



UM GUIA DE INFORMAÇÕES RÁPIDAS

FERRAMENTAS CASE PARA REQUIREMENTS MANAGEMENT

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O que é ferramenta CASE?

Uma ferramenta **CASE** (Computer-Aided Software Engineering) para gerenciamento de **requisitos** é uma solução de software que ajuda os desenvolvedores:

- **Coletar;**
- **Documentar;**
- **Analisar;**
- **Rastrear;**
- **Gerenciar requisitos durante todo o ciclo de vida do software.**



Objetivo ferramenta CASE?

O Objetivo principal das **Ferramentas CASE para Gerenciamento de Requisitos** é ajudar as equipes de desenvolvimento de software a **criar produtos de alta qualidade** que atendam às necessidades dos clientes e aos objetivos de negócios, evitando erros ou problemas no software por meio de requisitos mal definidos ou gerenciados.



Principais recursos das ferramentas CASE?



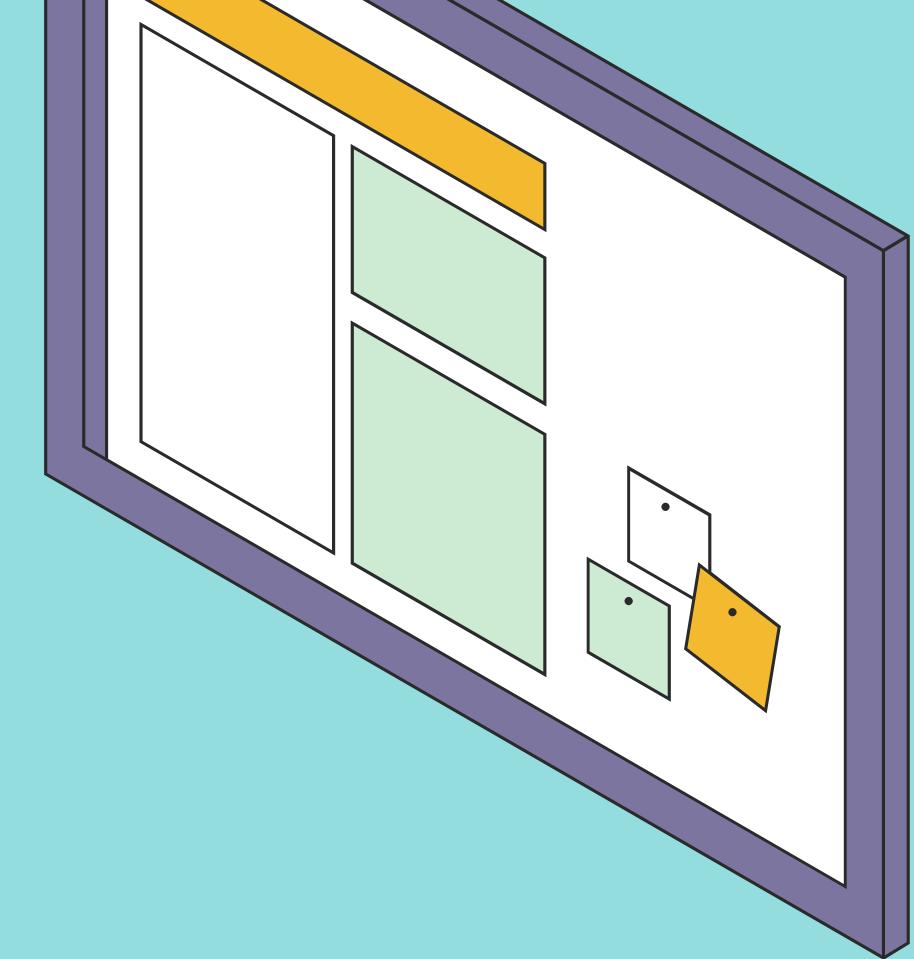
- **Gerenciamento de requisitos:**

Isso inclui a capacidade de definir requisitos, modelar relacionamentos entre eles, reutiliza-los e exportar/importar seus dados para criar documentação de requisitos.

