INTERSYSTEMS LEARNING SERVICES

InterSystems Change Control

InterSystems®
Creative data technology

InterSystems Change Control

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ICC 200: Introduction to CCR

InterSystems
Creative data technology

Overview

- What is CCR?
- What is Perforce?
- Environments and Systems.
- Basic navigation within CCR.
- CCR Transport Basics.
- CCR Tiers.
- CCR workflow vocabulary.
- Little and often principle.
- Resources.

Objectives

- Explain what the CCR application is and why it’s important.
- Describe why CCR uses Perforce.
- Describe the following terms.
  - CCR Tier 0, 1, and 2.
  - CCR Systems and environments.
  - CCR Transport.
- Define the concept of little and often.
- Access the CCR online application and perform basic navigation.
- Access additional resources for learning and questions.

Change Control Record Application (CCR)

- Custom workflow application built on InterSystems IRIS.
  - Application centrally hosted by InterSystems.
- Manages documentation, versioning, and flow of changes to application implementations.
  - Change = anything that could impact application functionality.
- “CCR” refers to application and individual change records.
- Many workflow options.
- Robust security model.
  - Only InterSystems employees can view records and code from other organizations.

Perforce Helix

- Commercial Version Control System (VCS).
  - Database for flat file items.
    - Central storage for code and configuration.
  - Provides full versioning capabilities.
- CCR uses Perforce to:
  - Version exportable changes (code and configuration).
  - Automate merging of changes through workflow.
  - Provide snapshot of operating environment.
- Customers using CCR receive Perforce licenses.
  - Only able to access Perforce through CCR application.

CCR Functionality

- Allow thorough documentation.
  - Fields for user to complete and automatically generated audit trails.
- Interact with Perforce on behalf of user.
- Facilitate movement of changes between Perforce and environments.
- Provide formal and recorded peer review.
- Provide formal and recorded authorization to move changes.

CCR Scope of Use

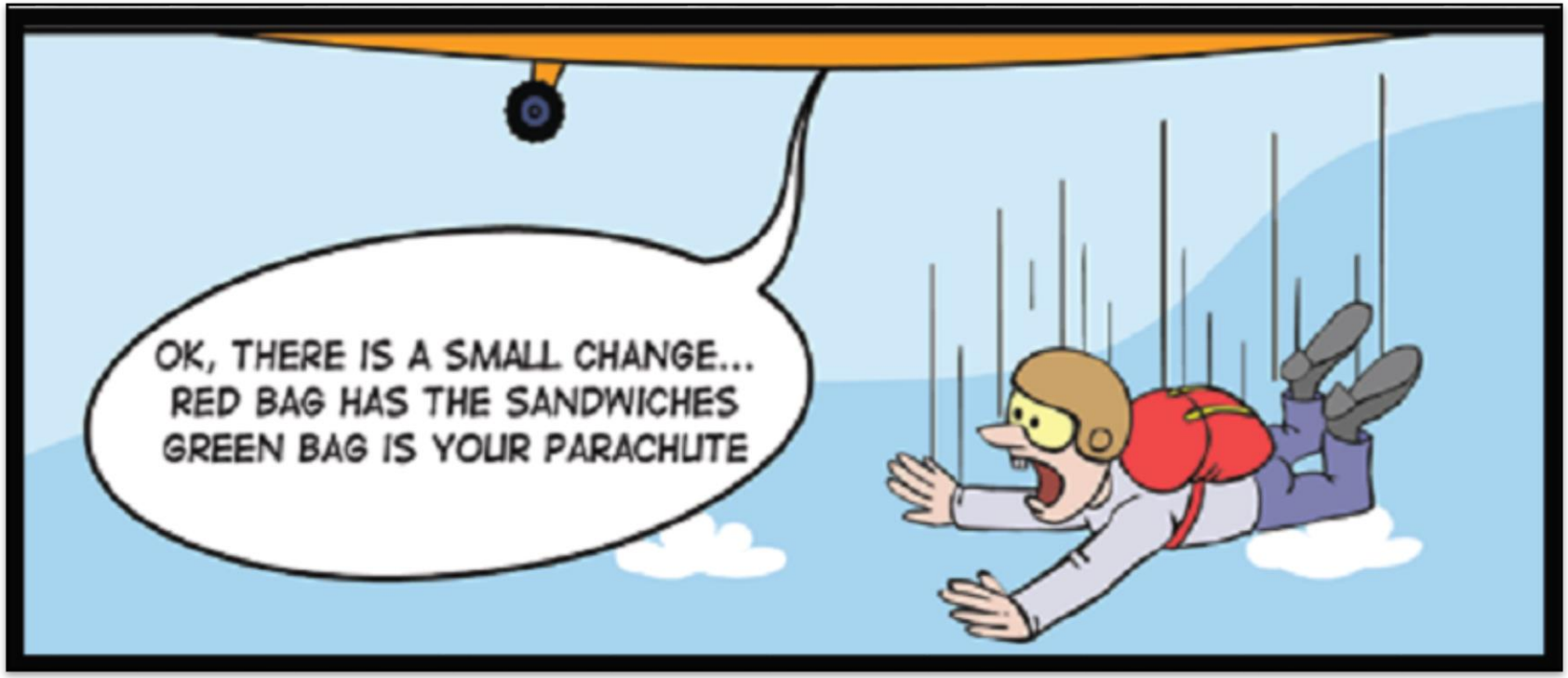
- Can be used in any phase of project.
  - Early development with one environment to multi-environment workflow for business as usual changes.
- Users include anyone making, managing, or searching for changes made to an implementation.
  - Developers, project managers, support personnel.
- Organizations that use CCR include:
  - InterSystems.
  - Implementation partners / third party consultants.
  - End user customers.

CCR First Principles and Benefits of Using CCR

- CCR First Principles guide functionality of CCR.
  - Repeatable.
  - Revertible.
  - Discoverable.
- Benefits of using CCR include:
  - Identify recent changes during crisis.
  - Identify how to replicate changes in a new environment.
  - Catch missed implications and verify best practices followed.
  - Prevent unauthorized changes.

Small Change ≠ Small Risk

- All changes should go through CCR process.
  - Including those involving non-exportable items.



