Dev4S4 | S/4HANA Cloud, ABAP Environment Bootcamp for Developers | Partner hands-on workshop

SAP Global Partner Solution Adoption, 2023

INTERNAL – Authorized for Partner

Hands-on bootcamp agenda

Day 2 | May 31, 2023

Topic	Duration	Relevance for Public/Private
01. Clean Core basics - Private Clean Core definition, 3-Tier model	30 minutes	Private
02. Lifecycle Management Transport Management in 3SL Landscape	45 minutes	Public
03. Migrate code ATC, code adaptation	45 minutes	Both
Chat & Work (Live)	15 minutes	
03. Exercise 2 Build a custom API for side-by-side extensibility	Introduction: 15 mins Offline work: 2 hours	Public
04. Exercise 3 Migrate code from S/4HANA	Introduction: 15 mins Offline work: 1 hour	Both, valid for ECC migration (if you need more on ECC ->S/4 utilize 10steps2S4
Offline exercise work Q&A support via SAP Workzone	Offline work: 3 hours	

Hands-on bootcamp agenda

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SAP S/4HANA Cloud 3SL Transport Management

SAP Global Partner Solution Adoption, 2023

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Agenda

1 **S/4HANA Cloud 3SL Transport Processes and Functionality**

- Systems and Tenants
- Transport Types
- Restrictions and Constraints
- SAP Updates and Transports
- Transport Automation

2 **Best Practices**

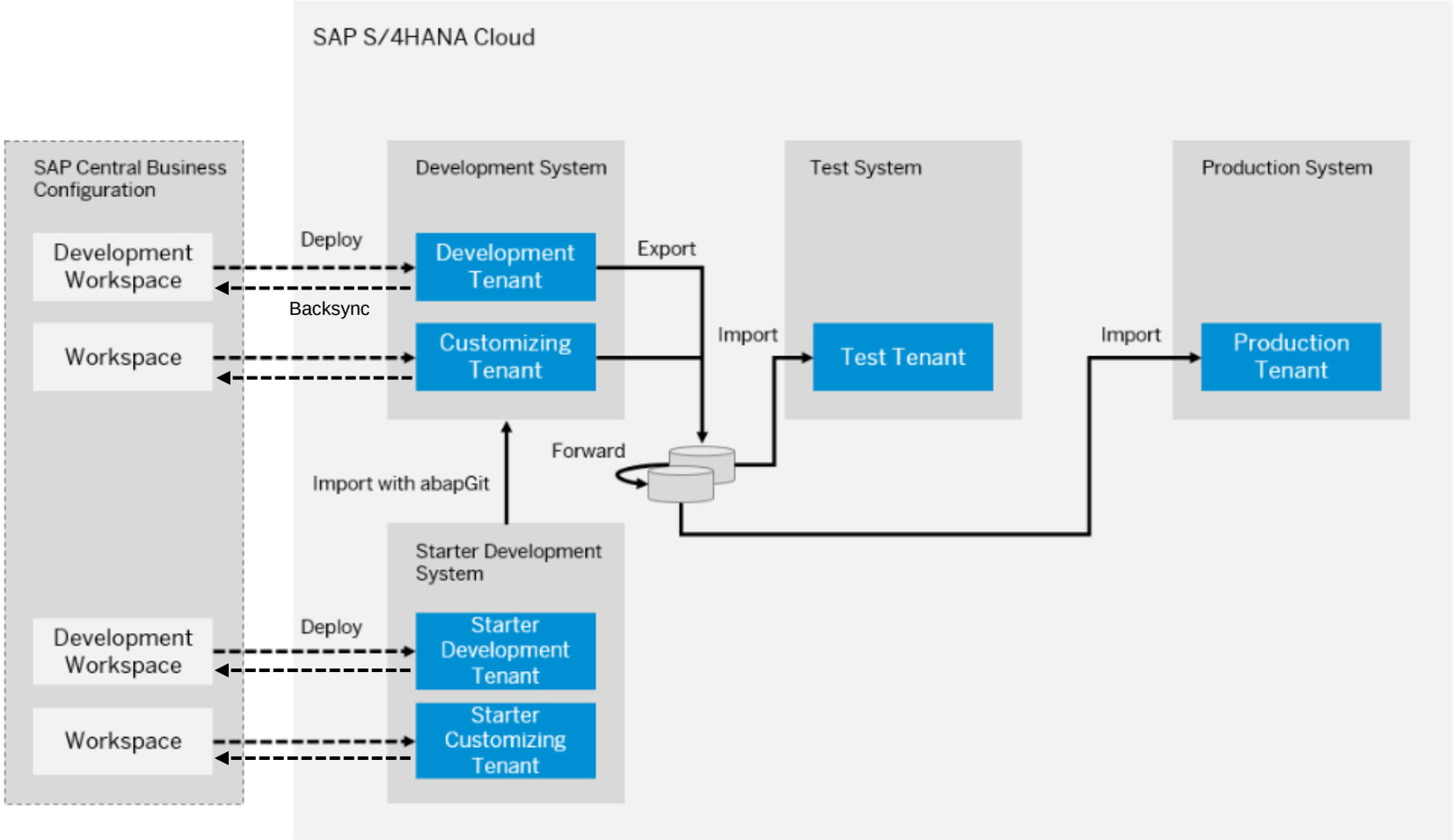
- Best practice: how to organize transport, when to release, import, …
- How should business configuration be grouped (e.g. countries, …)

3 **Outlook**

- Project Line
- Cloud ALM

S/4HANA Cloud 3SL Transport Processes and Functionality

Systems and Tenants



Starter System

- Development tenant
- Customizing tenant

Development System

- Development tenant
- Customizing tenant

Test System

- Test Tenant

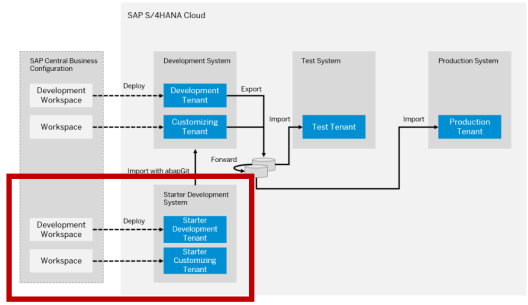
Production System

- Production Tenant

SAP Help Portal: 3-System Landscape and Transport Management

S/4HANA Cloud 3SL Transport Processes and Functionality

Systems and Tenants: Starter System



Starter System

- Used for fit-to-standard workshops
- Development tenant
- Customizing tenant

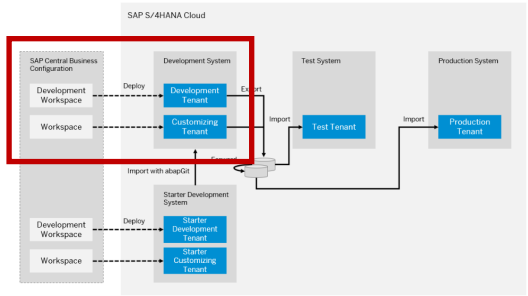
Transports

- No transports from starter system tenants to development system
  - Transport requests are technically required but not used to transport content to any other system
  - No transfer of configuration / key user extensibility from starter to development
  - ABAP development can be taken over using abapGit
    - Via customer-owned GIT repository
    - SAP Help Portal: Transferring Developer Extensions Between Development Tenants

SAP Help Portal: 3-System Landscape and Transport Management

S/4HANA Cloud 3SL Transport Processes and Functionality

Systems and Tenants: Development Tenant



Development System – Development tenant

- ABAP development using Eclipse-based ABAP Developer Tool (ADT)
  - ABAP development objects are client-independent → immediately active in all tenants in the dev system.
  - ABAP development can be taken over using abapGit (via customer-owned GIT repository)

Transports

- Developer transports
  - Developer transports are transported to test and production, managed using ADT Transport Organizer
  - Run ATC checks and developer tests in the development and in the customizing tenant before releasing a transport ! [Blog: ABAP Test Cockpit in the Cloud](), [Documentation: Ensuring Quality of ABAP Code]()

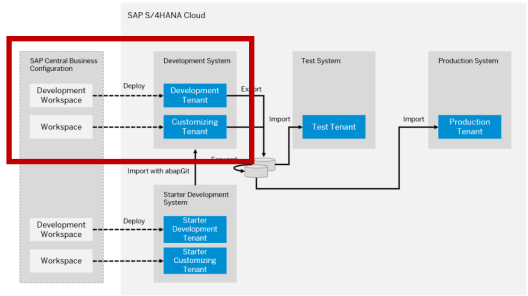
Configuration

  - Configuration for developer tests required: independent of the “productive” business configuration in the Customizing tenant
  - Default configuration is deployed from a dedicated CBC ”development” workspace
- No transport of customizing and extensibility objects
  - Default customizing request is technically required but not used to transport content to any other system

[SAP Help Portal: 3-System Landscape and Transport Management]()

