

# **JAMA Project Plan for ADF-4000 Refresh**

**Rev 1.0**

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# 1 Scope

## 1.1 Purpose

This document describes the organization and structure of information stored in shared13 APP JAMA RCCAC (Rockwell Collins CETC Avionics Co., Ltd.) ADF-4000 Refresh project. Per the ADF-4000 Refresh SyDP[1], HDP[2], HVVP[4] and SDVP[3], the system MOPS requirements (Tier 3), the system URD requirements (Tier 4), the hardware requirements, the High-level software requirements, the Low-level software requirements, the System Integration Verification Cases, the Hardware Verification Cases and Procedures, and the Software Verification Cases will be stored in JAMA.

## 1.2 Applicability

This document defines the Jama project plan to be applied to ADF-4000 Refresh development.

## 1.3 Acronyms and Abbreviations

*Table 1-1 Acronyms*

Acronym	Definition
CC	Software Control Category
EPA	Engineering Project Assistant
HC	Hardware Control Category
HDP	Hardware Development Plan
HVVP	Hardware Validation and Verification Plan
MOPS	Minimum Operational Performance Standards
PDM	Product Data Management
RCCAC	Rockwell Collins CETC Avionics Co., Ltd.
SDVP	Software Development and Verification Plan
SC	System Control Category
SyDP	System Development Plan
URD	Unit System Level Requirements

# 2 References

## 2.1 Rockwell Collins Documents

N/A

## 2.2 RCCAC Documents

- [1] System Development Plan (SyDP) for the Automatic Direction Finder ADF-4000, RCCAC-946-7074-001

- [2] Hardware Development Plan (HDP) for the Automatic Direction Finder ADF-4000, RCCAC-946-7066-001
- [3] Software Development and Verification Plan (SDVP) for the ADF-4000, RCCAC-946-7071-001
- [4] Hardware Validation and Verification Plan (HVVP) for the Automatic Direction Finder ADF-4000, RCCAC-946-7067-001
- [5] Peer Review, RCCAC-ENG-G-601, Rev 1.2

## **2.3 Industry References**

- [6] SAE APR4754A Guidelines for Development of Civil Aircraft and Systems
- [7] RTCA DO-254 Design Assurance Guidance for Airborne Electronic Hardware
- [8] RTCA DO-178C Software Considerations in Airborne Systems and Equipment Certification

## **3 Definitions**

The following sections describe the terminology used in this document and the standard elements within the JAMA project.

### **3.1 JAMA**

Jama is a web based Requirements Management Solution. It manages requirements and maintains the version history for each requirement, maintains traceability of requirements, and provides electronic record function to record a test plan that run based on the detailed test steps.

Artifacts which may be captured in Jama include:

- Requirements
- Test Cases
- Test Procedures
- Test Results
- Traceability Records
- Review Records

### **3.2 Project**

It is the highest level of organization. It is a collection of Jama components stored together in a common folder.

### **3.3 Component**

It is a collection of sets and their related information.

### **3.4 Set**

It is a collection of items.

### **3.5 Item**

It is the lowest level of organization, and it is discrete piece of information. It can be many different types of information needed for a project. Types of information that can be entered into Jama are determined by the project team and set up by Jama administrator.

### **3.6 Attributes**

The text, graphics, and other information necessary to fully describe an item are stored in attributes to the item. Attributes can be defined by Jama administrator.

### **3.7 Relationship**

Relationships are used to link items together that are related, which is also known as "Traceability".

### **3.8 Baseline**

A baseline is a "snapshot" of items within a project at a certain point in time.

### **3.9 Version**

A version is one of a sequence of copies of an item, each incorporating new modifications.

### **3.10 Review**

A review represents the entire process of gaining consensus and approval of the requirements or a subset of requirements.

## **4 Configuration Management**

ARP4754A [6], DO-254 [7], and DO-178 [8] identify two categories of CM for data items. These categories are referred to as System Control Categories (SC1/SC2), Hardware Control Categories (HC1/HC2), and Software Control Categories (CC1/CC2) respectively. Control category 2 allows a less stringent configuration control for certain data items, while control category 1 requires all configuration management activities to be performed.

Jama is deployed by the RC IT and managed by the RCCAC engineering tool focal. Jama is considered to be SC2/HC2/CC2 compliance. It is planned that review records of artifacts in the Jama will be maintained in this database.

Some of the artifact(s) being reviewed in Jama may require SC1/HC1/CC1 retention. It is planned that the artifacts in Jama will be exported and submitted to Product Data Management (PDM) for long term retention. These will be exported after review at a point when the artifact is considered to be

finalized. Exporting of reviews is accomplished by generating the “Review Center Comments Report” for the review interest. At this time, the report is generated from the Project view by clicking “Reports” and then following the screens.

## 5 Usage

For ADF-4000 Refresh project, Jama is used for both developmental management of artifacts (requirements and test cases) and peer review. At a minimum, the following Jama item types will be used for ADF-4000 Refresh project:

- Component
- Folder (Set)
- System Tier 3 Requirement
- System Tier 4 Requirement
- System Verification Case
- Hardware Requirement
- Hardware Verification Case
- Hardware Verification Procedure
- Software Requirement
- Software Verification Case
- Text Item
- Checklist Item

The following subsections further describe the item types used by the ADF-4000 Refresh project. For each item type, required fields and optional fields are detailed.

### 5.1 System Tier 3 Requirement

The System Tier 3 Requirement item type is used for MOPS requirement capture. Examples include equipment performance under standard conditions, equipment performance under environmental conditions.