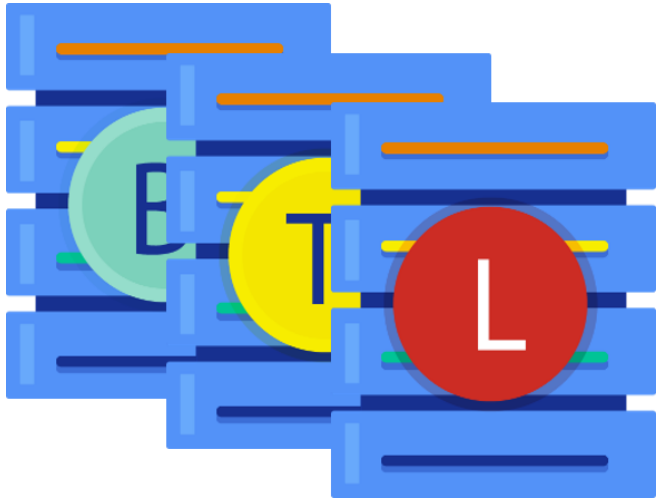
Part 1: CCR Environments and Systems

CCR Environment

- Hardware and software that provides standalone copy of functionality for an application.
- Example: one namespace of IRIS for Health with application code and configuration, on server running Red Hat.

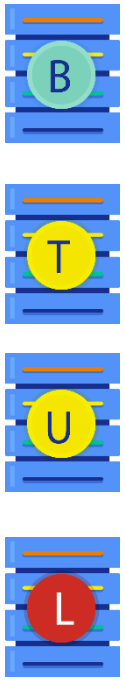
CCR System

- All environments included in workflow for particular application.
- Systems can be defined to have 1, 2, 3 or 4 Primary Environments.



4 Possible Primary CCR Environments

- BASE.
  - Initial environment where all changes originate.
    - Exception: LIVE-only Systems.
- TEST.
  - Testing environment for validation.
- UAT.
  - Secondary testing environment.
- LIVE.
  - Production environment.

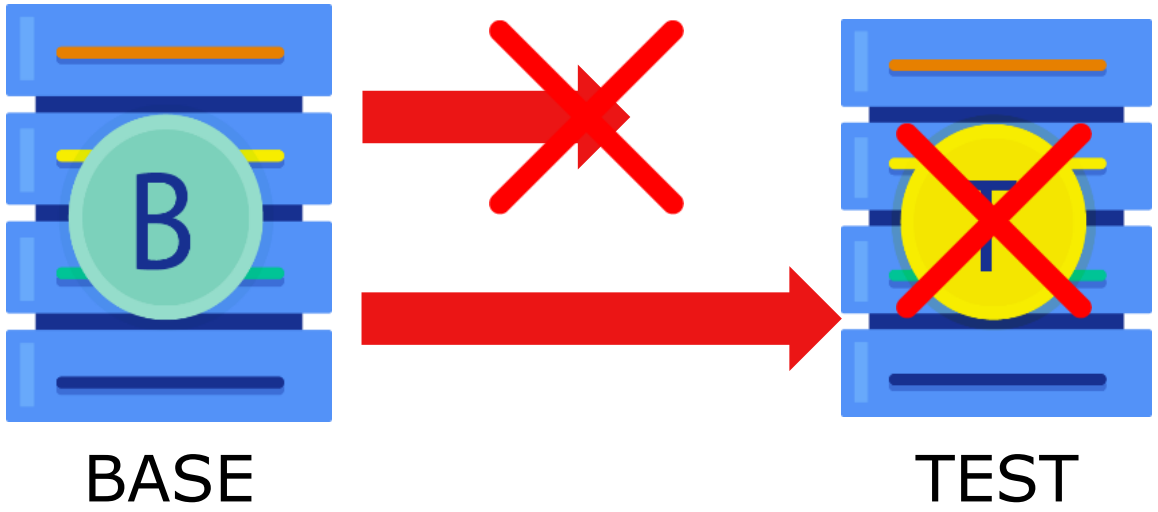


Possible Environments in System

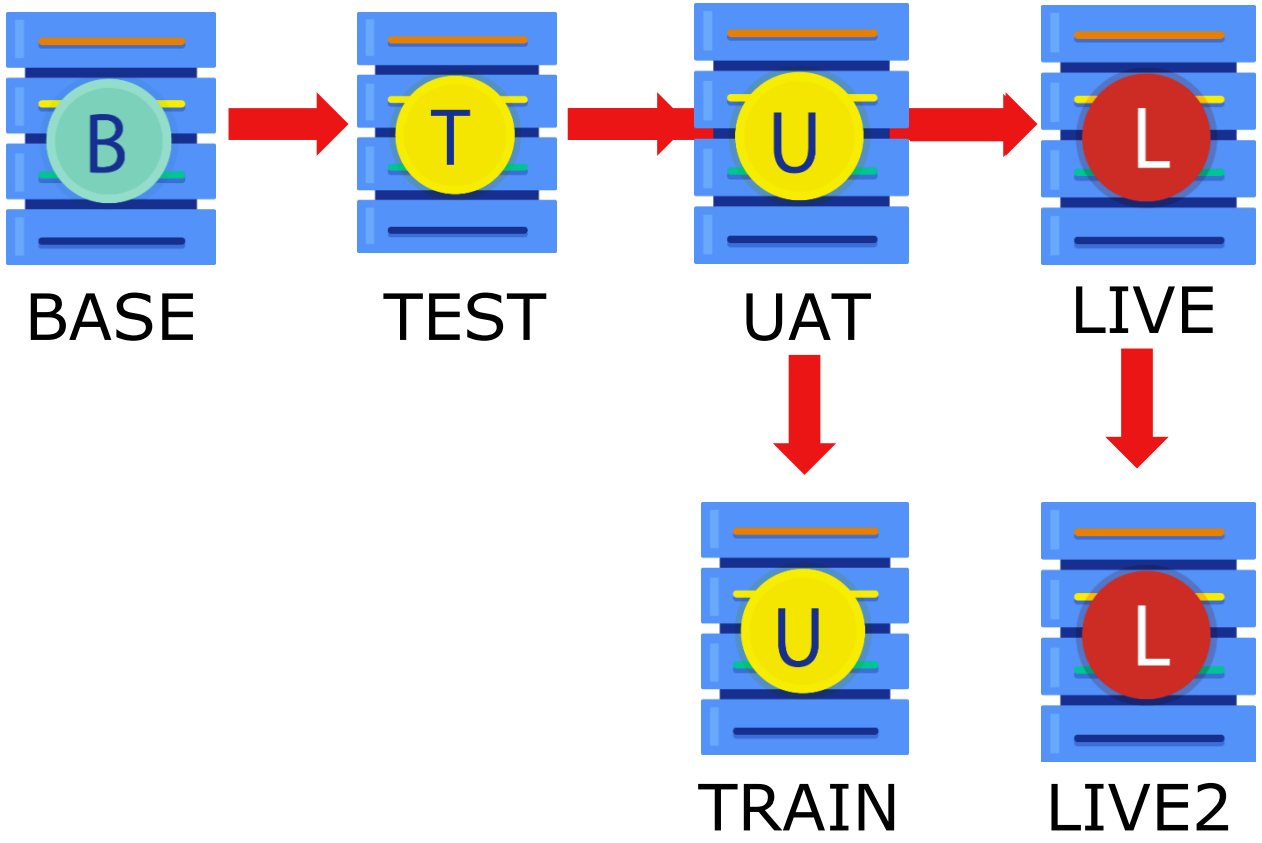
- 1 environment:
  - BASE or LIVE only.
- 2+ environments:
  - 1 must be BASE.
- Most common to have BASE, TEST, and LIVE.
- Non-BASE environments in multi-environment workflows:
  - Locked from manual changes outside CCR process.
  - Require customer authorization to receive changes.

