1 June 2024

CSRM HTML

The purpose of this memo is to illustrate using the containment tree to navigate the CSRM HTML

A link to an HTML version of CSRM:

http://pulsar.orbitaltransports.com/csrm/

The CSRM provides navigation by linking packages to package diagrams.

Cameo provides a useful but unsupported capability to generate a HTML version of the CSRM.

That allows someone to get acquainted with the CSRM using just a browser.

However, some of the package - package diagram links do not survive the conversion to HTML

However,[2] navigation can be initiated in the containment tree.

Below are screen captures of the containment tree with arrows pointing to the package diagrams.
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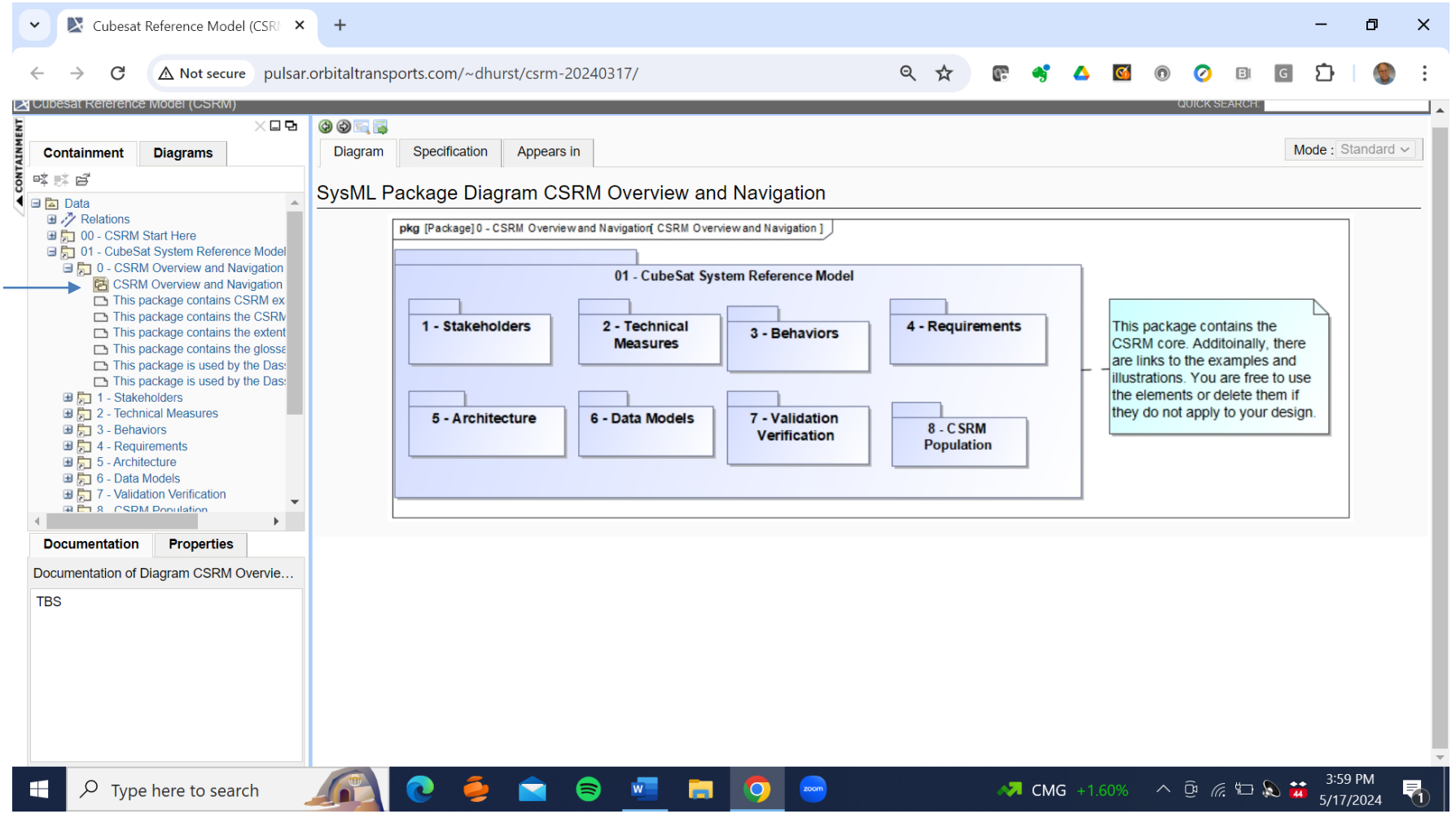
Cubesat Reference Model (CSRM)
Not secure
pulsar.orbitaltransports.com/~dhurst/csrm-20240317/
Containment
Diagrams
Data
Relations
00 - CSRM Start Here
01 - CubeSat System Reference Model
0 - CSRM Overview and Navigation
CSRM Overview and Navigation
1 - Stakeholders
2 - Technical Measures
3 - Behaviors
4 - Requirements
5 - Architecture
6 - Data Models
7 - Validation Verification
Documentation
Properties
Documentation of Diagram CSRM Overvie…
TBS
Diagram
Specification
Appears in
Mode : Standard
SysML Package Diagram CSRM Overview and Navigation
