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INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

AFI Regional Workshop on SSR Mode S II Code and 24 Bits Addresses assignment

FREQUENCY FINDER TOOL

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ICAO

Accra, Ghana | 24 to 27 October 2023

Before attending the workshop

Participants are encouraged to:

- Install the latest version of Frequency Finder software(***FF2023.03.RT.exe***) to the computers
- https://www.icao.int/safety/FSMP/Pages/Documents.aspx?RootFolder=%2Fsafety%2FFSMP%2FDocuments%2FFrequencyFinder&FolderCTID=0x012000B1461A5DA8C64241AA4DE4F91CB1D9AF&View=%7BE11C4C29%2DDD83%2D4B87%2DAAAE%2D2330E3DE14D8%7D
- Install Google Earth to the computer (https://www.google.com/earth/versions/#earth-pro)

Note. – For more details refer to the User Manual : Installing Frequency Finder (Run-time version)

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Participants **must bring**:

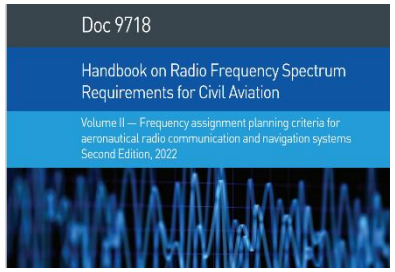
- **their Windows PC** that has the runtime version of the **Frequency Finder** software and **Google Earth** installed in it.

ABOUT THE FREQUENCY FINDER TOOL

- Frequency Finder has been developed with FileMaker Pro Advanced

- Graphical interface with Google Earth

- Frequency assignment planning criteria as per the Handbook Volume II implemented



- Plotting interference
- VHF COM Module and NAV Module in the Frequency Finder tool. Also, SSR II/SI Code stand-alone Module is available.
- Global COM list 2, COM list 3 and Table of SSR Mode S II Codes are maintained by Regional Offices

- Calculation of interference areas, assessing compatibility between frequency assignments /searching for compatible SSR II /SI codes

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Prep for FF operation

1. Download Runtime version of the Frequency Finder

Download from the FSMP website the zip-file
FF2023.03.RT.exe
www.icao.int/safety/fsmp/documents/frequencyfinder

Remove earlier version of Frequency Finder, if any.

Unzip and run the installer file FF2023.03.Rsetup.exe

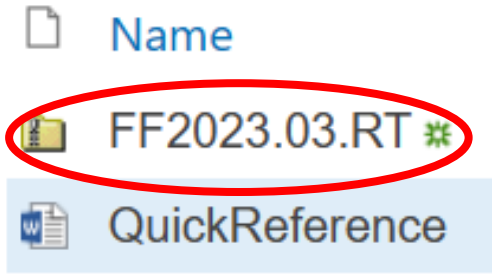
Select to create desktop icon

--See next slides

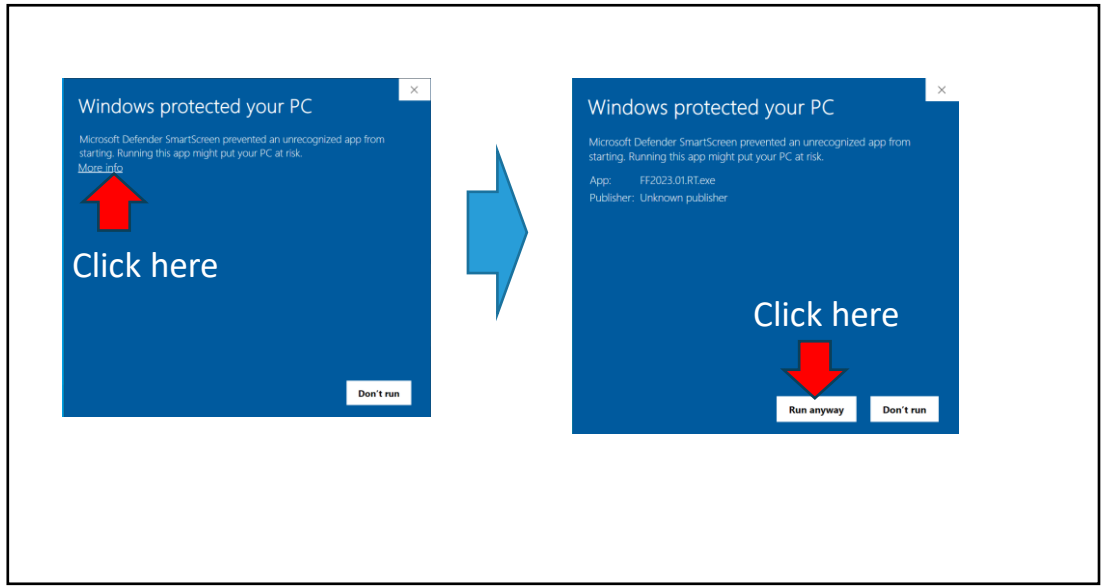
1. *Go to the FSMP website. Unzip and run the installer file.* ***(FF2023.03.RT)***
2. ***Depending on the Windows version, you might get security related checks like below. In that case, please act as required.***

①

www.icao.int/safety/fsmp/documents/frequencyfinder



②



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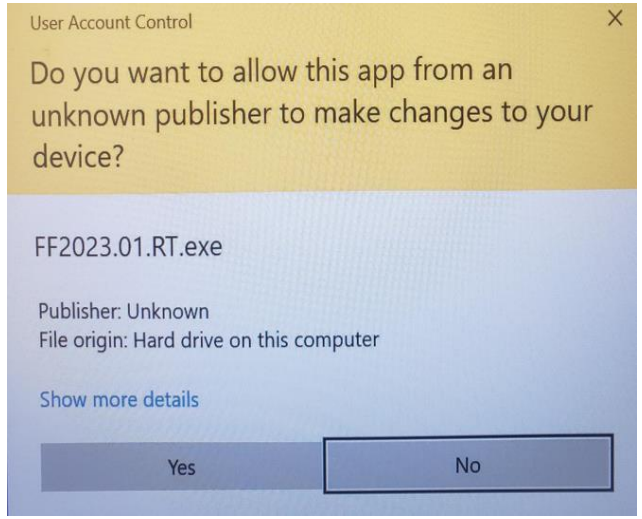
3. *Click "Yes" in the Welcome to the Setup Wizard message*
4. *Click "Next" in Select Start Menu Folder*
5. *Check ☑ to Create a desktop shortcut and click "Next" in Select Additional Tasks message*

3



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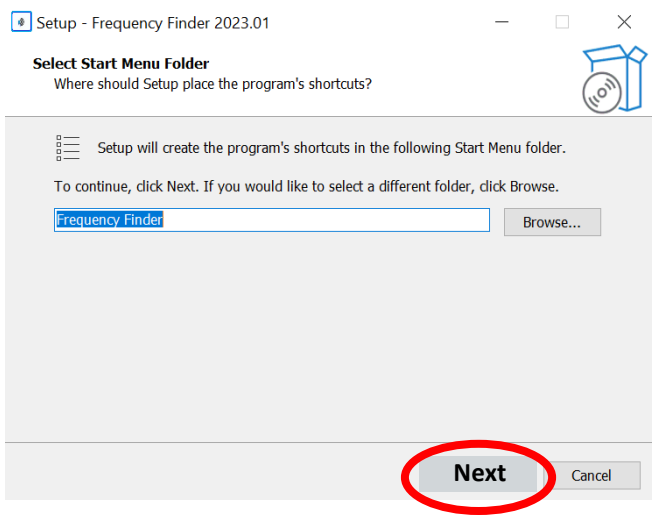

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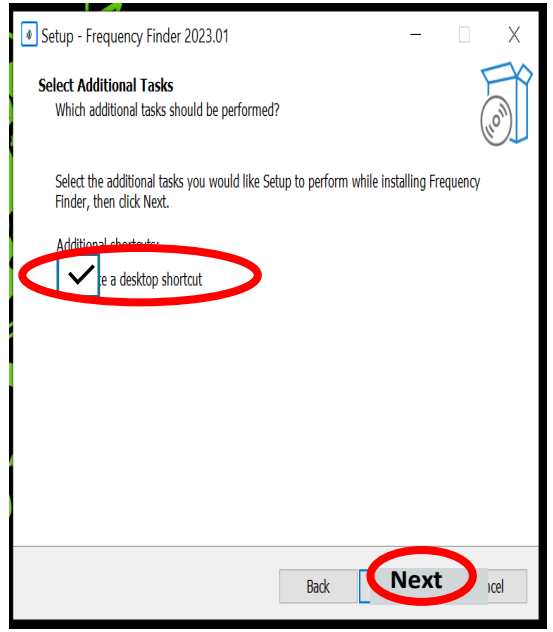
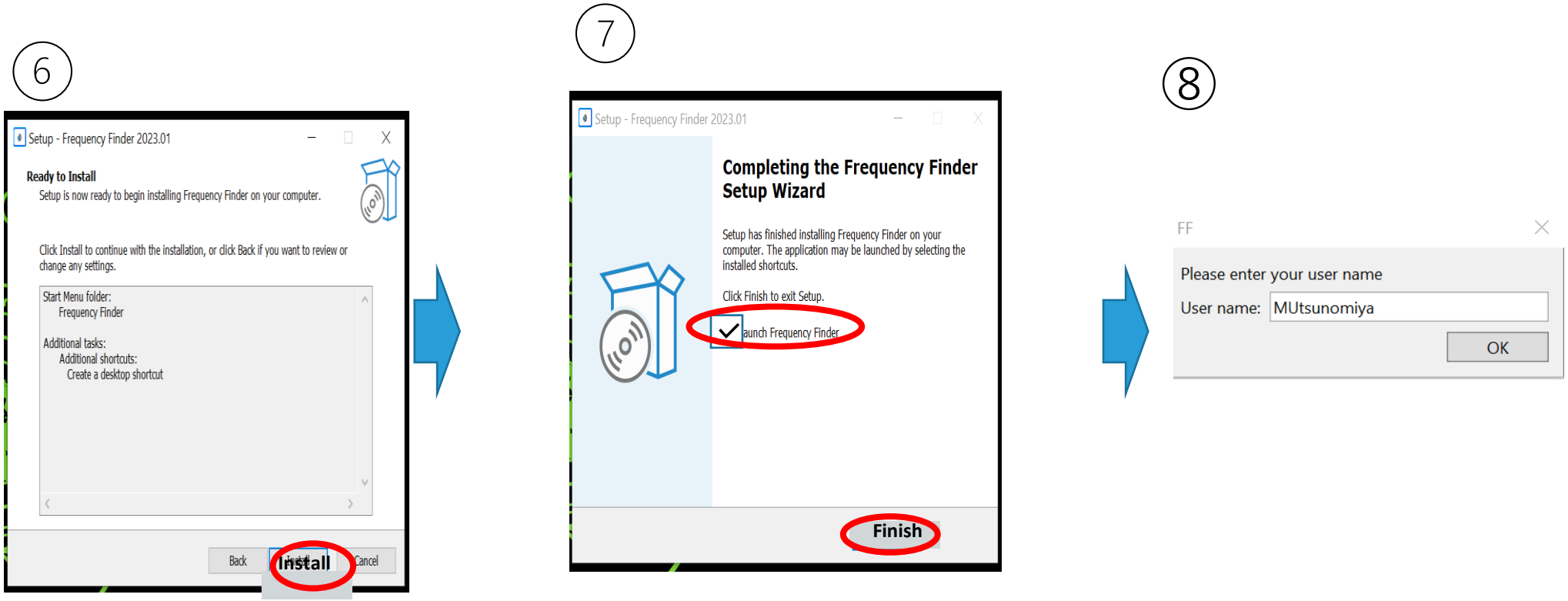


