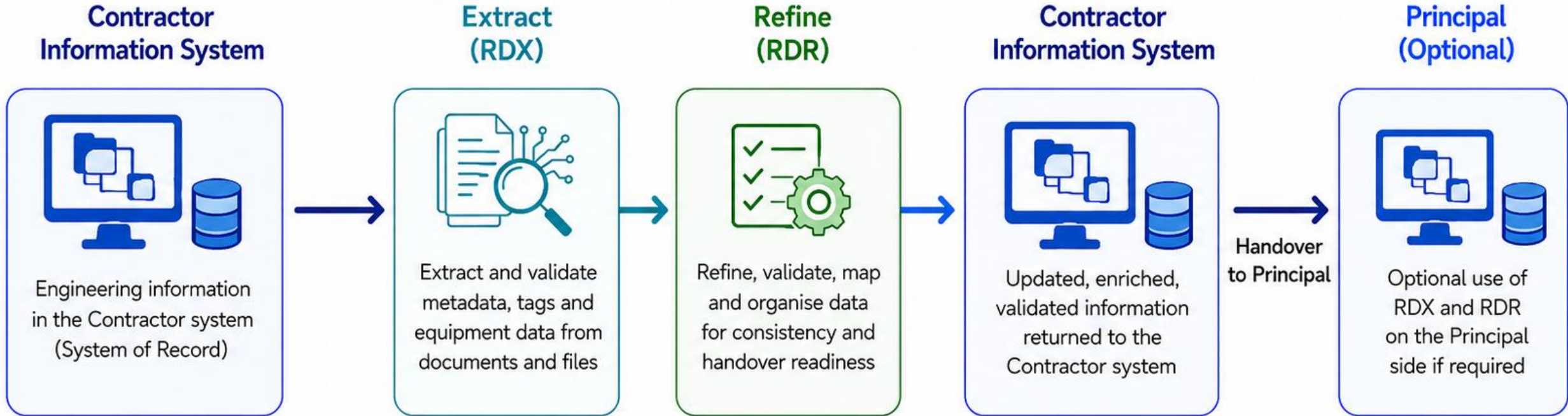


Statement of Software Conformance to CFIHOS v1.5 and v2.0

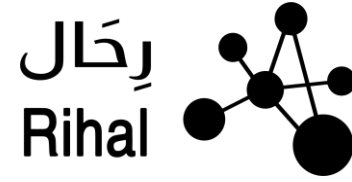
Supporting Evidence

RDX and RDR: Companion Apps

Work alongside the Contractor and Principal systems to improve information quality and handover readiness



Rihal Data eXtract (RDX) and Rihal Data Refine (RDR) are companion applications that enhance information quality while the project information systems remain the systems of record.



Phase A

Project Standard Preparation

A1-01-RDX – Import and Configure CFIHOS Tag Taxonomy Pack

1. The CFIHOS standard can be imported into RDX as a taxonomy pack. When selected for an extraction, RDX uses the taxonomy to prefer canonical CFIHOS field names when identifying and structuring extracted metadata.

4. Add Property

name	dataType	picklist
API Standard 682 data sheet attached	Text	required;not required;not applicable;manufacturer standard;other
API Standard 682 mechanical seal code	Text	
API baseplate number	Text	2,5;3,3,5;4,5,5,5;6,6,5;7,7,8;9,9,5;10;11;11,5;12;not applicable
ATEX category	Text	1;2;3;M1;M2
ATEX explosive atmosphere	Text	D;G;GD;DA;DB;DC;GC;GA;GB;MA;MB
ATEX group	Text	I,II
ECMS simulation test requirement	Text	required;not required;not applicable;manufacturer standard;other
H2S concentration	Number	
HV connection compartment space heater requirement	Text	required;not required;not applicable;manufacturer standard;other
HXT lower crown plug model	Text	
HXT lower crown plug pressure rating	Number	
HXT lower crown plug size	Text	
HXT lower crown plug type	Text	
HXT upper crown plug model	Text	
HXT upper crown plug pressure rating	Number	
HXT upper crown plug size	Text	
HXT upper crown plug type	Text	
IEC TR 61641:2014 arcing class	Text	arcing class A;arcing class B;arcing class C
IED brand	Text	manufacturer standard;other
IED remote configuration via ECMS	Text	required;not required;not applicable;manufacturer standard;other
IED to generator control panel interface media	Text	manufacturer standard;not required;hardwired discrete;serial cable;ethernet (Cu);ethernet (fibre);multiple;via ECMS media;other
IED to generator control panel interface protocol	Text	
IED to power management system interface media	Text	manufacturer standard;not required;hardwired discrete;serial cable;ethernet (Cu);ethernet (fibre);multiple;via ECMS media;other
IED to power management system interface protocol	Text	
IED to power management system network redundancy	Text	not applicable;no redundancy;parallel redundancy protocol (PRP);high-availability seamless redundancy (HSR);other
Inspection authority	Text	
LCA type	Text	product carbon footprint;environmental product declaration;estimate;life cycle analysis
LV auxiliary compartment space heater requirement	Text	required;not required;not applicable;manufacturer standard;other
LV compartments locking facility	Text	manufacturer standard locking facility;padlockable;hasp and padlock
NPSH3 at 120 % of flow	Number	
NPSH3 at rated flow	Number	
NPSHA available at 120% of rated flow	Number	
NPSHA datum	Text	centreline of impeller;top of foundation;suction-nozzle centreline;other
NPSHa-NPSH3 margin at rated flow	Number	
NPSHa-NPSH3 margin in allowable operating region	Number	



CFIHOS V2.0 - Tag Register					
cfihos-v2-tag - v2.0					
Properties: 1388		Projects using: 3		Description: Capital Facilities Information Handover Specification V2.0 - CORE Reference Data Library	
Search properties or picklist values Refresh Export CSV Import CSV + Add property Edit pack Delete					
Name	Type	Picklist	Format hint	Actions	
API Standard 682 data sheet attached CFIHOS-40001235	Text	required, not required, not applicable, manufacturer standard, other	Text up to 40 characters	Edit	Delete
API Standard 682 mechanical seal code CFIHOS-40001234	Text	-	Text up to 40 characters	Edit	Delete
API baseplate number CFIHOS-40001229	Text	2,5, 3, 3,5, 4, 5, +13	Text up to 40 characters	Edit	Delete
ATEX category CFIHOS-40000009	Text	1, 2, 3, M1, M2	Text up to 40 characters	Edit	Delete
ATEX explosive atmosphere CFIHOS-40000010	Text	D, G, GD, DA, DB, +6	Text up to 40 characters	Edit	Delete
ATEX group CFIHOS-40000011	Text	I, II	Text up to 40 characters	Edit	Delete
ECMS simulation test requirement CFIHOS-40001016	Text	required, not required, not applicable, manufacturer standard, other	Text up to 40 characters	Edit	Delete

2. Organisation or project taxonomy pack CFIHOS v2.0 tag properties CSV import

3. Organisation or project tag register taxonomy pack based on CFIHOS v2.0

7. Multiple organisation and project taxonomy pack configurations supported

A1-02-RDX – Import and Configure CFIHOS Document Taxonomy Pack

1. The CFIHOS standard can be imported into RDX as a taxonomy pack. When selected for an extraction, RDX uses the taxonomy to prefer canonical CFIHOS field names when identifying and structuring extracted metadata.

name	dataType	picklist
discipline	Text	AA;BA;CB;CG;CI;CS;CX;EA;FA;HE;HH;HP;HS;HX;IN;JA;KA;LA;MH;MP;MF
discipline document type	Text	AA0480;AA0706;AA0709;AA0780;AA3180;AA3311;AA3322;AA3341;AA3
document type	Text	4301;6802;4302;2405;8268;4303;3304;1401;4305;1904;2305;5705;570
document status	Text	IFI;IFU;IFC;IFD;IAB;not specified



2. Organisation or project taxonomy pack CFIHOS v2.0 document properties CSV import

CFIHOS V2.0 - Document Register

cfihos-v2-doc - v2.0

Properties: 15 Projects using: 3

Description: Document register columns (drawing number, discipline, doc type, revision, ...) with CFIHOS picklists where applicable.

Refresh Export CSV Import CSV Add property

Name	Type	Picklist	Format hint	Actions
discipline document type IGRA-DOC-0005	Text	AA0480, AA0706, AA0709, AA0780, AA3180, +1122	-	Edit Delete
document number IGRA-DOC-0001	Text	-	-	Edit Delete
document type IGRA-DOC-0004	Text	4301, 6802, 4302, 2405, 8268, +324	-	Edit Delete

50 / page

4. Add Property

5. Edit Property

6. Delete Property

3. Organisation or project document register taxonomy pack based on CFIHOS v2.0

7. Multiple organisation and project taxonomy pack configurations supported

A1-03-RDX – Store Multiple CFIHOS Releases

1. CFIHOS v1.5 Document and Tag Taxonomy Packs

2. CFIHOS v2.0 Document and Tag Taxonomy Packs

Taxonomy Packs

CFIHOS V1.5 - Document Register

cfihos-v1-5-doc

Click to view and manage

CFIHOS V1.5 - Tag Register

cfihos-v1-5-tag

Click to view and manage

CFIHOS V2.0 - Document Register

cfihos-v2-doc

Click to view and manage

CFIHOS V2.0 - Tag Register

cfihos-v2-tag

Click to view and manage

Blank Template

New Pack

3. Multiple CFIHOS releases stored concurrently

A1-01-RDR – Import and Configure CFIHOS Document Picklists

LookupName	Value	Description
picklist: document type short code	2405	anchoring diagram - A diagram showing anchoring and mooring of offshore vessels and structures and the interaction of anchoring study - Includes anchoring of offshore vessels and the interaction of anchor lines with sub-sea pipelines and structures
picklist: document type short code	4303	approval certificate - A document issued by a recognised independent authority certifying the equipment has been manufactured
picklist: document type short code	1401	approved vendor list - A collection of approved vendors and suppliers for a particular contract.
picklist: document type short code	4305	aspect data - Data which further describes an element of an organisation's activities, products or services that can interact with
picklist: document type short code	1904	asset reference plan - A diagram utilized for transient activity during assembly (e.g. sequence of activity) and not finished work.
picklist: document type short code	5705	audit plan - A document capturing what particular audits and assessments will be carried out to achieve the overall quality performance
picklist: document type short code	5706	benchmarking data - A data set used to evaluate or judge project estimates and or performance relative to it (i.e., ISO 19008).
picklist: document type short code	5707	
picklist: document type short code	6603	
picklist: document type short code	7704	
picklist: document type short code	7179	
picklist: document type short code	1905	



1. Organisation or project CFIHOS v2.0 document property picklists Excel import

3. Create new picklist

5. Delete picklist

Home > Validation > Lookups

Lookups

Manage validation lookups for your project. Create mask patterns (regex) or picklists to validate data values.

Search by name or description...

Unused Only OFF + Create New Lookup

Name	Type	Pattern/Values	Usage	Actions
picklist: discipline code	Picklist	AA BC WA VA UA TA SA NA QA PR DA NA MX MS MR MP MH LA RA	1	ⓘ ⚙️ 🗑️
picklist: discipline name	Picklist	architectural engineering security health environmental cost and planning management	1	ⓘ ⚙️ 🗑️
picklist: document language	Picklist	ru ko ja ar zh ms ro fr de es pt	1	ⓘ ⚙️ 🗑️
picklist: document type classification	Picklist	DOCT CONT	1	ⓘ ⚙️ 🗑️
picklist: document type name	Picklist	isometric diagram cathodic protection diagram capital spares study action list	1	ⓘ ⚙️ 🗑️
picklist: document type short code	Picklist	5789 5770 6919 4304 7206 6402 3369 3311 6605 6006 2310 2309 8270 0703	1	ⓘ ⚙️ 🗑️
picklist: native document format	Picklist	PNG TIFF XML DXF BGN XLSX DOCX PPTX CSV ZIP MP4 JPG PDF DWG	1	ⓘ ⚙️ 🗑️
picklist: native file delivery timing	Picklist	at handover during project not applicable	1	ⓘ ⚙️ 🗑️
picklist: representation type	Picklist	Text not specified intelligent vector drawing (CAD) Multi media Raster Image Structured Data	1	ⓘ ⚙️ 🗑️
picklist: revision status	Picklist	AFD not specified not applicable IFI IFB IFR IFA IFC IFU AFC AB FINAL DRAFT	6	ⓘ ⚙️ 🗑️
picklist: sheet size	Picklist	ARCH D ARCH C ARCH B A0 ARCH A ANSI E ANSI D A1 A2 A3 A4 ANSI A ANSI B	1	ⓘ ⚙️ 🗑️

2. Organisation or project CFIHOS v2.0 based lookup management in RDR

4. Edit picklist

6. Multiple organisation and project lookup configurations supported

A1-02-RDR – CFIHOS Properties Management

2. Multiple organisation and project property rulesets supported

Home > Validation > Properties ⓘ

Properties Management

Manage properties for your project. Define validation rules, mappings, and value constraints.

discipline

Has Mappings OFF No Lookups OFF Has Values OFF **+ Add Property**

Properties 4 of 22 shown

Property Name	Unique	Validation	Actions
discipline	Regular		2
discipline code	Regular	CS CX EA +31	3 1
discipline document type short code	Regular	MR7770 MR7771 MR7880 +1124	2 1 1
discipline name	Regular	pipeng engineering telecommunications subsea engineering +17	2 2 1

3. Add property

1. Manage organisation or project CFIHOS properties, mappings and validation

4. Edit property

5. Delete property

A1-03-RDR – Database Explorer

1. Navigate
imported
CFIHOS
data
structures

Home > Tools > Database Explorer ⓘ

Database Explorer

Explore database schema with an interactive tree view. Select tables to view their data and relationships.