- **Colaboração de documentos:**

Recurso que permite que sua equipe crie documentos e participe de conversas durante o processo de criação ou revisão.

Principais recursos das ferramentas CASE?



- **Gerenciamento de linha de base:**

Inclui rastreamento de linhas de base, suporte para diferentes versões de um documento e rastreamento dessas alterações.

- **Rastreabilidade e análise de impacto:**

Estabelecer relacionamentos automáticos entre os requisitos é fundamental no gerenciamento de requisitos. Os requisitos rastreáveis e a análise de impacto incluem a capacidade de executar casos de teste.

Software de Gerenciamento de Requisitos mais famosos

- Jama Software
- Visure Requirements
- ReqSuite® RM
- ReQtest
- codebeamer
- Modern Requirements
- IBM Engineering Requirements Management DOORS Next
- Accompa
- Orcanos
- Perforce Helix RM
- Jira



Jama Software

Melhor software de gerenciamento de requisitos para empresas

The screenshot displays the Jama Software interface for a project titled "Medical Device Sample Set". The top navigation bar includes links for STREAM, PROJECTS, REVIEWS, and ADMIN, along with user information for "Redside Consulting" and "Robin Calhoun". A search bar and a "Project Advanced search" button are also present.

The main content area features several panels:

- Device Description:** Displays the logo for "cLEAR3" and a brief description: "We will revolutionize the hearing aid industry with the cLEAR3 bone-conducting hearing aid. Our focus for this device is on adoptability and usability for the younger cohort (35 and under)."
- Relationship Diagram:** A diagram illustrating the flow from Market Requirement through System Requirement, Design Description, Subsystem Requirement, User Story, Verification, Validation, and finally Defect.
- Risk Status:** A table listing four risks with their status, priority, and mitigated RPN.

ID	Risk	Risk Status	Risk Priority Nu...	Mitigated RPN
CL3-RISK-1	Bacterial infection	Mitigated	63	21
CL3-RISK-2	Implant doesn't integrate with bone because of patient movement	Mitigated	128	16
CL3-RISK-3	Implant doesn't integrate with bone because of external impacts	Analysis	128	-
CL3-RISK-4	Loss of osseointegrated fixture	Draft	80	-
- Validation Status:** A chart showing validation status across four categories: Passed (green), Not Scheduled (grey), Scheduled (white), and Failed (red).
- System Requirements Missing Validation Tests:** A table listing four system requirements with their status.

ID	Name	Status
CL3-SR-5	Haptic Feedback	Draft
CL3-SR-9	Hearing Gain in Free Field Pure Tone Audiogram	Draft
CL3-SR-10	Suprathreshold Speech Perception	Approved
CL3-SR-6	SymbianOS Integration	Rejected
- Activity stream:** A section for monitoring project activity, with links to "My settings" and a search bar.

Visure Requirements

Melhor para gerenciamento de requisitos corporativos com personalização de alto nível.

The screenshot displays the Visure Requirements application interface. The top navigation bar includes tabs for Project, Editor, Insert, Traceability, Export / Reports, and Plugins. Below the toolbar, there are several icons for file operations like Edit, Delete, Restore, Recodificación parcial, Refresh Data, and Configuration Management. The main area features a dashboard with the following sections:

- Project Overview:** Shows 263 Elements, 7 by me, and 139 Changed last week. It includes a list of items under "Elements Checked Out by me" and "Elements modified last week".
- Downstream Traceability:** A donut chart showing 20% Traced, with 116 items traced and 38 not traced.
- Upstream Traceability:** A donut chart showing 30% Traced, with 427 items traced and 57 not traced.
- Verification Method:** A bar chart titled "Attribute: Verification Method" showing counts for Analysis (4), Demonstration (2), Inspection (8), and Testing (1).
- Defect Activity:** A line chart titled "31 New Defects" showing the trend of elements created over time from Jan 21 to Mar 11. The legend indicates "Element Created Trend" (yellow line) and "Element Created" (blue bars).
- Verification:** A donut chart showing 23% Traced, with 44 items traced and 44 not traced.
- Document Numbers:** Summary statistics: 184 Items, 27 Headings, 52 Steps, 0 Toc. A chart titled "Suspect Items" shows 100% in green, 16 in red, and 134 in light green.

