

Guide for the Standardized Use of iiRDS

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Table of Contents

1	Introduction.....	5
1.1	Purpose of the document	5
1.2	Scope.....	5
1.3	Target audience	5
1.4	Glossary.....	5
1.4.1	iiRDS class	5
1.4.2	iiRDS concept	6
1.4.3	iiRDS instance	6
2	Methodological overview.....	6
2.1	Prompting	6
2.2	Limitations.....	7
3	iiRDS metadata assignment guidance	8
3.1	iiRDS information types	9
3.1.1	iiRDS document types.....	9
3.1.2	iiRDS topic types	15
3.1.3	iiRDS information subjects.....	22
3.1.4	Frequently asked questions.....	36
3.2	Functional metadata	37
3.2.1	Generic action.....	37
3.2.2	Generic event	38
3.2.3	Planning time.....	39
3.2.4	Qualification	44
3.2.5	Generic supply	46
3.2.6	Frequently asked questions.....	47
3.3	Product metadata	47
3.3.1	Phase of product lifecycle.....	47
3.3.2	Product feature.....	55
3.3.3	Component class	58
3.3.4	Product variant class.....	60
3.3.5	Frequently asked questions.....	61

1 Introduction

This document is provided by the iIRDS Consortium as an addition to the iIRDS Standard. It is non-normative in nature.

1.1 Purpose of the document

The intelligent information Request and Delivery Standard iIRDS specifies an exchange format for technical documentation. It specifies a package format and a metadata vocabulary. The metadata vocabulary annotates content in the package and is provided as an RDF file.

Annotating content with the iIRDS vocabulary requires profound knowledge of the iIRDS concepts and can pose challenges. This document provides guidance on how to annotate the content and disambiguate iIRDS concepts that might be perceived as close in semantics.

Guidance information for all core concepts apart from administrative metadata allows to choose the iIRDS concepts that semantically match their content. Additionally, the guidance information can be used to provide context for automatic annotation using large language models.

1.2 Scope

This document covers the core iIRDS concepts required to annotate documents and topics of technical documentation. It does not cover the package format, integration into publishing pipelines, integration into content delivery portals, integration into semantic middleware, administrative metadata or other ontologies.

This document is non-normative. In case of conflicting information, the iIRDS specification and the iIRDS RDF file take precedence over this document. It is neither a part of the iIRDS standard nor a primer to the iIRDS standard.

iIRDS version 1.2 is the authoritative version for this document.

1.3 Target audience

This document aims to support content engineers, developers and authors alike in assigning iIRDS metadata to their content. Additionally, it supports developers classify content using large language models. It is recommended to read the iIRDS standard and refer to this document for additional information or when in doubt.

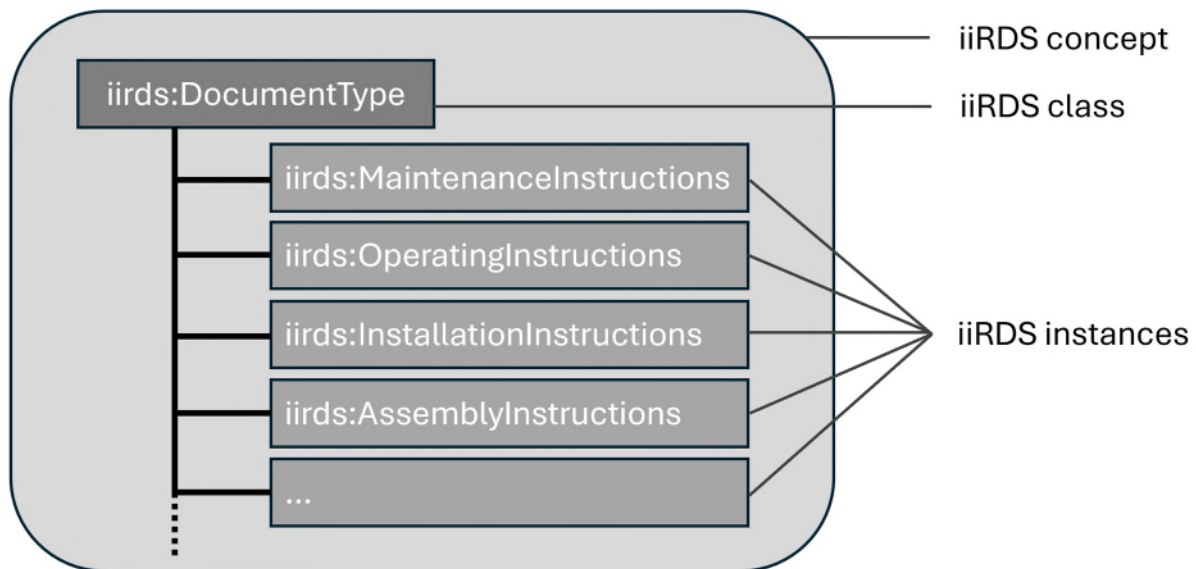
1.4 Glossary

1.4.1 iIRDS class

RDF resource that represents a group of individuals with shared characteristics. iIRDS classes structure the iIRDS metadata vocabulary. iIRDS classes are not used directly to annotate content.

1.4.2 iiRDS concept

Unit of thought with a specific set of characteristics. iiRDS classes and iiRDS instances are examples of iiRDS concepts.



1.4.3 iiRDS instance

RDF resource that is member of a group represented by an iiRDS class. iiRDS instances are used to annotate content.

2 Methodological overview

iiRDS classes and instances are defined in the iiRDS standard and in the iiRDS schema using `rdfs:comment`. Additionally, the iiRDS SKOS domain contains further information about the concepts as `skos:note`. Definitions in `rdfs:comment` are the foundation of the guidance information in this document.

To derive the guidance information, sample content was annotated using generative AI. The definitions of the iiRDS schema were provided as initial context to the AI agent. For successfully annotated content, explanations of the annotation were generated and used as improved context after editorial revision. The improved context was used for further annotation runs. The final context was the result of multiple iterations. The final context served as the foundation of the metadata guidance section of this document.

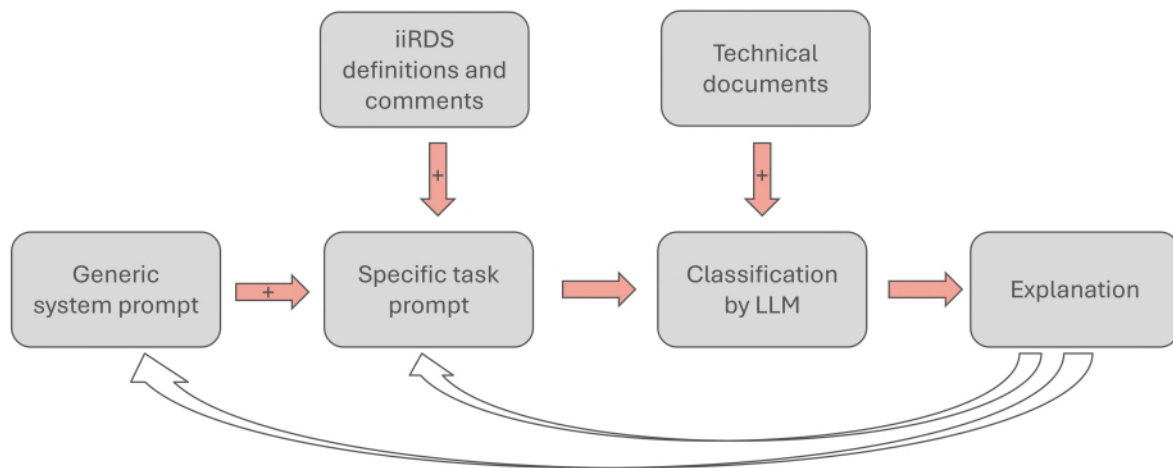
The large language model used was Claude 3.5. Sonnet.

2.1 Prompting

A system prompt set the AI agent up for the classification task. A prompt template was used to provide the iiRDS instances and the text of the sample content.

The system prompt asked the AI agent to act as an API and to only return valid JSON. The JSON contained the predicted class, confidence score, and a reason explaining the annotation.

The prompt template for the annotation task provided a list of iiRDS concepts with identifier, label, and definition. The prompt template also insisted on returning valid JSON. For document type annotation and for topic type annotation, the list of iiRDS concepts was filtered accordingly, providing only document metadata for document annotation and providing only topic metadata for topic annotation.



2.2 Limitations

The scope of this project limited the number of explained iiRDS concepts. The iiRDS concepts were selected based on assumptions about frequency and difficulty of usage.

The sample content was limited to a maximum of five documents and topics per iiRDS concept. To cover corner cases and iiRDS concepts that are hard to distinguish, some iiRDS concepts were covered by deliberately picked content that was hard to annotate. Annotation of fragments is not covered.

Selection of iiRDS concepts and corner case sample content was done in close collaboration with the iiRDS Task Force 'Guidance Document'.

3 iIRDS metadata assignment guidance

This document provides guidance information for annotating technical documentation in a standardized manner. The guidance information is informative in nature and not meant to list requirements that the content has to satisfy. The guidance information does not cover all iIRDS classes and instances.

