

Hong Kong Controller Plugin Guide

Background

In 2016, the Civil Aviation Department of Hong Kong introduced a new air traffic management system (ATMS) – AutoTrac III, made by Raytheon. This ATMS brought with it several unique features, including the provision of 3-letter route abbreviations, the use of plane-shaped radar targets and the ability to quickly reference the assigned approach of each aircraft.

For over 8 years, these features were not replicated in our sector files, as no readily available solution matched our needs.

With the introduction of HKCP AutoTrac III tags, created in-house by members of the Hong Kong vACC, controllers can now enjoy updated, realistic and accessible tags, with plenty of new features designed to improve immersion for both controllers and pilots.

As a general disclaimer, Hong Kong vACC is in no way related to Raytheon or the Civil Aviation Department, and the plugin should not be used for real-world aviation-related purposes. Functionality of the plugin does not exactly mirror what is present in the real system.

Features

As previously mentioned, the real-world AutoTrac III (AT3) system has many quirks and features. Here is a list of features that the plugin provides in addition to basic EuroScope/TopSky functionality:

- Realistic formatting of aircraft type, (assigned) altitude, (assigned) heading, (assigned) speed tag display
- Realistic radar target symbols and Controller Jurisdiction Symbol (CJS) indicator
- Approach type selection dialogue and tag display
- Route selection dialogue and tag display
- Approach gate (ABBEY/BETTY/CANTO) ETA tag display, and integration with the MAESTRO plugin for AMAN delays

The missed approach indicator provides a way for tower controllers to alert APP/DEP controllers of go arounds within EuroScope.

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Setup

The plugin comes pre-installed and set up in the Hong Kong Sector Package, available via the [Hong Kong Sector Installer](#), or on GitHub.

Tag items and functions provided by the plugin are prefixed with "HKCP/AT3" in EuroScope.

The [MAESTRO plugin by Juha Holopainen](#) must be installed for the plugin to be loaded. The [TopSky plugin by Juha Holopainen](#) must be installed for the plugin to have full functionality.

If the plugin is loaded properly, all Mode-C and Mode-S targets should have an aircraft icon.

Performance

The plugin performs a small amount of calculations every time a target or its tag is refreshed. Together with demanding plugins, e.g. TopSky and MAESTRO, there may be a small, but noticeable, decrease in performance during busy events. In this case, it may help to:

- Decrease the number of "tagged" aircraft (double click empty spaces in the tag to toggle the minimised "untagged" state)
- Reduce the visibility range of your VATSIM connection

Refer to the TopSky General Informational manual for more techniques.



A012+

A027+

A043+

CRK692 A20NM
A062+A045
337 20S22
25R ILS

FD
EPA1914 B77WH
A074+A045
330 26S22
25R ILS

LVF A109L
A013 A016
209 09
APP RTE >

CLAM

PAL225 B77WH
A080
084H090 30S22
25R ILS

PAL301 B744H
A072+F130
132 31
NOMANIA

AutoTrac III Tags

Tag Types

The Hong Kong Sector File is configured with 3 AT3 tag families.

AT3 (APP) is designed to be used by Approach/Departure controllers (excluding terminal) on Hong Kong TMA.asr

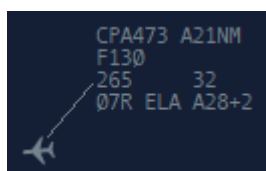
AT3 (TR) is designed to be used by Terminal and Area controllers on Hong Kong ACC.asr

AT3 (AMC) is designed to be used by Aerodrome and Zone controllers on Hong Kong Zone.asr

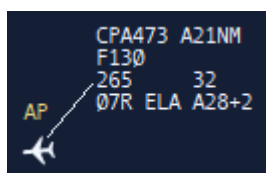
The *Tag item displays* section of this guide describes the differences in between each tag in further detail.