pkg [Package] 0 - CSRM Overview and Navigation[CSRM Overview and Navigation]
01 - CubeSat System Reference Model
1 - Stakeholders
2 - Technical Measures
3 - Behaviors
4 - Requirements
5 - Architecture
6 - Data Models
7 - Validation Verification
8 - CSRM Population
This package contains the CSRM core. Additoinally, there are links to the examples and illustrations. You are free to use the elements or delete them if they do not apply to your design.
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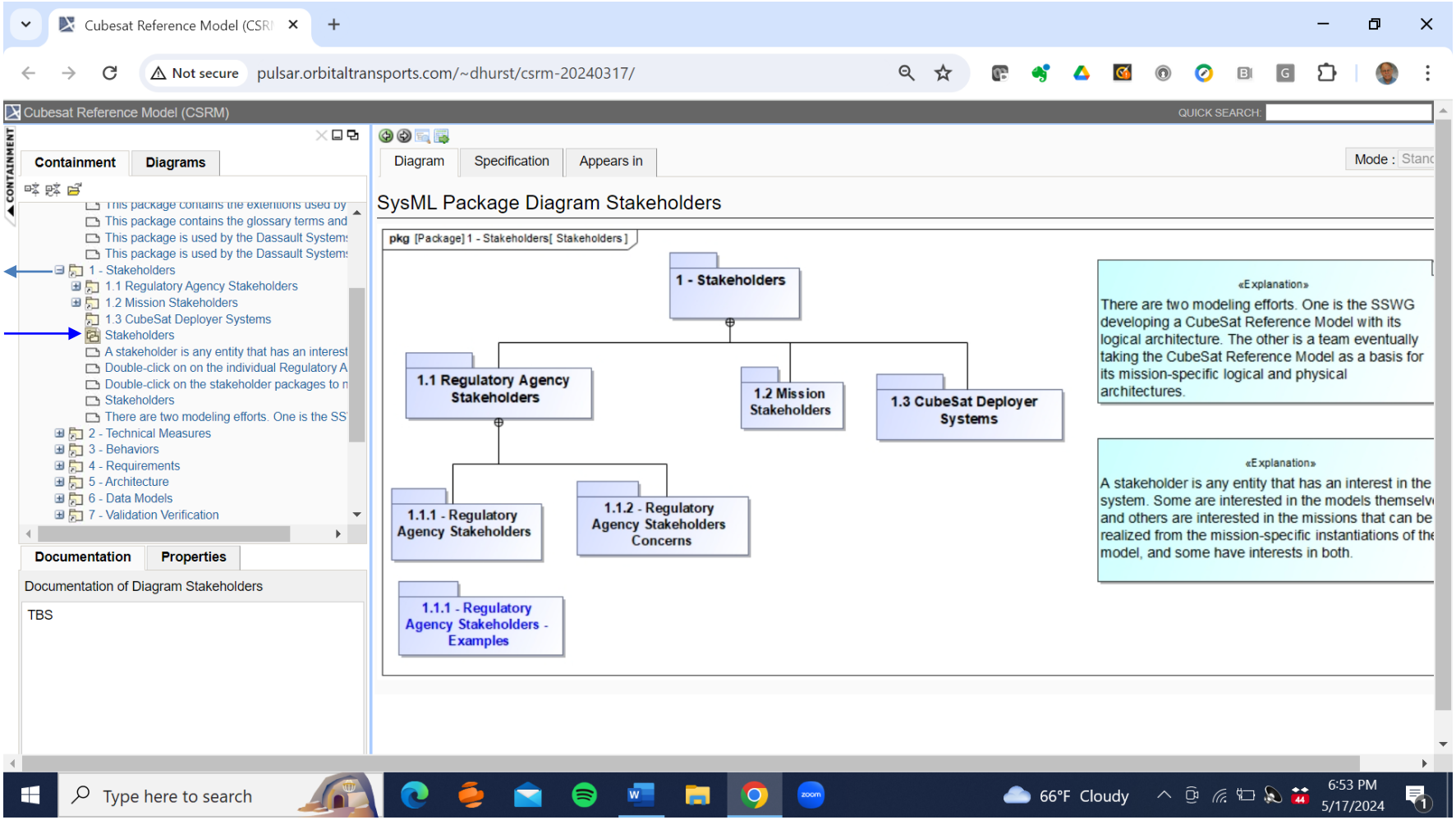
Cubesat Reference Model (CSR
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Cubesat Reference Model (CSRM)
QUICK SEARCH:
CONTAINMENT
Containment
Diagrams
This package contains the glossary terms and
This package is used by the Dassault System
This package is used by the Dassault System
1 - Stakeholders
1.1 Regulatory Agency Stakeholders
1.2 Mission Stakeholders
1.3 CubeSat Deployer Systems
Stakeholders
A stakeholder is any entity that has an interest
Double-click on on the individual Regulatory A
Double-click on the stakeholder packages to
Stakeholders
There are two modeling efforts. One is the SS
2 - Technical Measures
3 - Behaviors
4 - Requirements
5 - Architecture
6 - Data Models
7 - Validation Verification
Documentation
Properties
Documentation of Diagram Stakeholders
TBS
Diagram
Specification
Appears in
Mode : Stanc