#### 5.1.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Global ID	globalId	Text Field	The Global ID (GID) is a unique identifier for a group of items connected within Jama for synchronization.	Autogenerated
Name	name	Text Field	Short summary of the requirement.	Plaintext



Label	Field	Field Type	Field Description	Field Value
Description	description	Text Box	The "shall" statement of a requirement.	RichText (Images/Tables)
_Req?	_req	Pick List	Used to indicate whether it is a requirement or not.	True/False/Not Applicable/No Value
_Source	_source	Multi Select	Used to indicate where the requirement comes from.	<input checked="" type="checkbox"/> N/A (Default) <input checked="" type="checkbox"/> RTCA <input checked="" type="checkbox"/> ARINC <input checked="" type="checkbox"/> TSO/FAR <input checked="" type="checkbox"/> Customer Spec <input checked="" type="checkbox"/> Tier 2 <input checked="" type="checkbox"/> Derived <input checked="" type="checkbox"/> ICD
Source Reference	source_refere nce	Text Field	Used to indicate the detailed section of the source.	Plaintext
_Allocate_To	_allocate_to	Multi Select	Used to indicate the ADF equipment allocation.	<input checked="" type="checkbox"/> ADF Antenna (Default) <input checked="" type="checkbox"/> ADF Receiver <input checked="" type="checkbox"/> ADF Control <input checked="" type="checkbox"/> ADF Bearing Indicator
Statement of Compliance	Statement_of_ compliance	Pick List	Explanation of compliance for a given object.	<input checked="" type="checkbox"/> Unassigned (Default) <input checked="" type="checkbox"/> Fully Compliant <input checked="" type="checkbox"/> Partially Compliant <input checked="" type="checkbox"/> Shared Compliance <input checked="" type="checkbox"/> Non-Compliant <input checked="" type="checkbox"/> N/A

Label	Field	Field Type	Field Description	Field Value
_Safety_Req?	_safety	Pick List	Used to indicate if requirement impacts the Safety Analysis or Hazard Assessment. If the requirement does impact either of these, this should be set to TRUE.	True/False/Not Applicable/No Value
_Verification_ Method	verification_m ethod	Pick List	This field indicates the method(s) used to verify a requirement. The number of methods needed is driven by the FDAL assignment.	<input checked="" type="checkbox"/> Inspection <input checked="" type="checkbox"/> Analysis <input checked="" type="checkbox"/> Demonstration <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> Not Verifiable <input checked="" type="checkbox"/> Test Unintended <input checked="" type="checkbox"/> Service History <input checked="" type="checkbox"/> Simulation <input checked="" type="checkbox"/> None <input checked="" type="checkbox"/> Unit Test <input checked="" type="checkbox"/> Software Integration Test

### 5.1.2 Optional Fields

Label	Field	Field Type	Field Description	Field Value
Deviation Rationale	deviation_rationale	Text Field	Explanation of compliance status and when a deviation/waiver exists.	Plaintext
_Comments	Text1	Text Box	Used to capture additional information regarding the requirement.	RichText (Images/Tables)
_FDAL	Text2	Text Box	Used to indicate the FDAL level.	C
CR Number	cr_number	Text Field	Used to indicate CR number(s) copied from Jira.	Plaintext
_CR_Links	cr_links	Text Field	Used to store Jira CR hyperlink(s).	Plaintext

## 5.2 Component

The Component item type is used to organize items by high-level functions. Examples include System Requirements, MOPS for ADF Equipment, Hardware Requirements, A1 Rear Interconnect, and A4 ADF.

### 5.2.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Name	name	Text Field	Name of the Component.	Plaintext

## 5.3 Folder (Set)

The Folder item type is used to organize items by lower-level function or grouping. Examples include A1 Assembly Hardware Requirements – Mechanical Requirements, Functional Requirements, A4 Assembly Hardware Requirements – Interface Requirements, Environmental Requirements.

### 5.3.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Name	name	Text Field	Name of the folder item.	Plaintext

## 5.4 System Tier 4 Requirement

The System Tier 4 Requirement item type is used for system URD requirement capture. Examples include interface requirements, interface definitions, and capability requirements.

### 5.4.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	document Key	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated

Label	Field	Field Type	Field Description	Field Value
Global ID	globalId	Text Filed	The Global ID (GID) is a unique identifier for a group of items connected within Jama for synchronization.	Autogenerated
Legacy DOORS OID	string1	Text Field	Used to indicate the existing ADF-4000 URD in RC DOORS.	Plaintext
Name	name	Text Field	Short summary of the requirement.	Plaintext
Requirement Description	description	Text Box	The "shall" statement of a requirement.	RichText (Images/Tables)
_Proposed_Change	Text1	Text Box	The proposed change description based on the existing RC requirement.	RichText (Images/Tables)
_Req?	Lookup6	Pick List	Used to indicate whether it is a requirement or not.	True/False/Not Applicable/No Value
_Safety_Req?	Lookup4	Pick List	Used to indicate if requirement impacts the Safety Analysis or Hazard Assessment. If the requirement does impact either of these, this should be set to TRUE.	True/False/Not Applicable/No Value
_Derived?	_derived	Pick List	Used to indicate if the requirement is a derived requirement or not. This field is marked "True" when the requirement is determined to be derived and marked "False" when not derived.	True/False/Not Applicable/No Value
_Allocate_To	allocate_to	Multi Select	Used to indicate the system requirement's allocation.	<ul style="list-style-type: none"> <li>✓ Unassigned (Default)</li> <li>✓ Not Applicable</li> <li>✓ Hardware</li> <li>✓ Software</li> <li>✓ Hardware &amp; Software</li> </ul>
_Req_Validation_Method	_req_validation_method	Multi Select	This field indicates the method(s) used to verify a requirement. The number of methods needed is driven by the FDAL assignment.	<ul style="list-style-type: none"> <li>✓ Traceability</li> <li>✓ Analysis</li> <li>✓ Test</li> <li>✓ Modeling</li> <li>✓ Similarity</li> </ul>

Label	Field	Field Type	Field Description	Field Value
				<input checked="" type="checkbox"/> Engineering Review <input checked="" type="checkbox"/> N/A
_Verification_ Method	Lookup1	Multi Select	This field indicates the method(s) used to verify a requirement. The number of methods needed is driven by the FDAL assignment.	<input checked="" type="checkbox"/> Inspection <input checked="" type="checkbox"/> Analysis <input checked="" type="checkbox"/> Demonstration <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> Not Verifiable <input checked="" type="checkbox"/> Test Unintended <input checked="" type="checkbox"/> Service History <input checked="" type="checkbox"/> Simulation <input checked="" type="checkbox"/> None <input checked="" type="checkbox"/> Unit Test <input checked="" type="checkbox"/> Software Integration Test <input checked="" type="checkbox"/> Domain-HW <input checked="" type="checkbox"/> Domain-SW

## 5.4.2 Optional Fields

Label	Field	Field Type	Field Description	Field Value
_Derived_Rationale	Text3	Text Box	Reason for derived requirement.	RichText (Images/Tables)
_Change_Rationale	_change_rationale	Text Box	Reason for proposed change.	RichText (Images/Tables)
_Comments	Text4	Text Box	Used to capture additional information regarding the requirement.	RichText (Images/Tables)
_FDAL	Text5	Text Box	Used to indicate the FDAL level.	C
CR Number	cr_number	Text Field	Used to indicate CR number(s) copied from Jira.	Plaintext
_CR_Links	cr_links	Text Field	Used to store Jira CR hyperlink(s).	Plaintext

## 5.5 System Verification Case

The System Verification Case item type is used to establish test cases that will be covered in one or more verification test procedures.