Flight plan states

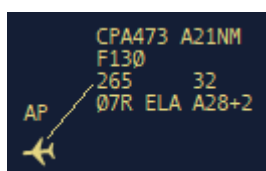
The colour(s) of each AT3 target and tag represents the flight plan state (assumed, not assumed, handoffs) of its radar target. For the default (blue) colour scheme, these colours are:



Assumed by another sector



Outgoing handoff in progress



Incoming handoff in progress/Redundant



Assumed





Other colour schemes available in the installer will have variations in the colours used for each state; however the pattern of how each colour is applied would remain the same. To customise/reference these colours, refer to TopSkySettings.txt

Radar Target displays

The AT3 Radar Target has two components: the Radar Target Symbol, and the Controller Jurisdiction Symbol (CJS) above it.





Radar Target Symbol

The Radar Target Symbol indicates the last received position of the radar track. SSR target symbols are rotated so that the nose of the aircraft symbol matches the calculated track of the radar target.

-  PSR, not assumed
-  SSR, not assumed
-  SSR, assumed
-  SSR, airspace infringement warning in progress (AIW)


Controller Jurisdiction Symbol

The Controller Jurisdiction Symbol (CJS) works in a similar way to the TopSky Sector Indicator. By default, it appears only on radar targets assumed by other sectors, and/or have an incoming/outgoing handoff. This behaviour is customisable in the EuroScope GeneralSettings.txt.

-  Assumed by another sector
-  Outgoing handoff in progress
-  Incoming handoff in progress/Redundant
-  Assumed (default)

Left click the CJS to toggle frequency display

Right click the CJS to toggle the EuroScope next controller menu

	<p>Note</p> <p>When displaying a frequency, the CJS remains in the assumed colour (white) regardless of the actual flight plan state.</p>
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Tag item displays

Line 1: Callsign and Aircraft Type + Wake Turbulence Category

Line 1 is identical across all 3 tag families.

[Right click the callsign to access the TopSky callsign menu.](#)

[Left click the callsign to access the EuroScope flight plan setting dialog.](#)

Aircraft connected to CPDLC via TopSky will have square brackets surrounding its callsign (e.g. [CPA473]).

CPA473 Callsign (CPA473) for the radar target's correlated flight plan

A21NM Aircraft type (A21N) and its associated ICAO Wake Turbulence Category (M) for the radar target's correlated flight plan

Line 2: Altitude, Vertical Speed Indicator and Assigned Altitude

Line 2 is identical across all 3 tag families.

The assigned altitude is displayed only if it is not identical to the actual altitude.

[Right click any element to access the TopSky altitude assignment menu.](#)

[Left click any element to toggle TopSky route draw.](#)

F130 Actual altitude only (FL130)

F130 F110 Actual altitude (FL130) and assigned altitude (FL110)

F130 A090 Actual altitude (FL130) and assigned altitude (9000 ft)

F127+A090 Actual altitude (FL127), vertical speed indicator (descending), and assigned altitude (9000 ft)

Line 3: Track and Assigned Heading

Line 3 is identical across all 3 tag families.

The assigned heading is displayed only if it has been assigned.

[Right click any element to access the TopSky heading assignment menu.](#)

265 Calculated track (265°)

265H230 Calculated track (265°) and assigned heading (230°)

Line 3: Ground Speed and Assigned Speed

Line 3 is identical across all 3 tag families.

The assigned speed or Mach number is displayed only if it has been assigned.

Right click any element to access the TopSky speed assignment menu.

Left click any element to clear the assigned speed value.

- 32** Ground speed (320 knots)
- 32S28** Ground speed (320 knots) and assigned speed (280 knots)
- 32S28+** Ground speed (320 knots) and assigned speed (280 knots or greater)
- 32M76+** Ground speed (320 knots) and assigned Mach number (.76 or greater)

Line 4: Approach/Departure (Arrival Runway and Approach or SID)

Line 4 is unique to each tag family.

For Approach/Departure tags, it displays the arrival runway, if it has been set; the approach type, if it has been set or generated; and the SID, if it has been assigned.

Right click the approach type to access the TopSky waypoint menu.

Left click the approach type to access the Approach Selection Menu.

Left or right click the runway to access the EuroScope runway assignment menu.

- 07L ILS** Arrival runway (07L) and approach type (ILS)
- 34 ILSZ** Arrival runway (34) and approach type (ILS Z)
- 07L RNP** Arrival runway (07L) and approach type (RNP)
- 25R RNPY** Arrival runway (25R) and approach type (RNP Y)
- APP RTE >** There is not enough data for HKCP to assign an approach
- OCEAN3A** SID (OCEAN3A)

Line 4: Aerodrome (Arrival Runway and Approach)

Line 4 is unique to each tag family.