The guidance information covers the following aspects of assigning iIRDS metadata:

- iIRDS concepts can be assigned to documents or topics. While it is possible to assign most iIRDS metadata to both, this guide limits assignment of certain iIRDS concepts to either documents or topics. The type of assignment is mentioned in the respective sections.
- Guidance information for iIRDS concepts is provided in sections derived from the class hierarchy of the iIRDS schema version 1.2.
- For each covered iIRDS concept, this guide provides IRI, label, `rdfs:comment`, `skos:note`, `iirds:description`, and additional guidance information. The additional guidance information is listed as provided in the context of the prompt. Only the preceding definition of the iIRDS concept was removed from the guidance information to avoid redundancy. It is now part of the table of each concept.
- Each section contains additional answers to frequently asked questions to illustrate decision making when assigning iIRDS metadata.

Conventions

The additional guidance information provides an extended context containing a short introductory description of the concept followed by characterizing indicators. The following characteristic indicators explain what annotated content might look like. They provide guidance for users of iIRDS and explain what to look for in content when assigning iIRDS metadata.

Content characteristics	Explanation
Purpose	Purpose of the content that explains the function of the information for the recipient.
Audience	Target group of the content.
Content features	Additional description of the content. Lists more detailed description of the technical documentation that can be annotated with the iIRDS concept.
Examples	Examples of document title, topic title, or phrases in the content that would match a classification with the iIRDS concept.
What it is not	Distinguishes the iIRDS concept from other iIRDS concepts that it might be confused with.

General considerations

When assigning metadata to content, the leading principle is to assign metadata as required by the project-specific use cases. There are no classes that are mandatory for all iIRDS packages, only handover documentation requires specific metadata. Consequently, metadata from different iIRDS classes can be combined as required. There are no mutually exclusive combinations of iIRDS metadata from different classes.

For further information about iIRDS use cases and best practice projects refer to <https://www.iirds.org>.

As iIRDS metadata is provided in RDF, the metadata assignment is using qualified relations to associate content and metadata. Depending on the metadata class different RDF properties are used. The guidance information does not mention iIRDS properties unless relevant for the specific metadata assignment.

Proprietary iIRDS Extensions

The iIRDS vocabulary provides classes and instances that annotate content. When content is annotated, the iIRDS instances must be used. iIRDS classes can be categorized into two types.

- iIRDS classes that provide a controlled vocabulary that may be extended if the iIRDS instances do not cover project-specific semantics
- iIRDS classes that require proprietary extensions, for example `iirds:Component`

In general, it is recommended to use existing iIRDS instances whenever possible. iIRDS classes that provide a controlled vocabulary contain a generic instance that represents the core concept of the class. Additional instances are more specific than the generic instance and should be used instead if the semantics match the annotated content. In absence of a more specific instance, it is feasible to use the generic instance. Therefore, generic instances are covered by this Guidance document.

iIRDS classes without instances can be populated with project-specific instances. For example, instances for each component of a product. Project-specific instances can be used to annotate content in the same way regular iIRDS instances are used. Examples with proprietary extensions use the fictional namespace prefix `my`, for example `my:ProprietaryComponent`.

3.1 iIRDS information types

iIRDS information types classify characteristics of content. They include metadata to classify documents and topics and to characterize the information contained in documents and topics.

3.1.1 iIRDS document types

iIRDS document types are used to classify documents.

While a document can have multiple document types, the AI agent was instructed to only assign one document type to allow for better disambiguation.

3.1.1.1 Operating instructions

IRI	Label	Definition	Note
iirds:OperatingInstructions	operating instructions	Document type that refers to information on the correct use of the product.	The instructions in this document type enable the user to operate a device, machine, or software considering the reference use as well as the safety and health regulations for the product.

An operating instruction is a technical document that provides end users with the necessary information to safely and effectively operate a product, system, or device.

It is characterized by:

Purpose

To guide users in the correct and safe use of a product during normal operation.

Audience

End users, operators, customers.

Content features

- Operating procedures and functional descriptions
- Safety instructions and warnings
- Basic installation or setup guidance (if relevant to operation)
- Maintenance and troubleshooting tips (as needed for daily use)
- Technical specifications and system overviews

Examples

- "User guide for the AlphaTech 3000 system"
- "Operation manual for the QuantumX series"
- "Instructions for the safe use of the NovaPro device"
- "Operating procedures for the Zenith control pane"

What it is not

- Administrator guides, which are aimed at configuring and managing systems by qualified personnel.
- Installation instructions, which focus on setting up or mounting the product.

3.1.1.2 Maintenance instructions

IRI	Label	Definition	Note
iirds:MaintenanceInstructions	maintenance instructions	Document type that refers to information on procedures to be followed to ensure that a product remains in good working order.	---

A maintenance instruction is a technical document that provides detailed procedures for inspecting, servicing, and preserving the functionality of a product, system, or component over time.

It is characterized by:

Purpose

To ensure continued safe and efficient operation through regular upkeep and corrective actions.

Audience

Typically intended for maintenance personnel, service technicians, or facility managers.

Content features

- Scheduled maintenance tasks (e.g., daily, weekly, annual)
- Inspection procedures and checklists
- Cleaning, lubrication, and calibration instructions
- Troubleshooting and minor repair guidance
- Safety precautions specific to maintenance activities

Examples

- “Maintenance instructions for the modular control unit”
- “Preventive maintenance guide for the thermal regulation system”
- “Routine servicing manual for the automated conveyor assembly”
- “Maintenance procedures for the hydraulic lift mechanism”

What it is not

- Operating instructions, which focus on operating the product.
- Administrator guides, which focus on system configuration and management.

3.1.1.3 Administrator guide

IRI	Label	Definition	Note
iirds:AdministratorGuide	administrator guide	Document type that refers to information on the management of a technical system.	---

An administrator guide is a technical document that provides comprehensive instructions and reference information for system administrators. It typically includes guidance on configuring, managing, and maintaining software or hardware systems.

It is characterized by:

Purpose

Supports the setup, configuration, monitoring, and control of systems or applications.

Audience

Targeted at technical personnel with administrative privileges or responsibilities.

Content features

- System requirements and installation procedures (from an admin perspective)
- Configuration settings (e.g., user roles, permissions, security policies)
- Maintenance tasks (e.g., backups, updates, performance tuning)
- Troubleshooting and diagnostic tools
- Integration and deployment considerations

Examples

- "System administration manual for the QuantumX series"
- "Configuration and management guide for the NovaPro device"
- "Administrative procedures for the Zenith control panel"

What it is not

- Operating Instructions, which focus on end-user operation.
- Maintenance instructions, which focus on regular servicing, inspections, and troubleshooting to keep the product in good working order.
- Installation instructions, which focus solely on initial setup.

3.1.1.4 Assembly instructions

IRI	Label	Definition	Note
iirds:AssemblyInstructions	assembly instructions	Document type that refers to information on how parts are put together to complete a specific product so that it fulfils its intended use.	---

An assembly instruction is a technical document that provides explicit, sequential steps for physically assembling a product or component.

It is characterized by:

Purpose

To provide clear, step-by-step guidance with all necessary tools, parts, and visuals so users can assemble a product.

Audience

Typically intended for technicians, end-users, and assembly workers responsible for physically assembling the product or component.

Content features

- List of required parts and materials specifically for physical assembly
- List of required tools and equipment needed to perform the assembly
- Step-by-step assembly instructions focused on building the product physically
- Visual aids (e.g., diagrams, exploded views) showing physical components and how they fit together
- Quality checks or verification steps to confirm correct assembly completion

Examples

- "Assembly Instructions for the AlphaTech 3000 system"
- "Step-by-Step assembly for the NovaPro device"
- "Construction manual for the Zenith control panel"

What it is not

- Operating Instructions, which focus on the correct and safe use of the product during normal operation.

- Installation Instructions, which focus on setting up or mounting the product in its target environment.
- Maintenance instructions, which focus on regular servicing, inspections, and troubleshooting to ensure continued functionality.
- Administrator guides, which focus on system configuration, management, and administration after installation.

3.1.1.5 Installation instructions

IRI	Label	Definition	Note
iirds:InstallationInstructions	installation instructions	Document type that refers to information on how to set up a product in the designated target environment so that it fulfils its intended use.	For physical products: instructions enabling the operator to assemble and electrically connect a physical product so that it fulfills its intended use and does not endanger the health and safety of persons. For IT products: Instructions enabling the administrator to set up and potentially configure a program or new version on a computer so that does not endanger data security.

An installation instruction is a technical document which primary purpose is to explain how to set up, install, or configure a product or system in its target environment so that it functions as intended.

It is characterized by:

Purpose

To ensure proper and safe physical or software installation.

Audience

Typically intended for technicians, or system integrators.

Content features

- Step-by-step installation procedures
- Mounting or positioning instructions
- Required tools and materials
- Safety notices relevant to the installation process
- Initial setup or configuration steps (if applicable)

Examples

- “Setup manual for the QuantumX series”
- “Installation procedures for the NovaPro device”
- “Initial setup instructions for the Zenith control pane”

What it is not

- Maintenance instructions, which focus on regular servicing, inspections, and troubleshooting to keep the product in good working order.
- Administrator guides, which focus on system configuration and management post-installation.
- Assembly instructions, which focus on constructing a product from parts.

3.1.2 iiRDS topic types

iiRDS topic types are used to classify self-contained information units that answer a single question.

Topics can only have one topic type.

3.1.2.1 Generic concept

IRI	Label	Definition	Note
iirds:GenericConcept	concept	Topic type providing background information that helps users understand the structure or essential principles of a product, interface, or task.	Conceptual information helps users to map their existing knowledge to tasks and other essential information about a product or system.