### 5.5.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Global ID	globalID	Text Filed	The Global ID (GID) is a unique identifier for a group of items connected within Jama for synchronization.	Autogenerated
_Case_Title	name	Text Field	Title of the Verification Case.	Plaintext
_Summary	description	Text Box	Template Text for: Purpose, Scope and Order of Operation.	RichText (Images/Tables)
_Verification_ Method	Lookup1	Pick List	This field indicates the method(s) used to verify a requirement. The number of methods needed is driven by the FDAL assignment.	<ul style="list-style-type: none"> <li>✓ Inspection</li> <li>✓ Analysis</li> <li>✓ Demonstration</li> <li>✓ Test</li> </ul>

Label	Field	Field Type	Field Description	Field Value
				<input checked="" type="checkbox"/> Not Verifiable <input checked="" type="checkbox"/> Test Unintended <input checked="" type="checkbox"/> Service History <input checked="" type="checkbox"/> Simulation <input checked="" type="checkbox"/> None <input checked="" type="checkbox"/> Unit Test <input checked="" type="checkbox"/> Software Integration Test <input checked="" type="checkbox"/> Domain-HW <input checked="" type="checkbox"/> Domain-SW
_Verification_Rationale	text1	Text Box	Justification for Verification Case	RichText (Images/Tables)
_Procedure_Titles	name	Text Field	Titles of the Verification Procedure(s).	Plaintext
_Procedure_Links	procedurelinks	Text Field	Used to store the relevant Verification Procedure(s) hyperlink(s).	Plaintext

## 5.6 Hardware Requirement

The Hardware Requirement item type is used for hardware requirement capture. Example include A1 rear interconnect board level requirements, and A4 ADF board level requirements.

### 5.6.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Global ID	globalId	Text Filed	The Global ID (GID) is a unique identifier for a group of items connected within Jama for synchronization.	Autogenerated
Name	name	Text Field	Short summary of the requirement.	Plaintext

Label	Field	Field Type	Field Description	Field Value
_Requirement _Description	description	Text Box	The "shall" statement of a requirement.	RichText (Images/Tables)
_Proposed_C hange	proposedchange	Text Box	The proposed change description based on the existing requirement.	RichText (Images/Tables)
_Req?	Lookup6	Pick List	Used to indicate whether it is a requirement or not.	True/False/Not Applicable/No Value
_Safety?	Lookup1	Pick List	Used to indicate if requirement impacts the Safety Analysis or Hazard Assessment. If the requirement does impact either of these, this should be set to TRUE.	True/False/Not Applicable/No Value
_Derived?	Lookup2	Pick List	Used to indicate if the requirement is a derived requirement or not. This field is marked "True" when the requirement is determined to be derived and marked "False" when not derived.	True/False/Not Applicable/No Value
_Verification_ Method	Lookup3	Pick List	This field indicates the method(s) used to verify a requirement. The number of methods needed is driven by the FDAL assignment.	<ul style="list-style-type: none"> <li>✓ Inspection</li> <li>✓ Analysis</li> <li>✓ Demonstration</li> <li>✓ Test</li> <li>✓ None</li> </ul>



### 5.6.2 Optional Fields

Label	Field	Field Type	Field Description	Field Value
_Derived_Rationale	Text3	Text Box	Reason for derived requirement.	RichText (Images/Tables)
_Allocate_to	_allocate_to	Text Field	Used to indicate the hardware requirement's allocation.	Plaintext
_Comments	text2	Text Box	Used to capture additional information regarding the requirement.	RichText (Images/Tables)
_CR_Number	_cr_number	Text Field	Used to indicate CR number(s) copied from Jira.	Plaintext
_CR_Links	_cr_links	Text Field	Used to store Jira CR hyperlink(s).	Plaintext

## 5.7 Hardware Verification Case

The Hardware Verification Case item type is used to establish test cases that will be covered in one or more verification test procedures.

### 5.7.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Global ID	globalID	Text Filed	The Global ID (GID) is a unique identifier for a group of items connected within Jama for synchronization.	Autogenerated
_Case_Title	name	Text Field	Title of the Verification Case.	Plaintext
_Summary	description	Text Box	Template Text for: Purpose, Scope and Order of Operation.	RichText (Images/Tables)
_Verification_Method	Lookup1	Pick List	This field indicates the method(s) used to verify a requirement. The number of methods needed is driven by the FDAL assignment.	<input checked="" type="checkbox"/> Inspection <input checked="" type="checkbox"/> Analysis <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> None
_Verification_Rationale	text1	Text Box	Justification for Verification Case	RichText (Images/Tables)
_Procedure_Titles	name	Text Field	Titles of the Verification Procedure(s).	Plaintext
_Procedure_Links	procedurelinks	Text Field	Used to store the relevant Verification Procedure(s)' hyperlink(s).	Plaintext

## 5.8 Hardware Verification Procedure

The Hardware Verification Procedure item type include the steps needed to verify the associated requirement(s). This will include steps required to perform the procedure, regardless of the verification method.

### 5.8.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Global ID	globalID	Text Filed	The Global ID (GID) is a unique identifier for a group of items connected within Jama for synchronization.	Autogenerated
_Procedure_Title	name	Text Field	Title of the Verification Procedure.	Plaintext
_Summary	description	Text Box	Description of the procedure.	RichText (Images/Tables)
_Steps	testproceduresteps	Steps	Series of steps to be performed as part of test.	Test Procedure Steps
_Case_Titles	name	Text Field	Titles of the Verification Case(s).	Plaintext
_Case_Links	caselinks	Text Field	Used to store the relevant Verification Case(s)' hyperlink(s).	Plaintext

## 5.9 Software Requirement

The Software Requirement item type is used for software requirement capture. Example include high and low level requirements for ADF application, boot, and program loader.

