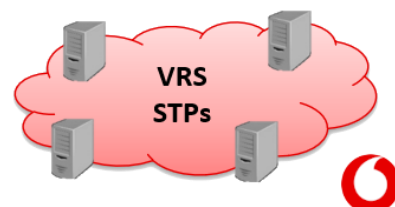


# VRS Engineering Tool

User Manual 

v1.0.0.0



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## Introduction

VRS Engineering Tool is an application which its purpose is to facilitate daily tasks to Vodafone Roaming Services engineering team.

## Prerequisites

To be able to run the application, there is a requisite that must be met.  
The following software must be present in the computer where the application is going to be installed:

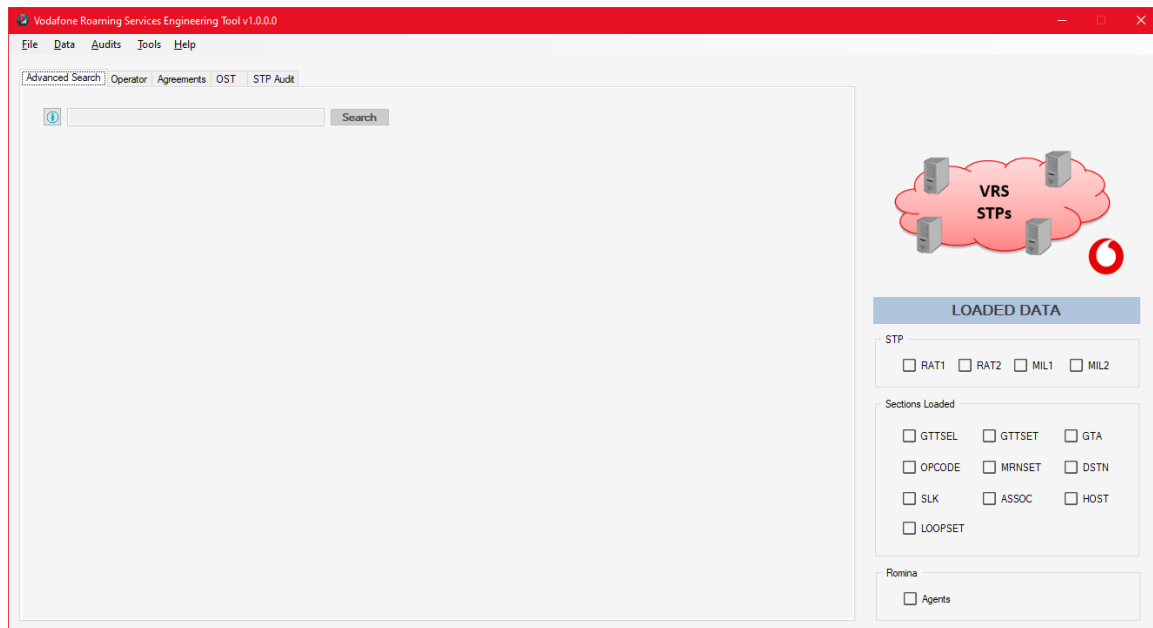
- 1. Microsoft .NET Framework 4.5.2**

The installation program itself will notify this when being executed and will offer the possibility to perform its installation as well.

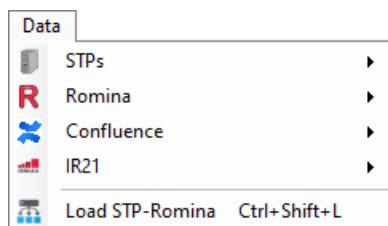
# Overall Application View

## User Interface

Once the application is launched, the following window will be displayed.



To work with the application, data must be loaded (STPs, Romina or Confluence).

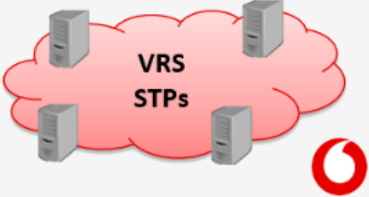


Once and depending on loaded data we can perform several actions:

- **Advanced Search**  
This section provides the ability to obtain Romina Agents information offline.
- **Operator**  
This section provides both Romina Agents and OST information depending on loaded data associated to a searched operator.
- **Agreements**
- OST
- STP Audit
- Audits

## Loaded Data

As data is loaded, this section will reflect which type is stored in memory to work with.