For Aerodrome and Zone tags, it displays the arrival runway, if it has been set; the approach type, if it has been set or generated. It does not display the SID.

Right click the approach type to access the TopSky waypoint menu.

Left click the approach type to access the Approach Selection Menu.

Left or right click the runway to access the EuroScope runway assignment menu.

The Approach Selection Menu does not open for targets where the filed destination is not VHHH, VHHX or VMMC.

- 07L ILS** Arrival runway (07L) and approach type (ILS)
- 34 ILSZ** Arrival runway (34) and approach type (ILS Z)
- 07L RNP** Arrival runway (07L) and approach type (RNP)
- 25R RNPY** Arrival runway (25R) and approach type (RNP Y)
- APP RTE >** There is not enough data for HKCP to assign an approach

Note

HKCP determines which approaches are available by comparing the arrival airport and runway with data inside HKCPApproaches.json.

If HKCP is unable to assign an approach, it will first attempt to list the approaches of an arrival runway at the airport. If it is unable to do so, the Approach Selection Menu displays "BAD DATA".

Line 4: Terminal/Area (Arrival Runway, Route Abbreviation, Gate ETA and AMAN delay)

Line 4 is unique to each tag family.

For Terminal and Area tags, it displays the arrival runway, if it has been set; the route abbreviation, if it has been set or generated; the ETA at the specified route's APP gate and the required delay as specified by the MAESTRO AMAN. It does not display the SID.

The route abbreviation consists of the first letter of the APP gate (e.g. "A" for "ABBEY") or "R" if the aircraft has passed the APP gate, and the time at which the aircraft is expected to arrive at the gate or the destination airport (e.g. "28" for 28 minutes past the hour).

The AMAN delay consists of the length of delay the AMAN system has computed for the aircraft to arrive at the APP gate in the required sequence (e.g. "+2" for two minutes needed).

The Approach Selection Menu does not open for targets where the filed destination is not VHHH, VHHX or VMMC.

Right click the route abbreviation to access the TopSky waypoint menu.

Left click the route abbreviation to access the Route Selection Menu.

Left or right click the runway to access the EuroScope runway assignment menu.

07L ELA A28+2 Arrival runway (07L), Route abbreviation (ELATO V522), Gate ETA (ABBEY at time 28) and AMAN delay (2 minutes)

07R ID0 C43 Arrival runway (07R), Route abbreviation (IDOSI V561), Gate ETA (CANTO at time 43)

07L ELA R35 Arrival runway (07L), Route abbreviation (ELATO V522), Gate ETA (VHHH at time 35)

Departures

Note

HKCP matches only the exact route when assigning a route abbreviation automatically. Manually assign the route abbreviation using the Route Selection Menu if it is incorrect.

If the Gate ETA does not appear, re-assign the route abbreviation using the Route Selection Menu

Line 5: Scratchpad

Line 5 is identical across all 3 tag families.

[Left or right click the scratchpad to modify its value.](#)

The standard EuroScope scratchpad can be edited on the detailed (hover-over) tag.

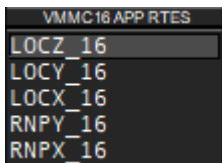
Line 6: Compound Warning

Line 6 is identical across all 3 tag families.

The TopSky Compound Warning displays warnings related to the radar target, e.g. CLAM.

Tag function menus

Approach Selection Menu



The Approach Selection Menu provides the ability to select an approach type for a radar target, which is then shown on Approach/Departure and Aerodrome tags. This reduces the amount of coordination required between sectors for non-standard approaches.



The menu does not modify the correlated flight plan, so any runway or STAR assignments must be made manually.

After a runway change or diversion, the previously selected approach is retained. Controllers should select a new approach using the menu.

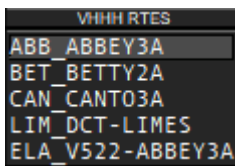
The Approach Selection Menu is accessed by left-clicking on the Approach tag element in line 4.

