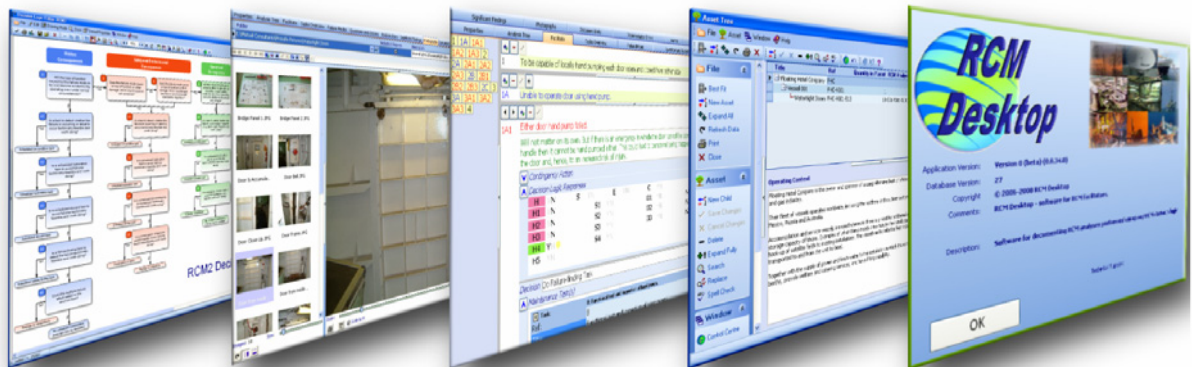




The Ultimate RCM Software...



...written by facilitators for facilitators.

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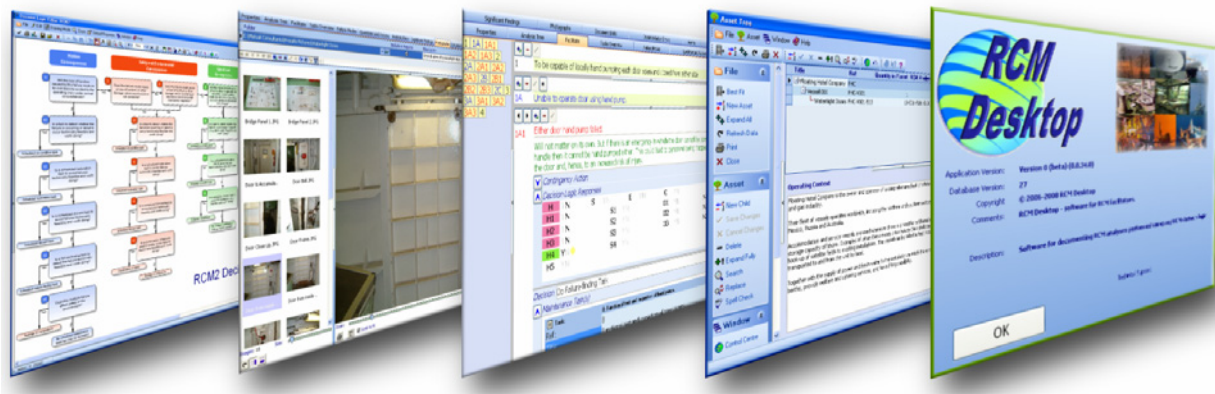


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RCM DESKTOP

RCM Desktop software has been developed to provide advanced support for the application of RCM.

The Ultimate RCM Software...



...written by facilitators for facilitators.

Special attention has been paid to the role of the RCM Facilitator in order to maximise their productivity (especially during analysis group meetings) with advanced ease-of-use and speed-of-use features that make **RCM Desktop** fast and intuitive.

The software removes the need for technical typists, reams of paperwork or walls covered in flip charts.

The overall philosophy behind the design of the software is:

“To enable the RCM Facilitator to manage efficiently all aspects of an RCM Analysis and to document it live during analysis group meetings using any RCM Task Selection Logic.”

OPERATING REQUIREMENTS

RCM Desktop will run on any PC capable of running Windows XP, Vista or 7:



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SOFTWARE EDITIONS

RCM Desktop is available in four editions which include progressively more features; each edition includes all the features provided in the lower priced editions:

Basic

The **RCM Desktop** Basic Edition provides the minimum set of features required to document an RCM analysis using **any** RCM Task Selection Logic.

It is intended for users who plan to do a small number of RCM analyses or who are, perhaps, undertaking a RCM pilot project and don't yet need any of the more advanced features.

Intermediate

The **RCM Desktop** Intermediate Edition provides further features designed to enhance facilitator productivity and allow input of additional supporting information.

It is intended for users who wish to make use of the additional productivity features or who have a small number of RCM analyses to document.

Advanced

The **RCM Desktop** Advanced Edition is everything an RCM Facilitator could ask for, incorporating a set of highly-advanced facilitator productivity features.

It is intended for users who wish to maximise facilitator productivity, who wish to dispense with paperwork and flip charts and who need to manage one or more large RCM projects.

Ultimate

The **RCM Desktop** Ultimate Edition includes a visual SQL query builder which has full SQL access to the underlying **RCM Desktop** database tables and views.

It is intended for users who need to design their own queries for exporting RCM data to other systems.

The distinguishing features included in each **RCM Desktop** edition are described in the following sections.

Appendix 1 at the end of this brochure contains a feature comparison table which shows how the features described in this brochure map into each **RCM Desktop** edition.



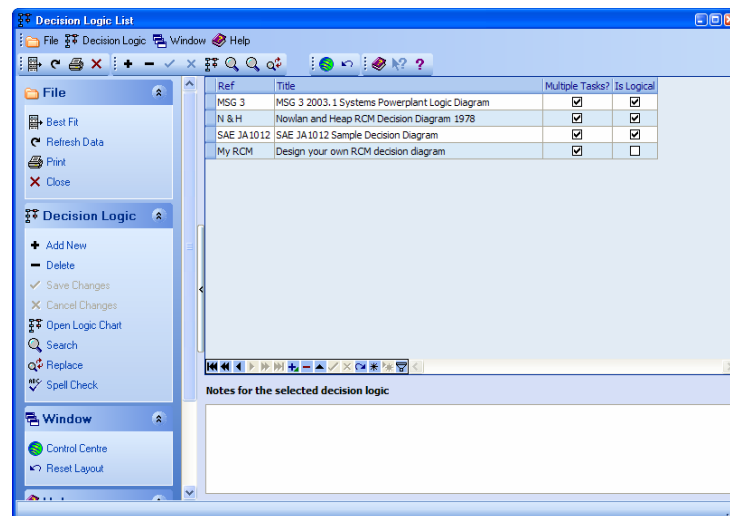
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BASIC EDITION

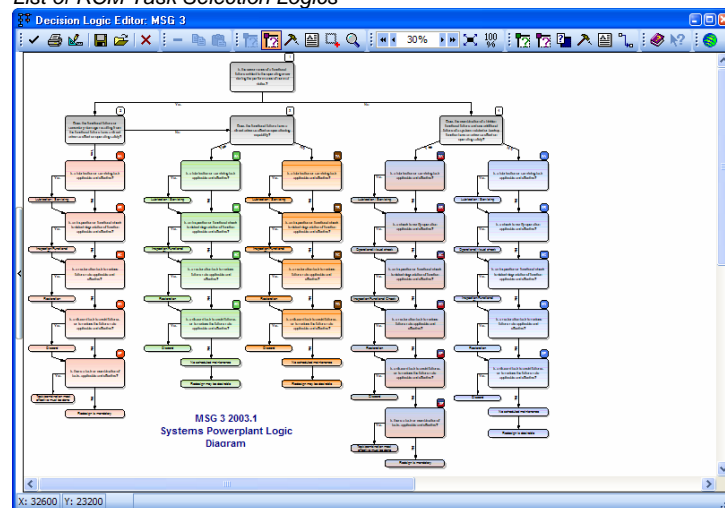
User-Defined Task Selection Logic

The key features of the Basic Edition of **RCM Desktop** are explained below:

There are many different RCM task selection logic diagrams in existence; a major feature of **RCM Desktop** is that it does not tie you down to any particular one. You can use *any logic* that you wish. You can even define your own Task Selection Logic and incorporate it into the **RCM Desktop**.



List of RCM Task Selection Logics



Decision Logic Editor, showing a sample RCM Decision Logic

Any RCM analysis recorded in the **RCM Desktop** can use any Task Selection Logic and the software automatically configures itself to match the initial decision logic selected for the analysis.

RCM Desktop is supplied with some of the more common RCM selection logics already installed including SAE JA1012, MSG3 and Nolan & Heap.



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Analysis List

The Analysis List is where individual RCM analyses are managed. In the Basic Edition users can create analyses, open them for editing and delete them.