### LOADED DATA

STP

☒ RAT1 ☐ RAT2 ☐ MIL1 ☐ MIL2

Sections Loaded

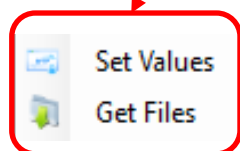
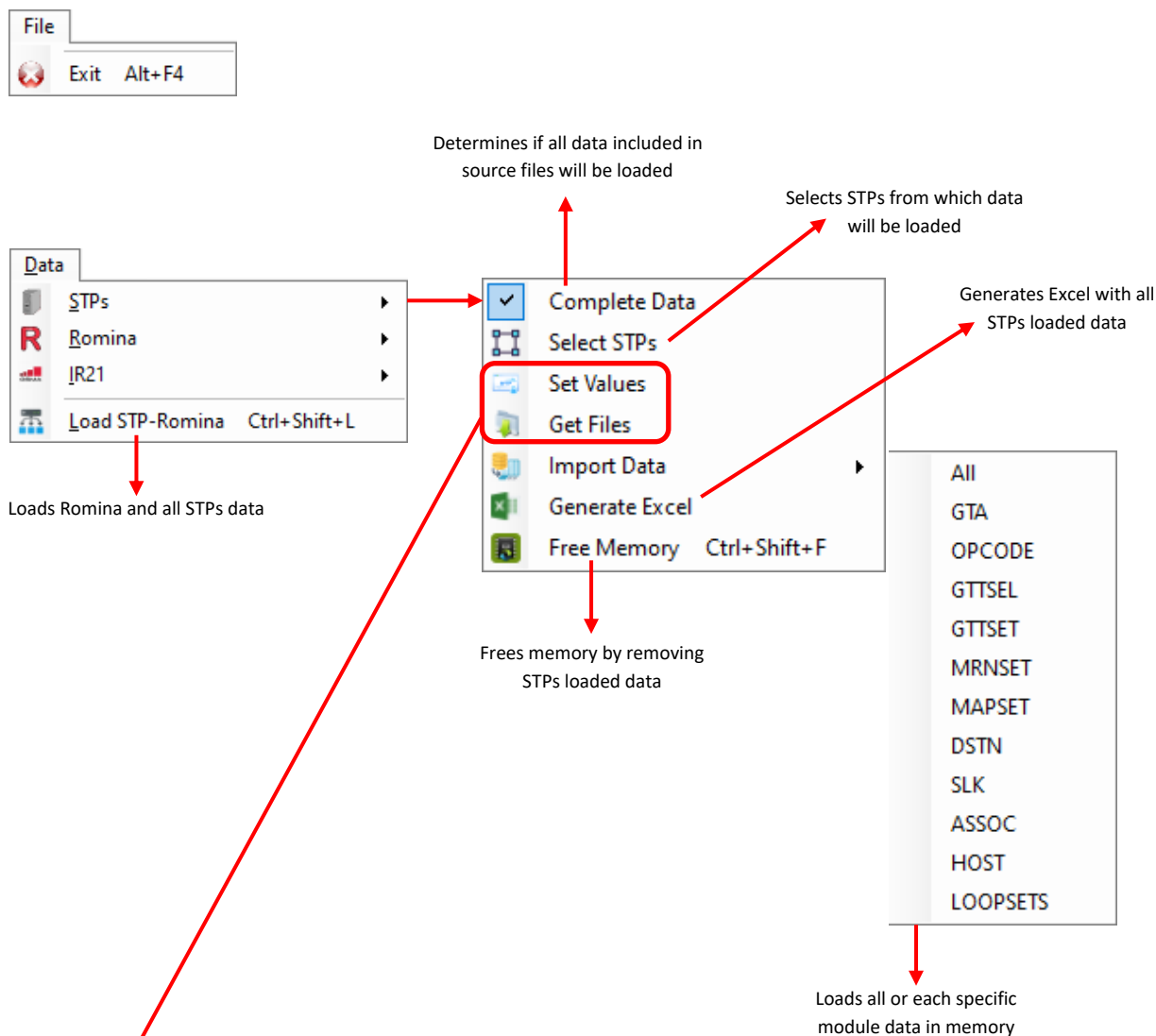
<input checked="" type="checkbox"/> GTTSEL	<input checked="" type="checkbox"/> GTTSET	<input checked="" type="checkbox"/> GTA
<input checked="" type="checkbox"/> OPCODE	<input checked="" type="checkbox"/> MRNSET	<input checked="" type="checkbox"/> DSTN
<input checked="" type="checkbox"/> SLK	<input checked="" type="checkbox"/> ASSOC	<input checked="" type="checkbox"/> HOST
<input checked="" type="checkbox"/> LOOPSET		

