SKYNET / FIELD OPERATIONS

OPERATOR HANDBOOK

Satellite tracking, pass planning, rotor control and radio operation.

SKYNET

SATELLITE TRACKING SYSTEM

DESKTOP INTERFACE / MACOS SCREENSHOTS

ISSUE 01 / 05 NOV 2026

SKYNET

QUICK START / NAVIGATION

Before a session

Use this sequence to establish a trustworthy pass view before connecting hardware.

1. **Refresh orbit data**
   Mission Control > Update TLE. Wait for the update result before searching or planning.

2. **Confirm the station**
   Settings > Ground Station. Create or Manage a profile, then select Use for the intended location.

3. **Select satellites**
   Settings > Satellite Settings. Search or Browse, then Add the satellites you need.

4. **Choose the map target**
   Mission Control > Track beside the satellite. Inspect Next passes, or open Preview for another time.

> Rotor and radio operation is optional. Engage, manual pointing, presets and tracking can command connected hardware.

IN THIS HANDBOOK

Interface reference: Mission Control and all five settings sections (pages 3-13).

Planning: Preview and Upcoming Passes (pages 14-15).

Hardware controls: Rotor, presets and radio (pages 16-18).

Operating procedures and troubleshooting (pages 19-22).

INTERFACE REFERENCE / 01 OF 16

Mission Control

The home screen combines the map, live pass readouts and every main destination.

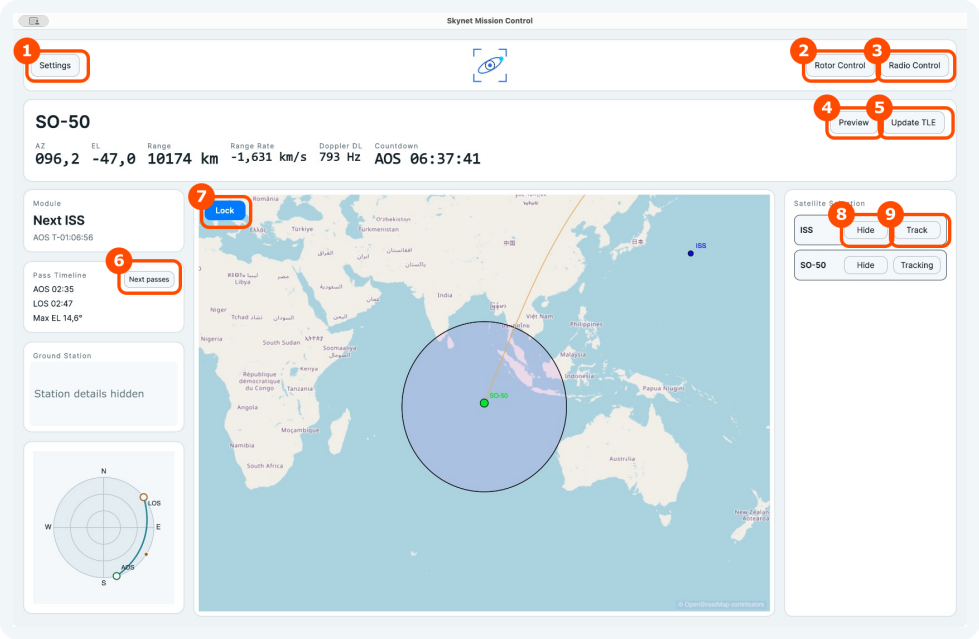


FIGURE 01 / Annotated Skynet interface

CONTROL KEY

1 Settings
Open the five configuration sections.

2 Rotor Control
Open connection, pointing, tracking and presets.

3 Radio Control
Open connection, RF plan and Doppler tracking.

4 Preview
Inspect predictions at another date and time.

5 Update TLE
Refresh orbital data and view source results.

6 Next passes
Open passes for the selected map satellite.

7 Lock
Recenter and keep the map on the selected satellite.

8 Hide / Show
Toggle the marker; keep the satellite selected.

9 Track / Tracking
Make this satellite the map and pass target.

> AZ is azimuth; EL is elevation. Negative EL means the satellite is below the local horizon.

INTERFACE REFERENCE / 02 OF 16

Satellite Settings

Find satellites in the local catalog and choose which appear in the module.

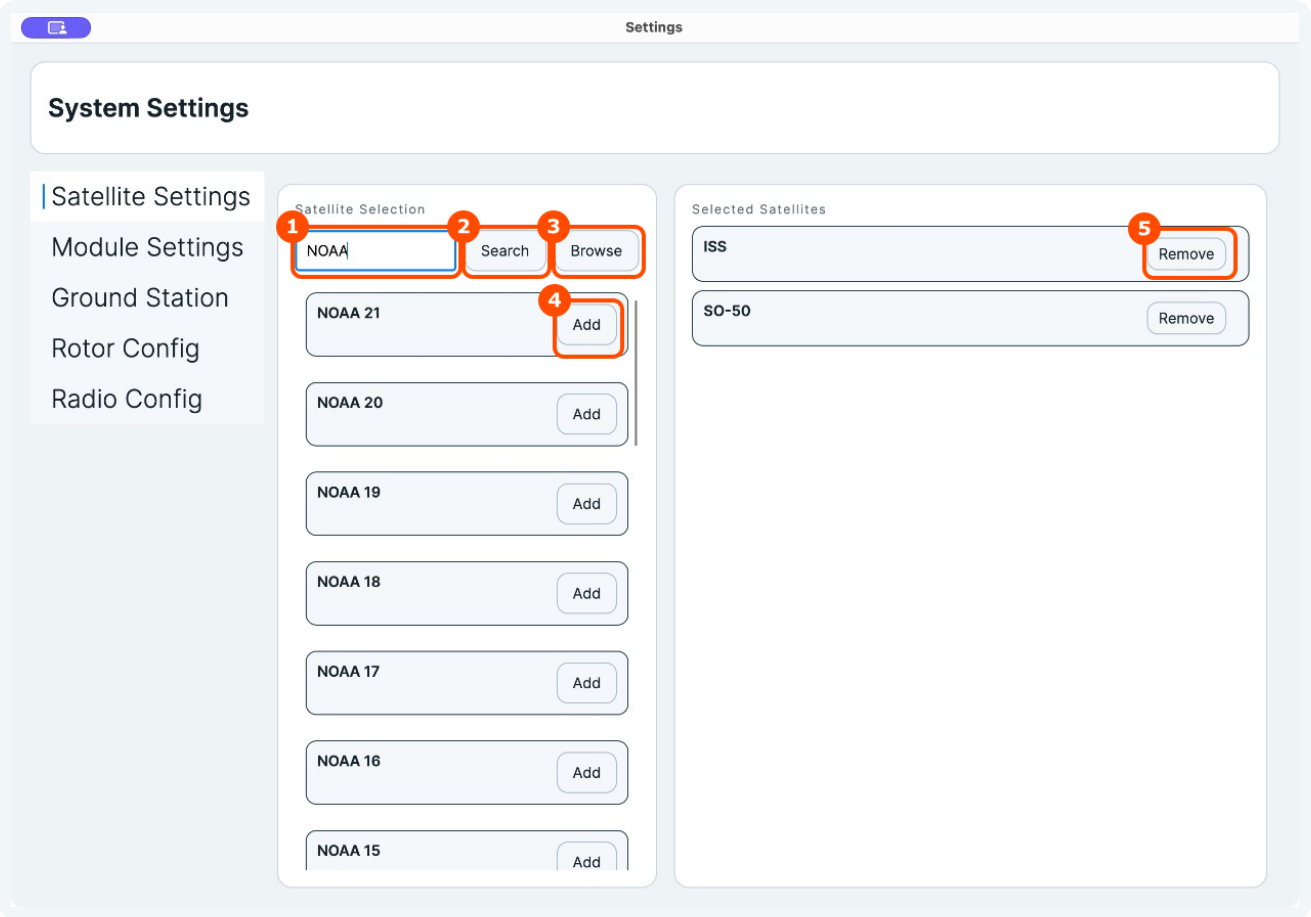


FIGURE 02 / Annotated Skynet interface

CONTROL KEY

1 Catalog search
Type a name or catalog number.

2 Search
Show matching catalog records.

3 Browse
List catalog records without a query.

4 Add
Put a result in Selected Satellites.

5 Remove
Remove a satellite from the selected list.

> If no records appear, return to Mission Control and run Update TLE.