Why multiple environments?

- Process of moving changes is tested.
  - Moving a change can fail.
- Functionality tested.
  - Isolating changed items helps verify functionality.
  - The change can fail to meet requirements or specifications.



Change Flow through Environments



Primary environments

Secondary environments

Quiz: CCR Environments

Question:

What are the three most common CCR Primary Environments called?

A. SCRATCH. ✗

B. BASE. ✓

C. TEST. ✓

D. TRAIN. ✗

E. UAT. ✗

F. LIVE. ✓

Quiz: CCR Environment Usage

Question:

In which CCR environment must all changes originate if there are 3 environments in the System?

A. TEST.

B. BASE.

C. LIVE.

Answer:

B. BASE. All changes take place in BASE first prior to being moved to other environments in the CCR System.

Part 2: Introduction to CCR Application

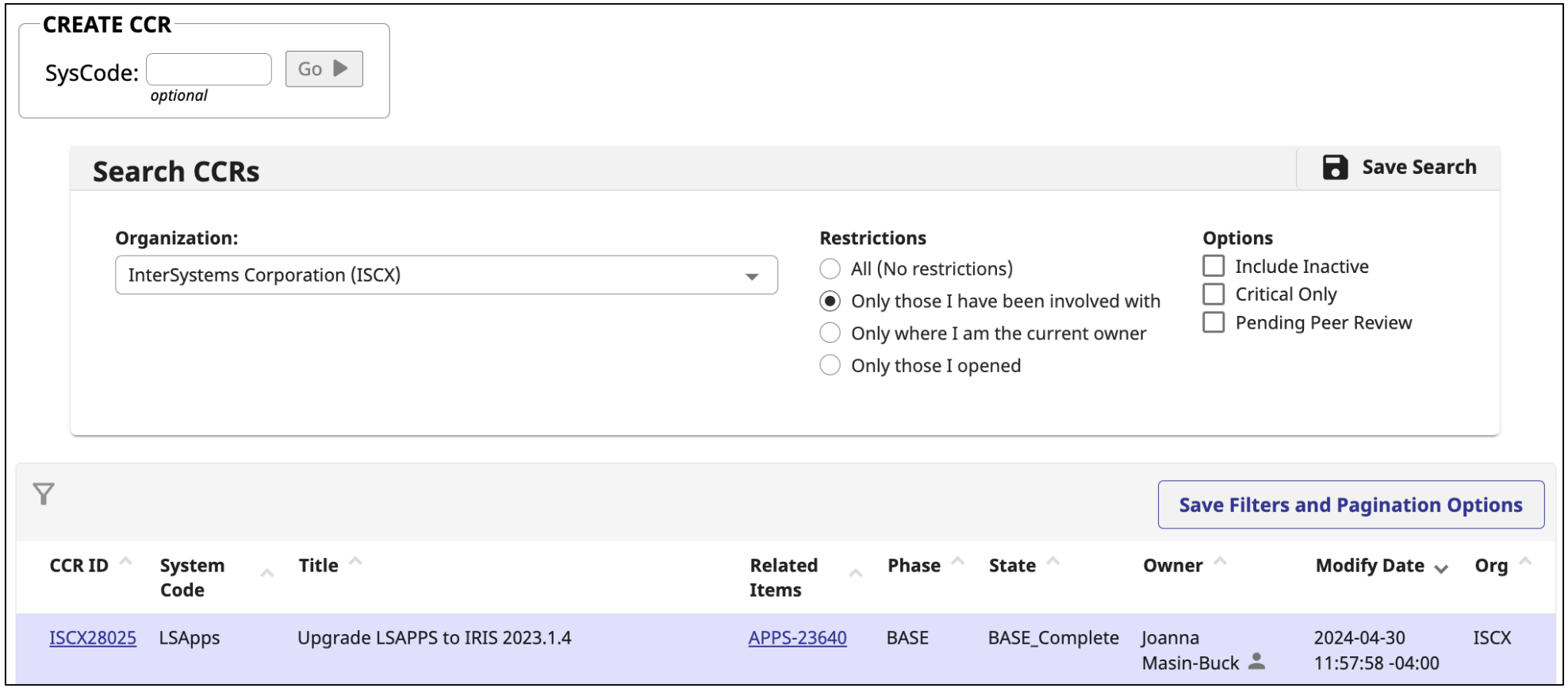
Log In

- ccr.intersystems.com.
- Use InterSystems SSO credentials to login.
  - Same as WRC and learning.intersystems.com.

Demo

- Home page.
- Side navigation.
- System Details export.

CCR Home Page



CCR Record

View in Classic UI | help | merge | clone | reassign | changeSpec | cancel | **Next Transition:** markPREPComplete

InPREP ▷ InBASE ▷ BASEPendingPeerReview ▷ BASEComplete ▷ PendingManualMoveToTEST ▷ InTEST ▷ TESTPendingPeerReview ...

BEST0012 - New License Key Activated

Current State	In_PREP	**Phase**	PREP
Organization	Best Health (BEST)	**System**	Interoperability 2020 (INTEROP2020)
Open Date	May 17, 2023 14:08	**Opened By**	smith, john
Responsible Org	Best Health (BEST)	**Owner**	smith, john

Description

Current license key expires at the end of the month. Activating new license key that expires April 4, 2025

Priority	Normal	**CCRTier**	0 - Documentation Only
iService Ticket(s)			
JIRA(s)		**Tech Help(s)**	
Prerequisite CCR(s)		**Related CCR(s)**	
Type - Subtype	Application Customization - InterSystems IRIS		
Updates CC List			

