Trying to understand encounters

The Encounters phenomenon in Freelancer provides for activity in the Freelancers systems. Encounters are created in zones and whenever a player enters and during his presence in a zone, encounters are created. The type of encounter, the amount of encounters in a timeframe, factions involved, behaviour etc. is laid down by numerous variables that are declared in various files.

Warning! This information was put together for my own convience, because I found this one of the most complex phenomenons in Freelancer. This is not a tutorial and is no absolute sience, it is just a compilation of my findings. It might be of some help for you. But there is one thing I am sure of, it will certainly deepen your knowlegde of encounters. It is based on my studying of the phenomenon, gathering and analyzing data from ini files, but mostly on observations, testing, checking, testing, checking…… one CTD after another and my interpretations and conclusions, which in the end might prove not to be true or not completely true because I failed to see the true purpose of parameters.
The diagram on the next page gives an impression how some of the ini-files that are encounter related interwork. It starts with entries from the Br01 (New London) ini file.

To get encounters in your systems the system ini file is the most important. The other files are pre-arranged building blocks that are called by the encounter to deliver pre-arranged charactistics and behaviour. Most characteristics can be affected within the system ini file.

EncounterParameters
At the top of the "system".ini file you will find the entry:

```
[EncounterParameters]
nickname = area_bh_scout
filename = missions\encounters\area_bh_scout.ini
```

This declaration tells FL that the encounter *area_bh_scout* is going to be called in this system and that the matching ini file is in the *missions\encounters* folder.
My suggestion would be that you put in the encounters only that you are actually going to use in the system. Most modders tend to put in all the available encounterparameters, which is convenient because then they won't forget one and avoid typo's, but this has it some drawback. It is a minor issue, but keep in mind that every line takes time to load and takes system-memory and of course, your file is larger than it needs to be. And remember that the system is built the moment you enter the system, either by leaving a base or jumping in.

Pre-arranged encounters
Freelancer comes with a set of pre-arranged encounters, which are found in the Data\Missions\Encounters folder. Notice that there are 3 different encounter orientation/occupation groups with a different behaviour:

- Area – zones (wander and trade)
  Area-zones are sphere or ellipsoid shaped and can be found in stand-alone form or can be found merged in a asteroid field or cloud, which are also declared in zones. All encounters bearing a name starting with **area** are designed to be used in this type of zone and in this type of zone only.
- Path – zones (trade and patrol-path)
  Path's are cylindrical shaped. Imagine the path as a straight, wide road drawn in space and that the ships are flying over that road. Ships might spawn anywhere alongside the road. All encounters bearing a name starting with **patrolp, tradep and miningp** are designed to be used in this type of zone and in this type of zone only.
- Tradelane – zones (tradelane traffic)
  The tradelane-zone is box-shaped and is used to generate traffic in tradelanes. All encounters bearing a name starting with **tradelane** are designed to be used in this type of zone and in this type of zone only.

All zones mentioned above are created in the ini file of a system.

Another distinction we can make are encounters with the involvement of:

- a single ship or more ships flying in formation although without having a leader.
- a (fighter) formation with a leader
- a escort formation, one or more vessels escorted by a escort-leader and escorts

These characteristics are laid down in the encounter ini files.

The combination of zone, behaviour and job determines the ships actions.

Warning! Before assigning an encounter-type for a faction, make sure that the faction has the involved ship(s) in their fleet (faction_prop.ini). E.g. you can't use *encounter = area_repair* for the Outcasts. Then there will be simply no encounter appearing.