INTERFACE REFERENCE / 03 OF 16

Module Settings

Set the time display, appearance and map rendering. Changes apply automatically.

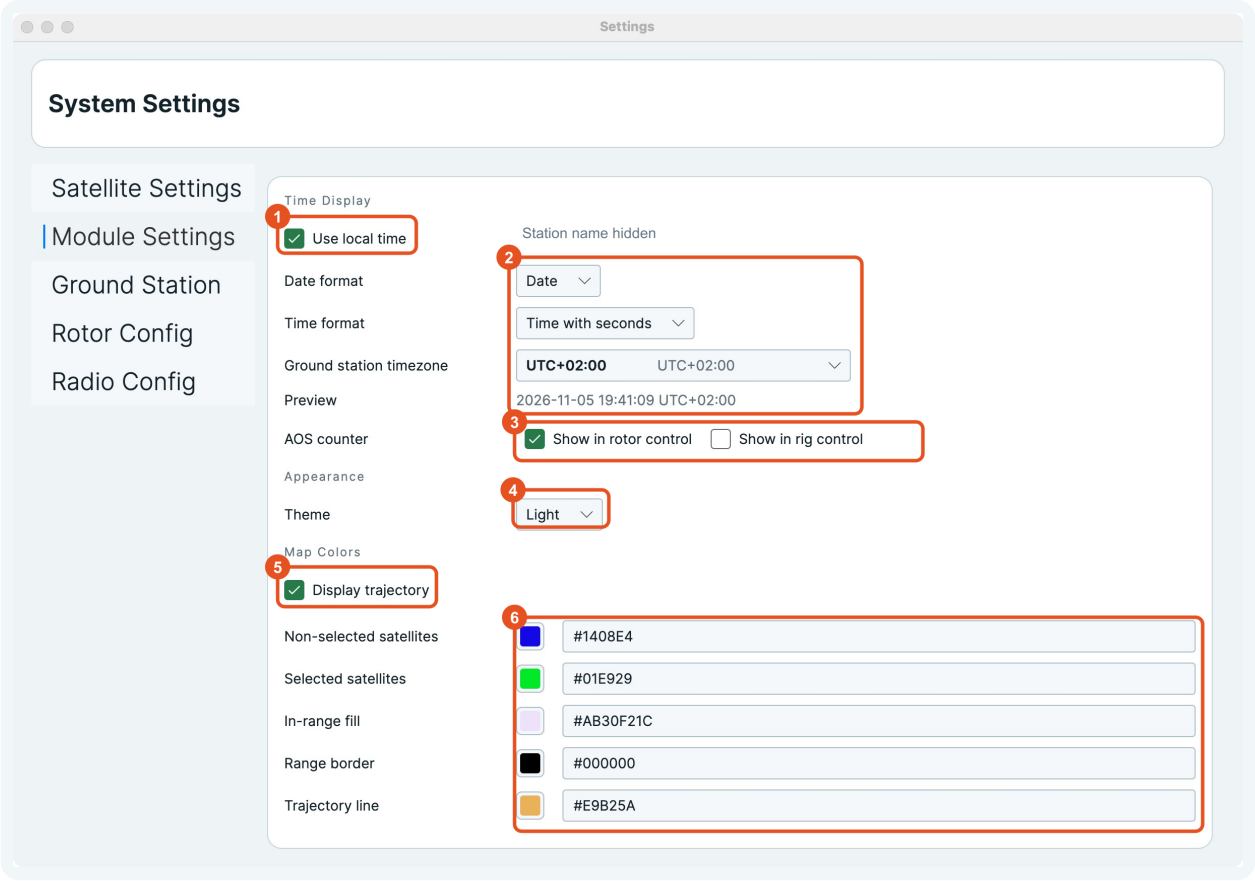


FIGURE 03 / Annotated Skynet interface

CONTROL KEY

1 Use local time
Show the selected station timezone; off shows UTC.

2 Date / time / zone
Choose formats and timezone; inspect Preview.

3 AOS counter
Show countdowns in rotor and rig windows separately.

4 Theme
Choose the desktop appearance.

5 Trajectory
Show or hide the satellite path on the map.

6 Map colors
Open a swatch picker or enter a valid hex color.

> Hex fields accept #RRGGBB and alpha-inclusive #RRGGBBAA values.

INTERFACE REFERENCE / 04 OF 16

Ground Station Profiles

The active station supplies the location and horizon used by pass predictions.

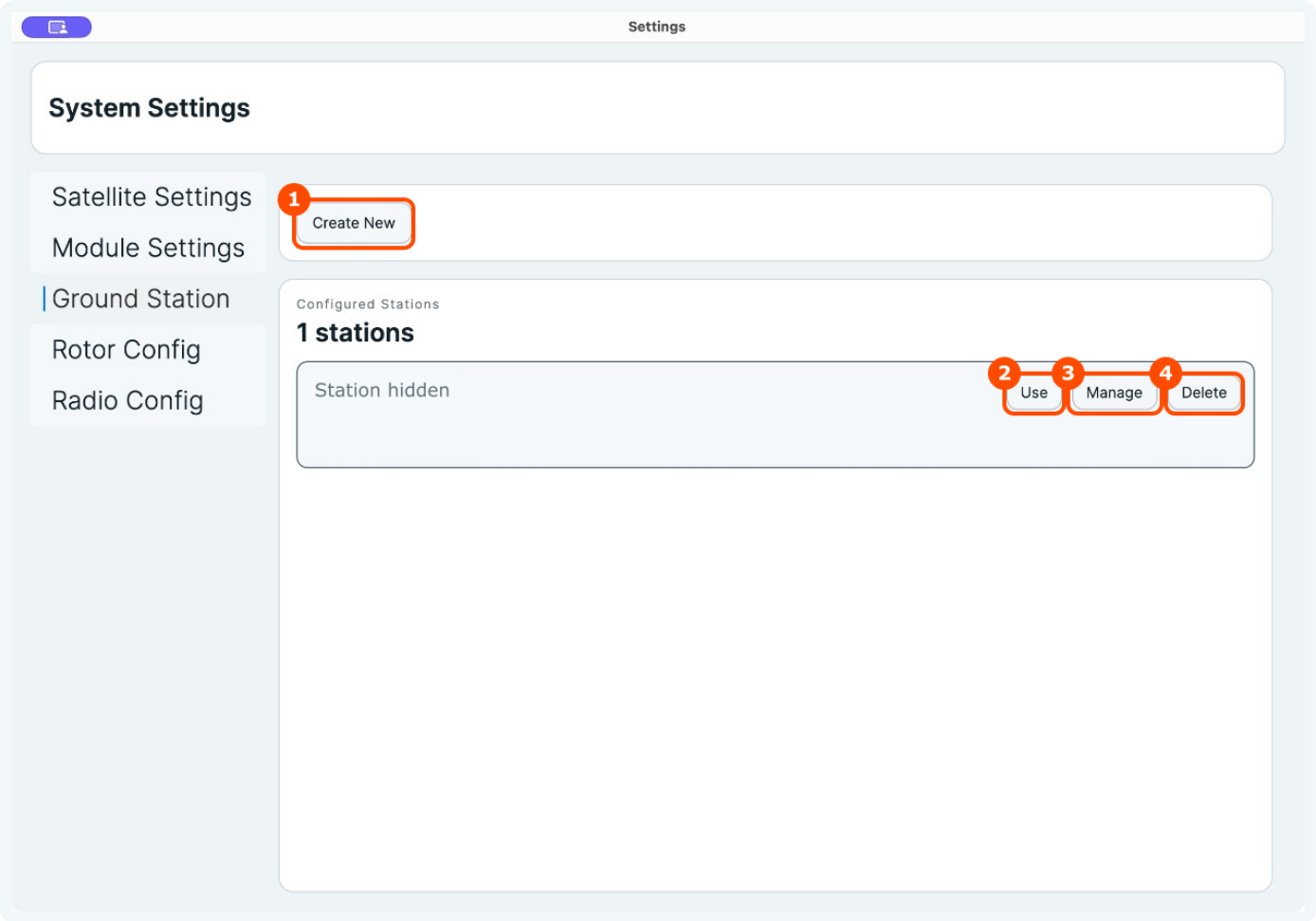


FIGURE 04 / Annotated Skynet interface

CONTROL KEY

1 Create New
Open a new profile prefilled from the active station.

2 Use
Make this station active for prediction and pointing.

3 Manage
Open the profile editor.

4 Delete
Remove the chosen station profile.

> Verify the active station before planning a pass.

