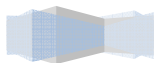

vZHU ARTCC

I90 TRACON Standard Operating Procedures

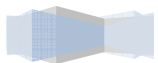
Rev. 5 June 19, 2014



Foreword

This document defines the duties and responsibilities for personnel providing air traffic control services for the IAH and HOU ATCT as well as the Houston I90 TRACON on the VATSIM network. Guidance contained herein is supplemental to all other vZHU, VATUSA and VATSIM directives. Personnel are required to be familiar with the provisions of this handbook that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations not covered herein.

Christopher Stacy
Air Traffic Manager, vZHU ARTCC



THE AIRSPACE

The Houston I90 TRACON is an airspace that encompasses the Houston metropolitan area including George Bush Intercontinental Airport (KIAH), Houston Hobby Airport (KHOU), David Wayne Hooks Airport (KDWH), Southeast Texas Regional Airport (KBPT), Easterwood Field (KCLL) and Ellington Field (KEFD).

At its longest point, the airspace covers approximately 175 nautical miles laterally, 160 nautical miles vertically, and extends from the surface to 16,000 feet MSL at its highest point. The airspace is depicted in Figure 1.

The default call sign is Houston Approach (HOU_APP) operating on frequency 120.050.

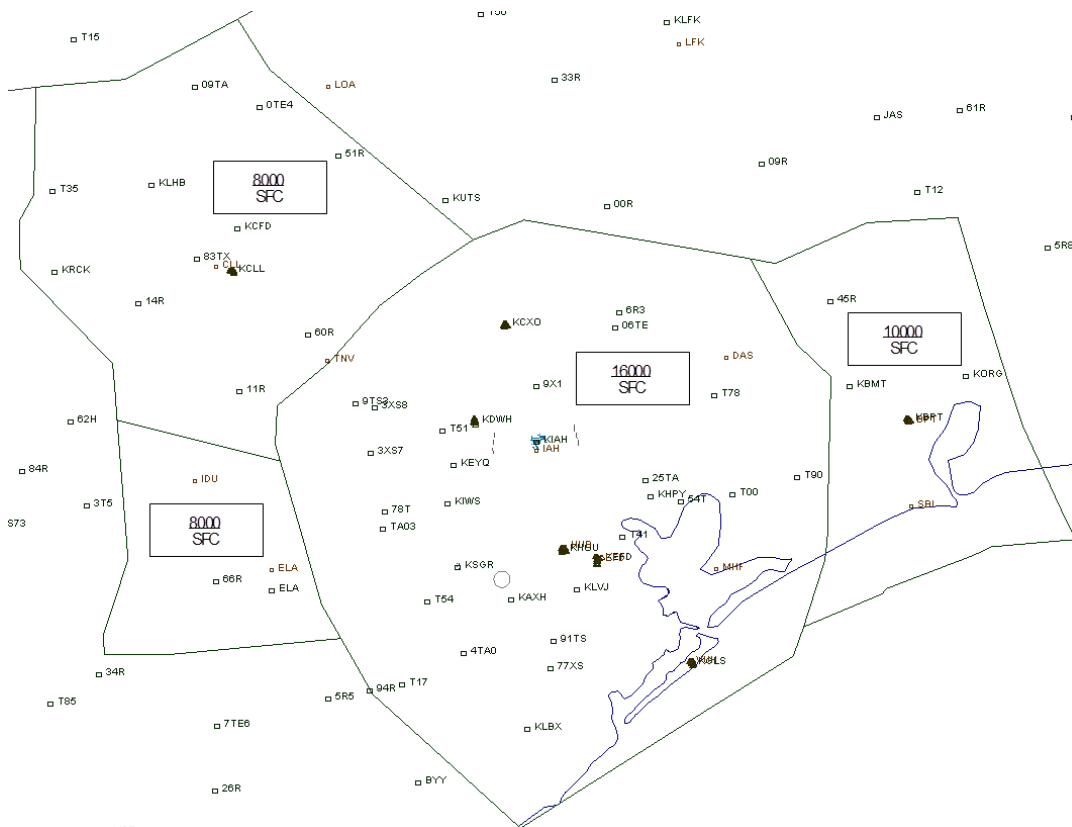


Figure 1 - I90 Airspace

AIRSPACE SPLITS

The I90 TRACON may be split in the following ways:

TWO WAY SPLIT

As depicted in Figure 2, the TRACON is split into Arrival East (HOU_E_APP, operating on frequency 120.050) and Arrival West (HOU_W_APP, operating on frequency 124.350). The airspace is divided using the IAH VORTAC 327/143 radial.

