



# **RAT & TOKAI**

## **New Architecture**

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EURCOCONTROL



## RAT and TOKAI new developments

### RAT and TOKAI AS WEB APPLICATIONS

- Automation of some processes
- Centralize users' information
- User shareable data management



## RAT and TOKAI new developments

MOCK-UP



## RAT web developments

### LOCAL DEPLOYMENT

### STANDALONE INSTALLATION AND USE



*Installation*



USER



## RAT web developments

### LOCAL DEPLOYMENT

#### THE FIRST WAY TO WORK WITH RAT

USER



• File1  
• File2  
• FileN

RISK ASSESSMENT  
SAVED FORMS

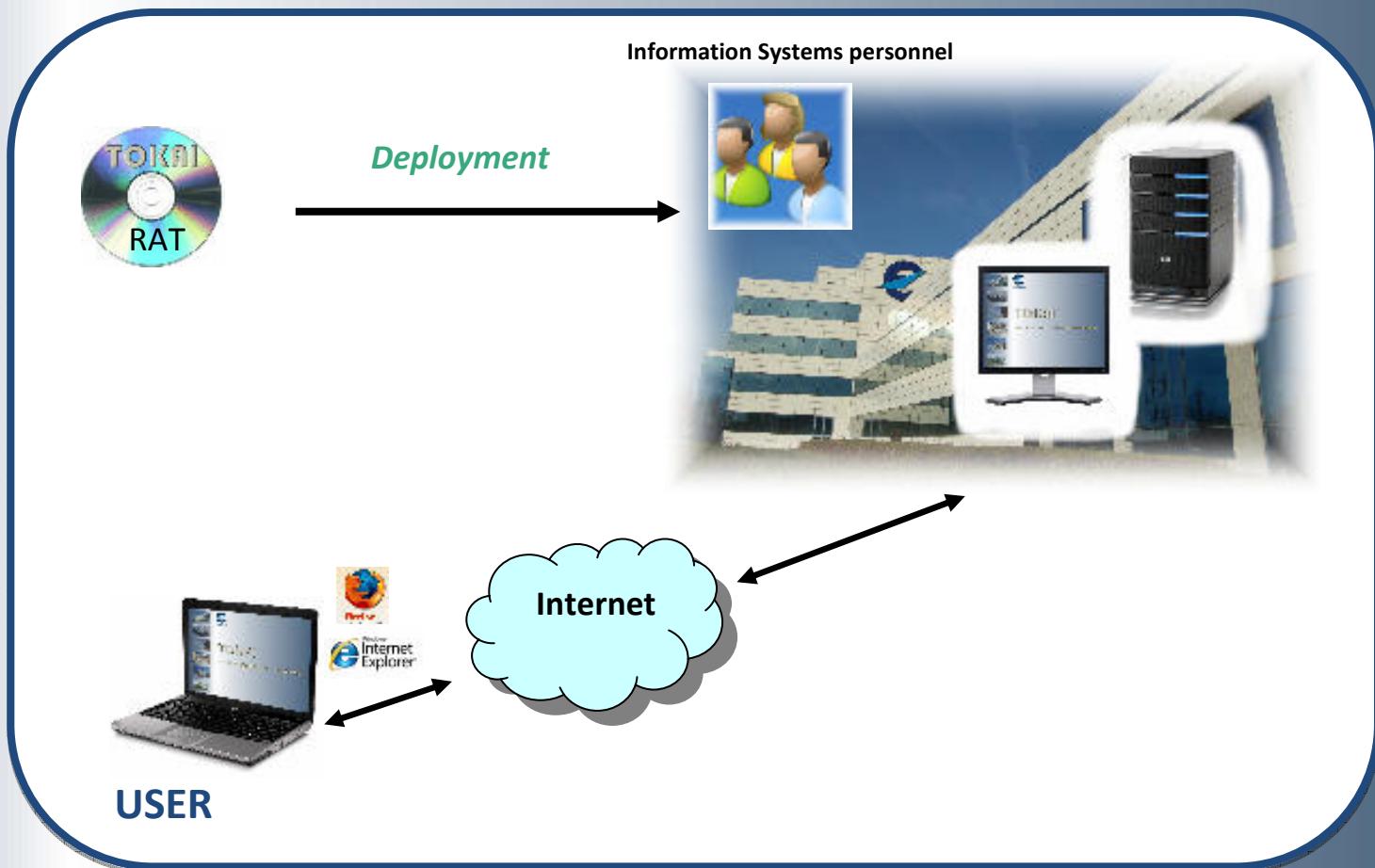
ANSP  
Corporate





## RAT web developments

### REMOTE LOCATION DEPLOYMENT





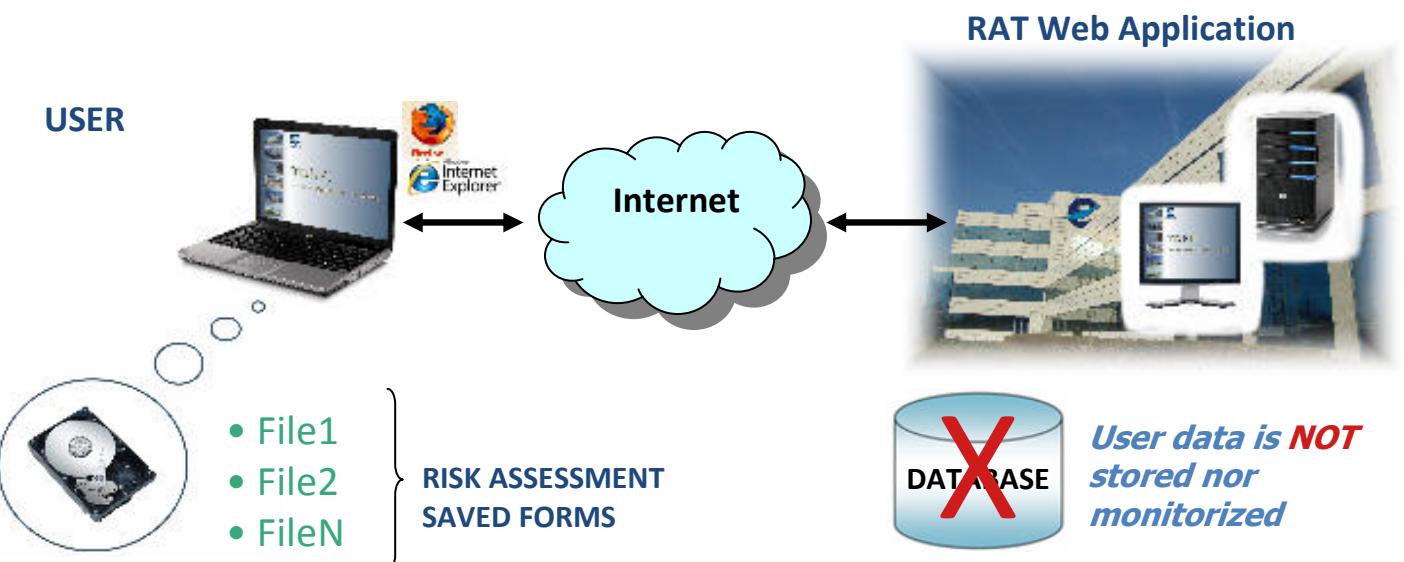
# RAT web developments



## REMOTE LOCATION DEPLOYMENT

### THE SECOND WAY TO WORK WITH RAT

#### The Public Scope





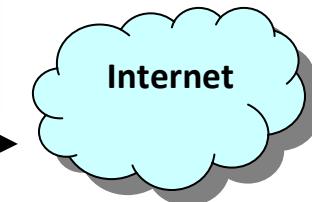
## RAT web developments

### REMOTE LOCATION DEPLOYMENT

#### THE SECOND WAY TO WORK WITH RAT

##### The Private Scope

USER



RAT Web Application



*Users can save data in Eurocontrol's Partitioned and Protected database*

- File1
- File2
- FileN

RISK ASSESSMENT  
SAVED FORMS



## RAT web developments

### ARCHITECTURE - COMPONENTS DESCRIPTION

#### RAT Components



ORACLE



- USERS
- ROLES
- USERS SAVED FORMS
- ...



## RAT Deliverables as of 1<sup>st</sup> of January

### RAT DELIVERABLES

Two different CD/DVD deliverables:

- For EUROCONTROL:  
Design, user manual and deployment documentation.  
Software and application components.
- For EUROCONTROL distribution to the users that  
prefers a standalone installation:  
User manual and application installer.