S/4HANA Cloud 3SL Transport Processes and Functionality

Systems and Tenants: Customizing Tenant



Development System – Customizing tenant

- Configuration: Creation of productive business configuration content
  - Default configuration is deployed from a “main” CBC workspace
  - Finetuning is done in the customizing tenant
- Extensibility: Creation of key user extensibility

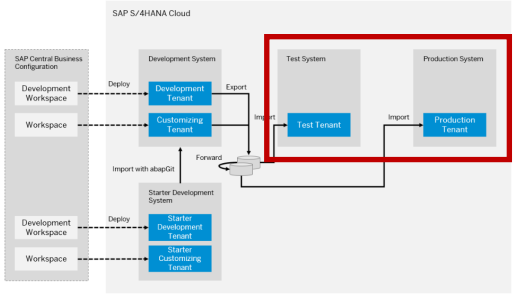
Transports

- Customizing and key user extensibility transports are transported to test and production
- Customizing transports are managed with *Export Customizing Transports* Fiori app
- Extensibility transports are managed with *Export Software Collection* Fiori app

[SAP Help Portal: 3-System Landscape and Transport Management]

S/4HANA Cloud 3SL Transport Processes and Functionality

Systems and Tenants: Test and Production Tenant



Test System – Test Tenant

- Import of developer, key user extensibility and customizing transports
  - with *Import Collection* Fiori app
- Testing: [Blog: SAP S/4HANA Cloud Test Automation]
- Release decision
- Forward of transports to production with *Import Collection* Fiori app

Production System – Production Tenant

- Import of developer, key user extensibility and customizing transports
  - with *Import Collection* Fiori app

[SAP Help Portal: 3-System Landscape and Transport Management]

S/4HANA Cloud 3SL Transport Processes and Functionality

Finetuning UIs and Selection of Customizing Transport Requests

Finetuning is recorded in customizing transport requests

- Most finetuning UIs provide a transport selection screen in the UI
  - 1) Transport selection screen in the save sequence
  - 2) Transport option in the menu of the UI
  - Finetuning content can be added to multiple open transport requests in parallel
    Hint: use this feature to make transport requests “self-contained” if necessary

- Some finetuning UIs do not provide a transport selection.

  Hint: In these cases, changes are recorded on the default request

- Some configuration is so-called “local settings”, this means it is not transported, but maintained in customizing, test and production tenants

  Hint: Local settings can be found using filter “Editable in all Systems” in the Implementation Activities app

S/4HANA Cloud 3SL Transport Processes and Functionality

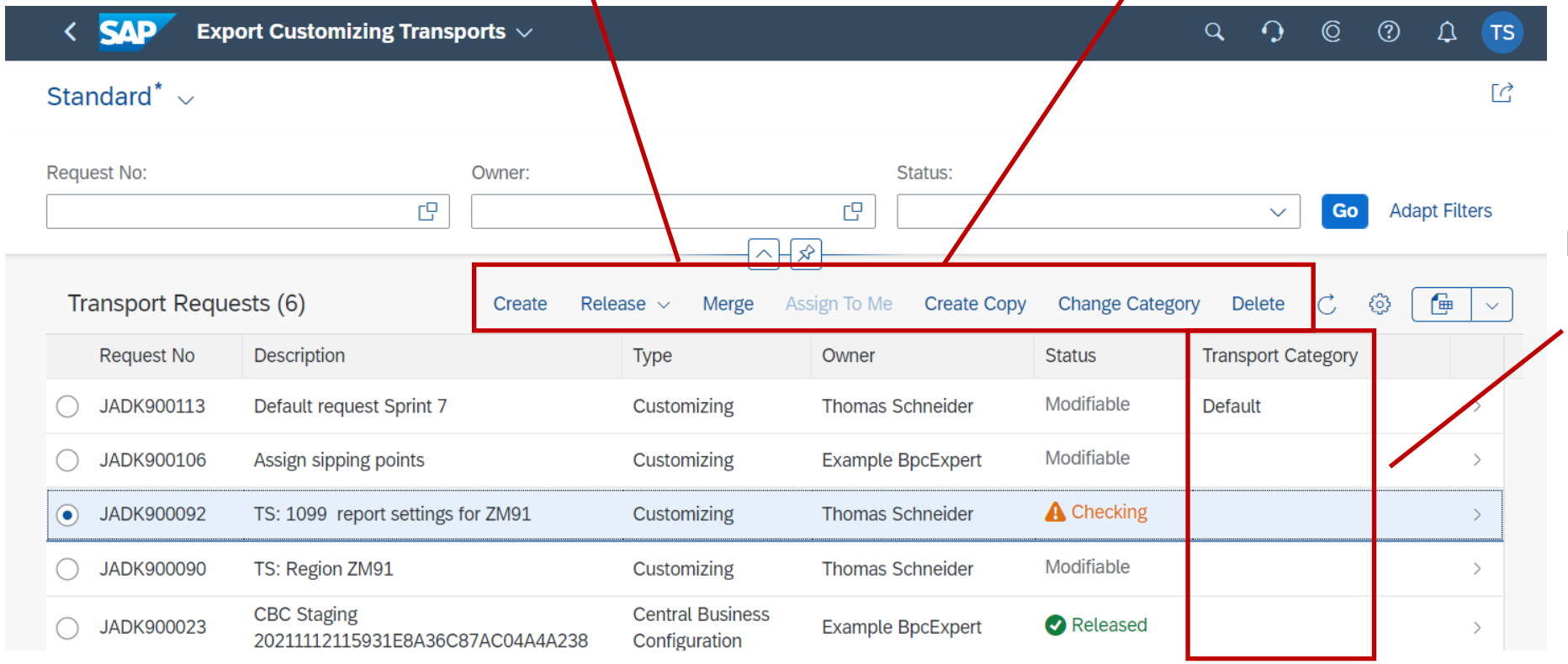
Features of the Export Customizing Transport app

Standard features

- Create, Edit, Change Category, Change user assignment, Merge, Release

Expert features:

- Copy, Delete, Delete objects



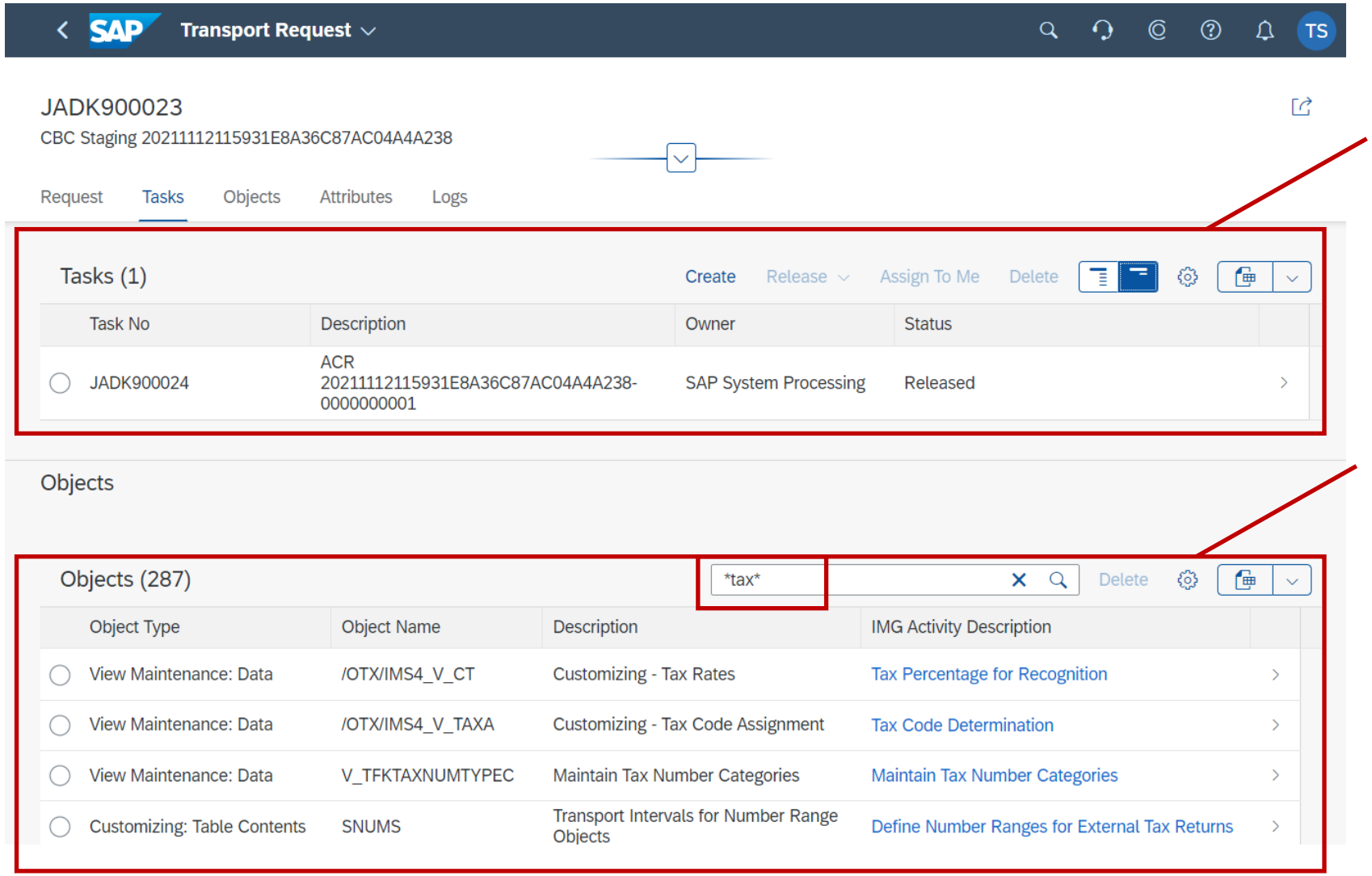
Default request

- One request can be marked a “default”
- New request is created as “default”