Schema Tree

- data_exports (ref) 54
- excel_templates 22
- project_lookups 631
 - project_lookup_values 28,198
 - property_lookup_relationships 1,2
- properties 1,172
 - class_properties 45,037
 - property_mappings 103
 - referential_integrity_group_propert
 - value_minings 103
 - property_lookup_relationships (ref) 1,2
 - property_mappings 103
 - referential_integrity_groups 7**
 - referential_integrity_group_values
 - referential_integrity_group_propert (ref)
 - transformation_logs 38
 - transformation_workflows 5
 - transformation_steps 20

referential_integrity_groups 7 rows

Columns (9)

id (Integer) project_id (Integer) name (text) description (text) created_by (text) modified_by (text) created_at (timestamp with time zone) updated_at (timestamp with time zone) is_active (boolean)

id	project_id	name	description	created_by	modified_by	created_at	updated_at	is_active
1	1	FuncPhys		NULL	NULL	2025-12-19T20:48:2...		2
2	1	test		NULL	NULL	2025-12-19T20:48:2...		2
3	3	Functional-Physical ...	Valid combinations ...	NULL	NULL	2026-04-07T12:43:3...		2
4	4	Plant - Storage Loca...	Valid plant and stora...	NULL	NULL	2026-04-12T09:47:1...		2
5	4	Material Group - Uni...	Valid material group...	NULL	NULL	2026-04-12T09:47:1...		2
6	7	CFIHOS Discipline x...	Allowed combinatio...	NULL	NULL	2026-05-24T15:47:2...		2
7	6	discipline document...	Combines discipline...	NULL	NULL	2026-06-01T18:02:2...		2

2. View configured CFIHOS rules, data and relationships

A1-04-RDR – Configure Cross-property Validation Rules

Manage Referential Integrity Group



discipline document type short code

Combines discipline code and document type short code

Properties:

discipline code document type short code

1. Configure project-
standard cross-property
validation using CFIHOS
reference data

+ Add Value Combination

Valid Value Combinations (3)

discipline code	document type short code	Description	Actions
IN	7880	A document formally establishing the mai	 
QA	6180	A document which describes a set of logic	 
QA	7180	A written account of activities, conditions,	 

A1-05-RDR – Configure Class Property Requirements

Home > Validation > Class Properties ⓘ

Class Properties

Define which properties are mandatory or optional for each class value.

document type short code
⬆️ Promote

Class Property	Class	Rules	Properties	
document type short code	0403	M: 6 O: 0 (6 total)	discipline code, discipline name, document number, document title, document type name, +1 more	⚙️
document type short code	0480	M: 6 O: 0 (6 total)	discipline code, discipline name, document number, document title, document type name, +1 more	⚙️
document type short code	0502	M: 6 O: 0 (6 total)	discipline code, discipline name, document number, document title, document type name, +1 more	⚙️

1. Configure mandatory and optional CFIHOS properties for project-standard classes

Class Properties: 1 | Classes: 329 of 329 | Total Rules: 1322

A1-06-RDR – Import and Configure CFIHOS Equipment Property Picklist Values

View Lookup

×

explosion protection gas group

Picklist

2. Import values from list

Values (8)

[+ Add Value](#) [Import Values](#)

Value	Description	Actions
A	Acetylene	Edit Delete
B	Hydrogen, Propylene oxide, Ethyl oxide, Butadiene	Edit Delete
C	Cyclopropane, Ethly ether, Ethylene	Edit Delete
D	Acetone, Benzene, Butane, Hexane, Paint solvents, Na	Edit Delete
I	Gas Group I is intended for mines where the atmospher	Edit Delete
IIA	Gas Group IIA is area with an explosive gas atmospher	Edit Delete
IIB	Gas Group IIB is area with an explosive gas atmospher	Edit Delete
IIC	Gas Group IIC is area with an explosive gas atmospher	Edit Delete

1. Edit or delete organisation or project-specific CFIHOS v2.0 based equipment attribute lookup values and descriptions

Close

A1-07-RDR – Comparing Imported CFIHOS Releases

1. Comparing imported CFIHOS Tag Class releases (CORE v2.0 and v1.5.1)

Data Comparison

Compare data between two sources to identify mismatches. Only rows with matching unique property values are compared.

Left Data Source

CFIHOS CORE tag class v2.0.csv (Source)

Right Data Source

Staging 2026-08-13 14:13_20260813_13134...

Compare

View Demo

Mismatches

4 types found

Comparison Results - 822 mismatches found

Include Nulls

OFF

Toggle to include mismatches where one value is null/empty and the other has data

Back to Summary

Property: parent tag class name

Left Value

boat

Right Value

marine|boat

Showing 1 of 1 affected items

abstract class flag	<null>	no
change request number	<null>	CR0005;CR0030;CR0029;FR60
created date	<null>	2019-10-01T00:47:46.434Z
equipment installed	<null>	yes
modified date	<null>	2021-10-12T14:57:36.093Z
status	<null>	STANDARD

Hide All Columns

All Columns

CFIHOS CORE tag class v2.0.csv

CFIHOS unique code:	CFIHOS-30000601
abstract class indicator:	no
data_source:	CFIHOS CORE tag class v2.0.csv
equipment expected to be installed indicator:	yes
parent tag class name:	boat
tag class definition:	A boat that is intended to rescue people in an emergency case.
tag class name:	life boat

Staging 2026-08-13 14:13_20260813_131348.staging

CFIHOS unique code:	CFIHOS-30000601
abstract class flag:	no
abstract class indicator:	no
change request number:	CR0005;CR0030;CR0029;FR60
created date:	2019-10-01T00:47:46.434Z
data_source:	CFIHOS tag class v1.5.1.csv/CFIHOS CORE tag class v2.0.csv
equipment expected to be installed indicator:	yes
equipment installed:	yes
modified date:	2021-10-12T14:57:36.093Z
parent tag class name:	marine boat

2. Example reference data change identified between CFIHOS releases

RDR can compare imported CFIHOS releases to identify differences between versions

3. Changed properties are highlighted for review

A2-01-RDX – Configure Project Property Picklist Values

1. Add, edit or remove project-specific property picklist values

×

Edit property

* Name

driven equipment bearing type

Data type

Text

e.g. Text, Number, Date, Text Array

Format hint

Text up to 40 characters

Free-form example or regex shown to the LLM (e.g. '1:100', 'ISO date YYYY-MM-DD'). Optional.

Picklist values

sleeve bearings

rolling element bearings

tilted pad bearings

unknown

hydrodynamic

other

One per line. Leave empty for free-text columns.

A2-01-RDR – Configure Project Property Picklist Values

View Lookup

picklist: document type name

Picklist

CFIHOS V2.0 document type names

2. Bulk import values

1. Add, edit or remove project-specific property picklist values

Values (329) [+ Add Value](#) [↑ Import Values](#)

Value	Description	Actions
cathodic protection diagram	A diagram showing locations of cathodic protection :	✎ ✖
capital spares study	A consolidated study reviewing critical equipment ar	✎ ✖
action list	A collection of activities tracking responsible parties :	✎ ✖
active fire protection system specification	Design data and information that forms the basis of t	✎ ✖
alarm, trip setting list	A collection of all instrument set points and/or alarm	✎ ✖
anchoring diagram	A diagram showing anchoring and mooring of offsho	✎ ✖
anchoring study	Includes anchoring of offshore vessels and the intera	✎ ✖
applicable standards list	A collection of all applicable company standards, inte	✎ ✖
application software	A computer program designed for a specific task or u	✎ ✖
approval certificate	A document issued by a recognised independent aut	✎ ✖

A2-02-RDR – Configure Project Numbering Validation

1. Configure organisation or project numbering mask (Regular Expression/Regex)



Create New Lookup

×

Name

document number

Type

Mask (Regex Pattern)

Regex Pattern

`^(?:[A-Z]{3,4}-[A-Z]{2,4}-[A-Z]{2}-\d{3}|[A-Z]{3,4}-[A-Z]{2}-\d{6})$`

Valid regex pattern

Description

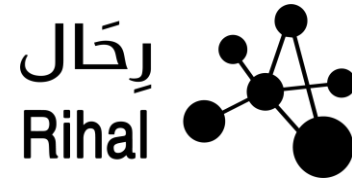
Project document numbering mask

Cancel

Create

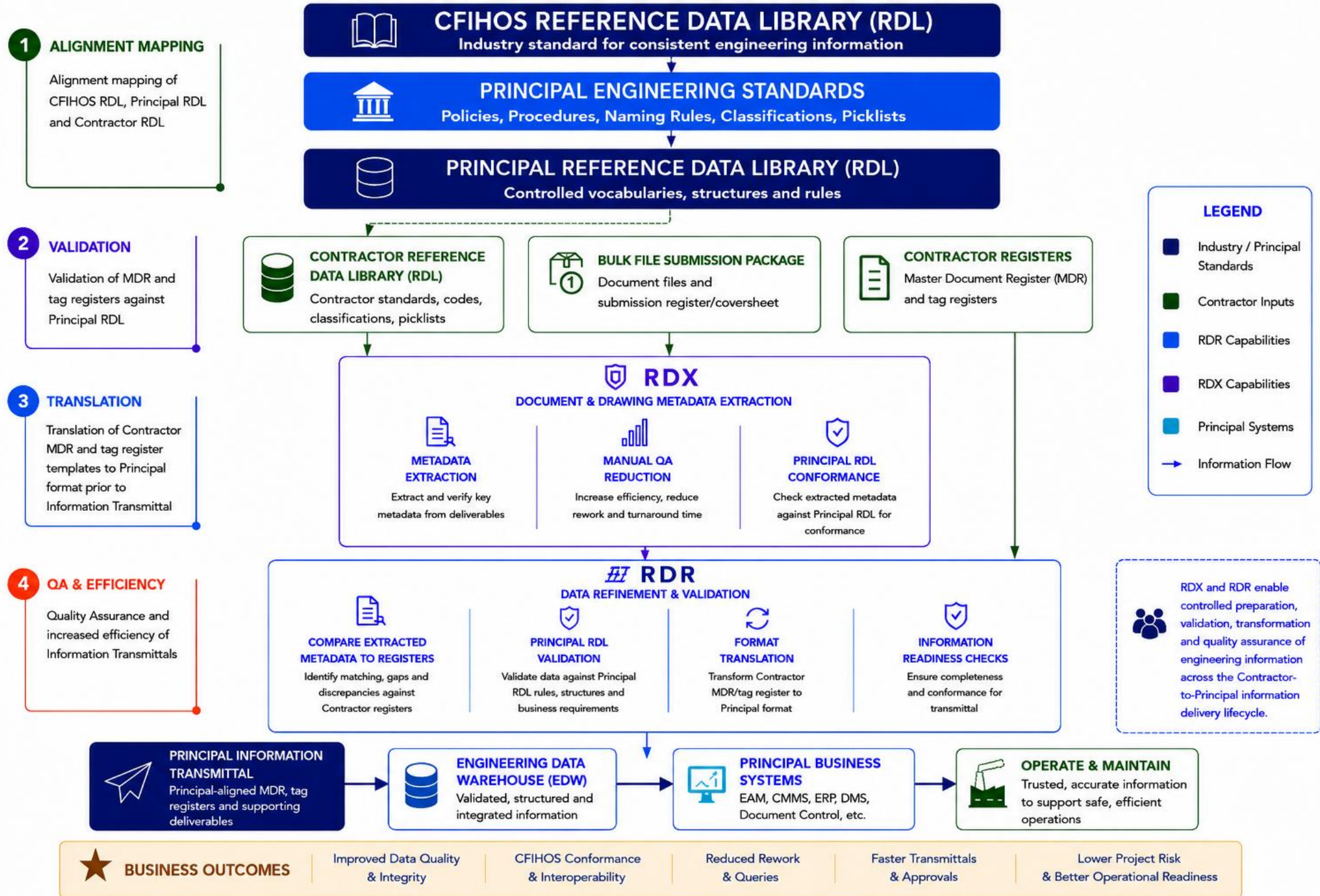
Enter a valid regular expression pattern to validate values against. Syntax highlighting will help you spot errors.