### 5.9.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Global ID	globalId	Text Filed	The Global ID (GID) is a unique identifier for a group of items connected within Jama for synchronization.	Autogenerated
Name	name	Text Field	Short summary of the requirement.	Plaintext
_Requirement _Description	description	Text Box	The "shall" statement of a requirement.	RichText (Images/Tables)
_Proposed_C hange	proposedchange	Text Box	The proposed change description based on the existing requirement.	RichText (Images/Tables)

Label	Field	Field Type	Field Description	Field Value
_Req?	Lookup6	Pick List	Used to indicate whether it is a requirement or not.	True/False/Not Applicable/No Value
_Safety?	Lookup1	Pick List	Used to indicate if requirement impacts the Safety Analysis or Hazard Assessment. If the requirement does impact either of these, this should be set to TRUE.	True/False/Not Applicable/No Value
_Derived?	Lookup2	Pick List	Used to indicate if the requirement is a derived requirement or not. This field is marked "True" when the requirement is determined to be derived and marked "False" when not derived.	True/False/Not Applicable/No Value
_Verification_ Method	Lookup3	Pick List	This field indicates the method(s) used to verify a requirement. The number of methods needed is driven by the FDAL assignment.	<input checked="" type="checkbox"/> Inspection <input checked="" type="checkbox"/> Analysis <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> None

## 5.9.2 Optional Fields

Label	Field	Field Type	Field Description	Field Value
_Derived_Rationale	Text3	Text Box	Reason for derived requirement.	RichText (Images/Tables)
_Comments	text2	Text Box	Used to capture additional information regarding the requirement.	RichText (Images/Tables)
_CR_Number	_cr_number	Text Field	Used to indicate CR number(s) copied from Jira.	Plaintext
_CR_Links	_cr_links	Text Field	Used to store Jira CR hyperlink(s).	Plaintext

## 5.10 Software Verification Case

The Software Verification Case item type is used to establish test cases that will be covered in one or more verification test procedures.

### 5.10.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Global ID	globalID	Text Filed	The Global ID (GID) is a unique identifier for a group of items connected within Jama for synchronization.	Autogenerated
_Case_Title	name	Text Field	Title of the Verification Case.	Plaintext
_Summary	description	Text Box	Template Text for: Purpose, Scope and Order of Operation.	RichText (Images/Tables)
_Verification_Method	Lookup1	Pick List	This field indicates the method(s) used to verify a requirement. The number of methods needed is driven by the FDAL assignment.	<input checked="" type="checkbox"/> Inspection <input checked="" type="checkbox"/> Analysis <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> None
_Verification_Rationale	text1	Text Box	Justification for Verification Case	RichText (Images/Tables)
_Procedure_Titles	name	Text Field	Titles of the Verification Procedure(s).	Plaintext
_Procedure_Links	procedurelinks	Text Field	Used to store the relevant Verification Procedure(s)' hyperlink(s).	Plaintext

## 5.11 Text Item

The Text item type is used to provide overview information.

### 5.11.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Global ID	globalId	Text Filed	The Global ID (GID) is unique identifier for a group of items connected within Jama for synchronization.	Autogenerated
Name	name	Text Field	Name of the text item.	Plaintext
Description	description	Text Box	Description of the text item.	RichText (Images/Tables)

### 5.11.2 Optional Fields

Label	Field	Field Type	Field Description	Field Value
Comments	text2	Text Box	Used to capture additional information regarding the item.	RichText (Images/Tables)

## 5.12 Checklist Item

The Checklist item type is used to organize checklists which are part of the peer review been conducted in the Jama Review Center.

### 5.12.1 Required Fields

Label	Field	Field Type	Field Description	Field Value
Project ID	documentKey	Text Field	The ID (Key) is unique identifier for each item within Jama. This ID (Key) cannot be duplicated.	Autogenerated
Global ID	globalId	Text Filed	The Global ID (GID) is unique identifier for a group of items connected within Jama for synchronization.	Autogenerated
Name	name	Text Field	Name of the text item.	Plaintext
Description	description	Text Box	Description of the text item.	RichText (Images/Tables)

### 5.12.2 Optional Fields

Label	Field	Field Type	Field Description	Field Value
Comments	text2	Text Box	Used to capture additional information regarding the item.	RichText (Images/Tables)

## 6 Jama Peer Review

In addition to requirements management Jama also supports capability for peer review. This function is accessible by selecting “Reviews” in the top left corner of Jama. Jama manages each change made to items over time and provides access to:

- Previous baselines (allows users to recover older versions of items)
- Comment and Review history
- Ability to compare baselines

When scheduling a review, Jama provides fields to communicate the following to reviewers:

- Items for Review
- Meeting Date
- Review Deadline
- Select Reviewers and Roles (Approver or Reviewer)
- Subject (Summary)
- Review Instruction (Description)

Notification of the review will be sent to the selected reviewers. Due to security concerns Jama does not send notifications to Google Gmail, so notifications are sent out manually to contributors. The review leader and/or engineering project assistant (EPA) should send a meeting review/desk review invitation in Google Gmail to all reviewers notifying them of the review.

The roles in Jama are:

- **Moderator:**  
This role facilitates the review. This role will be represented by the leader/presenter. The quality focal may also be assigned the moderator role to facilitate oversight. The EPA may also be assigned the moderator role.
- **Approver:**  
This role is for mandatory reviewers. The technical reviewer will be invited as an approver.
- **Reviewer:**  
This role is for additional reviewers. If the moderator is not the developer/author then this reviewer role will be used. If the quality focal is not given a moderator role then this reviewer role will be used. When the review is for a requirements document then safety engineer will be invited as a reviewer.

When scheduling a review, the roles information will be entered into the “Review Instruction” field, reference materials used in the review will be entered into the “Review Instruction” field, associated change requests or problem reports will be entered into the “Review Instruction” field. In addition, checklists used in the review will be entered into the “Review Instruction” field also.

For ADF-4000 Refresh project, the “Review Instruction” should be included in the manual Gmail notification.