RCM Analysis List

Ref	Title	Decision Logic	Date	Locked	Fcns	FFs	FMs	Tasks	Redesigns
001.46.813	Vessel 01 Fire and Wash	RCM	12 Feb 2004	<input type="checkbox"/>	23	26	96	59	11
002.46.813	Vessel 01 Deluge	RCM	09 Feb 2004	<input type="checkbox"/>	13	15	45	27	4
003.46.813	Vessel 01 Sprinklers	RCM		<input type="checkbox"/>	24	27	72	41	8
004.46.814	Vessel 01 FIF	RCM	18 Feb 2004	<input type="checkbox"/>	24	30	79	39	5
005.47.813	Vessel 02 Sprinklers	RCM	29 Mar 2004	<input type="checkbox"/>	24	29	59	32	1
006.47.813	Vessel 02 Fire and Wash	RCM	31 Mar 2004	<input type="checkbox"/>	21	26	97	44	1
007.47.813	Vessel 02 Deluge	RCM	20 Apr 2004	<input type="checkbox"/>	18	28	53	19	0
008.46.564	Vessel 01 Gangway	RCM	26 Apr 2004	<input type="checkbox"/>	35	46	126	54	0
009.47.564	Vessel 02 Gangway	RCM	06 May 2004	<input type="checkbox"/>	33	42	118	54	0
010.43.564	Vessel 03 Gangway	RCM	06 May 2004	<input type="checkbox"/>	35	45	123	55	11
011.47.801	Vessel 02 Ballast	RCM	25 May 2004	<input type="checkbox"/>	27	38	104	24	0
012.46.801	Vessel 01 Ballast	RCM	02 Jun 2004	<input type="checkbox"/>	25	34	81	20	0
013.43.801	Vessel 03 Ballast	RCM	05 Jun 2004	<input type="checkbox"/>	24	32	75	19	0

Comments/notes for the selected RCM analysis

The Fuel Separators on board are one of two types - WHPX and FOPX.

Note from Vessel:

HFO separators on PS (FOPX) are used for purifying diesel oil from the (big) HFO Settling Tank to HFO Service Tank. In SB separator room, the 'middle' separator (WHPX) is used as a Diesel Oil Purifier taking fuel from the 'small' DO Settling Tank, returning it to the 'small' DO Service Tank. The forward and aft separators in the SB separator room are used for purifying lube oil. NONE of the separators is used as a clarifier.

Analysis List Window

The Analysis Tree

In the Basic Edition editing of Functions, Functional Failures, Failure Modes and Scheduled Tasks is done using a powerful grid which presents data to the user in a similar fashion to a spreadsheet, but much more intelligently.

The grid shows the analysis as a tree structure, with Functions at the highest level, Functional Failures at the 2nd level, Failure Modes on the 3rd, and so on.

Ref / Function

1	To supply fresh air to the drivers cabbie at a minimum of 120 cubic metres per hour
---	---

Functional Failures

Ref	Functional Failure
1A	Supplies no fresh air at all
1B	Supplies insufficient fresh air (< 120 cubic metres per hour)
1C	Too much fresh air (significantly > 120 cubic metres per hour) enters the cab

Failure Modes

Ref	Failure Mode	Downtime Unit	Decision	Severity	Frequency
1C1	Emergency fresh air damper failed open		None (failure mode not analysed)		
1C2	Cab droplight left open		No Scheduled Maintenance		
1C3	Roof unit lid seals damaged or perished		Do On-condition Task		

Details Responses Task(s) Redesign Alarms Symptoms

Basic Details:

Ref:	1C1
Failure Mode:	Emergency fresh air damper failed open
Effects:	After discussing this failure mode, the group felt it to be extremely unlikely
Decision:	None (failure mode not analysed)
Downtime:	Unit:
Repair time:	Unit: Hours
Contingency Action:	
Comments:	
Severity:	
Frequency:	

Further Details:



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Analysis Tree expanded as far as Failure Mode Details

The Analysis Tree grid allows a large amount of information to be recorded against each Failure Mode:

- ☒ Failure Effects
- ☒ Analysis Group's Decision
- ☒ Responses to Decision Logic questions (+ Comments)
- ☒ Maintenance Task(s) – basic details only
- ☒ Down Time
- ☒ Repair Time
- ☒ Contingency Action
- ☒ General Comments
- ☒ Redesigns.

The grid is highly customisable. Columns can be rearranged; columns can be hidden/shown; records can be grouped by any column; records can be sorted by any column. So, users can define their own preferred layout.

The grid can be printed at any time and will appear on paper exactly as it appears on the screen (with instant switching between European and American paper sizes):

RCM Desktop

Analysis

GTQ Cab HVAC, Get There Quick EMU Cab HVAC

Ref	Function				
1	To supply fresh air to the drivers cabbie at a minimum of 120 cubic metres per hour				
Ref	Functional Failure				
1A	Supplies no fresh air at all				
1B	Supplies insufficient fresh air (< 120 cubic metres per hour)				
1C	Too much fresh air (significantly > 120 cubic metres per hour) enters the cab				
Ref	Failure Mode	Downtmr	Unit	Decision	Severity
1C1	Emergency fresh air damper failed open			None (failure mode not analysed)	
<div>Basic Details:</div> <div>Ref: 1C1</div> <div>Failure Mode: Emergency fresh air damper failed open</div> <div>Effects: After discussing this failure mode, the group felt it to be extremely unlikely</div> <div>Decision: None (failure mode not analysed)</div> <div>Downtime: Unit:</div> <div>Repair time: Unit: Hours</div> <div>Contingency Action:</div> <div>Comments:</div> <div>Severity:</div> <div>Frequency:</div> <div>Further Details:</div>					

Sample Print of Analysis Tree Grid

Analysis Properties

The following information can be stored against each RCM analysis in the Basic Edition:

- ☒ Reference ID
- ☒ Title
- ☒ RCM Decision Logic used
- ☒ Labour Costs per man-hour
- ☒ Version/Revision



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- ✓ Date
- ✓ Analysis Status
- ✓ Group members
- ✓ General comments
- ✓ Facilitator(s)

Significant Findings Photographs Document Links Documentation Errors Alarms Symptoms Redesigns

Properties Analysis Tree Facilitate Tasks Overview Failure Modes Questions and Actions Analysis Diary

Reference: GTQ Cab HVAC Title: Get There Quick EMU Cab HVAC

Decision Logic: RCM

Labour Cost per Man-Hour: £60.00 Version: 6

Analysis Date: 19 May 2003 Analysis Status: Completed

Multi-Level Effects: ☐

Comments Group Members Facilitator(s) Boundaries Assumptions Glossary

Comments or notes about this RCM analysis

This RCM analysis applies to the Cab HVAC System on GTQ EMU vehicles operating ONLY in the documented Operating Context. If the same vehicles were to be used in a different operating context (e.g. they were transferred to a different train operator and ran on different routes) then it is highly likely that different decisions would be reached.

Review Objectives:

- reliability, i.e. to ensure that the Cab HVAC system is available for service whenever the vehicle is required to move
- a complete documented & auditable understanding of what maintenance is required and why
- to generate a Cab HVAC system fault-finding guide
- reduced maintenance life cycle costs
- feedback significant findings to the designers to improve future GTQ EMU builds.

Analysis Properties tab of Analysis Editor window

Lookup Tables

All Editions of **RCM Desktop** allow users to define their own lists of frequently-used items in lookup tables. The Basic Edition allows the following lists.

Skills List – is used to populate a drop-down list for specifying who should perform a maintenance Task. This can later be used to group Tasks by the skill required.

Lookup Tables Criticality Analysis Users Company Information Database Preferences

Skills Equipment States Redesign Types Analysis Status Action Types

List of possible skills required to perform a maintenance task

Ref	Title
T Eng	Test Engineer
Elec	Qualified Electrician
Fit	Mechanical Fitter
E Eng	Electrical Engineer
Ch Off	Chief Officer
Ch Eng	Chief Engineer
3 Pty	3rd Party/Contractor
2 Mate	2nd Mate
2 Eng	2nd Engineer
1 Eng	1st Engineer

AD

Toolbar:

Editing the Skills List



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Redesign Types – is used to populate a drop-down list for specifying the type of each Redesign. This can then be used to group Redesigns by type.

Type	Description
Training	Retraining of staff to minimise human error
Compulsory Redesign	Redesign must be done to mitigate safety consequences of failure mode
Equipment Modification	Physical change to the equipment
Technical Investigation	Investigation into some technical aspect of the equipment or how it fails
Contingency Action	Development of procedures that can be put in place following a failure to mitigate consequences
Maintenance Procedure	Change to existing maintenance procedure(s)
On-board Spares Provision	Amendment to list of spares carried on the vehicle
Operating Procedure	

Editing the Redesign Types List

Backup and Restore

On multi-user systems, it is assumed that existing company network server backup routines will provide adequate data protection.

On single-user systems, **RCM Desktop** makes it very easy for users to backup the entire RCM database to any available device (e.g. USB memory stick, SD card, writeable CD, network drive).

Backup folders are automatically created using the database name and the date and time of creation. Users can optionally set **RCM Desktop** to remind them to take a backup each time the program is shut down.

RCM Desktop Backup and Restore

Backup Restore

This wizard will make a backup copy of your RCM Desktop databank files

Choose a location for your backup files

X: ...

RCM Desktop will create the following folders in the above location:

- RCMDesktop
- Backups
- testrcm
- 2008-Oct-22 11.09

Press Next >> to continue

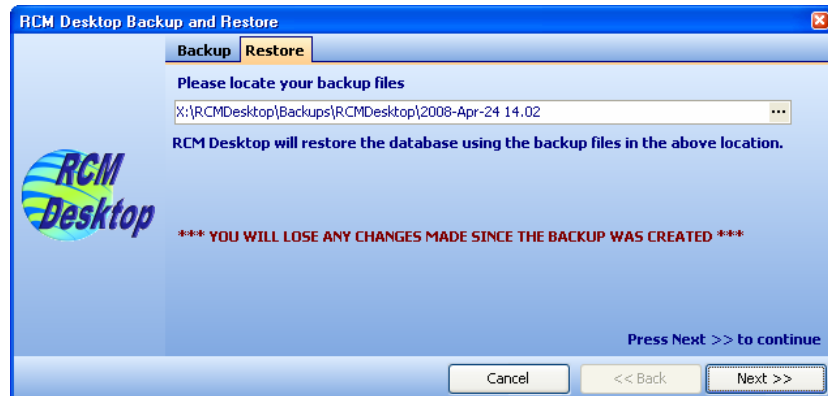
Cancel << Back Next >>

Easy-to-use Backup Feature

If disaster strikes, users can easily navigate to the most recent backup folder and restore their missing data.