A concept topic provides foundational, explanatory, or contextual information that helps users build a mental model of a system, product, interface, or process. It is designed to enhance understanding, not to instruct users on how to perform specific actions or to present factual data for quick lookup.

Concept topics typically answer “what,” “why,” or “how it works” questions, such as:

- What is this feature or system?
- Why is it important or useful?
- How does it relate to other components or ideas?
- What principles or theories underpin its design or behavior?

It is characterized by:

Purpose

To explain, clarify, or contextualize. It helps users understand why something exists, how it fits into a larger system, or what its role is.

Audience

Ideal for users who are new to a topic or need to understand the big picture before diving into tasks or details.

Content features

- Definitions of terms or concepts
- Overviews of systems or architectures
- Explanations of relationships, dependencies, or workflows
- Theoretical background or rationale

Examples

- “Understanding role-based access control”
- “How the notification system works”
- “The architecture of the microservices platform”
- “What Is a digital twin?”

What it is not

- Not a task topic: It does not provide step-by-step instructions or procedures.
- Not a reference topic: It does not list factual data, parameters, or configuration values for quick lookup.

3.1.2.2 Generic form

IRI	Label	Definition	Note
iirds:GenericForm	form	Topic type that provides information in pre-defined fields.	The Form class describes topics that contain information in pre-defined form fields. Examples of forms are service reports, field reports, and user feedback.

A form topic presents information using a structured, field-based layout, typically reflecting a standardized template or schema. Unlike narrative or instructional content, form topics are non-linear and non-procedural, focusing on data collection or presentation rather than explanation or guidance.

Form topics typically answer “what information was recorded or needs to be provided?” questions, such as:

- What are the details of this service visit?
- What feedback did the user submit?
- What are the recorded values for this inspection?

It is characterized by:

Purpose

To capture, display, or report data in a consistent format using predefined fields or categories, often for documentation, auditing, or feedback purposes.

Audience

Users that want to or are required to provide any kind of feedback or data.

Content features

- Field labels and corresponding values (e.g., “Date,” “Technician name,” “Issue description”)
- Standardized sections (e.g., “Customer details,” “Service performed,” “Recommendations”)
- Checkboxes, dropdowns, or free-text fields
- Highly structured and consistent; often resembles a table layout.

Examples

- “Field service report – HVAC maintenance visit”
- “Customer feedback form – product experience”

- “Incident report – safety violation”
- “Inspection checklist – equipment audit”

What it is not

- Not a concept topic: It does not explain background information or principles.
- Not a reference topic: It does not provide general-purpose data for lookup, though it may contain factual entries.

3.1.2.3 Generic learning

IRI	Label	Definition	Note
iirds:GenericLearning	learning	Topic type that provides learning content.	Learning content may comprise learning plans, learning objectives, learning content details, summaries, and assessments.

A learning topic is designed to support knowledge acquisition and skill development through structured, pedagogical content. Learning topics are educational in nature and often part of a broader training or onboarding experience.

Learning topics typically answer “what should I learn and how can I master it?” questions, such as:

- What do I need to know to use this system effectively?
- How can I develop a skill or competency?
- What are the learning goals and how will I be assessed?

It is characterized by:

Purpose

To teach users new concepts, skills, or procedures in a structured and engaging way.

Audience

Ideal for users that want to acquire new skills or a deeper understanding of a topic.

Content features

- Clearly defined learning objectives or outcomes
- Instructional explanations and examples
- Interactive elements such as quizzes, exercises, or knowledge checks
- Summaries or recaps to reinforce understanding
- Learning paths or modules that build on each other

- Often includes an introduction with learning goals, thematic sections or lessons; visual aids, diagrams, or multimedia; practice opportunities and feedback mechanisms.

Examples

- “Introduction to data privacy principles”
- “Getting started with the workflow designer – learning module”
- “Understanding and using conditional logic – interactive tutorial”
- “Quiz: Identify the correct configuration for each scenario”

What it is not

- Not a concept topic: While it may include conceptual explanations, its primary aim is structured learning, not just background information.

3.1.2.4 Generic reference

IRI	Label	Definition	Note
iirds:GenericReference	reference	Topic type that provides additional details for lookup.	The Reference class describes a topic type containing information that supports users as they perform a task, meaning data that is looked up rather than memorized. Examples are parameter lists, tables with technical data, UI control overviews, and parts lists.

A reference topic provides structured, factual, and static information that users consult to retrieve specific details. It is designed for quick lookup of data, values, or options.

Reference topics typically answer “what are the values/options/details?” questions, such as:

- What are the valid parameters for this function?
- What does each UI control do?
- What are the specifications of this component?
- What are the available configuration options?

It is characterized by:

Purpose

To provide authoritative, precise, and often tabular or list-based information that users can refer to as needed.

Audience

Ideal for users that want to quickly look up key information.

Content features

- Often contains parameter definitions and accepted values; tables of settings, codes, or specifications; descriptions of UI elements or controls; lists of parts, components, or commands; Syntax summaries or API references
- Structure often includes headings, tables, bullet lists, or definition lists for fast scanning and retrieval.

Examples

- “Command line options for the backup tool”
- “UI elements in the dashboard panel”
- “Sensor specifications table”
- “Configuration file parameters and defaults”
- “Error code reference list”

What it is not

- Not a concept topic: It does not explain principles, theories, or the “why” behind a system or feature.
- Not a task topic: It does not guide the user through a process or provide step-by-step instructions.
- Not troubleshooting: It does not diagnose issues or offer solutions to problems.

3.1.2.5 Generic task

IRI	Label	Definition	Note
iirds:GenericTask	task	Topic type that provides procedures and action steps to be followed or considered.	Tasks provide instructions and may contain information on other aspects, such as requirements that must be fulfilled or safety instructions.

A task topic provides clear, actionable, step-by-step instructions that guide users through the completion of a specific action, procedure, or workflow. It is focused on doing. Task topics are procedural in nature and are designed to help users achieve a goal or perform a function successfully.

Task topics typically answer “how do I...?” questions, such as:

- How do I configure this setting?
- How do I install the software?
- How do I create a new user account?

It is characterized by:

Purpose

To enable users to complete a task or procedure by following a defined sequence of steps.

Audience

Ideal for users that only need information for completing a task or executing a process.

Content features

- Directive and instructional, often using the imperative mood (e.g., “Click,” “Select,” “Enter”).
- Often contains step-by-step instructions; preconditions or requirements (e.g., permissions, tools, access); safety warnings or cautions; conditional steps or decision points; Expected outcomes or results

Examples

- “Installing the mobile app on android devices”
- “Creating a new project in the dashboard”
- “Resetting your password”
- “Exporting data to CSV format”

What it is not

- Not a troubleshooting topic: It does not diagnose or resolve problems, although it may be linked from or to troubleshooting content

3.1.2.6 Generic troubleshooting

IRI	Label	Definition	Note
iirds:GenericTroubleshooting	troubleshooting	Topic type that provides an explanation on symptoms, diagnosis, and resolution of problems.	Troubleshooting information may comprise a description of the symptoms, the cause of the error, and a remedy for the error.

A troubleshooting topic is focused on problem identification and resolution. It helps users recognize symptoms of abnormal system behavior, understand potential causes, and apply corrective actions to restore normal operation. These topics are reactive in nature—they are used when something has gone wrong and the user needs to fix it.

Troubleshooting topics typically answer “what’s wrong and how do I fix it?” questions, such as:

- Why is this feature not working as expected?
- What does this error message mean?
- How can I resolve this issue?

It is characterized by:

Purpose

To guide users through diagnosing and resolving specific problems or errors.

Audience

Users actively facing errors—end users, operators/admins, or first-line support—with basic product familiarity and permissions to run diagnostics/apply fixes, reading under time pressure and needing concise step-by-step guidance.

Content features

- Diagnostic and solution-oriented. May include conditional logic or decision trees.
- Content focuses on description of the symptom or error (e.g., error messages, unexpected behavior); possible causes or explanations; one or more corrective actions or workarounds
- Often includes a clear problem statement or symptom; a list or flow of possible causes; corresponding solutions or steps to resolve the issue; notes or warnings about side effects or prerequisites

Examples

- “Cannot connect to the server – common causes and fixes”
- “Application crashes on startup”
- “Error code 403: access denied – troubleshooting steps”
- “Why is my report not generating?”

What it is not

- Not a task topic: It does not describe a standard procedure or workflow to achieve a goal under normal conditions.

3.1.3 iiRDS information subjects

iiRDS information subjects classify the thematical characteristic of content. iiRDS information subjects can annotate documents and topics. Even iiRDS packages can be annotated with iiRDS information subjects.

The guidance information on iIRDS information subjects was used to annotate topics. Annotating documents or packages with iIRDS information subjects is not covered by this document.

3.1.3.1 Generic collection

IRI	Label	Definition	Note
iirds:GenericCollection	collection	Information subject covering specific content in lists or overviews.	---

The generic collection information subject represents a structured aggregation of multiple related information, grouped together to provide a coherent overview or thematic summary. It is not focused on a single action, concept, or data point, but rather on presenting a curated set of related elements that share a common context or purpose.

This information subject type is typically used when the content serves as a navigational aid, summary, or entry point into more detailed topics. It helps users orient themselves, compare options, or explore related content without diving into procedural, conceptual, or reference-level detail.

It is characterized by:

Purpose

To present a collection of related information elements in a unified structure.