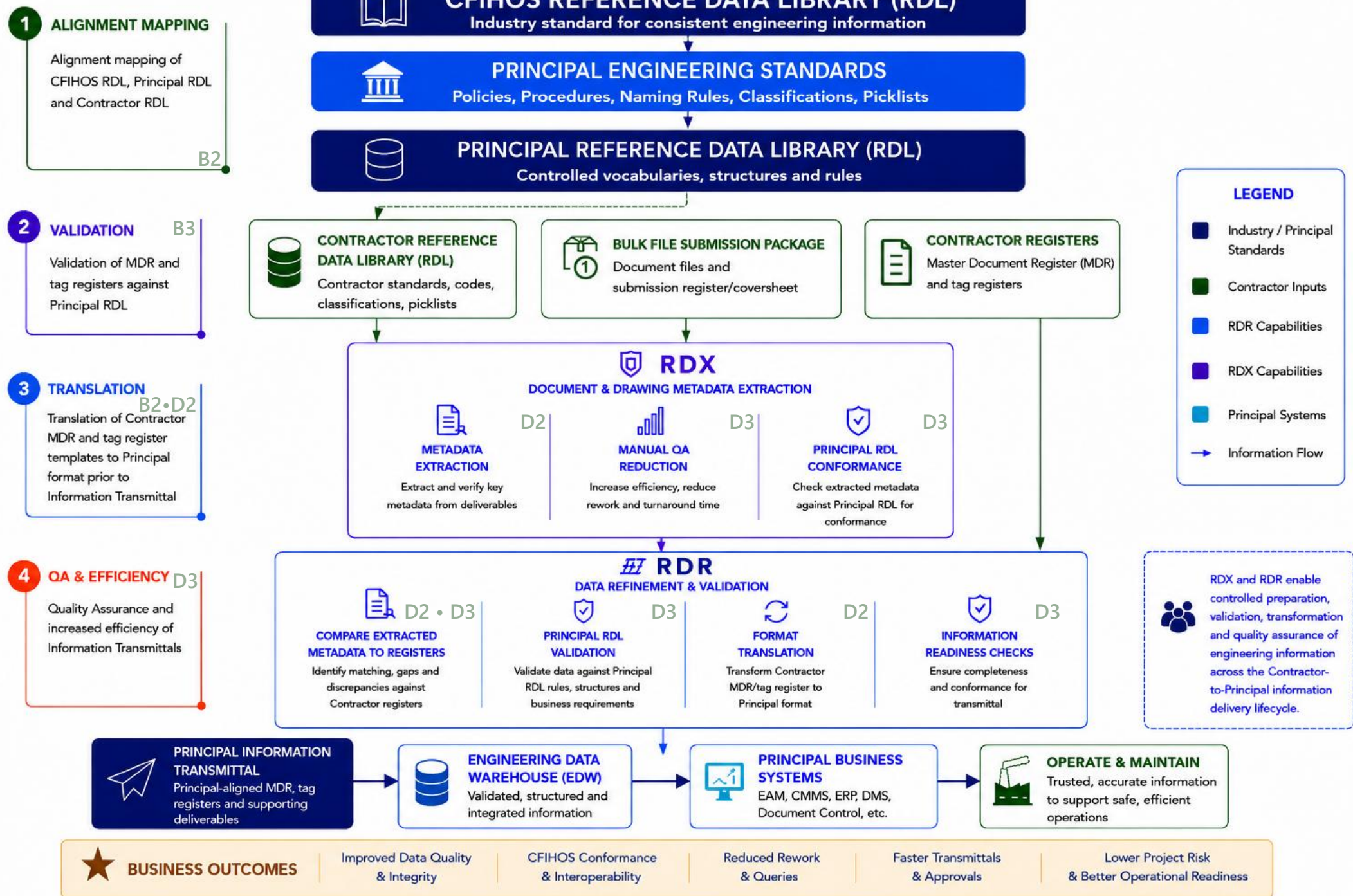
2. Supports project-specific numbering standards



Phase B

Contractor System Setup





B2-01-RDX – Configure Extraction Instructions

1. Configure metadata extraction instructions

Extraction Instructions

Extract only:

document number
revision
title
revision status
discipline
document type

Extraction LLM Connection

Use global default

Merge Fields LLM Connection

Use extraction connection

Taxonomy Pack

CFIHOS V2.0 - Document Register (v2.0)

When set, extraction will prefer canonical field names from the selected taxonomy (e.g. CFIHOS).

2. Configure project standard taxonomy pack

B2-02-RDX – Project Standard Document Taxonomy

CFIHOS V2.0 - Document Register
cfihos-v2-doc - v2.0

Properties: 15 Projects using: 3 Description: Document register columns (drawing number, discipline, doc type, revision, ...) with CFIHOS picklists where applicable.

Search properties or picklist values Refresh Export CSV Import CSV Add property

Name	Type	Picklist	Format hint	Actions
approved by IQRA-DOC-0013	Text	-	-	
checked by IQRA-DOC-0012	Text	-	-	
discipline IQRA-DOC-0003	Text	AA, BA, CB, CG, CI, +29	-	
discipline document type IQRA-DOC-0005	Text	AA0480, AA0706, AA0709, AA0780, AA3180, +1122	-	
document number IQRA-DOC-0001	Text	-	-	
document type IQRA-DOC-0004	Text	4301, 6802, 4302, 2405, 8268, +324	-	
drawn by IQRA-DOC-0011	Text	-	-	
issue date IQRA-DOC-0010	Date	-	ISO date YYYY-MM-DD (convert from any source format)	
project number IQRA-DOC-0014	Text	-	-	
revision IQRA-DOC-0006	Text	-	A short string like "0", "1", "A", "B", "Rev 2"	
revision status IQRA-DOC-0007	Text	IFI, IFU, IFC, IFD, IAB, +1	-	

1. Configure project standard document metadata schema and picklists

B2-03-RDX – Project Standard Tag Taxonomy

CFIHOS V2.0 - Tag Register

cfihos-v2-tag - v2.0

Edit pack
Delete

Properties: 1388

Projects using: 3

Description: Capital Facilities Information Handover Specification V2.0 - CORE Reference Data Library

Refresh
Export CSV
Import CSV
Add property

Name	Type	Picklist	Format hint	Actions
cable type CFIHOS-400000034	Text	coaxial cable, control cable, fibre optic cable, high voltage cable, low voltage cable	Text up to 40 characters	<a> <a>



1. Configure project standard tag metadata schema and controlled values

B2-01-RDR – Configure Source-to-Project Property Mappings

1. Configure property mapping rules from internal and external information sources to project-standard format

[Home](#) > [Transformation](#) > [Property Mappings](#) ⓘ

↔ Property Mappings

Configure property mappings to transform source column names to standardized project properties using regex patterns.

Mappings 9 of 9 shown
 Property Health 17/23 (74%)

🔧 Auto Mapping
+ Add Property Mapping

Regex Pattern	Matched Properties	Destination Property	Actions
^discipline name\$	discipline name	discipline name	
.*document number.*	document number	document number	
^revision\$	revision	document revision code	
^revision status\$	revision status	document status code	
.*title.*	document title title	document title	
^document type name\$	document type name	document type name	
^discipline\$	discipline	discipline name	
^document type\$	document type	document type name	
^discipline document type...	discipline document type short code	discipline document type short c	

📄 Data Source Properties (23)

Filter by data sources... Unmapped OFF

data_source > tags
 Filename > discipline name

prepared by > approved by
 Prepared By > approved by

Project > project number
 worksheet_name > sheet
 discipline

discipline document type short code
 discipline name

document number
 document title
 document type

document type name
 revision
 revision status
 title

approved by
 discipline code
 document revision code

document status code
 document type short code
 issue date

project number

B2-02-RDR – Configure Project Standard Validation Lookups

Home > Validation > Lookups ⓘ

Lookups

Manage validation lookups for your project. Create mask patterns (regex) or picklists to validate data values.

Search by name or description...

Unused Only **OFF** [+ Create New Lookup](#)

Name	Type	Pattern/Values	Usage	Actions
discipline code	Picklist	IN QA AA BA BC CB CG CI CS CX EA FA HE HH HP HS HX JA KA LA MH MP MR MS MX NA OA PX RA SA TA	1	👁️ ✎️ 🗑️
discipline document type short code	Picklist	WA8422 HX6180 HX6613 HX6680 HX6802 HX6873 HX6875 HX6881 HX7180 HX7205 HX7303 HX7506 HX7739 HX7753 HX7876 HX7880	1	👁️ ✎️ 🗑️
discipline name	Picklist	instrumentation engineering architectural engineering contracting and procurement management electrical engineering	1	👁️ ✎️ 🗑️
document status code	Picklist	AFC IAB IFA IFC IFD IFH IFI IFP IFQ IFT IFU IFV not specified SUP AFD AFP AFT APP CAN IFR	1	👁️ ✎️ 🗑️
document type name	Picklist	commissioning and startup strategy communication procedure completion certificate connection diagram consolidated spare parts list constructability study	1	👁️ ✎️ 🗑️
document type short code	Picklist	9013 6180 7180 7880 0403 0480 0502 0503 0504 0505 0510 0514 0519 0520 0521 0522 0580 0702 0703 0704 0705 0706	1	👁️ ✎️ 🗑️

1. Configure project-standard validation lookups for incoming source data

B2-03-RDR – Configure Project Standard Value Mappings

Home > Transformation > Value Mappings ⓘ

Value Mappings

Configure value mappings to transform data values using find-and-replace patterns.

Search by pattern, replacement value, or description...

[Mappings](#)
5 of 5 shown

[+ Add Value Mapping](#)

Properties Pattern	Values Pattern	Replacement Value	Description	Created At	Actions
^discipline name\$	.*Instrumentation.*	instrumentation engineering		May 21, 2026	✎ 🗑
^discipline name\$	^[Qq][Uu][Aa][Ll][Ii][Tt][Yy] [Aa][...]	quality management		May 21, 2026	✎ 🗑
^document type name\$	.*Procedure.*	general procedure		May 21, 2026	✎ 🗑
^document type name\$	^(Specification ENGINEERING SPECIFI...)	general specification		May 21, 2026	✎ 🗑
^document status code\$	^For Review\$	IFR		May 21, 2026	✎ 🗑

Values' Health (45%) [4 properties](#) [11 values](#) [🔄](#)

discipline (2) - 0% document type (2) - 0% discipline code (5) - 80% revision status (2) - 50%

1. Configure project-standard value mappings from non-standard sources

B2-04-RDR – Configure Cross-property Validation Rules

Manage Referential Integrity Group

discipline document type short code

Combines discipline code and document type short code

Properties:

discipline code document type short code

1. Configure project-
standard cross-property
validation using Principal
reference data

+ Add Value Combination

Valid Value Combinations (3)

discipline code	document type short code	Description	Actions
IN	7880	A document formally establishing the mai	 
QA	6180	A document which describes a set of logic	 
QA	7180	A written account of activities, conditions,	 

B2-05-RDR – Configure Class Property Requirements

[Home](#) > [Validation](#) > [Class Properties](#) ⓘ



Class Properties

Define which properties are mandatory or optional for each class value.

document type short code

Search classes or properties...

⬆️ Promote

Class Property

Class

Rules

Properties

document type short code	0403	M: 6 O: 0 (6 total)	discipline code, discipline name, document number, document title, document type name, +1 more
document type short code	0480	M: 6 O: 0 (6 total)	discipline code, discipline name, document number, document title, document type name, +1 more
document type short code	0502	M: 6 O: 0 (6 total)	discipline code, discipline name, document number, document title, document type name, +1 more

Class Properties

1

Classes

329 of 329

Total Rules

1322

1. Configure mandatory and optional CFIHOS properties for project-standard classes



B2-06-RDR – Value Mining Rules

Edit Mining Rule

1. Select source property

2. Define extraction rule

3. Select destination property

4. Define transformed value

Basic Info

Rule Name

assembly_drawing

Description

Source Properties

Source Property

document title

Top Values (click to use in regex)

Loading...

Capture Regex

\bASSEMBLY\s+DRAWING\b

Valid regex pattern

+ Add Capture Group

+ Add Source Property

Destination Properties

Destination Property

document type name

Value Builder

assembly diagram

Examples:

assembly diagram

+ Add Destination Property

Cancel

Update

B2-07-RDR – Transformation Workflow

Home > Transformation > Workflow Builder

Workflow Builder

Build custom data transformation workflows by dragging and dropping transformation operations in your preferred order.