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Easy-to-use Restore Feature

INTERMEDIATE EDITION

Asset Hierarchy

In addition to the features described above for the Basic Edition, the key features of the Intermediate Edition of **RCM Desktop** are explained below:

The Asset Hierarchy is used to link the assets to the RCM Analyses and record the Operating Contexts:

Title	Ref	Quantity in Parent	RCM Analysis
GTQ Railway Company	GTQ		
GTQ EMU Train Set	GTQ-EMU	60	
Cab HVAC	GTQ-EMU-CHV	2	2 GTQ Cab HVAC (Complete)

Operating Context
The driver's cab HVAC system provides automatic climate controlled air conditioning, maintaining the cab air temperature at anywhere between 18 and 28 degrees C, as set by the driver.
The refrigerant used is R407C, which is environmentally friendly, odourless, colourless and inert. Although it is not poisonous, it is heavier than air so could cause asphyxiation in a confined space if released in sufficient quantities (there is not enough in the HVAC module to be able to do this even if it were all to escape into the cab).
All components (including the 2 foot warmers) are controlled by the HVAC system's PLC in the electrical compartment in the return air duct. The HVAC system receives information about the cab and itself from sensors located at various points within the system. The bulk of the HVAC system is contained in the roof module, which houses the fresh air intake, evaporator, heaters, condenser & fan and compressor. Two supply fans are located in the roof ducting. Separate electric heaters are provided at low level for the driver.
The driver can select the mode of operation as follows: - Vent only: roof cooling and all heating are inhibited - Automatic: all heating & cooling automatically controlled

Asset Tree and Operating Context

Company Information

This is used to store your company name, logo and copyright notice so that they can appear on **RCM Desktop** reports.

Analysis Properties

The following additional Analysis Properties long text fields are available:

- ☒ Boundaries of the analysis (what equipment is covered by the analysis and what is not)
- ☒ Assumptions upon which the analysis is based
- ☒ Glossary of terms and abbreviations used throughout the analysis (useful for readers not familiar with the equipment or company jargon).



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The Analysis Tree

In the Intermediate Edition, the Analysis Tree grid provides access to the following additional fields/features:

- ☒ Several additional fields for fully-detailed Task descriptions

Duration:	1 Hours
Equipment State:	Stopped
Task Type:	On-condition
Details:	
Full Description:	Inspect roof module lid seals for visible signs of deterioration and repair/renew as required
Safety Precautions:	Ensure roof unit is isolated and that mobile staging is correctly secured
Materials Req'd:	None
Tools Req'd:	Mobile staging, torch.
Add'l Documentation:	See Maintenance Proc ABC/123 v3

- ☒ Ability to assign Alarms and failure Symptoms to Failure Modes for the generation of fault-finding guides

Details	Responses	Task(s)	Redesign	Alarms	Symptoms
Symptom: Air is stuffy When?: Sometimes happens					
Symptom: Not enough fresh air When?: Sometimes happens					
Details	Responses	Task(s)	Redesign	Alarms	
Alarm: Cab Roof Heater Fault When?: Sometimes happens					
Alarm: Cab HVAC Low Pressure Trip When?: Sometimes happens					

- ☒ Instantly copy from one Failure Mode to another Failure Effects, Downtime, Contingency Action, Comments, Equipment Tags and Criticality data without having to use the Windows clipboard

Copy from 1C2 to 1C3

<input checked="" type="checkbox"/> Effects
<input checked="" type="checkbox"/> Times
<input checked="" type="checkbox"/> Contingency Action
<input type="checkbox"/> Decision Logic Responses
<input type="checkbox"/> Single Tasks
<input checked="" type="checkbox"/> Comments
<input type="checkbox"/> Redesigns
<input type="checkbox"/> Symptoms
<input type="checkbox"/> Alarms
<input checked="" type="checkbox"/> EquipmentTags
<input checked="" type="checkbox"/> Criticality
<input checked="" type="checkbox"/> All the above items
<input type="button" value="OK"/>
<input type="button" value="Cancel"/>



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Analysis Diary

The Analysis Diary allows the Facilitator to keep a log of anything they wish for any given day of activity on an RCM analysis. This may include:

- ☑ Group members' attendance
- ☑ What was achieved during each meeting
- ☑ Notes about the meeting.

Significant Findings	Photographs	Document Links	Documentation Errors	Alarms	Symptoms	Redesigns
Properties	Analysis Tree	Facilitate	Tasks Overview	Failure Modes	Questions and Actions	Analysis Diary
Date	Notes					
06 May 2003	Meeting Room 3, 09:00 - 16:00. Attended: Isaac Newton, Blaise Pascal, Michael Faraday, Robert Boyle (75%), Lord Kelvin. Defined operating context, wrote functions and started on failure modes					
07 May 2003	Meeting Room 3, 09:00 - 16:00. Attended: Isaac Newton, Blaise Pascal, Michael Faraday, Robert Boyle, Lord Kelvin. Continued with Failure modes.					
19 May 2003	Meeting Room 7, 09:00 - 16:00. Attended: Isaac Newton, Blaise Pascal, Michael Faraday, Lord Kelvin. Continued with Failure modes.					
20 May 2003	Meeting Room 7, 09:00 - 16:00. Attended: Isaac Newton, Blaise Pascal, Michael Faraday, Lord Kelvin. Failure modes completed. Started on decision diagram.					
09 Jun 2003	Meeting Room 5, 09:00 - 16:00. Attended: Isaac Newton, Blaise Pascal, Michael Faraday. Continued with decision diagram.					
10 Jun 2003	Meeting Room 5, 09:00 - 12:00. Attended: Isaac Newton, Blaise Pascal, Michael Faraday. Completed decision diagram. Analysis complete.					
12 Jun 2003	Final admin and production of audit report					

Analysis Diary entries

Documentation Errors

RCM analyses often reveal errors in technical documents. **RCM Desktop** provides a place to record such errors so they can be reported and rectified rather than forgotten.

Document Reference		Title
Drawing 9007658/0341		Cab HVAC Refrigerant Schematic
Date Reported	Date Fixed	Details
12 Jun 2003		The NRV at D4 is drawn wrong way round

Recording Documentation Errors

Queries and Actions

During most RCM analyses, there comes a point where some additional information is required and the facilitator needs to delegate the job of finding it to members of the analysis group. **RCM Desktop** enables the facilitator to record and manage all queries and group member actions.

Significant Findings	Photographs	Document Links	Documentation Errors	Alarms	Symptoms	Redesigns
Properties	Analysis Tree	Facilitate	Tasks Overview	Failure Modes	Questions and Actions	Analysis Diary
Assigned To						
Reference	Date Created	Date Due	Complete	Title	Details	Response
Assigned To : Davie						
1A1	25 Mar 2008	27 Mar 2008	<input type="checkbox"/>	Compressor brass filter	What is the purpose of the brass item on the compressor head? What are implications if blocked or missing?	
2A1	25 Mar 2008	27 Mar 2008	<input checked="" type="checkbox"/>	Norgren Oil / Air indicator	What is the purpose of the glass ball on the top to the Norgren Oil/Air filter	Filter blockage indicator, changes from Green to Red if blocked.
6B2	25 Mar 2008	27 Mar 2008	<input type="checkbox"/>	Oil Collection Tank	Confirm with Inverness what the collection tank's purpose is on modified IS sets	
3A2	26 Mar 2008		<input type="checkbox"/>	Comp sump NRV	What is the function of the NRV contained within the compressor sump	
Assigned To : Emil						
Assigned To : Facilitator						
10A1	02 Apr 2008		<input type="checkbox"/>	Main Reservoir	What is the frequency for main res change (Life)	Changed on C4 Exam.

Recording Queries and Actions



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Significant Findings

An RCM analysis group will often discover significant, interesting or even urgent facts about the asset being analysed. These often warrant higher management attention and should not be ignored or forgotten. **RCM Desktop** enables you to store and report on such Significant Findings.

Properties	Analysis Tree	Facilitate	Tasks Overview	Failure Modes	Questions and Actions	Analysis Diary
Significant Findings	Photographs	Document Links	Documentation Errors	Alarms	Symptoms	Redesigns
Title	Details					
Compressor Life	The life of the Cab HVAC compressor was estimated to be 7-8 years, which is the current best estimate of the compressor manufacturer, the HVAC module manufacturer and the train manufacturer. This figure was used in the analysis of failure mode Compressor Mechanical Wear) and the group's decision was to renew the compressor every 7 years. This would result in this task being performed 4 times over the 30 year contract with the train operator. However, the group felt that the compressor may well achieve significantly more than this in practice, but did not have access to experience or data which could enable them to say exactly how much longer. The group, therefore, concluded that if the compressor life could be established more accurately by monitoring the GTF and GTR fleets closely then this task interval could perhaps be increased. If it could be extended to 10 years or more this would result in a saving of around £60k for the entire fleet over the duration of the contract.					
Compressor Pump Down	Traditionally, refrigeration systems have a "pump down" phase of operation which occurs immediately following the end of any period of cooling. During pump down the inlet to the compressor is closed off and the compressor runs for a short time, then shuts off. The purpose is to ensure that there is no possibility of liquid refrigerant gathering at the inlet side of the compressor whilst it is not running. With reciprocating compressors there is a significant risk of causing serious damage if liquid is sucked into the cylinders. However, the compressor fitted in the Cab HVAC Roof Module is a Mk III Scroll type compressor. This type of compressor is very much less susceptible to damage caused by liquid at its inlet, so it could be argued that pump down is unnecessary. In fact, the manufacturer's Application Guide states that "pump down is not recommended". Hence, the group felt that it would be worth considering a redesign in future builds which also use a Scroll type compressor to eliminate the pump down phase. This would mean the solenoid valves, associated relays and control logic could be removed from the system. This would have the effect of eliminating six failure modes thus improving reliability and simplifying the system.					
Group Learning	The application of RCM2 to analyse the maintenance requirements of the Cab HVAC system caused the analysis group to pose very searching questions about how the equipment worked, why it was designed the way it is and what happens when certain failures occur. These questions returned some extremely interesting answers, and posed even more questions and, combined with the RCM process, produced a group of people who are now extremely well-informed about the Cab HVAC system.					
Life Cycle Labour Costs	If the recommendations of the RCM Analysis group are implemented then the Cab HVAC System Life Cycle Labour Costs (LCC) are likely to be reduced by 23%.					

