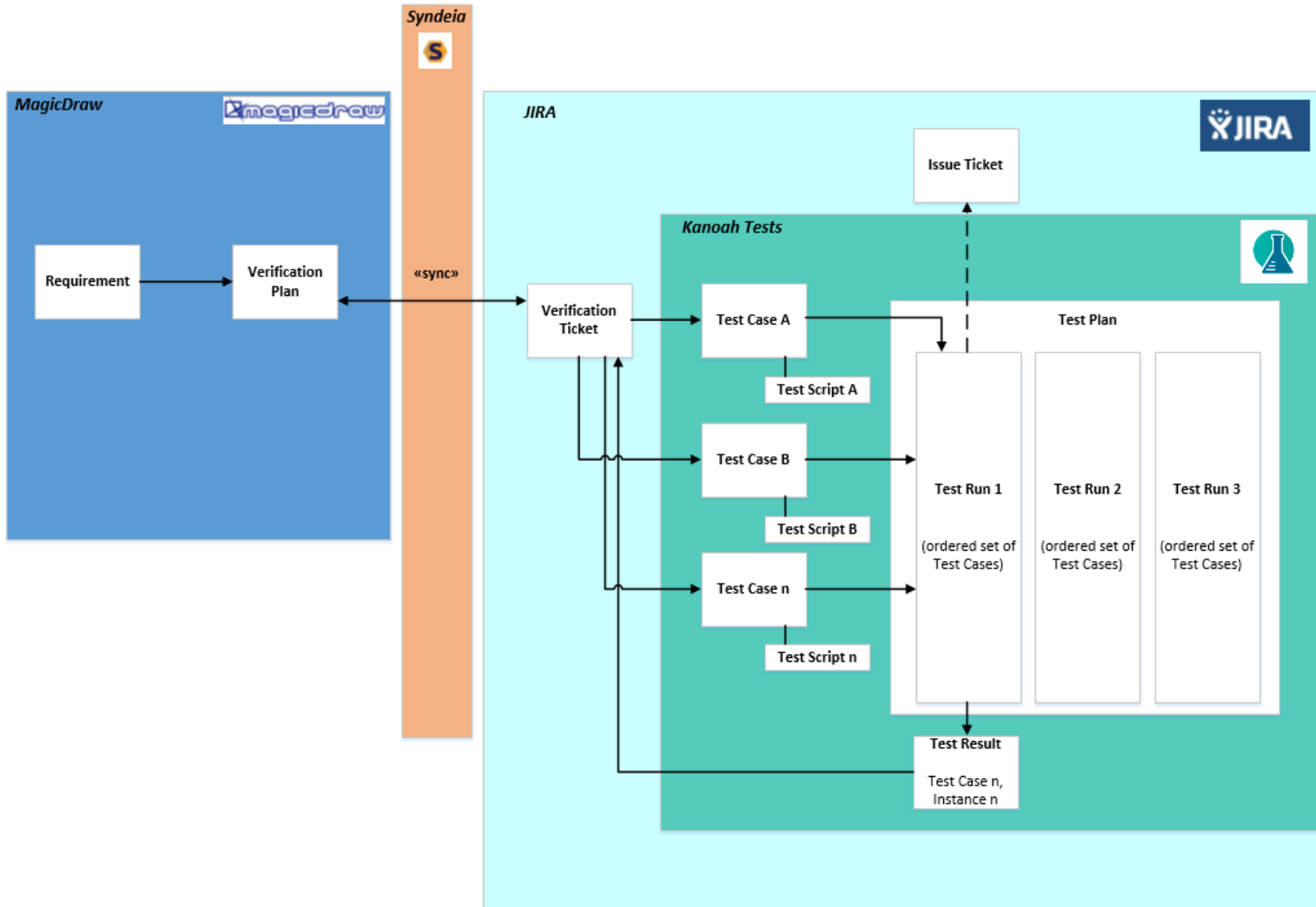
See previous verification talk from November 2, 2016 MBSE Workshop for additional information

Process Overview



- Several tools are utilized to capture this information
 - MagicDraw (Model Based Systems Engineering Tool) – Verification Plans
 - JIRA (Issue Tracking & Agile Work Planning Tool) – Broader user base, ticketing capabilities, agile planning
 - Kanoah Tester (JIRA Testing Add-In) – Test Planning and Execution
 - Syndeia – MagicDraw/JIRA synchronization for Verification Plans





