



I90 TRACON

Standard Operating Procedures

Version A
May 24, 2017

Kevin Copeland
Southern Regional Air Traffic Director
VATUSA

Brandon Barrett
Air Traffic Manager
ZHU

Mark Jeffreys
Deputy Air Traffic Manager
ZHU

Chapter 1: Purpose

This document serves as the standard operating procedures for the I90 tracon . All home, visiting and returning controllers must be familiar with this handbook. This document is to be used for VATSIM purposes only. In the case of special procedures this document may be overridden by the ZHU Air Traffic Manager, Deputy Air Traffic Manager, Training Administrator, Events Coordinator, or CIC with pre coordinated procedures.

1.1 Frequency List

Position Callsign	Position	Description	Frequency
HOU_D_APP	East	1st Combine Arrival	120.050
HOU_N_APP	West	2nd North West	124.350
HOU_G_APP	Gulf	3rd South East	119.620
HOU_X_APP	Eagle Lake	4th South West	119.170
HOU_I_APP	Final Center	1st Combine Final	120.650
HOU_O_APP	Final South	2nd RWY 27	134.000
HOU_A_APP	Final North	3rd RWY 26R	119.100
HOU_H_APP	Hobby Final	4th All RWYS	133.050
HOU_J_APP	Beaumont Satellite	1st Combine Satellite	121.300
HOU_U_APP	College Satellite	2nd Satellite	134.300
HOU_E_DEP	Departure East	1st Combine Departure	133.600
HOU_W_DEP	Departure West	2nd	126.670
HOU_M_DEP	Departure North	3rd	132.250
HOU_L_DEP	Departure South	4th	127.120

- The bolded rows are to be staffed first within their color coded section before any other sectors below
- During a major event, Houston East must be staffed before before any other sector. Once the east positions is staffed any other sectors can be open within their color coded section.
- The ZHU Events Coordinator, or CIC will determine what sector will cover the remaining airspace before an event
- All positions will identify themselves as “Houston Approach” or “Houston Departure”

Chapter 2: Sector layouts

The following chapter will cover each I90 split.

2.1 Combine I90

- The I90 is roughly 165 miles wide. From the furthest tip of the college station sector to the most southern tip of the Beaumont sector the I90 spans 210 miles. The College Station sector extends up to 8,000 ft and borders the Fort Worth Enroute airspace. The Industry and College Station sectors are combined. The main sector extends up to 16,000. The Beaumont sector extends up to 10,000 ft
- The I90 combine frequency and callsign: HOU_D_APP 120.050



2.1 I90 Feeders

- Houston East will control the Beaumont sector when Beaumont satellite isn't staffed.
- Houston East will control aircraft arriving from the north east
- Houston West will control the College Station sector when College Station Satellite isn't staffed
- Houston West will control aircraft arriving from the north west
- Eagle Lake will control aircraft arriving from the south west into IAH and HOU
- Gulf will control aircraft arriving from the southeast into IAH and HOU



1. Both north and south downwind targets will be at 6000 ft for all RNAV STARs that drop off on the downwind leg
2. *RNAV arrivals in standard ops:*
 - Aircraft arriving from the **north west** on the DRLLR & MSCOT arrival will be on a north downwind for runways 26L/R & a south downwind for runway 27
 - Aircraft arriving from the **south west** on the TEJAS arrival will be on a south downwind for runways 27 & 26L and on a north downwind for runway 26R
 - Aircraft arriving from the **north east** on the ZEEKK arrival will feed onto runways 26L/R and 27 localizers
 - Aircraft arriving from the **south east** on the LINKK & SOULL arrival will feed onto the runways 26L & 27