### Review instructions:

**Scope:**

*Identify scope of the review*

**Roles:**

Moderator – *Identify contributor*

Reviewer – *Identify contributor*

Approver – *Identify contributor*

Quality focal – *Identify contributor*

Safety – *Identify contributor if required. If not required for this artifact type then list N/A*

**CRs/PRs:**

*Identify any CRs or PRs associated with the artifact under review.*

**References:**

*Identify any references that the reviewers need to be aware of.*

**Checklists:**

*Identify any checklists that the reviewers need to be aware of, and the main reviewer needs to complete.*

Review feedback in Jama is handled on each item individually. Refer to section 5 for a list of applicable Jama item types for the ADF-4000 Refresh project. Remarks are captured as comments in each Jama item. All reviewers have the ability to add comments using the following types:

- **General Comment**  
This field is used to identify and record general remarks/issues.
- **Question**  
This field is used to identify and record questions which require clarification.
- **Proposed Change**  
This field is used to identify and record opportunities/proposals for improving the artifact.
- **Issue**  
This field is used to identify and record remarks/issues.

In addition, once a reviewer adds a comment all other reviewers have the ability to reply to that comment or select “Agree” to support the comment.

For ADF-4000 Refresh project, when raising a finding the “Proposed Change” type should be used. For any circumstance, it is recommended to raise findings independently, in other words, do not reply to others’ proposed changes. And duplicated findings should be avoided by selecting “Agree” to support the comment.

Depending on the role assigned each reviewer shall select from the following options in each item.

For Approver

- **Approved**



This indicates that the object has been reviewed and accepted. Note that an approver should not select “approve” if another contributor has unresolved comment type.

- **Needs more work**

This indicates that the object has been rejected. If it is rejected, then there must be a rationale declared.

#### For Reviewer

- **Reviewed**

This indicates that the object has been reviewed and that the reviewer has no more comment.

- **Unreviewed**

This indicates that the reviewer has not evaluated this object yet. This value is selected by default until changed to Reviewed.

When an Approver does not select one of these options on an object that indicates the review on that object has not yet been completed by the reviewer. If any Approver or Reviewer has a question or proposed change then they should add the corresponding comment types without selecting either option.

For ADF-4000 Refresh project, the Main Reviewer is the Approver. The Main Reviewer is responsible for approving or rejecting each object, and also responsible for completing the corresponding checklist(s). Refer Figure 1 and section 6.2.6 for details.

Currently Jama does not send a verification request when an object is modified to resolve an issue. Rather the implementer will revise the artifact and publish an update to the artifact, and then manually send an email notification to all review participants stating that a new version of the review is available. This will trigger the reviewers to review the updates for issues that they have listed.

A review is complete when:

- It can be demonstrated that each object has been accepted by at least one approver.
- All issues have been replied, even if marked as “approved”. The originator of the issue must approve of the response.
- All questions have been answered. If the originator of the question has issue with the response, a corresponding issue should be created.
- Proposed changes have been evaluated and implemented. These may be declined by the moderator and explanation should be provided in such case.

For ADF-4000 Refresh project, besides the main reviewer who will ensure all objects are approved, the quality focal will also ensure all objects are properly handled by accepting all objects.

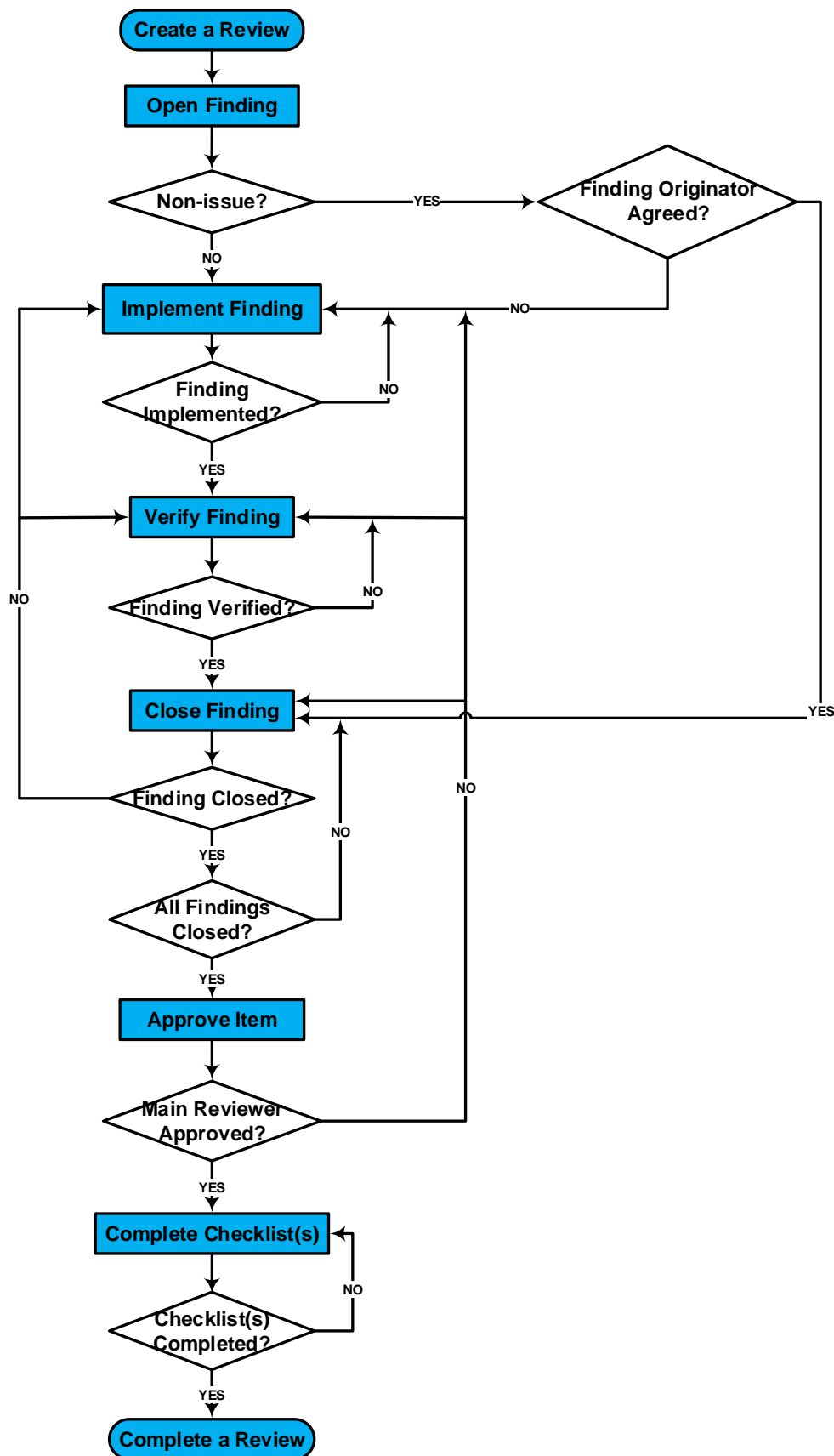
Jama requires to publish an update to address issues, the output version can be interpreted by the last review baseline to be published which does not contain any issues. Also the output version of a review will not contain questions or proposed updates that do not have a response.