Audience

Users that want a first overview of all the information that is available for a certain topic, possibly to identify further information that is relevant for them

Content features

- Overviews of multiple procedures, concepts, or data points, but a lack of detailed procedural or conceptual depth
- Summaries of related topics or modules
- Use of summary language (e.g., “overview,” “summary,” “list of...”)
- Lists or tables that group similar items (e.g., features, tasks, components)
- Structure often includes bullet lists, tables, or grouped links. May be hierarchical or flat.

Examples

- “Overview of all configuration options”
- “Summary of available reports”
- “List of supported devices”
- “Collection of related tutorials”

What it is not

- Not a technical overview information subject: It does not provide an overview of the product itself or its components.

3.1.3.2 Generic conformity

IRI	Label	Definition	Note
iirds:GenericConformity	conformity	Information subject covering applicable law, standards, or the fulfilment of a product requirement.	---

The generic conformity information subject classifies content that documents how a product, system, or component meets specific external or internal requirements, such as legal regulations, industry standards, safety norms, or internal quality benchmarks. This content is typically used to demonstrate compliance, support audits, or fulfill certification requirements.

It is characterized by:

Purpose

To confirm that a product or system complies with applicable laws, standards, or internal specifications.

Audience

Any user that needs to verify the compliance of a product with a given standard or law, for example, because their intended use also needs to adhere to certain regulatory requirements

Content features

- Certification statements or compliance summaries; references to fulfilled standards or regulatory frameworks
- Documentation of testing, validation, or inspection results
- Legal or safety-related compliance notes
- Structure often includes formal language, references to standards, certifications, or regulatory bodies (e.g., EN 55032, ISO 9001), and may be formatted as certificates, checklists, or structured reports.

Examples

- "Compliance with RoHS and WEEE directives"
- "Product certification summary – ISO 13485"
- "Regulatory compliance overview for medical devices"
- "Audit report: Fulfillment of internal quality standards"

What it is not

- Not a generic formality information subject: It does not cover legal or contractual agreements like warranty statements.
- Not a generic safety information subject: It does not cover specific safety instructions that apply to this product.

3.1.3.3 Applicable standards

IRI	Label	Definition	Note
iirds:ApplicableStandards	applicable standard	Information subject covering rules, guidelines, or definitions of product characteristics that need to comply with normative or legislative requirements.	---

The applicable standards information subject classifies content that describes external standards, directives, or regulations that a product, system, or process must comply with. This includes legal frameworks, industry norms, and technical standards that define what requirements apply, but not necessarily how compliance is demonstrated.

This information subject is focused on describing the standards themselves, not on declaring conformity or providing evidence of compliance. It helps users understand which rules are relevant, what they entail, and how they apply to the product or context in question.

It is characterized by:

Purpose

To inform about the existence, scope, and relevance of specific standards or directives that apply to a product or system.

Audience

Professionals who need to verify the compliance of a product with specific standards or want an overview of the standards that apply to a product

Content features

- Names and identifiers of applicable standards (e.g., “Machinery directive 2006/42/EC”); scope and applicability of the standard
- Summary of key requirements or obligations
- References to official documentation or regulatory bodies
- Contextual explanation of how the standard relates to the product domain

- Structure often includes citations, excerpts, or summaries of legal or normative texts; often includes references to external sources.

Examples

- “Standards relevant to electrical safety in industrial equipment”
- “Applicable norms for medical device software”
- “Summary of the machinery directive requirements”

What it is not

- Not a generic conformity information subject: This section does not provide formal declarations that a product complies with specific standards or regulations.
- Not a generic safety information subject: It does not include detailed documentation or evidence proving that a product meets safety requirements.
- Not a generic formality information subject: This section does not reproduce the full text of laws, regulations, or standards.

3.1.3.4 Generic formality

IRI	Label	Definition	Note
iirds:GenericFormality	formality	Information subject that covers contractually relevant elements.	---

The generic formality information subject classifies content that communicates contractual, legal, or officially binding information related to the use, ownership, or distribution of a product or service. This includes documents or statements that define rights, obligations, limitations, and conditions—whether imposed by law, contract, or internal policy.

The focus is on formal declarations that carry legal or regulatory weight, such as warranties, licenses, disclaimers, terms of use, and liability statements. These topics are often required for compliance, risk management, or customer transparency.

It is characterized by:

Purpose

To define or communicate formal legal or contractual conditions associated with a product or service.

Audience

Legal professionals, compliance officers, and contract managers who need to understand the formal, legal, or contractual conditions associated with a product or service.

Content features

- Warranty terms and conditions
- Licensing agreements (e.g., open source, commercial)
- Disclaimers of liability or responsibility
- Terms of service or terms of use
- Intellectual property notices
- Formal declarations or legal notices
- Often includes standardized or boilerplate language.
- Structure often as full legal text, structured clauses, or summarized terms with links to full documents.
- References to rights, obligations, or limitations

Examples

- “End user license agreement (EULA)”
- “Disclaimer of liability for software use”
- “Terms and conditions of sale”
- “Intellectual property rights statement”

What it is not

- Not a generic conformity information subject: It does not describe the legal and regulatory requirements the product itself has to adhere to.
- Not a generic safety information subject: It does not exclusively describe the risks and dangers associated with the operation of the product.

3.1.3.5 Product identification

IRI	Label	Definition	Note
iirds:ProductIdentification	product identification	Information subject that covers information on the identity and characteristics of a product.	The unique set of data values can be comprised of product name, version, variant, serial number, and date information.

The product identification information subject classifies content that provides identifying information about a product, typically as it appears on a nameplate, label, or product marking. This includes data that uniquely distinguishes a product or component, such as model numbers, serial numbers, manufacturer details, and certification marks.

The focus is on formal identification and traceability, not on usage, compliance, or technical specifications. This subject is essential for product tracking, inventory, service, and legal documentation.

It is characterized by:

Purpose

To present the official identity and distinguishing characteristics of a product or component.

Audience

Users who need to identify and verify product details such as model numbers, serial numbers, and manufacturer information

Content features

- Product name and model designation
- Serial number or batch/lot number
- Manufacturer name and address
- Product type or category; Markings such as CE, UL, or other certification symbols
- Date of manufacture or production code
- Often presented in a structured format resembling a nameplate or label; may include images or diagrams of the physical label.

Examples

- “Nameplate information for model X1000”
- “Product label – industrial controller series 5”
- “Serial number location and format”
- “Manufacturer identification and contact details”

What it is not

- Not a generic technical data information subject: It does not present objective, measurable, and descriptive characteristics of a product, component, or system.
- Not a generic technical overview information subject: Product identification does not provide a high-level, conceptual description of the technical structure, architecture, or design of a product, system, or component.

3.1.3.6 Generic functionality

IRI	Label	Definition	Note
iirds:GenericFunctionality	functionality	Information subject that covers specific capabilities of the product.	---

The generic functionality information subject classifies content that describes the capabilities of a product, system, or component. It focuses on what the product can do, how it behaves under certain conditions, and which functions are available to the user.

It helps users understand the range of features and operational possibilities of a product, often as part of product selection, comparison, or orientation.

It is characterized by

Purpose

To describe the available functions, behaviors, and use cases of a product or system.

Audience

Users who need to understand the capabilities, features, and intended uses of a product, system, or component

Content features

- Functional descriptions (e.g., “The device supports remote monitoring”)
- Feature overviews (e.g., “auto-calibration, data logging, alarm notifications”)
- Behavioral descriptions under specific conditions (e.g., “in standby mode, the system reduces power consumption”)
- Structure often includes bullet points, feature lists, or grouped descriptions by module or component.
- Often used in product brochures, datasheets, or feature comparisons.

Examples

- “Functional overview of the remote monitoring system”
- “Available features in the premium software edition”
- “System behavior in power-saving mode”

What it is not

- Not an intended use information subject: it does not define the intended purpose, range of functions, and foreseen applications of a product or system as specified by the manufacturer or supplier.

3.1.3.7 Generic process

IRI	Label	Definition	Note
iirds:GenericProcess	process	Information subject that covers structured activities which are carried out to achieve a specific goal.	---

The generic process information subject classifies content that describes structured sequences of activities or workflows carried out to achieve a specific operational goal. These processes are often cross-functional, multi-step, and not limited to a single product feature. They may span departments, systems, or roles.

It is characterized by:

Purpose

To describe a repeatable, structured set of actions or phases that together form a complete operational or business process.

Audience

Users who need to understand the structured sequences of activities or workflows carried out to achieve a specific operational goal.

Content features

- High-level or detailed process flows
- Sequences of actions or stages
- Roles and responsibilities within the process
- Inputs, outputs, and transitions between steps
- Optional: diagrams (e.g., BPMN, flowcharts) or timelines.
- Often includes named steps, flow diagrams, swim lane diagrams, or tabular breakdowns of process stages.
- Use of terms like “process,” “workflow,” “sequence,” “phase,” or “step”
- Focus on what happens rather than how to do it

Examples

- “Service request handling process”
- “Logistics chain for international shipping”
- “Onboarding process for new employees”
- “Preventive maintenance workflow”

What it is not

- Not a generic conformity information subject: It does not cover how a product meets specific external or internal requirements, such as legal regulations, industry standards, or safety norms.
- Not a generic formality information subject: It does not communicate contractual, legal, or officially binding information related to the use, ownership, or distribution of a product or service.