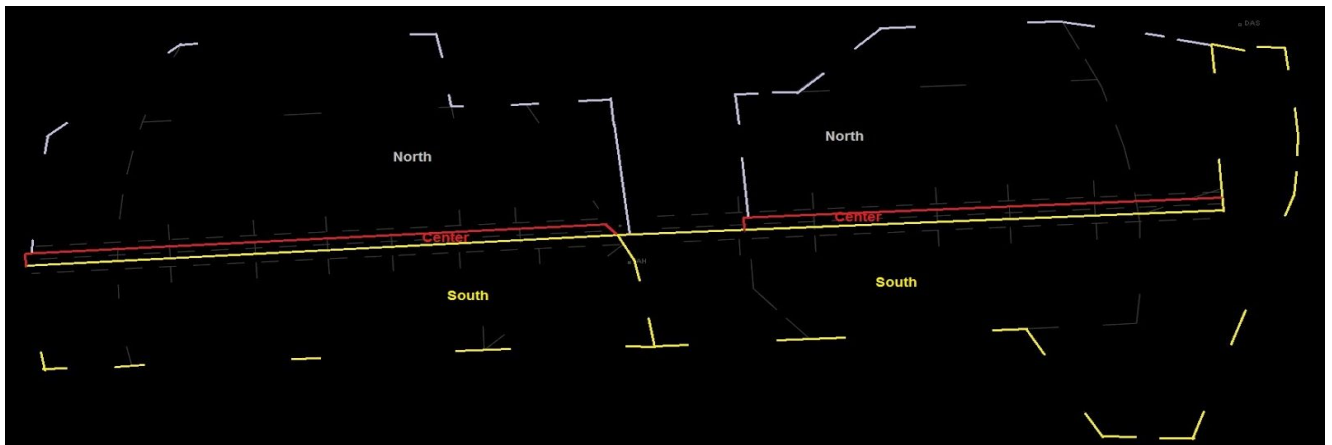
- Non RNAV arrivals will follow each STAR and be descended to 6000 ft before entering in final's airspace if traffic permits or a different altitude is agreed upon between both feeder and final.

3. RNAV arrivals in east ops

- Aircraft arriving from the **north east** on the SKNRD & GESNR arrival will be on a north downwind for runways 8L & a south downwind for runway 8R & 9
- Aircraft arriving from the **south east** on the NNCEE & SOULL arrival will be on a north downwind for runways 8L and on a south downwind for runway 8R & 9
- Aircraft arriving from the **north west** on the TTORO arrival will feed onto runway 8R. GUSHR will feed onto 8L
- Aircraft arriving from the **south west** on the HTOWN arrival will feed onto the runway 8R localizer
- Non RNAV arrivals will follow each STAR and be descended to 6000 ft before entering in final's airspace if traffic permits or a different altitude is agreed upon between both feeder and final.

2.2 I90 Finals

- Combine final frequency and callsign: HOU_I_APP 120.650
- Center final (Red) will issue approach clearance for 26L
- South final (Yellow) will issue approach clearance for 27
- North final (Pink) will issue approach clearance for 26R



2.3 I90 Hobby Final

- Hobby combine final will control all active approaches. The flows for Houston Hobby will depend on the determine flow of Houston Intercontinental Airport
- Arrival aircraft expecting 13L/R must be vectored on a right downwind
- No STAR into KHOU will feed aircraft onto the localizer, keep each target on the arrival as long as possible

The following fixes can be used to vector aircraft off the arrival and onto a downwind leg:

- VILLI for 13L/R
- SEUSS for 13L/R
- GEEEO for 4 HDG 070
- RJAAY for 31L/R
- MAAHH for 22 HDG 040



2.4 I90 Satellite

- The combine satellite frequency will be HOU_J_APP 121.300 (Beaumont Satellite) (Yellow)
- Aircraft on a VFR flight plan departing KIAH or KHOU arriving to a satellite airfield will be tracked by the departure controller on takeoff. The departure controller will handoff to the appropriate satellite controllers once traffic permits
- Aircraft departing a satellite field will receive clearance, taxi, takeoff and departure instructions from the appropriate satellite controller



2.4 I90 Departure

- The combine departure frequency will be HOU_E_DEP 133.600 (East Departure) (white)
HOU_W_DEP 126.670 (West Departure)

(yellow

HOU_M_DEP 132.250 (North Departure) (blue)

HOU_L_DEP 127.120 (South Departure) (red)

- Note: The West departure split will cover south of TNV (Navasota) and border South departure's airspace (red)
- Departing 15L/R KIAH in STD ops **unless traffic permits**: Keep aircraft climbing to 16,000 off the field on a 290 HDG. Once traffic permits provide vectors to the first fix.
- Departing 15L/R KIAH in East ops **unless traffic permits**: Keep aircraft climbing to 16,000 off the field on a 020 HDG. Once traffic permits provide vectors to the first fix.
- Targets on the north downwind in STD ops should not be in conflict with departing aircraft flying north bound.