INTERFACE REFERENCE / 05 OF 16

Ground Station Editor

Enter location and horizon information, then save a new or edited profile.

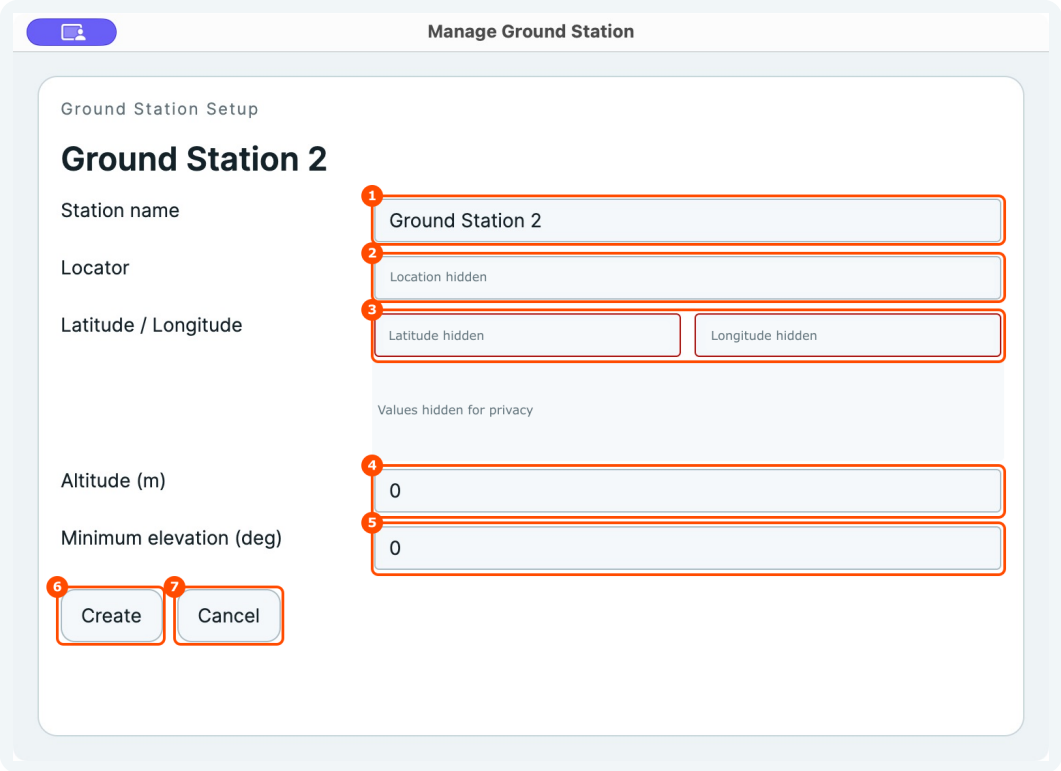


FIGURE 05 / Annotated Skynet interface

CONTROL KEY

1 Station name
Give the location a clear name.

2 Locator
Enter a Maidenhead grid locator if available.

3 Latitude / longitude
Enter decimal degrees and confirm acceptance.

4 Altitude
Enter station altitude in metres.

5 Minimum elevation
Set the local horizon threshold in degrees.

6 Create / Save
Store the profile.

7 Cancel
Close without saving.

The captured build showed a conversion error for prefilled coordinates. The values and error text are covered in the image; check that the final fields are accepted before saving.

INTERFACE REFERENCE / 06 OF 16

Rotor Profiles

Create or manage a saved rotor connection and hardware geometry.

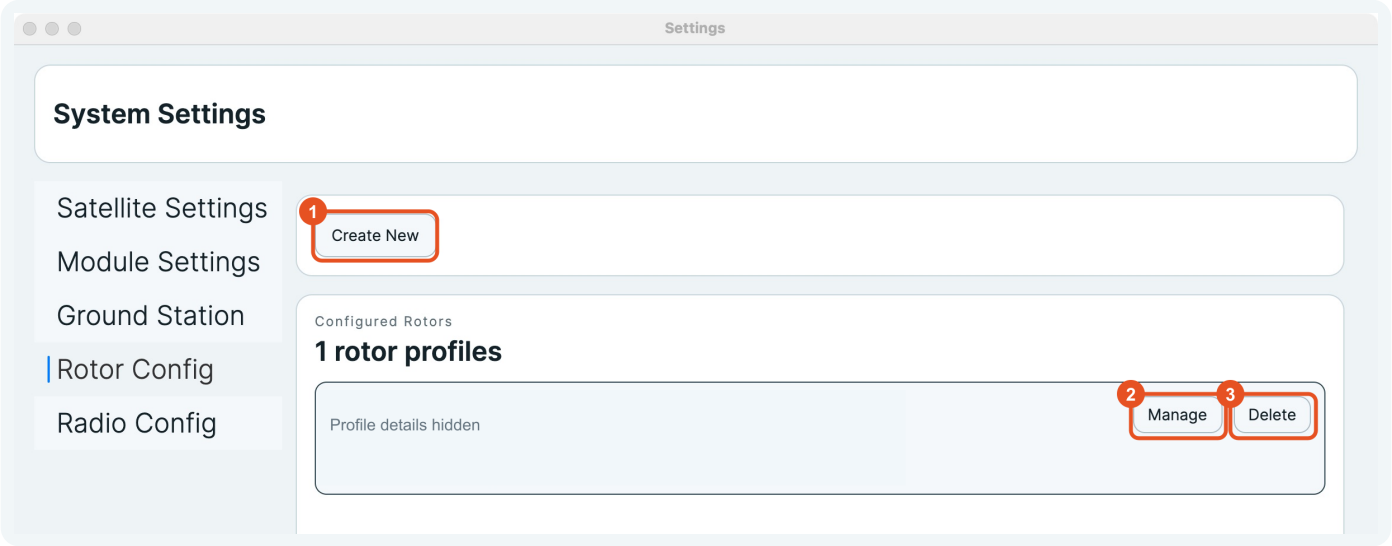


FIGURE 06 / Annotated Skynet interface

CONTROL KEY

1 Create New
Open the rotor profile form.

2 Manage
Edit the chosen rotor profile.

3 Delete
Remove the chosen rotor profile.

> Configure the Hamlib model and physical limits before engaging a rotor.

INTERFACE REFERENCE / 07 OF 16

Rotor Endpoint

Connect through rotctld, either local auto-start or an existing TCP service.