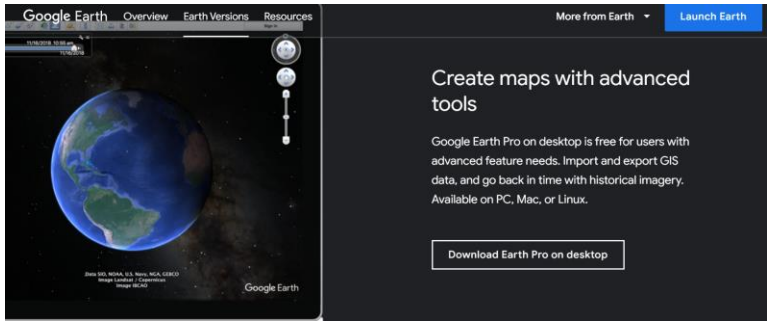
6. *Click “Install” reply to a message, Ready to Install,*
7. *Check ☑ to Launch Frequency Finder and click “Finish” for completing the Frequency Finder Setup Wizard.*
8. *Enter your user name (enter your user name, see example)*



Prep for FF operation

2. Download and install google Earth

https://www.google.com/earth/versions/#earth-pro

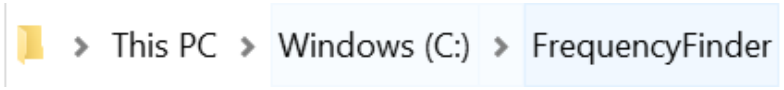


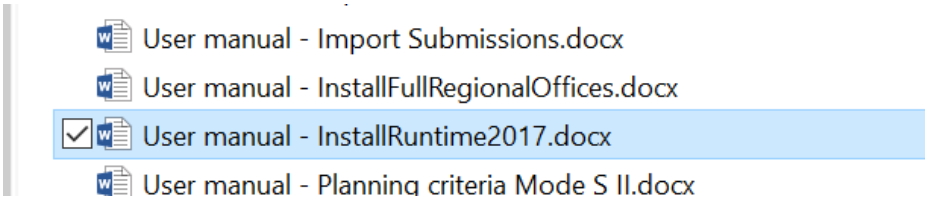
The following settings in Google Earth are recommended:

Tools -> Options
-> Navigation -> set Fly-To Speed to Fast
-> Navigation ->Click “Do not automatically tilt while zooming”
-> General-> click KML Error Handling: Silently accept all unrecognized data.

3. More details can be found in the user manual:

(Installing Frequency Finder(Run-time version))





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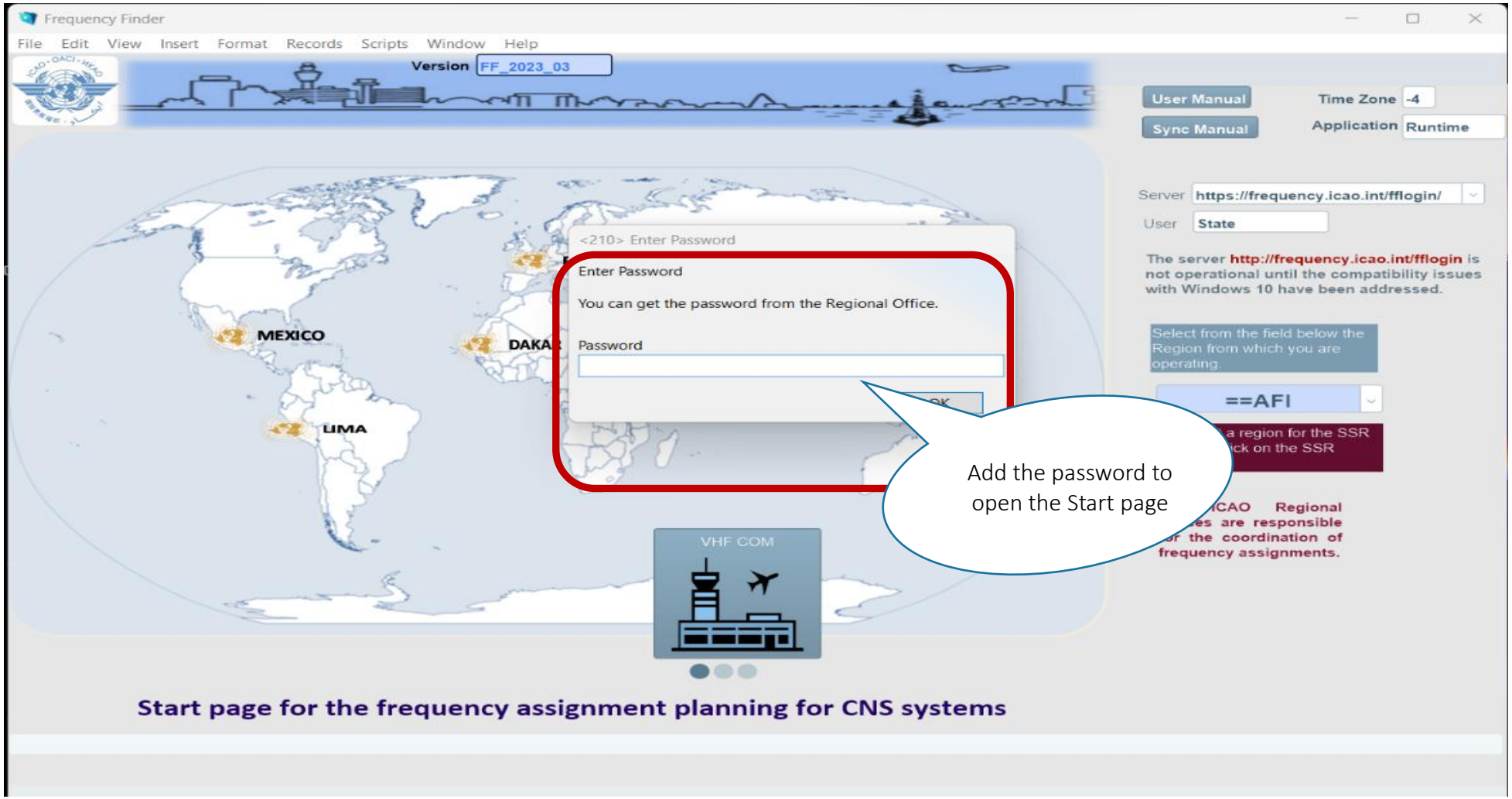
Exercises- Start page/Home page

Open Frequency Finder - Start page



Start page and the selection of SSR II/SI module

Select your region

==AFI

You can select COM, NAV or SSR II/SI

Select "SSR II/SI"

Start page and SSR II/SI Home page

Start

① *Click "AFI"*

② *Click "SSR II/SI"*

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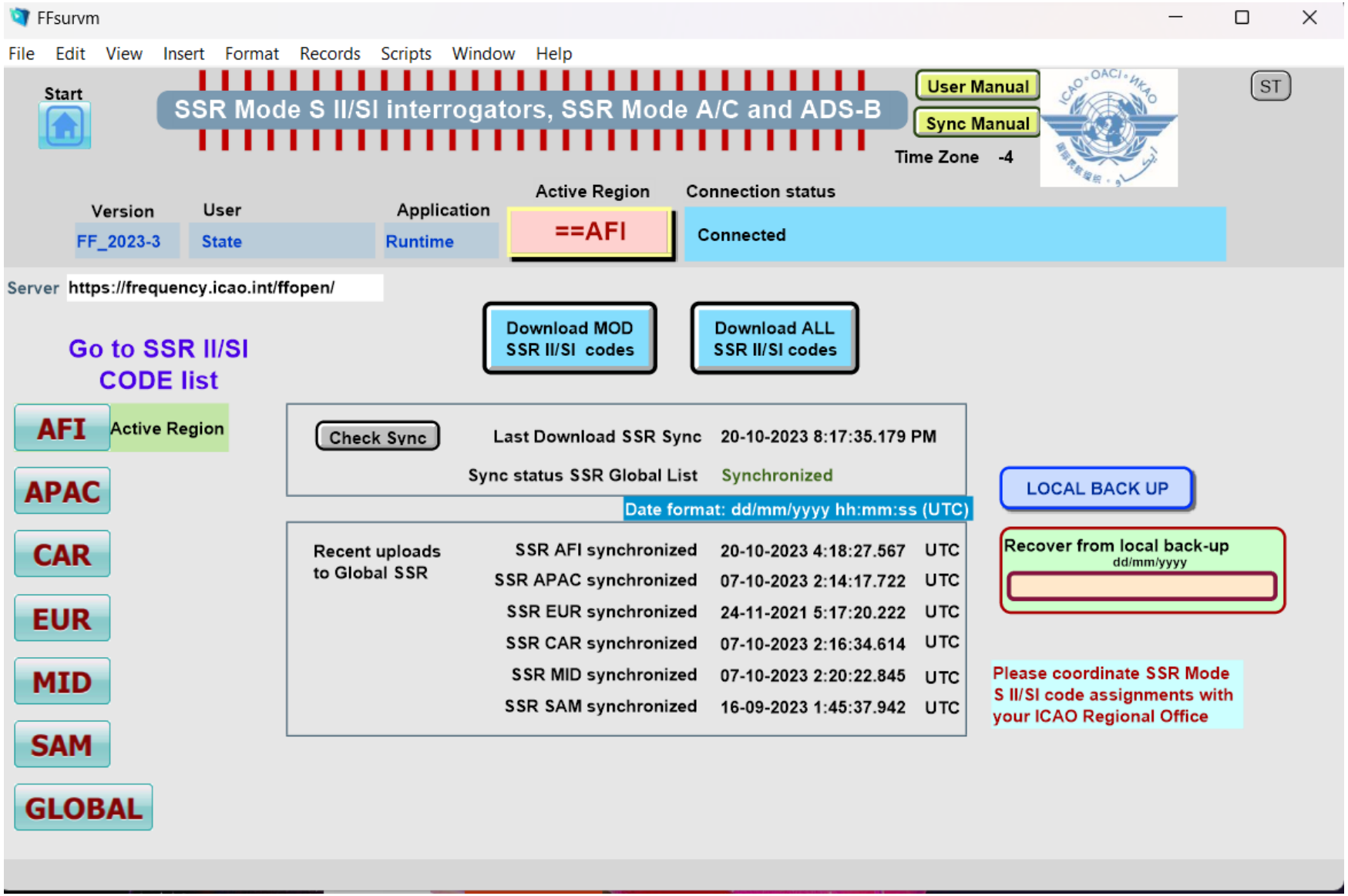
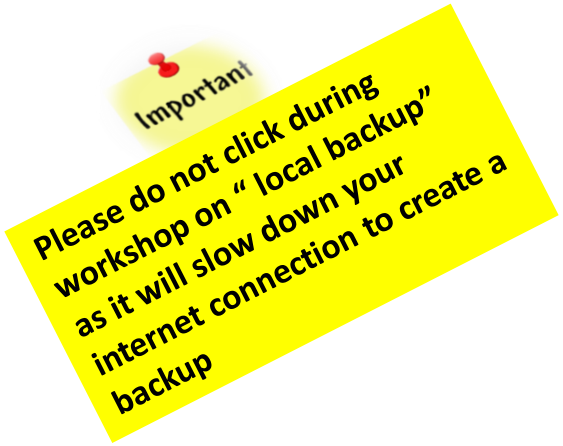
Home page SSR II/SI