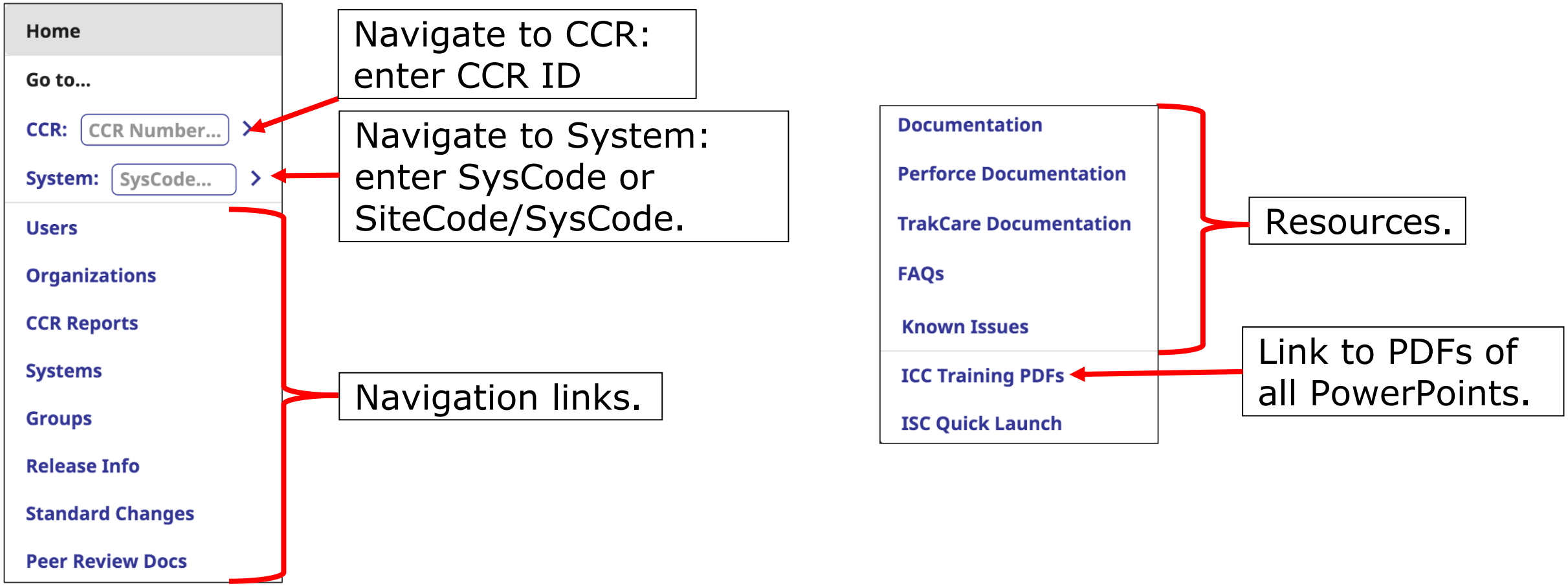
CCR Home Page (cont.)

- Capabilities:
  - Create CCR.
  - Show CCRs for all Systems across Organization.
- Notable filters:
  - Restriction of Only those I have been involved with.
  - Option to Include Inactive.
    - Closed, cancelled, and merged CCRs not shown by default.
  - Search based on Title or Description.

Navigation Menu

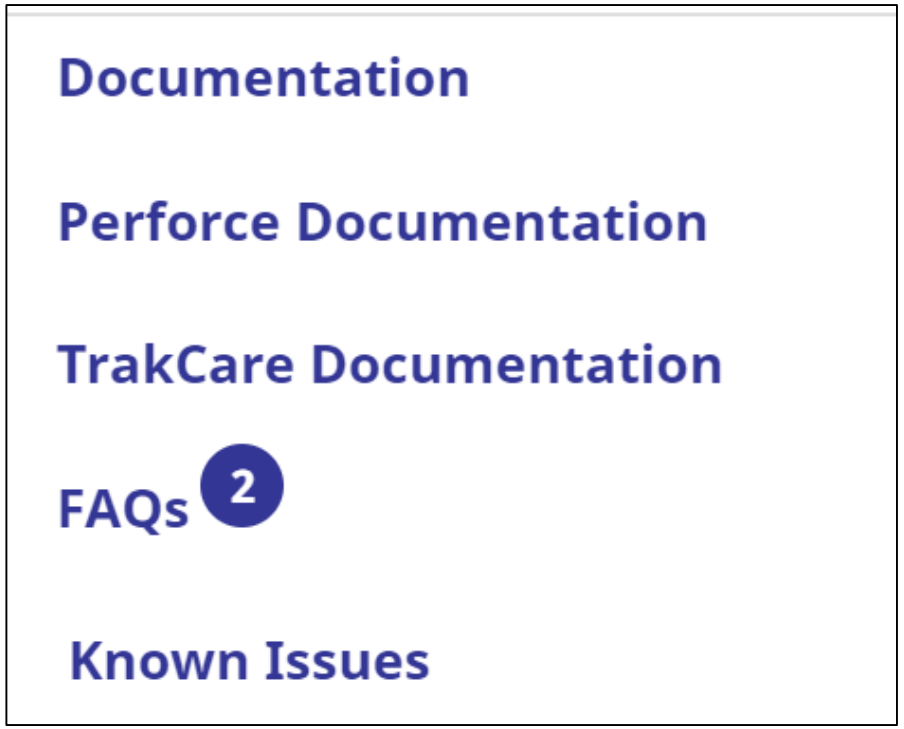
- Available from top-left corner of every page.

Navigation Menu (cont.)



