



Monitor Track Version 2.4 (r24) by G4DCQ

What the program does

Monitor Track works alongside the Orbitron satellite prediction program written by Sebastian Stoff. Orbitron ver 3.7.1 must be installed and available on your PC for Monitor Track to work.

The author of Orbitron was thoughtful enough to provide his satellite prediction program with a Dynamic Data Exchange (DDE) output, to make the data calculated by Orbitron available as a 'output feed' to other projects.

The DDE from Orbitron is fed to Monitor Track and decoded to a display screen. This data should be helpful to an operator during a satellite pass.

It is expected that the operator has installed Orbitron ver 3.7.1 AND has a good working knowledge of the Orbitron program!

Orbitron, maps and help files in many languages are all available from Sebastian Stoff's web-site at :-

<http://www.stoff.pl/downloads.php>

Summary of Installation

After unzipping the zip file you should see five files. MonitorTrack.exe, the PDF Manual file, Button.exe and the Default picture. There is also a ReadMeFirst text file, a simple 'quick start' file to get you up and running. Once you have read the Manual, ReadMeFirst can be deleted; it's all covered in the manual in greater detail. By the way, Button.exe is used to auto start the DDE link.

There is no special place to put MonitorTrack.exe and the other three main files. They can be put in a folder of their own, or in the Orbitron folder, or in a sub folder under Orbitron, or the UISS ExternalPrograms folder perhaps. Place them where ever is best for you.

BUT they must ALL be placed together in the same location / folder.

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Operation when up and running

Orbitron must NOT be running during the initial install / first run.

After placing Monitor Track.exe and Button.exe in your chosen location, you are ready to start the first run / install.

Simply double click on MonitorTrack.exe and the program will start its first run. During this initial run, Monitor Track updates itself from the Orbitron configuration settings while Orbitron is closed. When update is complete the operator will be 'auto shown' a menu where a few basic values can be set.

First run of the MENU setup options

Setting MinSatElev (Program default is 10 degrees)

It is important to set a minimum sat elevation level. That is a setting in degrees above your horizon, that a satellite must reach before the program considers it is high enough in the sky to be a valid pass. Someone living in the country may be able to hear a satellite TX as it comes over the horizon at say 4 degrees. Someone living in the city surrounded by tall buildings may sit in silence until the satellite has reached over 10 degrees!

Setting Digit Number

The number of digits showing after the decimal point in the frequency read outs. If you are running an FM set up, then 4 digits may be enough, but if you are using SSB the accuracy of 5 digits may be more helpful.

Setting Digit Colour

Whether the Doppler 'end digits' are coloured or not, (more on Doppler later).

Probably best to use the program for a while, before finally deciding on digits and colour settings.

The menu is automatically shown just the once at the initial install. After that it can be called manually by clicking on the 'Settings Menu' label.

Finally click 'Save & Exit' to save changes, or just 'Cancel', to quit unsaved.

First Run

The program will now load. Monitor Track must ALWAYS be loaded first, before Orbitron. Forget about any desktop shortcuts to Orbitron.exe.

Orbitron MUST be called each time from the 'Start DDE' button on Monitor Track or the DDE handshaking will not take place !!!

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Visual Interpretation of the Data

Satellite Label shows which Satellite Orbitron is currently tracking, and that sat's data is the one being fed to Monitor Track, on the DDE link.

Azimuth & Elevation Labels are giving the tracked satellite's bearing from your station.

RX Down Frequency Label is giving the RX readout after correction for Doppler shift. Your receiver should be tuned somewhere near to that. You will note that the frequency is some what higher than the nominal TX frequency of the sat, as it speeds towards you, and lower as it speeds away. During a pass the minor digits, which Orbitron has adjusted for Doppler correction, will be shown in colour. Match the coloured digits with those minor digits on your RX/TX and you should be in the right place.

TX Up Frequency Label is giving a readout of where your transmitter should be tuned, again after Orbitron has made a correction for Doppler shift. During a pass those minor digits will also be coloured to help you update your TX VFO. Both sets of coloured digits can be switched off in the menu.

The working frequencies of the Satellite must be entered in the Orbitron Notes, and selected in the 'Rotor / Radio' settings page of Orbitron.

Digital Clock displays the current time, with a reminder above the clock of the elevation minimum you have set for a pass to be considered useable.

Extras Labels advise you of the current satellite's Range, Altitude and Velocity. Note that the sat velocity to your station is zero when it is overhead.

The RawDDE Label in the large box shows the DDE string as it arrives from Orbitron. The values are extracted by Monitor Track to provide the data displayed in the various boxes. It is useful to see the raw string for reference.