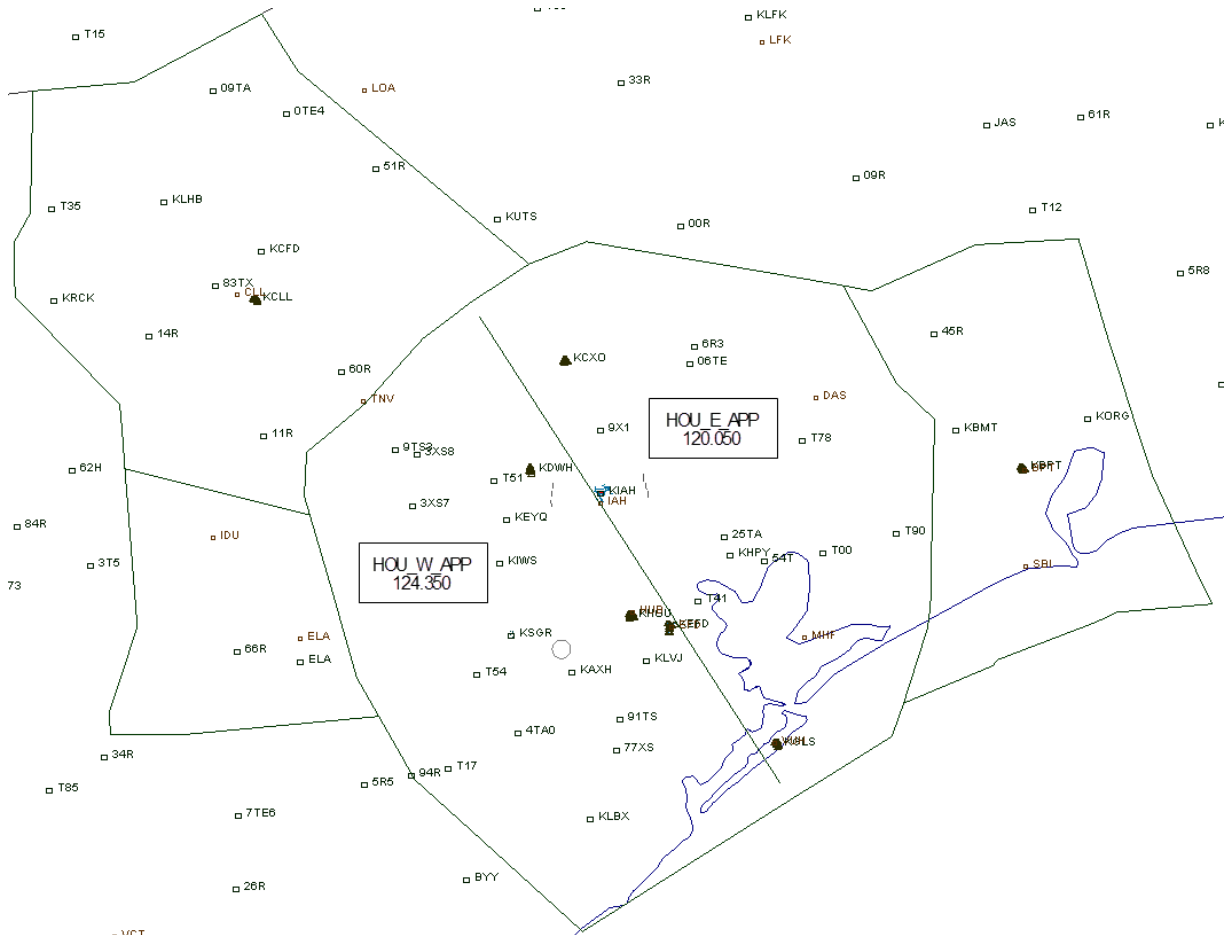


Figure 2 - I90 2-Way Split

THREE WAY SPLIT

As depicted in Figure 3, the TRACON is split into Arrival East (HOU_E_APP, operating on frequency 120.050), Arrival West (HOU_W_APP, operating on frequency 124.350) and Gulf Arrival (HOU_G_APP, operating on frequency 134.450). The split for Arrival East and Arrival West is on the IAH VORTAC 327/147 radial, and the split for Gulf Arrival is on the ELA VORTAC 255/075 radial.