Recording Significant Findings

Renumbering

As an RCM analysis progresses, the numbering of Functions, Functional Failures and Failure Modes can become very untidy as items are moved around and/or deleted. Gaps can appear in the numbering of items.

RCM Desktop allows the facilitator to renumber all or part of an analysis at any time.

Renumbering: Get There Quick EMU Cab HVAC

You have selected function 1

Options for renumbering functions

☒ Renumber all functions and everything under them

☐ Do not renumber any functions, just everything under function 1

But make these exceptions:

☐ do not change any functional failure references (A, B, C, etc)

☐ do not change any failure mode numbers (1, 2, 3, etc)

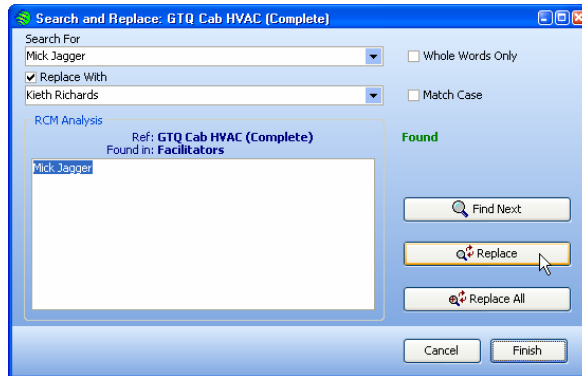
OK

Cancel

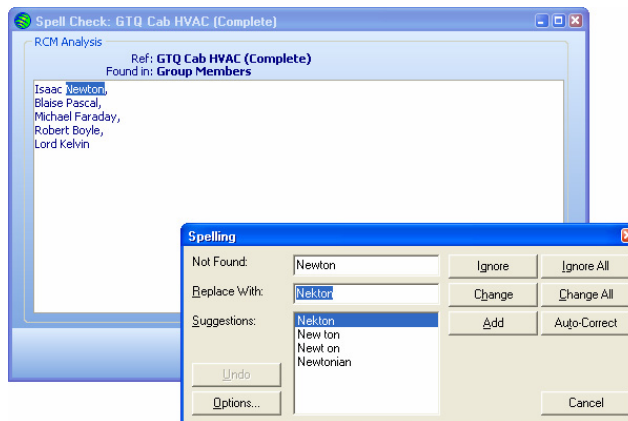
Renumbering an Analysis

Search / Replace / Spell Check

Standard search, replace and spell checking functions are available in the Intermediate Edition.



Search and Replace

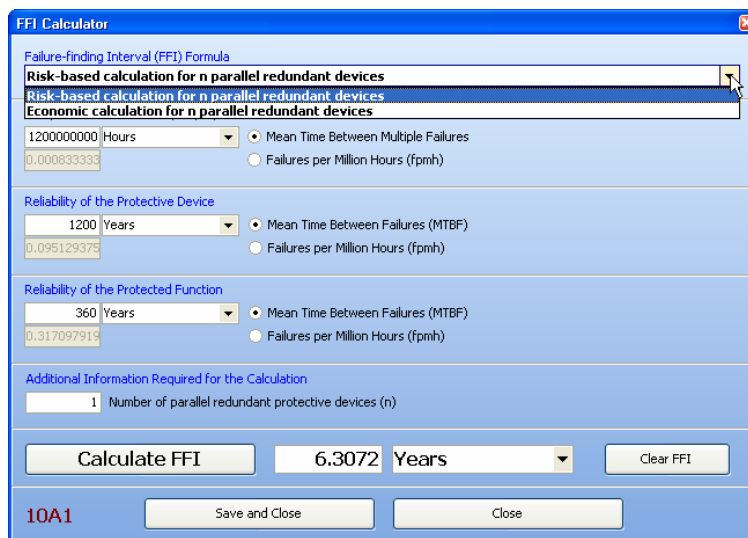


The Spell Checker

Standard Failure-Finding Calculations

The two most frequently used failure-finding interval formulae are available in the Intermediate Edition.

Reliability figures can be entered either as Failures per Million Hours (fpmh) or as Mean Time Between Failures (MTBF) using any time unit.



Failure-Finding Calculator



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Copy / Export / Import
Analyses

Individual analyses can be:

- ☒ Copied within the same database

The dialog box is titled "Enter New Analysis Reference". It contains the text "Existing Reference is: GTQ Cab HVAC (Complete)". Below this, it says "Please enter a new (unique) Reference for the Analysis:". There is a text input field containing "Copy of GTQ Cab HVAC" with a note "(25 characters maximum)" below it. At the bottom right are "Cancel" and "OK" buttons.

- ☒ Exported to disk for later import to another database

The dialog box is titled "Export RCM Analysis :GTQ Cab HVAC (Complete)". It shows a "Save in:" dropdown menu set to "UDISK (G:)". Below this is a large empty text area. On the left, there are icons for "My Recent Documents" and "My Computer". At the bottom, there are fields for "File name:" (containing "GTQ Cab HVAC (Complete).exp") and "Save as type:" (containing "RCM Desktop Export Files (*.exp)"). "Save" and "Cancel" buttons are on the right.

- ☒ Imported from another database

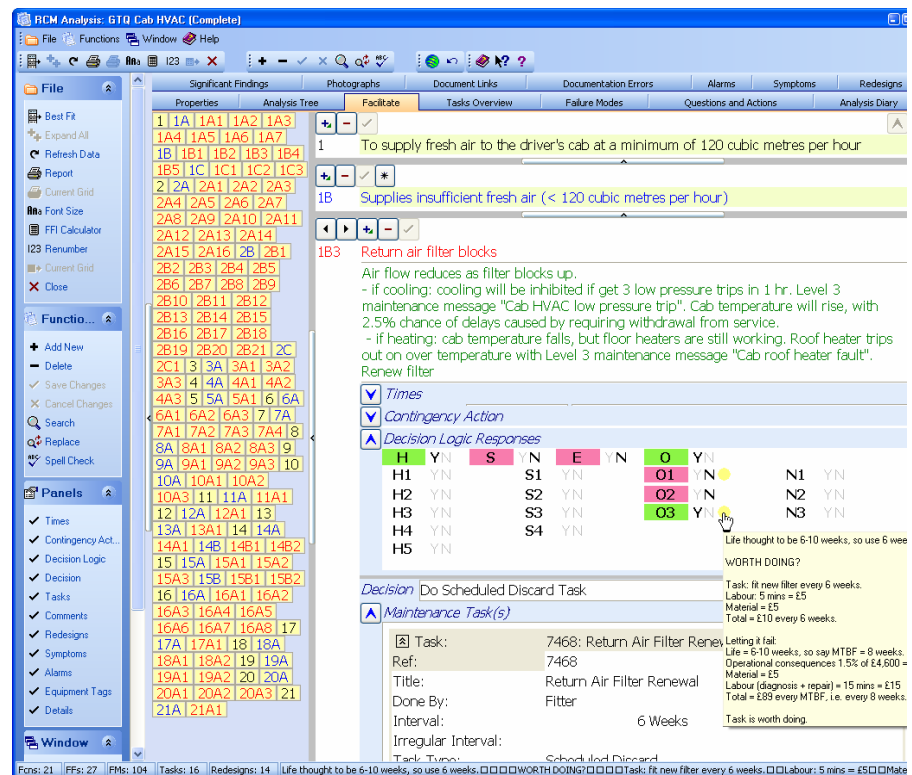
The dialog box is titled "Import Wizard" and "Import RCM Analysis". It has a "Time left to start importing: 04:51" in the top right. It is divided into two main sections: "Analysis being imported" on the left and "Existing analysis" on the right. Each section contains a list of fields with values: Analysis Reference (GTQ Cab HVAC (Complete)), Analysis Title (Get There Quick EMU Cab HVAC (complete analysis)), Analysis Date (03 Sep 2007), Date Last Edited (22 Oct 2008 @ 15:28), Version Number (6), Checkout State (Normal), Functions (21), Functional Failures (27), Failure Modes (104), Tasks (16), and Redesigns (14). Below these sections, a message states: "The analysis you are trying to import has the same Reference AND the same internal identifier as another one in this database. Please select one of the options below:". Three radio button options are provided: "Overwrite the existing analysis (above right) with the imported analysis (above left)", "Keep the existing analysis and provide a new Reference for the imported analysis (and automatically assign a new internal identifier for the imported analysis)", and "Do not import the analysis". A instruction says "Choose an option above, then click on 'Next >>' to continue". At the bottom are "Cancel", "<< Back", and "Next >>" buttons.