At the bottom, there are buttons for ROWS, MAY, NUM, and DESP. The status bar at the bottom left says "Ready".

ReqSuite® RM

Melhor para inicialização rápida e alto nível de personalização

Screenshot of the ReqSuite® RM software interface, showing the Requirements management tool.

The main window displays the requirement details for "REQ28. Use Case Modelling".

Requirement Details:

- ID: REQ28
- Name: Use Case Modelling
- Description: It must be possible to manage or store UML use case models in the requirement system.
- Category: Modelling
- Source: AL
- Priority: medium

Links (5):

- refined by > Requirement
- refining the > Requirement
- has > Test Case
- belongs to > Category
- given for the > Product

Comments (1):

Max Trial 19.02.2022 17:38
@Maria Musterfrau Is this requirement already ready for testing?

Diagram: A UML Use Case Diagram titled "Online Shopping System". It shows the following elements and interactions:

- Actors: Customer, Authentication, Identity Provider, Credit Payment Service.
- Use Cases: View items, Make purchase, Complete checkout, Log in.
- Relationships: Customer interacts with View items, Make purchase, Complete checkout, and Log in. Authentication interacts with View items, Make purchase, Complete checkout, and Log in. Identity Provider interacts with Complete checkout. Credit Payment Service interacts with Complete checkout.
- Associations: Between View items and Make purchase, between Make purchase and Complete checkout, and between Complete checkout and Log in.

Bottom Status Bar:

No incompleteness or other problem has been detected.

ReQtest

Melhor para personalização.

The screenshot displays the ReQtest application interface. At the top, there is a navigation bar with links for Requirements, Tests, Bugs, Agile Board, Reports, Administration, Contacts, Help, and a user profile. The main area is divided into two sections: 'Requirements Hierarchy' on the left and 'Requirements List' on the right.

Requirements Hierarchy: This sidebar shows a tree structure of requirements under the 'Digital Transformation' category. Key nodes include '24 - ERP', '36 - General', '38 - Validation', '44 - Finance', and several sub-nodes like 'Authority level control', 'Access rights should...', 'All fields containin...', 'The system should...', 'Validation', 'All modules should...', 'It should be possi...', 'Legal requirements', 'Language', 'Currency', 'Shared service center', 'Interfaces', 'Finance', 'General requirements', 'The system shoul...', 'The system shoul...', and 'The user should h...'. Each node has a small icon next to its number.

Requirements List: This section contains a table with 258 rows of requirement data. The columns are: ID, Business Proc..., Hierarchy Level, Title, Business proc..., Functionality i..., Source/Person, Priority (by...), and Status -. The table includes various icons for each row, such as magnifying glasses and document symbols. The data includes entries like 'Self control', 'Production pr...', 'Exist', 'John Smith', 'Medium ROI', 'Prepared', and 'New (Cr...)'.

Reporting View: A third tab is visible above the Requirements List, indicating a third view available in the application.

Bottom Navigation: At the bottom of the screen, there are buttons for 'Go to page: 1', 'Show rows: 20', '1-20 of 258', and a large green button with a white plus sign (+).