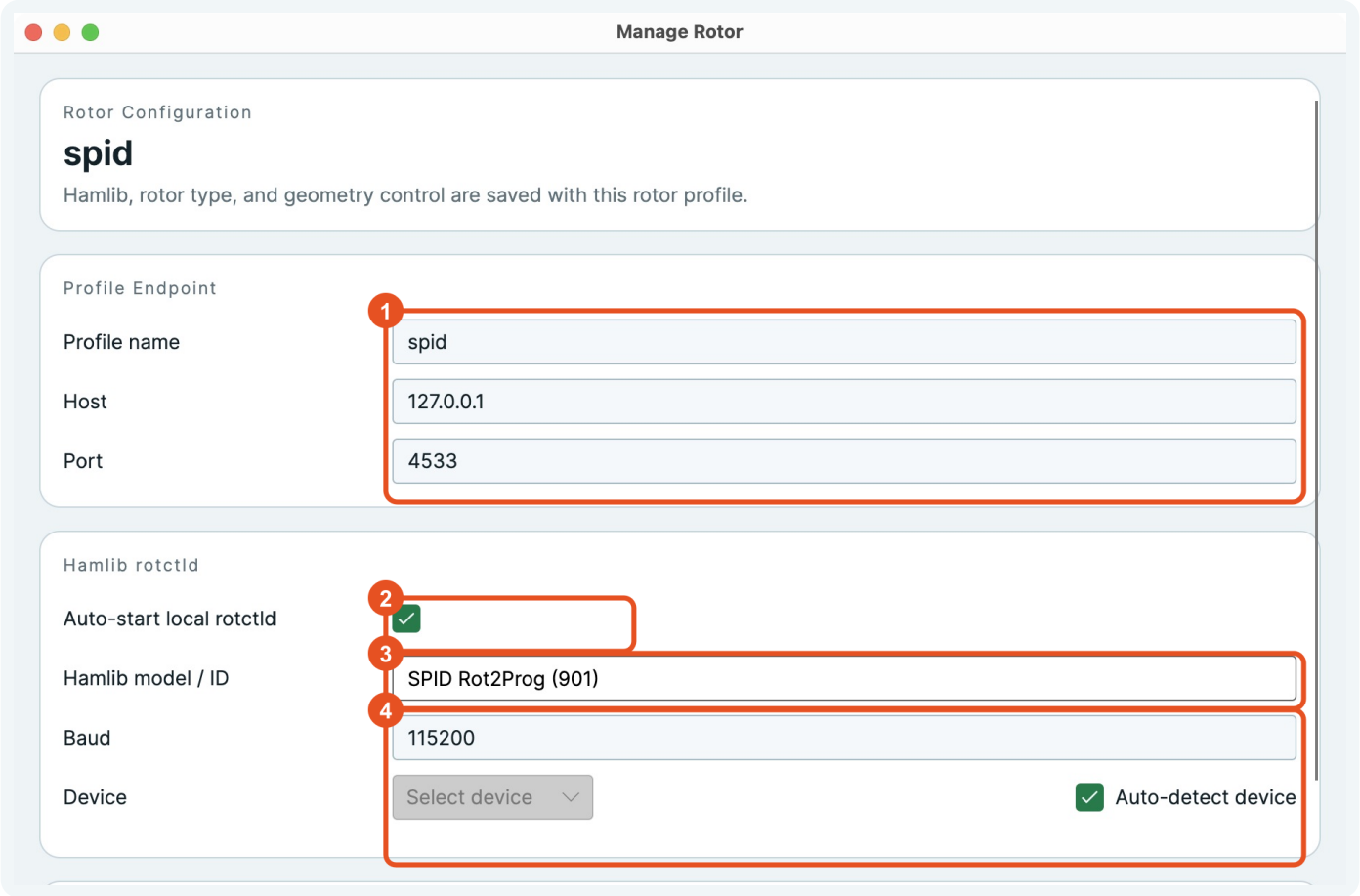


FIGURE 07 / Annotated Skynet interface

CONTROL KEY

1 Name / host / port
Name the profile and set the rotctld endpoint.

2 Auto-start
Let Skynet start a local rotctld process.

3 Hamlib model
Search by maker, model or numeric ID.

4 Baud / device
Set serial speed and port, or select auto-detect.

When using an existing service, enter its reachable host and port.

INTERFACE REFERENCE / 08 OF 16

Rotor Geometry

Match every movement setting to the actual rotor before tracking.

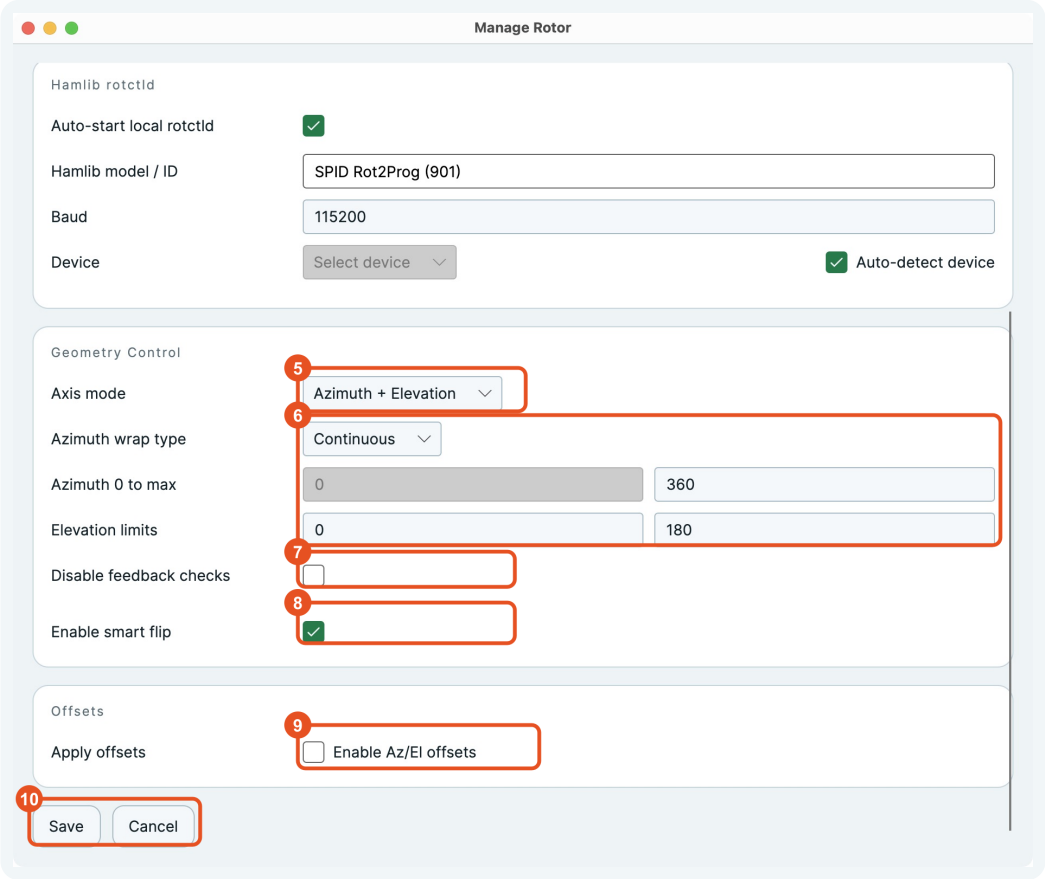


FIGURE 08 / Annotated Skynet interface

CONTROL KEY

5 Axis mode
Choose azimuth plus elevation or azimuth only.

6 Travel limits
Set wrap type and azimuth/elevation limits.

7 Feedback checks
Disable only when position feedback is unusable.

8 Smart flip
Allow an alternate pointing path within limits.

9 Az / El offsets
Apply calibrated pointing offsets.

10 Save / Cancel
Store the profile or discard the form.

> Scroll to the bottom of the form to reach Save and Cancel.

INTERFACE REFERENCE / 09 OF 16

Radio Profiles

Create or manage a saved rigctld connection and radio configuration.