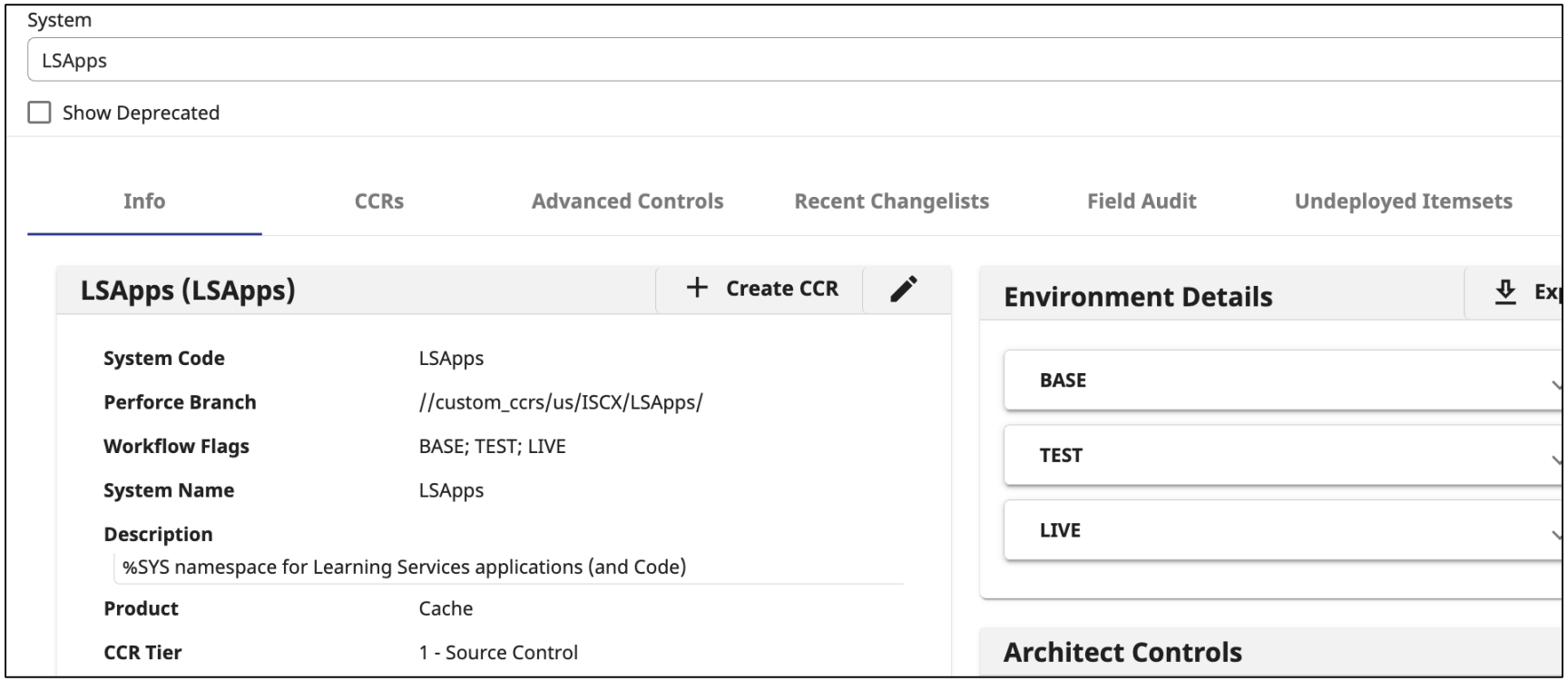
CCR FAQ

- Number of unread FAQ shown in navigation menu.
  - Great resource for delta training!
- Notification disappears after viewing CCR FAQs page.
- Any InterSystems employee can update or create FAQ.



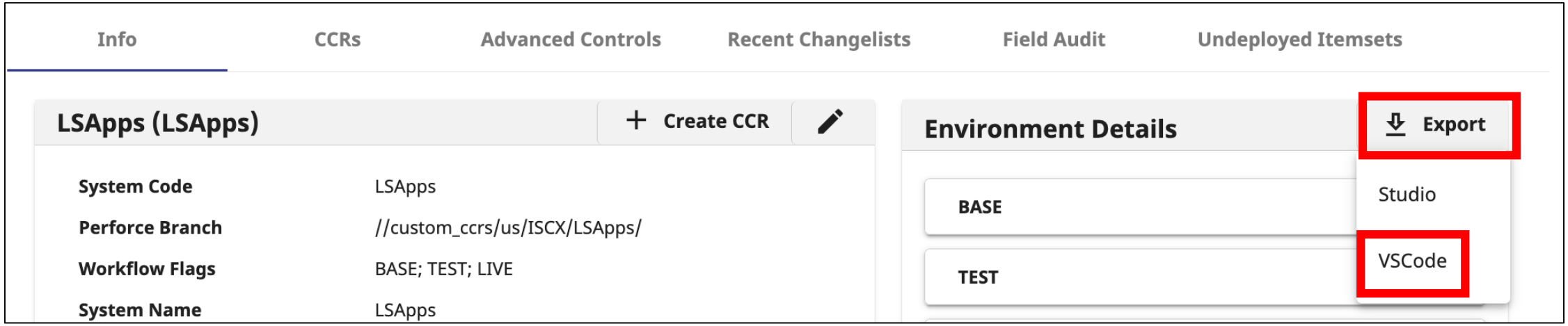
CCR System Details Page

- Contains configuration details for each CCR System.
- Menu > Systems.



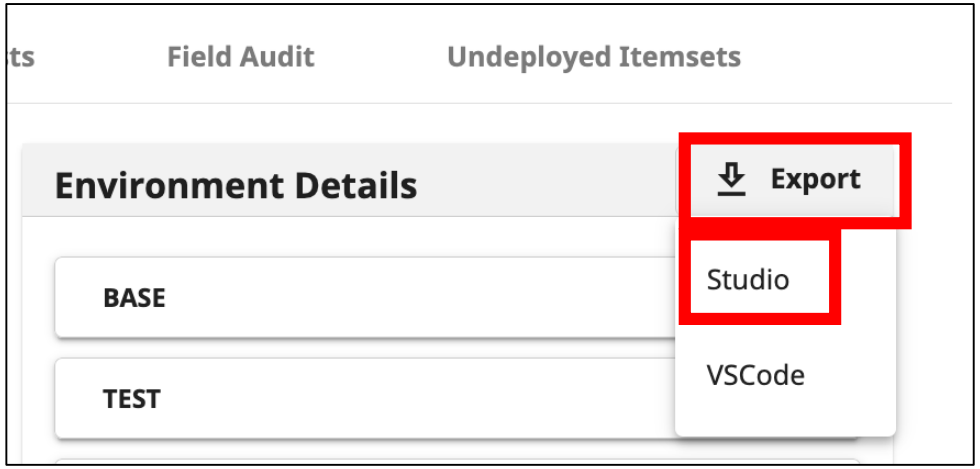
Download VS Code Workspace

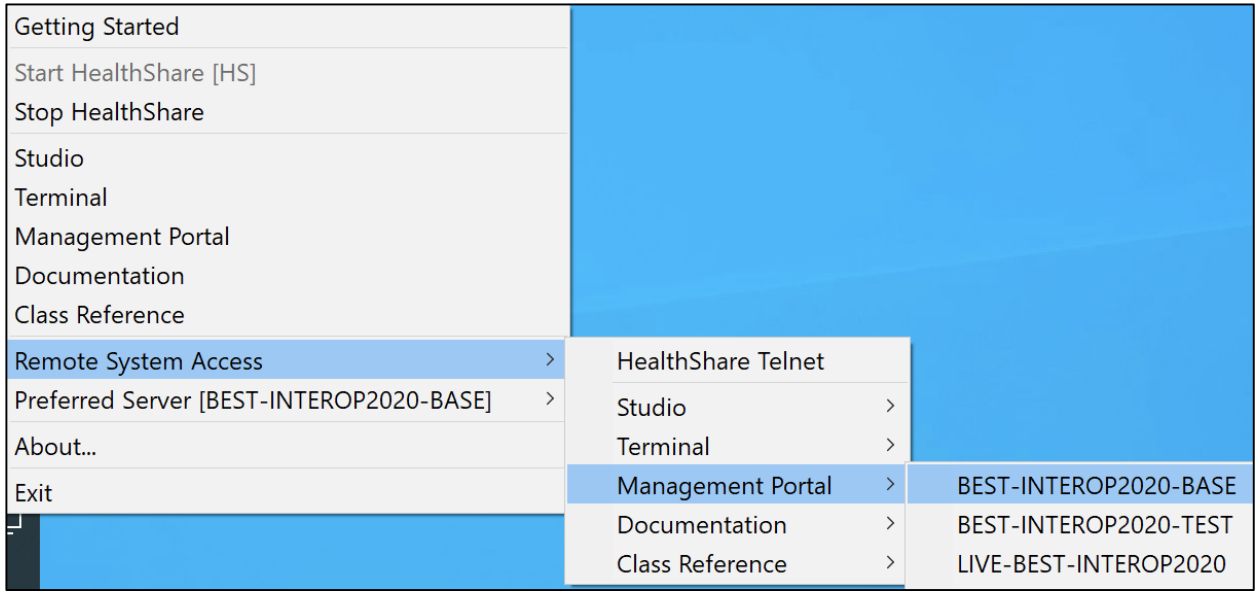
- Can download VS Code Workspace from Systems page.
  - Contains connection details for environments defined in System.
- Menu > Systems > Choose System > Export > VSCode.
  - Double click file to open in VS Code.