Page Footer: The footer contains the text '© 2020 ReQtest. All Rights Reserved.' and a small logo.

codebeamer

Melhor para integrações de API e prontas para uso.

codeBeamer Application Lifecycle Management (ALM)

Search... LK laszlo.katona

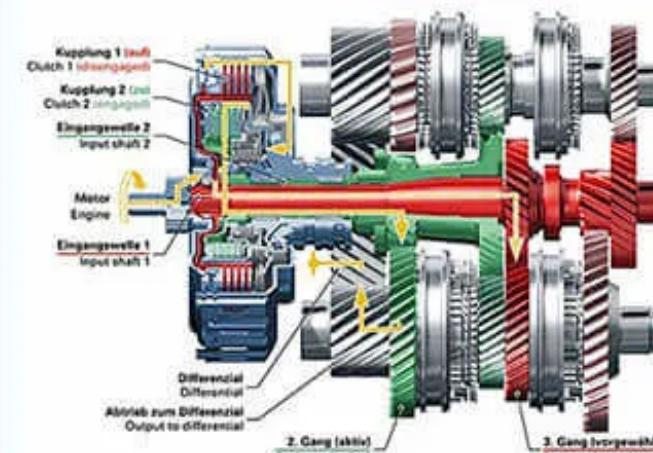
My Start Projects Reports Review Hub Wiki Documents Trackers SCM Repositories Baselines Admin Trash

Automotive Development Project • Trackers
Hardware Safety Requirements • All Items

Type to filter + AND/OR GO

Continuously variable
The Continuously Variable Transmission (CVT) is a transmission in which the ratio of the rotational speeds of two shafts, as the input shaft and output shaft of a vehicle or other machine, can be varied continuously within a given range, providing an infinite number of possible ratios.
The CVT allows the relationship between the speed of the engine and the speed of the wheels to be selected within a continuous range. This can provide even better fuel economy if the engine is constantly running at a single speed. The transmission is in theory capable of a better user experience, without the rise and fall in speed of an engine, and the jerk felt when poorly changing gears.

Dual clutch transmission
This arrangement is also sometimes known as a direct shift gearbox or powershift gearbox.
It seeks to combine the advantages of a conventional manual shift with the qualities of a modern automatic transmission by providing different clutches for odd and even speed selector gears. When changing gear, the engine torque is transferred from one gear to the other continuously, so providing gentle, smooth gear changes without either losing power or jerking the vehicle. Gear selection may be manual, automatic (depending on throttle/speed sensors), or a 'sports' version combining both options.



Zero Emission
The ultimate EU target with voluntary agreements are to contribute, is to reach an average CO₂ emission (as measured according to Commission Directive 93/116/EC) of 120 g/km for all new passenger cars by 2012.

Charger

[HARDREQ-1721392] Dual clutch transmission

DETAILS

Tracker: Hardware Safety Requirements
Business Value: Should have
Status: DRAFT
Upstream Reference: Optional: Dual clutch transmission
Type: Functional
Risk: Wiring is missing, Wiring is corroded, Wiring has short circuit
Complexity: Complex
Reached Coverage: Passed
Release: 2 Design hardware architecture
Submitted by: laszlo.katona Feb 21 08:54
Modified by: laszlo.katona Today 11:32
Owner: hallerpelya
Assigned to: --
Story Points: --
Controllability: C0 Controllable in general
Exposure: E1 Less often than once a year
Severity: S0 No injuries
ASIL: QM
Linked design document: --

REFERENCES (6)

This site is powered by codeBeamer 9.4.0 (mysql). | Incident / Feature Request / Question | Knowledge Base | Hotkeys | Licensed by Intland

Modern Requirements

Melhor software de gerenciamento de requisitos avaliado

Azure DevOps INTERNAL_Collection / Compliance demo / Boards / Smart Docs

Compliance demo Team

Document: Product X Specification

ID Title and Description

161 Product X Specification Document

NEW AGE IN HEALTHCARE

Technology is revolutionizing healthcare industry. When it comes to serving the needs of physicians, healthcare providers and patients around the world, delivering innovative solutions at lightning speed and at the lowest total cost is vital. At #####, we build and sustain strong relationships by offering creative manufacturing and supply chain solutions, a commitment to quality and compliance, and a heritage of technology leadership. With focused expertise in complex electro-mechanical systems and ultra-high volume automated manufacturing for single use devices, we specialize in providing advanced solutions for surgical instruments, in-vitro diagnostics, and diagnostic imaging and patient monitoring. Here is more info.