Verification Tools – MagicDraw MBSE Tool



MagicDraw



The screenshot shows the MagicDraw 18.4 interface. The main window displays the 'Structure' tree on the left, which includes a hierarchy of models and verification plans. The 'Verification Plans' table is visible in the center, showing a list of plans with their IDs and names. The table has two rows: one for 'VerificationPlan_ABC' and another for 'VerificationPlan2'. Below the table, there is a section titled 'A generic table allows for managing select...' followed by instructions on how to use the table, such as editing property values, creating selected type elements, customizing the representation, and exporting data. A 'NOTE' section explains how to start working with a generic table, and a 'Toolbar button descriptions' section lists 'Add New' and 'Add Existing' buttons.

#	
1	VerificationPlan_ABC
2	VerificationPlan2

NOTE: To start working with a generic table...

Toolbar button descriptions:

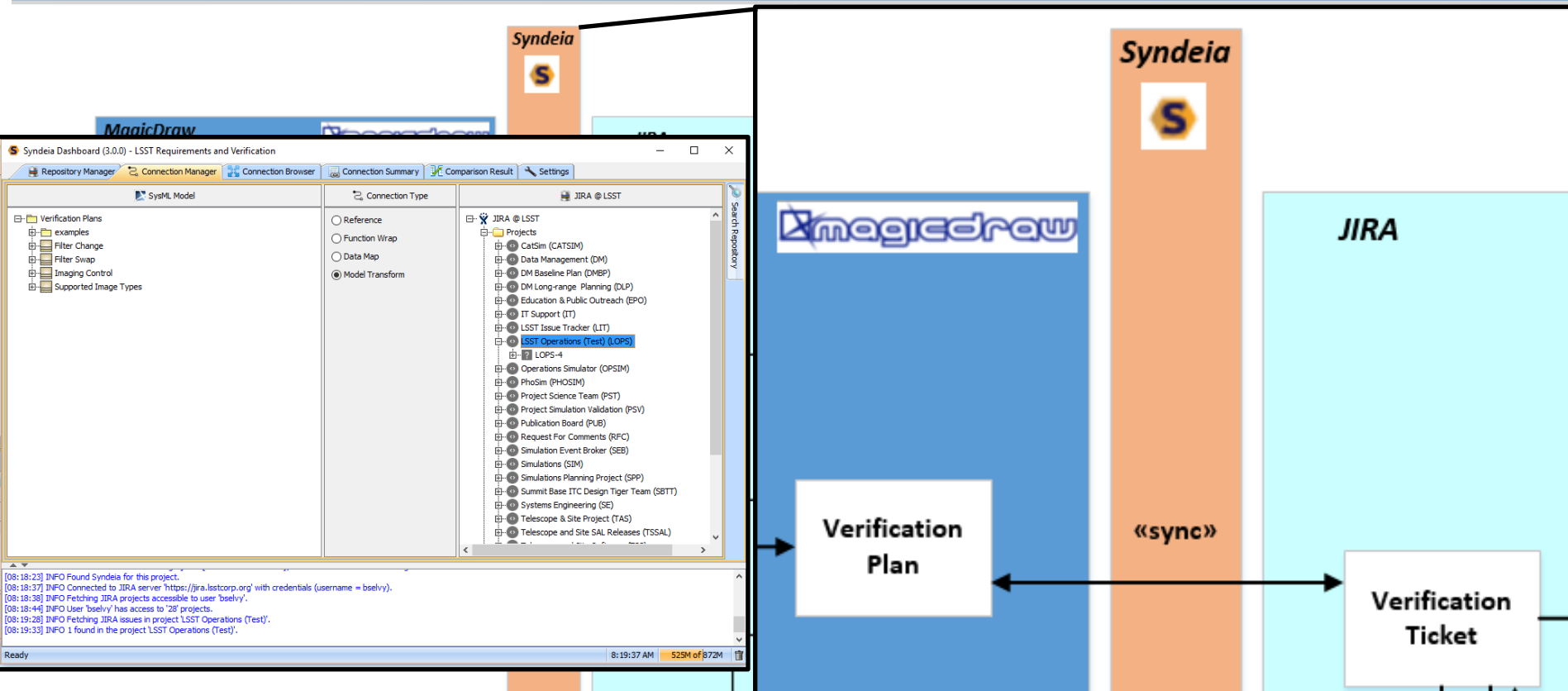
- **Add New** - click to create a new element
- **Add Existing** - click to add an element