Romina

☒ Agents

## Menu interface

The application menu will let us perform several actions. **File Data Audits Tools Help**



SFTP values needed to obtain source files of OST from Eagle STPs

**SFTP Values**

Remote Server:

Remote Path:

Local Path:

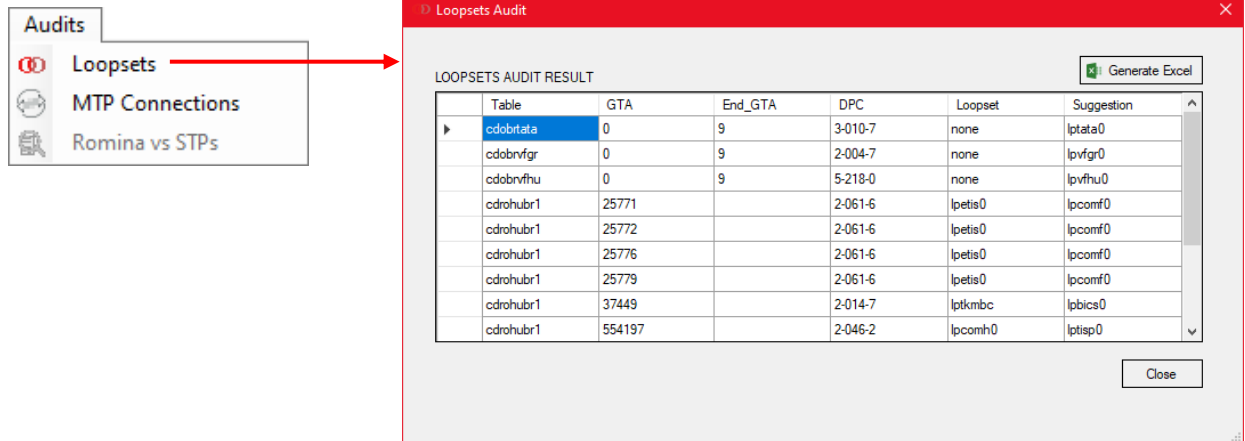
**SFTP Authorization**

User:

Password:

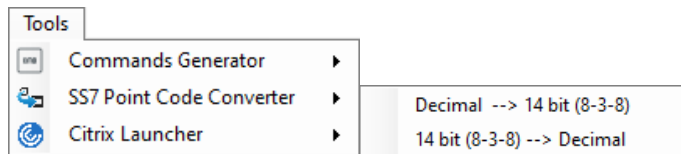
User and Password of user to connect to machine with source files by SFTP

Checks GTA table data in which point codes don't meet corresponding Loopset.

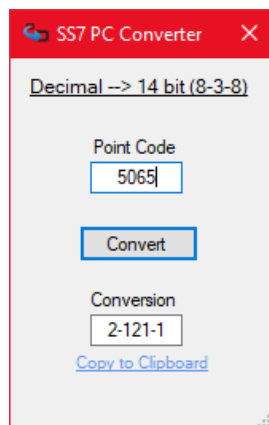


It also provides the chance to generate an Excel file with the results.

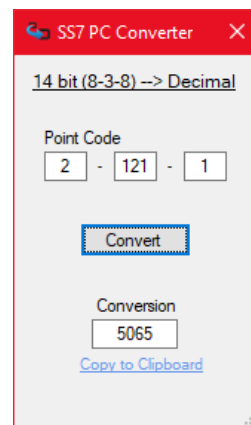
Under Tools section we have an SS7 Point Code Converter to translate point codes from decimal to 14 bit (8-3-8):



Decimal → 14 bit



14 bit → Decimal



## Advanced Search

This section provides the ability to obtain **Romina Agents** information offline by using certain keywords in the search textbox (*Romina data needs to be loaded*).