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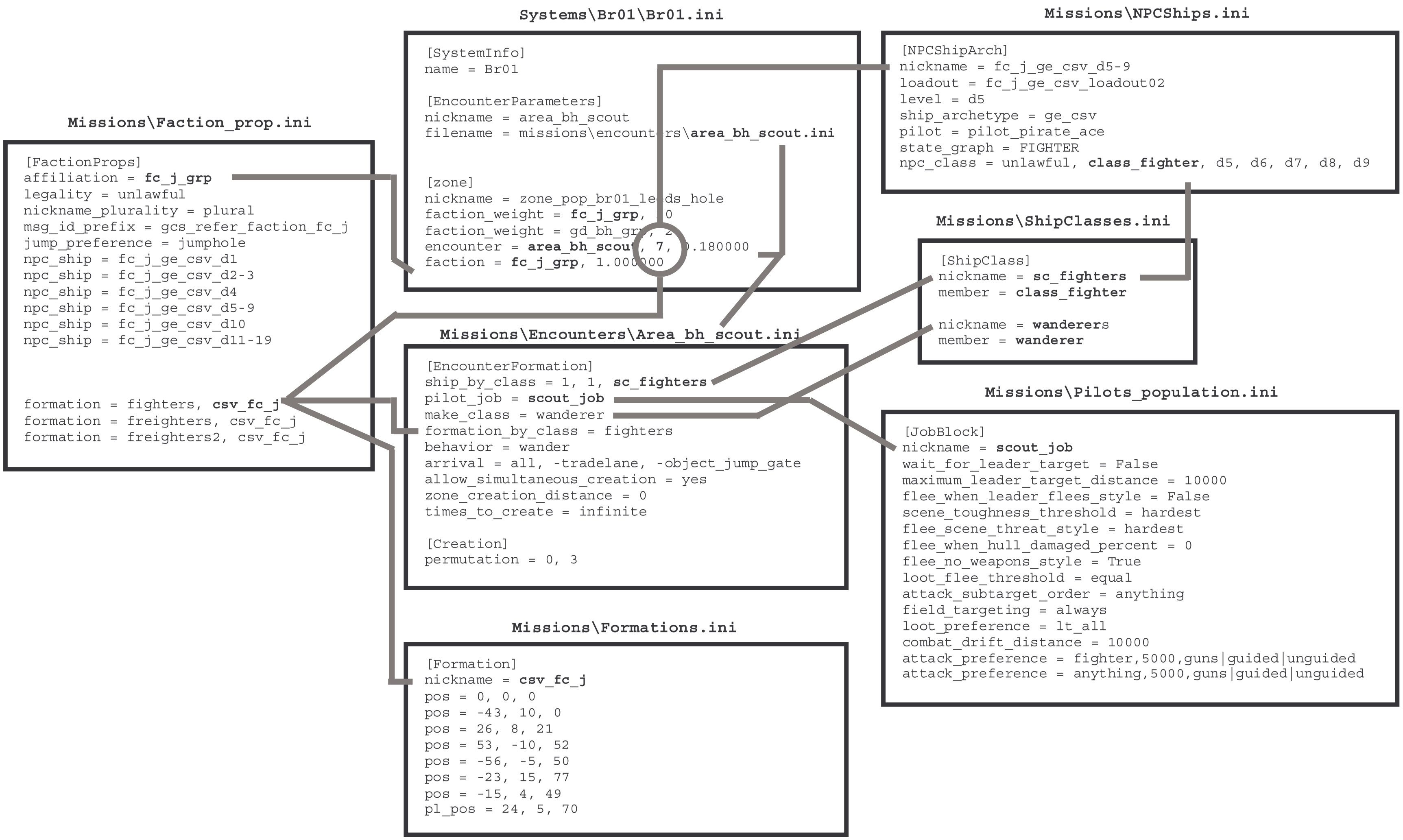

Missions\Faction_prop.ini

```
[FactionProps]
affiliation = fc_j_grp
legality = unlawful
nickname_plurality = plural
msg_id_prefix = gcs_refer_faction_fc_j
jump_preference = jumphole
npc_ship = fc_j_ge_csv_d1
npc_ship = fc_j_ge_csv_d2-3
npc_ship = fc_j_ge_csv_d4
npc_ship = fc_j_ge_csv_d5-9
npc_ship = fc_j_ge_csv_d10
npc_ship = fc_j_ge_csv_d11-19



formation = fighters, csv_fc_j
formation = freighters, csv_fc_j
formation = freighters2, csv_fc_j
```