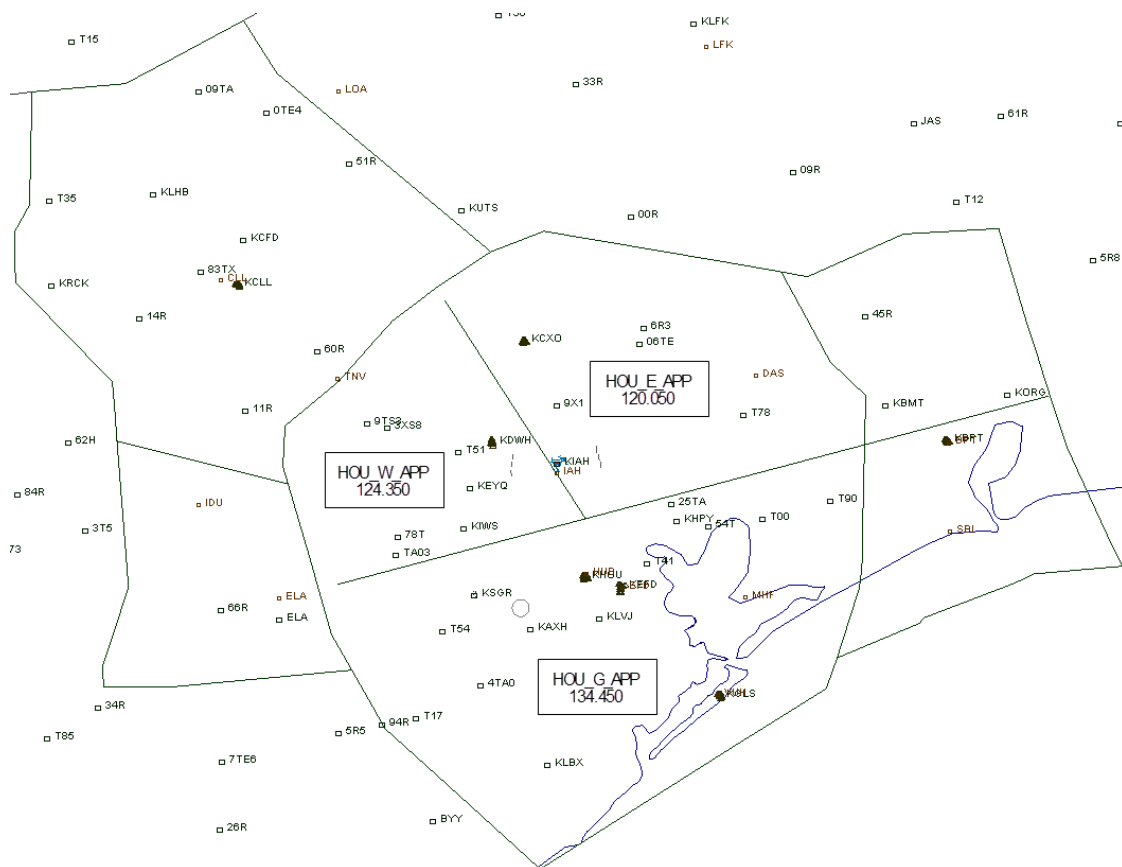


Figure 3 - I90 3-Way Split

NOTE:

It is assumed that Houston Departure (HOU_DEP operating on frequency 119.700) encompasses the entire I90 TRACON airspace in any split.

CLASS B Airspace

The Houston Class B airspace extended 30nm from the IAH VORTAC, and 20nm from the HOU VORTAC. The floor of the Class B varies, and the ceiling is 10,000 feet MSL. The Class B airspace is depicted in Figure 4.