[Run Transformation](#) [Save Workflow](#) [Reset](#)

Available Operations

Drag operations to the workflow canvas to build your transformation pipeline.

Column Operations

- Property Mapping**
Rename columns using regex patterns

Data Operations

- Value Mapping**
Transform data values using regex patterns
- Value Mining**
Intelligently extract and populate values using regex patterns

Data Cleaning

- Deduplication**
Remove duplicate records based on unique properties

1. Configurable transformation workflow

Transformation Workflow

- Property Mapping**
Rename columns using regex patterns
- Value Mapping**
Transform data values using regex patterns
- Deduplication**
Remove duplicate records based on unique properties
- Value Mining**
Intelligently extract and populate values using regex patterns

Steps: 4 | Property Mapping: 1 | Deduplication: 1 | Value Mapping: 1 | Value Mining: 1

B2-08-RDR – Project Standard Properties Management

Home > Validation > Properties ⓘ

Properties Management

Manage properties for your project. Define validation rules, mappings, and value constraints.

Search by name or description...

Has Mappings **OFF** No Lookups **OFF** Has Values **OFF** [+ Add Property](#)

Property Name	Unique	Validation	Actions
discipline code	Regular	CS CX EA +31	3 Edit Link Unlink 1 Delete
discipline document type short code	Regular	MR7770 MR7771 MR7880 +1124	3 Edit Link Unlink 1 Delete
discipline name	Regular	piping engineering telecommunications subsea engineering +17	2 Edit Link Unlink 2 1 Delete
document number	Unique		3 Edit Link Unlink 1 Delete
document revision code	Regular		2 Edit Link Unlink 1 Delete
document status code	Regular	APP AFT AFP +17	1 Edit Link Unlink 1 1 Delete
document title	Regular		3 Edit Link Unlink 1 Delete
document type	Regular		2 Edit Link Unlink Delete
document type name	Regular	dispersion study document distribution matrix document, data control procedure +326	3 Edit Link Unlink 2 1 Delete
document type short code	Regular	9025 9031 9030 +326	3 Edit Link Unlink 1 Delete
drawn by	Regular		2 Edit Link Unlink Delete
issue date	Regular		2 Edit Link Unlink Delete

1. Configure project validation properties, mappings and controlled values

B2-09-RDR – Project Standard Equipment Property Mapping

1. Configure source property

2. Select from recommended project-standard properties using confidence scores or search for the required destination property

×

Create Property Mapping

Data Sources

CFIHOS_Use_Case_3_wide.csv

Regex Pattern

^Ingress\ Protection\$

Valid regex pattern

Matched Data Properties

Ingress Protection

Property Values

IP66/IP67

Search properties...

+

Destination Property

ingress protection (95% match) ✓

explosion protection concept (58% match)

explosion protection examination certificate number (58% match)

explosion protection gas group (58% match)

+12

Cancel

Create Mapping

B3-01-RDR – Configure Project Numbering Validation

1. Configure Project numbering mask (Regular Expression/Regex)



Create New Lookup

×

Name

document number

Type

Mask (Regex Pattern)

Regex Pattern

`^(?:[A-Z]{3,4}-[A-Z]{2,4}-[A-Z]{2}-\d{3}|[A-Z]{3,4}-[A-Z]{2}-\d{6})$`

Valid regex pattern

Description

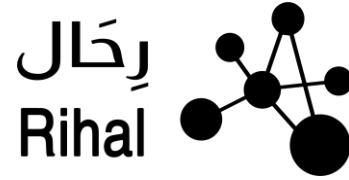
Project document numbering mask

Cancel

Create

Enter a valid regular expression pattern to validate values against. Syntax highlighting will help you spot errors.

2. Supports project-specific numbering standards



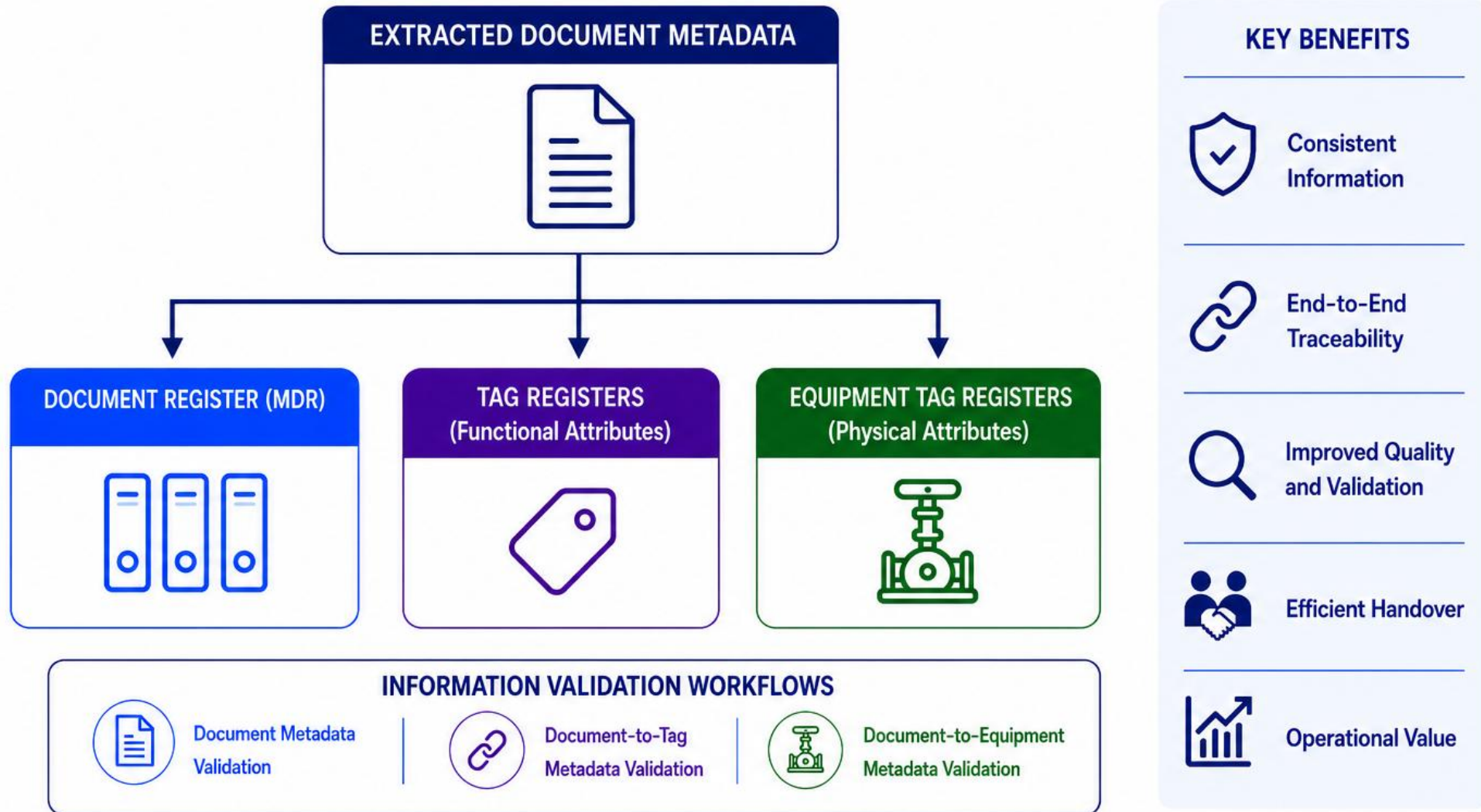
Phase D

Contractor Information Delivery

Use Case 1 – Contractor Bulk File Submission Validation

INTEGRATED INFORMATION VALIDATION FRAMEWORK

Connecting document revisions, tags and equipment to deliver consistent, traceable and reliable information



One metadata foundation. Three validation workflows. Complete information confidence.

Delivering CFIHOS-aligned, connected information for confident decision-making and efficient handover.

USE CASE 1 – BULK FILE SUBMISSION VALIDATION

PROCESS DISCIPLINES	SOURCE / SYSTEM	KEY ACTIVITIES	DESCRIPTION	USE CASE 1 CATEGORY ALIGNMENT
 METADATA ALIGNMENT	 Contractor Engineering Information	• Engineering drawings (2D / 3D) • Engineering documents • Master Document Register (MDR) • Bulk file submission	Contractor authors and compiles engineering information and submits files and MDR into the project for processing.	D2
 VALIDATION	 Rihal Data eXtract (RDX) Metadata Extraction	• Extract configured document metadata: number, revision, title, document type, etc. • Drawing and file analysis (OCR / AI) • Capture file properties • Structured metadata export	RDX automatically extracts metadata from submitted files and documents and prepares structured metadata for further refinement.	D2
 TRANSFORMATION / PREPARATION	 Rihal Data Refine (RDR) Metadata Alignment	• Import MDR and extracted metadata • Load into project workspace / staging • Establish context and relationships • Prepare for comparison	RDR ingests contractor MDR and extracted metadata into a staging context aligned to the project information model.	D2
 VALIDATION & COMPARISON	 RDR Metadata Validation	• Compare MDR metadata vs extracted metadata • Check against reference data and rules • Identify mismatches, omissions, anomalies • Generate validation reports	RDR validates and compares metadata against reference data and contractual requirements to ensure accuracy and completeness.	D3
 CORRECTION & REPROCESSING	 RDR Metadata Correction & Reprocessing	• Resolve metadata mismatches • Apply transformation and mapping rules • Update metadata / reprocess • Re-run validation as required	RDR applies transformation rules and corrects metadata issues. Reprocessing continues until data meets validation and quality requirements.	D3
 HANDOVER PREPARATION	 Principal-Aligned Deliverables	• Validated MDR • Validated file submission package • Template population • Prepare transmittal to Principal	Validated, corrected and transformed information is prepared for Principal-aligned delivery.	D3



D2-01-RDX – Upload Files and Start Extraction

1. Upload files from internal and external sources

CFIHOS_Use_Case_1.2

Upload Export Edit Clear docs Delete

Description Contractor transmittal - bulk file submission - CFIHOS v2.0 Core RDL with Document Register taxonomy

Documents 3 (5 pages) LLM Connection Global default Created 26/05/2026

Taxonomy CFIHOS V2.0 - Document Register

Extraction

Documents (3) Results (0) Instructions Conformance

All (3) Running (0) Done (0) Errors (0)

Filename

Filename	Type	Pages	Status	Progress
CFIHOS_Procedure_Test_Document.pdf	PDF	2	Ready	—
Iqra_Test_Report_Project_Handover_QA.pdf	PDF	1	Ready	—
sample_engineering_specification.pdf	PDF	2	Ready	—

Upload

3 files

- CFIHOS_Procedure_Test_Document.pdf 4 KB uploaded
- Iqra_Test_Report_Project_Handover_QA.pdf 3 KB uploaded
- sample_engineering_specification.pdf 4 KB uploaded

Clear list

1

Merge Fields Force All Start

2. Confirm project standard taxonomy setting

4. Start extraction

3. Review uploaded information set

D2-02-RDX – Review Extraction Results

Projects / CFIHOS_Use_Case_1.2

CFIHOS_Use_Case_1.2

Description: Contractor transmittal - bulk file submission - CFIHOS v2.0 Core RDL with Document Register

Documents: 3 (5 pages) LLM Connection: Global default Created: 26/05/2026

Taxonomy: CFIHOS V2.0 - Document Register

Extraction: COMPLETED

Fields (17): revision x4, title x3, document number x3, issue date x2, discipline x2, revision status x2, document type x2, Approved By x1, prepared by x1, project name x1, project number x1, Date x1, Project x1, Prepared By x1, REFERENCES x3, Revision History x1, Validation Results x1

5 done 0 errors 0 remaining

Recent activity

- 21:00:22 DONE Iqra_Test_Report_Project_Handover_QA.pdf:1
- 20:59:23 LLM Iqra_Test_Report_Project_Handover_QA.pdf:1
- 20:59:23 DONE CFIHOS_Procedure_Test_Document.pdf:2
- 20:58:53 LLM CFIHOS_Procedure_Test_Document.pdf:2
- 20:58:53 DONE CFIHOS_Procedure_Test_Document.pdf:1
- 20:57:41 LLM CFIHOS_Procedure_Test_Document.pdf:1
- 20:57:41 DONE sample_engineering_specification.pdf:1
- 20:56:56 LLM sample_engineering_specification.pdf:1