3.1.3.8 Generic safety

IRI	Label	Definition	Note
iirds:GenericSafety	safety	Information subject that covers content which helps to avoid risk.	---

The generic safety information subject classifies content that is intended to prevent harm to people, the environment, or equipment. It includes all types of safety-related information, such as warnings, hazard notices, protective measures, and safety instructions. The focus is on risk identification, communication, and mitigation, often in compliance with safety standards or regulations. It may appear as standalone safety content or be embedded within other topics (e.g., tasks or processes) as highlighted safety elements.

It is characterized by:

Purpose

To inform users about potential hazards and how to avoid them.

Audience

Users who need to understand the safety precautions, warnings, and protective measures associated with a product or system.

Content features

- Safety warnings and hazard symbols
- Descriptions of risks (e.g., electrical shock, chemical exposure, mechanical injury)
- Required protective equipment or safety measures
- Emergency procedures or shutdown instructions
- Safety-related compliance notes (e.g., in accordance with ISO 12100 or OSHA)
- Cautionary, clear, and directive; often includes standardized phrasing and visual cues (e.g., DANGER, WARNING, CAUTION).
- Often includes signal words, pictograms, color coding, and structured safety sections (e.g., “Before you begin,” “Hazards,” “Protective measures”).
- Focus on preventing harm, not performing tasks or explaining concepts.

Examples

- “Electrical hazard warnings for control cabinet”
- “Personal protective equipment requirements”
- “Safety instructions for operating the hydraulic press”
- “Risk of explosion in ATEX zones – safety measures”

What it is not

- Not a generic conformity information subject: It does not cover how a product meets specific external or internal requirements, such as legal regulations, industry standards, or safety norms.
- Not a intended use information subject: It does not define the intended purpose, range of functions, and foreseen applications of a product or system as specified by the manufacturer or supplier.

3.1.3.9 Intended use

IRI	Label	Definition	Note
iirds:IntendedUse	intended use	Information subject that covers information which states the range of functions or foreseen applications defined and designed by the supplier of the product.	---

The intended use information subject classifies content that defines the intended purpose, range of functions, and foreseen applications of a product or system as specified by the manufacturer or supplier. It outlines how the product is designed to be used, including the operational context, target users, and environmental or technical boundaries within which the product is expected to function safely and effectively.

This information subject also reflects a legal and regulatory perspective, particularly in domains such as machinery safety, where the intended use is a key factor in determining compliance with directives (e.g., the machinery directive).

It is characterized by:

Purpose

To communicate the officially defined and designed use cases of a product, including its functional scope and operational context.

Audience

Users who need to understand the officially defined and designed use cases of a product, including its functional scope and operational context.

Content features

- Description of the product's intended applications.
- Functional boundaries and limitations; Target environments (e.g., industrial, medical, hazardous zones).
- References to target users or roles (e.g., trained personnel, general public).
- Considerations of foreseeable misuse or incorrect application.
- Legal framing of use cases (e.g., as required by CE marking or safety standards).
- Phrases like "intended use," "foreseen application," "designed for," or "not intended for".

Examples

- “Intended use of the portable gas detector”
- “Foreseen applications of the robotic arm in industrial settings”
- “Design purpose and operational scope of the conveyor system”

What it is not

- Not a generic conformity information subject: It does not cover how a product meets specific external or internal requirements, such as legal regulations, industry standards, or safety norms.
- Not a generic safety information subject: It does not exclusively include safety-related information, such as warnings, hazard notices, protective measures, and safety instructions.
- Not a generic technical data information subject: It does not present objective, measurable, and descriptive characteristics of a product, component, or system.

3.1.3.10 Generic technical data

IRI	Label	Definition	Note
iirds:GenericTechnicalData	technical data	Information subject that covers qualitative and quantitative characteristics of technical objects.	---

The generic technical data information subject classifies content that presents objective, measurable, and descriptive characteristics of a product, component, or system. This includes both quantitative data (e.g., dimensions, tolerances, performance values) and qualitative attributes (e.g., material types, surface finishes, classifications).

It is characterized by:

Purpose

To provide authoritative technical facts about a product or component.

Audience

Users who need precise technical details about a product, component, or system for specification, comparison, validation, or integration purposes

Content features

- Physical dimensions and tolerances
- Performance metrics (e.g., speed, capacity, pressure range)
- Material properties (e.g., tensile strength, thermal resistance)

- Electrical, mechanical, or environmental specifications
- Classification codes or ratings (e.g., IP protection class, ATEX zone)
- Frequently includes tables, charts, units of measurement, and standardized terminology.
- Use of units of measurement (e.g., mm, °C, kPa, V)
- Focus on what the product is, not what it does or how to use it

Examples

- “Technical specifications of the pressure sensor”
- “Material properties of the housing unit”
- “Performance data – flow rate vs. temperature”
- “Dimensional drawing with tolerances”

What it is not

- Not a generic functionality information subject: It does not describe the capabilities, features, and intended uses of a product, system, or component.
- Not a generic technical overview information subject: It does not provide a high-level, conceptual description of the technical structure, architecture, or design of a product, system, or component

3.1.3.11 Generic technical overview

IRI	Label	Definition	Note
iirds:GenericTechnicalOverview	technical overview	Information subject that covers the technical structure of a product.	---

The generic technical overview information subject classifies content that provides a high-level, conceptual description of the technical structure, architecture, or design of a product, system, or component. It is intended to help readers understand how the system is organized, how its parts relate to each other, and how it functions as a whole—without going into detailed specifications or procedural steps.

It is characterized by:

Purpose

To give users a conceptual understanding of the technical makeup and structure of a product or system.

Audience

Users who need a conceptual understanding of the technical structure, architecture, or design of a product or system.

Content features

- System architecture or component layout
- Functional blocks and their interactions
- Technical relationships between subsystems
- Overview of data flows, control flows, or signal paths
- High-level design principles or modular breakdowns
- Often includes diagrams (e.g., block diagrams, system maps), labeled illustrations, or structured textual descriptions.
- Use of terms like “architecture,” “structure,” “overview,” “layout,” or “block diagram”

Examples

- “System architecture of the embedded control unit”
- “Component breakdown of the drive system”
- “Functional block diagram of the power supply module”
- “High-level design of the software stack”

What it is not

- Not a generic functionality information subject: It does not describe the capabilities of a product, system, or component.
- Not a generic technical data information subject: It does not present objective, measurable, and descriptive characteristics of a product, component, or system.

3.1.3.12 Control element

IRI	Label	Definition	Note
iirds:OperatingElement	control element	Information subject that covers interaction elements in a user interface.	---

The control element information subject classifies content that provides a descriptive overview of user interface (UI) controls or control elements within a product, system, or application. It focuses on identifying, naming, and explaining the purpose and behavior of buttons, switches, icons, indicators, input fields, and other interactive elements that users interact with to operate or configure the system.

It is characterized by:

Purpose

To describe the identity, function, and context of UI or physical control elements.

Audience

Users who need to understand the identity, function, and context of UI or physical control elements within a product, system, or application.

Content features

- Names and visual representations of controls (e.g., buttons, toggles, sliders)
- Descriptions of control behavior (e.g., “activates cooling mode,” “resets settings”)
- Groupings of controls by panel, screen, or interface section
- Optional: status indicators
- LED meanings, or control states
- Often includes labeled screenshots, diagrams, or tables listing control names and functions.
- Use of terms like “button,” “switch,” “indicator,” “control,” or “icon”
- Focus on what the control is and does, not how to use it in a procedure

Examples

- “Touchscreen UI elements – main menu”
- “LED status indicators and their meanings”
- “Control elements on the operator console”

What it is not

- Not a generic functionality information subject: It does not describe the capabilities, features, and intended uses of a product, system, or component.

3.1.4 Frequently asked questions

This section covers frequently asked questions about using information types.

3.1.4.1 Document types and product lifecycle phases

Some iirds document types imply a strong relationship to particular phases of the product lifecycle. For example, a document annotated with `iirds:MaintenanceInstructions` provides information about the maintenance of a product.

Question

If a document has the document type `iirds:MaintenanceInstructions`, must all topics of the document be annotated with the product lifecycle phase `iirds:Maintenance`?

Answer

No, the document type of a document does not imply how to annotate the topics contained in that document. For some document types it is likely that the majority of the topics will share similar product lifecycle phase metadata but it is not required.

For example, a topic that identifies the product might be part of a maintenance instructions document but it is not specifically relevant only for the product lifecycle phase `iirds:Maintenance`.

3.1.4.2 Overlap in document types

Some iIRDS document types can overlap in real-world technical documents. For example, a document can be about operating a machine but also include information about installation of the machine.

Question

Can a document that is named “Operating Guide” but contains information about installation of a machine be annotated with the document type `iirds:OperatingInstructions`?

Answer

Yes, the document focus and the majority of the topics determine the document type. However, that does not require homogeneity in all topic’s content.

For example, if the document focus is on operating a machine but also contains some information about setting up the machine, then it can be annotated with `iirds:OperatingInstructions`. The individual topics about setting up the machine can be annotated with the product lifecycle phase `iirds:Installation` to improve content retrieval.

Another option is the assignment of two document types to a document that contains content matching multiple document types. The individual topics can then relate to one of the document types by using the property `iirds:is-applicable-for-document-type`. Which option to choose depends on the project’s requirements.

3.2 Functional metadata

iIRDS functional metadata classifies content in accordance with requirements of advanced content delivery scenarios. iIRDS functional metadata can be assigned to documents, topics, packages and fragments. As iIRDS functional metadata concepts are very specific this document provides guidance on how to annotate topics.

Most functional metadata subclasses require proprietary extensions that are specific to project requirements. But generic instances are still widely used to indicate that a topic contains information of a generic nature.