The screenshot shows the 'Advanced Search' interface with tabs for 'Operator', 'Agreements', 'OST', and 'STP Audit'. A search query 'SPAIN' is entered in the search box. Below the search box, a table titled 'ROMINA AGENTS' displays the following data:

Type	TSC	Country	Name	IMSI	MGT
Hubbed Operator	ESPAT	Spain	VF	21401	34607
3rd Party Operator	ESPOR	Spain	Orange2	21409	34654
3rd Party Operator	ESPRT	Spain	Orange	21403	34656
3rd Party Operator	ESPT2	Spain	Telefonica_MovilesMVNO	21405	34648
3rd Party Operator	ESPT2	Spain	Telefonica_Moviles	21407	34609
Hubbed Operator	ESPVV	Spain	VFMVNO	21406	34607
Hubbed Operator	ESPMF	Spain	Yoigo	21404	34622

Below the table, the search query 'SPAIN' is displayed, and the number of elements found is 7.

Search query typed in textbox

Number of elements found with query

## Search Types

- **Generic**  
Any agent whose TSC, MGT, IMSI, or Name contains the typed value.
- **Specific**  
Any agent whose TSC, MGT, IMSI, or Name is exactly as typed inside quotes --> (Example "2050").
- **By Field**  
Available fields to filter with (both the entire field name or each code can be used):
  - TSC (T)
  - MGT (MG)
  - IMSI (I)
  - NAME (NA)
  - NGT (NG)
  - MSISDN (MS)

### Some examples

I 214 → Will show any agent that has the imsi containing 214.

IMSI "21401" → Will show any agent that has imsi 21404.

NA "VF" → Will show any agent which its name is exactly VF.

### Additional search parameter S

Both in Generic and By Field searches, we can include -S to search info starting with the typed value.

-S 210 → Will meet any agent that has a field that starts with 210.

I-S 210 → Will meet any agent which its IMSI starts with 210.



Once search results are displayed, by selecting one of the results related info will be shown (STP information will also be displayed if OST data is loaded).

Advanced Search Operator Agreements OST STP Audit

Search

ROMINA AGENTS

Type	TSC	Country	Name	IMSI	MGT
Hubbed Operator	ESPAT	Spain	VF	21401	34607
3rd Party Operator	ESPOR	Spain	Orange2	21409	34654
3rd Party Operator	ESPT2	Spain	Orange	21403	34656
3rd Party Operator	ESPT2	Spain	Telefonica_MovilesMVNO	21405	34648
3rd Party Operator	ESPT2	Spain	Telefonica_Moviles	21407	34609
Hubbed Operator	ESPVV	Spain	VFMVNO	21406	34607
Hubbed Operator	ESPXF	Spain	Yoigo	21404	34622

Search query: SPAIN Number of elements found: 7

Operator Details

TSC: ESPAT IMSI: 21401 MGT: 34607 NGT: 34697 MSISDN: 34590600, 34600, 346024, 346025, 346026, 346031, 346032, 346033, 346034, 346035, 346036, 346037

Name: VF Country: Spain Type: Hubbed Operator

STP Data

MRNSET: 144 ITU PC: 2-029-6 LOOPSET: lpvres0

DPCs: 2-240-7, 2-029-6, 2-029-7, 7-254-0

CLLI: Upper range

In the operator detail sections, by clicking each of the highlighted fields in below image we will copy related info to system clipboard.

Copies both the entire list by clicking MSISDN and a specific value by clicking each one

Operator Details

TSC: ESPAT IMSI: 21401 MGT: 34607 NGT: 34697 MSISDN: 34590600, 34600, 346024, 346025, 346026, 346031, 346032, 346033, 346034, 346035, 346036, 346037

Name: VF Country: Spain Type: Hubbed Operator

STP Data

MRNSET: 144 ITU PC: 2-029-6 LOOPSET: lpvres0

DPCs: 2-240-7, 2-029-6, 2-029-7, 7-254-0

CLLI: lpvres20296 Upper range

If marked indicates that routing data is related to an upper range that affects operator MGT

## Operator

This section provides Romina (loaded data required) and STP (in case it is loaded) information for an operator searched by either TADIG, MGT or IMSI.