162 1 Sample Introduction

COMPANY YOU CAN COUNT ON

We place quality above all else. It is in the products we create, the services we provide and touches all planning, development and manufacturing activities. We work with your development and quality/regulatory groups to apply processes and pre-launch rigour that reduces approval time, speeds time-to-market and avoids post-launch issues. We have the world's best-in-class, internationally recognized QMS standards.

The term Medical Devices, as defined in the Food and Drugs Act, covers a wide range of health or medical instruments used in the treatment, mitigation, diagnosis or prevention of a disease or abnormal physical condition.



+ 163 2 Sample Overview

REGULATORY COMPLIANCE

The regulations and procedures governing healthcare can be challenging to navigate. We understand the necessity for uncompromising regulatory compliance. There are no shortcuts.

Our healthcare Centres of Excellence are ISO 13485 compliant, which is recognized around the world as the model QMS standard for the medical industry. Our employees are trained to uphold those same high expectations—as are our partners. We are diligent and unyielding about maintaining those standards—giving you peace of mind. Our certification supports our excellence:

34 work item(s) ID On Document View On Type Off Discover Off

Select one of the following methods to find available workitems:

Query: All WIs
IDs:
Title contains:

Include work item(s) in hierarchy on selecting a node. Find

ID	Work Item Type	Title
87	Functional Requirement	FR 4
88	Functional Requirement	FR 5
89	Functional Requirement	FR 6
90	Functional Requirement	FR 7
91	Functional Requirement	FR 8
92	Functional Requirement	FR 9
93	Functional Requirement	FR 10
94	System Requirement	Sys req 2
95	Functional Requirement	FR 11
96	Functional Requirement	FR 12
97	Functional Requirement	FR 13
98	Functional Requirement	FR 14
99	Functional Requirement	FR 15
100	Test Case	Test case 1
101	Test Case	Test case 2
102	Test Case	Test case 3
103	Test Case	Test case 4
104	Test Case	Test case 5
105	Test Case	Test case 6
106	Test Case	Test case 7
107	Test Case	Test case 8
108	Test Case	Test case 9

401 work item(s) (0 selected)

Select All Unselect All Add as child

IBM Engineering Requirements Management DOORS Next

Melhor para gerenciamento de requisitos de engenharia

Requirements Management (rm)

AMR

clmadmin | Search Artifacts

No Tags Defined

AMR > 01 Requirements >

366: AMR Stakeholder Requirements Specification

Create New Actor

Views

Search Views

Gap Analysis

Top lev req with No satisfied by links

Trace to System Requirements

Upstream and Downstream Traceability (S)

ID | Contents

435 - 1 Introduction

672 ANSI 1252 Latin 1 for CSV Export

636 - 1.1 Purpose of the Document

375 The Stakeholder requirements describe the user needs for a water meter reading system (AMR) including the meter, the method of collecting data from the device, and the means by which the customers will be billed for usage.

418 The AMR product is intended to allow water providers to lower their cost of operation by more accurately measuring consumption and more quickly gather data.

605 - 1.2 Intended Use

392 The AMR is intended for gathering and reporting of water consumption data to facilitate measurement of residential and business customers.