Taxonomy Mapping: 82% 23 auto-mapped 0 needs review 5 unmapped 28 total fields

1. Pre-configured extraction instructions

3. Outlined extracted attributes automatically mapped to Principal-aligned document attributes

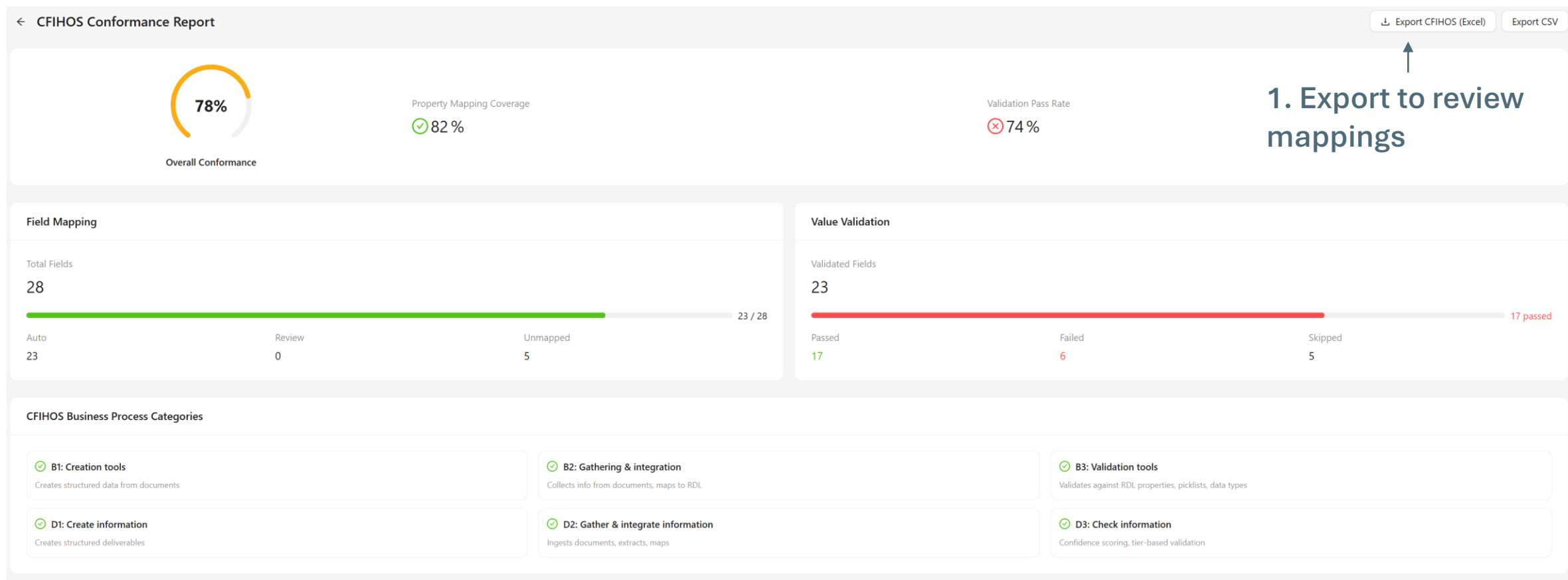
4. Principal-aligned document attribute/value mapping summary

5. Review Principal conformance

Document	Pg	Type	revision	title	document number	issue date	discipline	revision status	document type	Approved By	prepared by	project name
Iqra_Test_Report_Project_Handover_QA.pdf	1	report	A	PROJECT HANDOVER QA READINESS REPORT	REP-QA-OPS-0002	2026-05-12	—	—	—	—	Engineering Information Management Team	—
CFIHOS_Procedure_Test_Document.pdf	2	other	—	—	—	—	—	—	—	—	—	—
CFIHOS_Procedure_Test_Document.pdf	1	other	0	Contractor Bulk File Submission QA Procedure	PROC-QA-200101	—	Quality Assurance	IFR	Procedure	—	—	—
sample_engineering_specification.pdf	1	datasheet	A	Pressure Transmitter Installation Specification	ENG-SPEC-PT-001	—	Instrumentation	For Review	ENGINEERINGS SPECIFICATION	Engineering Manager	—	—
sample_engineering_specification.pdf	2	datasheet	A	—	—	2026-05-10	—	—	—	—	—	North Proce

2. Extraction results

D2-03-RDX – Principal-aligned Conformance Report



Note: This report is available only when a taxonomy pack has been configured, see slides A1-01-RDX and A1-02-RDX

D2-04-RDX – Attribute and Value Mapping Export

1. Principal-aligned attribute mapping

fileName	pageNumber	label	value
sample_engineering_specification.pdf	1	discipline	Instrumentation
CFIHOS_Procedure_Test_Document.pdf	1	discipline	Quality Assurance
Iqra_Test_Report_Project_Handover_QA.pdf	1	document number	REP-QA-OPS-0002
sample_engineering_specification.pdf	1	document number	ENG-SPEC-PT-001
CFIHOS_Procedure_Test_Document.pdf	1	document number	PROC-QA-200101
sample_engineering_specification.pdf	1	document type	ENGINEERING SPECIFICATION
CFIHOS_Procedure_Test_Document.pdf	1	document type	Procedure
Iqra_Test_Report_Project_Handover_QA.pdf	1	issue date	2026-05-12
Iqra_Test_Report_Project_Handover_QA.pdf	1	project number	South Utilities Expansion Programme
Iqra_Test_Report_Project_Handover_QA.pdf	1	revision	A
sample_engineering_specification.pdf	1	revision	A
CFIHOS_Procedure_Test_Document.pdf	1	revision	0
sample_engineering_specification.pdf	1	revision status	For Review
CFIHOS_Procedure_Test_Document.pdf	1	revision status	IFR
Iqra_Test_Report_Project_Handover_QA.pdf	1	title	PROJECT HANDOVER QA READINESS REPORT
sample_engineering_specification.pdf	1	title	Pressure Transmitter Installation Specification
CFIHOS_Procedure_Test_Document.pdf	1	title	Contractor Bulk File Submission QA Procedure

2. Review attribute values

D2-05-RDX – Quality Check in Document Viewer

The screenshot shows the Document Viewer interface. On the left, a sidebar lists documents: 'CFIHOS_Procedure_Test_Document.pdf' (2p), 'sample_engineering_specification.pdf' (2p), and 'Iqra_Test_Report_Project_Handover_QA...' (1p). An arrow points from the second document to the main viewer area. The main area displays a document with a large 'Value' label and the text 'PROC-QA-200101'. On the right, a 'Fields (6)' sidebar lists attributes: 'document number' (PROC-QA-200101, 100%), 'revision' (0, 100%), 'title' (Contractor Bulk File Submission QA Procedure, 100%), 'revision status' (IFR, 100%), 'discipline' (Quality Assurance, 100%), and 'document type' (Procedure, 100%). An arrow points from the 'document number' field to the main document area. At the bottom, an arrow points from the document area to the third step.

2. Complete metadata review of all document files

1. Select field (attribute) to zoom to location in document file

3. Correct source documents if required and re-run extraction prior to exporting structured metadata for MDR comparison in RDR

D2-06-RDX – Export Extracted Metadata Staging Dataset

1. Principal-aligned attributes

Filename	Page	Page Type	revision	title	document number	issue date	discipline	revision status	document type
Iqra_Test_Report_Project_Handover_QA.pdf	1	report	A	PROJECT HANDOVER QA READINESS REPORT	REP-QA-OPS-0002	2026-05-12			
CFIHOS_Procedure_Test_Document.pdf	2	other			PROC-QA-200101				
CFIHOS_Procedure_Test_Document.pdf	1	other	0	Contractor Bulk File Submission QA Procedure	PROC-QA-200101		Quality Assurance	IFR	Procedure
sample_engineering_specification.pdf	1	datasheet	A	Pressure Transmitter Installation Specification	ENG-SPEC-PT-001		Instrumentation	For Review	ENGINEERING SPECIFICATION
sample_engineering_specification.pdf	2	datasheet	A		ENG-SPEC-PT-001	2026-05-10			

2. Structured metadata staging dataset combined from multiple sources

3. Ready for MDR comparison and validation in RDR

D2-01-RDR – Import Extracted Metadata and MDR Datasets

1. Upload files

2. Confirm data sources for comparison

3. Select data sources then Compare

Data Sources
Upload and manage your data files for processing.

Search by file name...

[Delete Selected](#)
[Export Selected](#)
[Populate Template](#)
[Compare](#)
[Upload Files](#)

✓	Status	File Name	Status	Size	Rows	Columns	Uploaded	Processing Time	Actions
✓	✓	CFIHOS_Use_Case_1.2_wide - Results	Completed	9.9 KB	5	19	May 27, 2026 17:49	0.1s	👁️ 🗑️
✓	✓	MDR_Test2_CFIHOSv2.0_v1 - MDR	Completed	10.2 KB	3	8	May 27, 2026 17:23	0.0s	👁️ 🗑️

Total Files: 2
 Total Size: 20.1 KB
 Total Rows: 8
 Completed: 2

D2-02-RDR – Compare Extracted Metadata and MDR Dataset

1. View mismatched column names and values between sources

 document number: PROC-QA-200101

11 mismatches

Column	← MDR_Test2_CFIHOSv2.0_v2_MDR.xlsx	→ CFIHOS_Use_Case_1.2_wide_Results.xlsx
data_source	MDR_Test2_CFIHOSv2.0_v2_MDR.xlsx	CFIHOS_Use_Case_1.2_wide_Results.xlsx
discipline document type short code	QA6180	<null>
document revision code	0	<null>
document title	Contractor Bulk File Submission QA Procedure	<null>
worksheet_name	MDR	Results
discipline	<null>	Quality Assurance
document type	<null>	Procedure
Filename	<null>	CFIHOS_Procedure_Test_Document.pdf
revision	<null>	0
revision status	<null>	IFR
title	<null>	Contractor Bulk File Submission QA Procedure

2. Next step: run pre-configured Principal-aligned transformation rules

D2-03-RDR – Transformation Workflow

Home > Transformation > Workflow Builder

Workflow Builder

Build custom data transformation workflows by dragging and dropping transformation operations in your preferred order.

[Run Transformation](#) [Save Workflow](#) [Reset](#)

Available Operations

Drag operations to the workflow canvas to build your transformation pipeline.

Column Operations

- Property Mapping**
Rename columns using regex patterns

Data Operations

- Value Mapping**
Transform data values using regex patterns
- Value Mining**
Intelligently extract and populate values using regex patterns

Data Cleaning

- Deduplication**
Remove duplicate records based on unique properties

Transformation Workflow

1. Configurable transformation workflow

Steps: 4 | Property Mapping: 1 | Deduplication: 1 | Value Mapping: 1 | Value Mining: 1

- Property Mapping 1**
Rename columns using regex patterns
- Value Mapping 2**
Transform data values using regex patterns
- Deduplication 3**
Remove duplicate records based on unique properties
- Value Mining 4**
Intelligently extract and populate values using regex patterns

D2-04-RDR – Review Post-transformation Staging Dataset

2. Proceed to populate MDR template

Home > Dataflow > Data Staging > Staging 2026-06-01 15:22 ⓘ

Staging 2026-06-01 15:22

View and analyze your data source with property mappings and transformations.

Status: Completed | File Type: staging | Rows: 3 | Columns: 18 | Size: 0.0 B | Property Health: 67% | Value Health: 94%

Transformation Logs | Export | **Populate Template** | Delete

document number	approved by	data_source (Sugg	discipline code	discipline document	discipline name >	document r
ENG-SPEC-P...	Engineering ...	CFIHOS_Use...	IC	IN7880	instrumenta...	A
PROC-QA-20...		CFIHOS_Use...	QA	QA6180	quality man...	0
REP-QA-OPS...		CFIHOS_Use...	QA	QA7180	quality man...	A

1. Review post transformation staging dataset

Data Source Properties (18) - Filtered

- data_source > tags
- Filename > discipline name
- prepared by > approved by
- Prepared By > approved by
- Project > project number
- worksheet_name > sheet
- discipline name
- document number
- document title
- document type name
- approved by
- discipline code
- discipline document type short code
- document revision code
- document status code
- document type short code
- issue date
- project number

D2-05-RDR – Populate MDR Template from Staging Dataset

1. Select CFIHOS v2.0 MDR template

2. Select staging dataset

Populate Excel Template

Populate Excel Template

Select Template

MDR_Test_Template_CFIHOSv2.0

Select a staging data source to populate the template. Data will be automatically matched to template columns using fuzzy matching.