Systems\Br01\Br01.ini

```
[SystemInfo]
name = Br01

[EncounterParameters]
nickname = area_bh_scout
filename = missions\encounters\area_bh_scout.ini


[zone]
nickname = zone_pop_br01_leeds_hole
faction_weight = fc_j_grp, 10
faction_weight = gd_bh_grp, 2
encounter = area_bh_scout, 7, 0.180000
faction = fc_j_grp, 1.000000
```

Missions\Encounters\Area_bh_scout.ini

```
[EncounterFormation]
ship_by_class = 1, 1, sc_fighters
pilot_job = scout_job
make_class = wanderer
formation_by_class = fighters
behavior = wander
arrival = all, -tradelane, -object_jump_gate
allow_simultaneous_creation = yes
zone_creation_distance = 0
times_to_create = infinite

[Creation]
permutation = 0, 3
```

Missions\Formations.ini

```
[Formation]
nickname = csv_fc_j
pos = 0, 0, 0
pos = -43, 10, 0
pos = 26, 8, 21
pos = 53, -10, 52
pos = -56, -5, 50
pos = -23, 15, 77
pos = -15, 4, 49
pl_pos = 24, 5, 70
```

Missions\NPCShips.ini

```
[NPCShipArch]
nickname = fc_j_ge_csv_d5-9
loadout = fc_j_ge_csv_loadout02
level = d5
ship_archetype = ge_csv
pilot = pilot_pirate_ace
state_graph = FIGHTER
npc_class = unlawful, class_fighter, d5, d6, d7, d8, d9
```

Missions\ShipClasses.ini

```
[ShipClass]
nickname = sc_fighters
member = class_fighter

nickname = wanderers
member = wanderer
```

Missions\Pilots_population.ini

```
[JobBlock]
nickname = scout_job
wait_for_leader_target = False
maximum_leader_target_distance = 10000
flee_when_leader_flees_style = False
scene_toughness_threshold = hardest
flee_scene_threat_style = hardest
flee_when_hull_damaged_percent = 0
flee_no_weapons_style = True
loot_flee_threshold = equal
attack_subtarget_order = anything
field_targeting = always
loot_preference = lt_all
combat_drift_distance = 10000
attack_preference = fighter,5000,guns|guided|unguided
attack_preference = anything,5000,guns|guided|unguided
```

Trying to understand encounters

Encounter ini files

The encounter ini files are a general encounter building block, general in the sense that they can be used by any faction, provided the required elements have been created for this faction. The system ini will parse the faction and the toughness, the encounter.ini file wil parse the behaviour and the make-up of the encounter.

Behaviour

Since this is the most important parameter in the encounter formation block I will cover this first.
This parameter tells what the flight-pattern behaviour for the entire encounter formation will be, regardless what other parameters suggest. The pilot-job still determines how the reaction will be when the pilot encounters objects or ships belonging to another faction. In general the spawned encounters will disappear by flying out of range according their behaviour pattern, more specific behaviour can only be observed when you are and stay in visual/scanner range.

Behaviour = wanderer (area-zones)

In area-zones the behaviour = wanderer makes the ship(s) fly in a random pattern at normal speed through the zone. They disappear by getting out of range, they don't use docking for disappearing. When you form(ation) on them they keep on patroling untill you leave them. The wanderer behaviour is specific for the area-zone encounters, but can be used in path-zones, though the behaviour then will be irratic, they will fly a random pattern within the boundary of the path-zone.

Behaviour = trade (area-zones)