3.2.1 Generic action

IRI	Label	Definition	Note
<code>iirds:GenericAction</code>	action	Atomic manipulation of an object by a participant.	---

Generic action refers to an atomic action performed by a user, described in technical documentation. It involves a single, indivisible manipulation of an object by a participant.

It is characterized by:

Purpose

To instruct the user on how to perform a specific, concrete step within a system or process. It supports task completion by breaking down procedures into actionable elements.

Audience

Primarily end users, operators, or technicians who need to interact directly with a system, device, or software interface. The audience is expected to follow instructions to achieve a goal.

Content features

- Uses imperative verbs (e.g., "Click," "Press," "Select").
- Refers to interface elements or physical components.
- Focuses on a single, concrete action.
- Avoids abstract or explanatory language.
- Is typically short and precise.

Examples of proprietary extensions

- "Click the Save button."
=> my:Clicking
- "Clean the lint filter"
=> my:Cleaning
- "Insert the cartridge into the slot."
=> my:Inserting

What it is not

- Not a workflow or process.
- Not a general instruction lacking a specific user action.

3.2.2 Generic event

IRI	Label	Definition	Note
iirds:GenericEvent	event	Something noticeable that takes place at a given location and point in time.	---

Generic event refers to something noticeable that occurs in the technical system at a specific time and place. This includes errors, malfunctions, warnings, or other system-generated occurrences.

It is characterized by:

Purpose

To inform the user about system-side occurrences that may require attention, interpretation, or action. It helps users understand the system's state and respond appropriately to changes or issues.

Audience

Technicians, service personnel, or end users who monitor or maintain the system. The audience may need to diagnose, troubleshoot, or react to the event.

Content features

- Describes a system-generated occurrence, not initiated by the user.
- Includes time-specific and observable phenomena.
- Often contains error codes, warning messages, or status indicators.
- May be linked to logs, diagnostics, or alert systems.
- Typically uses indicative or descriptive language rather than imperative.

Examples of proprietary extensions

- "Error 404: File not found."
=> my:Error404
- "Battery level critical."
=> my:BatteryLowEvent
- "System reboot initiated."
=> my:RebootInitiate
- "Temperature exceeds safe operating range."
=> my:TempExceeding

What it is not

- Not a user-performed action or instruction.
- Not a general system description or conceptual explanation.

3.2.3 Planning time

The iIRDS planning time and its child concepts represent time that is related to the described circumstances in a topic of technical documentation.

While it provides generic instances, it is recommended to use proprietary extensions in accordance with specific project requirements. Proprietary instances can then have a relation to literals or time data types, for example `xsd:duration`.

3.2.3.1 Generic planning time

IRI	Label	Definition	Note
iirds:GenericPlanningTime	planning time	Period of time that is required for conducting a specific task.	---

Generic planning time refers to a period of time that is either required for or results from performing a specific task. It serves as a generic instance for various types of planning times mentioned in technical documentation.

It is characterized by:

Purpose

To provide temporal context for task execution, helping users estimate, allocate, or understand the time requirements associated with a task. It supports planning, scheduling, and resource management.

Audience

Planners, technicians, service personnel, or end users who need to organize or prepare for tasks. This includes roles involved in maintenance, installation, or operational workflows.

Content features

- Refers to a time duration or interval (e.g., minutes, hours, days, weekly, yearly).
- May describe preparation, execution, or follow-up time.
- Often appears in tables, task descriptions, or scheduling information.
- Is typically quantitative or descriptive (e.g., "Estimated time: 30 minutes").
- Does not instruct or describe actions, but complements them.

Examples of proprietary extensions

- "Preparation time: 15 minutes."
=> my:PT15M
- "Execution time: approximately 2 hours."
=> my:HourlyDurationValue2
- "Follow-up time: 10 minutes for system reboot."
=> my:PT10M

What it is not

- Not a system-generated event or alert.
- Not a vague or unspecified time reference.

3.2.3.2 Generic down time

IRI	Label	Definition	Note
iirds:GenericDownTime	down time	Period of time during which an item is not in condition to perform its intended function.	---

Generic down time refers to a type of planning time during which a technical system is not operational. This includes periods when the system is stopped for setup, maintenance, repairs, or other reasons that prevent it from performing its intended function.

It is characterized by:

Purpose

To indicate periods when a system or component is unavailable, helping users plan around interruptions and manage resources effectively. It supports scheduling, maintenance planning, and operational transparency.

Audience

Service planners, technicians, operators, and administrators who need to coordinate tasks around system availability. It is also relevant for users affected by system downtime.

Content features

- Describes a time window of system non-operation.
- May include setup, maintenance, repair, or administrative delays.
- Often appears in maintenance schedules, service plans, or operational logs.
- Expressed as a duration or time range (e.g., "System unavailable from 2–4 pm").
- Does not describe actions or events but complements them by indicating when they cannot occur.

Examples of proprietary extensions

- "System down for maintenance: 3 hours."
=> my:HourlyDurationValue3
- "Expected downtime due to part replacement: 45 minutes."
=> my: DurationValue45M
- "Administrative delay: 1 day."
=> my:P1D
- "Supply delay: estimated 2 days and 4 hours."
=> my:P2DT2H

What it is not

- Not an unspecified or continuous time reference.

3.2.3.3 Generic maintenance interval

IRI	Label	Definition	Note
iirds:GenericMaintenanceInterval	maintenance interval	Period of time between scheduled maintenance operations.	Instances have a maintenance frequency and an optional maintenance duration.

Generic maintenance interval refers to a time interval or duration between scheduled maintenance operations of a technical system or its components.

It is characterized by:

Purpose

To communicate the frequency or timing of maintenance activities, enabling users to plan and perform regular upkeep to ensure system reliability and longevity.

Audience

Maintenance planners, technicians, service personnel, and operators responsible for scheduling and executing maintenance tasks.

Content features

- Indicates a recurring or scheduled time frame.
- May be expressed as a duration (e.g., "every 6 months") or a specific interval (e.g., "after 500 operating hours").
- Often found in maintenance schedules, service manuals, or lifecycle documentation.
- Supports predictive and preventive maintenance planning.
- Does not describe the maintenance procedure itself.

Examples of proprietary extensions

- "Maintenance interval: every 1,000 km."
=> my:1kKm
- "Service required every 3 months."
=> my:MonthlyIntervalValue3
- "Inspection every 250 operating hours."
=> my:OperatingHoursValue250

- "Replace filter every 6 weeks."
=> my:WeeklyIntervalValue6

What it is not

- Not a description of the maintenance task or procedure.
- Not a downtime period or system unavailability.
- Not a user action or system event.
- Not a one-time or ad-hoc time reference.

3.2.3.4 Generic working time

IRI	Label	Definition	Note
iirds:GenericWorkingTime	work time	Period of time that is required for conducting a specific task.	---

Generic working time refers to a type of planning time that indicates the period of time required to perform a specific working task.

It is characterized by:

Purpose

To provide an estimate of the active time needed to complete a task, supporting planning, resource allocation, and workload management.

Audience

Technicians, operators, service personnel, and planners who need to understand how long a task will take in order to schedule work efficiently.

Content features

- Describes the duration of active task execution.
- Expressed as a time value (e.g., minutes, hours).
- Often found in task descriptions, work instructions, or planning documents.
- May vary depending on complexity, skill level, or environmental factors.
- Does not include preparation, waiting, or downtime.

Examples of proprietary extensions

- "Working time: 45 minutes."
=> my: DurationValue45
- "Estimated task duration: 2 hours."
=> my:HourlyDurationValue2
- "Assembly time: approximately 30 minutes."
=> my:PT30M

What it is not

- Not a downtime or delay period.
- Not a maintenance interval or scheduling frequency.

3.2.4 Qualification

iIRDS qualification and its child concepts describe requirements that a party has to satisfy to access information and to be part of the intended target group of the technical documentation.

3.2.4.1 Generic role

IRI	Label	Definition	Note
iirds:GenericRole	role	Set of connected behaviors, privileges and obligations associated with a party.	The Role class describes roles for users of the technical system and the associated technical information.

Generic role refers to a set of connected behaviors, privileges, and obligations associated with a user of a system. This user can be a human, a software, or a device.

It is characterized by:

Purpose

To define the responsibilities, permissions, and expected behaviors of a participant within a system or process. It helps to clarify who does what and under what conditions.

Audience

System designers, technical communicators, administrators, and users who need to understand or assign responsibilities within a system. Also relevant for documentation consumers who must act in accordance with their role.

Content features

- Describes a function or responsibility within a system.
- May include permissions, limitations, or expected actions.
- Can apply to humans, software agents, or devices.
- Often used in access control, task assignment, or workflow modeling.
- Expressed as a label or descriptor (e.g., "Operator", "Administrator").

Examples of proprietary extensions

- "Service technician"
=> my:ServiceTech

- "End user"
=> my:EndUser
- "System administrator"
=> my:SysAdmin
- "Automated monitoring agent"
=> my:AutoBot

What it is not

- Not a required qualification
- Not a specific person

3.2.4.2 Generic skill level

IRI	Label	Definition	Note
iirds:GenericSkillLevel	skill level	Degree of qualification of an individual.	The SkillLevel class describes custom skill levels that the users of the technical system and the associated technical information require.

Generic skill level refers to the degree of qualification or ability required to carry out a specific task described in technical documentation.