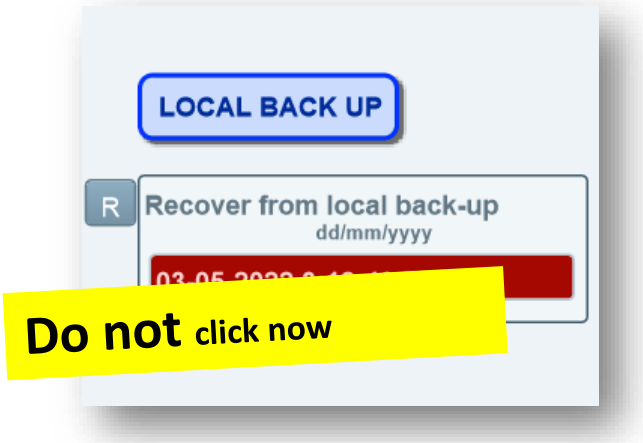


Home page SSR II/SI Code list
Back-up and recovery

Click “LOCAL BACK UP” to create a backup

Click “R” to recover from local backup





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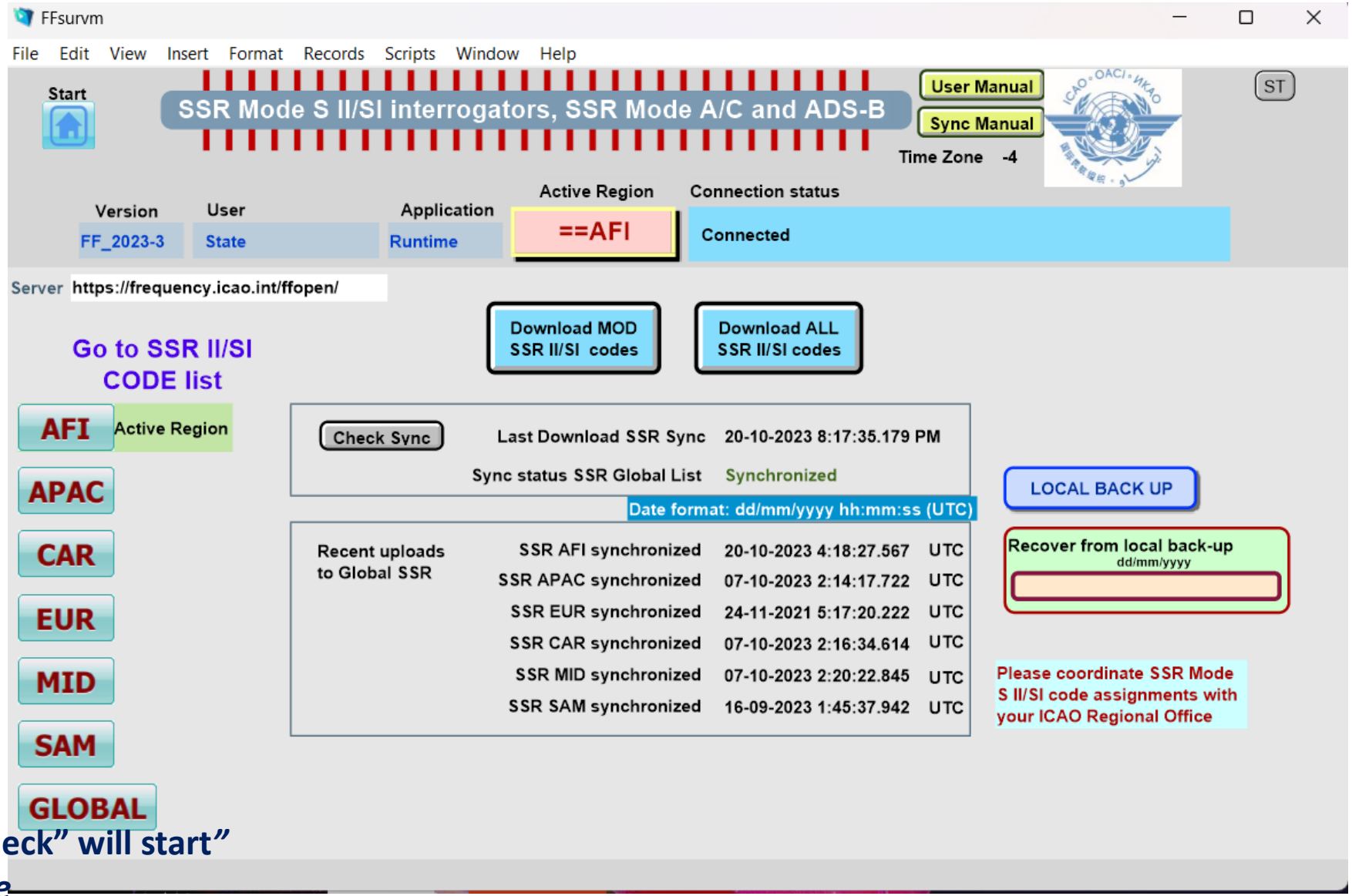
Exercises- Integrity Check

Integrity Check

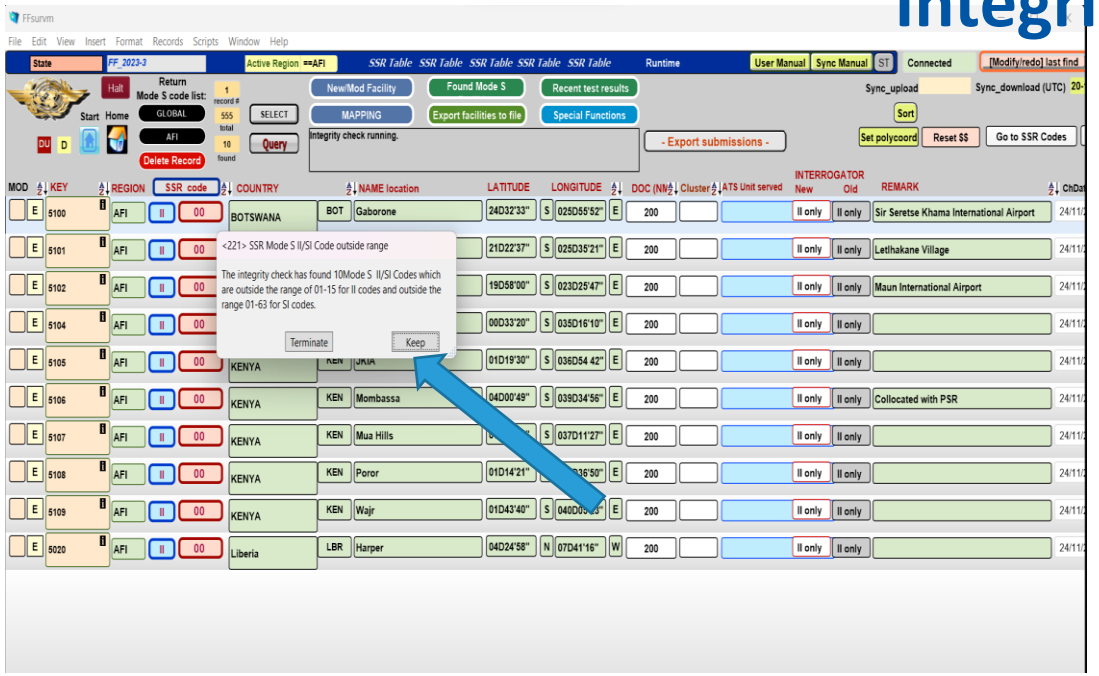
1 Click "AFI"



2 "Integrity Check" will start"

– See Next slide

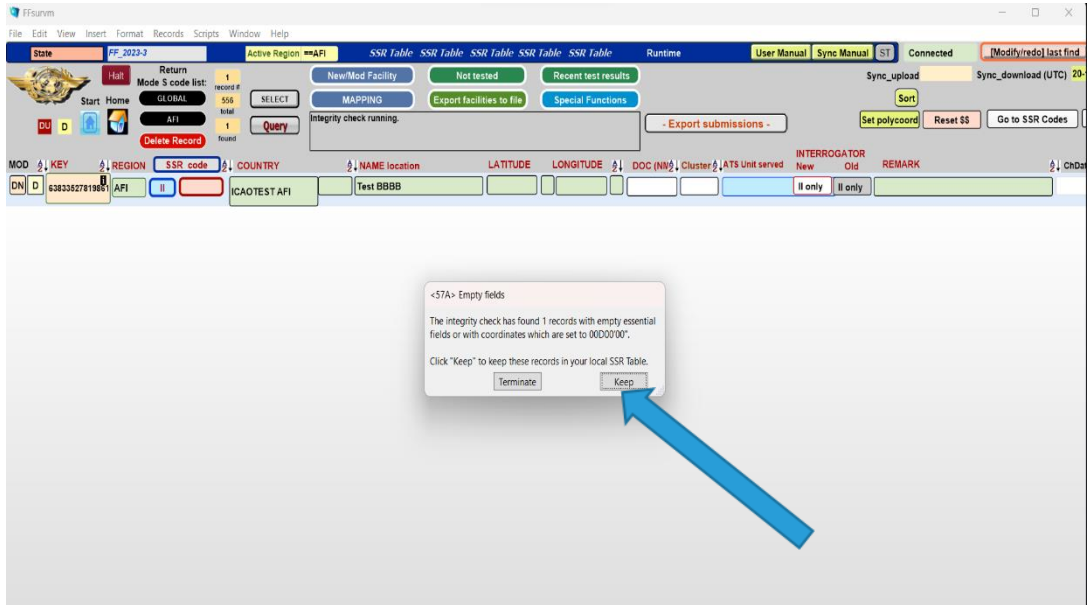
Integrity Check



Integrity Check – ***Outside the range***

Click "Keep" to continue integrity check

If you have data with you and can correct some of them, then Click "Terminate" to correct data

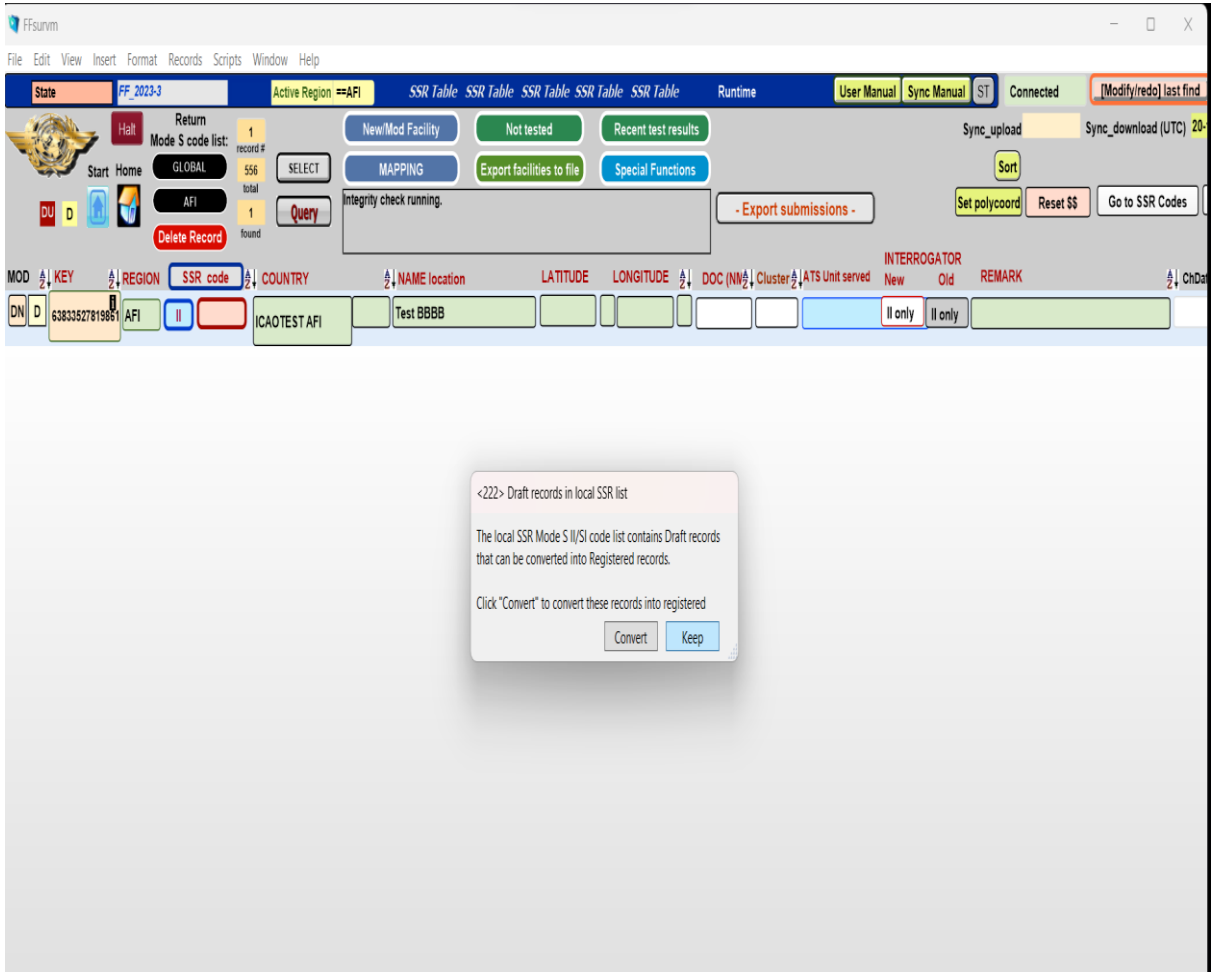


Integrity Check – ***Empty Field***

Click "Keep" to continue integrity check

If you have data with you and can correct some of them, then Click "Terminate" to correct data