Windows: Configure Launcher

- Launcher provides remote system access to environments.
- Menu > Systems > Choose System > Export > Studio.
  - Run downloaded registry file.
    - Administrator credentials required.





Part 3: Introduction to CCR Usage Tiers

CCR Transport – What does it do?

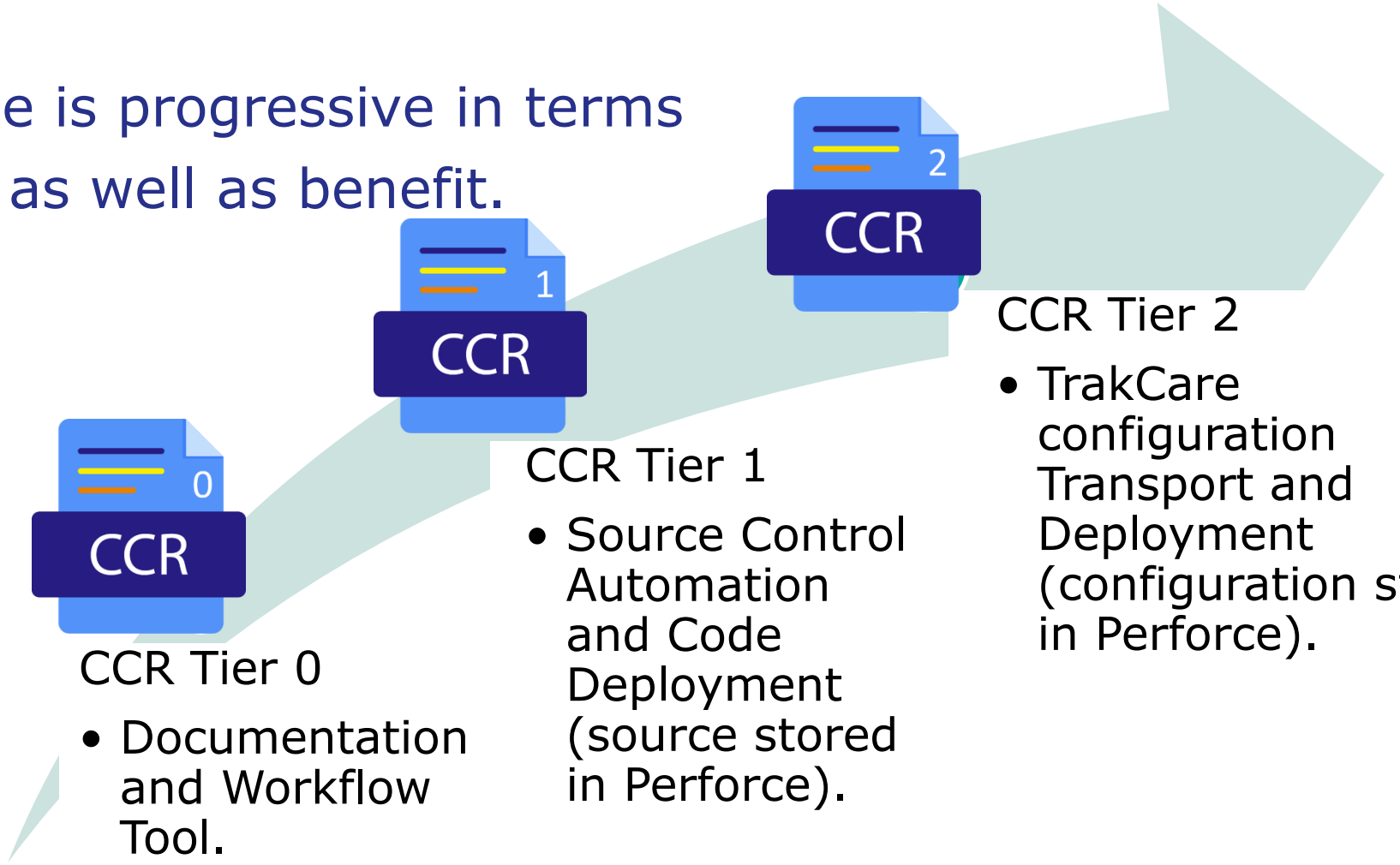
- Mechanism for moving changes between environments, CCR, and Perforce.
- Updates in BASE flagged as changed and exported.
- Exported items transported from BASE into Perforce (source control).
- Items transported out of source control into next environment.

CCR Usage Tiers

- There are different tiers of CCR usage for a project.
  - Provides flexibility for many types of applications to use CCR.
- Projects should determine their appropriate Tier of usage.
- Documentation and training applicable to a Tier should be fully understood prior to enabling that Tier.

CCR Usage Tiers (cont.)

- Tiered usage is progressive in terms of complexity as well as benefit.



Example Tier 0 Changes

- File system path changes.
- Memory settings.
- User creation.
- Patching.
- Upgrades.
- Any manual change to the environment or System.

Example Tier 1 Changes

- Classes.
- Routines.
- Reports.
- CSP Pages.
- JavaScript.
- Integration logic.
- DTL.
- Productions.

Example Tier 2 Changes

- TrakCare Code Tables
  - Layouts.
  - Security groups.
  - Workflow.

Quiz: CCR Tiers and Source Control

Question:

At which CCR Tier(s) are changes versioned and stored in Perforce? Select one.

A. CCR Tier 0.

B. CCR Tier 1.

C. CCR Tier 2.

D. CCR Tiers 0 and 1.

E. CCR Tiers 1 and 2.

F. CCR Tiers 0, 1 and 2.

Quiz: CCR Tiers and Source Control (cont.)