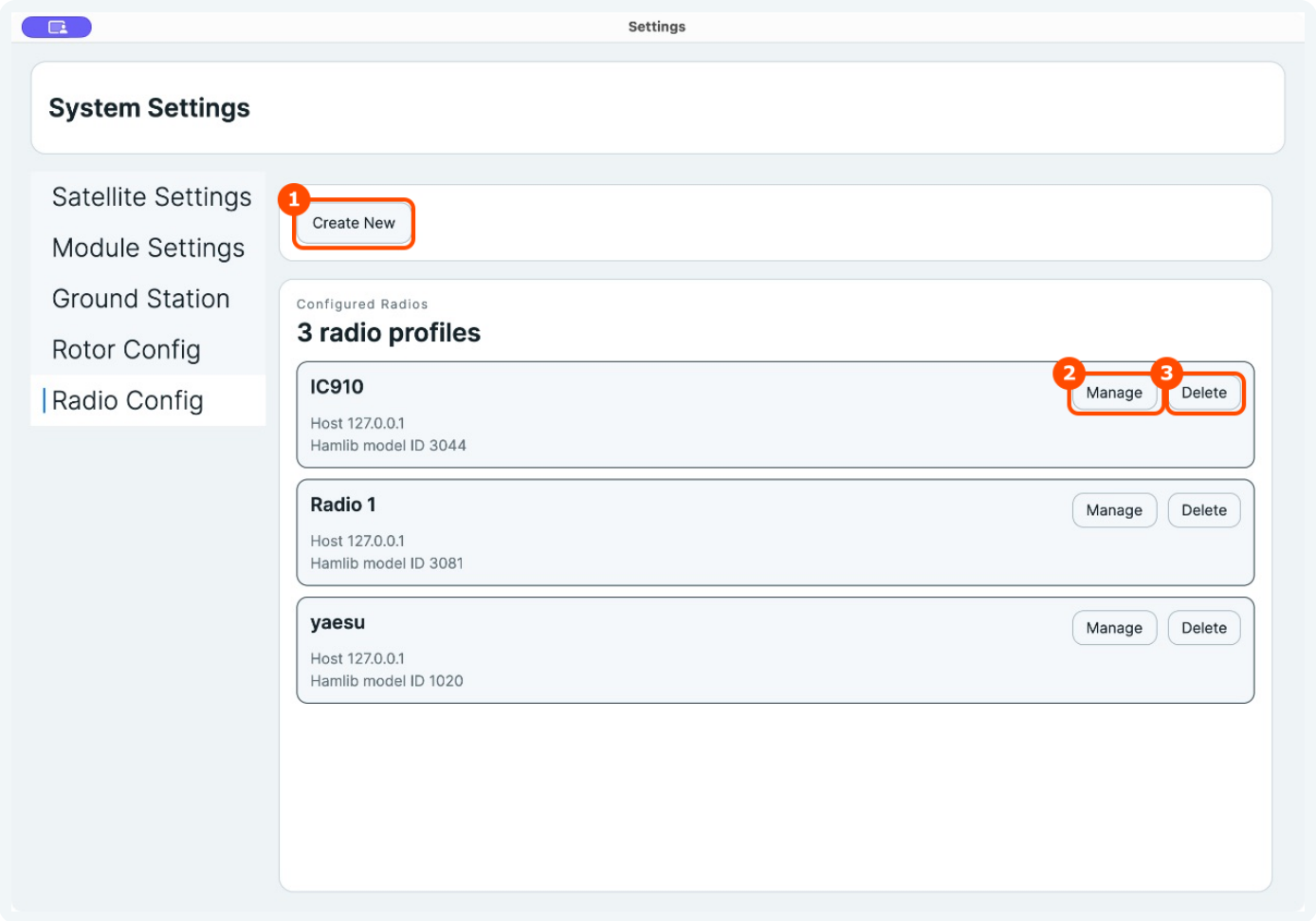


FIGURE 09 / Annotated Skynet interface

CONTROL KEY

1 Create New
Open a new radio profile form.

2 Manage
Edit the chosen radio profile.

3 Delete
Remove the chosen radio profile.

> Choose a profile in Radio Control after saving it here.

INTERFACE REFERENCE / 10 OF 16

Radio Endpoint

Set the rigctld endpoint, local serial connection and Hamlib model.

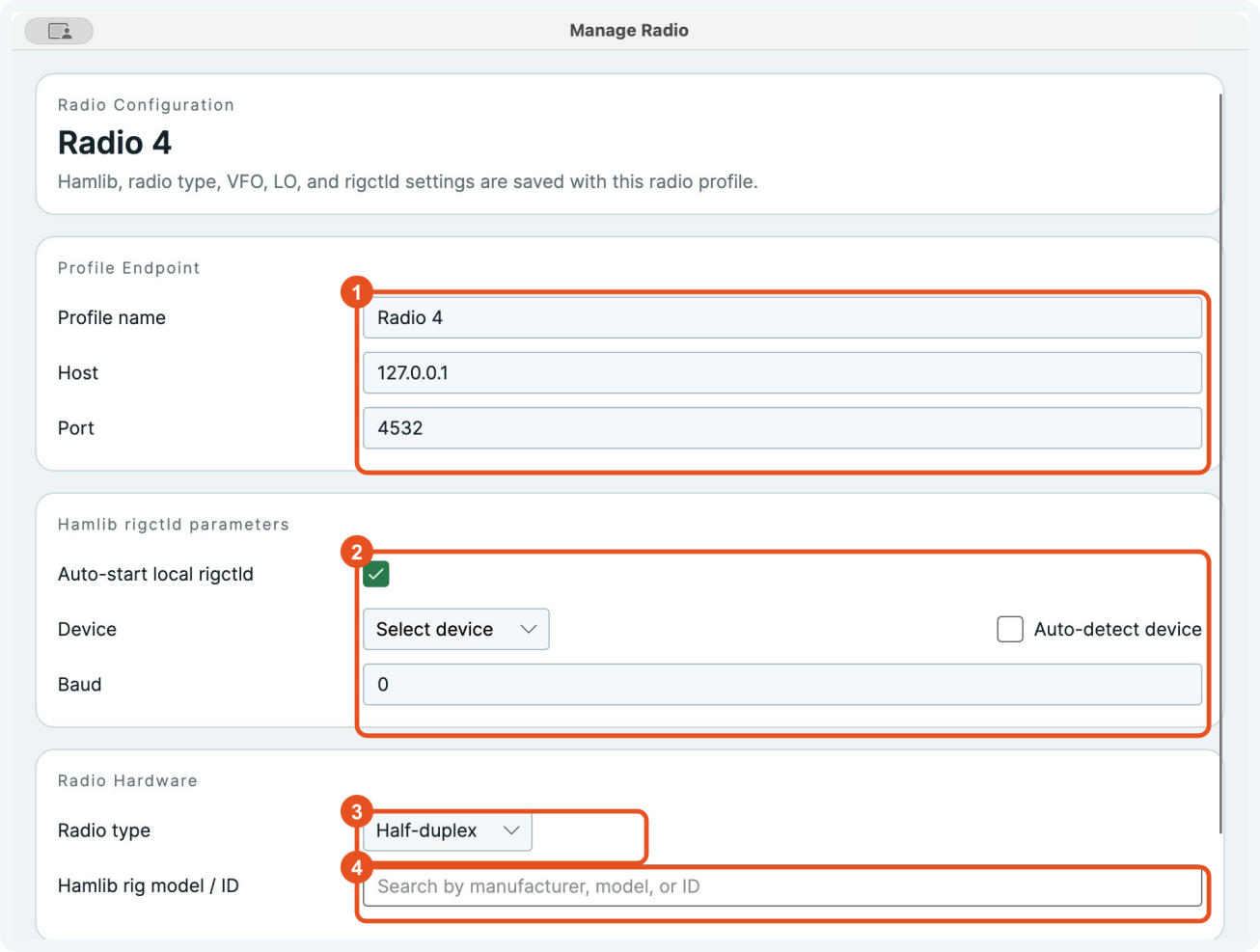


FIGURE 10 / Annotated Skynet interface

CONTROL KEY

1 Name / host / port
Name the profile and set the rigctld endpoint.

2 Auto-start / device
Start a local rigctld; set device and baud.

3 Radio type
Choose RX, TX, half-duplex or full-duplex.

4 Hamlib model
Search and select the matching rig model / ID.

For an existing rigctld service, enter its host and port.

INTERFACE REFERENCE / 11 OF 16

Radio Operation

Set VFO routing, transverter offsets and optional advanced arguments.