[SAP Help Portal: Export Customizing Transports]

S/4HANA Cloud 3SL Transport Processes and Functionality

Features of the Export Customizing Transport app (2)



Task

- Create, assign, release

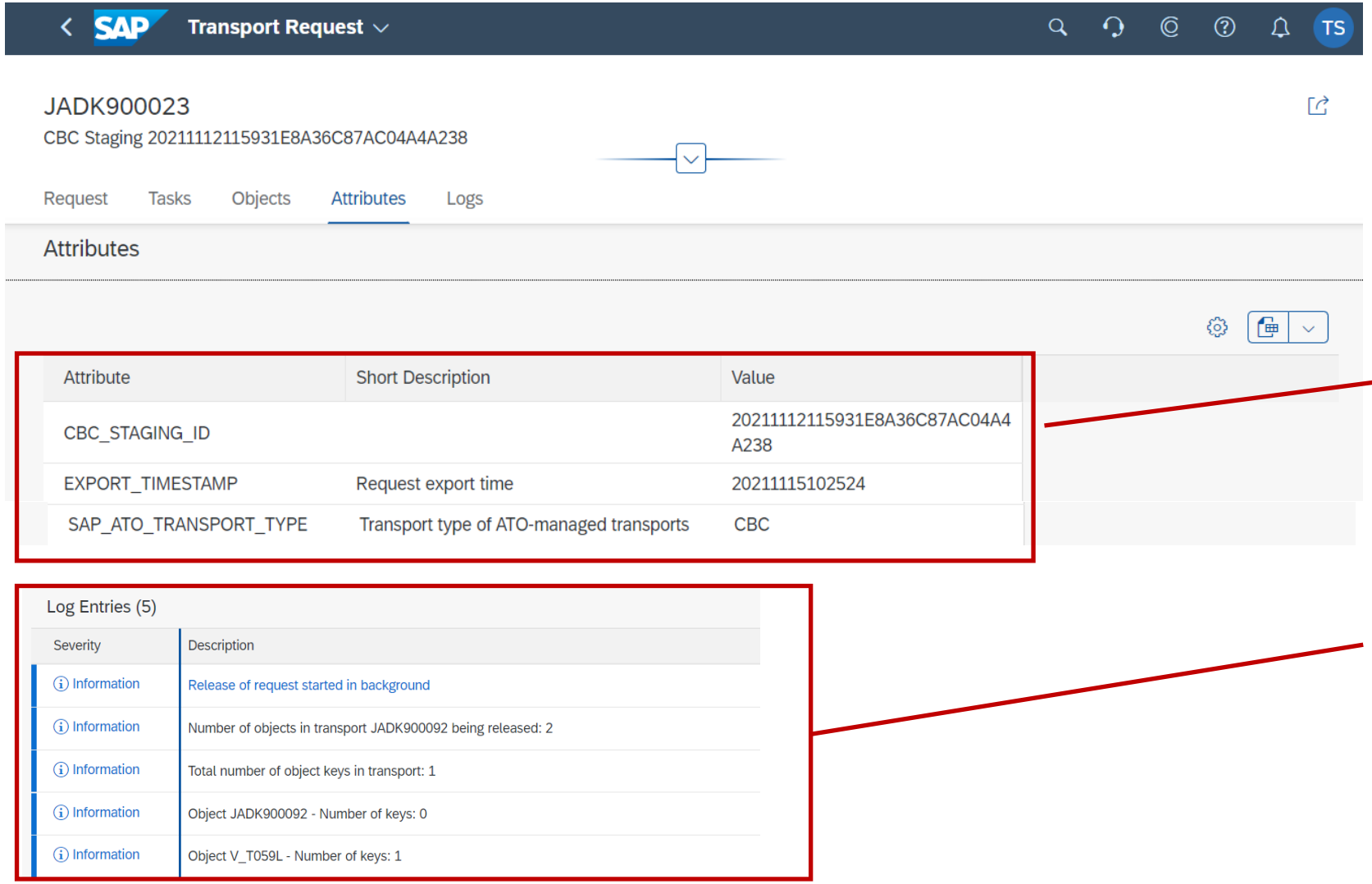
Note: Tasks are the collection of objects of one person in a request, tasks cannot be used to group activities inside a request

Objects

- Show objects, search
- Show object details (object keys)
- Navigate for finetuning activity
- Expert features: Delete task, Delete objects

S/4HANA Cloud 3SL Transport Processes and Functionality

Features of the Export Customizing Transport app (3)



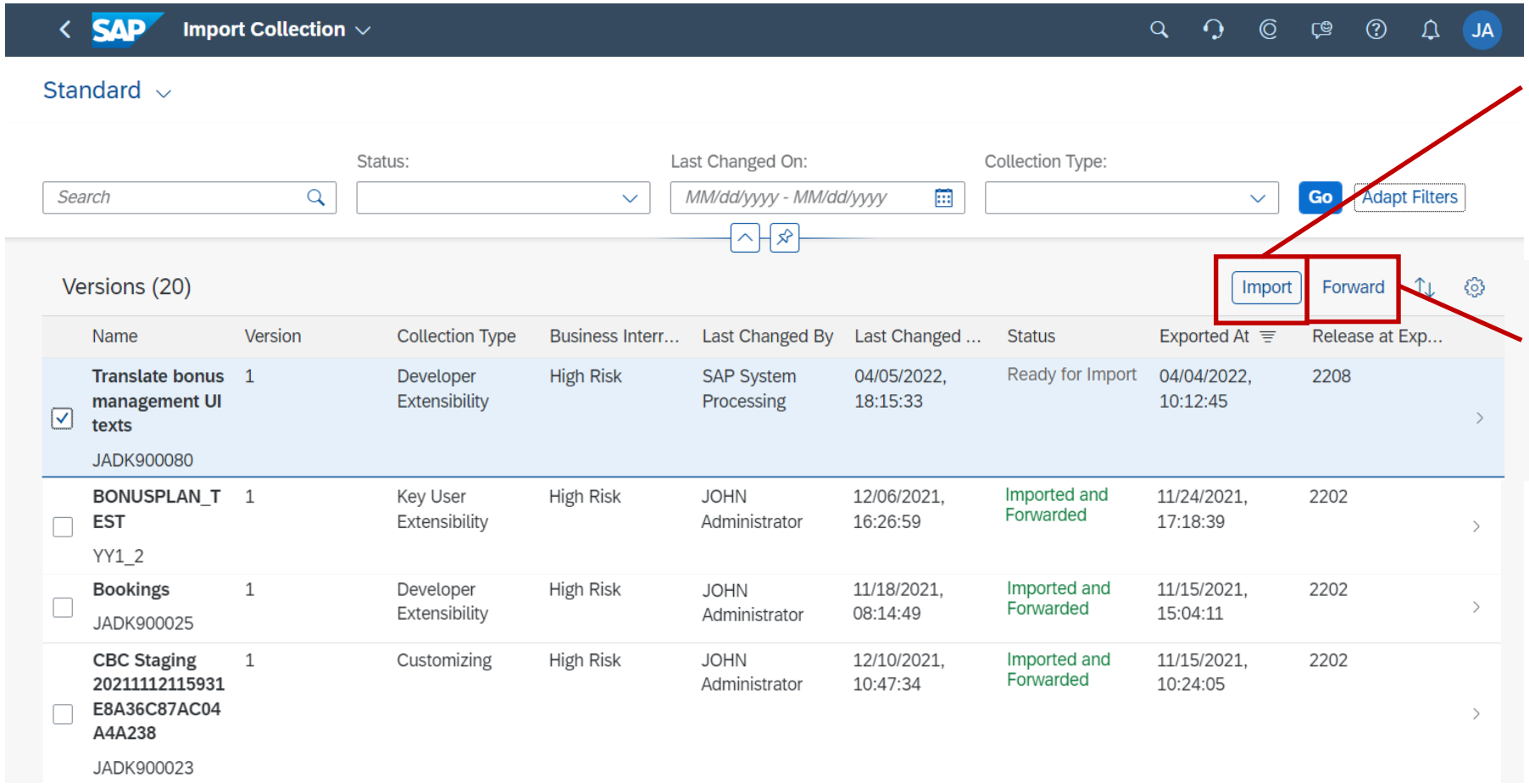
Attributes

- E.g. details of the CBC deployment,
- Transport type and category

Log

S/4HANA Cloud 3SL Transport Processes and Functionality

Features of the Import Collection app



Import

- Dependency calculation
- Preview of the content
- Import
- Show log and imported content