**Risk Evaluation Grid**

	A1	B1	C1	E1	D1
R1	A1	B1	C1	E1	D1
A2	B2	C2	E2	D2	
A3	B3	C3	E3	D3	
A4	B4	C4	E4	D4	
A5	B5	C5	E5	D5	

SEVERITY

Legend: █ ATM █ ATM Ground

**Risk Calculations**

ATM Risk	0.6
ATM Ground Risk	0.5

**Reliability Indicators**

Overall ATM	0.95
By Severity	0.95
By Repeatability	0.95
ATM Ground	0.95
Ground Severity	0.95
Ground Repeatability	0.95

**More than one aircraft**

Occurrence Severity: Enter the occurrence probability by selecting the most appropriate option in the drop down boxes below to calculate the severity of the occurrence. [?](#)

Risk of Collision: ATM Ground ATM Distance: 250 Comments: █ 250

Separation: ATM Ground ATM Distance: 250 Comments: █ 250

Date of Closure: ATM Ground ATM Distance: 250 Comments: █ 250

**Controllability**

ATM Ground: Comments: █ 250

Conflict Detection: Comments: █ 250

Plan: Comments: █ 250

Execution: Comments: █ 250

STCA: Comments: █ 250

Recovery: Comments: █ 250

ATM/Own Initiate/seen and avoid: Comments: █ 250

Pilot Action: Comments: █ 250

**Separation**

We have a calculated separation value is 0.95 of the interval ATM. It should be applied to the own trajectory. Example: if the separation achieved is 75% of the standard then you should reduce the ATM/Own interval. If the separation achieved is 100% of the standard then you should reduce the ATM/Own interval. If the separation achieved is 125% of the standard then you should increase the ATM/Own interval. When calculating the initial separation, there is no separation of the distance between aircraft, i.e. the calculated separation values are expert judgment, based on a range between 1 and 1.5. The calculated separation value will be calculated as a value of the separability factor. In case of no separation, no value will be recorded and the FF will be automatically increased. For each specific situation the value can not have and can be set by the investigator with a calculated value.

**GLOBE**

**Risk Matrix**

**RAT**

Risk Assessment Tool

**Risk Evaluation Grid**

	A1	B1	C1	E1	D1
RA	A1	B1	C1	E1	D1
RE	A2	B2	C2	E2	D2
RE	A3	B3	C3	E3	D3
RA	A4	B4	C4	E4	D4
RE	A5	B5	C5	E5	D5

SEVERITY

■ ATM ■ ATM Ground

**Risk Calculations**

ATM Risk	A1
ATM Ground Risk	B1

**Reliability Indicators**

Overall ATM	III Rn
Atv. Severity	III Rn
Atv. Repeatability	III Rn
ATM Ground	III Rn
Env. Severity	III Rn
Env. Repeatability	III Rn

**More than one aircraft**

**Occurrence Severity**

**Occurrence Repeatability**

Enter the occurrence severity for each of the 5 aircraft in the occurrence severity table. The severity of the aircraft is the highest of the 5 aircraft.

**Systemic Issues**

Category	ATM	ATM Ground	Comments
Procedures	Procedural ORIENTATION	II + Procedural IMPLEMENTATION	II +
Equipment	Equipment DESIGN	II + Equipment DESIGN	II +
Human Resources Management	Human resource management (staff planning)	II + Human resource management (staff planning)	II +

**Non-Systemic Issues**

Category	ATM	ATM Ground	Comments
Other Contributing Factors	Other contributing factors (XXXX)	II +	250
ATC Causal/Contributing factors			
Pilot Causal/Contributing factors			

**Window of Opportunity**

Situation	Flight Router
Working Methods	Manual

Click to open Causal / Contributing Factors window

Overall ATM and ATM Ground Reliability Indicators with colour degraded progress bars

**Causal / Contributing Factors window**

**ATM**

**ATM Ground**

**Comments**

- Other Contributing factors
- Human resource management
- Procedural ORIENTATION
- Procedural IMPLEMENTATION
- Equipment DESIGN
- Human resource management (staff planning)
- Other contributing factors (XXXX)
- ATC Causal/Contributing factors
- Pilot Causal/Contributing factors
- Flight Router
- Manual

- You can save comments or remarks about your selections.
- It's limited to 250 characters.