Template Headers

document number document revision code document title document status code discipline code
discipline document type short code discipline name document type short code document type name

Select Staging Data Source

Staging 2026-06-01 15:22_20260601_142237.staging



Selected: Staging 2026-06-01 15:22_20260601_142237.staging

Rows: 3

Columns: 18

Uploaded: 2026-06-01 14:22

Cancel

Populate Template

3. Populate template to create MDR (Excel workbook)

D2-06-RDR – Generated Principal-aligned MDR Output

document number	document revision code	document title	document status code	discipline code	discipline document type short code	discipline name	document type short code	document type name
ENG-SPEC-PT-001	A	Pressure Transmitter Installation Specification IFR		IC	IN7880	instrumentation engineering	7880	general specification
PROC-QA-200101	0	Contractor Bulk File Submission QA Procedure IFR		QA	QA6180	quality management	6180	general procedure
REP-QA-OPS-0002	A	PROJECT HANDOVER QA READINESS REPORT		QA	QA7180	quality management	7180	general report

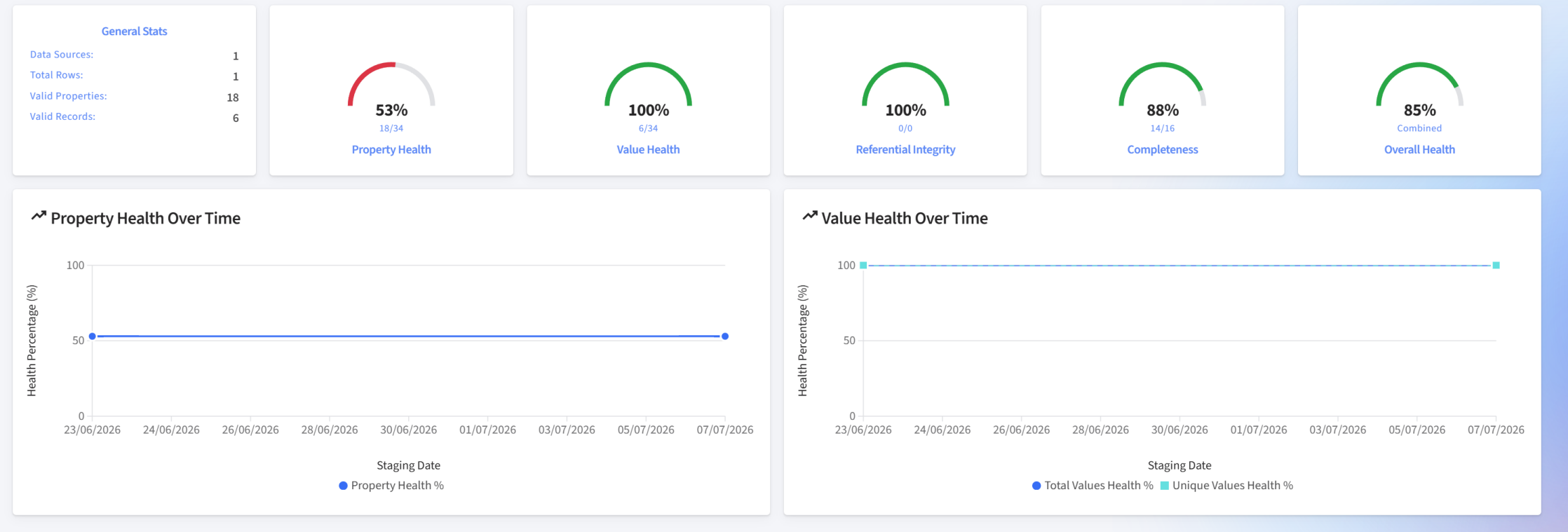
1. Review generated Principal-aligned MDR output in Excel

2. Quality check generated MDR with bulk file submission prior to transmittal to Principal

D3-01-RDR – Information Set Quality Dashboard

Welcome to Rihal Data Refine

Transform disparate data from multiple sources into clean, standardized datasets ready for third-party consumption



1. Dashboard used to assess completeness, quality, compliance and readiness of information sets prior to transfer to the Principal

D3-02-RDR – Project Numbering Standard Validation

1. Project numbering mask (Regular Expression/Regex)

View Lookup

document number

Mask

Regex Pattern

`^(?:[A-Z]{3,4}-[A-Z]{2,4}-[A-Z]{2}-\d{3})|([A-Z]{3,4}-[A-Z]{2}-\d{6})$`

Test Pattern

Enter value to test against pattern

✓ Test

2. Validate extracted document or tag numbers against configured project numbering standards

View Lookup

document number

Mask

Regex Pattern

`^(?:[A-Z]{3,4}-[A-Z]{2,4}-[A-Z]{2}-\d{3})|([A-Z]{3,4}-[A-Z]{2}-\d{6})$`

Test Pattern

PROC-QA-200101

✓ Test

✓ Value matches the pattern

View Lookup

document number

Mask

Regex Pattern

`^(?:[A-Z]{3,4}-[A-Z]{2,4}-[A-Z]{2}-\d{3})|([A-Z]{3,4}-[A-Z]{2}-\d{6})$`

Test Pattern

REP-QA-OPS-0002

✓ Test

✗ Value does not match pattern: `^(?:[A-Z]{3,4}-[A-Z]{2,4}-[A-Z]{2}-\d{3})|([A-Z]{3,4}-[A-Z]{2}-\d{6})$`

3. Identify non-compliant numbering before Principal handover

D3-03-RDR – Project Property Value Validation

Property Values - document number

2. Filter to review non-compliant values



3 unique values from 6 total records → Mapped to: document number

CFIHOS_Use_Case_1.2_wide - Results

MDR_Test2_CFIHOSv2.0_v3 - MDR

Invalid Only

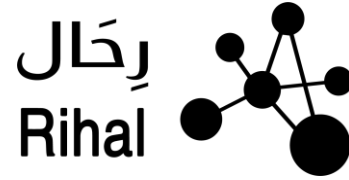
OFF

ENG-SPEC-PT-001 (2)

PROC-QA-200101 (2)

REP-QA-OPS-0002 (2)

1. Identify non-compliant property values

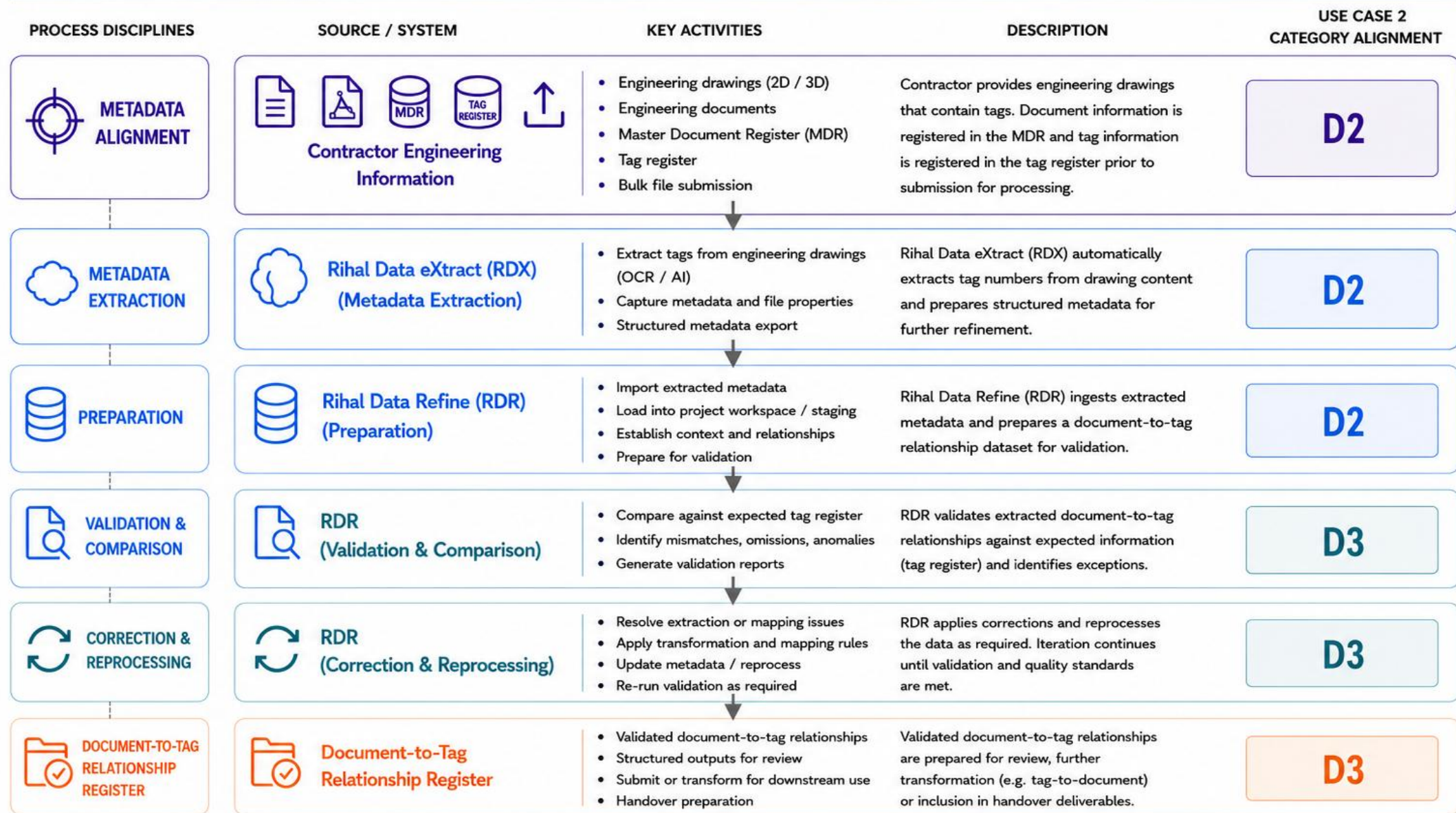


Phase D

Contractor Information Delivery

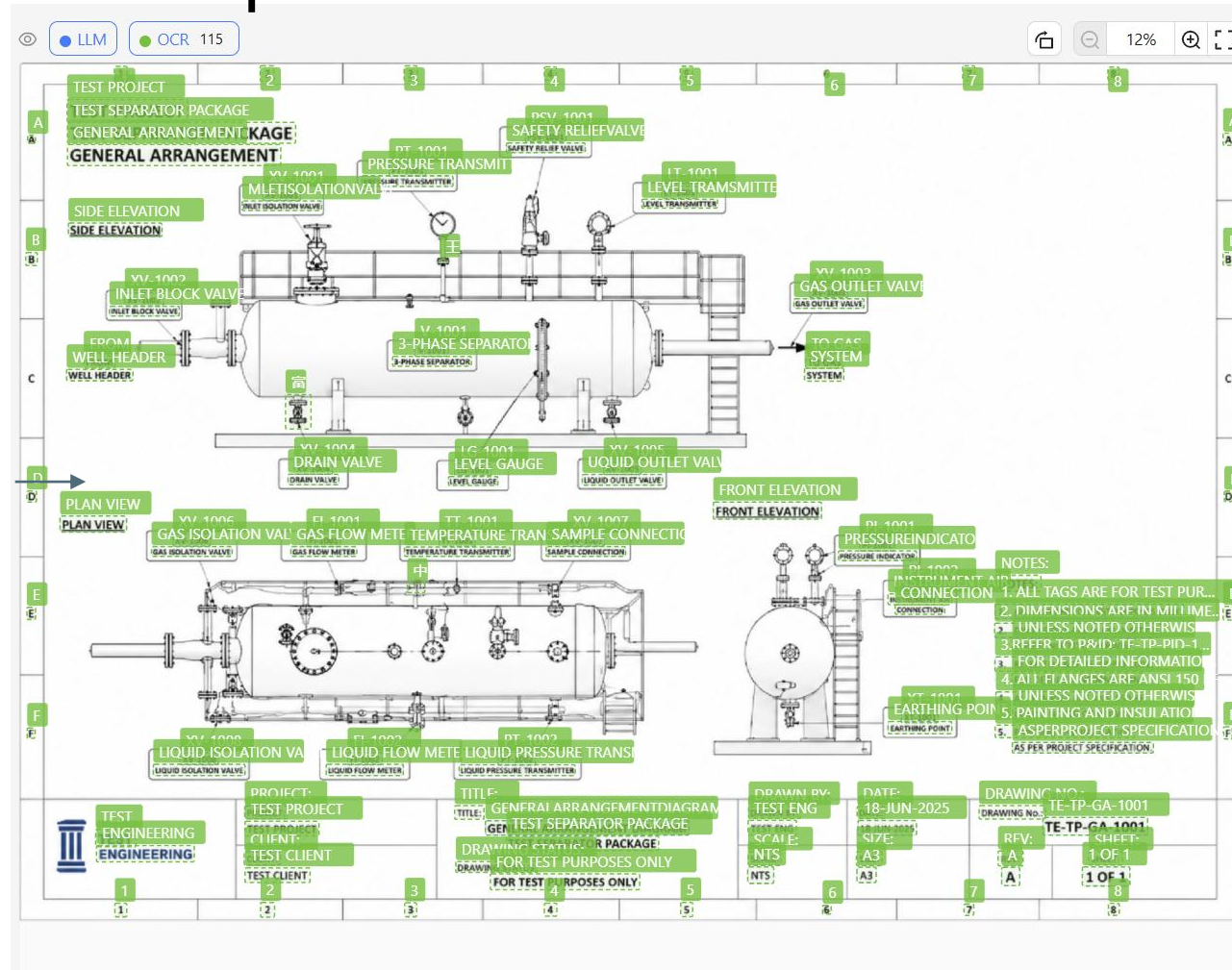
Use Case 2 – Document-to-Tag Relationship Validation