SysML Package Diagram Stakeholders
pkg [Package] 1 - Stakeholders[Stakeholders]
1 - Stakeholders
1.1 Regulatory Agency Stakeholders
1.2 Mission Stakeholders
1.3 CubeSat Deployer Systems
1.1.1 - Regulatory Agency Stakeholders
1.1.2 - Regulatory Agency Stakeholders Concerns
1.1.1 - Regulatory Agency Stakeholders - Examples
«Explanation»
There are two modeling efforts. One is the SSWG developing a CubeSat Reference Model with its logical architecture. The other is a team eventually taking the CubeSat Reference Model as a basis for its mission-specific logical and physical architectures.
«Explanation»
A stakeholder is any entity that has an interest in the system. Some are interested in the models themselv and others are interested in the missions that can be realized from the mission-specific instantiations of the model, and some have interests in both.
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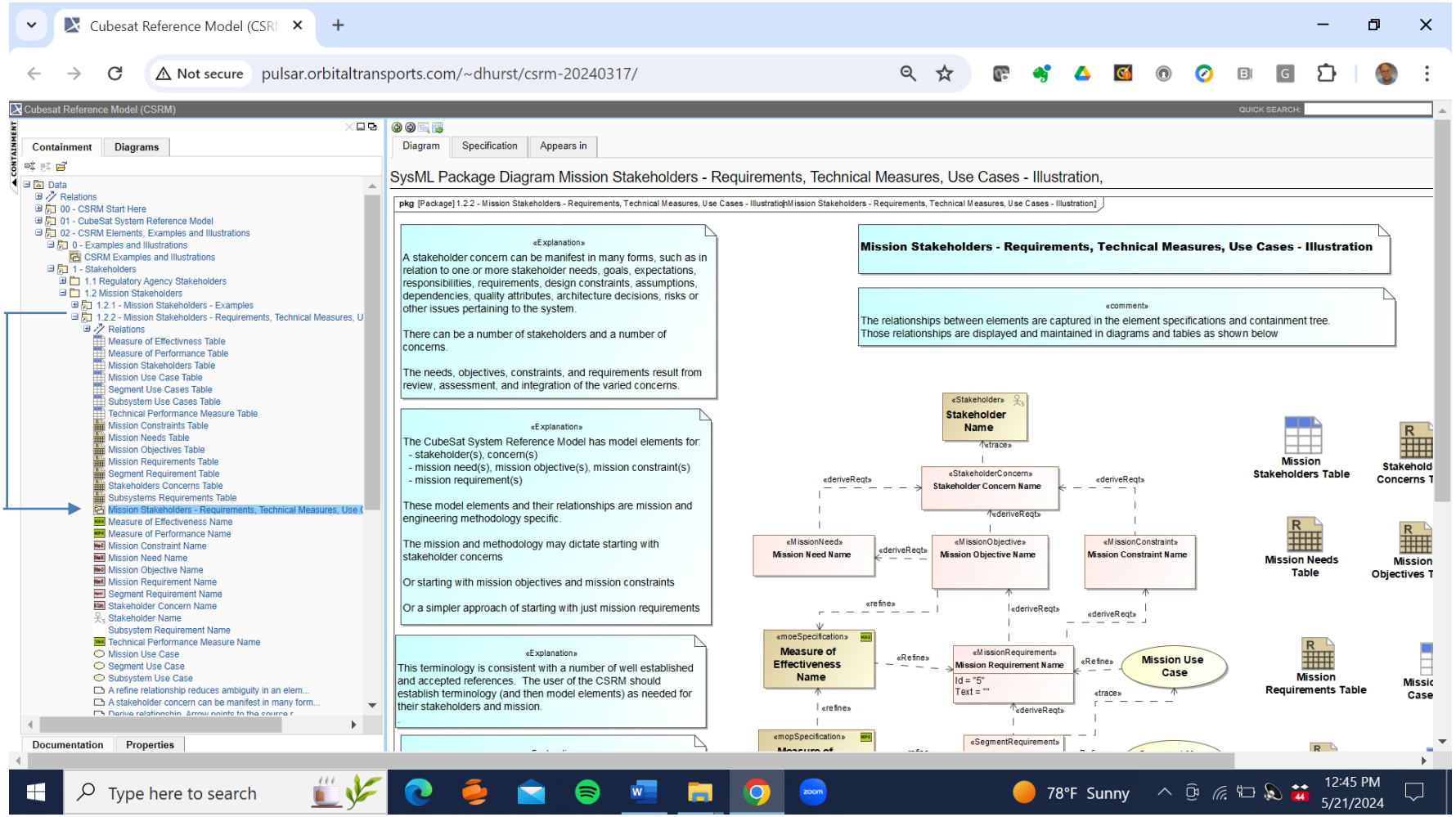
Cubesat Reference Model (CSR
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Cubesat Reference Model (CSRM)
QUICK SEARCH:
Containment
Diagrams
Diagram
Specification
Appears in
SysML Package Diagram Mission Stakeholders - Requirements, Technical Measures, Use Cases - Illustration,
Mission Stakeholders - Requirements, Technical Measures, Use Cases - Illustration
«comment»
The relationships between elements are captured in the element specifications and containment tree.
Those relationships are displayed and maintained in diagrams and tables as shown below
«Explanation»
A stakeholder concern can be manifest in many forms, such as in relation to one or more stakeholder needs, goals, expectations, responsibilities, requirements, design constraints, assumptions, dependencies, quality attributes, architecture decisions, risks or other issues pertaining to the system.
There can be a number of stakeholders and a number of concerns.
The needs, objectives, constraints, and requirements result from review, assessment, and integration of the varied concerns.
«Explanation»
The CubeSat System Reference Model has model elements for:
- stakeholder(s), concern(s)
- mission need(s), mission objective(s), mission constraint(s)
- mission requirement(s)
These model elements and their relationships are mission and engineering methodology specific.
The mission and methodology may dictate starting with stakeholder concerns
Or starting with mission objectives and mission constraints
Or a simpler approach of starting with just mission requirements
«Explanation»
This terminology is consistent with a number of well established and accepted references. The user of the CSRM should establish terminology (and then model elements) as needed for their stakeholders and mission.