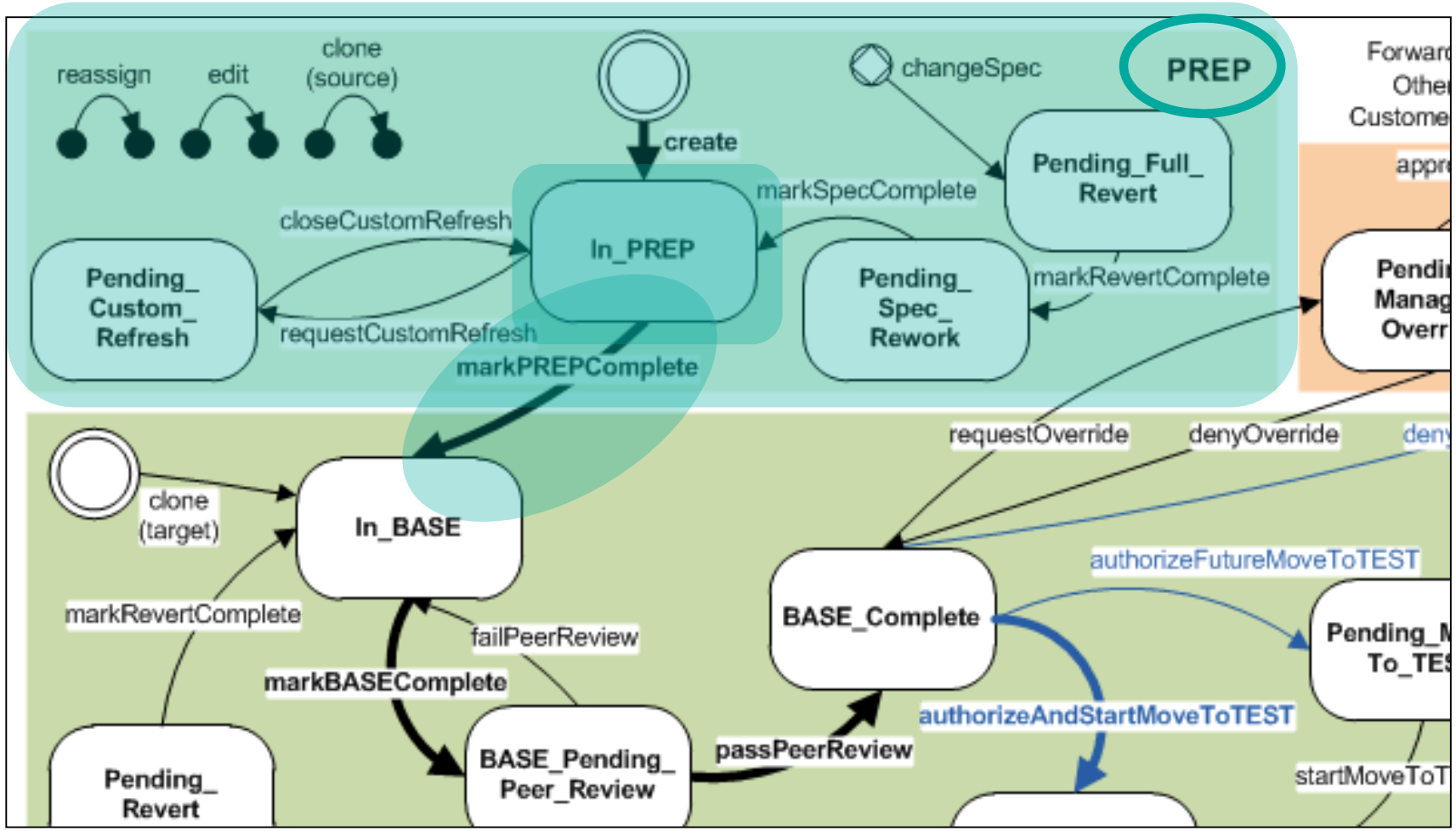
Answer:

E. CCR Tiers 1 and 2.

Part 4: CCR Workflow Overview

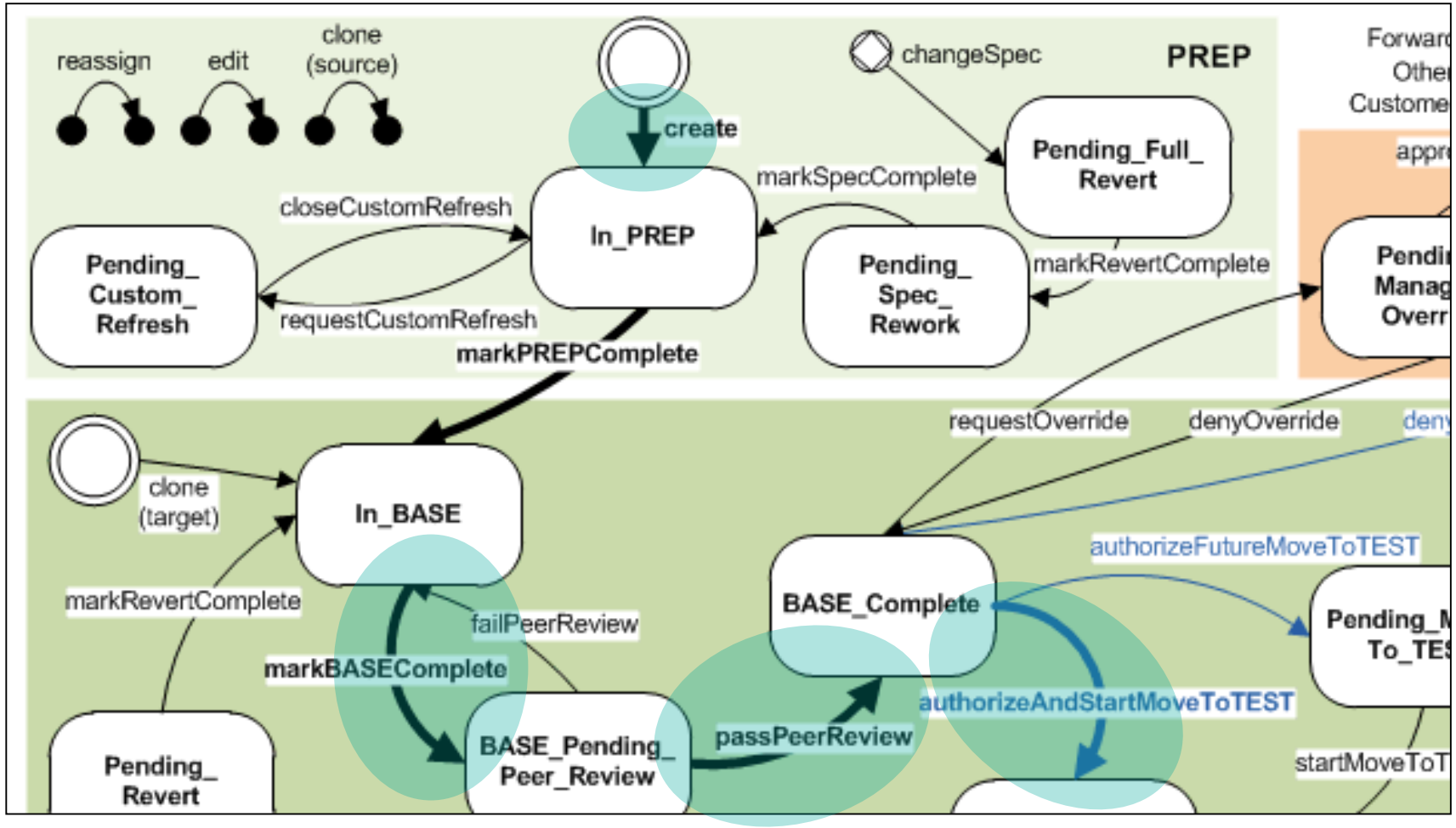
CCR Workflow Vocabulary

- State = current position within workflow.
  - In_PREP.
- Phase = collection of states.
  - PREP.
- Transition = move between CCR states.
  - markPREPComplete.