It is characterized by:

Purpose

To specify the level of expertise or training needed to perform a task correctly and safely. It helps ensure that tasks are assigned to appropriately qualified individuals.

Audience

Planners, trainers, service managers, and documentation users who need to assess whether they or others meet the required qualifications for a task.

Content features

- Describes the required expertise, training, or experience level.
- May use general categories (e.g., "Beginner", "Advanced", "Expert").
- Can include formal qualifications (e.g., "certified electrician").
- Often appears in task descriptions, safety instructions, or role assignments.
- Supports task filtering and user guidance based on capability.

Examples of proprietary extensions

- "Requires certified technician."
=> my:CertifiedTech
- "Skill level: Expert."
=> my:ExpertSkill
- "Basic user knowledge sufficient."
=> my:BeginnerLevel
- "Advanced training required for calibration."
=> my:AdvancedLevel

What it is not

- Not a role or responsibility label.

3.2.5 Generic supply

IRI	Label	Definition	Note
iirds:GenericSupply	supply	Physical object used by an actor performing work tasks described in technical documentation.	---

Generic supply refers to a physical object that is required by an actor (human or device) to perform a work task described in technical documentation. It serves as a generic instance for different types of supplies.

It is characterized by:

Purpose

To identify and document the physical resources necessary for task execution, ensuring that users are aware of what must be available before starting a task.

Audience

Technicians, operators, service personnel, and logistics planners who need to prepare or verify the availability of required materials before performing a task.

Content features

- Describes tangible items used during task execution.
- Is essential for completing the task successfully.
- May include consumables, replacement parts, or auxiliary materials.
- Often listed in preparation sections or task prerequisites.
- Does not include tools, roles, or time-related information.

Examples of proprietary extensions

- "Cleaning fluid"
=> my:CleaningFluid
- "Replacement filter"
=> my:Filter
- "Packaging material"
=> my:Packaging

What it is not

- Not a tool or instrument used to perform the task.

3.2.6 Frequently asked questions

This section covers frequently asked questions about using functional metadata.

3.2.6.1 Maintenance intervals and conditions

iIRDS maintenance intervals represent the period of time between the repetition of a maintenance task. Some maintenance protocols do require repetition based on either a time interval or another condition, for example hours of use.

Question

Can iirds:MaintenanceInterval represent a conditional repetition of a maintenance task?

Answer

No, modelling of complex maintenance procedures with conditional repetitions is out of scope of iIRDS. However, conditionals can be added as proprietary extension classes under iirds:FunctionalMetadata.

3.3 Product metadata

iIRDS product metadata classifies content according to its relevance for products and product characteristics. iIRDS product metadata can be assigned to documents, topics, packages and fragments. As iIRDS product metadata concepts are very specific this document provides guidance on how to annotate documents with product variants and topics with all iIRDS product meta concepts.

Most product metadata subclasses require proprietary extensions that are specific to project requirements. But generic instances are still widely used to indicate that a topic contains specific information or is relevant for a specific product or product characteristic.

3.3.1 Phase of product lifecycle

iIRDS phase of product lifecycle and its child concepts represent the relevance of information for a product at a certain phase in its lifecycle.

3.3.1.1 Generic after use

IRI	Label	Definition	Note
iirds:GenericAfterUse	after use	Product life cycle phase following the active use of the product.	---

Generic after use is a product lifecycle phase that begins after the product's active use has ended. It includes activities related to the removal or disposal of components, mounted parts, and consumables, in accordance with applicable legal and environmental regulations.

It is characterized by:

Purpose

To document and guide post-use activities such as disassembly, disposal, recycling, or return of components. It supports compliance with environmental standards and safe handling of materials.

Audience

Service technicians, recycling personnel, logistics staff, and end users responsible for handling the product after its operational phase.

Content features

- Refers to actions or considerations after the product's use has ended.
- Includes disposal, return, or recycling instructions.
- May mention legal, environmental, or safety regulations.
- Often found in end-of-life documentation or sustainability sections.
- Does not describe operational tasks or maintenance procedures.

Examples

- "Dispose of used filters in accordance with local regulations."
- "Return empty cartridges to the supplier."
- "Recycle packaging materials."
- "Remove batteries before disposal."

What it is not

- Not a conceptual or procedural explanation related to product operation.

3.3.1.2 Disposal

IRI	Label	Definition	Note
iirds:Disposal	disposal	Product life cycle phase spanning the process of elimination of a product or component.	---

Disposal is a product lifecycle phase focused on the elimination of a product or its components. It includes activities such as disassembly, removal of parts and substances (e.g., lubricants), and environmentally compliant disposal, in accordance with country-specific legal requirements.

It is characterized by:

Purpose

To guide the proper and lawful elimination of products or components, ensuring environmental safety and compliance with regional regulations. It supports end-of-life handling and sustainability practices.

Audience

Technicians, recycling personnel, logistics staff, and regulatory compliance officers responsible for managing the final phase of a product's lifecycle.

Content features

- Includes instructions for disassembly and removal of hazardous or regulated substances.
- Often references legal and environmental guidelines.
- May include country-specific disposal procedures.
- Appears in end-of-life documentation or sustainability sections.

Examples

- "Dispose of lubricants in accordance with hazardous waste regulations."
- "Remove and recycle batteries separately."
- "Disassemble unit before disposal."
- "Follow local e-waste disposal guidelines."

What it is not

- Not a user action during active use.

3.3.1.3 Generic design and realization

IRI	Label	Definition	Note
iirds:GenericDesignAndRealization	design and realization	Product life cycle phase from environment analysis and ideation through production.	---

Generic design and realization is a product lifecycle phase that covers the entire process from the initial idea through to the production of a product. It serves as a parent class for phases related to designing, engineering, and realizing a technical system.

It is characterized by:

Purpose

To document and structure the development process of a product, from concept to production. It supports traceability, collaboration, and lifecycle management in technical environments.

Audience

Engineers, product designers, project managers, and technical writers involved in the planning, development, and documentation of technical systems.

Content features

- Covers conceptualization, design, engineering, and production phases.
- May include specifications, design decisions, and realization steps.
- Often appears in development documentation, project plans, or lifecycle models.

Examples

- "CAD model created during design phase."
- "Engineering specifications finalized before production."
- "Prototype realization completed."
- "Design review documentation."

What it is not

- Not related to product usage or operation.

3.3.1.4 Design

IRI	Label	Definition	Note
iirds:Design	design	Product life cycle phase of designing systems, products, or services.	---

Design is a product lifecycle phase focused on the conceptual and technical design of systems, products, or services. It includes all activities related to planning and developing the structure, function, and appearance of a product before it is built or produced.

It is characterized by:

Purpose

To capture and communicate the planning and development of a product's structure, functionality, and aesthetics. It supports innovation, feasibility analysis, and documentation of design intent.

Audience

Product designers, engineers, project managers, and stakeholders involved in the early stages of product development.

Content features

- Covers conceptual and technical design activities.
- Includes planning of form, function, and user interaction.
- May involve sketches, models, specifications, and design rationale.
- Often documented in design briefs, requirement specifications, or CAD files.
- Precedes realization and production phases.

Examples

- "Initial design sketches for housing unit."
- "Functional specification document"
- "User interface layout concept"
- "Design constraints and performance targets."

What it is not

- Not a time duration or planning reference.
- Not about the actual production.

3.3.1.5 Generic putting to use

IRI	Label	Definition	Note
iirds:GenericPuttingToUse	putting into use	Product life cycle phase after production in which a product is set up for its intended use	---

Generic putting to use is a product lifecycle phase that begins after production and includes all activities required to set up a product or technical system for its intended use. It serves as a generic instance if more specific phases related to installation, commissioning, and initial operation cannot be assigned.

It is characterized by:

Purpose

To document and support the transition from production to operational readiness, ensuring that the product is correctly installed, configured, and prepared for use.

Audience

Technicians, installers, commissioning engineers, and end users involved in setting up and activating the product or system.

Content features

- Covers setup, installation, and initial configuration activities.
- May include safety checks, calibration, and system testing.
- Often documented in installation guides, commissioning protocols, or setup instructions.
- Does not include usage, maintenance, or disposal instructions.

Examples

- "Install the device in accordance with the mounting instructions."
- "Commissioning checklist"
- "Initial system calibration performed."
- "Connect power supply and verify startup sequence."

What it is not

- Not part of the product's active usage phase.

3.3.1.6 Configuration

IRI	Label	Definition	Note
iirds:Configuration	configuration	Product life cycle phase of adapting settings to achieve the desired functionality of a product	---

Configuration is a product lifecycle phase that involves adapting and setting parameters of a technical system to ensure it functions as intended. It includes all activities related to configuring system settings before the product is put into use.

It is characterized by:

Purpose

To ensure that a product or system is correctly set up to meet operational requirements, user preferences, or environmental conditions. It supports readiness and optimal performance.

Audience

Technicians, system integrators, IT personnel, and advanced users responsible for preparing the system for use through parameter adjustments and setup procedures.

Content features

- Involves setting system parameters, preferences, or modes.
- May include network settings, user profiles, language options, or performance configurations.
- Typically occurs before or during initial operation.
- Often documented in setup guides, configuration manuals, or system checklists.

Examples

- "Set the operating temperature to 70°C."
- "Configure network access settings."
- "Adjust display brightness and contrast."

What it is not

- Not a physical installation or mounting activity during assembly.
- Not a maintenance or repair instruction.
- Not a user action during regular operation.