Integrity Check



Integrity Check – *Draft Records*

Click "Keep" to continue integrity check

If you finished drafting and believe you can convert/delete them as registered/deleted frequency, then you can click "convert" to correct data

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Integrity Check

Integrity check is

Now you are in

the SSR II/SI CODE LIST

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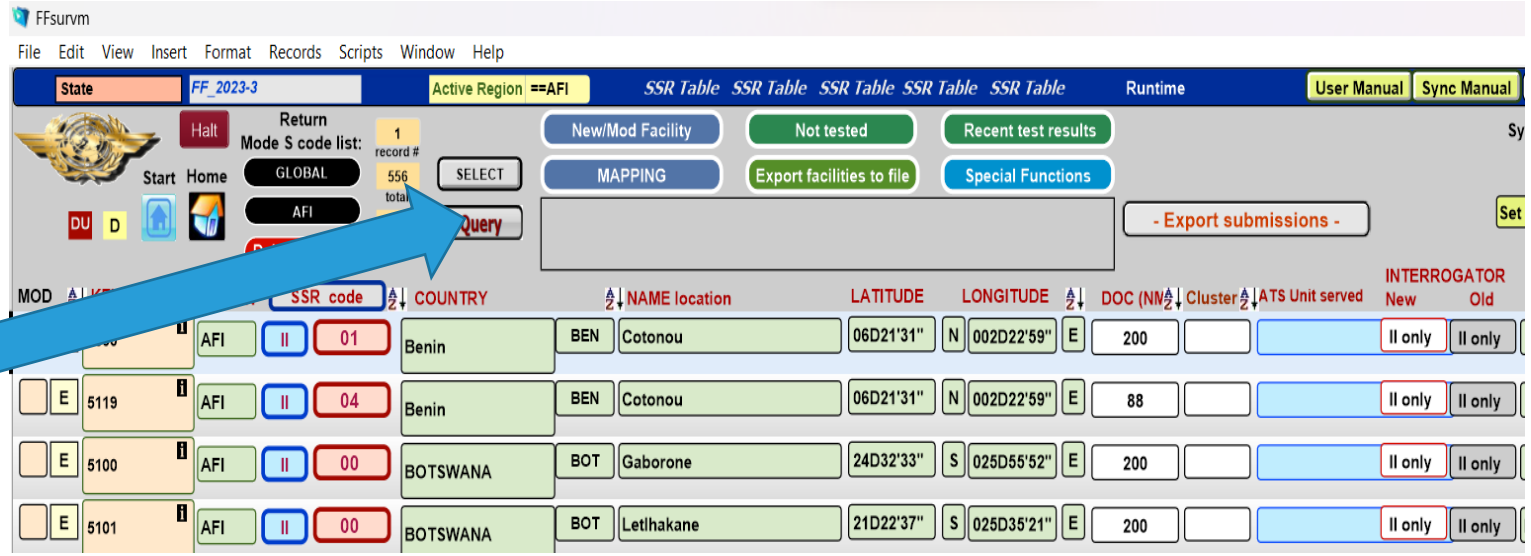
Exercises- Query

Query

Integrity check is completed!

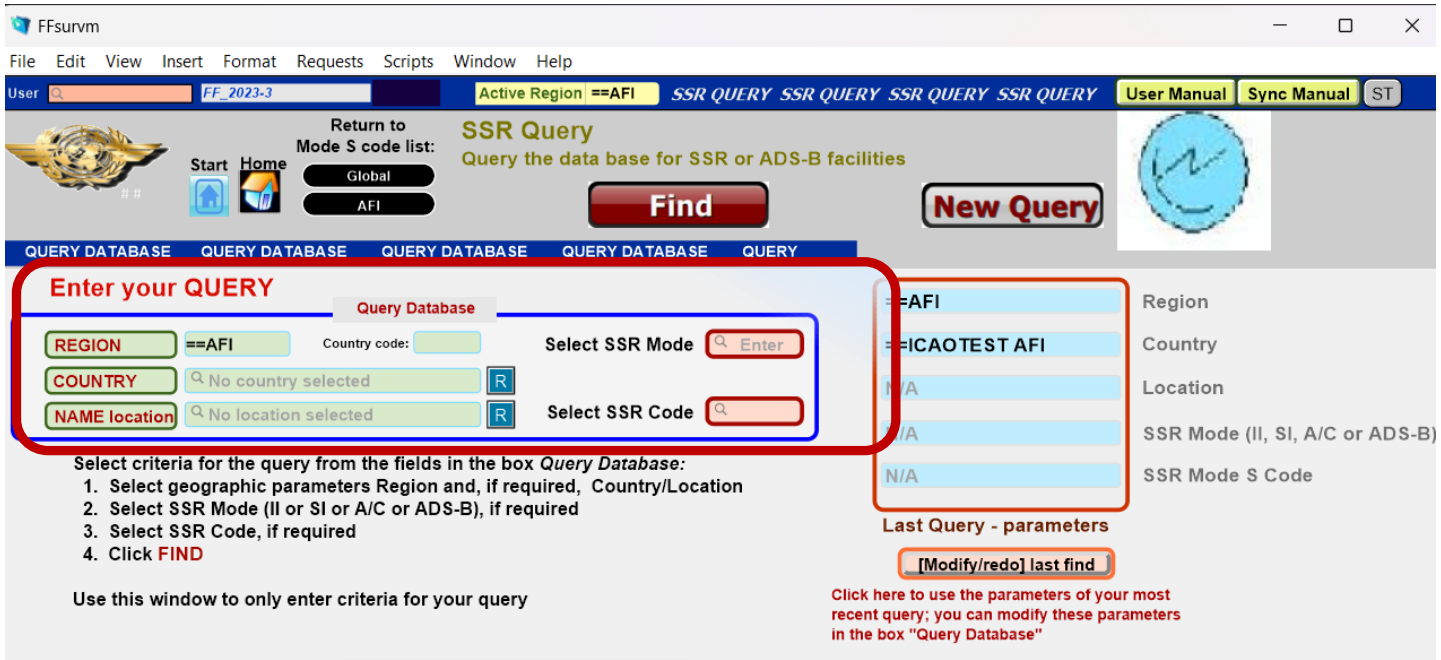
Now you are in *the Regional SSR II.SI CODE List*

Click "Query"



Select "information" required for your investigation

Click "Find"



Then you will see the outcome of your Query

Query

Query – Select Criteria for the QUERY from the fields in the box Query Database

1. Select geographical parameters Region and ,if required, Country/Location
2. Select SSR Mode (II or SI or A/C or ADS-B) if required
3. Select SSR Code , if required
4. Click FIND

Button New Query – Enter or re-enter query parameters

Button Modify/Redo last find: Enters the query parameters for the most recent query

Button AFI– Returns the SSR II/SI code list for the Active Region

Exercises- Query

Exercise 1 - Query database
– Ghana – Accra – SSR Mode – SSR Code

Exercise 2 - Re-do and modify query
– Ghana – Accra – SSR Mode – SSR Code

Exercise 3 - Go back to AFI SSR II/SI code List and return the results of the last Query

Exercise 4 - Find all II/SI code assignments for the SSR Facilities in your STATE