Chapter 3: Letter of Agreements and Scratchpad Entries

This section will cover letter of agreements between Houston Center and Houston ATCT. This section will also cover proper scratchpad entries for aircraft arriving within the Houston terminal environment.

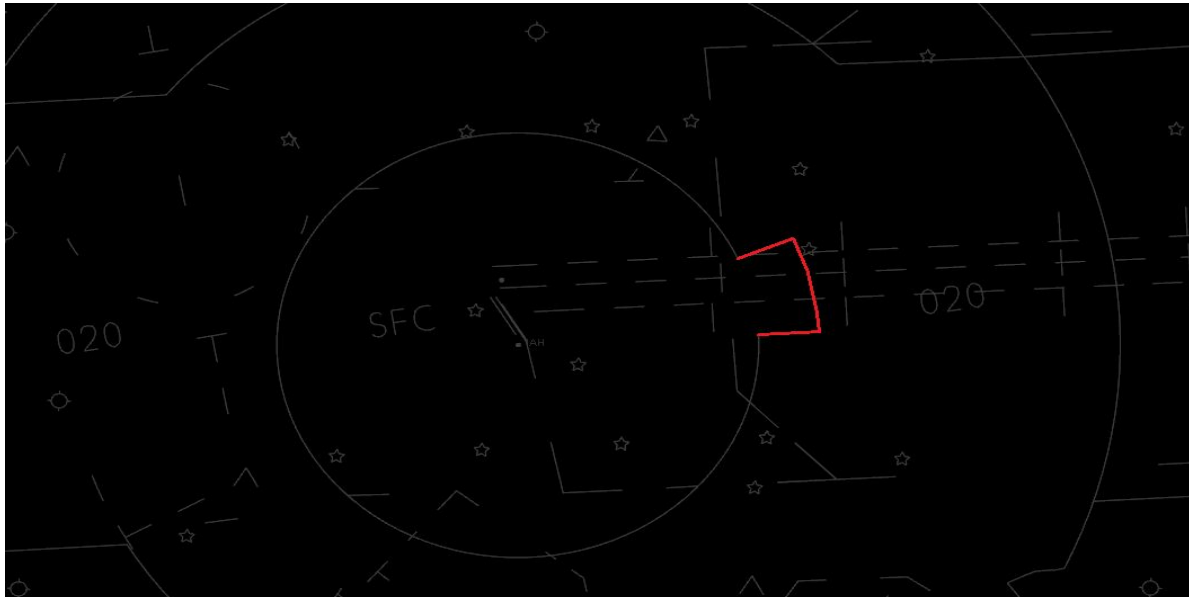
Letter of Agreements

3.1 Houston Center

- When traffic permits, handoffs to Houston Center & Fort Worth Center must be initiated when the aircraft's altitude is half of the sector's ceiling.
 - Example:* Main I90 sector (16,000 ft): initiate handoffs at 8000 ft
 - College Station & Industry sector (8000 ft): initiate handoffs at 4000 ft
 - Beaumont Sector (10,000 ft): initiate handoffs at 5000 ft
- All scratchpad entries and temporary altitude must be cleared before the handoff is initiated to Houston & Fort Worth Center
- Aircraft arriving within the Houston terminal environment that are on a "descend via" RNAV arrival will have "DV" in their scratchpad
- Houston Center will also enter the last heading assigned if the aircraft is not on an arrival
- Houston Center & Fort Worth will also set temporary altitudes for aircraft that are not on a "descend via" RNAV arrival
- Houston Center will ensure that aircraft arriving into KIAH on the HUDZY arrival will cross HUDZY at 5000 ft

3.2 Houston Local

- KIAH ATCT is responsible for proper scratch pad entries for both VFR and IFR departures
- Tower will initiate CFRs (call for release) digitally or verbally before the takeoff clearance is issued. CFRs are required for all aircraft entering the terminal environment
- All handoffs to Houston tower must be at or before 10 miles from the airport (**area highlighted in red**)
- Radar handoffs are not required for aircraft entering tower's airspace
- Proper scratchpad entries are required before the verbal handoff to tower is initiated