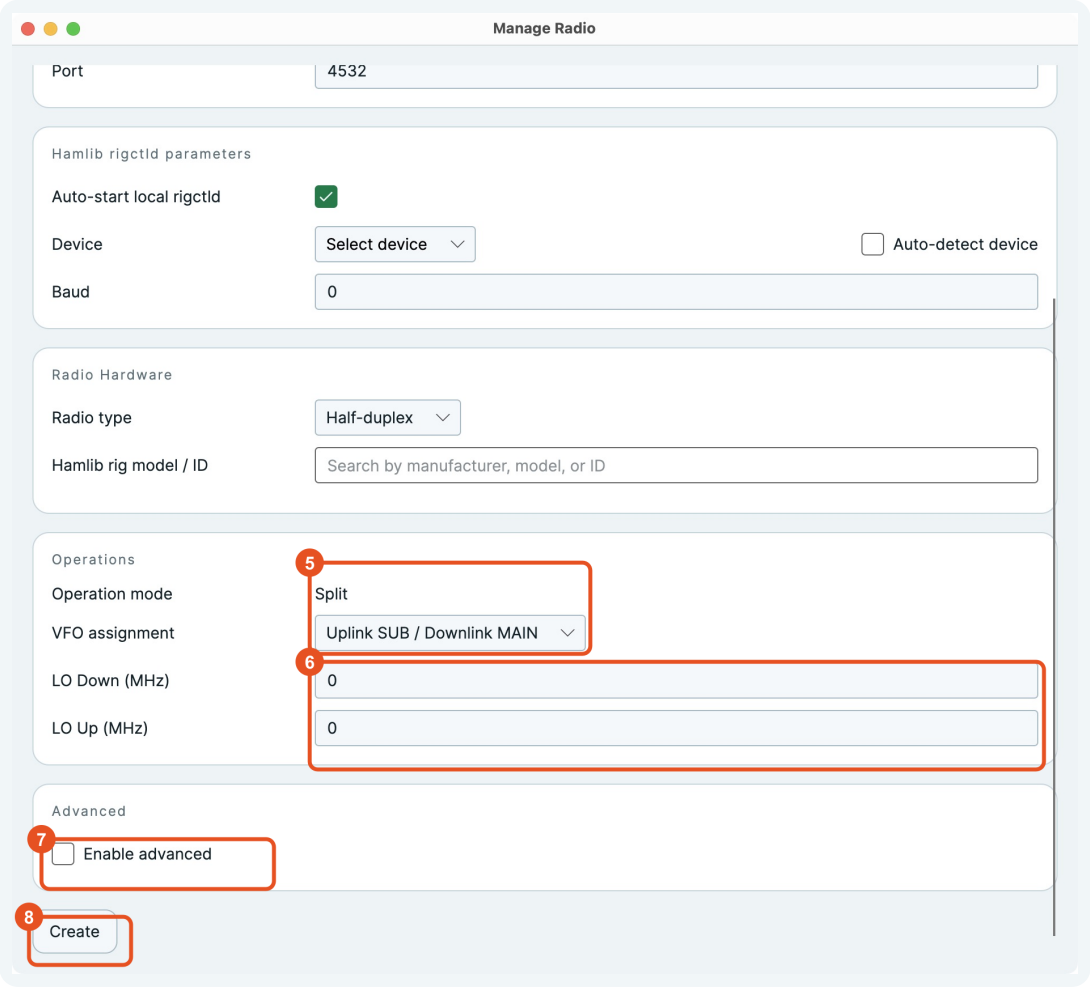


FIGURE 11 / Annotated Skynet interface

CONTROL KEY

5 Mode / VFO
Review operation mode and assign uplink/downlink VFOs.

6 LO Down / Up
Enter transverter LO offsets in MHz; zero if none.

7 Advanced
Expose CI-V address and extra rigctld arguments.

8 Create / Save
Store the radio profile.

> The operation mode follows the selected radio type.

INTERFACE REFERENCE / 12 OF 16

Time Preview

Review a future or past prediction without changing the live clock.

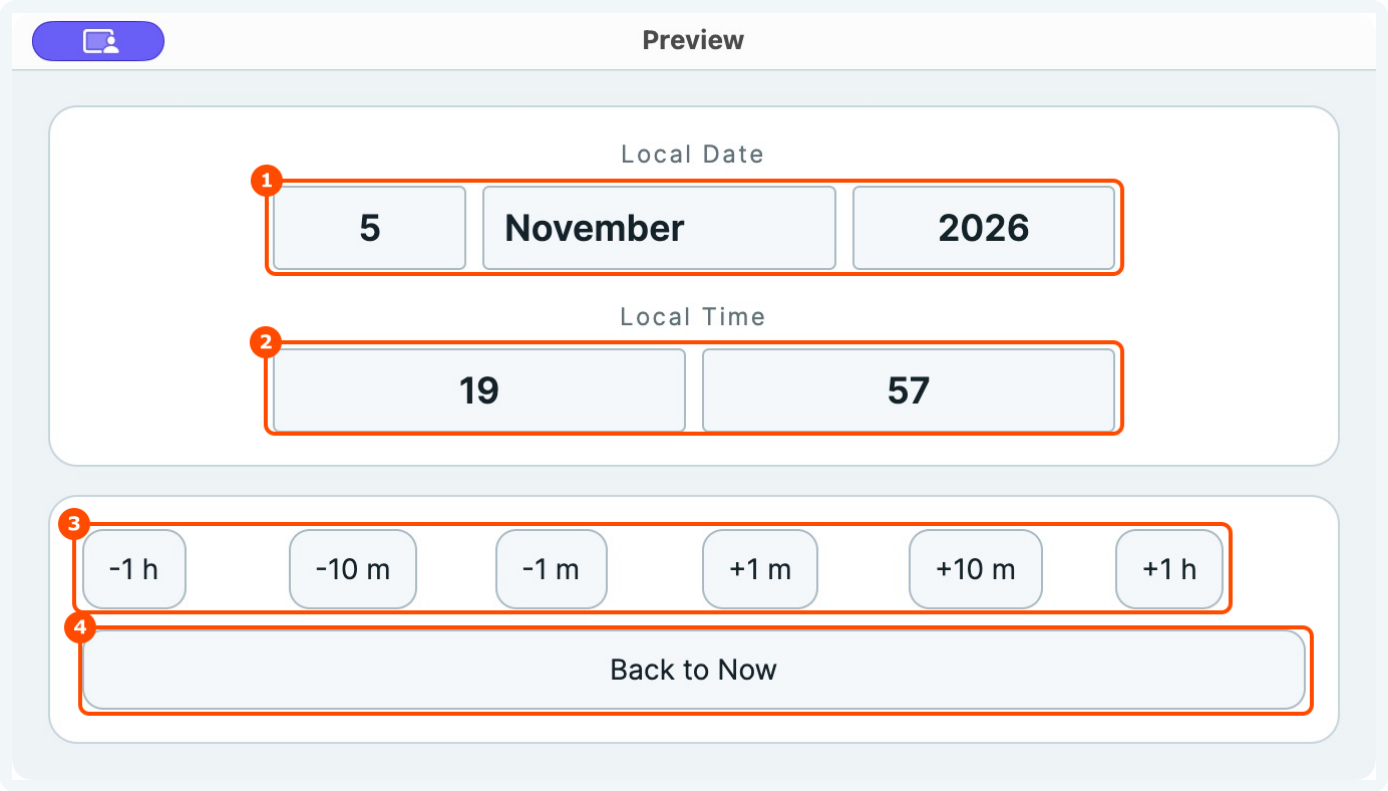


FIGURE 12 / Annotated Skynet interface

CONTROL KEY

1 Local Date
Enter day, month and year.

2 Local Time
Enter hour and minute.

3 Step buttons
Move by one hour, ten minutes or one minute.

4 Back to Now
Restore the current timestamp.

> Closing Preview returns Mission Control to live time.

INTERFACE REFERENCE / 13 OF 16

Upcoming Passes

Inspect AOS, LOS, duration and maximum elevation for the map target.