Requirement

Verification Plan

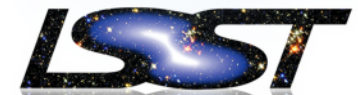
- Source of all project-controlled requirements (specifications & ICDs)
- Source of all Verification Plans
- Source of data for Verification Matrices

Verification Tools – Syndeia Inter-Tool Element Transformations

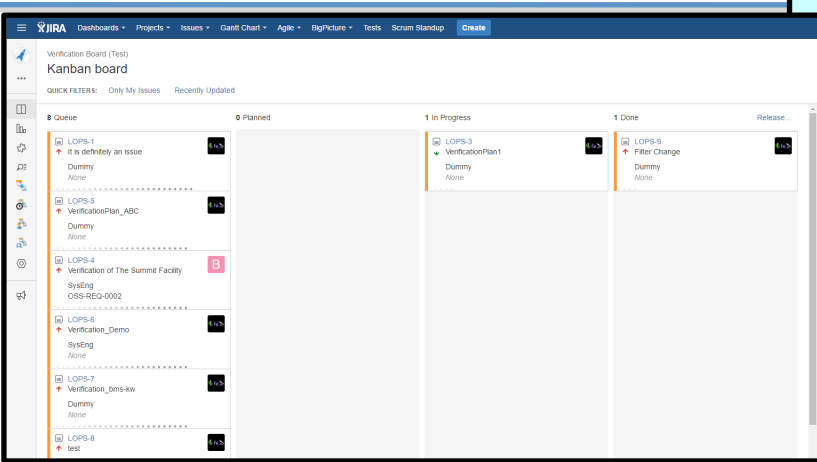


- Auto-generates Verification Tickets in JIRA from MagicDraw VerificationPlan elements and attributes
- Two-way synchronization
- Feeds verification results back to MagicDraw to generate final verification matrices (VM-F)