ADVANCED EDITION

In addition to the features described above for the Intermediate Edition, the key features of the Advanced Edition of **RCM Desktop** are explained below:

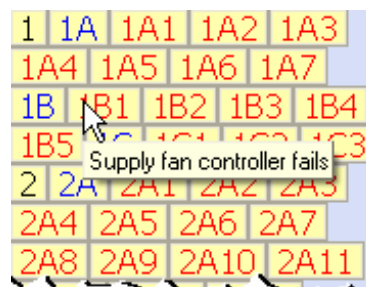
Facilitator View

The most significant feature of the Advanced Edition of **RCM Desktop** is the "Facilitator View". This is actually not a single feature, but an entire group of features dedicated to maximising facilitator productivity.



The Facilitator View

Everything that can be recorded about any given Failure Mode is instantly accessible, all within a single window.

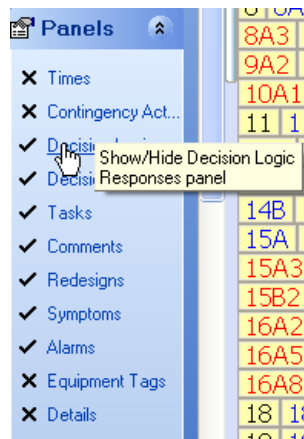


Easy Navigation

The left hand side of the Facilitate Tab contains buttons for all Functions, Functional Failures and Failure Modes, allowing instant navigation to any part of an RCM analysis.



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Optional Panels

The Failure Mode area in the Facilitate Tab is split in a number of sub-panels.

Each sub-panel can easily be shown or hidden so that only those items that are regularly used by the facilitator actually appear on the screen.



Rapid Data Entry

Keyboard shortcuts help with entering data very quickly.

For example, entering a large number of Functions is simply a matter of repeating the following sequence as many times as required:
<press **Ins**> <type the function text> <press **Enter**>

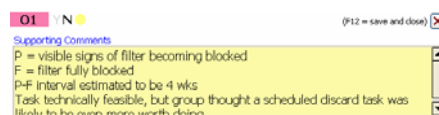
H	YN	S	YN	E	YN	O	YN		
H1	YN	S1	YN			O1	YN	N1	YN
H2	YN	S2	YN			O2	YN	N2	YN
H3	YN	S3	YN			O3	YN	N3	YN
H4	YN	S4	YN						
H5	YN								

Task Selection Logic Responses

Recording the group's responses to the Task Selection/Decision Logic questions is easy.

The question reference IDs are laid out on screen in the same positions as drawn in the Task Selection Logic editor regardless of which Decision Logic is used.

The facilitator clicks on the “Y” or “N” for the questions that he asks. The question reference is then highlighted in green (Y) or red (N).



To record a set of comments against a question the facilitator simply clicks on the question's reference and starts typing.



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H	YN	S	YN	E	YN	O	YN	N1	YN
H1	YN	S1	YN			O1	YN	N2	YN
H2	YN	S2	YN			O2	YN	N3	YN
H3	YN	S3	YN			O3	YN		
H4	YN	S4	YN						
H5	YN								

Go To Target

An experienced facilitator with an experienced analysis group will frequently know the decision for certain failure modes and not need to waste time in discussion or detailed record keeping.

The Advanced Edition allows the Facilitator to double click on the Y or N for the task selection logic question where the failure mode “ends up”. The correct responses to all the previous questions are automatically entered.

H	YN	S	YN	E	YN	O	YN	N1	YN
H1	YN	S1	YN			O1	YN	N2	YN
H2	YN	S2	YN			O2	YN	N3	YN
H3	YN	S3	YN			O3	YN		
H4	YN	S4	YN						
H5	YN								

“Live” Spell Checker

Just as in any modern word processor, the Advanced Edition will highlight incorrectly spelled words with a red “squiggly”.

1B2 Supply fan fails (electrically)

One of the supply fans stops causing reduced air flow.

- if cooling: cooling will be inhibited if get 3 low pressure trips in 1 hr (fcn 11).

Level 3 maintenance message "Cab HVAC low pressure trip". Cab temperature rise, with 2.5% chance of delays caused by requiring withdrawal from s

- if heating: cab temperature falls, but floor heaters are still working. R trips out on over temperature with Level 3 maintenance message "Cab fault".

Renew supply fan

Decision Logic Responses

H	YN	S	YN	E	YN	O	YN	N1	YN
H1	YN	S1	YN			O1	YN		

Live Spell Checking

Auto Text

This is a major time-saving feature. Facilitators often need to use the same phrases over and over again which can be laborious to type in full. The Advanced Edition allows the user to set up abbreviations for frequently used phrases.

Whenever the abbreviation is typed...

21A1 Evaporator roof panel secondary restraint failed

wnrm

...the **RCM Desktop** immediately replaces it with the specified text:

21A1 Evaporator roof panel secondary restraint failed

Will not matter if it occurs on its own. But, if some other failure also occurs, th



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Worth Doing Calculator

The Advanced Edition includes a versatile “worth-doing” calculator to assist with calculating whether or not tasks for failures with economic consequences are worth doing.

Background MTBF On-Condition Decision

Cost of Failure (each time it occurs)

Downtime / Operational Consequences = £ 1250

Labour for unplanned repair = £ 150

Materials for unplanned repair = £ 225

Total = £ 1625

Cost of Doing Scheduled Task (once)

Downtime / Operational Consequences = £ 0

Labour for scheduled task = £ 8.3333

Materials for scheduled task = £ 0

Total = £ 8.3333

Cost of Follow-On Repair (when monitoring detects potential failure)

Downtime / Operational Consequences = £ 0

Labour for follow-on repair = £ 75

Materials for follow-on repair = £ 150

Total = £ 225

Summary (MTBF is not known)

Task is worth doing only if MTBF is less than 6.4417 years, or
across the entire asset population of 50 items
there are more than 77.6192619960569 failures
in the likely asset lifetime of 10 years.

Decision is:
☒ Yes, MTBF is low enough for task to be worth doing
☐ No, MTBF is too high for task to be worth doing

Copy Data and Decision To Windows Clipboard

One tab of the worth-doing calculator

It can even perform the calculation “in reverse” – this allows the facilitator to calculate how bad the failure MTBF needs to be in order to make the task worth doing. This is extremely useful when the MTBF is not known accurately.

“As 1A1”

Facilitators often find that the documentation relating to one Failure Mode is extremely similar to another (especially if they are under the same Functional Failure).

Copy from 21A1 to 21A3

- ☒ Effects
- ☒ Times
- ☒ Contingency Action
- ☒ Decision Logic Responses
- ☒ Single Tasks
- ☒ Comments
- ☐ Redesigns
- ☒ Symptoms
- ☒ Alarms
- ☐ EquipmentTags
- ☒ Criticality
- ☐ All the above items

OK Cancel

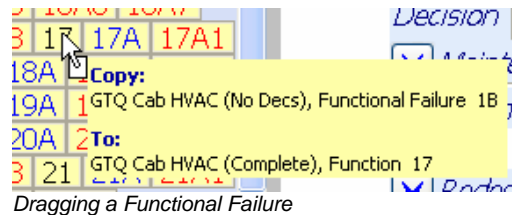
The Advanced Edition enables the Facilitator to copy instantly as much as is necessary from one Failure Mode to another without having to use the Windows clipboard or having to navigate to the other Failure Mode.

This saves a lot of time and minimises copying errors.

Drag and Drop

RCM facilitators often need to copy information from one analysis to another or to rearrange information within an analysis.

The Drag and Drop feature of the Advanced Edition makes this a very simple process.



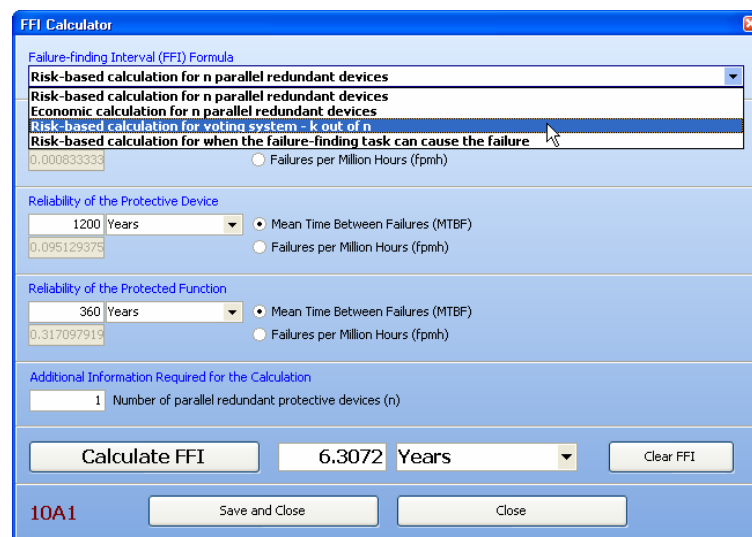
Dragging a Functional Failure

In the example above, a Functional Failure is being dragged from one analysis to another.

In an instant, this creates a copy of that Functional Failure *and all its Failure Modes and Decisions* in the target analysis.

Advanced Failure-Finding Calculations

Two additional failure-finding formulae are available in the Advanced Edition.