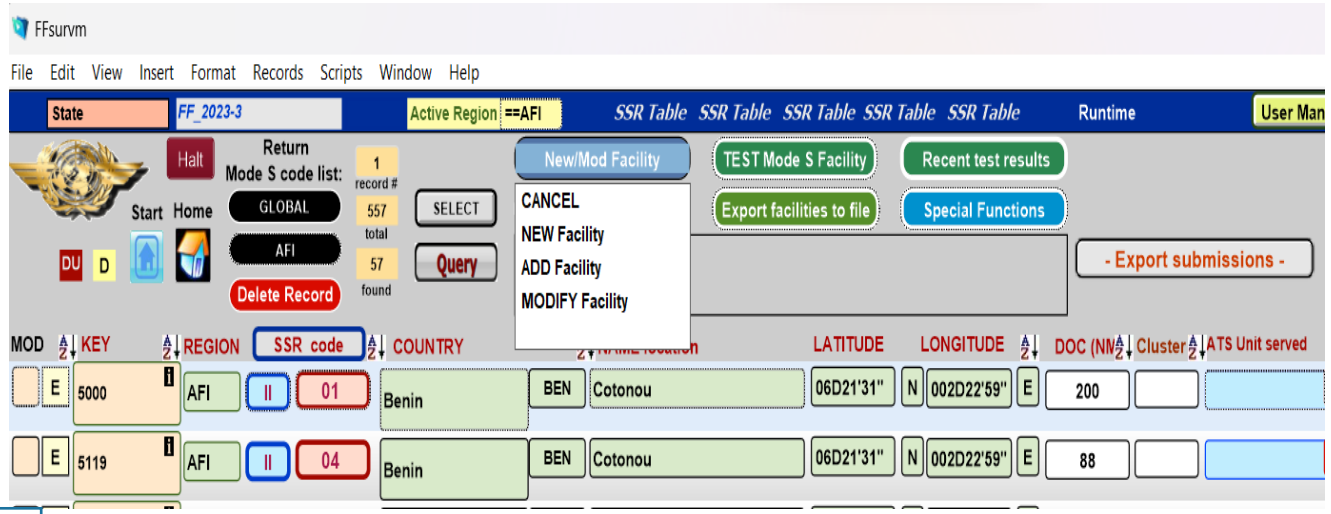
Add, Modify or Delete FACILITY

ADD/ NEW SSR FACILITY OR STATION

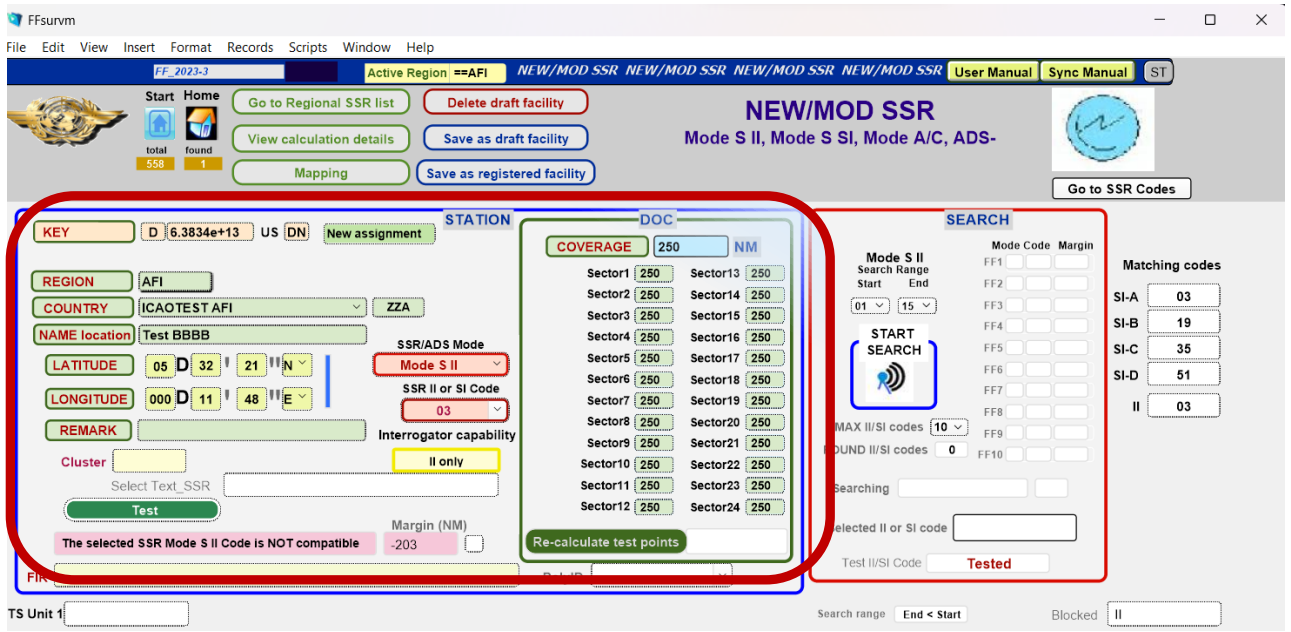
Go back to ***Regional SSR II/SI table***

Select NEW/Modify Facility

CLICK New Facility/Add new facility



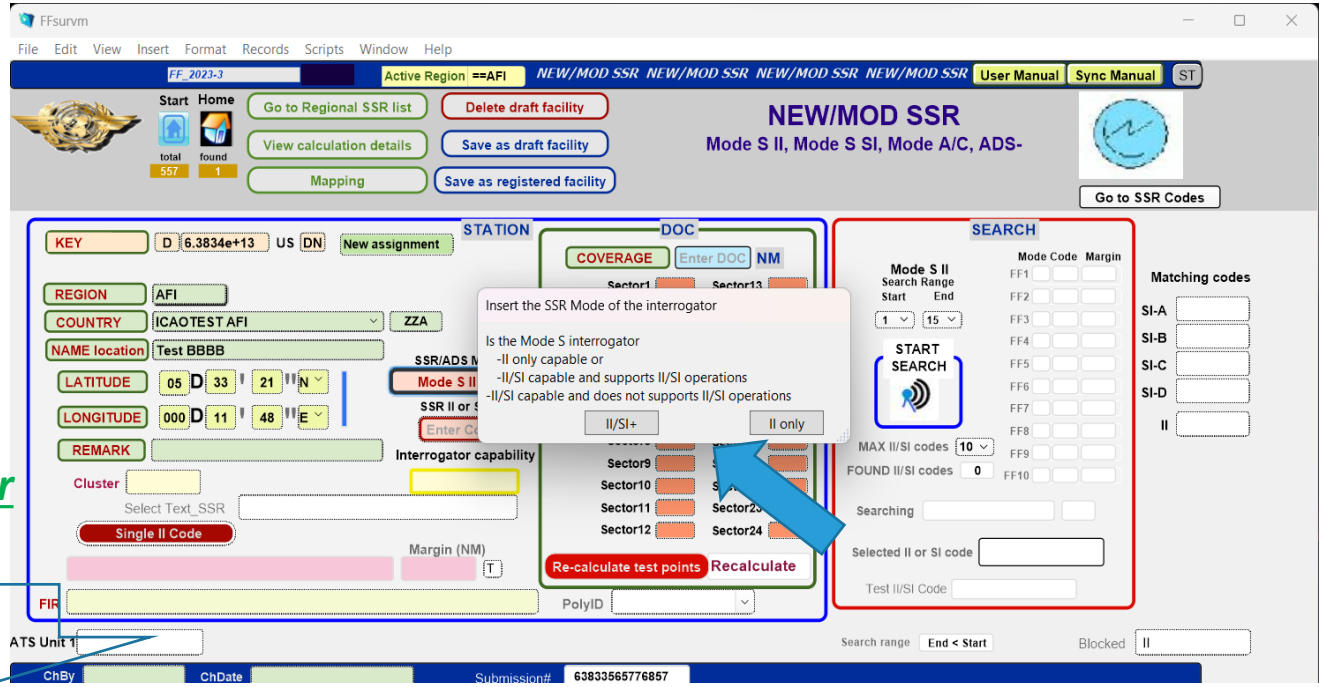
Fill in the station/Facility information



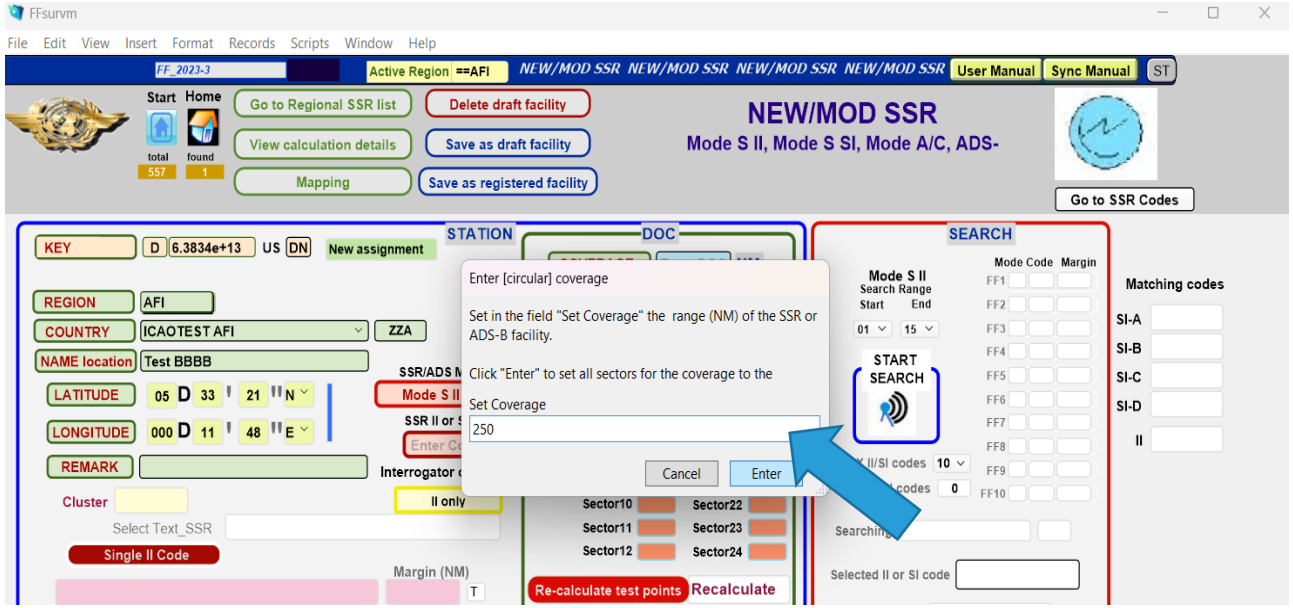
ADD/ NEW SSR FACILITY OR STATION

When inserting the SSR Mode of the Interogator you will be Prompted to select II/SI+ or II only

You then select the one that conrrespond to your station/facility



NEXT you fill in your DOC



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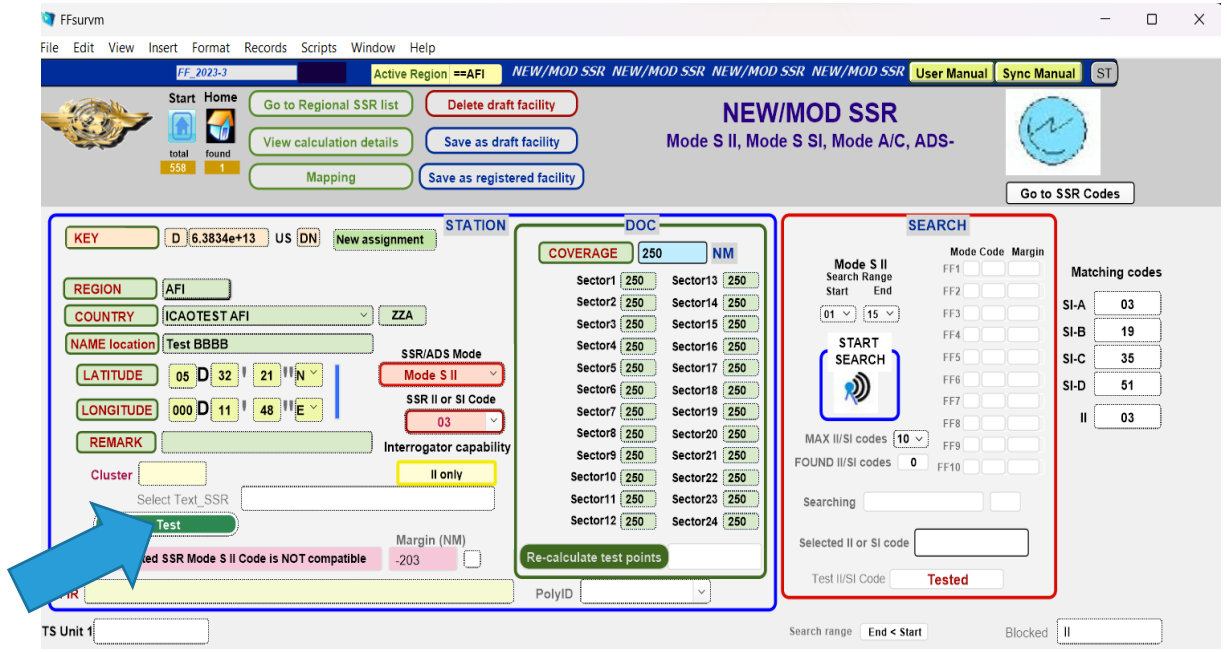
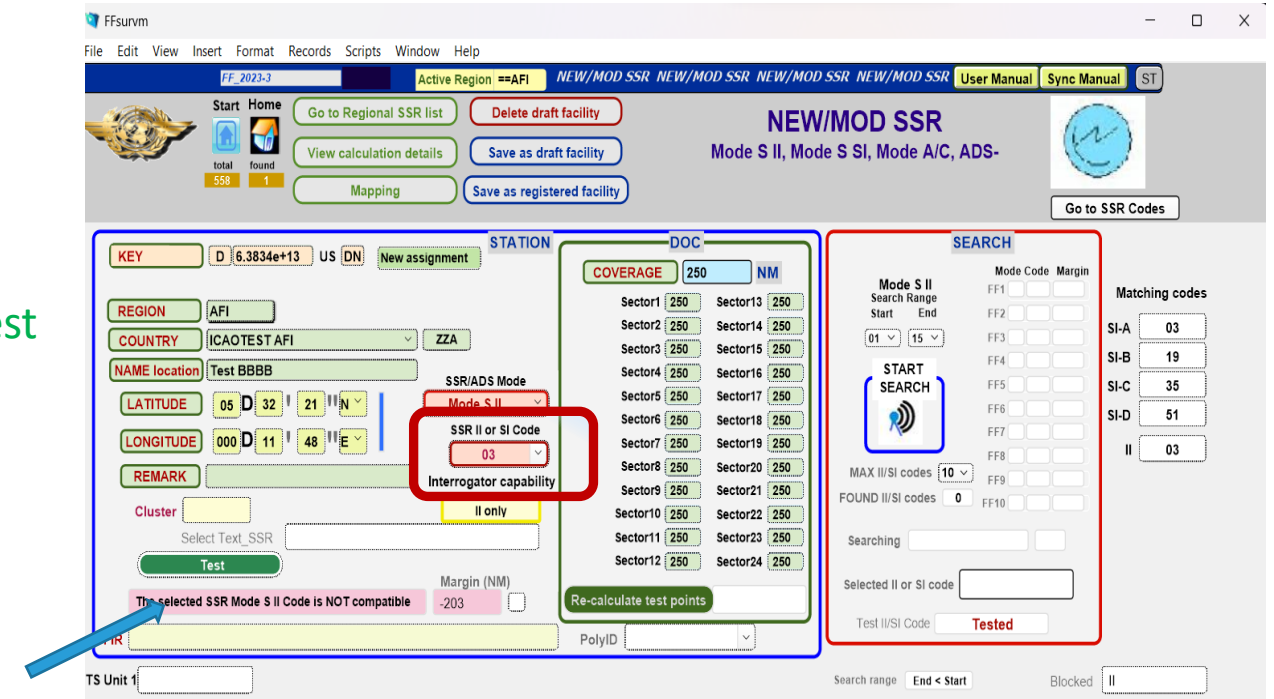
ADD/ NEW SSR FACILITY OR STATION

Conduct a test
To check if your
Mode S II/SI code selected
Is **COMPATIBLE**

click on test “to perform the compatibility test” and click on “single code assignment”.