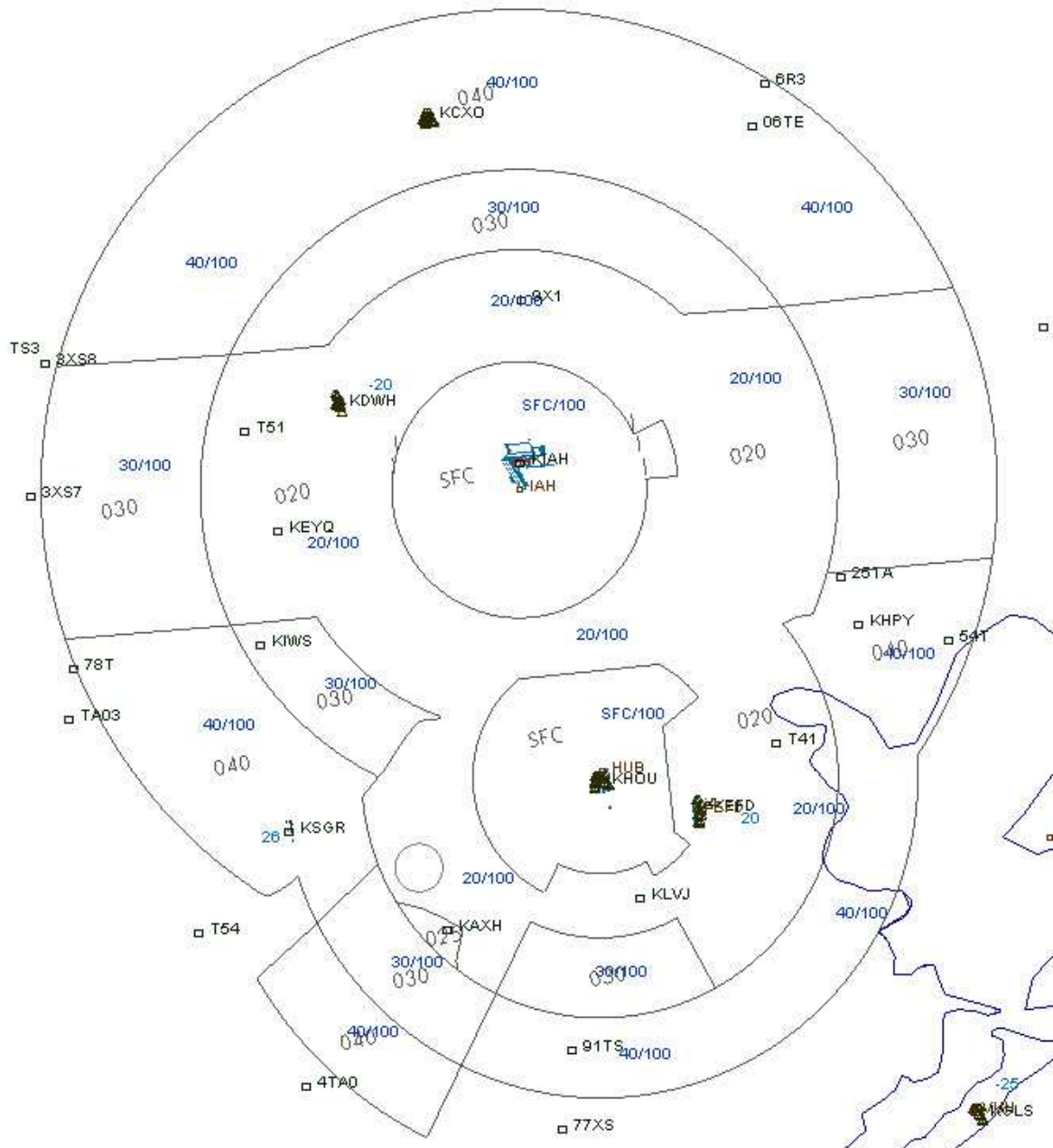


Figure 4 - Houston Class B Airspace

TRACON PROCEDURES

IAH Departures

- For all departures, ensure all aircraft keep their turns within the IAH Class B airspace as much as practical
- For all Departures to YAWNS, VUH
 - Aircraft may only be cleared direct to the fix after passing 10,000 feet MSL.
 - This is to ensure aircraft remain clear of the Hobby Class B
- For all Departures to AEX, ELD, LFK in West Flow
 - Vector the aircraft to the appropriate departure gate for the SID
- Aircraft destined to KBPT will be vectored to the DAS VORTAC, then direct KBPT
- Aircraft destined to KVCT will be vectored to join V13 direct VCT
- Aircraft destined to KHOU will be vectored depending on KHOU's active flow
 - South Flow: radar vectors to JABBS to join runway 12R localizer
 - North Flow: radar vectors to ROSEN to join runway 4 localizer

IAH Arrivals

- Arrivals that require the aircraft to fly a downwind leg...
 - Northern downwind aircraft shall start the downwind at 7,000 feet MSL and 210 knots
 - Southern downwind aircraft shall start the downwind at 6,000 feet MSL and 210 knots
- Approach shall assign aircraft into KIAH the proper runway transition per the ATIS arrival runway(s) as applicable

HOU Departures

- Ensure all aircraft remain within the Hobby Class B as much as practical

HOU Arrivals

- Ensure arrivals to Runway 4 remain clear of the Missouri City towers
 - Weather permitting, use the towers as a visual reference
- Approach shall assign aircraft into KHOU the proper runway transition per the ATIS arrival runway(s) as applicable

FACILITY PROCEDURES

7

SCRATCH PAD ENTRIES

All IFR departures from the KIAH and KHOU should have scratch pads completed as follows:

1. For aircraft departing KIAH on an IFR flight plan including an RNAV departure which does not begin with a vector to the first waypoint; enter the lowercase letter 'r' and the first three characters of the first waypoint on the departure (e.g. for the BNDTO1 departure the first waypoint is SCAMM. Enter "rSCA" into the scratch pad).

2. For aircraft departing the KIAH or KHOU airports on an IFR flight plan including a SID that does not meet the provisions of (1) above, enter the first four characters of the departure gate in the scratch pad ("COLE" for COLET, "WEDR" for WEDRI, etc.)