Note

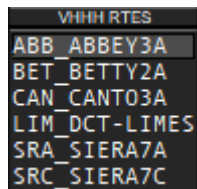
HKCP determines which approaches are available by comparing the arrival airport and runway with data inside HKCPApproaches.json.

If HKCP is unable to assign an approach, it will first attempt to list the approaches of an arrival runway at the airport. If it is unable to do so, the Approach Selection Menu displays "BAD DATA".

Route Selection Menu



The Route Selection Menu provides the ability to select a route abbreviation for a radar target, which is then shown on Terminal and Area tags. This provides a clear image of traffic for pre-planning and sequencing.



The menu modifies the correlated flight plan to assign the corresponding STAR. It does not modify other parts of the route.

After a runway change or diversion, the previously selected route is retained. Controllers should select a new route using the menu.

Controllers are reminded that the route abbreviation should not be used to indicate direct routings. For example, an aircraft entering VHHK via ELATO for VHHH should be allocated ELA at all times provided it is routing via V522, regardless of whether it was given a direct to ABBEY/LIMES; whereas an aircraft routing from VMMC to VHHH via radar vectors may be given LIM, with LIMES being the first selectable waypoint in their flight plan.

The Route Selection Menu is accessed by left-clicking on the Route tag element in line 4.

Note

HKCP determines which approaches are available by comparing the arrival airport, route and runway with data inside HKCPRoutes.json.

If HKCP is unable to determine which approaches are available, the Route Selection Menu displays 'BAD DATA'.

HKCP matches only the exact route when assigning a route abbreviation. Manually assign the route abbreviation using the Route Selection Menu if it is incorrect.