For ADF-4000 Refresh project, each baseline version shall be exported into PDF file and stored in the corresponding cloud SVN folder.

## **6.1 Jama Review Center Peer Review Process**

According to [5] the Jama based peer review process is described in Figure 1. For ADF-4000 Refresh project, JV and RC will participate in the same review, which means there will not be separated JV internal review and RC review. To be more efficient, RC reviewers will be invited into the review only when JV approver and JV quality focal ensure that the review artifact is stable enough for RC review. In case of non-stable review artifact, JV quality focal has authority to cancel the review. In addition, for each review, multiple approvers (JV approver and RC approver) can be assigned when needed. In any case of uncertain or conflict, JV TPM has the final authority to make decision.

Figure 1 – Jama Review Center based Peer Review Process



## 6.2 Jama Peer Review Golden Rules for ADF-4000

For ADF-4000 Refresh project, the following rules are recommended when conducting a peer review via Jama Review Center.

### 6.2.1 Create a Review

When selecting “Items for Review”, there should be no more than 250 items for a review.

The naming convention for “Review Name” is ADF-XXXX-YYY-ZZZZ. The XXXX is a four digital value, YYY stands for system/hardware/software (SYS/HW/SW), and ZZZZ is the acronym for its review content. For example, “ADF-0001-SYS-MOPS” is a review for system MOPS requirements. “ADF-0002-SYS-URD” is a review for system unit requirements. “ADF-0003-SYS-MOPS & URD” is a review for system MOPS requirements and URD requirements. “ADF-0004-SW-HLR” is a review for software high level requirements. The four digital value “XXXX” is maintained manually by register a Jama review in the ADF\_Master\_Peer\_Review\_List located at cloud SVN ([https://apps.shared13-1corpjv.com/scm/svn/RCCAC\\_Engineering/Engineering\\_Peer\\_Review/ADF\\_Master\\_Peer\\_Review\\_List.xlsx](https://apps.shared13-1corpjv.com/scm/svn/RCCAC_Engineering/Engineering_Peer_Review/ADF_Master_Peer_Review_List.xlsx))

The “Review Deadline” should be set as long as possible, since Jama will automatically close a review when the deadline is reached, no matter how the actual review status is. Once a review is closed, it can be found only in the “Completed Reviews” page. The target review deadline should be highlighted via the review notification email, and quality focal will be responsible for monitoring the date.

When configuring Optional Settings, the checkbox “Enable time tracking” should be selected. And the checkbox “Include related items in review” should be selected when needed. For example, to show upstream and/or downstream related items in the review.

The screenshot shows the 'Create Review' window in Jama Review Center. The 'Review Settings' tab is selected. The 'Project' field contains 'tryDuplicate of ADF-4000 Refresh'. The 'Items for Review' field is 'Select items...'. The 'Review Name' field is 'Review Name'. The 'Review Deadline' is set to '02/19/2018' at '17:00 CST'. In the 'Optional Settings' section, 'Enable time tracking' and 'Include related items in review' are checked. The 'Voting' section shows 'Votes Per User' as 10 and 'Voting Label' as 'Vote for Priority'. The 'Next' button is highlighted in blue.

When selecting reviewers, the role independence should be considered, for example, the finding implementer and verifier should not be the same person. And the following checkbox should be selected:

- Require electronic signature from approvers
- Permission Options – Let approvers add reviewers (give feedback only) and approvers
- Permission Options – Let approvers delegate their review to others

The quality focal and EPA should be set as moderator via Edit Review.

The screenshot shows the 'Create Review' window with the 'Review Settings' tab selected. The 'Permission Options' section on the right contains three checkboxes: 'Make this public: everyone has permission to "read only"' (unchecked), 'Let approvers add reviewers (give feedback only) and approvers' (checked and circled in red), and 'Let approvers delegate their review to others' (checked and circled in red). At the bottom, the checkbox 'Require electronic signature from approvers' is also checked and circled in red. The 'Selected Reviewers' list is empty, and the 'Project Team' list on the left includes users like Adina Roffelsen, Alfred Qiao, Alice Rines, etc.

When customizing invitation, a meeting review/desk review invite should be manually sent via Google Gmail to all reviewers notifying them of the review. And this email should contain **Review instructions**, such as review scope, related CRs/PRs, related references, etc. And the Jama review link can be copied from the Customize Invitation page.

Subject: C919 REVIEW: Component: System

To: Reviewers

Review Instructions: You are invited to a Jama review of Component: System. To begin your review and provide feedback, copy and paste the link below into a web browser.

<https://apps.shared13-1corpjv.com/rccacjama/review.req#r:REV-??>

The due date to complete this review is Monday, February 19th at 17:00 CST

Thank you,  
Di Zhang

Cancel Previous Begin Review

## 6.2.2 Open Findings

When raising a finding, the “proposed change” type instead of “issue” or “general comment” or “question” type should be used. The reviewer should raise findings independently, and should not reply to other reviewers’ proposed changes. Instead the reviewer can agree to other reviewers’ proposed changes. And the reviewer should avoid raising duplicate finding.

Add Highlight

Text highlighted: Refresh shall be capable of selecting any assign...