In this Case I selected
II code 03 which the test
Result indicates is not
COMPATIBLE



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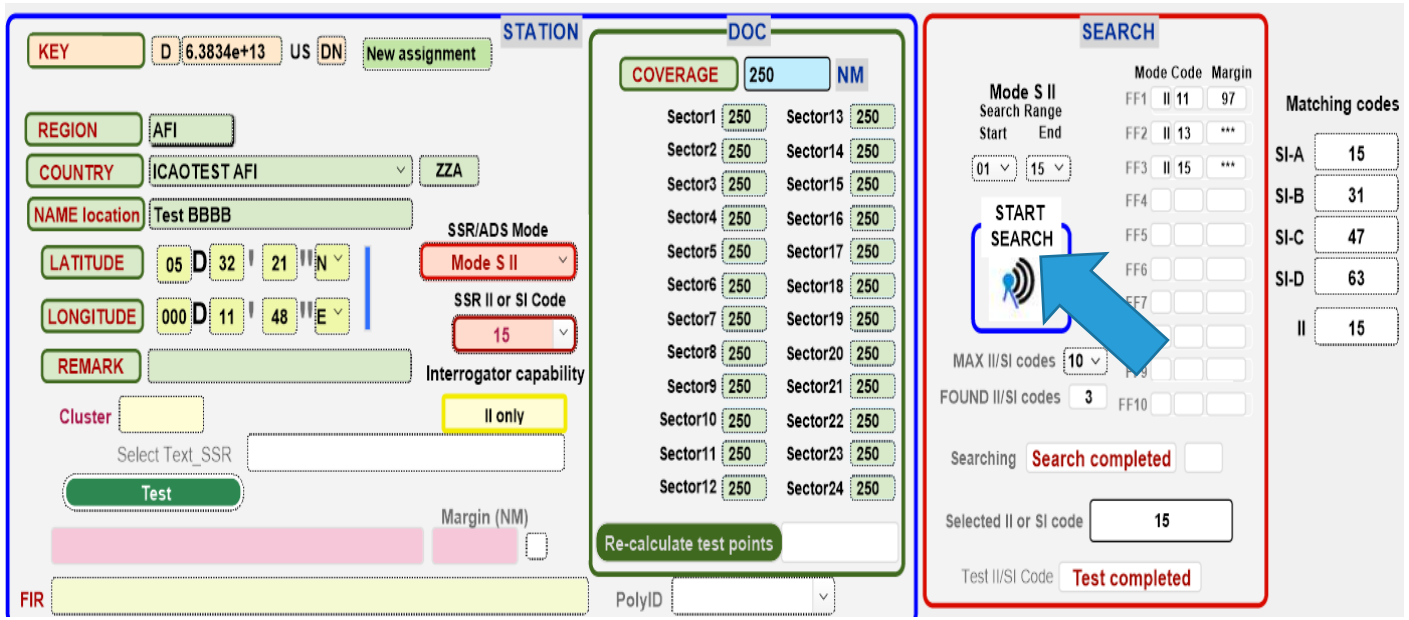
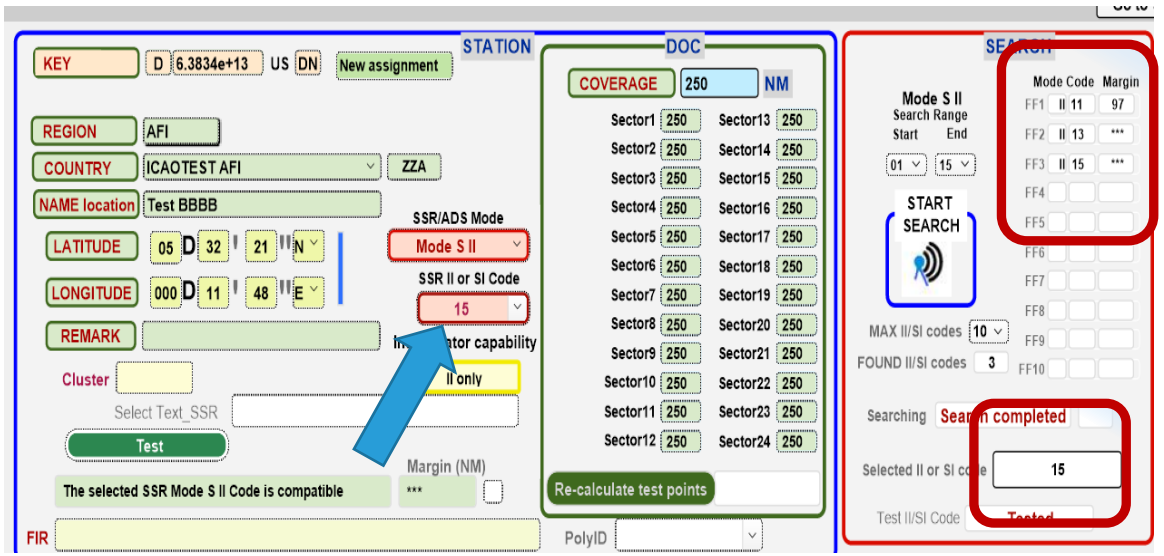
ADD/ NEW SSR FACILITY OR STATION

Click on the
START SEARCH
Button to find a compatible II/SI code





The SEARCH result found **3 II** Code that are compatible to my station/Facility

The selected II/SI compatible code **15**

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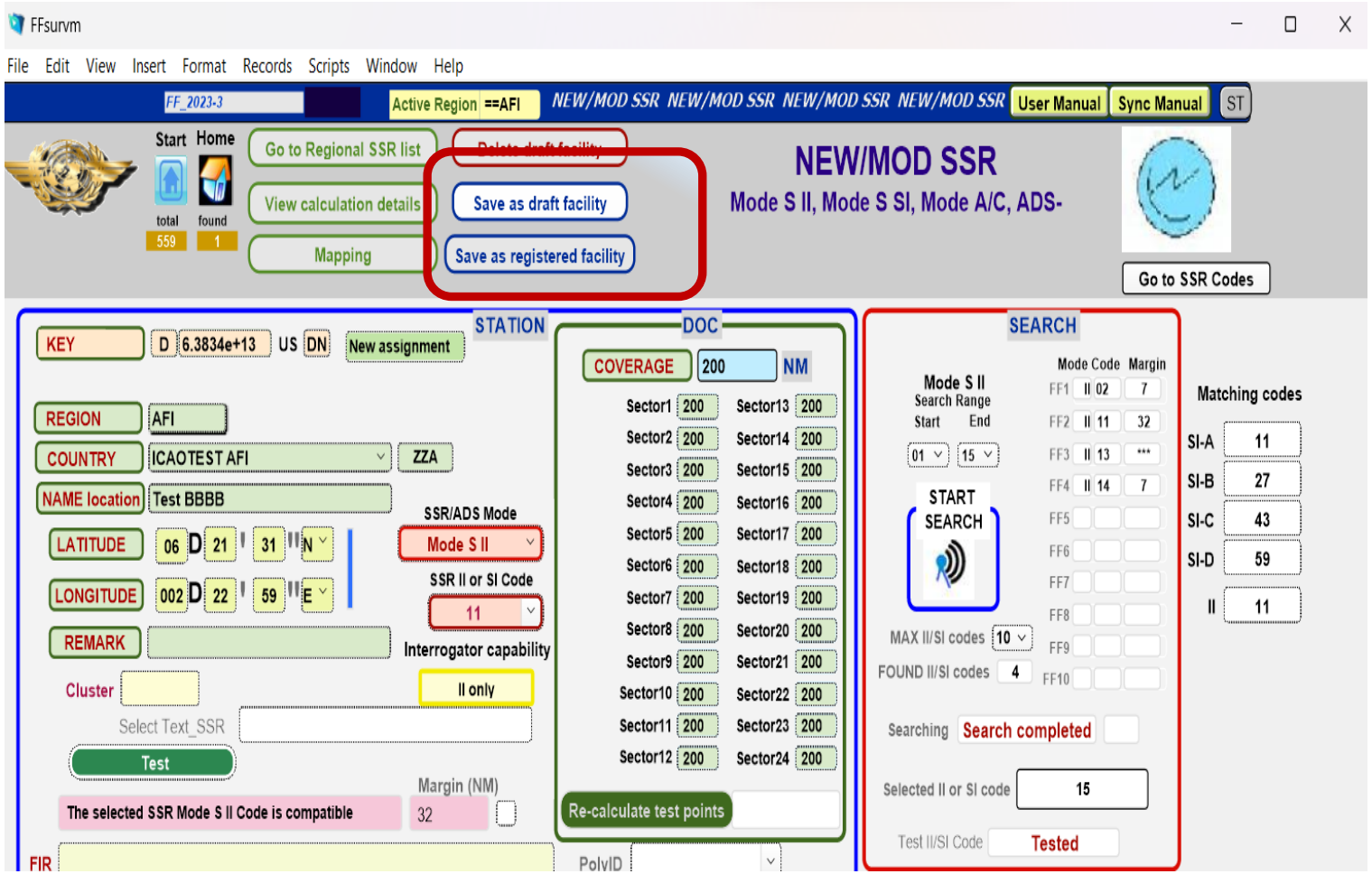
ADD/ NEW SSR FACILITY OR STATION



Select :

"Save as DRAFT facility "

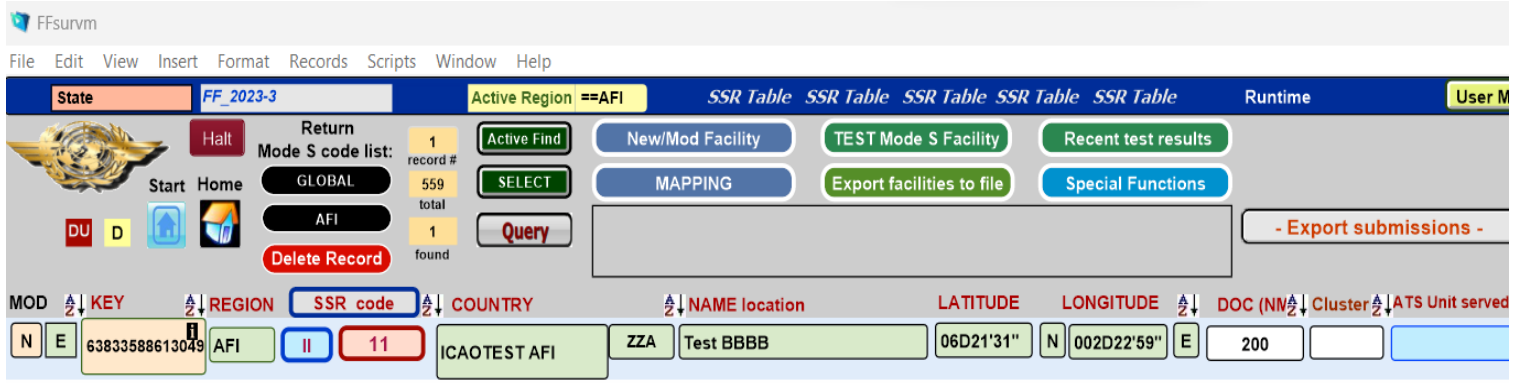
in case you need to work on this assignment more.