CRK253 D209

EVA867 N34

CPA2X N28

BAW27 N9
26

NO PUSH CLR

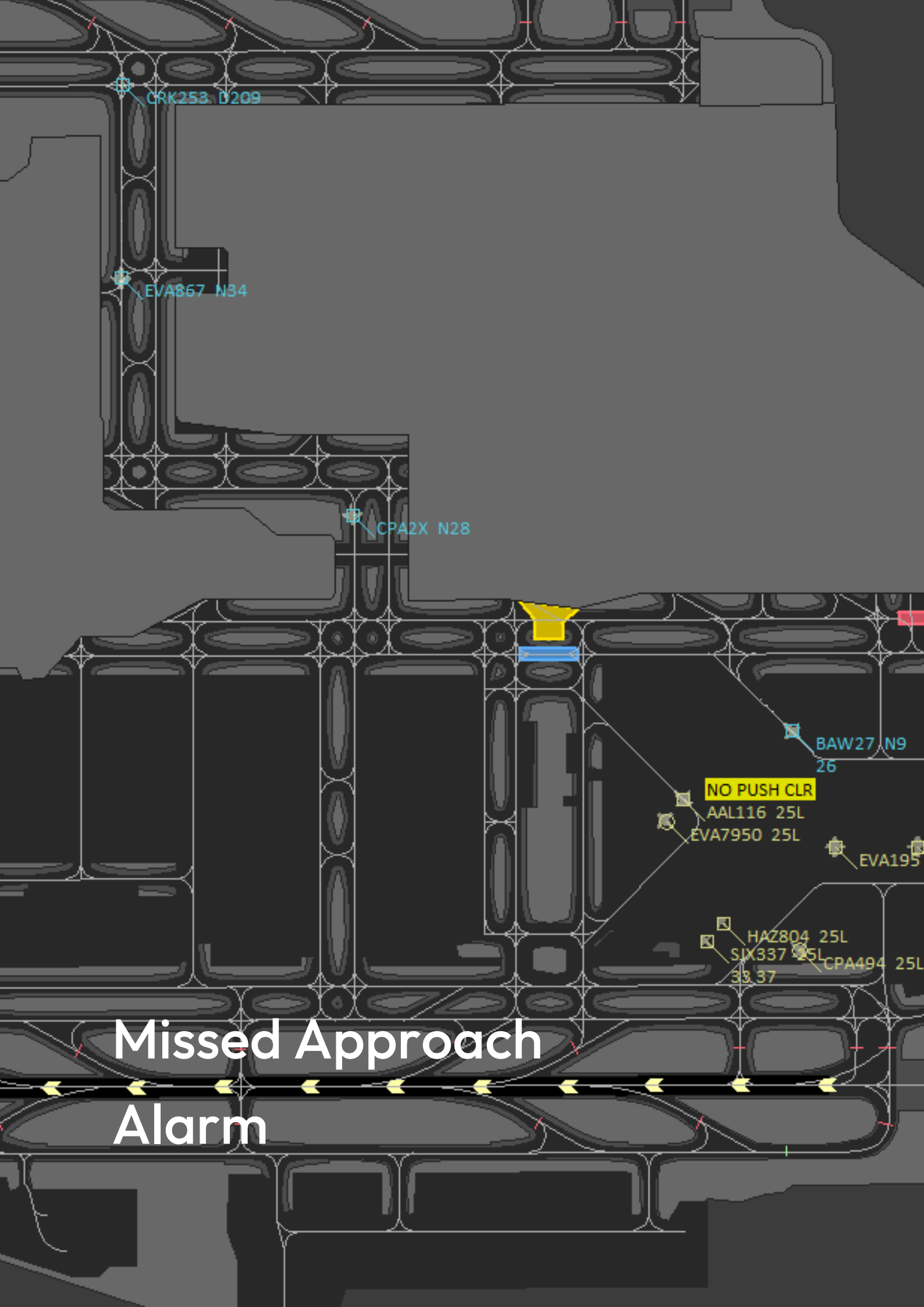
AAL116 25L
EVA7950 25L

EVA195

HAZ804 25L
SIX337 25L
33.37

CPA494 25L

**Missed Approach
Alarm**

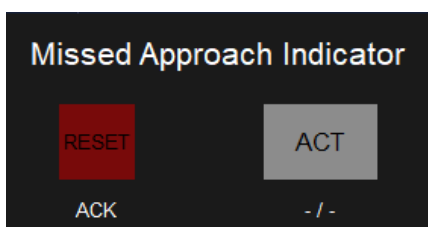


Introduction

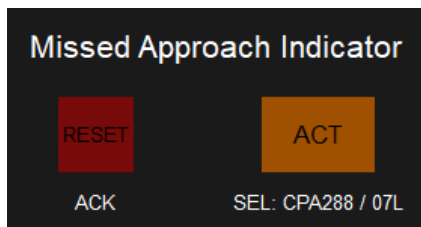
The missed approach indicator provides a way for tower controllers to alert approach controllers of go arounds within EuroScope. It is adapted from the physical unit used by real life Hong Kong ATC.

Controllers should agree beforehand whether they choose to use these alerts to substitute regular voice / text coordination. As a tower controller, it is your responsibility to ensure that the approach controller expects to receive these alerts, and vice versa. Note that this alert system **does not specify the type of missed approach** (standard procedure, runway heading, etc.) so some prior coordination is still required.

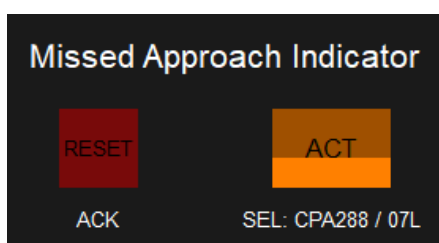
Tower Indicator Unit



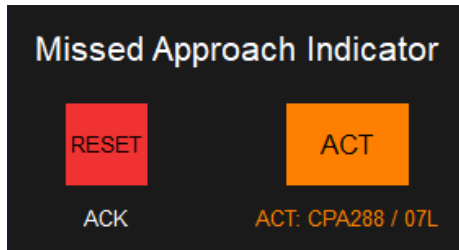
The Tower Missed Approach Indicator Unit automatically appears when you log onto any tower position (suffix _TWR). It features two buttons, RESET and ACT (activate). Initially, the reset button is dark red and the ACT button is grey, meaning no relevant aircraft is selected.



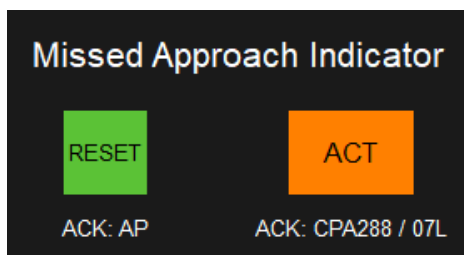
When an arriving aircraft is selected, the ACT button turns dark orange and the SEL text displays the callsign and arrival runway. Only aircraft arriving into the airport you are controlling, within 20 miles from landing, not on the ground **and** not tracked by another controller can be selected.