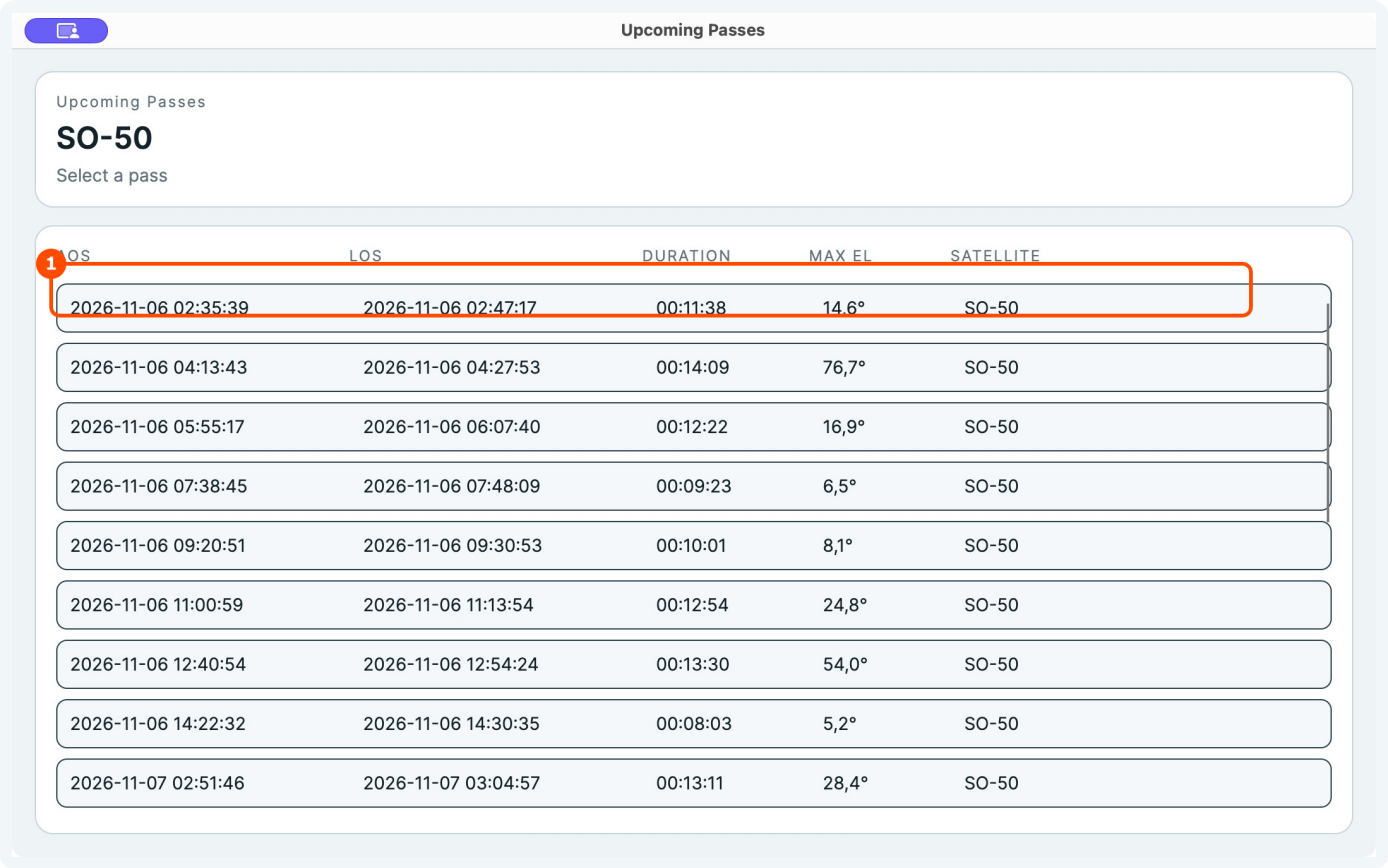


FIGURE 13 / Annotated Skynet interface

CONTROL KEY

1 **Pass row**
Open Pass Overview with a polar plot and pass data.

AOS starts a pass; LOS ends it. Use Back in Pass Overview to return to this list.

INTERFACE REFERENCE / 14 OF 16

Rotor Control

Connect a rotor, point manually or track the selected satellite.

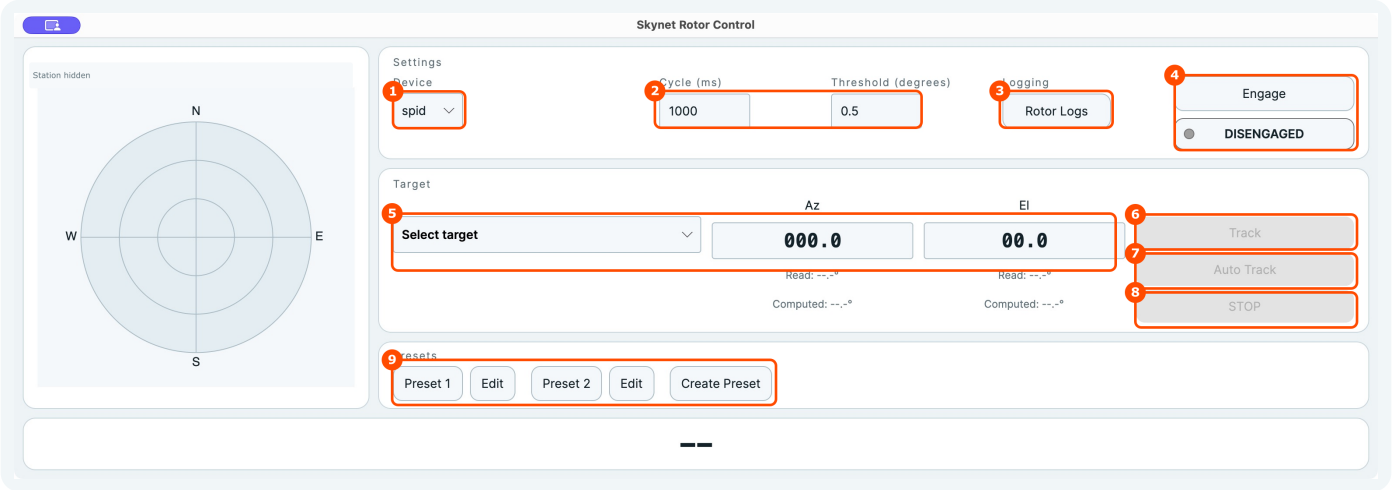


FIGURE 14 / Annotated Skynet interface

CONTROL KEY

1 Device
Choose a saved rotor profile.

2 Cycle / threshold
Set update interval and pointing tolerance.

3 Rotor Logs
Open events; Verbose expands detail, Copy exports text.

4 Engage
Connect or disconnect; read status first.

5 Target / Az / El
Choose target or enter a manual position.

6 Track
Follow the selected pass, then stop.

7 Auto Track
Follow successive passes, with optional parking.

8 STOP
Stop tracking or active motion.

9 Presets
Command a preset, edit one or create another.

> Manual pointing and presets can move an engaged rotor.

INTERFACE REFERENCE / 15 OF 16

Rotor Presets

Store a named position for one-click pointing or automatic parking.