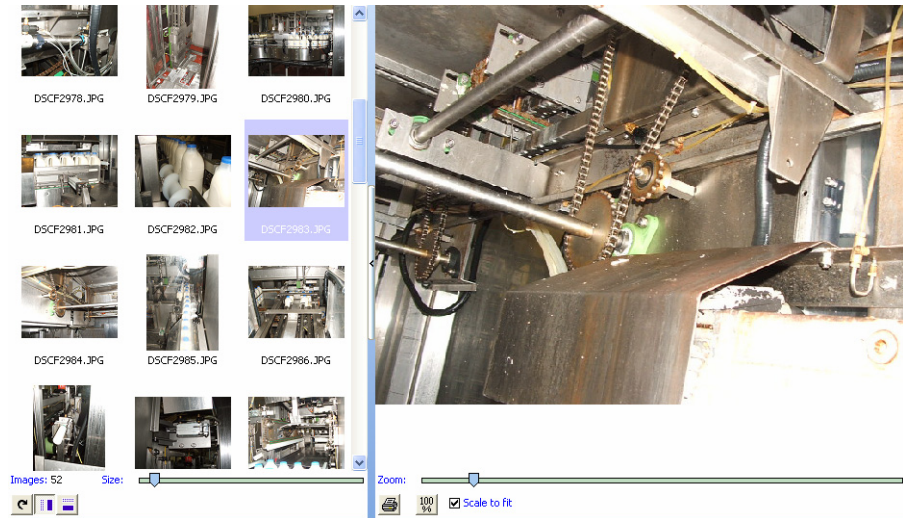
Document & Photo Links

The Advanced Edition permits the user to store links to external documents such as drawings, user guides, technical manuals, etc. Double-clicking on any link will open that document in the associated application (assuming it is installed and available).

Links to folders containing photographs can also be stored. **RCM Desktop** displays resizable thumbnails of the photographs in the folder and allows the user to display any selected photograph and to zoom in on any part of it.



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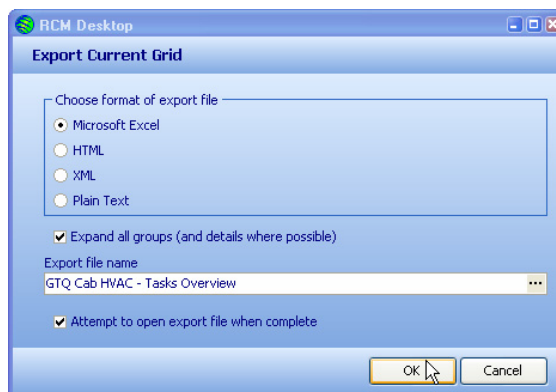


The Photograph Viewer

This is another great time saver. A set of detailed digital photographs dramatically cuts down on analysis group visits to the equipment.

Export Data Grids

Much of the information stored in the **RCM Desktop** database is presented in a powerful and highly customizable spreadsheet-like grid. Most grids can be exported in Excel, HTML, XML and CSV formats.



Export Dialog Box

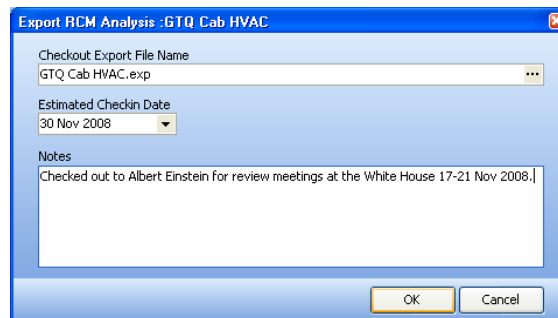
Check-Out and Check-In

For mobile facilitators who hold analysis meetings in various locations, the Advanced Edition has a unique Check-Out / Check-In Feature.

The facilitator can Check Out an analysis from the company's Master RCM Database onto their laptop. They can then work on the analysis during the analysis meetings at a remote location. When they return to base, the analysis can be Checked In again to the Master database.



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Analysis Check Out Dialog Box

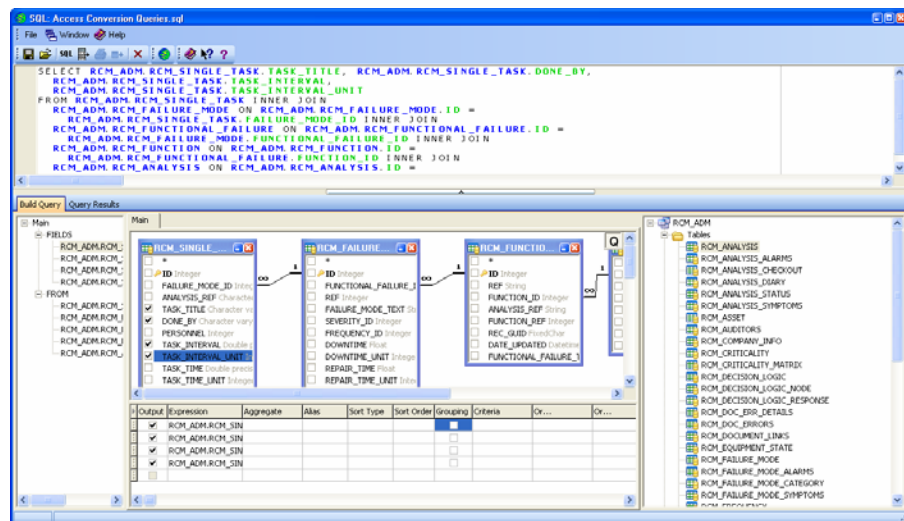
While an analysis is Checked Out, it can still be opened in the Master Database, but it will be read-only. This prevents any conflicts when it is subsequently Checked In by the facilitator

ULTIMATE EDITION

SQL Query Builder

In addition to the features described above for the Advanced Edition, the key features of the **RCM Desktop** Ultimate Edition are explained below.

For users who require full SQL access to their RCM database, **RCM Desktop** Ultimate Edition has a visual query builder similar to that in MS Access.



Visual Query Builder

Users can visually build queries and save them to disk for later retrieval. All standard SQL constructs are available, including sorting, grouping, field and table aliases, sub-queries, derived tables and unions.

Query results can be viewed in the **RCM Desktop** customisable grid and then either be printed or exported to Excel, HTML, XML or CSV formats.



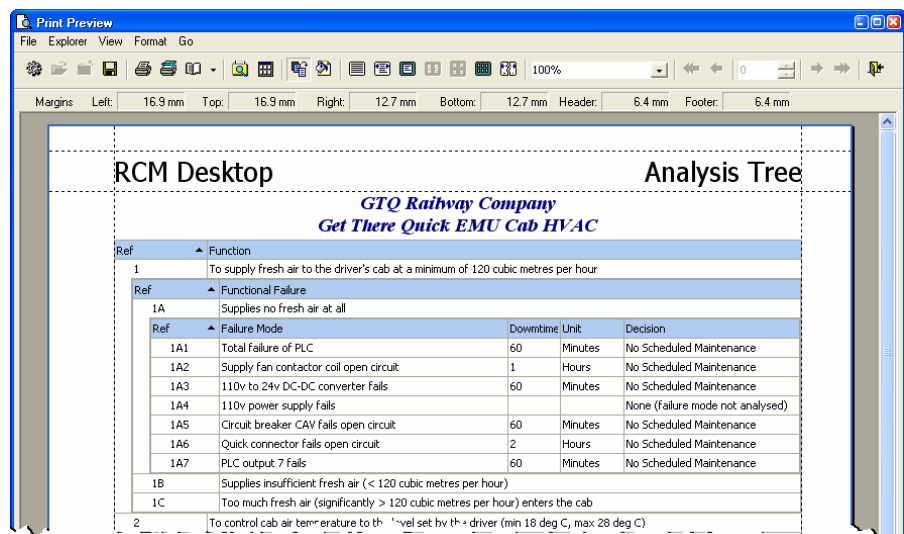
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PRINTED REPORTS

Tree and Grid Reports

RCM Desktop can print out both fixed-format reports and reports based on the current contents and layout of any data grid or tree.

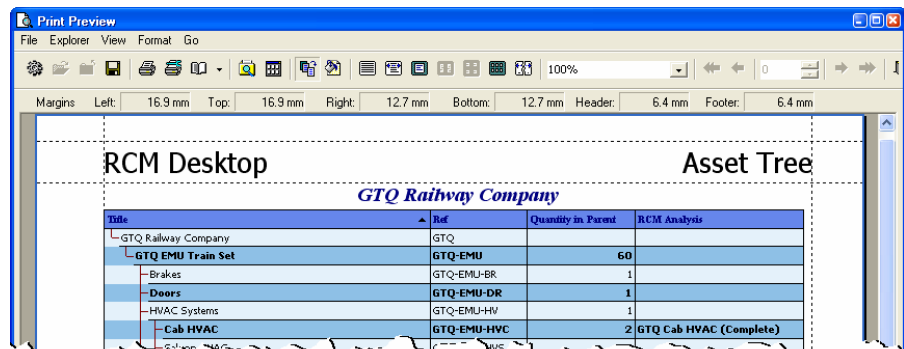
Data trees and grids can be printed at any time and will appear on paper exactly as they appear on the screen (with instant switching between European and American paper sizes):



The image shows a 'Print Preview' window for 'RCM Desktop'. The title bar says 'Print Preview'. The menu bar includes 'File', 'Explorer', 'View', 'Format', and 'Go'. The toolbar has various icons for file operations and viewing. The status bar shows margins: Left: 16.9 mm, Top: 16.9 mm, Right: 12.7 mm, Bottom: 12.7 mm, Header: 6.4 mm, Footer: 6.4 mm. The main content area is titled 'RCM Desktop' and 'Analysis Tree'. Below the title, it says 'GTQ Railway Company' and 'Get There Quick EMU Cab HVAC'. The table has columns: Ref, Function, Failure Mode, Downtime, Unit, and Decision. The data is as follows:

Ref	Function	Failure Mode	Downtime	Unit	Decision
1	To supply fresh air to the driver's cab at a minimum of 120 cubic metres per hour				
1A	Supplies no fresh air at all				
1A1	Total failure of PLC		60	Minutes	No Scheduled Maintenance
1A2	Supply fan contactor coil open circuit		1	Hours	No Scheduled Maintenance
1A3	110v to 24v DC-DC converter fails		60	Minutes	No Scheduled Maintenance
1A4	110v power supply fails				None (failure mode not analysed)
1A5	Circuit breaker CAV fails open circuit		60	Minutes	No Scheduled Maintenance
1A6	Quick connector fails open circuit		2	Hours	No Scheduled Maintenance
1A7	PLC output 7 fails		60	Minutes	No Scheduled Maintenance
1B	Supplies insufficient fresh air (< 120 cubic metres per hour)				
1C	Too much fresh air (significantly > 120 cubic metres per hour) enters the cab				
2	To control cab air temperature to the level set by the driver (min 18 deg C, max 28 deg C)				

Sample Print of Analysis Tree Grid



The image shows a 'Print Preview' window for 'RCM Desktop'. The title bar says 'Print Preview'. The menu bar includes 'File', 'Explorer', 'View', 'Format', and 'Go'. The toolbar has various icons for file operations and viewing. The status bar shows margins: Left: 16.9 mm, Top: 16.9 mm, Right: 12.7 mm, Bottom: 12.7 mm, Header: 6.4 mm, Footer: 6.4 mm. The main content area is titled 'RCM Desktop' and 'Asset Tree'. Below the title, it says 'GTQ Railway Company'. The table has columns: Title, Ref, Quantity in Parent, and RCM Analysis. The data is as follows:

Title	Ref	Quantity in Parent	RCM Analysis
GTQ Railway Company	GTQ		
GTQ EMU Train Set	GTQ-EMU	60	
Brakes	GTQ-EMU-BR	1	
Doors	GTQ-EMU-DR	1	
HVAC Systems	GTQ-EMU-HV	1	
Cab HVAC	GTQ-EMU-HVC	2	GTQ Cab HVAC (Complete)

Sample Print of Asset Tree

Users have full control over the appearance of tree and grid reports, including the ability to customise content, layout, titles, headers, footers, page size, orientation, margins and scaling.

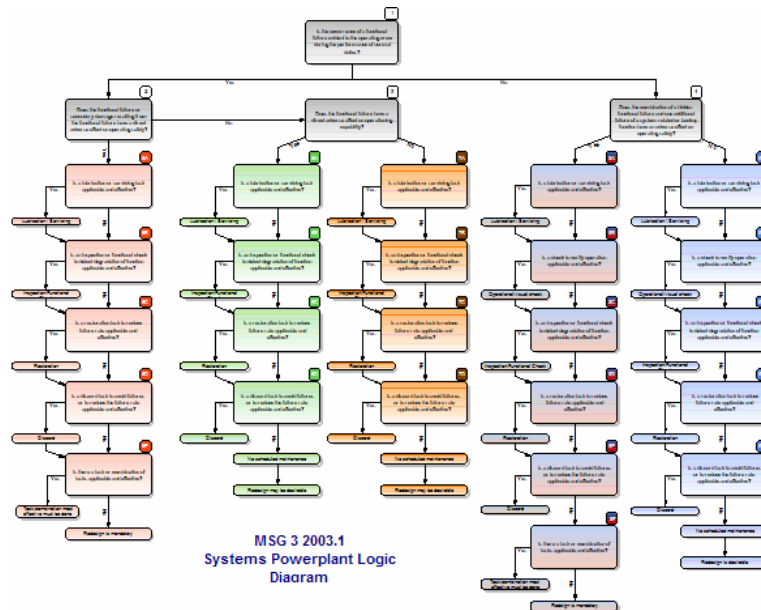
Individual tree and grid reports can be saved within the **RCM Desktop** database for later retrieval.

Fixed Format Reports

A number of reports which have a fixed format and layout are available in **RCM Desktop**, although several of them have customisable content.

Decision Logic

This report prints out any Decision Logic exactly as it is drawn on the screen in the Task Decision Logic Editor.



Decision Logic Print

Function List

This report prints the list of functions for the current, open analysis.

RCM Analysis Function List

Get There Quick EMU Cab HVAC (functions only)

© RCM Desktop



GTQ Railway Company

- | | |
|---|--|
| <p>1 To supply fresh air to the driver's cab at a minimum of 120 cubic metres per hour</p> <p>2 To control cab air temperature to the level set by the driver (min 18 deg C, max 28 deg C)</p> <p>3 To enable the driver to select the following modes of operation:</p> <ul style="list-style-type: none"> - low level heat only - full heating - ventilation only - automatic air conditioning <p>4 To supply clean air to the cab</p> <p>5 To be capable of supplying fresh air for 1 hour in the event of AC power failure ("emergency mode")</p> | <p>17 To inhibit cooling for 10 seconds after the controlled end of a heating cycle</p> <p>18 To enable maintenance staff to test heating and cooling functions</p> <p>19 To supply a portion of the cab air down the windscreen in order to assist the electric demister</p> <p>20 To enable evaporator condensation and rain water to drain safely away from the equipment and driver</p> <p>21 To be capable of preventing evaporator roof panel from</p> |
|---|--|

Failure Mode Summary Report

This report prints the functions, corresponding functional failures and basic information for each corresponding failure mode: failure effects, downtime, repair time, comments.

RCM Analysis Failure Mode Summary

Get There Quick EMU Cab HVAC (no decisions)

© RCM Desktop



GTQ Railway Company


- 1 To supply fresh air to the driver's cab at a minimum of 120 cubic metres per hour**
- 1A Supplies no fresh air at all**
- 1A1 Total failure of PLC**
- Causes complete loss of heating, cooling and fresh air supply. Air may feel stuffy to the driver, in which case he can open the draught. Cab likely to get too hot or too cold, depending on ambient conditions, resulting in an 8% chance of delays due to withdrawal from service. Replace PLC.
- Downtime = 60 Minutes Repair time = 30 Minutes
- 1A2 Supply fan contactor coil open circuit**
- Both supply air fans will stop.
- if cooling: cooling will be inhibited after 3rd low pressure trip in 1 hr. Level 3 maintenance message "Cab HVAC low pressure trip". Cab temperature will rise, with 5% chance of delays caused by requiring withdrawal from service.
 - if heating: cab temperature falls, but floor heaters are still working. Roof heater trips out on over temperature with Level 3 maintenance message "Cab roof heater fault". Renew supply fan contactor.
- Downtime = 1 Hours Repair time = 0.5 Hours



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Decision Summary Report

Prints a summary of the decision made for each failure mode, including: all decision logic responses, any maintenance tasks and any redesigns.

RCM Analysis Decision Summary		 GTQ Railway Company					
Get There Quick EMU Cab HVAC (complete analysis) © RCM Desktop							
20A2 Vehicle Interface D-seal perished							
Decision: No Scheduled Maintenance							
Responses:	H	S	E	O	O1	O2	O3
	Y	N	N	Y	N	N	N
Redesign Type: Equipment Life Investigation							
Title: Vehicle-HVAC Unit D-Seal Life Investigation							
Details: Might be worth attempting to establish seal life during the same investigation into compressor life.							
21A1 Evaporator roof panel secondary restraint failed							
Decision: Do Failure-finding Task							
Responses:	H	H1	H2	H3	H4		
	N	N	N	N	Y		
Task: Evaporator Roof Panel Secondary Restraint Check							
Done by:	Fitter			Interval: 6 Months			
Redesign Type: Maintenance Procedure							
Title: Roof Panel Restraint Check post maintenance							
Details: Ensure procedures are in place to ensure that the restraint is double checked whenever the evaporator roof panel has been disturbed before the vehicle returns to traffic.							

Audit Report

This report prints out everything that exists about an analysis in a single operation.

RCM Analysis Audit Report		Asset Manager  GTQ Railway Company							
Get There Quick EMU Cab HVAC (complete analysis) © RCM Desktop									
Analysis Details									
Reference	GTQ Cab HVAC (Complete)								
Title	Get There Quick EMU Cab HVAC (complete analysis)								
Decision Logic	RCM								
Version	6	Status	Completed	Date	03 Sep 2007	Labour Cost / M-Hr	60		
Functions	21	Functional Failures	27	Failure Modes	106	Tasks	16	Redesigns	14
Facilitator(s)	Mick Jagger								
Group Members	Isaac Newton, Blaise Pascal, Michael Faraday, Robert Boyle, Lord Kelvin								
Notes	This RCM analysis applies to the Cab HVAC System on GTQ EMU vehicles operating ONLY in the documented Operating Context. If the same vehicles were to be used in a different operating context (e.g. they were transferred to a different route) then it is highly likely that different decisions would be reached.								
	Review Objectives: - reliability, i.e. to ensure that the Cab HVAC system is available for service whenever the vehicle is required to move - a complete documented & auditable understanding of what maintenance is required and why - to generate a Cab HVAC system fault-finding guide - reduced maintenance life cycle costs - feedback significant findings to the designers to improve future GTQ EMU builds.								
Assumptions	If any part of the system is defective whilst the train is still on the depot then it is likely that the driver will refuse to take it into service, causing delay (or severe inconvenience at the depot) whilst it is repaired.								
	If a failure in service results in poor temperature control the train is much more likely to be "failed" by the driver if it is too hot than if it is too cold. Based on historical data, 5% of days in the year are hot enough and 3% of days are cold enough for a train to require withdrawal from service should it be suffering from poor temperature control.								
	Failures will not cause financial penalties due to poor unit availability unless they cause the unit to be out of service for more than 36 hours (see Operating Context for full details).								
Boundaries	Equipment analysed included: - roof-mounted cab HVAC module - associated air ducting - cab floor-mounted heaters - all relevant control equipment.								