To activate the missed approach alarm, **press and hold the ACT button** until the entire button fills up bright orange, then release. To prevent accidental activation, the missed approach alert will not be sent if you release the ACT button too early. You can also select the "Missed Approach" option from the TopSky callsign menu from the tag or list.

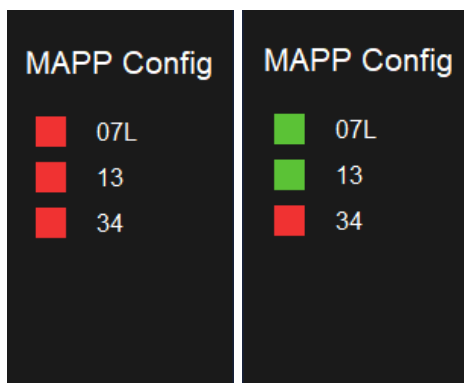


When the missed approach alert is activated, the ACT button flashes bright orange, the RESET button turns on bright red and an aural alert begins playing. Any APP/CTR controller that has chosen to receive alerts for that runway has been alerted. If you wish to cancel the alert before acknowledgement, click the RESET button to reset the indicator back to its original state.



When your missed approach alert has been acknowledged, the RESET button turns bright green, and the ACK text below will display the CJS of the station who acknowledged it. At this point, clicking the RESET button will reset the indicator back to its original state.

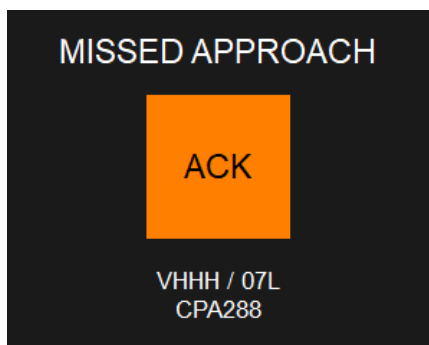
Approach Configuration Unit



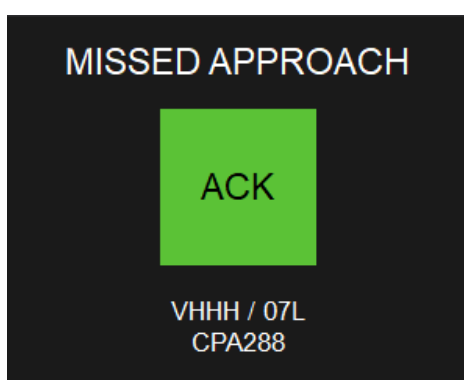
The Missed Approach Configuration Unit automatically appears when you log on any approach/departure, terminal or area radar position (suffix _APP or _CTR). It allows you to select which runways you wish to receive missed approach alerts for.

The list of runways displayed is taken from your selected arrival runways in EuroScope. Clicking a red box next to a runway will turn it green, indicating that you will receive alerts for that runway. Ensure that you **only select runways that you control the missed approach path** for to avoid sending double acknowledgements to the tower controller.

Approach Alert Unit

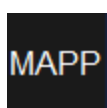


When a missed approach alert is sent by the tower controller for a runway you have enabled alerts for, an aural alert begins playing, and the alert unit with the title "MISSED APPROACH" pops up on your radar display. It displays the aircraft's airport, runway, and callsign.



To acknowledge the missed approach, click the flashing orange ACK button once. The ACK button turns green to indicate that your acknowledgement has been sent to the tower controller. At this point, clicking the green ACK button again will dismiss the alert unit.

Minimising and Hiding the Unit



To avoid taking up screen space, the tower indicator unit and approach configuration unit can be minimised or hidden. To minimise the unit, click the title bar "Missed Approach Indicator" or "MAPP Config." The unit shrinks to a small black box with the text "MAPP". Clicking the "MAPP" text again will restore the full unit.

To hide the unit entirely, use the command `".mapphide"`. To show the unit again, use the command `".mappshow"`.

Hiding the config unit will not prevent alerts from appearing for the runways you have selected.

Enjoy :)

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