Search

Source

Romina

TSC

MGT

IMSI

Search

## Romina info

TSC

ESPAT

IMSI

21401

MGT

34607

Name

VF

Country

Spain

Type

Hubbed Operator

MSISDN

34590600  
34600  
346024  
346025  
346026  
346031  
346032  
346033  
346034  
346035  
346036  
346037

NGT

34697

Audit STP Configuration

By clicking each of the highlighted fields related info will be copied to system clipboard.

## STP info

STP Data

MRNSET

144

ITU PC

2-029-6

LOOPSET

lpvfes0

OPTSN

-----

NP1 Routing

DPCs

2-240-7  
2-029-6  
2-029-7  
7-254-0

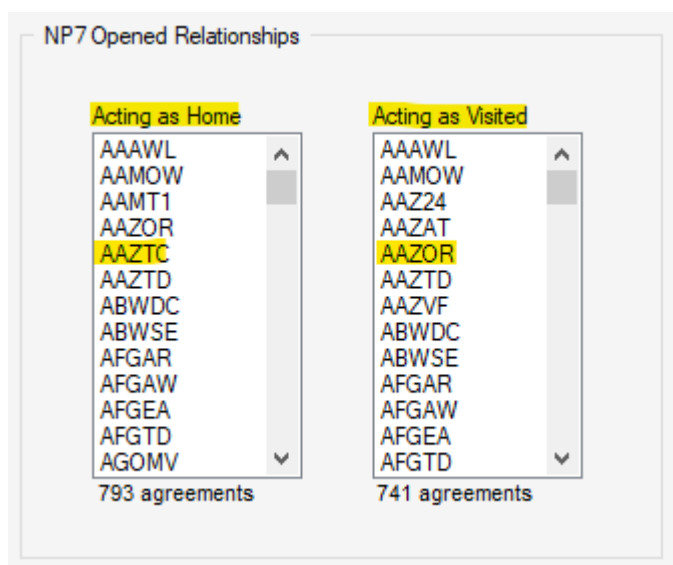
CLLI

vfes22407

By clicking each of the highlighted fields related info will be copied to system clipboard.

## NP7 Opened Relationships

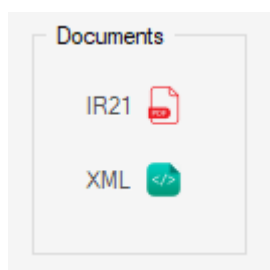
Numbering Plan 7 relationships opened in STPs both acting as Visited and as Home.



By clicking each of the highlighted fields related info will be copied to system clipboard.

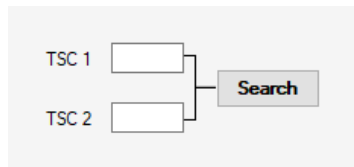
## Documents

Link to corresponding IR21 document PDF and XML files in case they are present in selected documents associated folder path (**Not working in current version**).



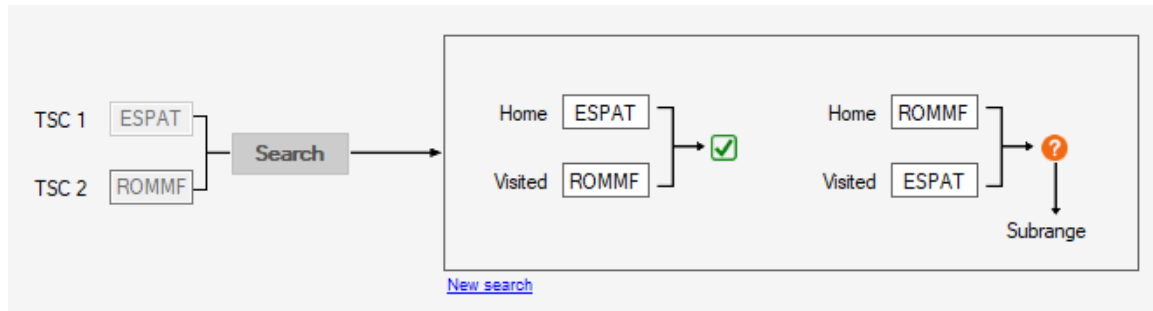
## Agreements

This section provides the possibility to check if the agreements between two operators are opened in the STPs configuration.



A search interface with two input fields labeled 'TSC 1' and 'TSC 2'. Each field has a small rectangular box next to it. A bracket connects the two boxes to a 'Search' button.

Once operators are defined and search is completed, result will show four possible status:



✓ Opened

✗ Not opened

?