The screenshot shows the Risk Assessment Tool (RAT) interface. At the top, the logo 'EUROCONTROL' and the acronym 'RAT' are displayed. The toolbar includes icons for Home, Save, Open, Find, Copy, Paste, and Help. A red arrow points to the 'Save' icon. A yellow arrow points to the 'Save as File' button in a modal dialog box. Another yellow arrow points to the 'type a description' input field in the same dialog box.

**Risk Evaluation Grid**

	AA1	A1	B1	C1	E1	D1
REPEATABILITY	AA2	A2	B2	C2	E2	D2
	AA3	A3	B3	C3	E3	D3
SEVERITY	AA4	A4	B4	C4	E4	D4
	AA5	A5	B5	C5	E5	D5

**Risk Calculations**

ATM Risk	E1
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**Reliability Indicators**

Overall ATM	40%
Ov. Severity	0%
Ov. Repeatability	80%

**Save Marksheets Form**

SAVE MARKSHEET FORM

You can choose to save the form into a disk file or type a description to save the form into the user's saved forms area.

**Save as File**

**type a description**

**CLOSE**

- Save Marksheets Form into a disk file.
- This file will be in XML format.

- Save Marksheets Form into the user's saved forms area.
- Internally saved into database.

The screenshot shows the Risk Assessment Tool (RAT) interface. At the top, the EUROSIM logo and the word "RAT" are displayed. The toolbar includes icons for Home, Undo, Redo, Save, Print, and Help. A red arrow points from the "Print" icon in the toolbar to the "User Forms Management" dialog box.

**User Forms Management**

USER FORMS = 5 marksheet forms

SEARCH:

ACTION	MARKSHEET FORM DESCRIPTION	DATE
1	My Marksheets Form - More than one aircraft	2010-11-22
2	Incidence #2334	2010-11-24
3	Incidence #8762	2010-11-24
4	Incidence #1232	2010-11-24
5	Incidence #5432	2010-11-24

**Risk Evaluation Grid**

REPEATABILITY	AA1	A1	B1	C1	E1	D1
AA2	A2	B2	C2	E2	D2	
AA3	A3	B3	C3	E3	D3	
AA4	A4	B4	C4	E4	D4	
AA5	A5	B5	C5	E5	D5	

SEVERITY

**Risk Calculations**

ATM Risk: E1

**Reliability Indicators**

Overall ATM	40%
Ov. Severity	0%
Ov. Repeatability	80%

**Click to Open selected User Form**

**Click to Delete selected User Form**

**RAT**

Risk Assessment Tool

**Risk Evaluation Grid**

	A1	B1	C1	E1	D1
A1	Low	Medium	Medium	Medium	Medium
A2	Medium	Medium	Medium	Medium	Medium
A3	Medium	Medium	Medium	Medium	Medium
B1	Medium	Medium	Medium	Medium	Medium
B2	Medium	Medium	Medium	Medium	Medium
C1	Medium	Medium	Medium	Medium	Medium
E1	Medium	Medium	Medium	Medium	Medium
D1	Medium	Medium	Medium	Medium	Medium

**Risk Calculations**

ATM Risk	06
ATM Ground Risk	05

**Reliability Indicators**

Overall ATM	0.98
Av. Safety	0.98
Av. Repeatability	0.98
ATM Ground	0.98
Land Safety	0.98
Land Repeatability	0.98

**More than one aircraft**

**Occurrence Severity**

Enter the occurrence criterion by selecting the most appropriate options in the drop down boxes below to calculate the severity of the occurrence. [?](#)

**Risk of Collision**

ATM Ground	0.98
Separation	0.98
Rate of Closure	0.98

**Controllability**

ATM Ground	0.98
Conflict Detection	0.98
Plan	0.98
Execution	0.98
STRA	0.98
Recovery	0.98
TCAS/Rain Initiative Can and avoid	0.98
Pilot Action	0.98

Click to hide / show left panel

**RAT**

Risk Assessment Tool

**More than one aircraft**

**Occurrence Severity**

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**Risk of Collision**

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STRA	0.98
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Pilot Action	0.98



**Questions ?**

**Demo**