USE CASE 2 – DOCUMENT-TO-TAG RELATIONSHIP VALIDATION



D2-07-RDX – Review Extracted Document-to-Tag Relationships

2. Review extracted metadata and tag relationships against the source document



Fields (16)

document number	98%
TE-TP-GA-1001	
revision	95%
A	
document title	95%
GENERAL ARRANGEMENT DIAGRAM TEST SEPARATOR PACKAGE	
document type name	95%
GENERAL ARRANGEMENT DIAGRAM	
Tag Numbers	95%
PSV-1001, PT-1001, XV-1001, LT-1001, XV-1003, XV-1002, XV-1004, LG-1001, XV-1005, XV-1006, TT-1001, XV-1007, XT-1001, XV-1008, PT-1002	
Tag Descriptions	90%
SAFETY RELIEF VALVE, PRESSURE TRANSMITTER, ISOLATION VALVE, LEVEL TRANSMITTER, GAS OUTLET VALVE, INLET BLOCK VALVE, DRAIN VALVE, LEVEL GAUGE, LIQUID OUTLET VALVE, GAS ISOLATION VALVE, TEMPERATURE TRANSMITTER, SAMPLE CONNECTION, EARTHING POINT, LIQUID ISOLATION VALVE, LIQUID PRESSURE TRANSMITTER	
PROJECT	98%
TEST PROJECT	
CLIENT	98%
TEST CLIENT	
DATE	98%
18-JUN-2025	

1. Extracted document metadata and tag relationships

3. Correct source documents if required and re-run extraction prior to exporting structured metadata for tag register document-tag relationship comparison in RDR

D2-07-RDR – Compare Extracted Tag Relationships and Document-to-Tag Relationship Register

1. Compare document-to-tag relationships register to extracted tag numbers

Data Comparison
Compare data between two sources to identify mismatches. Only rows with matching unique property values are compared.

Left Data Source: MTR_Tag_Doc_Relationships_MTR.xlsx (Source) | Right Data Source: CFIHOS_Use_Case_2_wide.csv (Source) | [Compare](#) | [View Demo](#)

Comparison Results - 1 mismatches found | [Previous](#) | Page 1 of 1 (1 total mismatches) | [Next](#)

☐ Include Nulls **OFF** | Toggle to include mismatches where one value is null/empty and the other has data

[Back to Summary](#) | Property: Tag Numbers

Left Value: **PSV-1001; PT-1001; XV-1001; LT-1001** | Right Value: **PSV-1001; PT-1001; XV-1001; LT-1001**; XV-1003; XV-1002; XV-1004; LG-1001; XV-1005; XV-1006; TT-1001; XV-1007; XT-1001; XV-1008; PT-1002

Search document number...

Showing 1 of 1 affected items

document number: TE-TP-GA-1001 | **18 mismatches**

Column	MTR_Tag_Doc_Relationships_MTR.xlsx	CFIHOS_Use_Case_2_wide.csv
data_source	MTR_Tag_Doc_Relationships_MTR.xlsx	CFIHOS_Use_Case_2_wide.csv
Tag Numbers	PSV-1001; PT-1001; XV-1001; LT-1001	PSV-1001; PT-1001; XV-1001; LT-1001 ; XV-1003; XV-1002; XV-1004; LG-1001; XV-1005; XV-1006; TT-1001; XV-1007; XT-1001; XV-1008; PT-1002
worksheet_name	MTR	<null>
Additional Tag Descriptions	<null>	GAS FLOW METER; PRESSUREINDICATOR; LIQUID FLOW METER
Additional Tag Numbers	<null>	V-1001; FI-1001; PI-1001; PI-1002; FI-1002
CLIENT	<null>	TEST CLIENT
DATE	<null>	18-JUN-2025

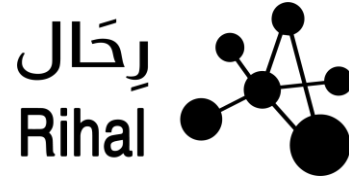
2. Next step: run transformation to merge tags missing from document-to-tag relationship register

D2-08-RDR – Generated Principal-aligned Document-to-Tag Relationship Register

document number	document revision	document type name	tag name
TE-TP-GA-1001	A	GENERAL ARRANGEMENT DIAGRAM	PSV-1001; PT-1001; XV-1001; LT-1001 PSV-1001; PT-1001; XV-1001; LT-1001; XV-1003; XV-1002; XV-1004; LG-1001; XV-1005; XV-1006; TT-1001; XV-1007; XT-1001; XV-1008; PT-1002

1. Review generated Principal-aligned document-to-tag relationship register in Excel

2. Quality check Principal-aligned document-to-tag relationship register for handover or further transformation



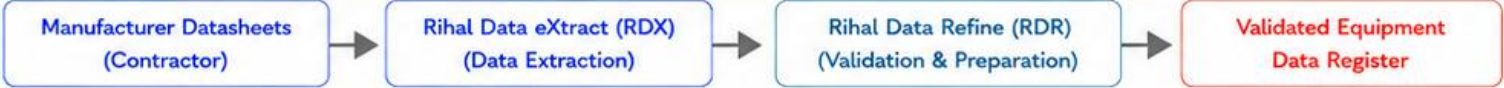
Phase D

Contractor Information Delivery

Use Case 3 – Equipment Data Validation

USE CASE 3 – EQUIPMENT DATA VALIDATION

PROCESS DISCIPLINES	SOURCE / SYSTEM	KEY ACTIVITIES	DESCRIPTION	USE CASE 3 CATEGORY ALIGNMENT
 DATA COLLECTION	 Contractor Inputs (Manufacturer Datasheets)	- Collect manufacturer datasheets (PDF, Excel, etc.) - Capture equipment schedules and registers - Capture related documents and attachments - Record source and revision information	Contractor provides manufacturer datasheets and equipment data in registers or schedules for validation.	D2
 EXTRACTION & CAPTURE	 Rihal Data eXtract (RDX) (Data Extraction)	- Extract equipment data from manufacturer datasheets (OCR / AI) - Capture metadata and file properties - Structure and normalize extracted data	Rihal Data eXtract (RDX) automatically extracts equipment attributes and related information from manufacturer datasheets and prepares structured data for further refinement.	D2
 PREPARATION & ENRICHMENT	 Rihal Data Refine (RDR) Preparation	- Import extracted data - Load into project workspace / staging - Enrich with classifications and lookups - Prepare data for validation	Rihal Data Refine (RDR) prepares the extracted equipment data by applying classifications, lookups and business rules before validation.	D2
 VALIDATION & COMPARISON	 RDR Validation & Comparison	- Validate against Principal requirements - Compare against equipment standards and expected values - Identify mismatches, omissions, anomalies	RDR validates equipment data against configured requirement and identifies exceptions and data quality issues.	D3
 CORRECTION & REPROCESSING	 RDR Correction & Reprocessing	- Resolve data issues and exceptions - Update or correct data - Reprocess and re-validate as required - Maintain audit trail of changes	RDR applies corrections and reprocesses the data. Iteration continues until validation and quality standards are met.	D3
 HANDOVER PREPARATION	 Validated Equipment Data Register	- Approve validated equipment data - Publish validated equipment data register - Prepare transmittal to Principal	Validated equipment data is approved and published for use across the information lifecycle or handed over.	D3



D2-08-RDX – Review Extracted Equipment Data

2. Review
extracted
equipment
data against
the datasheet



SURBPRO SurbPro 3051S
Absolute Pressure Transmitter
Performance. Reliability. Innovation.

SP0813-0100-4661, Rev GA
May 2024
MOCK DATASHEET FOR TESTING PURPOSES

FEATURES

- Industry leader in pressure, level and flow measurement solutions
- Best-in-class performance: up to $\pm 0.04\%$ of span
- Stability for up to 10 years
- 10-year limited warranty
- SIL 2/3 capable (IEC 61508)
- Complete offering of traditional and wireless HART® enabled, and FOUNDATION™ Fieldbus protocols
- Integrated diagnostics for enhanced process visibility

APPLICATIONS

- Pressure measurement in process, power and utilities industries
- Level measurement in closed tanks and vessels
- Flow measurement using DP flow elements (calculated)
- Suitable for gas, liquid and vapor applications

CERTIFICATIONS

CE UKCA SIL EC 61508 Ex

SPECIFICATIONS

Model	SurbPro 3051S Absolute Pressure Transmitter
Primary Variable	Absolute Pressure
Device Tag	PT-1001
Measured Medium	Process Gas
Service	Wellhead Gas Pressure
P&ID Reference	TE-101-PID-1001
Normal Operating Range (URL)	0 to 10 barg
Calibration Range (URL to URL)	0 to 15 barg
Product Reference	SP0813-0100-4661
Explosion Protection	ATEX
Ingress Protection	IP66/IP67

PRODUCT OVERVIEW

The SurbPro 3051S Absolute Pressure Transmitter measures absolute pressure of gases, liquids or vapors and converts it to a 4-20 mA HART® output signal.

ATEX CERTIFICATION

Certificate Number: Baseefa11ATEX0158X
ATEX Marking: I 10 Ex ia IIC T4 Ga
I 10 Ex ia IIC T135°C Da
Standards: EN IEC 60079-0:2018
EN 60079-11:2012
Ambient Temperature: -40°C to $+85^{\circ}\text{C}$
ATEX Notified Body: Baseefa (1180)
Special Conditions: Refer to certificates for details
EU-Type Examination Certificate: Baseefa11ATEX0158X

PERFORMANCE

Reference Accuracy (includes linearity, hysteresis, repeatability)	Up to $\pm 0.04\%$ of span
Stability	$\pm 0.1\%$ of URL for 10 years
Response Time	90 ms
Overpressure Limit	45 barg
Burst Pressure	150 barg
Turn Down	100:1
Long Term Drift	$\pm 0.1\%$ of URL per 10 years
Update Rate	Up to 10 Hz
Damping	0 to 32 seconds (adjustable)

ELECTRICAL

Output Signal	4-20 mA HART® 7
Supply Voltage	10.5 to 42.4 VDC
Load Limit	See Figure 1
Power Consumption	3.6 to 21.0 mA
Electrical Connection	M20x1.5
Polarity Protection	Reverse polarity protected
Surge Protection	Pwr IEC 61000-4-5
Electromagnetic Compatibility	Pwr IEC 61326-1:2012

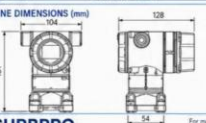
MECHANICAL

Process Connection	1/2 in NPT (female)
Wetted Material	316L SST, Alloy C-276
Diaphragm Material	316L SST
Housing Material	Aluminum with epoxy-polyurethane coating
Weight (approx.)	1.6 kg (3.5 lb)
Mounting	2 in Pipe or Surface Mount
Enclosure	Single Compartment
Enclosure Volume	0.8 L
Enclosure Coating	Epoxy-polyurethane

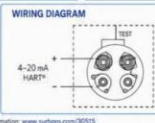
ENVIRONMENTAL

Ambient Temperature	-40°C to $+85^{\circ}\text{C}$
Process Temperature	-40°C to $+120^{\circ}\text{C}$
Ingress Protection	IP66 / IP67 per IEC 60529
Vibration	1 g per IEC 60770-1
Shock	100 g per IEC 60770-1
Relative Humidity	0 to 100% condensing

OUTLINE DIMENSIONS (mm)



WIRING DIAGRAM



ORDERING INFORMATION

Specify model and required options:
3051S Absolute Pressure Transmitter
Model: 3051SAL12381A1A4E8304
(Example configuration)

For full ordering information, refer to SurbPro 3051S Product Data Sheet (SP0813-0100-4661).