- Existing upper range
- Existing subrange

## OST

This section provides the ability to check all STPs configurations and to apply desired filters. With these filters, excel files with specific information can be generated.

Each of the STPs info can be selected in case it has been loaded (only affects current section)

Generates an Excel file with all OST data loaded, taking in consideration any filter applied

Clears all filters applied in any section

The screenshot shows the OST application interface with several filter sections at the top: GTA, OPCODE, GTTSEL, GTTSET, MRNSET, MAPSET, DSTN, SLK, ASSOC, HOST, and LOOPSET. Below these are input fields for each section. A red box highlights the 'STP' dropdown menu under the 'GTA' section, which is currently set to 'RAT1'. To the right of the filter sections are two buttons: 'Clear Filters' and 'Generate Excel'. Below the filter sections is a large table with columns: Table, Start\_GTA, End\_GTA, XLAT, RI, ITU\_PC, MRNSET, MAPSET, SSN, GTMODID, and LOOPSET. The table contains 15 rows of data. At the bottom of the table, there are two buttons: 'Clear Section Filter' and 'Generate Section Excel'. To the right of the table, it says 'Number of records: 157.116'.

Clears filter applied in current section

Generates Excel file with current section taking in consideration applied filter

Number of records taking in consideration applied filter

Textbox filter (with \* we can use start with condition)

Clears filter

By clicking each of the headers, all elements in list will be copied to the system clipboard

The screenshot shows the OST application interface with a filtered list of data. The 'TABLE' section has a text input field containing 'cdroh\*'. Below this is a list of items: 'cdrohbr1' and '64244'. The 'GTA' section has a dropdown menu set to '64244'. The 'ITU\_PC' section has a dropdown menu set to '2-167-1'. The 'MRNSET' section has a dropdown menu set to '134'. The 'MAPSET' section has a dropdown menu set to '--'. The 'SS' section has a dropdown menu set to '--'. Below the list is a table with columns: Table, Start\_GTA, End\_GTA, XLAT, RI, ITU\_PC, and MR. The table contains 1 row of data: 'cdrohbr1', '64244', '64244', 'dpcngt', 'gt', '2-167-1', and '134'.

List selection filter

# STP Audit

In this section, different audits of the STPs configuration can be performed, depending on the loaded data.

For this section to be enabled, all STPs data must be loaded.

STP RAT1 will be the node with which the comparisons will be made.

Audit type to be performed (also shows specific audit type results once audit has been performed).  
If **All** option is selected, an audit of all loaded modules will be performed.

Type 

All

Run Audit

 (Data from the 4 STPs must be loaded to be able to perform these audits)

RAT1

RAT2

MIL1

MIL2

Missing in RAT1... 98

Missing in RAT2... 17

Differences..... 37

Missing in RAT1... 97

Missing in MIL1... 17

Differences..... 25

Missing in RAT1... 98

Missing in MIL2... 17

Differences..... 31

Audits Performed

✓

GTTSEL

✓

OPCODE

✓

SLK

✓

GTTSET

✓

MRNSET

✓

ASSOC

✓

GTA

✓

DSTN

Generate Excel

Generates an Excel will all audits result

Page 13

Once an audit is performed, if a module is selected in type list, we will have the option to generate a specific Excel file with module's audit results, and to see a slight presentation of those results by clicking each of the STPs audit results sections:

Button to generate Excel file with current module audit results

Type: **GTTSET** Run Audit (Data from the 4 STPs must be loaded to be able to perform these audits)

**RAT1**

**RAT2**

- Missing in RAT1... 9
- Missing in RAT2... 0
- Differences... 16

**MIL1**

- Missing in RAT1... 8
- Missing in MIL1... 0
- Differences... 11

**MIL2**

- Missing in RAT1... 8
- Missing in MIL2... 0
- Differences... 11

**RAT2** -> Missing records in RAT1

GTTSN	TYPE	CHECKM	SETIDX
cdsrle2t	CDGTA	---	939
cdsrle3t	CDGTA	---	39
cdsrle4t	CDGTA	---	40
cdsrra2t	CDGTA	---	41
cdsrra3t	CDGTA	---	42
cdsrra4t	CDGTA	---	43
ogm2mpoc7	CGGTA	---	20
ocm2mpoc	OPCODE	off	13