735

Automated Meter Reader System

Water Meter

Upload Usage Data Locally

Meter Reader

Module Selected Artifact

366: AMR Stakeholder Requirements Specification

Description:

Project: AMR

Team Ownership: AMR

Content Folder: _AMR Stakeholder Requirements Specification

Created On: Mar 17, 2014, 3:12:17 PM

Created By: clmadmin

Modified On: Mar 21, 2014, 10:49:59 AM

Modified By: Bob

Is Suspect: Select a profile

Type: Stakeholder Specification

Format: Module

Approved By:

Approver Position:

Module Baselines

Module Comments

Module Links

Where Module Used

Showing 92 of 92 Artifacts 1 selected (Clear All Selected)

The screenshot displays the IBM DOORS Next application interface. The main window shows a stakeholder specification document titled '366: AMR Stakeholder Requirements Specification'. The document contains sections like 'Introduction', 'Purpose of the Document', and 'Intended Use', with associated requirements and descriptions. Below the document, there is a system diagram titled 'Automated Meter Reader System' showing interactions between a 'Water Meter', a central node, and a 'Meter Reader' through the process 'Upload Usage Data Locally'. The interface includes various toolbars, search functions, and navigation panels on the left and right sides, typical of a requirements management tool.

Accompa

Melhor para facilidade de implementação e uso

 Accompa

Start Requirements Features AutoCapture Logged in to: Remarkable Software, Inc

Dashboard | Add Requirement | Add/Edit Field Values | View Requirements | Popular Tags | Discussions | Import | Export | Create MRD/PRD | Recycle Bin

Search [Advanced Search](#) 

Requirements View: API Requirements

Show ▾ 4 requirements meet the criteria specified for this view. [Learn more](#)

These are the requirements based on customer requests for APIs.

< prev | [1-10](#) | next >

Action	ID +	Title	Description	Products
read edit del	RE-1	Web Services API to Integrate with ERP	Customers have requested web services API to integrate our software to their ERP systems such as SAP or Oracle.	Remarkable HR
read edit del	RE-2	XML API to Integrate to Financial Software	Two of largest customers in Americas have requested XML API to integrate to financial software used by their companies.	Remarkable HR
read edit del	RE-3	REST-based API for Web Services	One customer requested that we implement REST-based API to address their integration needs. See attachment for specifics.	Remarkable HR
read edit del	RE-4	API for Single-Sign-On (SSO)	Is it possible to release an API to enable single-sign-on in the next release. This can be based on LDAP or ActiveDirectory type of implementation.	Remarkable HR

< prev | [1-10](#) | next >

Display 5 10 20 50 requirements per page

Orcanos

Melhor para visualização e relatórios

The screenshot displays the ORCANOS application interface. On the left, a dark sidebar titled "Product Tree" shows a hierarchical tree structure for "Product Requirements Specifications (1.0)". The tree includes nodes for INTRODUCTION (1.0), SCOPE (1.0), Glossary (2.0), PURPOSE (1.0), DEFINITIONS, ACRONYMS AND ABREVIATIONS (1.0), OVERVIEW (1.0), and Gossary (1.0). It also lists OVERALL DESCRIPTION (1.0), PRODUCT PERSPECTIVE (2.0), PRODUCT FUNCTIONS (1.0), USER CHARACTERISTICS (1.0), CONSTRAINTS (1.0), ASSUMPTIONS AND DEPENDENCIES (1.0), APPORTIONING OF REQUIREMENT (1.0), Functional requirements (1.0), and REQUIREMENTS TRACEABILITY (1.0).

The main content area is titled "Product Tree > OnlineDoc Edit". It contains a list of documents with their titles, IDs, and edit icons:

- DOC-8719: Product Requirements Specifications
- REQ_HD-8757: 1 INTRODUCTION
- REQ_HD-8761: 1.1 SCOPE

This document specifies the requirements for the software of the [product]. The Software Requirements Specification is written according to IEEE Std 830-1998
- REQ_HD-15087: 1.2 Glossary