Auditor Comments		If you have any comments, questions, suggestions, etc please write them LEGIBLY below	
Auditor Initials:		Facilitator to initial and date when above comments have been actioned:	/ /




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It can be printed with an optional “Auditor Comments” box (shown above) in which an auditor can hand write any comments they have about that page.

In the Failure Mode section of the report, every detail recorded about the failure mode in the database is printed in one place. This allows an auditor to review each failure mode easily and quickly, one at a time.

It also means that the report can be used to reference and understand everything about a failure mode very quickly.

RCM Analysis Audit Report		Asset Manager
Get There Quick EMU Cab HVAC (complete analysis)		
© RCM Desktop		GTQ Railway Company
1B3 Return air filter blocks		
Function	Functional Failure	
To supply fresh air to the driver's cab at a minimum of 120 cubic metres per hour	Supplies insufficient fresh air (< 120 cubic metres per hour)	
Failure Effects		
Air flow reduces as filter blocks up.		
- if cooling: cooling will be inhibited if get 3 low pressure trips in 1 hr. Level 3 maintenance message "Cab HVAC low pressure trip". Cab temperature will rise, with 2.5% chance of delays caused by requiring withdrawal from service.		
- if heating: cab temperature falls, but floor heaters are still working. Roof heater trips out on over temperature with Level 3 maintenance message "Cab roof heater fault".		
Renew filter		
Down Time 30 Minutes		
Repair Time 15 Minutes		
RCM Decision (and any Supporting Comments)		
Action Do Scheduled Discard Task		
H Y		
S N		
E N		
O Y		
O1 N		
P = visible signs of filter becoming blocked		
F = filter fully blocked		
P.F interval estimated to be 4 wks		
Task technically feasible, but group thought a scheduled discard task was likely to be even more worth doing.		
O2 N		
O3 Y		
Life thought to be 6-10 weeks, so use 6 weeks.		
WORTH DOING?		
Task: fit new filter every 6 weeks.		
Labour: 5 mins = £5		
Material = £5		
Total = £10 every 6 weeks.		
Letting it fail:		
Life = 6-10 weeks, so say MTBF = 8 weeks.		
Operational consequences 1.5% of £4,600 = £69.		
Material = £5		
Labour (diagnosis + repair) = 15 mins = £15		
Total = £69 every MTBF, i.e. every 8 weeks.		
Task is worth doing.		
Single Maintenance Task(s) to Manage this Failure Mode		
Task Number 7468		
Task Type Scheduled Discard		
Interval 6 Weeks		
Done By Fitter		
Title Return Air Filter Renewal		
Description Replace return air filter with a new one		
Auditor Initials:	Facilitator to initial and date when above comments have been actioned:	
	/ /	

1B3

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On completion of the analysis, this report becomes an excellent reference document for the analysed equipment.



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SINGLE AND MULTI-USER VERSIONS

Single-user version

RCM Desktop is available in single-user and multi-user versions (except the basic edition which is only available as a single-user version).

Only one user may access the database at any time. This version is intended for installation on stand-alone personal computers for use by a single facilitator.

Multi-user version

This version is intended for installation on a network and allows multiple users to use the system simultaneously. This means that several facilitators can work together within a consistent asset hierarchy.

RCM DESKTOP BENEFITS

RCM Desktop software has been developed to provide advanced support for the application of RCM. Unlike most software applications it has been written by professional software authors who use the software day-to-day. In short, it has been written by RCM facilitators for their own benefit and for the benefit of other facilitators. The overall philosophy behind the **RCM Desktop** is:

"To enable the RCM Facilitator to manage efficiently all aspects of an RCM Analysis and to document it live during analysis group meetings using any RCM Task Selection Logic."

Special attention has been paid to the role of the RCM Facilitator in order to maximise productivity (especially during analysis group meetings) with advanced ease-of-use and speed-of-use features that make **RCM Desktop** fast and intuitive. Productivity gains over other RCM software is impressive, typically reducing facilitator effort in documenting an RCM analysis by 50%. In particular, the software removes the need for technical typists, reams of paperwork or walls covered in flip charts.

RCM Desktop includes many features specifically designed to make it quick and easy to extract information from one analysis and incorporate it into another analysis. This massively reduces the time taken to template a new RCM analysis from one or more other analyses. With **RCM Desktop** templates can be created in minutes whereas using other software it can take hours.

RCM Desktop is continually being enhanced in response to end-user requests and as technology evolves.



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RCM Project Size

RCM Desktop software is available in four different editions and for single-user or multiple-user applications. In this way **RCM Desktop** software caters for all RCM projects and budgets ranging from a sole facilitator working alone to a team of facilitators working on a massive RCM programme.

RCM Desktop has been designed to be upwards compatible permitting upgrades from one edition to another as an RCM programme grows in size, complexity and the number of facilitators involved. End-users embarking on an RCM project can, therefore, limit their costs in the early days by purchasing the basic edition of **RCM Desktop** and upgrade to the intermediate or advanced editions as confidence and experience in RCM grows.

Why not Word Processors or Spreadsheets?

Many clients are tempted to document their RCM analyses using a word processor or spreadsheet or even to construct their own database application. Many of these approaches do little more than print basic information for an analysis and are, frankly, a false economy; the RCM facilitator's time would be better spent using the **RCM Desktop** in an RCM analysis meeting than trying to write an in-house application in a word processor, spreadsheet or database.

The **RCM Desktop** software has taken man-years of development to reach its current level of maturity; a 'home-grown' application will probably never offer comparable features or the time-saving facilities which come as standard in the basic edition of **RCM Desktop** (which are described elsewhere in this brochure). Furthermore, the flexibility of being available in different versions ensures that the **RCM Desktop** software is affordable regardless of the size or stage of an RCM project.

TECHNICAL SUPPORT

Included within the purchase price of the software licence is 90 days free product technical support by telephone, fax, letter or email. Beyond the 90 days, clients may enter into an annual support contract at an extra charge.

Technical support will only be provided for software-related system problems.

This support will normally be available during normal United Kingdom office hours. If one of our support consultants is not available immediately, telephone requests for assistance will usually be returned within one working day.



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Updates

Updates of the software correcting any errors will be issued from time to time.

Licensees with paid-up maintenance agreements will receive such updates free of charge.

Upgrades

Upgrades to the software including feature enhancements will be issued from time to time. Licensees with current paid-up maintenance agreements will receive such upgrades at a discount from the prevailing list price.

For more information
please contact

info@rcmdesktop.com

www.rcmdesktop.com

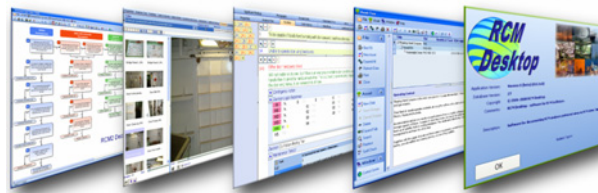
FEATURE COMPARISON TABLE

The table below shows how the features described in this brochure map into the four **RCM Desktop** editions.

Feature	Edition			
	Basic	Intermediate	Advanced	Ultimate
User-definable decision logic	✓	✓	✓	✓
Analysis properties: comments, facilitator, group members	✓	✓	✓	✓
Functions	✓	✓	✓	✓
Functional Failures	✓	✓	✓	✓
Failure Modes & Failure Effects	✓	✓	✓	✓
Basic task descriptions	✓	✓	✓	✓
Decision diagram supporting comments	✓	✓	✓	✓
Reports: Function List, Failure Mode Summary & Decision Summary	✓	✓	✓	✓
‘As IAI’ copy: failure effects	✓	✓	✓	✓
Analysis properties: Assumptions, boundaries, glossary	✗	✓	✓	✓
Analysis diary	✗	✓	✓	✓
Track analysis status	✗	✓	✓	✓
Asset hierarchy	✗	✓	✓	✓
All-in-one formal Audit Report	✗	✓	✓	✓
Company information (including logo)	✗	✓	✓	✓
Copy entire analysis	✗	✓	✓	✓
Record documentation errors	✗	✓	✓	✓
Basic Failure-finding formulae	✗	✓	✓	✓
‘As IAI’ copy: contingency action, criticality, equipment tags, times	✗	✓	✓	✓
Import/export analyses	✗	✓	✓	✓
Record queries and actions	✗	✓	✓	✓
Renumbering functions, functional failures & failure modes	✗	✓	✓	✓
Basic search and replace	✗	✓	✓	✓
Record significant findings	✗	✓	✓	✓
Comprehensive task descriptions	✗	✓	✓	✓
Basic spell check	✗	✓	✓	✓
User management (multi-user only)	✗	✓	✓	✓
Special advanced Facilitator View	✗	✗	✓	✓
Advanced search and replace	✗	✗	✓	✓
Advanced spell check	✗	✗	✓	✓
Analysis check-out / check-in	✗	✗	✓	✓
Decision diagram “go to target”	✗	✗	✓	✓
‘As IAI’ copy: alarms, symptoms, decision logic responses, redesigns, maintenance tasks	✗	✗	✓	✓
Advanced-finding formulae	✗	✗	✓	✓
Live spell check and auto-correction	✗	✗	✓	✓
Links to photos and drawings	✗	✗	✓	✓
Links to external documents	✗	✗	✓	✓
Export maintenance tasks	✗	✗	✓	✓
Worth-doing calculator	✗	✗	✓	✓
Visual Query Builder	✗	✗	✗	✓

Intentionally Blank

The Ultimate RCM Software...



...written by facilitators for facilitators.

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