Verification Tools – JIRA + Kanoah Tester

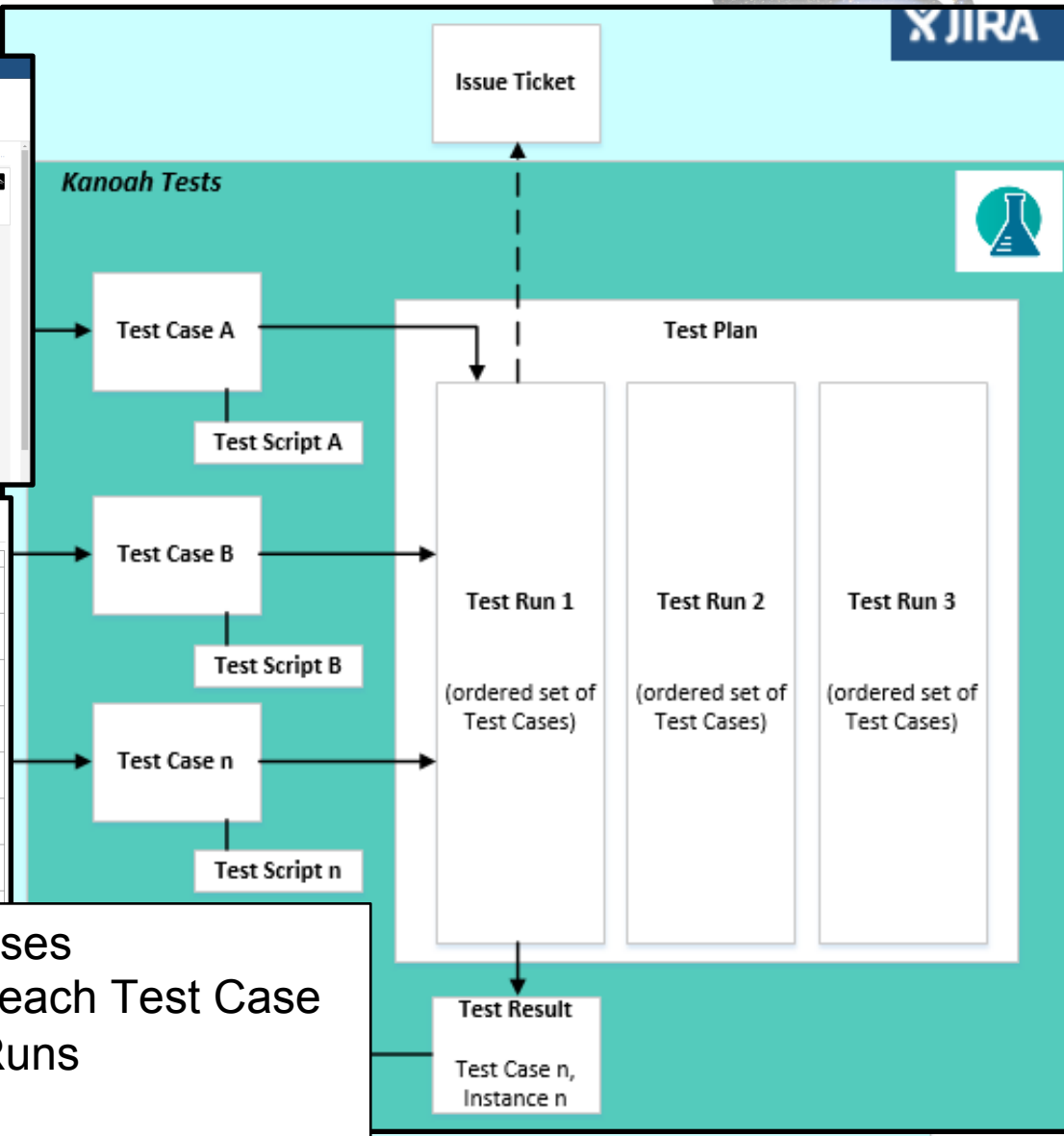


JIRA



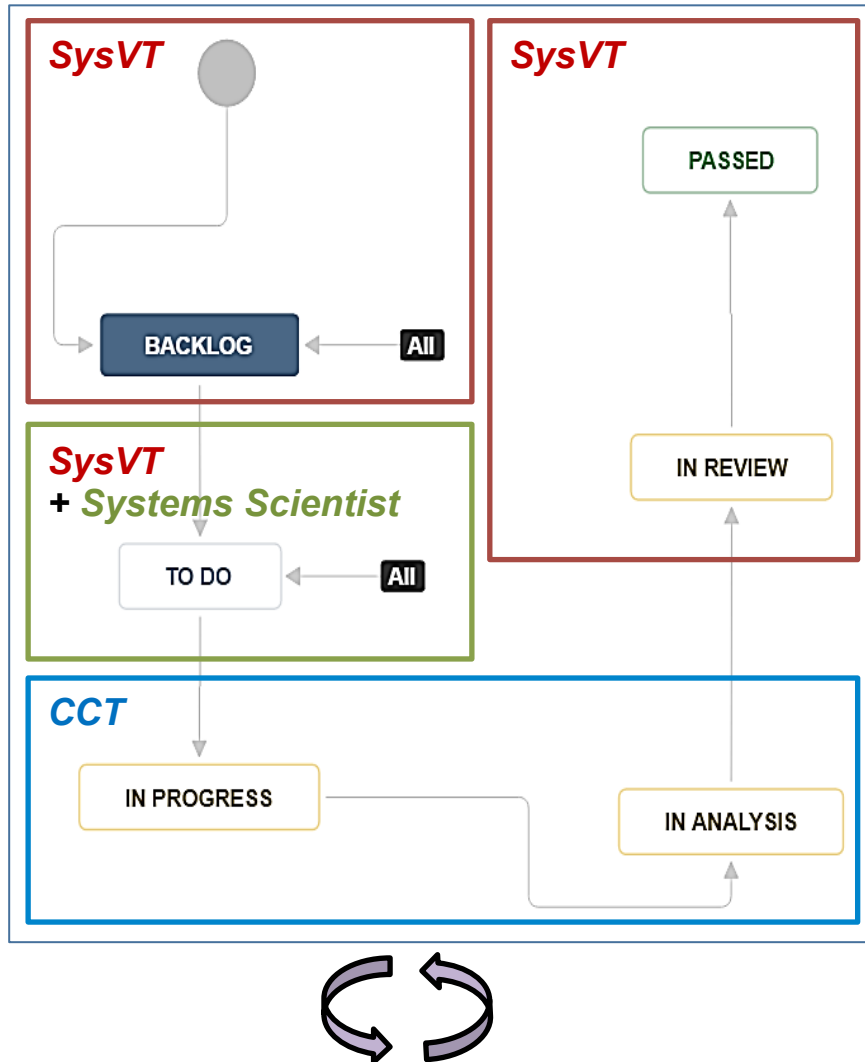
Traceability Report

Issues (Coverage)	Test Cases	Test Results	Issues
<p>LOPS-4 BACKLOG Verification of The Summit Facility</p>	<p>LOPS-T3 SMART Inspection of TSD Summit Facility Baseline Design Document</p> <p>LOPS-T4 SMART Inspection of TSD ConOps/Maintenance Document</p>	<p>Blocked Executed on: 01/13/2017 09:35 Environment: - Executed by: Frosiss Economou</p> <p>Failed Executed on: 12/22/2016 15:34 Environment: - Executed by: Frosiss Economou</p> <p>Failed Executed on: 12/22/2016 15:34 Environment: - Executed by: Frosiss Economou</p> <p>Failed Executed on: 12/22/2016 15:34 Environment: - Executed by: Frosiss Economou</p>	
<p>LOPS-1 BACKLOG It is definitely an issue</p>	<p>LOPS-T1 SMART JIRA availability</p>	<p>Failed Executed on: 12/23/2016 07:24 Environment: - Executed by: Brian Selvy</p> <p>Failed Executed on: 12/22/2016 16:07 Environment: - Executed by: Frosiss Economou</p> <p>Failed Executed on: 12/22/2016 15:34 Environment: - Executed by: Frosiss Economou</p>	



- Map Verification Plans to Test Cases
- Generate Test Scripts (steps) for each Test Case
- Sequence Test Cases into Test Runs
- Execute Test Runs
- Address failures with issue tickets
- Sync results back to MagicDraw

JIRA Workflow for Verification Tickets



- System Verification Team (SysVT) responsible for upfront planning
 - Generation of Verification Plans
 - Mapping to Verification Events (Test Cases)
 - Definition of Verification Events