CCR Workflow Vocabulary

- Default workflow refers to typical workflow for most CCRs in System.



Part 5: Principle of Little and Often

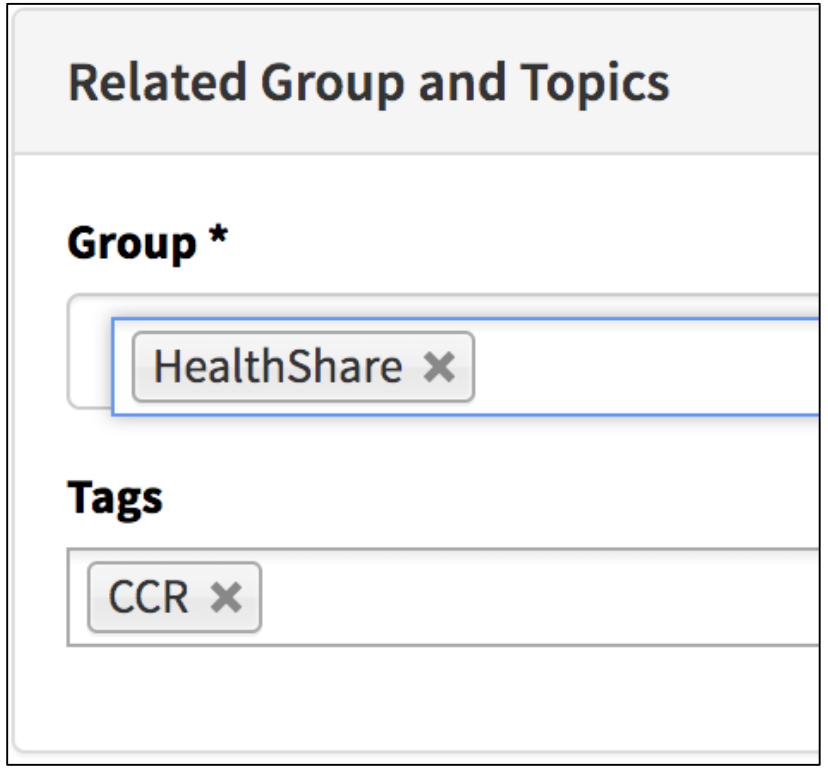
Principle of Little and Often

- Critical to successful usage of CCR.
- Minimize number of changes in 1 CCR.
  - All or none of the changes in a CCR progress through the workflow.
    - Difficult to isolate 1 change to progress separately.
  - Reduces the probability of blocked workflow due to dependencies.
  - Enables clear documentation of the impact of a CCR.
    - Better titles and descriptions due to more narrowly defined changes.
- Progress CCRs quickly (but safely).
  - Do not allow CCRs to remain mid-workflow for too long (weeks).
  - Minimize time between starting change and completing in all environments.

Part 6: Resources

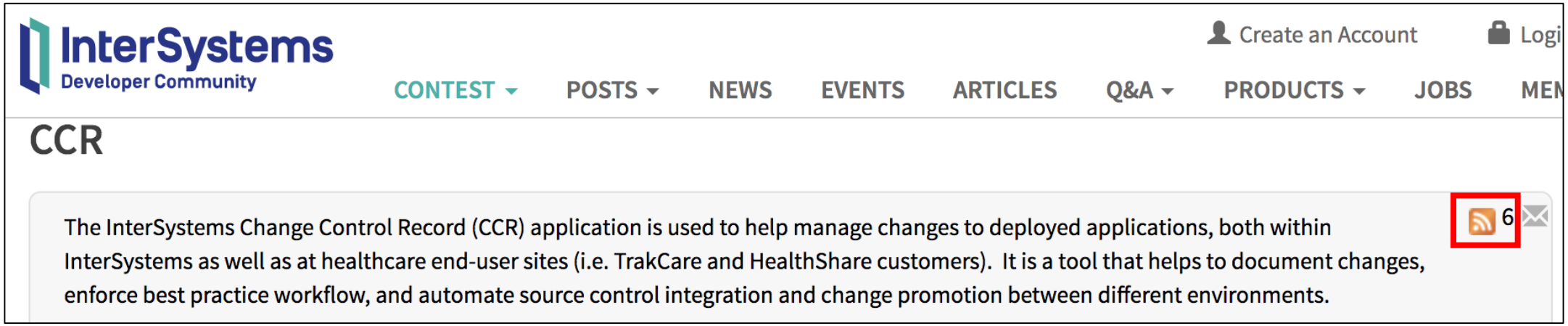
Developer Community

- community.intersystems.com.
- Please post your questions so that others may benefit from answer too.
- When creating post, enter group corresponding to InterSystems product and CCR for tag.



Developer Community (cont.)

- To subscribe to posts with CCR tag:
  - Go to community.intersystems.com/tags/ccr.
  - Click envelope icon on right.



Learning Resources

- All Course Content PDF.
  - Merge of all PDFs of all training slides.
  - Also available from navigation menu.
- InterSystems Change Control (ICC) online learning.
  - Go to learning.intersystems.com and search for CCR.
  - Growing catalog of courses available, new courses announced on Developer Community.
  - No exercises available online.

Learning Resources (cont.)

- CCR Online FAQs.
  - Major functionality changes and updates posted here.
- CCR Online Documentation.
  - See full workflow diagram under State Diagram tab.

Additional InterSystems-Internal Resources

- For InterSystems Employee use:
- ccrusers@InterSystems.com internal mailing list for CCR questions
  - All users of CCR should join this mailman list to be kept up to date with CCR-related announcements, enhancements, outage notifications, etc.
  - InterSystems users are expected to keep their customer in the loop on new enhancements, planned outages, etc.

Additional InterSystems-Internal Resources

- perforce@InterSystems.com internal mailing list for Perforce questions.
- iknow/sites/AppS/CCR Application Project site on iKnow.

Summary

- What are the key points for this module?

Demonstration

- Overview of using CCR to document and progress a change.