



# RADISH - Risk Assessor for Data Integrity and Safety Hazards

Errors in, or inappropriate use of data, can lead to accidents and incidents in safety-related systems. Mission Critical Applications have developed a demonstrator software tool, to manage the data risks of a system. The demonstrator conforms to current best practice, as described in the "Data Safety Guidance" ([scsc.uk/scsc-127H](https://scsc.uk/scsc-127H)), published by the [Safety Critical Systems Club](#). We invite you to trial the demonstrator for managing and assuring the data safety of your systems.

## Features of RADISH

RADISH is a web-based application for managing safety information about the data assets of a project. It records the risks from data, and suggests appropriate mitigation techniques to improve the trustworthy use of the data. The analysis is recorded with justifications, thus providing the evidence for producing a Data Safety Case.

### DSAL Mapping Table

	High	Medium	Low
Minor	DSAL1	DSAL0	DSAL0
Moderate	DSAL2	DSAL1	DSAL1
Significant	DSAL3	DSAL2	DSAL1
Major	DSAL4	DSAL3	DSAL2
Catastrophic	DSAL4	DSAL4	DSAL3

[Edit](#)

[Initialise Project](#)

### Custom Data Safety Assurance Levels (DSAL)

### New Artefact

Name:

Data Category:

Severity:

Likelihood:

Properties:

Description:

[Add New Artefact](#) [Discard New Artefact](#)

### Data Artefacts, Categories, and associated Risks

I  C  N  Y  O  A  R  T  M  V  L  F  P  Q  U  B  S  H  E  D

### Properties of interest for each Data Artefact

[Control Stick](#) [Dynamic](#) [Catastrophic](#) [Medium](#) [DSAL4](#) [I.N.Y.O.R.M.L.F.Q.....](#)

### Calculated DSAL for a Data Risk

### Manage Artefact:

Name:

Data Category:

Severity:

Likelihood:

DSAL:

Properties of Interest:

Properties Covered:

Mitigation	Technique	Properties Covered
Name	Used Serial Lifecycle	Name Recommendation
CRC	Yes SD.02 System Design	Cyclic / Continuous BIT Recommended IC.Y.....VL.....
Formal methods	Yes DD.09 Data Design	Formal Methods Recommended .CN.O..T....PQ.....

[Create Mitigation From Guidance](#) [Create Custom Mitigation](#)

### Techniques used, and Properties "covered"

### Create Mitigation From Guidance

Name:   Used

Discussion:

Review Status:

[Add New Mitigation](#) [Discard New Mitigation](#)

### Highly Recommended Techniques not used

Serial	Lifecycle Stage	Name	Properties	Select
SD.01	System Design	Built-in-Test / Built-in-Test Equipment (BIT/BITE)	IC.....V.....	<input type="radio"/>
SD.03	System Design	Backward recovery	IC.....	<input checked="" type="radio"/>
SD.04	System Design	Parity Checks	I.....	<input type="radio"/>
SD.05	System Design	Automatic Error Correction	IC.....	<input type="radio"/>
SD.06	System Design	Checksums / Cyclic Redundancy Checks (CRCs) / Hashes	TC.....	<input type="radio"/>

### Selection of a Technique from a filtered list



### Create Mitigation From Guidance

Name:  ■ Used

Discussion:

Review Status:

[Add New Mitigation](#) [Discard New Mitigation](#)

Highly Recommended Techniques not used

Serial	Lifecycle Stage	Name	Properties	Select
SD.01	System Design	Built-in-Test / Built-in-Test Equipment (BIT/BITE)	IC.....V.....	<input type="radio"/>
SD.03	System Design	Backward recovery	IC.....V.....	<input type="radio"/>
SD.04	System Design	Parity Checks	I.....V.....	<input checked="" type="radio"/>
SD.05	System Design	Automatic Error Correction	IC.....V.....	<input type="radio"/>

**Decision *not* to use a Recommended Technique**

### Create Custom Mitigation

Name:  ■ Used

Discussion:

Review Status:

Properties Asserted:  I  C  N  Y  O  A  R  T  M  V  L  F  P  Q  U  B  S  H  E  D

[Add New Mitigation](#) [Discard New Mitigation](#)

**Custom or Domain-specific Technique**

## Project Flight Control System

[Leave Project](#)

### Manage Data Artefacts

Name	Data Category	Severity	Likelihood	DSAL	Properties	Coverage of Techniques		Custom Mitigations		
						Highly Rec.	Rec.			
Air Speed	Dynamic	Significant	Medium	DSAL2	I..Y....M.....	<input type="button" value="Edit"/>	2/3	0/35	1	<input type="button" value="Manage"/>
Altitude (Pressure)	Dynamic	Minor	High	DSAL1	I.NY..R.....	<input type="button" value="Edit"/>	3/5	1/16	0	<input type="button" value="Manage"/>
Altitude (Radar)	Dynamic	Major	Medium	DSAL3	ICNYO.A..MVL.PQ.B.H..	<input type="button" value="Edit"/>	0/60	2/14	0	<input type="button" value="Manage"/>
Angle of Attack	Dynamic	Significant	High	DSAL3	I....A.....	<input type="button" value="Edit"/>	0/36	2/9	1	<input type="button" value="Manage"/>
Control Stick	Dynamic	Catastrophic	Medium	DSAL4	I.NYO.R.M.LF.Q.....	<input type="button" value="Edit"/>	1/58	1/2	0	<input type="button" value="Manage"/>
Throttle Setting	Dynamic	Catastrophic	Low	DSAL3	.....	<input type="button" value="Edit"/>	0/0	0/0	0	<input type="button" value="Manage"/>

[Add new Artefact](#)

### Dashboard of Project Data Risks

ICNYO.A..MVL.PQ.B.H..

DSAL Filter:

DSAL1 DSAL2 DSAL3 DSAL4  
R HR R HR R HR R HR

(No current filters)

### Techniques List

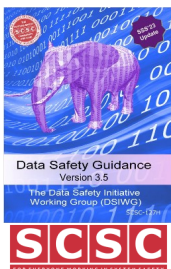
Serial	Lifecycle Stage	Name	Data Category	DSAL1	DSAL2	DSAL3	DSAL4	Data Properties
SD.01	System Design	Built-in-Test / Built-in-Test Equipment (BIT/BITE)	..D..	-	R	HR	HR	IC.....V.....
SD.02	System Design	Cyclic / Continuous BIT	..D..	-	-	R	HR	IC.Y....VL.....
SD.03	System Design	Backward recovery	D	R	R	HR	HR	IC.....V.....

### Browsing and Filtering of Mitigation Techniques from Guidance

Future developments include domain-specific customisation, multiple risks for data artefacts, and much more!

**Would you like to find out how to manage your data risks using our demonstrator tool?**

Contact us at [data-safety@mca-ltd.com](mailto:data-safety@mca-ltd.com)



This work was supported by the [Lloyds Register Foundation](#).