3.3.1.7 Generic use

IRI	Label	Definition	Note
iirds:GenericUse	use	Product life cycle phase in which the product is supposed to realize its function.	---

Generic use is a product lifecycle phase in which the product or technical system performs its intended function. It serves as a generic instance if more specific phases related to the active use and operation of the product cannot be used.

It is characterized by:

Purpose

To describe the phase in which the product is actively operated by users to fulfill its designed purpose. It supports documentation of usage scenarios, operational instructions, and user interactions.

Audience

End users, operators, technicians, and support staff who interact with the product during its normal operation.

Content features

- Covers active operation and functional use of the product.
- May involve safety guidelines, performance expectations, and user responsibilities.
- Often documented in user manuals, quick-start guides, or operational checklists.

Examples

- "Start the machine by pressing the green button."
- "Operate within a temperature range of 10–40°C."
- "Monitor system status during use."

What it is not

- Not related to installation, configuration, or commissioning.

3.3.1.8 Diagnostics

IRI	Label	Definition	Note
iirds:Diagnostics	fault diagnosis	Product life cycle phase of identifying a fault and its cause within the use phase.	---

Diagnostics is a product lifecycle phase within the use phase that focuses on identifying faults and their causes. It includes procedures and tools for locating errors in a technical system to support troubleshooting and maintenance.

It is characterized by:

Purpose

To detect, analyze, and document system faults or irregularities, enabling effective troubleshooting and maintenance. It supports system reliability and minimizes downtime.

Audience

Technicians, service personnel, support engineers, and advanced users responsible for fault detection and system recovery.

Content features

- Focuses on identifying and analyzing system errors or malfunctions.
- Includes diagnostic procedures, error codes, and fault isolation techniques.
- May reference tools, software, or built-in diagnostic functions.
- Often found in troubleshooting guides, service manuals, or error logs.
- Occurs during the active use phase but is distinct from regular operation.

Examples

- "Perform a system self-test before restarting."
- "Use the built-in diagnostics menu to identify hardware issues."

What it is not

- Not a regular operational instruction.
- Not a maintenance or repair procedure itself.

3.3.2 Product feature

iIRDS product feature and its child concepts represent characteristics of a product that are inherent to the product. Without it the product would cease to exist or be a different product.

3.3.2.1 Generic product feature

IRI	Label	Definition	Note
iirds:GenericProductFeature	product feature	Product characteristics	---

Generic product feature is a parent class for metadata describing the characteristics and functions of a product or its components. It includes technical properties, performance attributes, and other descriptive features that define what the product is or does. Generic product feature is used if the more specific product function and product property cannot be assigned.

It is characterized by:

Purpose

To describe the inherent attributes and capabilities of a product or its components, supporting identification, comparison, and understanding of product functionality.

Audience

End users, technicians, product managers, and documentation consumers who need to understand what a product offers and how it performs.

Content features

- Includes technical specifications and performance data.
- May describe physical dimensions, materials, capacities, or supported functions.
- Often found in product datasheets, manuals, and marketing materials.
- Helps differentiate products and guide usage decisions.
- Does not describe actions, events, or lifecycle phases.

Examples

- If possible, the semantically richer subclasses should be used.

What it is not

- Not a component of a product.

3.3.2.2 Generic product function

IRI	Label	Definition	Note
iirds:GenericProductFunction	product function	Capability of a product or a component which is specific or required for the intended product task	---

Generic product function describes a function or capability that a product or component provides to fulfill its intended task. It includes specific technical or operational roles that are essential for the product's purpose or performance.

It is characterized by:

Purpose

To describe what a product or component is designed to do, highlighting its functional role within a system or application. It supports understanding of product capabilities and intended use.

Audience

End users, technicians, engineers, and product managers who need to understand the operational scope and technical capabilities of a product or component.

Content features

- Describes specific functions or capabilities of a product.
- Often found in product specifications, functional descriptions, or system architecture documentation.
- Helps differentiate products based on what they do, not how they are built.
- Does not include physical characteristics or lifecycle phases.

Examples of proprietary extensions

- "Provides temperature regulation."
=> my:TempRegulation
- "Enables wireless data transmission."
=> my:DataWirelessTransmission
- "Supports real-time monitoring."
=> my:RealTimeMonitoring
- "Performs automatic calibration."
=> my:AutoCalibration

What it is not

- Not a physical product feature or specification.

3.3.2.3 Generic product property

IRI	Label	Definition	Note
iirds:GenericProductProperty	product property	Invariable characteristic of a product whose value is fixed once the product is defined	---

Generic product property describes a fixed, invariable characteristic of a product or component. These properties are defined during development and do not change during the product's lifecycle, such as dimensions, weight, or material type.

It is characterized by:

Purpose

To document stable, measurable attributes of a product or component that define its identity and physical nature. It supports product specification, comparison, and compliance.

Audience

Engineers, product designers, technical writers, procurement specialists, and end users who need to understand the physical and technical constants of a product.

Content features

- Describes static, unchanging characteristics.
- Includes physical dimensions, weight, material composition, and other fixed attributes.
- Often found in technical datasheets, product catalogs, and specification documents.
- Supports product identification, compatibility checks, and regulatory documentation.

Examples of proprietary extensions

- "Weight: 2.5 kg"
=> my:WeightValue
- "Material: anodized aluminum"
=> my:AnodAlu
- "Dimensions: 120 × 80 × 45 mm"
=> my:DimensionValue
- "Color: matte black"
=> my:ColorValueBlack

What it is not

- Not a product function or capability realized during a product lifecycle phase.

3.3.3 Component class

IRI	Label	Definition	Note
iirds:Component	component	Part used as a constituent in an assembled product, system or plant.	Components may have relations to other components so that iIRDS Generators can build up a simple component hierarchy with iIRDS structures. The iirds#Component may also be used as a docking point for external component definitions.

Component describes a part used as a constituent in an assembled product, system or plant. As an assembled product can become a component in another product, iiRDS does not distinguish components and products.

iiRDS components need to be extended with proprietary extensions for each component of a project.

It is characterized by:

Purpose

To document and describe individual parts that make up a larger product, system, or plant. It supports understanding of how complex assemblies are structured, how each part contributes to the whole, and how parts can be manipulated to achieve a specific goal.

Audience

Users who need to assemble, maintain, or understand the structure of products, systems, or plants.

Content features

- Describes physical or logical parts that are combined to create a complete assembly.
- Components are often mentioned in bills of materials, assembly instructions, or system architecture documentation.
- Helps clarify the role and position of each part within the overall structure.
- Helps manipulate a product or part of an assembled product.

Examples

- "The rotor blades generate lift by spinning and pushing air downward."
=> `my:RotorBlade`
- "Open the valve fully, to flood the connecting pipe."
=> `my:Valve` and `my:ConnectingPipe`
- "Remove the DRAM module from the motherboard."
=> `my:DramModule` and `my:Motherboard`

What it is not

- Not a product variant which is only the natural language identifier for an assembled artifact.

3.3.4 Product variant class

IRI	Label	Definition	Note
iirds:ProductVariant	product variant	Item or service offered on the market and designed to meet the needs or wishes of customers	---

iIRDS product variants are items or services offered on the market and designed to meet the needs or wishes of customers. As an iIRDS product variants represent an entity as marketed, it can keep its identity while its components may change. iIRDS product variants can be assigned to packages, documents, topics and fragments.

iIRDS product variants need to be extended with proprietary extensions for each product variant of a project.

It is characterized by:

Purpose

To provide information that is exclusively relevant to a particular product variant, such as a specific model, configuration, or customization, ensuring that users receive only the instructions, descriptions, warnings, or specifications that apply to the exact version of the product they are working with.

Audience

Technical writers, product managers, service technicians, and end users who need to create, manage, or consume documentation that applies to a particular product version or configuration.

Content features

- Contains variant-specific features, procedures, or constraints.
- Covers highly specific functional capabilities or performance parameters.
- Provides information about a specific product as ordered.

Examples of proprietary extensions

- "Model A100 with optional safety module."
=> my:A100SM
- "TinyTim calculator release 5.1 localized for the Japanese market."
=> my:TTJP51
- "Electric version of the PI fan base model."
=> my:PiFanEC

What it is not

- Not a general product category or family.

3.3.5 Frequently asked questions

This section covers frequently asked questions about using product metadata.

3.3.5.1 Relation of product variant and component

An iIRDS package can contain information about components and its parts. The package can also contain information about the product variants that the information is valid for. For example, a topic about mounting a touch display has a relation to the component `my:TouchDisplay` and a relation to the product variant `my:ProdXYZ-D`.

Question

What are the components of the product variant `my:ProdXYZ-D`?

Answer

In iIRDS there is no relationship between a product variant and the components. A topic can have relations to components and product variants and specific project requirements might allow us to infer that the product variants must therefore have the components as parts. However, there is no standardized way to model the relationship between product variants and components in iIRDS.

3.3.5.2 Understanding product features

iIRDS product features are grouped as product properties and product functions. But iIRDS does not provide a qualified relation that indicates if a referenced product feature is a product or function. iIRDS only provides `iirds:relates-to-product-feature`.

Question

As there is no qualified iIRDS relation to product functions, does iIRDS not distinguish between functions and properties of a product?

Answer

iIRDS does distinguish between functions and properties of a product and provides qualified classes, `iirds:ProductFunction` and `iirds:ProductProperty`. A product property is a characteristic that a product always exhibits, for example its weight. A product function is a characteristic that a product only exhibits during a process of its lifecycle, for example the pumping function that is realized during use of a pump.