I90 TRACON

Arrival East

1. Arrival East operates using the call sign HOU_E_APP and the frequency 120.050
2. Clear any scratchpad entries on departing aircraft and any temporary altitudes assigned prior to handing off an aircraft to Center
3. IFR aircraft departing KIAH or KHOU on a SID shall be instructed to "Climb via the SID, except maintain one six thousand"
4. IFR aircraft arriving KIAH or KHOU on a STAR with crossing restrictions shall be instructed to "Descend via the arrival"
5. Provide radar services to aircraft in the I90 airspace
6. Ensure arrivals are in an orderly sequence and at an airspeed compatible with the traffic flow and demand prior to handoff to Final Control or Local Control
7. Issue IFR/VFR releases and provide radar services to departing aircraft
8. When IAH is in West flow and Final Control is not online, provide Final Control services for KIAH
9. When Arrival West is not online, provide services for West Approach

Arrival West

1. Arrival West operates using the call sign HOU_W_APP and the frequency 124.350
2. Clear any scratchpad entries on departing aircraft and any temporary altitudes assigned prior to handing off an aircraft to Center
3. IFR aircraft departing KIAH or KHOU on a SID shall be instructed to "Climb via the SID, except maintain one six thousand"
4. IFR aircraft arriving KIAH or KHOU on a STAR with crossing restrictions shall be instructed to "Descend via the arrival"
5. Provide radar services to aircraft in the I90 airspace
6. When IAH is in East Flow and Final Control is not online, provide Final Control services for KIAH

Gulf Arrival

1. Gulf Arrival operates using the call sign HOU_G_APP and the frequency 134.450
2. Clear any scratchpad entries on departing aircraft and any temporary altitudes assigned prior to handing off an aircraft to Center
3. IFR aircraft departing KIAH or KHOU on a SID shall be instructed to "Climb via the SID, except maintain one six thousand"
4. IFR aircraft arriving KIAH or KHOU on a STAR with crossing restrictions shall be instructed to "Descend via the arrival"
5. Provide radar services to aircraft in the I90 airspace
6. Gulf Arrival shall online by online if Arrival West and Arrival East are online