«Stakeholder»
Stakeholder Name
«StakeholderConcern»
Stakeholder Concern Name
«MissionNeed»
Mission Need Name
«MissionObjective»
Mission Objective Name
«MissionConstraint»
Mission Constraint Name
«moeSpecification»
Measure of Effectiveness Name
«MissionRequirement»
Mission Requirement Name
Id = "5"
Text = ""
Mission Use Case
«mopSpecification»
«SegmentRequirement»
Mission Stakeholders Table
Mission Needs Table
Mission Requirements Table
Documentation
Properties
Type here to search
78°F Sunny
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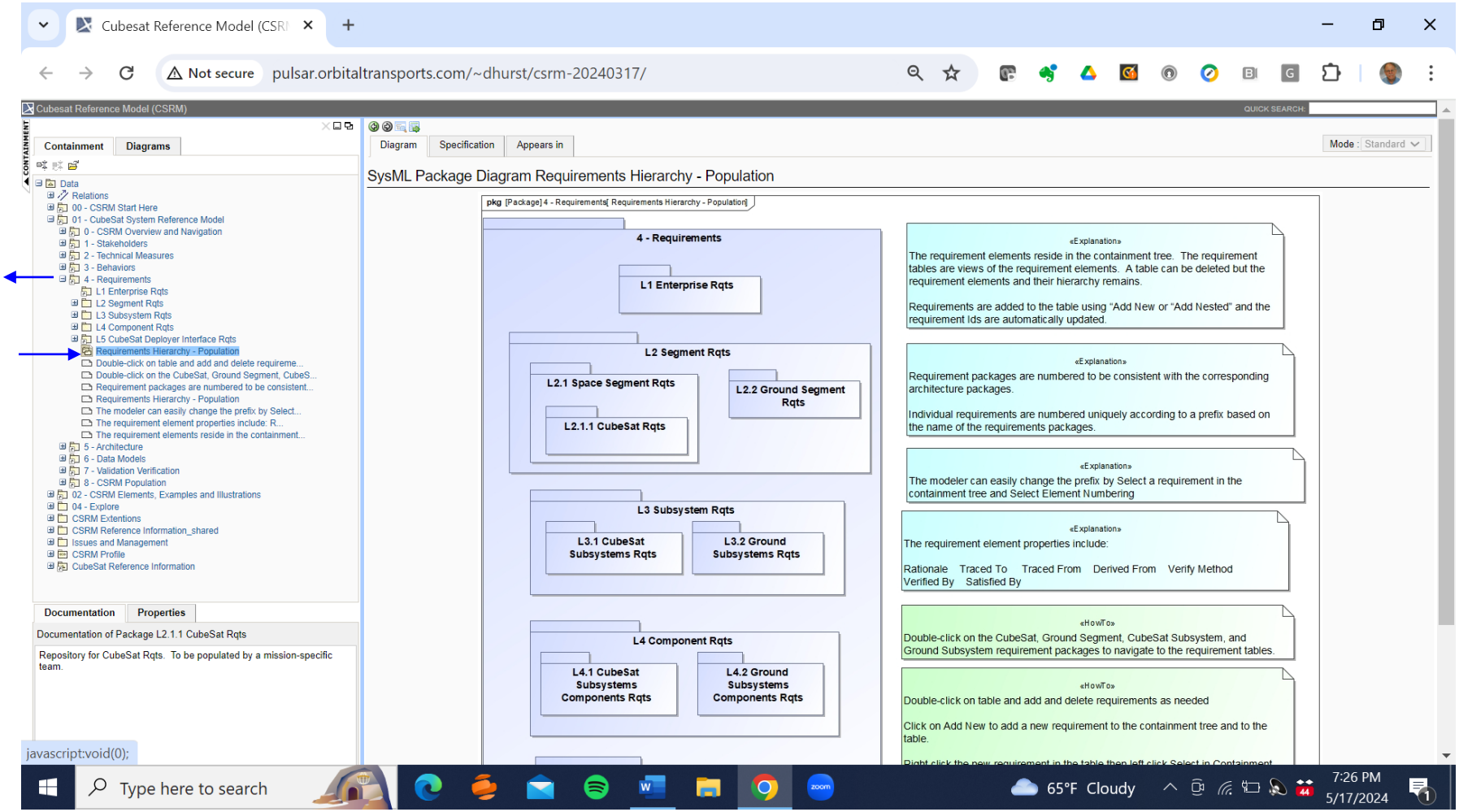
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Containment
Diagrams
Diagram
Specification
Appears in
Mode : Standard
SysML Package Diagram Requirements Hierarchy - Population
pkg [Package] 4 - Requirements[Requirements Hierarchy - Population]
4 - Requirements
L1 Enterprise Rqts
L2 Segment Rqts
L2.1 Space Segment Rqts
L2.2 Ground Segment Rqts
L2.1.1 CubeSat Rqts
L3 Subsystem Rqts
L3.1 CubeSat Subsystems Rqts
L3.2 Ground Subsystems Rqts
L4 Component Rqts
L4.1 CubeSat Subsystems Components Rqts
L4.2 Ground Subsystems Components Rqts
«Explanation»
The requirement elements reside in the containment tree. The requirement tables are views of the requirement elements. A table can be deleted but the requirement elements and their hierarchy remains.