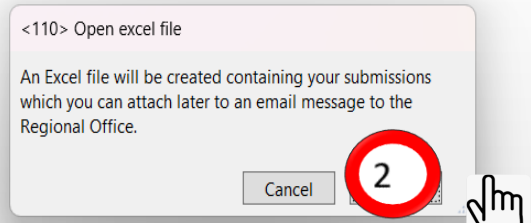
"Save as REGISTERED facility "

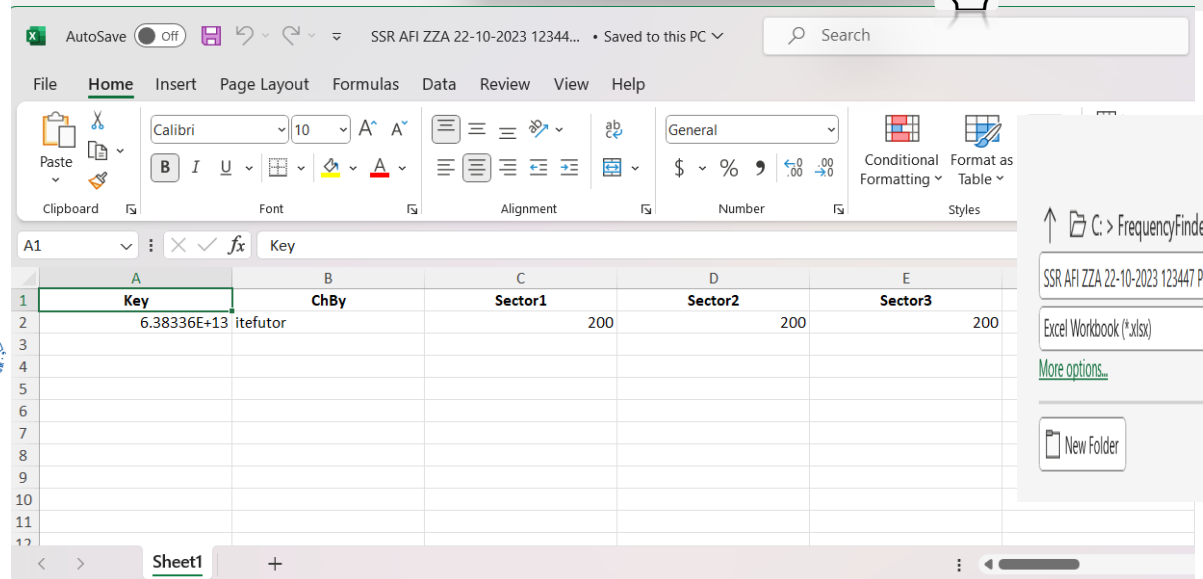
in case you completed the assignment and ready for submission

Export Submissions

Export Submissions







1

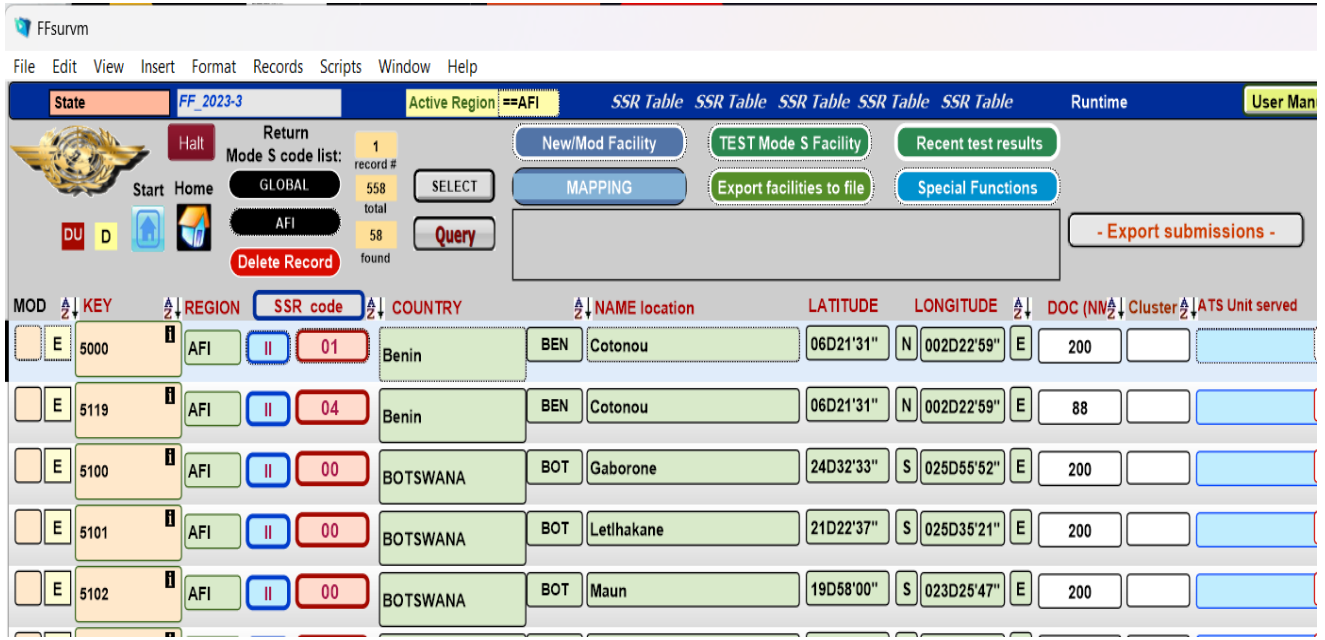
Click "Export submission" to report New, Mod or Del frequency to regional officer

Through a dialogue box, the State (user) can consult the excel file prior submission to the ICAO Regional Office (RO) by email;

Mapping

Go back to ***Regional SSR II/SI table***

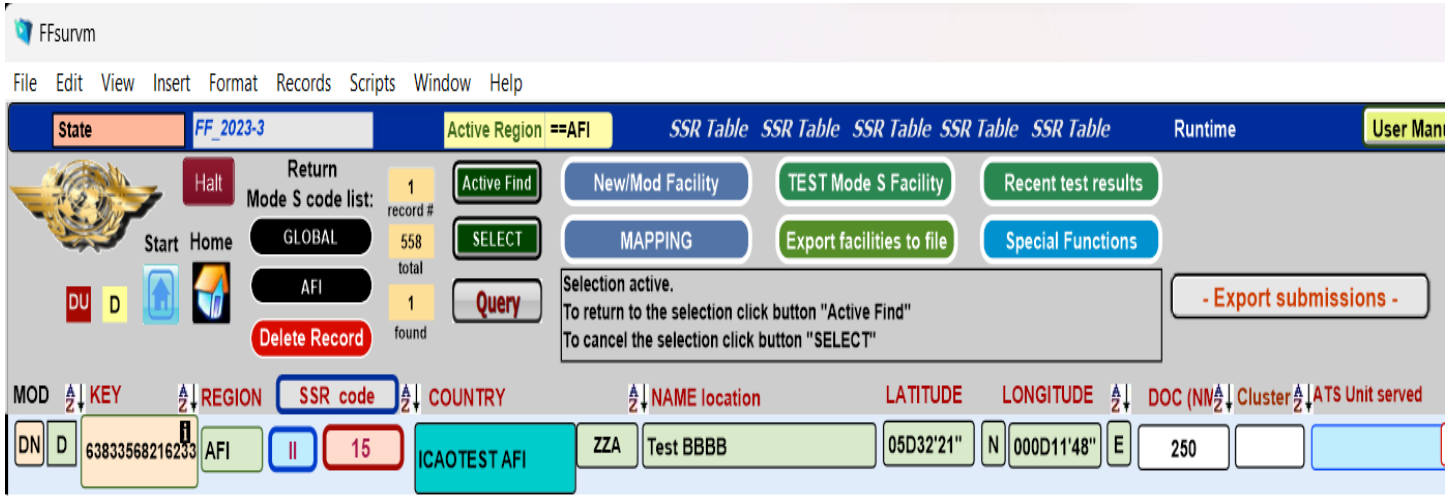
Select ***station or Facilicy you want to Map***



In this Example I selected

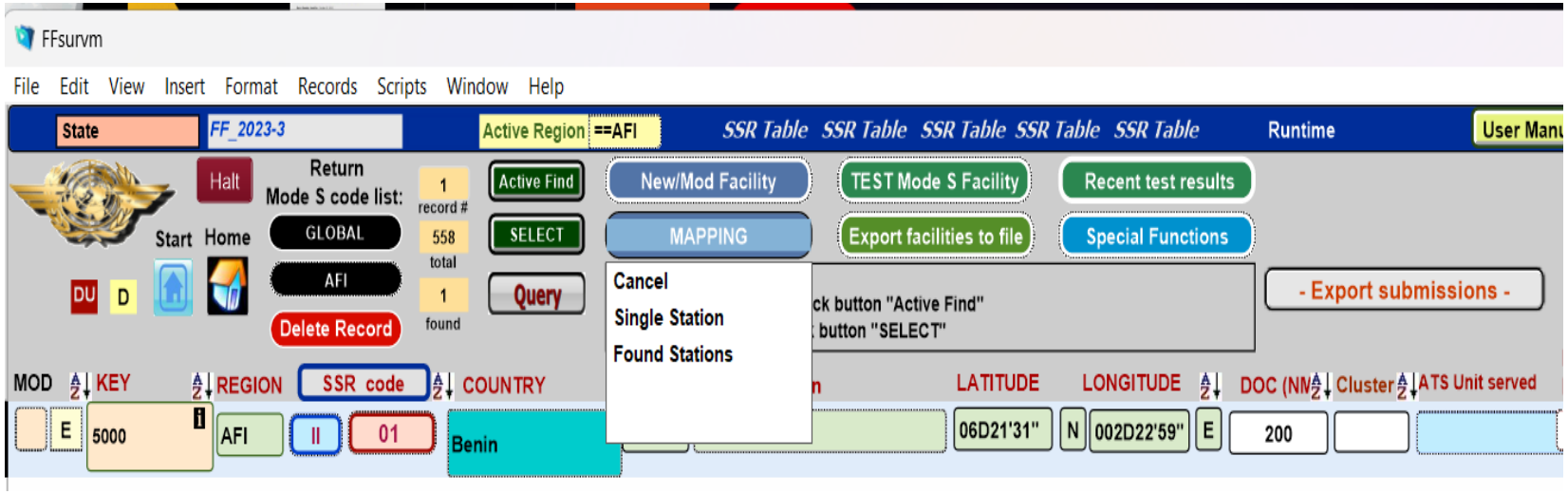
ICAOTEST AFI with KEY number 63833568216233