Please note that the accuracy of Monitor Track is only as good as the data provided by Orbitron. The accuracy of Orbitron is only as good as the Two Line Elements you download. Please keep your TLE's up to date.

Orbitron Label comes alive during a pass and changes its caption to "PASS".

Top LED (Yellow) to the right of the Orbitron Label shows that Monitor Track has started Orbitron successfully, and DDE linking has been established.

Lower LED (Green) confirms that data has been found on that DDE link.

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Yes, it is possible to have a good DDE link between the program and Orbitron yet have nothing in the way of data on the link. An example would be when no satellite has been selected. This can happen when you change from one set of TLE's to another, and forget to tick the satellites you wish to monitor.

Watch out for error messages if this happens!

RX Dwn: TX Up: Mode Labels both work together and show the **Mode** used for the RX Down and TX Up links. Mode Down and Mode Up MUST be set in the Orbitron 'Rotor / Radio' settings page. If an operator forgets to set a Mode for the pass, the label will read '??', as a reminder.

There are two mode labels because on SSB the RX Mode down would be USB. The TX Mode Up label acts as a helpful reminder to you that you need to set your transmitter to LSB, if it is an inverting transponder!

Control Options

Start DDE Button

The Start DDE is very important. Monitor Track must be started first, ahead of Orbitron. After Monitor Track is running click the 'Start DDE' button and Orbitron will load. Please do not use any desktop short cuts to load Orbitron.

Orbitron MUST be called each time from the 'Start DDE' button on Monitor Track or the DDE handshaking will not take place !!!

Settings Menu

Brings up the same menu that you saw at the Install / first run stage, and is already described above. 'Save and Exit' and 'Cancel' are the two options for closing the menu. The 'Esc' button on your keyboard performs the same function as the Cancel button on the menu.

Stay On Top Check Button

When the Monitor Track program is launched it sits in the main window. If any action is taken elsewhere, (button clicks etc), then other programs may well takes the front position and the Monitor Track screen disappears to the rear. The term is called 'losing the focus'. If the option box 'Stay on Top' is ticked, then Monitor Track will remain on top at all times.

However, if this is a problem, say Monitor Track has concealed important buttons, or screen details for another program, then untick the 'Stay on Top' box. Disabling 'Stay On Top' may be useful when viewing this Help manual for example. Whether the Monitor Track is on top, minimised to the task bar or running under the main screen, it will always update. No information is lost.

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Close Button

Close and Exit the program.

View Button

Sets a Day/Night or light/ dark viewing display, to match your current mood!

Situation During a Pass

Once the satellite that Orbitron is tracking has risen above the minimum satellite elevation set in the menu, the program will assume a pass has started. If set, Orbitron will issue an audible alert. Monitor Track will also issue an alert by means of colour changes to certain read outs.

These colour changes are obvious but the Sat Clock needs a word here.

The satellite duration clock shows itself and records the length of the pass. That is to say the time the sat was above your set horizon. At the end of a pass the 'Sat Clock' remains visible for 60 seconds while you write up your notes and record the pass duration time. Then the clock reverts to its closed state. Double click the 'Sat Clock' to close it early.

AOS Label

The Acquisition of Satellite (Signal) Label is a notification from Orbitron that another satellite has come in to range. Say for example you are tracking the ISS, but Orbitron has noted that NO-84 is also ticked in the Orbitron Satellites window. Orbitron has computed that NO-84 has come in to range, over your set horizon, and puts a notice on the DDE link. Monitor Track has trapped the notice and displays that information in the AOS Label (AOS NO-84), for 30 seconds. You may now wish to switch to NO-84, or stay with the ISS.

The Handling of Long Satellite Names

I use Amsat TLE's, which are Nasa bare two line element text files. The Amsat files contain orbital data for all satellites in the amateur service. Other sources do not seem to include everything in their TLE download. It has been pointed out to me that NO-84 is missing from some TLE sources.

My Amsat files list the Satellite by its four digit identifier, NO-XX, AO-XX or CO-XX etc, which is handy because it fits the Monitor Track 'AOS' box and 'Sat Name' box with room to spare. Sadly TLE's from other sources list sats by their name. I have done my best with those really lengthy satellite names, from other sources, by reducing the font size to create a smaller caption. Thankfully 'FunCube-1' does make it under the wire, without being truncated.

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Tool Tips have been provided as a reminder during operation. Hopefully everything has been set out for ease of operation.

Please inform us of any suggestions, comments or bugs through our support group at : -

https://groups.yahoo.com/neo/groups/uiss_on6mu/info

Best 73 de
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