Requirements are added to the table using "Add New or "Add Nested" and the requirement Ids are automatically updated.
«Explanation»
Requirement packages are numbered to be consistent with the corresponding architecture packages.
Individual requirements are numbered uniquely according to a prefix based on the name of the requirements packages.
«Explanation»
The modeler can easily change the prefix by Select a requirement in the containment tree and Select Element Numbering
«Explanation»
The requirement element properties include:
Rationale Traced To Traced From Derived From Verify Method Verified By Satisfied By
«HowTo»
Double-click on the CubeSat, Ground Segment, CubeSat Subsystem, and Ground Subsystem requirement packages to navigate to the requirement tables.
«HowTo»
Double-click on table and add and delete requirements as needed
Click on Add New to add a new requirement to the containment tree and to the table.
Documentation
Properties
Documentation of Package L2.1.1 CubeSat Rqts
Repository for CubeSat Rqts. To be populated by a mission-specific team.
javascript:void(0);
Type here to search
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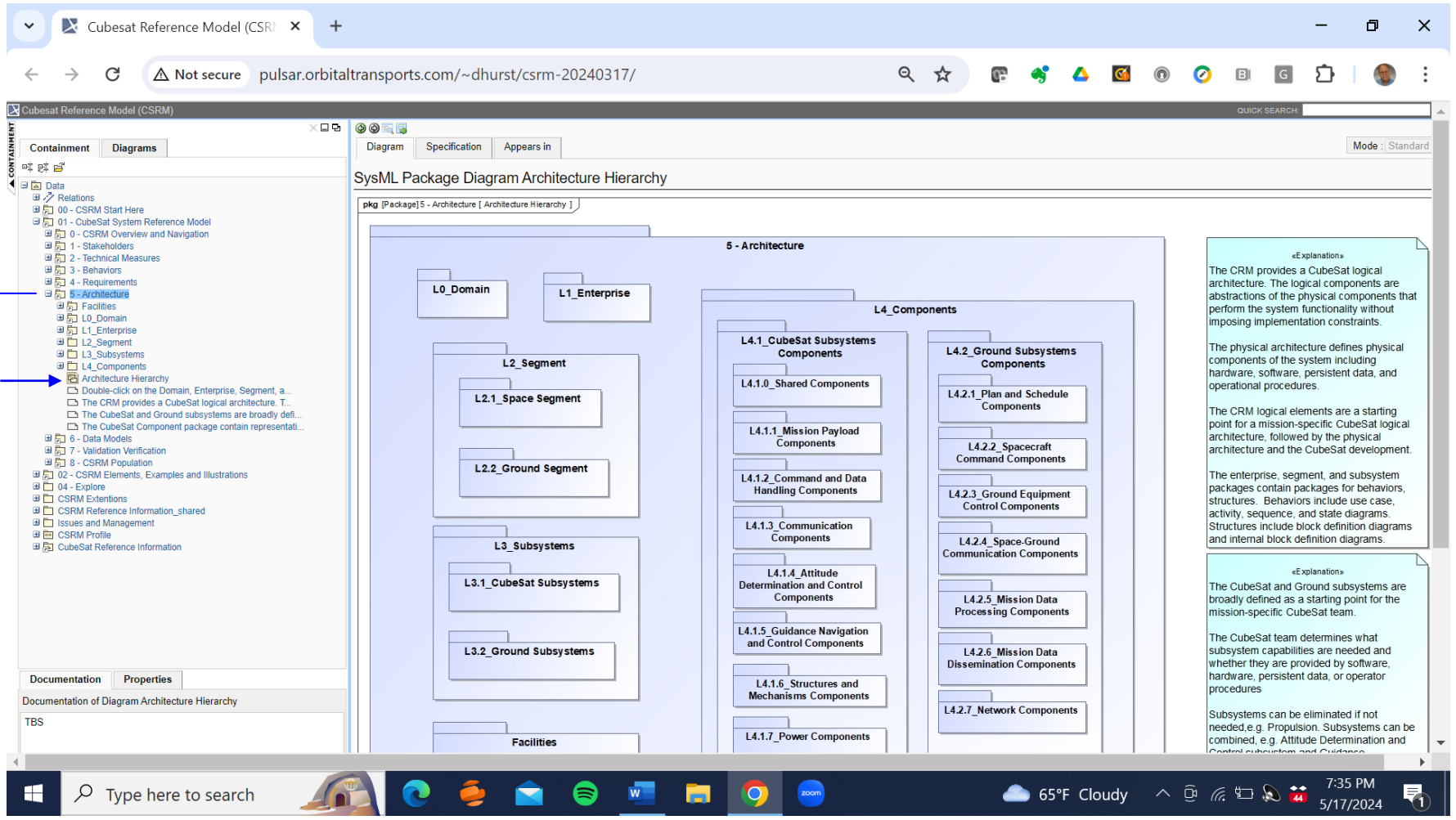
xx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5 - Architecture
Facilities
L0_Domain
L1_Enterprise
L2_Segment
L3_Subsystems
L4_Components
Architecture Hierarchy
Double-click on the Domain, Enterprise, Segment, a...
The CRM provides a CubeSat logical architecture. T...
The CubeSat and Ground subsystems are broadly defi...
The CubeSat Component package contain representati...
6 - Data Models
7 - Validation Verification
8 - CSRM Population
02 - CSRM Elements, Examples and Illustrations
04 - Explore
CSRM Extentions
CSRM Reference Information_shared
Issues and Management
CSRM Profile
CubeSat Reference Information
Documentation
Properties
Documentation of Diagram Architecture Hierarchy
TBS
Diagram
Specification
Appears in
Mode : Standard
SysML Package Diagram Architecture Hierarchy
pkg [Package]5 - Architecture [Architecture Hierarchy]