- SysVT works with the Systems Scientist to Schedule activities
- Tickets get assigned to individuals responsible for the work. Core Commissioning Team (CCT) executes the Verification Events (Test Cases) and Analyzes Results
- SysVT Reviews the results and makes the determination on the sufficiency of the results to close out the Verification Event
- SysVT tracks verification progress



Verification Board (Test)
Kanban board

QUICK FILTERS: Only My Issues Recently Updated

9 Queue 2 Planned 0 In Progress 1 Done Release...

Queue

- LOPS-1
↑ It is definitely an issue
Dummy
None
- LOPS-3
↓ VerificationPlan1
Dummy
None
- LOPS-5
↑ VerificationPlan_ABC
Dummy
None
- LOPS-4
↑ Verification of The Summit Facility
SysEng
OSS-REQ-0002
- LOPS-6
↑ Verification_Demo
SysEng
None
- LOPS-7
↑ Verification_bms-kw
Dummy
None
- LOPS-8
↑ test
Dummy
None

Planned

- LOPS-12
↑ Filter Change
Dummy
None
- LOPS-13
↑ Filter Swap
Dummy
None

Done

- LOPS-9
↑ Filter Change
Dummy
None

Details for LOPS-11

Filter Change

Details

Status: BACKLOG

Component/s: Dummy

Labels: None

Affects Version/s: None

Fix Version/s: None

Epic: None

People

Reporter: Brian Selvy

Assignee: Frossie Economou

Dates

Created: 13/Jan/17 11:00 AM

Updated: 17/Jan/17 5:02 PM

Issue Links

[Add Link](#)

There are no linked issues

Description

There is no description content

Comments



- Develop requirements for test planning and execution tool to ensure Kanoah Tester meets all requirements (in work)
- Work with test execution tool vendor to modify tool to LSST's needs
- Begin using on subsystem AIV