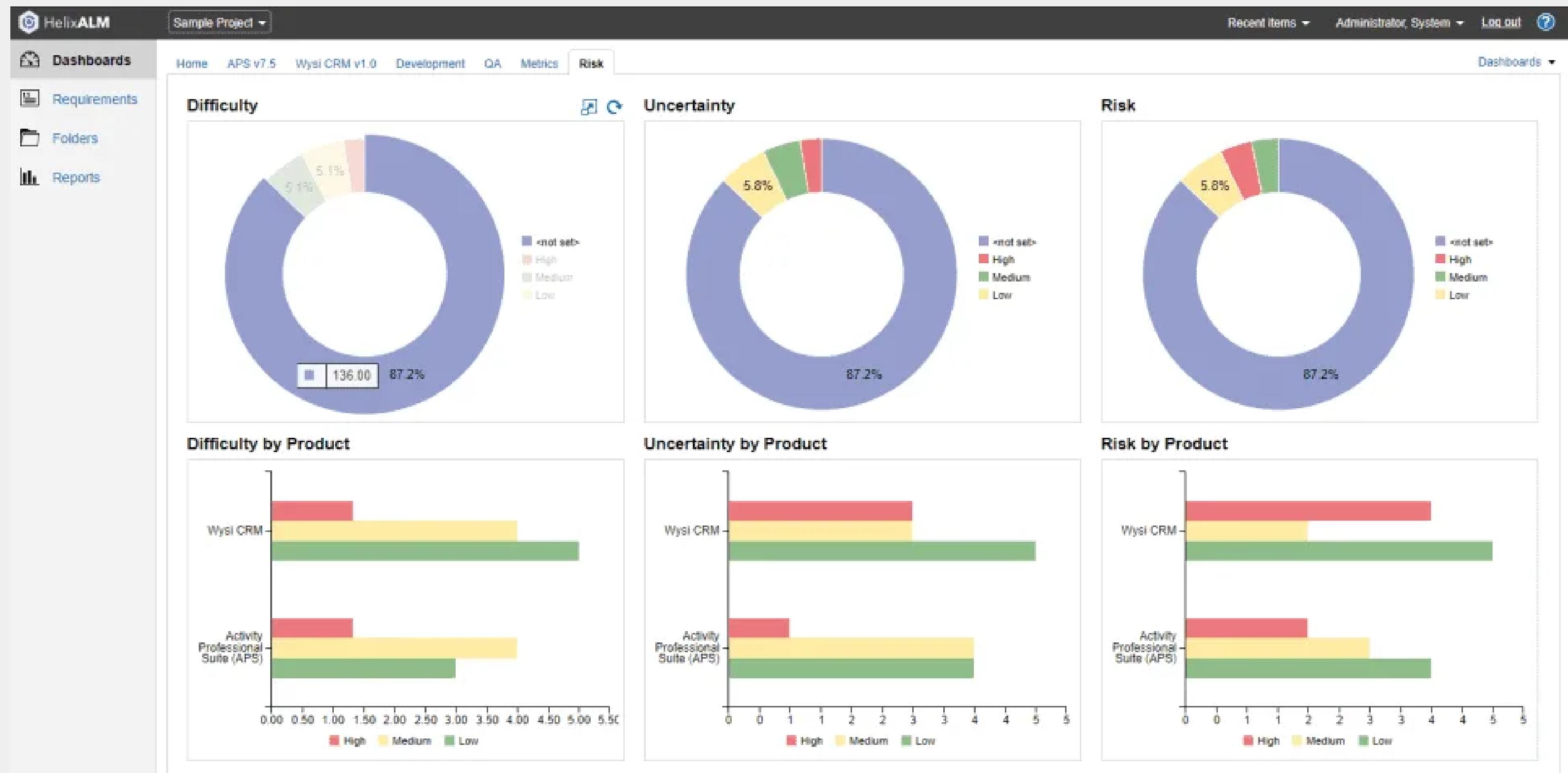
Terms
- REQ_HD-8760: 1.3 PURPOSE

This document describes the Software Requirements Specification (SRS) for the [product]. This document is intended for the customer, software developers and testers.