Submit Feedback

This is a proposed change

## 6.2.3 Implement Findings

When replying a finding, one of the following key words should be used:

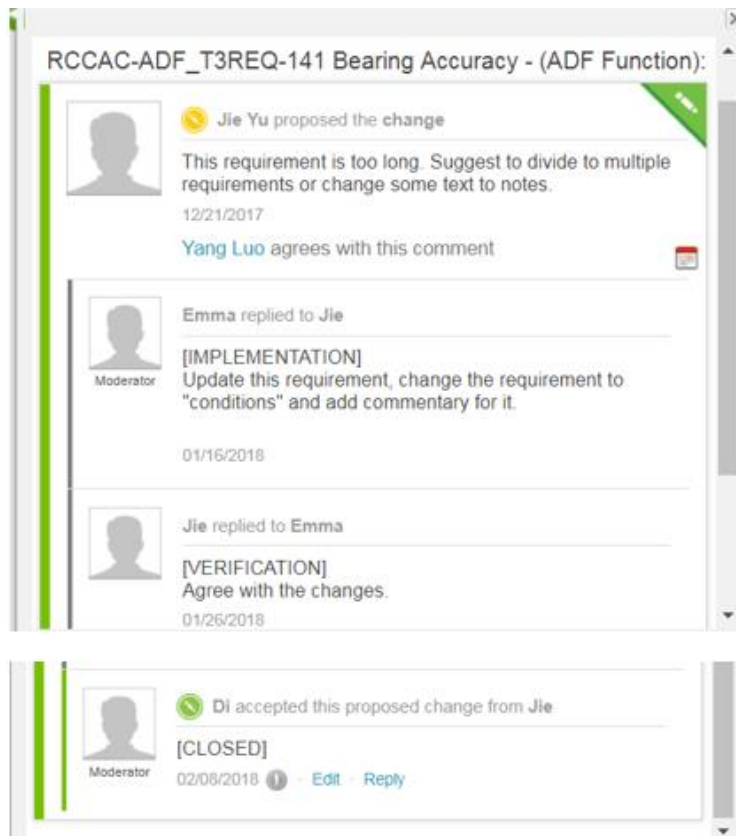
- [IMPLEMENTATION] the implementer should describe resolution in details, simple reply “updated, added, fixed, addressed.....” is not acceptable.
- [NON-ISSUE] the implementer should describe rationale why propose the finding as non-issue, and keep the item as it is.

## 6.2.4 Verify Findings


When verifying a finding, one of the following key words should be used:

- [VERIFICATION] the verifier should describe what has been verified. If it is straightforward case, then simple reply “verified” is acceptable.
- [REOPEN] is used when further issue is detected for the finding implementation.

Below are examples of comments styles of opening, implementing and verifying findings.




RCCAC-ADF\_T3REQ-144 Audio Output Level Variation With Loa...

 **Luo Wenchao** proposed the change


There are one more "shall" in this requirement, suggest splitting it into several separate requirements with only one "shall" in each requirement.

01/15/2018

 **Emma** replied to Luo


**[IMPLEMENTATION]** Divide this requirement to two requirements and update the trace.

01/16/2018

 **Luo** replied to Emma


**[REOPEN]** What is the ID of the new requirement?

01/29/2018

 **Emma** replied to Luo


**[IMPLEMENTATION]** Divide this requirement to two requirements and update the trace. The ID of the other requirement is RCCAC-ADF\_T3REQ-153. Please verify it again.

02/05/2018 [Delete](#) [Reply](#) [Agree](#)

 **Luo** replied to Emma

**[VERIFICATION]** Agree with the changes. The ID of the other requirement is RCCAC-ADF\_T3REQ-153.

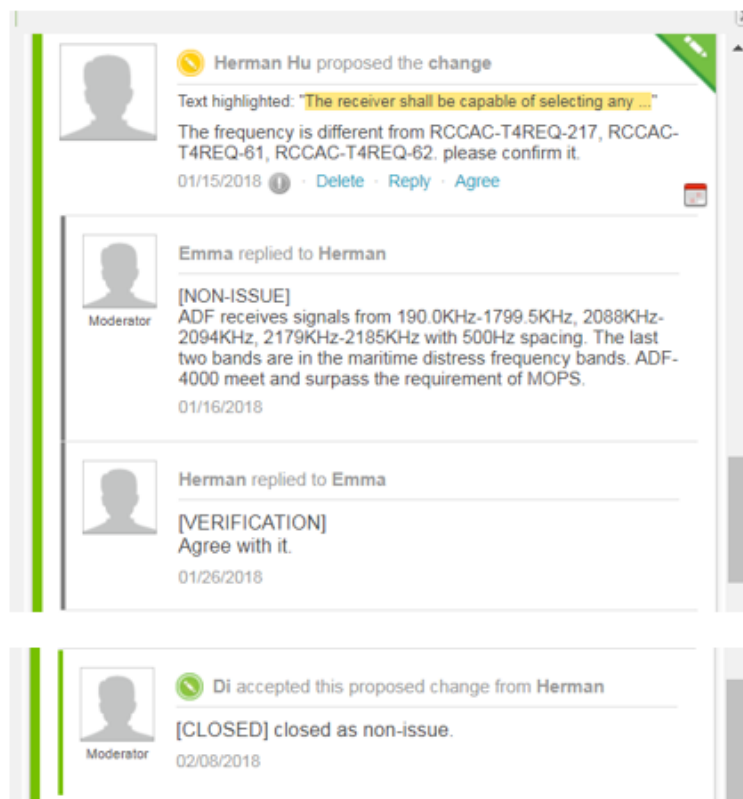
02/06/2018

 **Di** accepted this proposed change from Luo

**[CLOSED]**

02/08/2018





## 6.2.5 Close Findings

The quality focal is responsible of closing findings. A key word [CLOSED] should be used when closing a finding. If the finding is not ready to be closed, then quality focal will reopen the finding or communicate with the corresponding engineer to make up missing information. The quality focal will ensure all findings are closed on the process aspect.

## 6.2.6 Approve Items

The main reviewer is responsible of approving items. Each item is either be approved or be rejected (need more work). When rejecting an item, the main reviewer should describe rationale why the item (finding) needs more work. The main reviewer will ensure all items are approved on the technical aspect.

## 6.2.7 Complete Checklists

The main reviewer is responsible of completing checklists. The checklists may include a leader checklist and other technical checklists, which should be defined in the corresponding development plans. Refer to the section 6.3 for how to organize and use checklists in Jama peer review.