Forward

- Dependency calculation
- Forward

Set as Imported

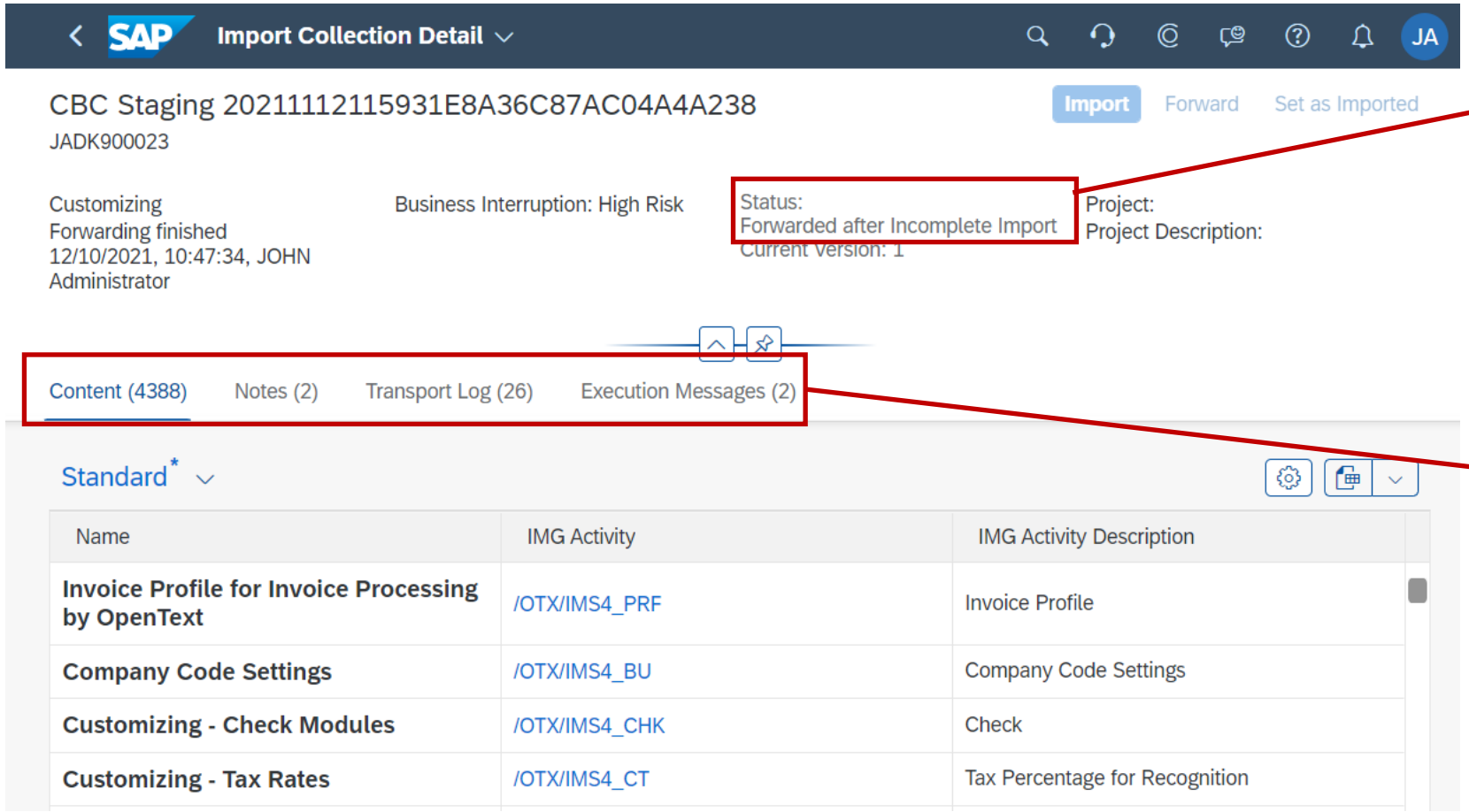
Discard (production only)

“Bad” transports can be marked as discarded and will not be considered for import

SAP Help Portal: Import Collections

S/4HANA Cloud 3SL Transport Processes and Functionality

Features of the Import Collection app (2)



Status

Documentation of Actions and Status Values: see [documentation](#) in the SAP Help Portal

Content

- Navigate for finetuning activity

Notes, Log, and Messages

[SAP Help Portal: Import Collections](#)

S/4HANA Cloud 3SL Transport Processes and Functionality

Features of the Import Collection app (3)

Actions

Action	Description	Initial Status	Resulting Status
Import	Imports the collection version into the current system	Ready for Import; Partially Imported; Importing Successful, Postprocessing Failed; Postprocessing Failed, Forwarding Failed; Postprocessing Failed and Forwarded	Imported; Partially Imported; Imported with Errors; Importing Successful, Postprocessing Failed; Postprocessing Failed, Forwarding Failed; Postprocessing Failed and Forwarded
Forward	Makes the collection version available for import in the production system. This action is only available in the test system	Imported; Outdated; Outdated after Partial Import; Set as Imported; Imported with Errors; Importing Successful, Postprocessing Failed; Failed; Import Failed	Imported and Forwarded; Import Successful, Forwarding Failed; Forwarded after Incomplete Import;
Discard	Discards a collection version so that it can't be	Ready	

…

Status

Documentation of Actions and Status Values: see documentation in the SAP Help Portal

Status Values

Status	Description	System Landscape (SL)
Ready for Import	If a collection version is ready for import, you can decide to import it or discard it. Key User Extensibility collection versions can't be discarded.	▪ 2SL ▪ 3SL
Outdated	An outdated collection version can't be imported anymore. The collection version is automatically set as outdated when the next release is published. An exception are collection versions of the type **Customizing**, which are set as outdated only after two	▪ 2SL ▪ 3SL

…

S/4HANA Cloud 3SL Transport Processes and Functionality

Transport Types (1)

	Type	Technical Type	Managed By / With	Supported Features in the ADT / Fiori UI	Used for recording of
	Developer Extensibility	Workbench Request	Developer / ADT	Transport Request and Task: Create, Edit, Change user assignment, Delete, Add/delete objects, “Copy”, Merge, Release	Development objects
	Key User Extensibility	Transport of copies	Extensibility Expert / Fiori app	Collection: Create, Edit, Delete, Add/delete objects, Merge, Release	Extensibility Items
Customizing	SAP Central Business Configuration	Customizing Request	SAP Central Business Configuration • Create request during deployment of workspace • Release tasks automatically after deployment finished (in case of an activation error manual intervention is needed) Business Process Configuration Expert • Take over and release the requests	Transport Request: Change user assignment, Release	Default configuration (CBC managed)
Customizing	Customizing	Customizing Request	Business Process Configuration Expert / Fiori app	Transport Request and Task: Create, Edit, Change user assignment, Delete, Delete objects, Copy, Merge, Release	Finetuning content (client-dependent configuration)
Customizing	Cross-client Customizing	Workbench Request	Business Process Configuration Expert / Fiori app	Transport Request and Task: Create, Edit, Change user assignment, Delete, Delete objects, Copy, Merge, Release	Finetuning content (client-independent configuration)

SAP Help Portal: Transport Management Summary

S/4HANA Cloud 3SL Transport Processes and Functionality

Transport Types (2) Roles and Catalogs

	Type	Authorizations	Business Catalog	Business Role Template
Export	Developer transports	Transport Request and Task: Create, Edit, Change user assignment, Delete, Add/ delete objects, “Copy”, Merge	SAP_A4C_BC_TRN_MNG_PC	Developer SAP_BR_DEVELOPER
		Transport Request and Task: Create, Edit, Change user assignment, Delete, Add/ delete objects, “Copy”, Merge, Release	SAP_A4C_BC_TRN_REL_PC	Developer SAP_BR_DEVELOPER
	Extensibility Expert	Collection: Create, Edit, Delete, Add/delete objects, Merge, Release	SAP_CORE_BC_SL_EXP	Administrator SAP_BR_ADMINISTRATOR
	Customizing transports (all types)	Transport Request and Task: Create, Edit, Change user assignment, Delete, Delete objects, Copy, Merge	SAP_CORE_BC_TRN_MNG_PC	Business Process Configuration Expert SAP_BR_BPC_EXPERT
		Transport Request and Task: Create, Edit, Change user assignment, Delete, Delete objects, Copy, Merge, Release	SAP_CORE_BC_TRN_REL_PC	Business Process Configuration Expert SAP_BR_BPC_EXPERT
Import	All transports	Import, forward, discard, set as imported show content and logs	SAP_CORE_BC_SL_IMP	Administrator SAP_BR_ADMINISTRATOR