The top right corner of the main window shows the title "Cardiology Monitor 2.0 (Solution)", a grid icon, a red circle with "0", and a yellow circular icon with a "Z". The status bar at the bottom right shows a user icon and the text "Editing".

Perforce Helix RM

Melhor para rastreabilidade e gerenciamento de casos de teste



Jira

Melhor para planejamento e supervisão de software

The screenshot shows the Jira Board interface for the project "Teams in Space". The board is divided into four columns: TO DO (5 items), IN PROGRESS (5 items), CODE REVIEW (2 items), and DONE (8 items). Each item card contains a summary, assignee, and a small icon bar.

Column	Item Description	Assignee	Icon Bar
TO DO	Engage Jupiter Express for outer solar system travel	SPACE TRAVEL PARTNERS	Checkmark, Red X, 5, TIS-25
	Create 90 day plans for all departments in the Mars Office	LOCAL MARS OFFICE	Green Up, Red X, 9, TIS-12
	Engage Saturn's Rings Resort as a preferred provider	SPACE TRAVEL PARTNERS	Green Up, Red X, 3, TIS-17
IN PROGRESS	Requesting available flights is now taking > 5 seconds	SEESPACEZ PLUS	Green Up, Red X, 3, TIS-8
	Engage Saturn Shuttle Lines for group tours	SPACE TRAVEL PARTNERS	Green Up, Red X, 4, TIS-15
	Establish a catering vendor to provide meal service	LOCAL MARS OFFICE	Green Up, Red X, 4, TIS-15
CODE REVIEW	Register with the Mars Ministry of Revenue	LOCAL MARS OFFICE	Green Up, Red X, 3, TIS-11
	Draft network plan for Mars Office	LOCAL MARS OFFICE	Green Up, Red X, 3, TIS-15
	Engage JetShuttle SpaceWays for travel	SPACE TRAVEL PARTNERS	Green Up, Red X, 5, TIS-23
DONE	Homepage footer uses an inline style - should use a class	LARGE TEAM SUPPORT	Green Up, Red X, TIS-68
	Engage Saturn Shuttle Lines for group tours	SPACE TRAVEL PARTNERS	Green Up, Red X, TIS-15
	Establish a catering vendor to provide meal service	LOCAL MARS OFFICE	Green Up, Red X, TIS-15

Referências

- WEINRICH, Jair e GRAHL, Everaldo, Software de apoio a avaliação e seleção de ferramentas case baseado na norma ISO/IEC 14102, Artigo SEMINCO 1999 FURB-Universidade Regional de Blumenau
- SILVA, Manoel e ROCHA, Thayssa, PROJETO DE UMA FERRAMENTA CASE UTILIZANDO A NOTAÇÃO DA UML E A METODOLOGIA DE COAD & YOURDON, 1998, CESUPA Belém do Pará.
- <https://thedigitalprojectmanager.com/tools/requirements-management-tools/>
- THE. 10 Best Requirements Management Tools & Software Of 2023. Disponível em: <<https://thedigitalprojectmanager.com/tools/requirements-management-tools/>>. Acesso em: 3 mar. 2023.
- DOS, C. Ferramenta CASE. Disponível em: <[https://pt.wikipedia.org/wiki/Ferramenta_CASE#:~:text=Ferramentas%20CASE%20\(do%20ingl%C3%AAs%20Computer,modelagem%20at%C3%A9%20programa%C3%A7%C3%A3o%20e%20testes.](https://pt.wikipedia.org/wiki/Ferramenta_CASE#:~:text=Ferramentas%20CASE%20(do%20ingl%C3%AAs%20Computer,modelagem%20at%C3%A9%20programa%C3%A7%C3%A3o%20e%20testes.)>. Acesso em: 3 mar. 2023.

Obrigado!