5 - Architecture
L0_Domain
L1_Enterprise
L2_Segment
L2.1_Space Segment
L2.2_Ground Segment
L3_Subsystems
L3.1_CubeSat Subsystems
L3.2_Ground Subsystems
Facilities
L4_Components
L4.1_CubeSat Subsystems Components
L4.1.0_Shared Components
L4.1.1_Mission Payload Components
L4.1.2_Command and Data Handling Components
L4.1.3_Communication Components
L4.1.4_Attitude Determination and Control Components
L4.1.5_Guidance Navigation and Control Components
L4.1.6_Structures and Mechanisms Components
L4.1.7_Power Components
L4.2_Ground Subsystems Components
L4.2.1_Plan and Schedule Components
L4.2.2_Spacecraft Command Components
L4.2.3_Ground Equipment Control Components
L4.2.4_Space-Ground Communication Components
L4.2.5_Mission Data Processing Components
L4.2.6_Mission Data Dissemination Components
L4.2.7_Network Components
«Explanation»
The CRM provides a CubeSat logical architecture. The logical components are abstractions of the physical components that perform the system functionality without imposing implementation constraints.
The physical architecture defines physical components of the system including hardware, software, persistent data, and operational procedures.
The CRM logical elements are a starting point for a mission-specific CubeSat logical architecture, followed by the physical architecture and the CubeSat development.
The enterprise, segment, and subsystem packages contain packages for behaviors, structures. Behaviors include use case, activity, sequence, and state diagrams. Structures include block definition diagrams and internal block definition diagrams.
«Explanation»
The CubeSat and Ground subsystems are broadly defined as a starting point for the mission-specific CubeSat team.
The CubeSat team determines what subsystem capabilities are needed and whether they are provided by software, hardware, persistent data, or operator procedures
Subsystems can be eliminated if not needed,e.g. Propulsion. Subsystems can be combined, e.g. Attitude Determination and
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