Final Control

1. Final Control operates using the call sign HOU_F_APP and the frequency 119.100
2. Provide radar services to aircraft in the I90 TRACON
3. Vector aircraft on downwind and final to KIAH
4. Transfer communications from Final Control to IAH Local Control at or prior to the 8 DME arc of the IAH VORTAC
5. When conducting visual approaches
 - a. Instruct aircraft assigned to Runways 26L/26R/27 to cross the IAH 8 DME fix (or the FAF as appropriate) at or below 2,000 feet MSL
 - b. To the maximum extent feasible instruct aircraft assigned Runway 8L to cross the FLIBZ intersection at or above 3,000 feet MSL unless extenuating circumstances necessitate otherwise
 - c. Provide no less than 2NM in-trail spacing and compatible speed behind a preceding aircraft at the runway threshold
6. When IAH is in East flow, FC shall release DWH departures

Houston George Bush Intercontinental (KIAH)

Runway Flows

- West Flow/Departing South (Standard Flow)
 - Arrivals on Runways 26L/26R/27
 - Departures on Runways 15L/15R/26L/26R
 - NOTE: Do not advertise Runways 26L/26R as departure runways in the ATIS unless adverse weather requires it
- West Flow/Departing North
 - Arrivals on Runways 26L/26R/27
 - Departures on Runways 33L/33R
 - NOTE: This configuration is for winds strongly favoring the North (greater than 20Kt) or adverse weather
- East Flow
 - Arrivals on Runways 8L/8R/9
 - Departures on Runways 15L/15R/8L/8R/9

- NOTE: Do not advertise Runways 8L/8R/9 as departure runways in the ATIS unless adverse weather requires it
- NOTE: This configuration is for winds strongly favoring the East (greater than 20kt) or adverse weather

Departure Headings

Aircraft departing KIAH on an IFR flight plan which includes a SID which is designed to begin with a vector to the initial waypoint shall be assigned a departure heading in accordance with their departure gate and the flow in use. Departure headings for KIAH are as follows:

Standard flow:

Departure Gate	Direction of Turn	Heading
CUZZZ/SKUBA/SHYNR	Right	270
DARTR/COLET/LITLD/WLLIS/VUH/WEDRI/MONNT/YAWNS	Right	300
HELTN/JAAYE/LINGG	Left	120

East Flow:

Departure Gate	Direction of Turn	Heading
CUZZZ/SKUBA/SHYNR	Right	270
DARTR/COLET/LITLD/WLLIS/VUH/WEDRI/MONNT/YAWNS	Left	020
HELTN/JAAYE/LINGG	Left	120

North Flow:

Departure Gate	Direction of Turn	Heading
CUZZZ/SKUBA/SHYNR	Left	270
DARTR/COLET/LITLD/WLLIS	Right	020
HELTN/JAAYE/LINGG/VUH/WEDRI/YAWNS	Right	090
LITLD/WLLIS/MONNT	Right	350

Clearance Delivery

1. Clearance Delivery operates on the IAH_DEL call sign, utilizing frequency 128.100
2. Wherever possible, aircraft should be cleared via a valid departure procedure (SID).
3. Preferred routings are not required for normal operations on VATSIM, however during events or where otherwise requested, pilots should be cleared via a preferred route when possible.
4. Aircraft filing an IFR flight plan including a Standard Instrument Departure (SID) shall be instructed to "Climb via the SID" as a part of their IFR clearance.

5. Ensure scratch pad entries are complete as per the requirements above
6. Issue and ensure receipt of IFR and Class B clearances to aircraft departing KIAH
7. Jet/turboprop aircraft on an IFR flight plan not including a SID and requesting a cruise altitude above 10,000 feet shall be issued an initial altitude of 4,000 feet and instructed to expect their filed cruise altitude 10 minutes after departure. Jet/turboprop aircraft requesting a cruise altitude of less than 10,000 feet and piston aircraft requesting any altitude on IFR flight plans not including a SID shall be issued an initial altitude of 3,000 feet and instructed to expect their filed cruise altitude 10 minutes after departure.
8. Ensure all departures have the correct ATIS information any time ATIS is available.
9. Ensure any necessary altitude or departure amendments are completed
10. Ensure IFR aircraft are assigned an altitude which is valid for the direction of flight.