Fields (43)

Tag Number	PT-1001	99%
Model	SurbPro 3051S Absolute Pressure Transmitter	98%
Primary Variable	Absolute Pressure	98%
Device Tag	PT-1001	99%
Service	Wellhead Gas Pressure	97%
Measured Medium	Process Gas	97%
P&ID Reference	TE-101-PID-1001	97%
Normal Operating Range (URL)	0 to 10 barg	95%
Calibration Range	0 to 15 barg	95%
Product Reference	SP0813-0100-4661	99%
Explosion Protection	ATEX	99%
Ingress Protection	IP66/IP67	99%
ATEX Category	1	92%
ATEX Explosive Atmosphere	GD	90%
ATEX Group	II	95%
Explosion Protection Concept	Ex ia	95%
Explosion Protection Examination Certificate Number	Baseefa11ATEX0158X	98%
Explosion Protection Gas Group	IIC	95%

1. Extracted
equipment
attributes,
select a field
to view its
source
location on
the
datasheet

3. Correct source datasheet if required and re-run extraction prior to exporting structured metadata for tag register (physical) comparison in RDR

D2-09-RDR – Compare Extracted Datasheet Attributes to Tag Register (Physical)

1. View mismatched column names and values between tag register (left) and datasheet extraction (right)

Left Value

Pressure_Transmitter_Equipment_List.csv

Right Value

CFIHOS_Use_Case_3_wide.csv

Showing 1 of 1 affected items

ATEX Certificate Number	<null>	Baseefa11ATEX0158X
ATEX Marking	<null>	IIG Ex ia IIC T4Ga
ATEX Notified Body	<null>	Baseefa (1180)
Calibration Range (LRL to URL)	<null>	0 to 15 barg
Device Tag	<null>	PT-1001

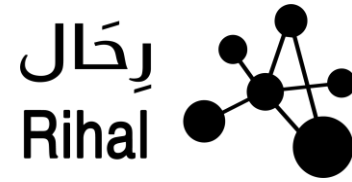
2. Next step: run pre-configured Principal-aligned transformation rules

D2-10-RDR – Generated Principal-aligned Tag Register (Physical)

tag name	equipment description	equipment class name	ATEX category	ATEX explosive atmosphere	ATEX group	calibration range	explosion protection concept	explosion protection examination certificate number	explosion protection gas group
PT-1001	Wellhead Gas Pressure	Absolute Pressure Transmitter	2	G	II	0 to 15 barg	Ex ia	Baseefa11ATEX0158X	IIC

1. Review generated Principal-aligned tag register in Excel

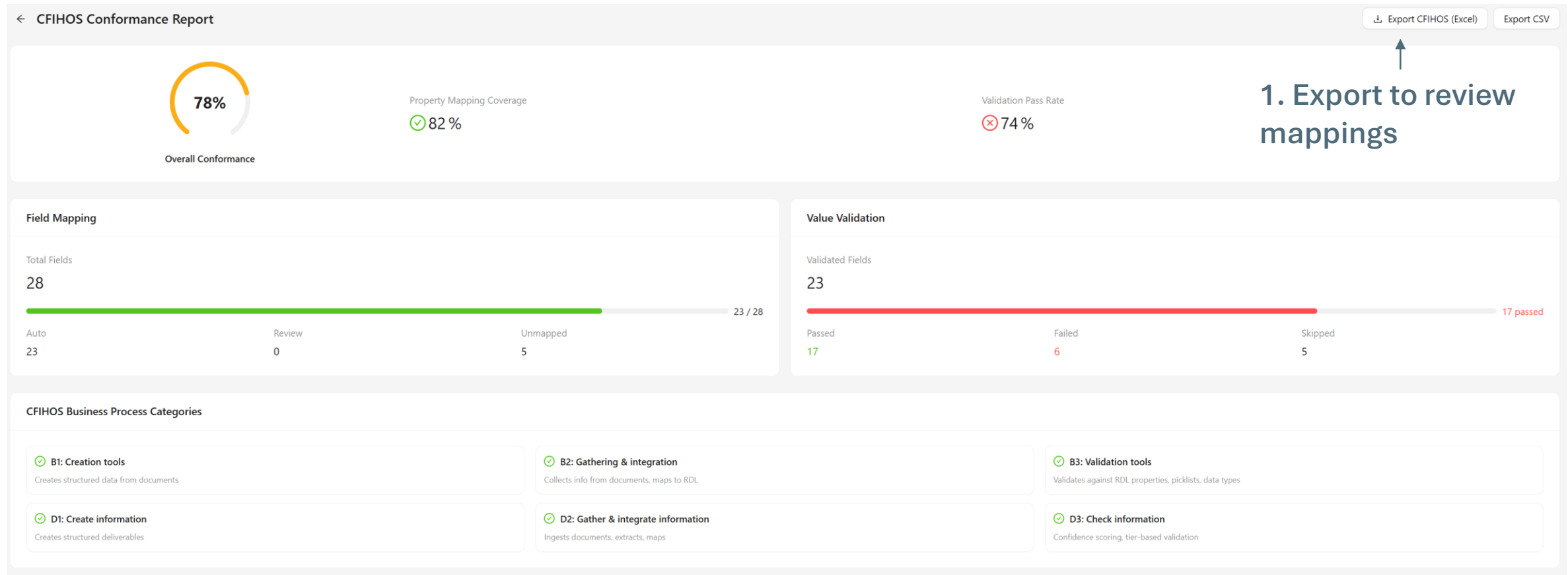
2. Quality check tag register then transfer to Principal for review and validation



Phase E

Category E1 – Review and Validate

E1-01-RDX – Principal-aligned Conformance Report



Note: This report is available only when a taxonomy pack has been configured, see slides A1-01-RDX and A1-02-RDX

E1-02-RDX – Quality Check in Document Viewer

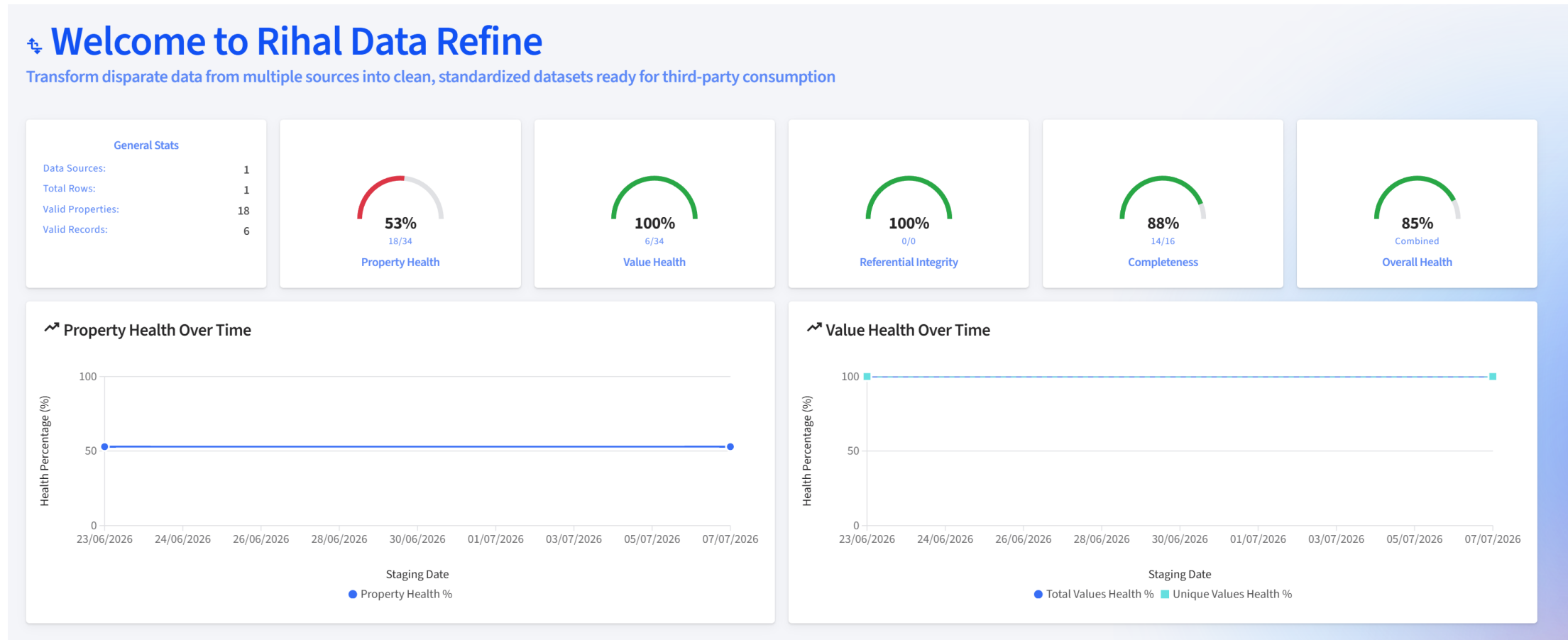
The screenshot shows the Document Viewer interface. On the left, a sidebar lists documents: 'CFIHOS_Procedure_Test_Document.pdf' (2p), 'sample_engineering_specification.pdf' (2p), and 'Iqra_Test_Report_Project_Handover_QA...' (1p). An arrow points from the second document to the main viewer area. The main viewer area displays a document with a large 'Value' and 'PROC-QA-200101' text. On the right, a 'Fields (6)' panel lists metadata: 'document number' (PROC-QA-200101, 100%), 'revision' (0, 100%), 'title' (Contractor Bulk File Submission QA Procedure, 100%), 'revision status' (IFR, 100%), 'discipline' (Quality Assurance, 100%), and 'document type' (Procedure, 100%). An arrow points from the 'document number' field to the main viewer area. The top navigation bar includes 'Back', 'Viewer', 'DONE', 'Re-run', 'C', 'Export', and 'Page: Page 1'.

2. Complete metadata review of all document files

1. Select field (attribute) to zoom to location in document file

3. Correct source documents if required and re-run extraction prior to exporting structured metadata for MDR comparison in RDR

E1-01-RDR – Information Set Quality Dashboard



1. Dashboard used to assess completeness, quality, compliance and readiness of an information set after transfer to the Principal

E1-02-RDR – Compare Extracted Metadata and MDR Dataset

1. View mismatched column names and values between sources post-Contractor submittal

 document number: PROC-QA-200101

11 mismatches

Column	← MDR_Test2_CFIHOSv2.0_v2_MDR.xlsx	→ CFIHOS_Use_Case_1.2_wide_Results.xlsx
data_source	MDR_Test2_CFIHOSv2.0_v2_MDR.xlsx	CFIHOS_Use_Case_1.2_wide_Results.xlsx
discipline document type short code	QA6180	<null>
document revision code	0	<null>
document title	Contractor Bulk File Submission QA Procedure	<null>
worksheet_name	MDR	Results
discipline	<null>	Quality Assurance
document type	<null>	Procedure
Filename	<null>	CFIHOS_Procedure_Test_Document.pdf
revision	<null>	0
revision status	<null>	IFR
title	<null>	Contractor Bulk File Submission QA Procedure

2. Next step: run pre-configured Principal-aligned transformation rules

E1-03-RDR – Review Submitted Staging Dataset

2. Generate Principal-aligned MDR from the reviewed staging dataset

Home > Dataflow > Data Staging > Staging 2026-06-01 15:22 ⓘ

Staging 2026-06-01 15:22

View and analyze your data source with property mappings and transformations.

Status: Completed | File Type: staging | Rows: 3 | Columns: 18 | Size: 0.0 B | Property Health: 67% | Value Health: 94%

Transformation Logs | Export | Populate Template | Delete

document number	approved by	data_source (Sugg	discipline code	discipline document	discipline name >	document r
ENG-SPEC-P...	Engineering ...	CFIHOS_Use...	IC	IN7880	instrumenta...	A
PROC-QA-20...		CFIHOS_Use...	QA	QA6180	quality man...	0
REP-QA-OPS...		CFIHOS_Use...	QA	QA7180	quality man...	A

1. Review post-Contractor submittal transformation staging dataset

Data Source Properties (18) - Filtered

- data_source > tags
- Filename > discipline name
- prepared by > approved by
- Prepared By > approved by
- Project > project number
- worksheet_name > sheet
- discipline name
- document number
- document title
- document type name
- approved by
- discipline code
- discipline document type short code
- document revision code
- document status code
- document type short code
- issue date
- project number

E1-04-RDR – Review Submitted Property Value Compliance

Property Values - document number

2. Filter to display only invalid values requiring review



3 unique values from 6 total records → Mapped to: document number

CFIHOS_Use_Case_1.2_wide - Results

MDR_Test2_CFIHOSv2.0_v3 - MDR

Invalid Only

OFF

ENG-SPEC-PT-001 (2)

PROC-QA-200101 (2)

REP-QA-OPS-0002 (2)

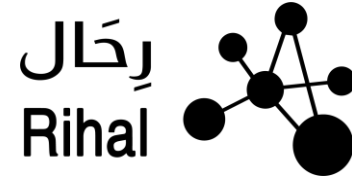
1. Review submitted property values against configured project standards

E1-05-RDR – Regenerated Principal-aligned MDR Output

document number	document revision code	document title	document status code	discipline code	discipline document type short code	discipline name	document type short code	document type name
ENG-SPEC-PT-001	A	Pressure Transmitter Installation Specification IFR		IC	IN7880	instrumentation engineering	7880	general specification
PROC-QA-200101	0	Contractor Bulk File Submission QA Procedure IFR		QA	QA6180	quality management	6180	general procedure
REP-QA-OPS-0002	A	PROJECT HANDOVER QA READINESS REPORT		QA	QA7180	quality management	7180	general report

1. Regenerated (post-Contractor submittal) MDR output in Excel

2. Submit MDR for Principal review



For more information, please visit:

rihal.om