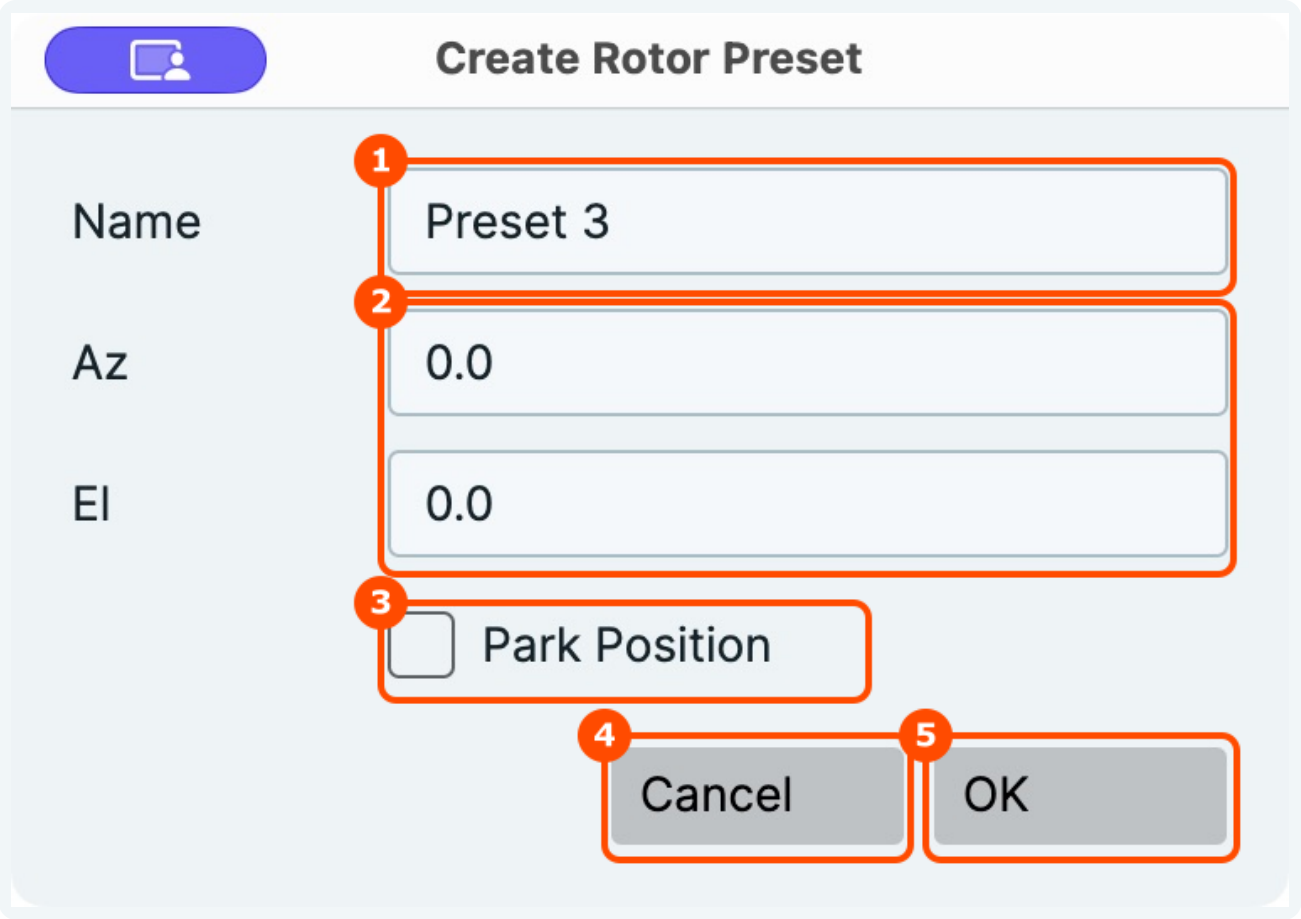


FIGURE 15 / Annotated Skynet interface

CONTROL KEY

1 Name
Label the preset button.

2 Az / El
Set the position in degrees.

3 Park Position
Use this position for automatic parking.

4 Cancel
Leave the form without saving.

5 OK
Save the preset.

> Create Preset and Edit both open this form.

INTERFACE REFERENCE / 16 OF 16

Radio Control

Connect a radio and track nominal frequencies with Doppler correction.

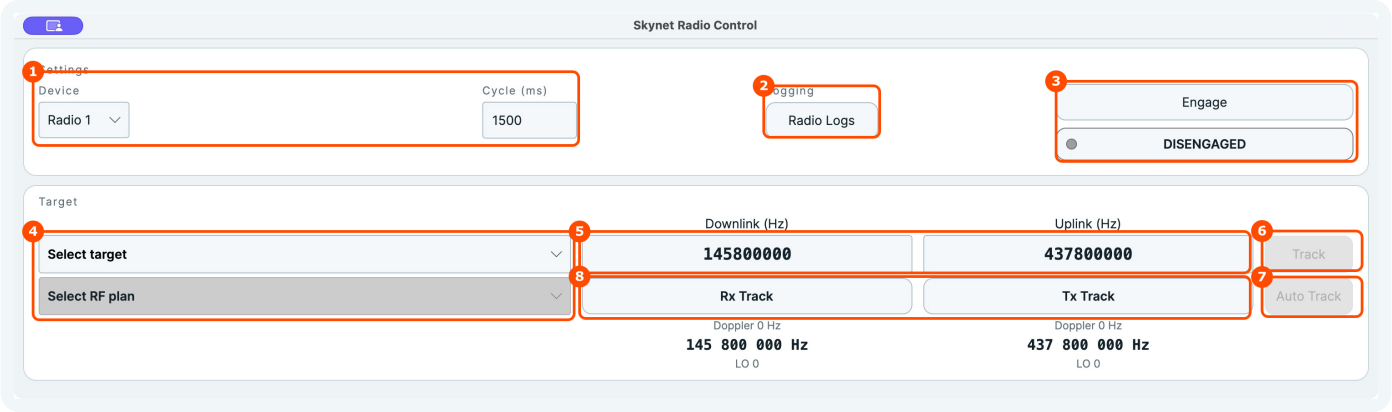


FIGURE 16 / Annotated Skynet interface

CONTROL KEY

1 Device / cycle
Choose a saved radio profile and update interval.

2 Radio Logs
Open events; Verbose expands detail, Copy exports text.

3 Engage
Connect or disconnect; read status first.

4 Target / RF plan
Choose a satellite and available plan.

5 Downlink / uplink
Set nominal Hz and inspect Doppler / LO readouts.

6 Track / Stop
Start or stop direct radio tracking.

7 Auto Track / Stop
Track automatically above minimum elevation.

8 RX / TX Track
Enable correction per receive/transmit path.

> Track can command frequencies below minimum elevation; Auto Track waits for the horizon threshold.

PROCEDURE A / PREDICTION

Plan a pass

A read-only planning flow for the selected satellite.

1. **Update orbital data**
   From Mission Control, select Update TLE and wait for the result panel to finish.

2. **Confirm the location**
   Open Settings > Ground Station. Inspect the station details and select Use on the intended profile.

3. **Build the satellite list**
   Open Satellite Settings. Search or Browse the catalog and select Add on the satellites to monitor.

4. **Select the target**
   Back on Mission Control, select Track beside the satellite. Confirm that the top readouts and pass timeline change.

5. **Inspect the pass**
   Select Next passes. Read AOS, LOS, duration and Max EL; select a row for Pass Overview.

6. **Preview if needed**
   Open Preview, set a local date and time, then select Back to Now before live operation.

> This procedure does not require rotor or radio engagement.

PROCEDURE B / ROTOR

Run a rotor pass

Use this sequence after the rotor profile has been matched to the actual hardware.

1. **Verify the profile**
   Settings > Rotor Config: confirm Hamlib model, device/endpoint, axes, wrap and travel limits. Save any edits.

2. **Open Rotor Control**
   Choose the saved Device. Set Cycle and Threshold for the installation.

3. **Select the satellite**
   Choose a Target and inspect the computed Az/El values.

4. **Engage**
   Select Engage and verify the connected status. Inspect Rotor Logs if it does not connect.

5. **Track**
   Select Track for this pass or Auto Track for successive passes. Use STOP to halt tracking or motion.

6. **Finish**
   Select Disengage when the operation is complete.

> Manual Az/El entry and preset buttons can command movement while engaged. Confirm the physical clearance and limits before using them.

PROCEDURE C / RADIO

Run a radio pass

Use this sequence after the radio profile and allowed frequencies have been checked.

1. **Verify the profile**
   Settings > Radio Config: confirm rig model, connection, radio type, VFO assignment and any LO offsets.

2. **Open Radio Control**
   Choose the saved Device and Cycle. Select the satellite Target and an RF plan, or enter nominal Hz.

3. **Choose Doppler paths**
   Set RX Track and TX Track as appropriate for the configured radio and operating plan.

4. **Engage**
   Select Engage and verify status. Use Radio Logs if the connection fails.

5. **Start tracking**
   Select Track for direct tracking or Auto Track for commands above the station's minimum elevation.

6. **Finish**
   Select Stop, then Disengage when the operation is complete.

> Track can command frequencies below the station horizon threshold. Confirm the permitted frequencies and TX configuration before engaging.

REFERENCE / RECOVERY AND TERMS

Troubleshooting

Use the status and log windows to identify a connection or data problem.

1. **No satellite results**
   Run Update TLE, wait for the result, then search or browse again.

2. **Unexpected pass time**
   Check UTC/local time, the station timezone and the active ground station.

3. **Rotor or radio will not engage**
   Check the saved profile, Hamlib model, device, endpoint and the corresponding Logs window.

4. **No automatic radio commands**
   Check target, nominal frequencies, RX/TX switches, status and minimum elevation.

APPLICATION UPDATES

On macOS, open the Skynet application menu > About Skynet > Check for updates. The update button appears where the updater is supported.

PASS TERMINOLOGY

AOS Acquisition of signal; the start of a pass.

LOS Loss of signal; the end of a pass.

Max EL Highest elevation in a predicted pass.

Doppler DL Calculated downlink frequency correction.

> This handbook documents the installed interface and source behavior. The screenshots do not establish successful operation with a physical rotor or radio.