SAP Help Portal: Transport Management Summary

S/4HANA Cloud 3SL Transport Processes and Functionality

Restrictions and Constraints: Dependency Checks

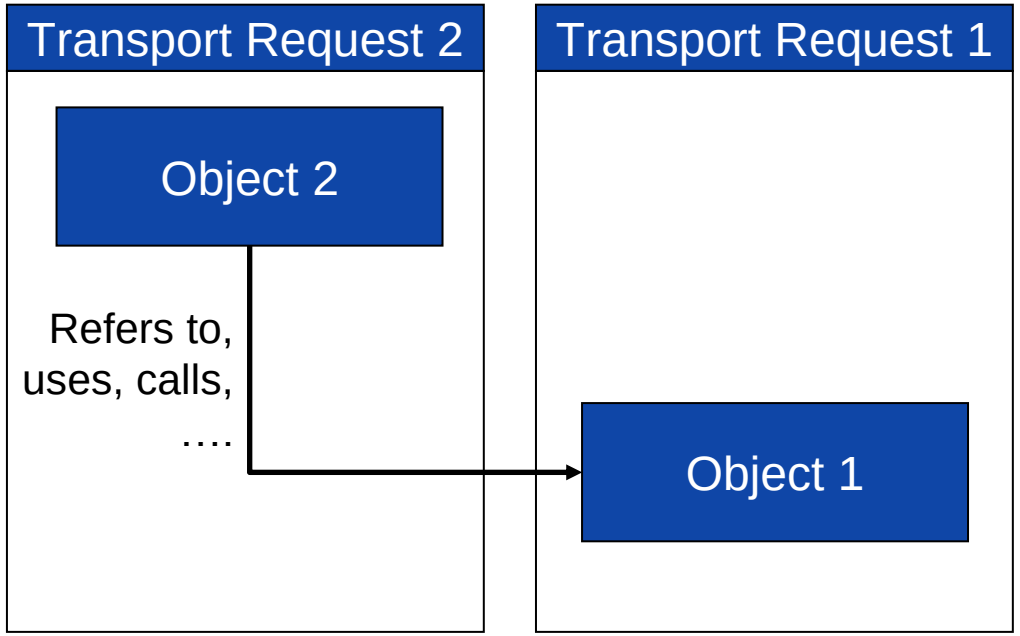
Dependency Checks

- In general, transports can be released, imported and forwarded in arbitrary order – if they are independent!
  - Developers / configuration experts must plan transports so that dependencies are managed accordingly
- Dependency checks ensure that transports are released consistently and imported in the right order
- Export and/or import is prevented, if transports with dependencies are missing
- Expert feature: “Forced Import” allows to ignore dependency checks (button: *Ignore dependencies*)

SAP Help Portal: Transport Dependencies

S/4HANA Cloud 3SL Transport Processes and Functionality

Restrictions and Constraints: Dependency Checks



Transport request 1 must reach the test and production *together or before* request 2 to avoid inconsistencies !

SAP Help Portal: Transport Dependencies

Example 1: (Development)	Example 2: (Customizing)	Example 3: (Customizing / Extensibility)
Class 2	Tax configuration for region X (e.g. US “1099 Report”)	Output mgmt. configuration for Business Partner
calls	relates to (foreign key)	refers to
Class 1	Region X	Print Form Template

Solution strategies:

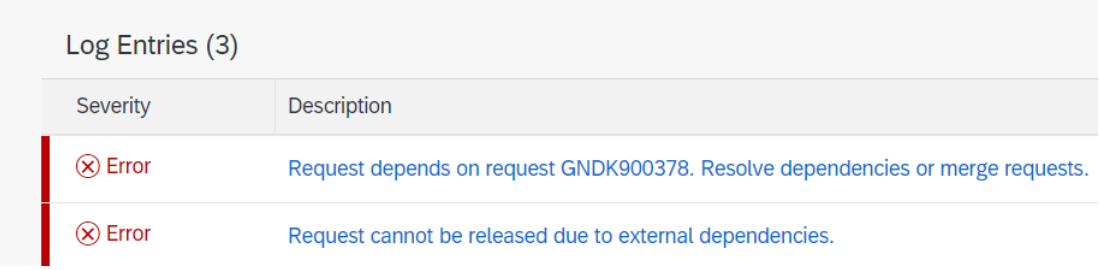
1. Export/import in right order *or* merge transports
2. Add referenced object to transport 2 redundantly
   - only possible for customizing
   - only feasible if few objects are involved

S/4HANA Cloud 3SL Transport Processes and Functionality

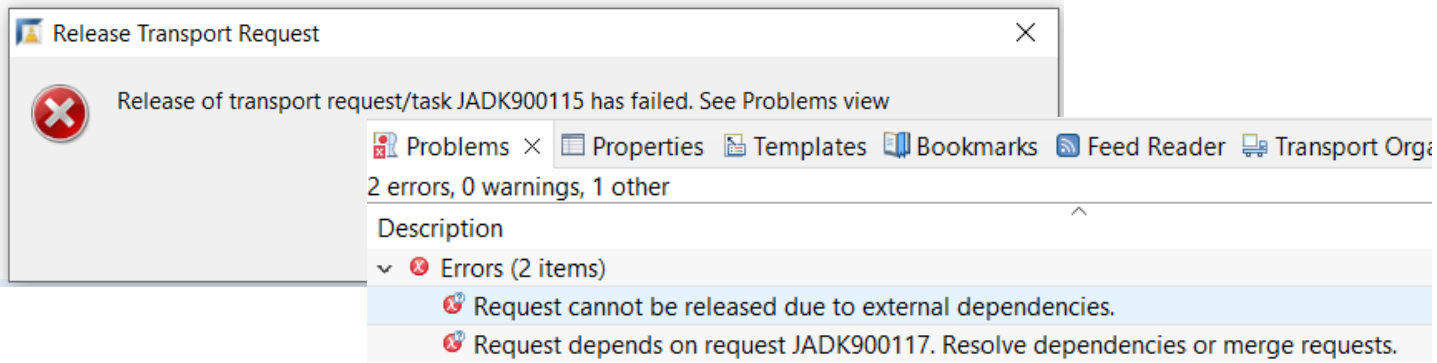
Restrictions and Constraints: Dependency Checks

In the development system (at export)

- *Export Customizing Requests* Fiori app

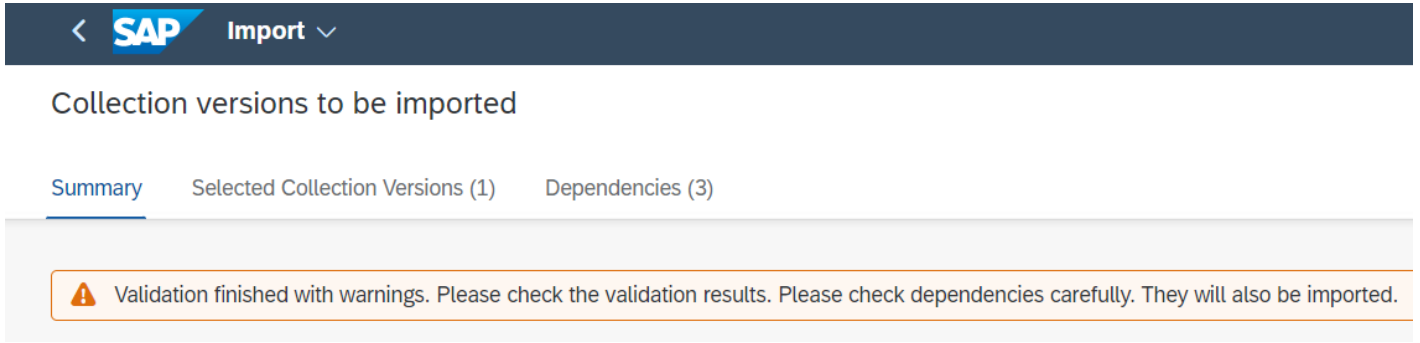


- ADT Developer Tools



In the test/production system (at import)

- *Import Collection* Fiori app
  - Dependencies are calculated when you select *Import* or *Forward*



SAP Help Portal: Transport Dependencies

S/4HANA Cloud 3SL Transport Processes and Functionality

SAP Updates and Transports: Import to Release N+1

Upgrade Schedule

- SAP software upgrades are scheduled every 6 months
  - Software upgrade starts in the test system.
  - After the test system upgrade (release N+1), the development and production system are still on the old release (release n).
- After a certain period of time, for example 2 weeks, the development and production system are upgraded to N+1.

Import to Test/Production System during/after the Upgrade

- After releasing from development system, transports can be imported into the test and production system in the same release or release N+1
  - Exception: some key user items, do not support import to N+1.
    Workaround: re-export the collection on release N+1
- Transports cannot be imported to release N+2, N+3, …

Advice: make sure that your transports are imported to production in the same release or in release N+1 (6 months!)