Find ICAOTEST AFI and ***CLICK*** ***on the SELECT button***



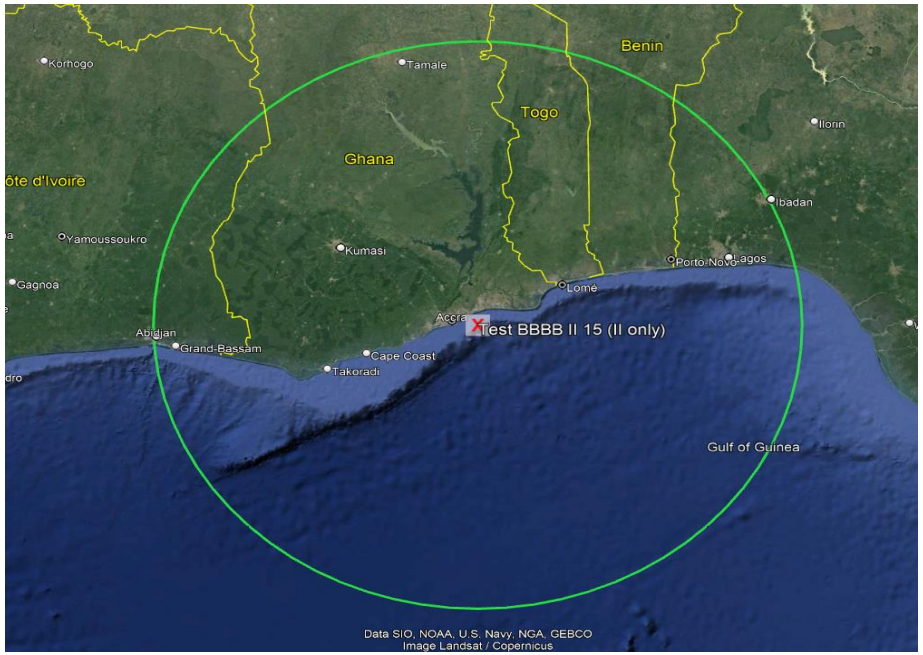
CLCIK on Mapping and Select station or Facilicy you want to Map

E.g., ICAOTEST AFI



It take you to Google Earth where you can see you mapped Station/Facility

You see test station BBBB II 15 only



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Exercises - Mapping

Exercise 1 – Map SSR II or SI or ADS- Facilities in your state

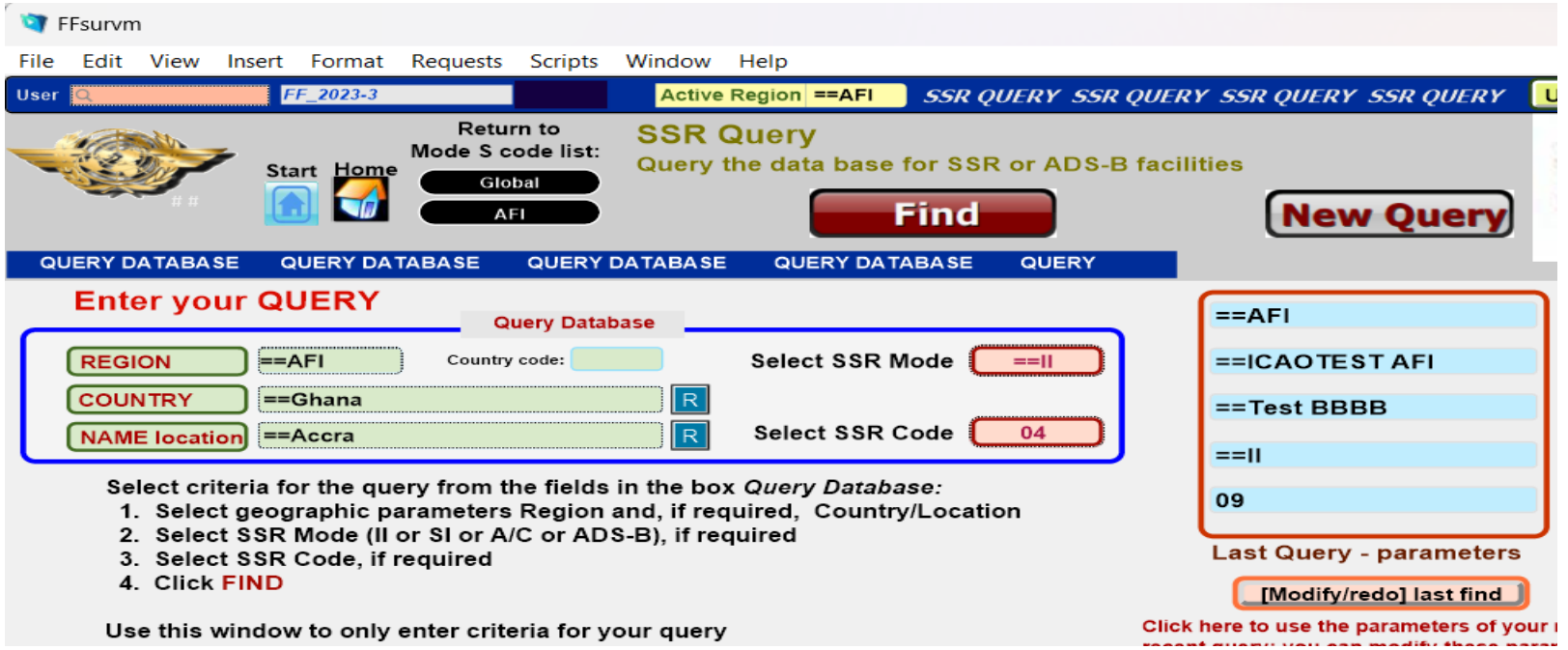
II/SI/ADS-B COMPATIBLITY TEST

Exercises
Test Single Mode S Facility

1. Perform compatibility test – single Mode S facility
   - Query: Ghana – Accra - SSR Mode – SSR Code
   - Click Single Mode S facility

EXERCISE II/SI/ADS-B COMPATIBLITY TEST

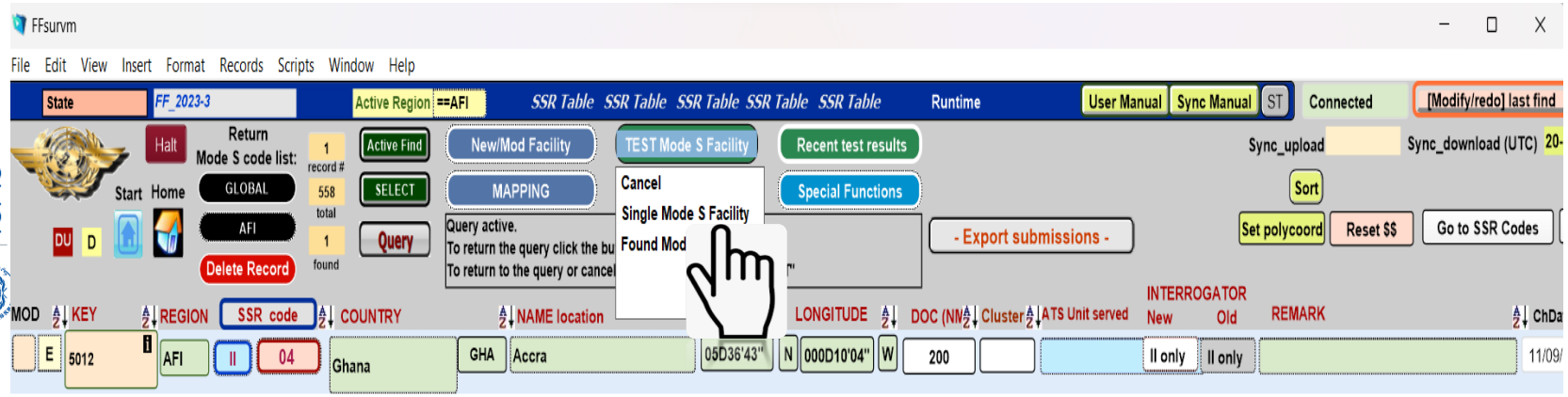
Exercise 1: Ghana –Accra – II code 04



① *Click "Query"*

② *Enter Query*
Select State: Ghana
Location: Accra
SSR Mode : II
SSR Code :04

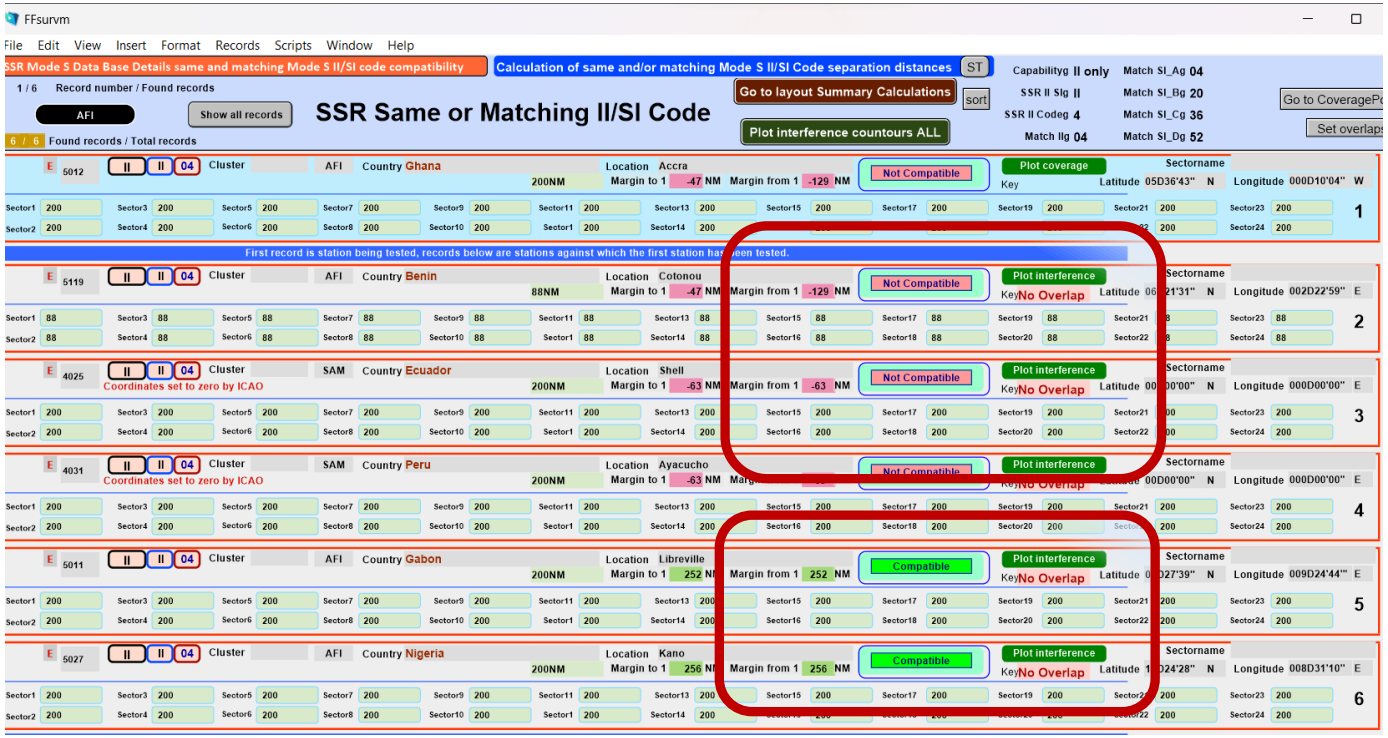
③ *Click "Find"*



Frequency Finder found 1 entry with the II code 04 in Accra

Select Key No. 5102 (Accra) **and**

Select Single Mode S facility



Calculation of SSR Same or Matching II/SI code is displayed.

We have 3 results indicating Not compatible / No Overlap

2 results indicating Compatible with no overlap

Select "plot interference contour all " if you want to see the result on Map as well

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INTERFERENCE CONTOURS MAP

Thank You!

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