## 6.2.8 Complete a Review

The quality focal or EPA is responsible of close a review. A review can be closed when the following criteria are fulfilled:

- Each finding has been in closed status and approved by at least one approver.

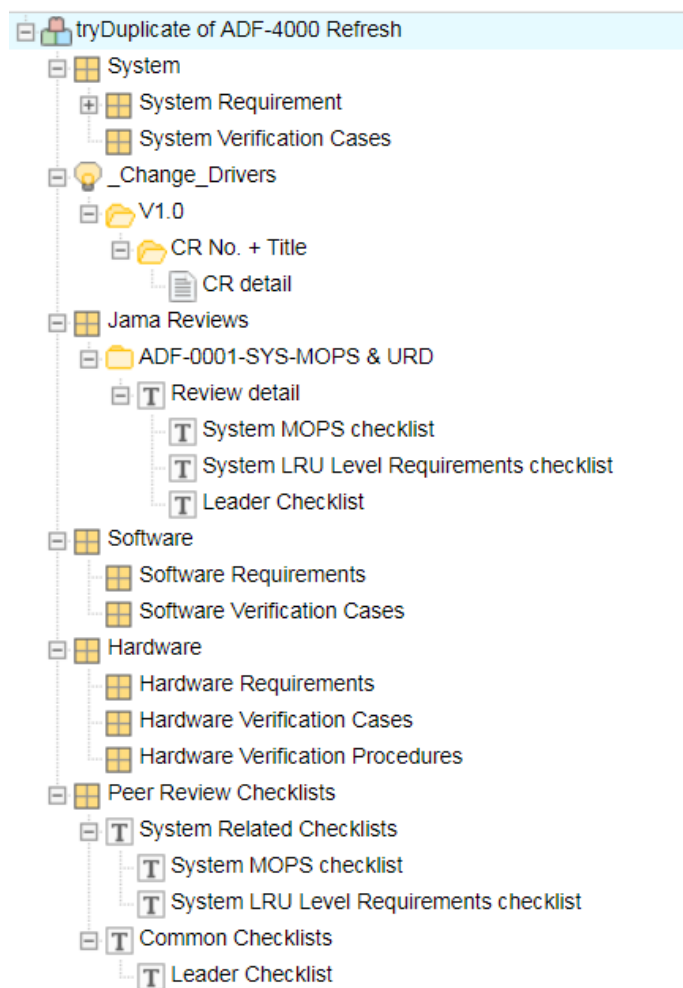
- The common leader checklist and technical specific checklist(s) have been completed.
- The approved baseline version has been exported into PDF file and stored in the corresponding cloud SVN folder.

In the case there is no finding raised during the review, the review can be closed when the following criteria are fulfilled:

- Each item has been approved by at least one approver.
- The common leader checklist and technical specific checklist(s) have been completed.
- The approved baseline version has been exported into PDF file and stored in the corresponding cloud SVN folder.

## 6.3 Organize and Use Checklists in Jama Peer Review

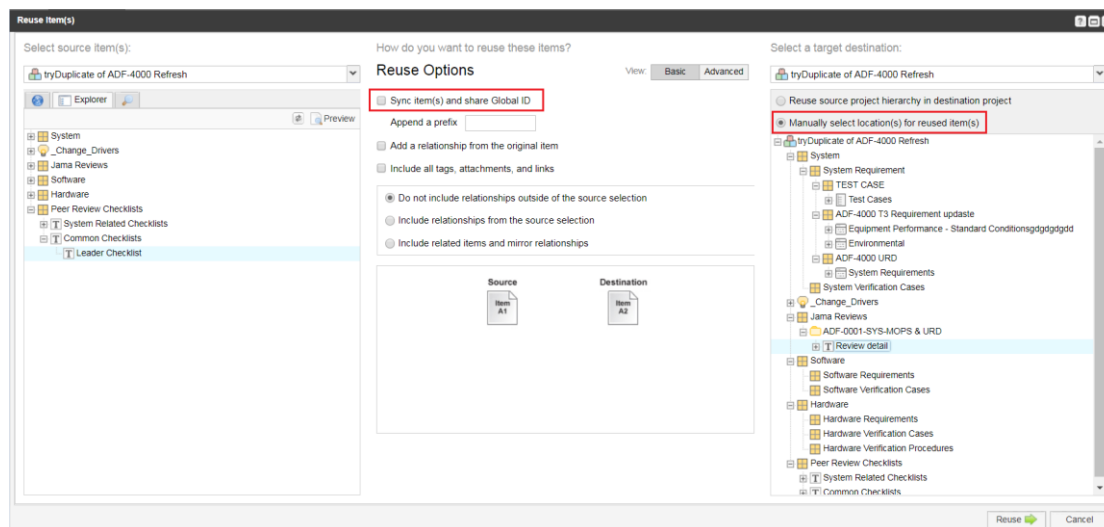
Jama Review Center does not support checklist very well, thus for ADF-4000 project Jama peer review associated checklist(s) will be organized outside of the Jama Review Center. The Peer Review Checklists component will be used to organize all checklists including the common leader checklist and technical specific checklists. Below is an example of ADF-4000 Jama project components structures.



Not baselined artifacts triggered Jama peer reviews will be organized under the Jama Reviews component, while baselined artifacts triggered Jama peer reviews will be organized under the Change

Drivers component. The folder name under the Jama Reviews component is the same as the corresponding “Review Name” in the Jama Review Center, such as ADF-0001-SYS-MOPS & URD. The review detail item contains hyperlink to the review in the Jama Review Center. The folder name under the Change Drivers component is named by using CR No. plus CR Title, such as RCCACMA-1 Project plan updates per schedule change. The CR detail item contains hyperlink to the change request in the Jira ADF Change Request Project.

For each Jama peer review the associated checklist(s) need to be added manually by “Reuse Item(s)” of the checklist from the corresponding Checklist item. When reusing an item, for Reuse Options, unselect the checkbox of “Sync item(s) and shared Global ID” and select the radio button of “Manually select location(s) for reused item(s)”.



After the main reviewer approved all review items, he/she needs to switch to the project view, locate the corresponding Jama review folder, and then complete all required checklists. The quality focal will ensure all required checklists have been completed before allowing to close the review.