SAP Help Portal: Transport Dependencies

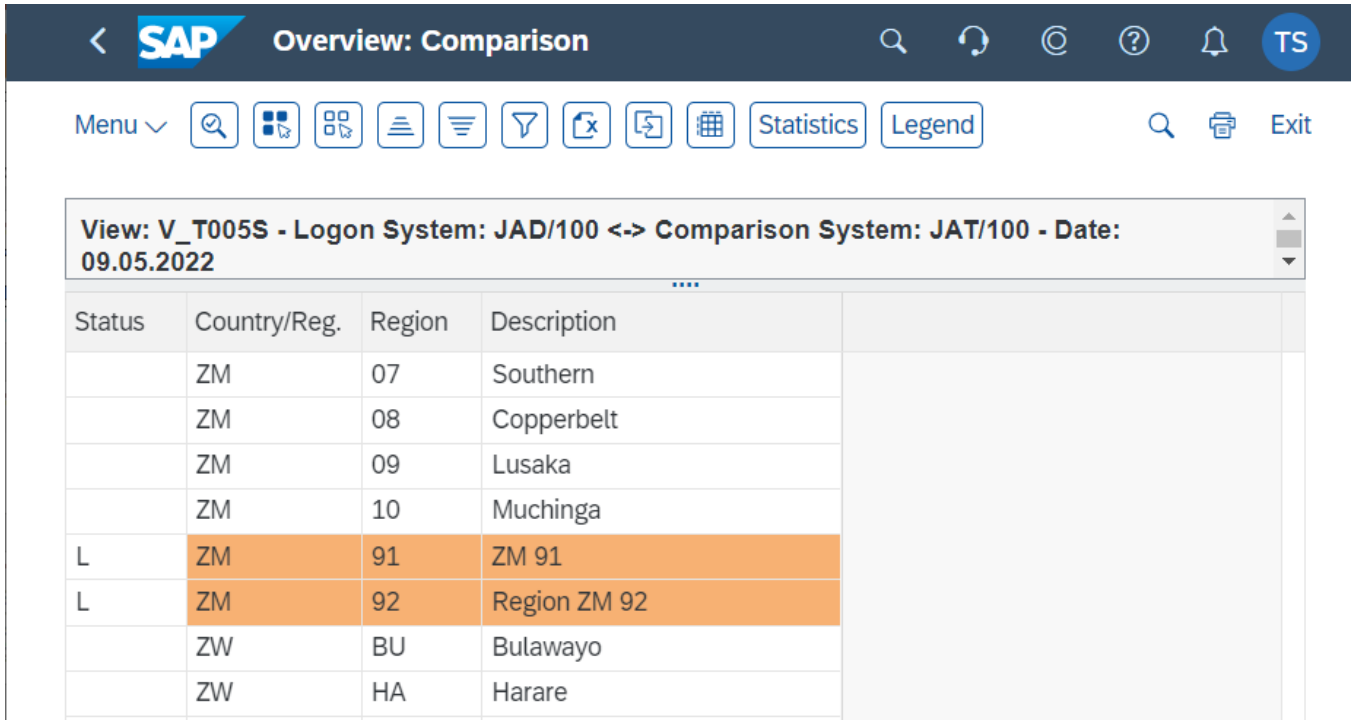
SAP S/4HANA Cloud Upgrade & Maintenance Schedule 2022 for 3SL EA

S/4HANA Cloud 3SL Transport Processes and Functionality

Client Compare

Compare content between tenants

- Most finetuning UIs support tenant comparison: *Menu ● Utilities ● Comparison*
  - Comparison in the main line (customizing / development, test, production)
  - Labs preview: between project client and main customizing tenant
- Add missing records to a transport request: *Menu ● List ● Transport*



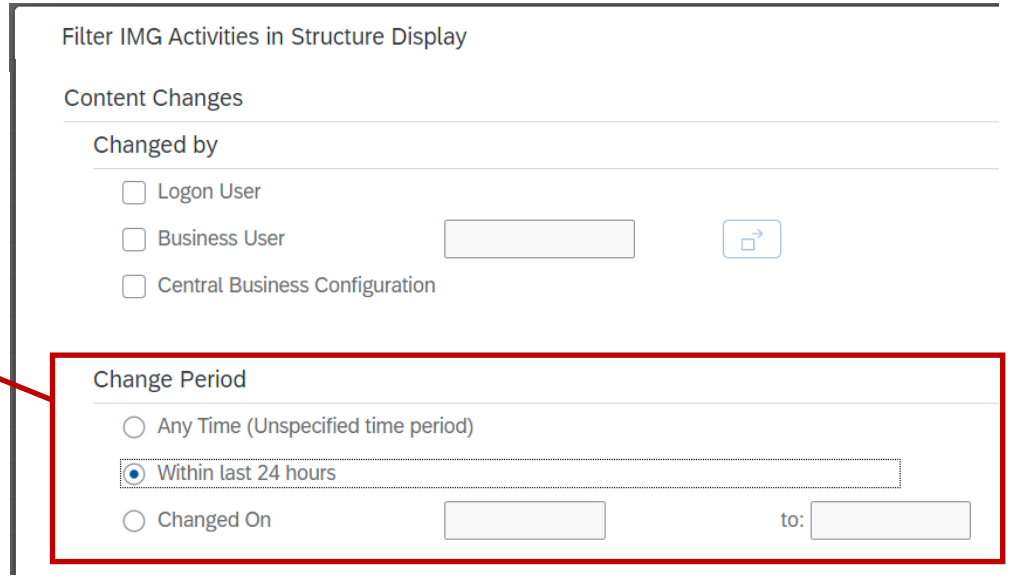
Status	Country/Reg.	Region	Description
	ZM	07	Southern
	ZM	08	Copperbelt
	ZM	09	Lusaka
	ZM	10	Muchinga
L	ZM	91	ZM 91
L	ZM	92	Region ZM 92
	ZW	BU	Bulawayo
	ZW	HA	Harare

S/4HANA Cloud 3SL Transport Processes and Functionality

Recording / Reporting of Changes

<u>In the development system</u>

- *Implementation Activities* app
  - Filter *Change Period* shows all changes in a certain time frame (time and user)
- Development objects provide change recording in ADT (*History* view)



<u>In the test/production system</u>

- *Collection Import Change Logs* Fiori app
  - Shows all configuration changes that were imported to test/production system
- Labs Preview: *Business Configuration Local Change Logs* Fiori app
  - Shows all configuration changes that were done test/production system (local settings)

Log Date	Log Time	Transport	Change	C/R	Rg	Type	WT Min.Amt	Crcy	PrTCd	Descript.	No K Rec
04/30/2022	11:45:32	JADK900092	Created	ZM	91	MISC	600.00	USD			

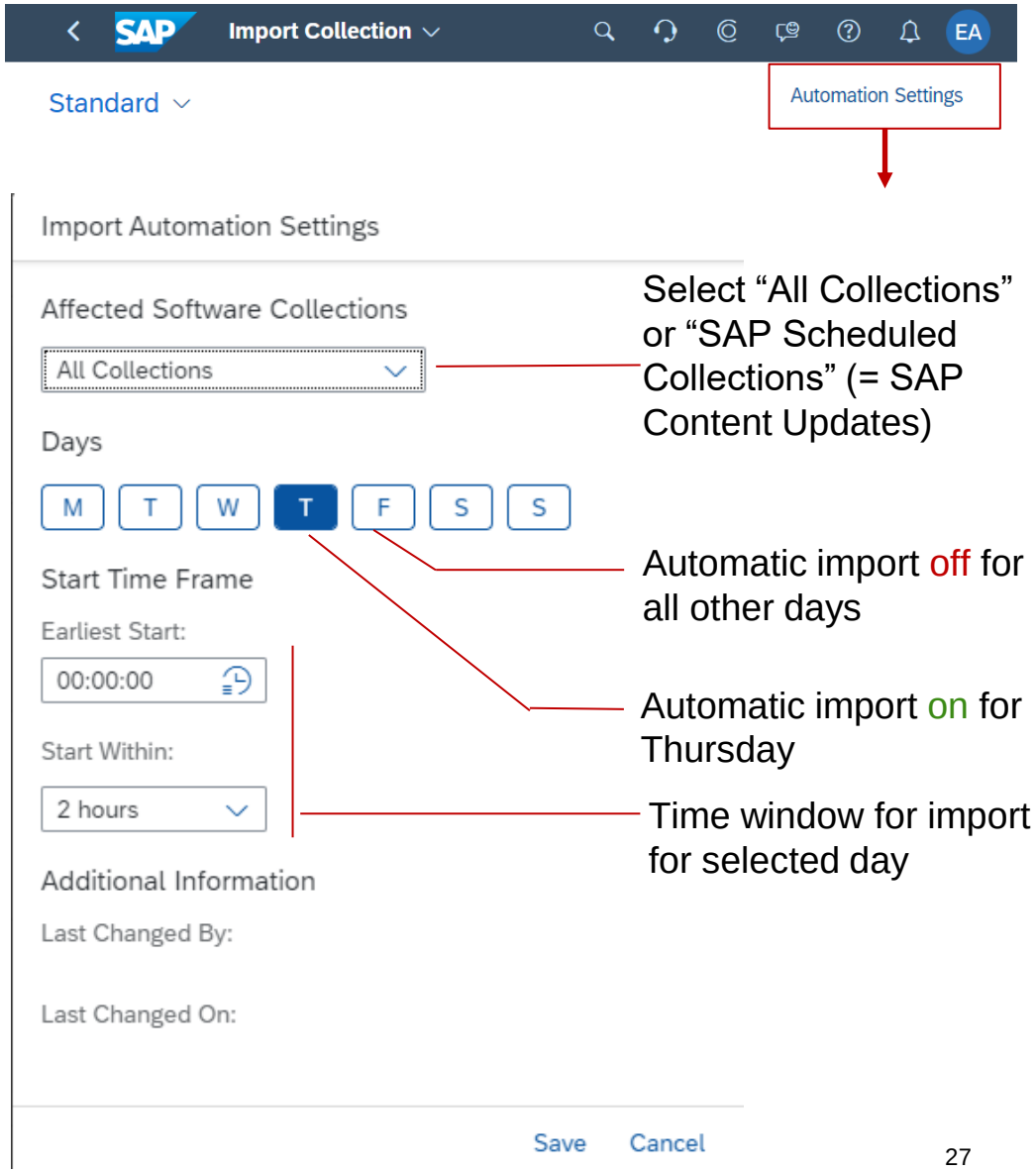
SAP Help Portal: Collection Import Change Logs