Ground Control

1. Ground Control operates on the IAH_GND call sign, utilizing the frequency 121.700
2. Ensure scratch pad entries are complete as per the requirements above.
3. Issue taxi clearances and instructions for aircraft operating on the airport movement areas.
4. Restrict use of taxiway NA between taxiways NE and WP to B757 or smaller when runway 26L is being utilized for departures.

Local Control

1. Local Control operates on the IAH_TWR call sign, utilizing the frequency 125.350
2. Ensure scratch pad entries are complete as per the requirements above.
3. Automatically release and retain control of departures while standard separation exists
4. IFR aircraft whose route includes a SID designed to begin with a vector to the initial waypoint shall be assigned a departure heading in accordance with the guidelines above
5. IFR aircraft whose route includes a SID which does not begin with a vector to the initial waypoint shall be advised of the initial fix/waypoint on the RNAV route (e.g. "RNAV to SCAMM, runway one five left, cleared for takeoff")
6. Ensure aircraft are either established on the issued departure heading or their filed RNAV route prior to handing them off to Departure.

Houston Hobby (KHOU)

Runway Flows

- South Flow (Standard Flow)
 - Arrivals on Runways 12L/12R
 - Departures on Runways 12L/12R/22/17
 - Note: Runway 17 is not advertised in the ATIS, but may be assigned at Tower's discretion or pilot's request
- North Flow
 - Arrivals on Runways 30L/30R

- Departures on Runways 30L/30R/35
 - Note: Runway 22 may be used with CIC approval; Runway 35 is not advertised in ATIS, but may be assigned at Tower's discretion, or pilot's request
- Note: This configuration is for winds strongly favoring the North (Above 20Kt)
- East Flow
 - Arrivals on Runways 4 and 35
 - Departures on Runways 4/35/30L/30R
 - Note: Runway 35 is not advertised in ATIS, but may be assigned at Tower's discretion, or pilot's request
- West Flow
 - Arrivals and Departures on Runways 22/17
- Church Flow
 - Arrivals on Runways 4/35
 - Departures on Runways 12L/12R
- Note: Runway flow is coincident with KIAH. If KIAH is departing runways 15L/15R, KHOU is in South flow.

Departure Headings

Aircraft departing KHOU on an IFR flight plan which includes a SID shall be assigned a departure heading in accordance with their departure gate and the flow in use. Departure headings for KHOU are as follows:

Standard Flow (South Ops):

Departure Gate	Direction of Turn	Heading
HELTN/LINGG/VUH/YAWNS/CHPEE/SKUBA	N/A	Runway Heading
LITLD/MONNT/DARTR/WLLIS/COLET/MNKEE	Left	350
SEALY	Left	290

North Ops:

Departure Gate	Direction of Turn	Heading
HELTN/LINGG/VUH/YAWNS/CHPEE/SKUBA	Right	120
MONNT/DARTR/COLET	Right	010
LITLD/SEALY/WLLIS/MNKEE	N/A	Runway Heading

12 Clearance Delivery

1. Clearance Delivery operates on the call sign HOU_DEL and frequency 125.450
2. Wherever possible, aircraft should be cleared via a valid departure procedure (SID).

3. Preferred routings are not required for normal operations on VATSIM, however during events or where otherwise requested, pilots should be cleared via a preferred route when possible.
4. Issue and ensure receipt of IFR and Class B clearances to aircraft departing KHOU
5. Aircraft filing an IFR flight plan including a Standard Instrument Departure (SID) shall be instructed to "Climb via the SID" as a part of their IFR clearance.
6. Aircraft on an IFR flight plan not including a SID shall be issued an initial altitude of 5,000 feet and instructed to expect their filed cruise altitude 10 minutes after departure.

Ground Control

1. Ground Control operates on the call sign HOU_GND and frequency 121.900
2. Issue taxi clearances and instructions for aircraft operating on the airport movement areas.