Scratchpad

3.3 Arrival scratchpad entries

- Scratchpad entries are required when Houston tower is staffed. When final is staffed the proper feeder controller will enter the approach assigned.
- The scratchpad entry should match the procedure assigned to the aircraft. Use the following entries:

Note: All letters are lowercased

v - Visual

g - GPS

l - LOC

i - ILS

o - VOR

d - LDA

- **Longest runway:** 9001 ft 17R/35L
- **IAP:** HI-ILS or LOC/DME >> 17R | 22
 RNAV (GPS) >> 17R | 22 | 35L
 TACAN >> 17R | 22 | 35L
- ILS or LOC >> 17R | 22 | 35L | 04
 HI-TACAN >> 17R | 35L | 04

4.3 Houston Executive (KTME)

- **Calm wind rwy:** (36)
- **Location:** 17 miles NW of KSGR
- **Longest runway:** 6610 ft 18/36
- **IAP:** RNAV (GPS) >> 18 | 36

4.4 Sugar Land Regional Airport (KSGR)

- **Calm wind rwy:** (35)
- **Location:** 20 miles W of KHOU
- **Longest runway:** 8000 ft 17/35
- **IAP:** ILS or LOC >> 35
 VOR/DME-A
- RNAV (GPS) >> 17 | 35

4.5 Scholes International At Galveston Airport (KGLS)

- **Calm wind rwy:** (14)
- **Location:** 18 miles SW of MHF (Trinity VOR)
- **Longest runway:** 6001 ft 18/36
- **IAP:** ILS or LOC >> 14
 VOR >> 14
- RNAV (GPS) >> 14 | 18 | 32 | 36

4.6 Lone Star Executive Airport (KCXO)

- **Calm wind rwy:** (14)

- **Location:** 24 miles NW of KIAH
 - **Longest runway:** 7000 ft 15/34
 - **IAP:** ILS or LOC >> 14
NDB >> 14
- RNAV (GPS) >> 01 | 14 | 19 | 32

4.7 Jack Brooks Regional Airport (KBPT)

- **Calm wind rwy:** (12)
 - **Location:** 16 miles N of SBI (Sabine Pass VOR)
 - **Longest runway:** 6750 ft 12/30
 - **IAP:** ILS or LOC >> 12
LOC BC >> 30
VOR >> 12
- RNAV (GPS) >> 12 | 16 | 30 | 34
VOR/DME >> 34

4.8 Easterwood Field (KCLL)

- **Calm wind rwy:** (14)
 - **Location:** 24 miles NW of TNV (Navasota VOR)
 - **Longest runway:** 7501 ft 14/32
 - **IAP:** ILS or LOC >> 34
LOC BC >> 16
VOR or TACAN >> 10
- RNAV (GPS) >> 10 | 16 | 28 | 34
VOR/DME >> 28