SAP S/4HANA Cloud 3SL Transport Processes and Functionality

Transport Automation (1)

Transport Automation

- Import to test system, forward to production, and import to production can be scheduled
- Customers can define
  - Time ranges, in which import/forward is automatically executed by the system
  - Type of the transports that shall be imported/forwarded is automatically
    - All Collections
    - SAP Scheduled Collections = SAP Content Updates via CBC
- System will not import/forward, if an error or unsolved dependency occurred in the previous step



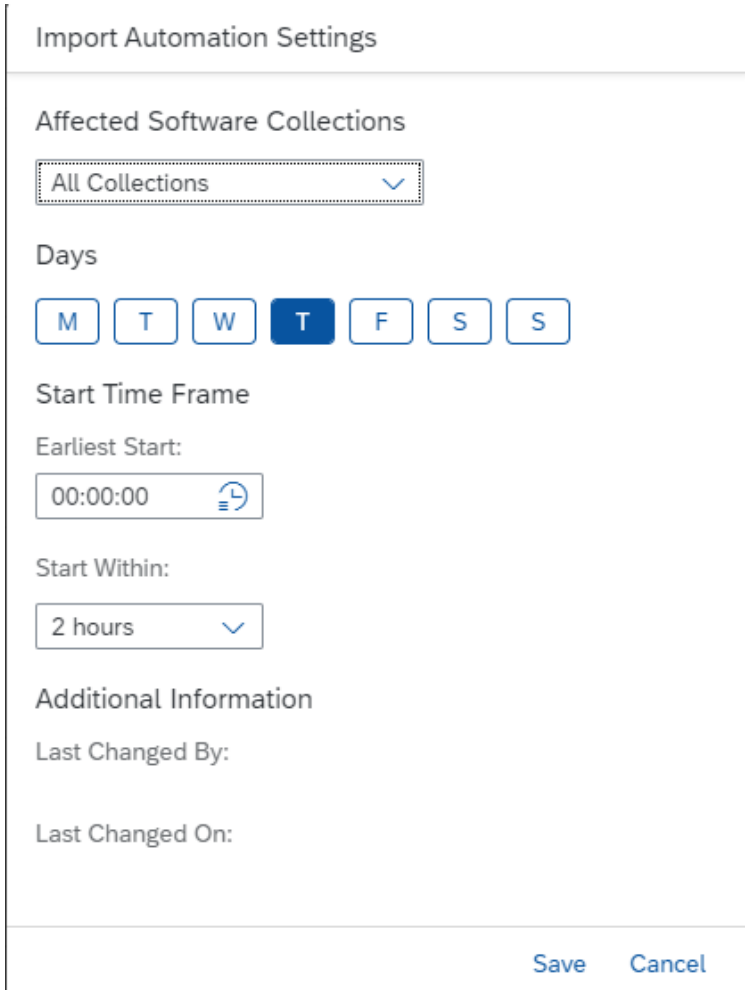
SAP Help Portal: Working in the Import Collection App

SAP S/4HANA Cloud 3SL Transport Processes and Functionality

Transport Automation (2)

Transport Automation

- Default settings are provided
  - Automatic Import for the test system: daily from 1am to 2am (UTC) and concerns all collections
  - Automatic forward: weekly on Wednesdays from 12 pm to 1am (UTC) and concerns collections that are flagged for a scheduled import.
  - Automatic import for the production system: weekly on Thursdays from 12 pm to 2 am (UTC) and concerns all collections
- Minimum settings
  - Automatic Import for the test system: at least weekly for SAP Scheduled Collections
  - Automatic forward: can by fully switched off
  - Automatic import for the production system: at least weekly for SAP Scheduled Collections



SAP Help Portal: Working in the Import Collection App

Agenda

1 S/4HANA Cloud 3SL Transport Processes and Functionality

- Systems and Tenants
- Transport Types
- Restrictions and Constraints
- SAP Updates and Transports
- Transport Automation

2 Best Practices

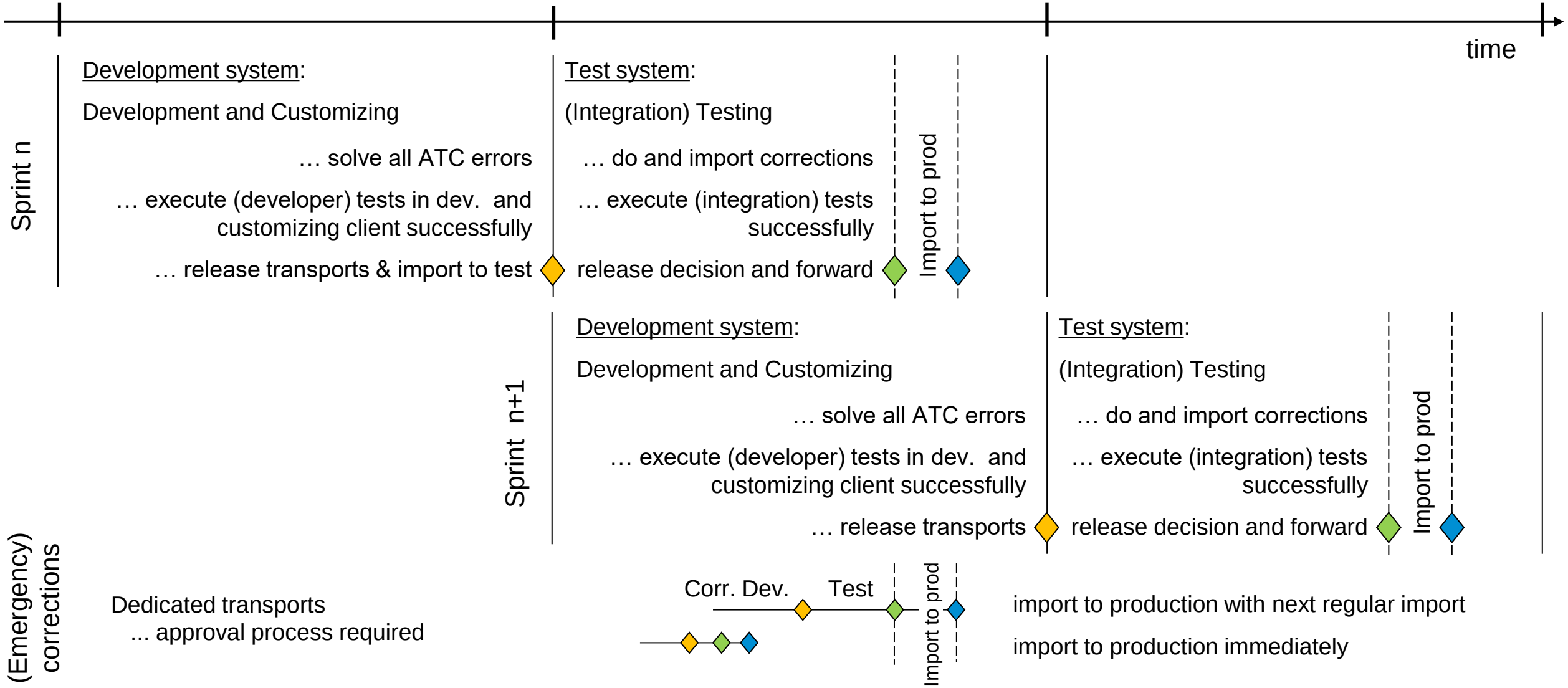
- Best practice: how to organize transport, when to release, import, …
- How should business configuration be grouped (e.g. countries, …)