Local Control

1. Local Control operates on the call sign HOU_TWR and frequency 118.700
2. Automatically release and retain control of departures while standard separation exists
3. Assign departure headings to all aircraft as described above
4. Ensure aircraft are established on their assigned departure heading before handoff to TRACON

Ellington Field (KEFD)

Runway Flows

- South Flow (Standard Flow)
 - Arrivals on Runways 17L/17R/22
 - Departures on Runways 17L/17R/22
- North Flow
 - Arrivals and Departures on Runways 35L/35R/4
- Note: Runway flow is coincident with KIAH and KHOU. If KHOU is departing runways 30L/30R/4, KEFD is in North flow.

Ground Control

1. Ground Control operates on the call sign EFD_GND and the frequency 121.600
2. Issue and ensure receipt of IFR and Class B clearances at Ellington Field
3. Issue all IFR aircraft an initial altitude of 2,000 feet and instruct them to expect their filed cruise altitude 10 minutes after departure

Local Control

1. Local Control operates on the call sign EFD_TWR and the frequency 126.050
2. Automatically release and retain control of departures while standard separation exists
3. IFR departures shall be assigned runway heading

David Wayne Hooks (KDWH)

Runway Flows

- South Flow (Standard Flow)
 - Arrivals and Departures on Runways 17L/17R
- North Flow
 - Arrivals and Departures on Runways 35L/35R
- Note: Runway flow is coincident with KIAH. If KIAH is landing West, KDWH will be landing South

*Note: All KDWH Positions open from 0700 to 2200 local

Clearance Delivery

1. Clearance Delivery operates on the call sign DWH_DEL and frequency 119.450
2. Issue and ensure receipt of IFR and Class B clearances at Hooks Airport
3. Issue all IFR aircraft an initial altitude of 2,000 feet and instruct them to expect their filed cruise altitude 10 minutes after departure

Ground Control

1. Ground Control operates on the call sign DWH_GND and frequency 121.800
2. Taxiway K restricted to piston aircraft only

Local Control

1. Local Control operates on the call sign DWH_TWR and frequency 118.400
2. Automatically release and retain control of departures while standard separation exists
3. IFR departures shall be assigned runway heading

South Texas Regional Airport (KBPT)

Runway Flows

- South Flow (Standard Flow)
 - Arrivals and Departures on Runways 12/16
- North Flow
 - Arrivals and Departures on Runways 30/34

*Note: All KBPT Positions open from 0600 to 2200 local

Clearance Delivery

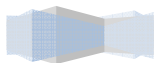
1. Clearance Delivery operates on the call sign BPT_DEL and frequency 118.300
2. Issue and ensure receipt of IFR clearances at South Texas Regional
3. Issue all IFR aircraft an initial altitude of 3,000 feet to all aircraft filing cruise altitudes above 3,000 feet and instruct them to expect their filed cruise altitude 10 minutes after departure

Ground Control

1. Ground Control operates on the call sign BPT_GND and frequency 121.900
2. Issue taxi clearances and instructions for aircraft operating on the airport movement areas

Local Control

1. Local Control operates on the call sign BPT_TWR and frequency 119.500
2. Automatically release and retain control of departures while standard separation exists
3. IFR departures shall be assigned runway heading



Easterwood Field (KCLL)

Runway Flows

- South Flow (Standard Flow)
 - Arrivals and Departures on Runways 10/16
- North Flow
 - Arrivals and Departures on Runways 4/34

*Note: All KCLL Positions open from 0800 to 2100 local

Clearance Delivery

1. Clearance Delivery services provided by Ground Control (CLL_GND)

Ground Control

1. Ground Control operates on the call sign CLL_GND and frequency 128.700
2. Issue taxi clearances and instructions for aircraft operating on the airport movement areas
3. Issue and ensure receipt of IFR clearances at Easterwood Field
4. Issue all IFR aircraft an initial altitude of 4,000 feet to all aircraft filing cruise altitudes above 4,000 feet and instruct them to expect their filed cruise altitude 10 minutes after departure

Local Control

1. Local Control operates on the call sign CLL_TWR and frequency 118.500
2. Automatically release and retain control of departures while standard separation exists
3. IFR departures shall be assigned runway heading