Intercontinental STARS

STAR	Type	Cross Altitude / Speed	End Location / Rwy / Hdg	Direction / Specific Rwy
DOOBI	RNAV	"DV"	BOZZZ	LNDG WEST (26L)
DRLLR	RNAV	"DV"	SKLER - 26R - 6000 FT ZOEER - 26L - 7000 FT PRAYY - 27 - 6000 FT	LNDG WEST ONLY
DUUUK	ANY	GMANN WEST - 14000 FT - 250KTS EAST - 13000 FT - 280KTS	BIIGG - 26L/R, 27 HDG 085	LNDG EAST & WEST
GESNR	RNAV	"DV"	CASST - 8L - 6000 FT HOWLN - 9/8R - 6000 FT	LNDG EAST ONLY
GILCO	ANY	WOLDE WEST - 12000 FT - 250KTS EAST - 17000 FT - 280KTS	GILCO - 8L/R, 9 HDG 265 VECTOR TO FINAL ALL OTHER RWYS	LNDG EAST & WEST
GUSHR	RNAV	"DV"	GUSHR - 8L - 6000 FT	LNDG EAST (8L) ONLY
HTOWN	RNAV	"DV"	WDLNS - 8R - 7000FT	LNDG EAST (8R) ONLY
HUDZY	ANY	HUDZY - 5000 FT	LUDVG	LNDG EAST AND WEST
LINKK	RNAV	"DV"	GARRR - 26L/R - 7000 FT RDFSH - 27 - 6000 FT	LNDG WEST ONLY
MSCOT	RNAV	"DV"	SKLER - 26R - 6000 FT ZOEER - 26L - 7000 FT PRAYY - 27 - 6000 FT	LNDG WEST ONLY
NNCEE	RNAV	"DV"	CASST - 8L - 6000 FT HOWLN - 9/8R - 7000 FT	LNDG EAST ONLY
OHIOO	ANY	ZEEKK WEST - 12000 - 250KTS EAST - 17000 - 280KTS	PNUUT	LNDG EAST AND WEST
RIICE	ANY	RIICE WEST - 16000 - 280KTS EAST - 9000	LYYTE - 26L/R, 27 HDG 085 VECTORS TO FINAL ALL OTHER RWYS	LNDG EAST AND WEST
SKNRD	RNAV	"DV"	CASST - 8L - 6000 FT HOWLN - 9/8R - 6000 FT	LNDG EAST ONLY
SOULL	RNAV	"DV"	GARRR - 26L/R RDFSH - 27 HOWLN - 8R/9	LNDG EAST AND WEST

			DOMNO - 8L	
TEJAS	RNAV	"DV"	SKLER - 26R - 6000 FT PRAYY - 27 - 6000 FT	LNDG WEST
TTORO	ANY	"DV"	TTORO - 8000 FT	LNDG EAST (8R) ONLY
ZEEKK	RNAV	"DV"	HOOTI - 26R - 6000 FT BOZZZ - 26L - 8000 FT CLSIK - 27 - 4000 FT	LNDG WEST ONLY

Hobby STARS

- STARS that are highlighted in yellow serves all rwys at William P Hobby

STAR	Type	Cross Altitude / Speed	End Location / Rwy / Hdg	Direction / Specific Rwy
BAYYY	RNAV	"DV"	EMARR - 4 ALLLY - 13L/R, 17	LNDG SOUTH AND EAST
BELLR	RNAV	"DV"	GEEEO - 4 - 6000 FT SUESS - 13L/R, 17 MAAHH - 22 RJAAY - 31L/R, 35	LNDG NORTH, SOUTH EAST, & WEST
BLUBELL	ANY	BLUBL - 9000	CHEWI	LNDG ALL RWYS
CESAN	RNAV	"DV"	ALLLY - 13L/R EMARR - 4 JCNT0 - 22 MMOOW - 31L/R KAANE - OTHER ARPTS	LNDG NORTH, SOUTH EAST, & WEST
HUDZY	ANY	HUDZY - 14000	LUDVG	
KIDDZ	RNAV	"DV"	SUESS - 13L/R, 17 MAAHH - 22 RJAAY - 31L/R, 35	LNDG NORTH, SOUTH EAST, & WEST
OHIOO	ANY	ZEEKK IAH WEST - 12000 - 250KTS IAH EAST - 17000 - 280KTS	PNUUT - OTHER ARPTS	LNDG ALL RWYS
PUCKS	RNAV	"DV"	JCNT0 - 22 MMOOW - 31L/R, 35	LNDG NORTH, EAST, & WEST
QTRBK	ANY	KIDDZ - 12000 - 280KTS	KIDDZ	LNDG ALL RWYS

TCHDN	ANY	BELLR - 12000 - 250KTS	BELLR	LNDG ALL RWYS
TKNIQ	RNAV	"DV"	ALLLY - 13L/R EMARR - 4 KEMAH - 22 MMOOW - 31L/R MMOOW - OTHER ARPTS	LNDG NORTH, SOUTH EAST, & WEST
WAPPL	RNAV	"DV"	ALLLY - 13L/R EMARR - 4 MAAHH - 22 UBETR - 31L/R PLKTN - 8000 FT - OTHER ARPTS	LNDG NORTH, SOUTH EAST, & WEST