3 Outlook

- Project Line
- Cloud ALM

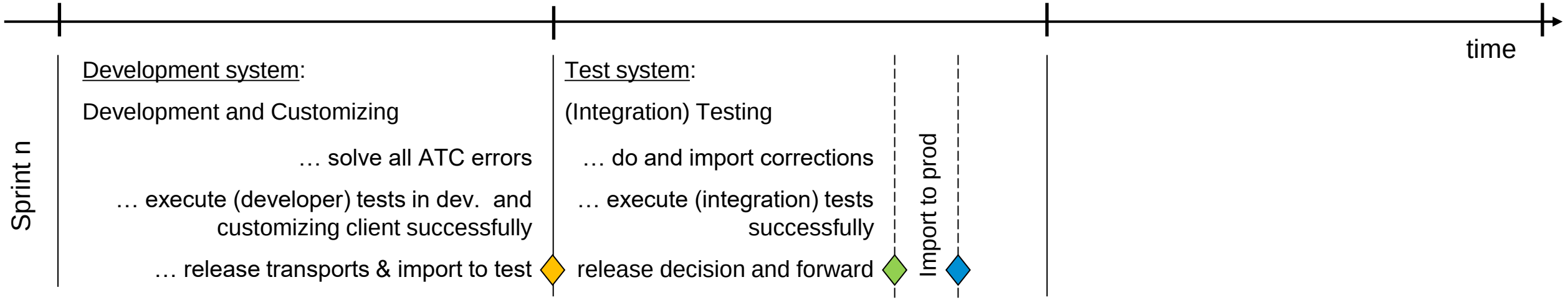
Transport Best Practices

Best Practice for a Sprint-based Transport Schedule



Transport Best Practices

Best Practice for a Sprint-based Transport Schedule

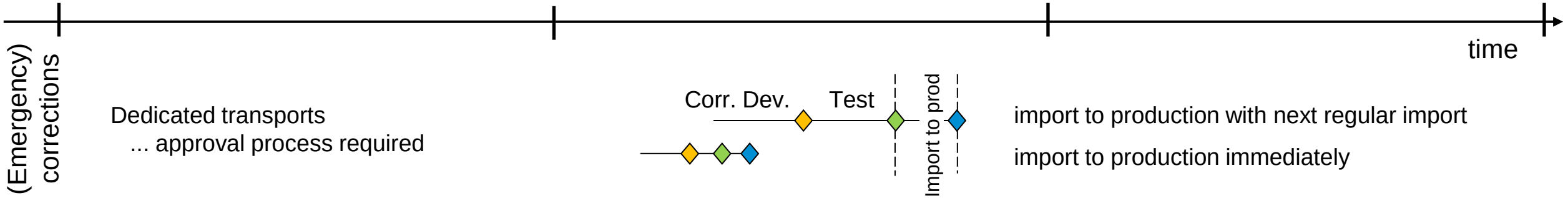


Basic Principles

- Define sprint length according to your needs
  - 1 week, 2 weeks, …
  - You can define development and correction sprints
- Release decision: forward to production or skip (severe failures that cannot be corrected in the test cycle)
- In a 3SL you must keep the test system close to the production system so that you can apply corrections
- Work with one or multiple developer & customizing transports per sprint
  - Depends on your needs and project size
  - When using multiple transports, the content should be independent (or you must transport them in correct order)
  - You can hold back a transport in dev (no release) or in test (no forward) (= skip a sprint), if content is independent

Transport Best Practices

Best Practice for a Sprint-based Transport Schedule



- Corrections development and transport must be possible any time
  - Priority over development
  - Approval process required
- Dedicated transport requests are used for corrections
- “Forced Import” feature allows to ignore dependency checks

- Object locking and correction transports
  - Development objects are can be in one transport only (“locked”). If an object to be corrected is locked on a development request, it must be removed and added to the correction transport
  - Customizing objects are not locked – they can be part of multiple transport (use the “Transport” feature in finetuning UIs to add them to a correction transport)
- Dependencies between objects must be mitigated
  - Individual solution required, e.g. for customizing objects, “open” dependencies must be added to the correction transport
  - Corrections of the same objects need to be imported in the correct sequence

Agenda

1 S/4HANA Cloud 3SL Transport Processes and Functionality

- Systems and Tenants
- Transport Types
- Restrictions and Constraints
- SAP Updates and Transports
- Transport Automation

2 Best Practices

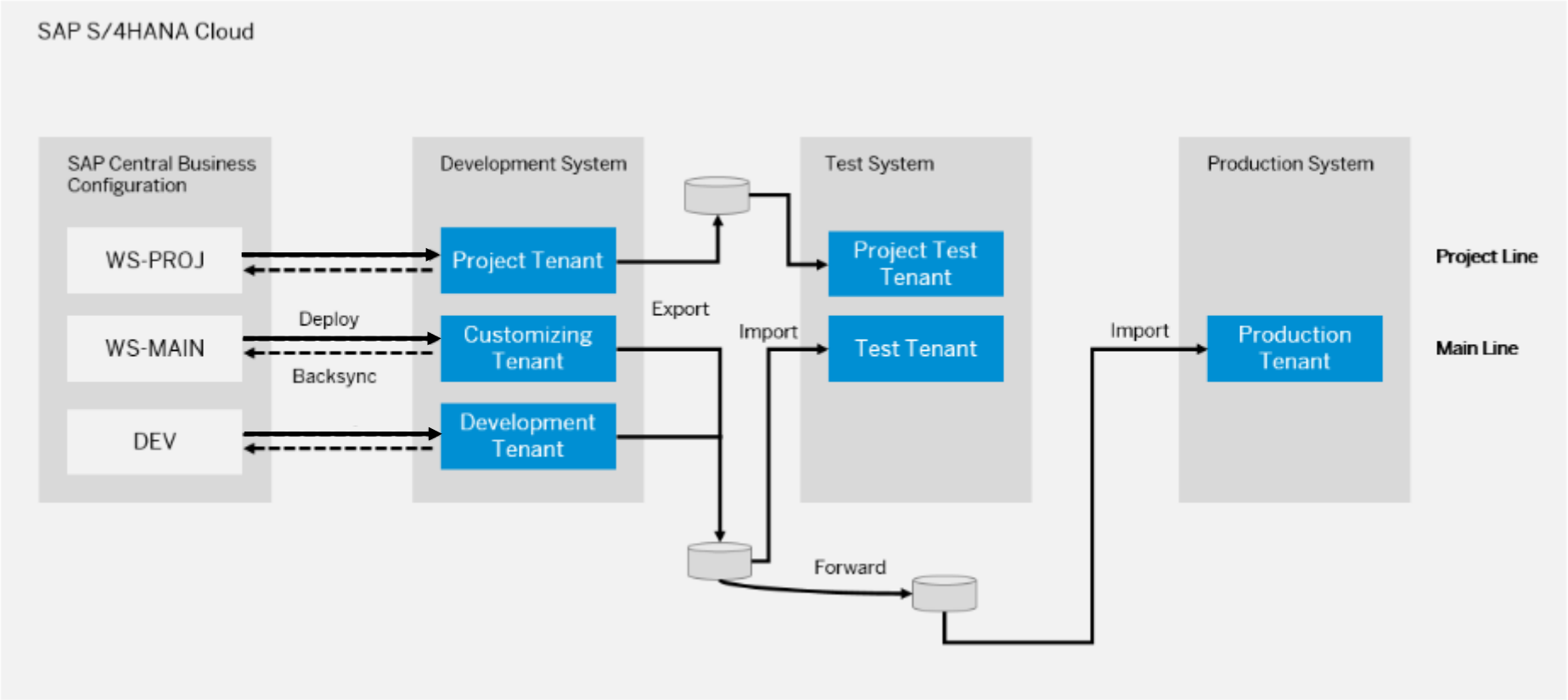
- Best practice: how to organize transport, when to release, import, …
- How should business configuration be grouped (e.g. countries, …)

3 Outlook

- Project Line
- Cloud ALM

Outlook
Project Line

Labs Preview



Use Project Line for new projects

Keep the main line “clean” for smaller developments and correction development

Outlook

Cloud Application Lifecycle Management (CALM) Integration

Labs Preview

CALM Integration

- CALM will allow to bundle and manage transports that belong to one “feature”
- CALM will allow to bundle and manage transports from integrated systems

Documentation

Documentation: SAP Help Portal: 3-System Landscape and Transport Management

SAP Activate Roadmap Viewer

Questions & Answers

Thank you.

Dev4S4 | S/4HANA Cloud, ABAP Environment Bootcamp for Developers | Partner hands-on workshop

JAM: Dev4S4 | Partner hands-on workshop

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