The behaviour is different depending on where you meet them in the area. The ships will randomly spawn in the zone, their actual behaviour depends on where you are in the zone.
<u>Behaviour near bases</u>
When the ships are spawned in the vicinity of the base docking bay or ring (within normal scanrange, approx. 2K) the ships will use the docking facility when a certain condition is true, but only then. In the mbases.ini section for the base involved you will find declarations starting with [BaseFaction] followed by "faction = any_grp". If the faction that is used in the encounter is also declared here than the condition is true. In that case the following behaviour for ships originated from this faction can be observed, but for their ships only. When you enter space from the base, there have already some ship spawned, these ships might dock. Later ships will spawn in the docking ring and they leave the base and will fly to another random dockable object. A sporadic spawning in the area might be noticed, followed by docking. All leaving ships have a full cargo-hold. The commodity they carry is randomly choosen from the commodities listed in the factions commodities list. This can be found in the commodity_per_faction.ini.
All docking ships of this faction have an empty cargohold. Other factions will not dock.
It is likely that because of this behaviour that zones with this encounter type are created near bases.
<u>Behaviour near jumpholes and jumpgates</u>
Ships spawn in the area, the ones with a full cargo-hold will fly to the jumphole and dock (here the commodity-type is random choosen from the list in the commodities_per_faction.ini for this faction). The ones with an empty cargo-hold will fly away and eventually dock elsewhere in the system.
<u>Behaviour in the zone, away from dockable objects</u>
The ships that spawn here will carry no cargo and will fly at cruise speed to a random dockable object in the system.

Behaviour = trade (path-zones)

Usually the (trade) path is between a base and a jumpgate, jumphole, tradelane or other base. The ship will follow the path one way, clockwise or counter-clockwise and then dock. Traders will spawn anywhere along the path. After spawning the trader will start following the patrol path in either direction at cruise speed, clockwise or counter-clockwise. The patrol path can consist of 1 leg only or a multi path pattern with virtual waypoints. (see Path-route)
When watching an object you can observe 2 different behaviours. When you are flying along the path towards the object, spawning ships virtually spawn from the object. When you are within approx. 1.5K of the object, you'll see docking ships only.

Note! If you are wondering why encounters that are obviously designed to be traders carry no cargo, your answer can be found here. I have not come across one that carried cargo. Although the name of these encounter types and their job suggests the (random) presence of cargo, they are **not** carrying cargo. In the table on page 5 you will find quite a lot of trade encounters that have behaviour = patrol_path.
You could change their behaviour to trade as it's name suggests. If you do so, the encounter will randomly carry random cargo. But will also have a different behaviour, they don't do patrols, they will fly the path only once and dock or disappear. They will spawn alongside the path.

Behaviour = patrol_path
Patrols will spawn anywhere along the patrol_path. After spawning the patrol will start following the patrol path in either direction at cruise speed, clockwise or counter-clockwise. The patrol path can consist of 1 leg only or a multi path pattern with virtual waypoints. (see also Path-route in paragraph Path-zones)
When in range and their relief_time has not expired, they turn around and fly a another patrol in the opposite direction. When in range and their relief_time has expired, the patrol will finish their current leg(s) and then dock with a nearby object: base, jumpgate etc. When you enter space, whether from a base or jumping into the system, the ships spawned nearby will mostly dock, instead of flying their path.
When the patrol legs form a close loop, the ships will continue flying the loop untill the relief time is there.
Important! The end or start of a path or a path-route has to be near a base or jumphole. When near a base only encounters with the involvement of a faction listed in the mbases.ini in the section for this base will be succesfull. Using other factions will cause a crash to desktop, even tough all other involved items are in place and correct. When close to a jumphole all factions will be accepted and no CTD follows!

Other encounter formation block parameters
Let's zoom in on the area_scout.ini, which is an encounter with 2 encounter formations in it. It is an encounter which will spawn a single or multiple ships flying in formation, but without a leader.

```
  [EncounterFormation]
  ship_by_class = 1, 1, sc_fighters
  pilot_job = scout_job
  make_class = wanderer
  formation_by_class = fighters
  behavior = wander
  arrival = all, -tradelane, -object_jump_gate
  allow_simultaneous_creation = yes
  zone_creation_distance = 0
  times_to_create = infinite

  [EncounterFormation]
  ship_by_class = 2, 2, sc_fighters
  pilot_job = scout_job
  make_class = wanderer
  formation_by_class = fighters
  behavior = wander
  arrival = all, -tradelane, -object_jump_gate
  allow_simultaneous_creation = yes
  zone_creation_distance = 0
  times_to_create = infinite

  [Creation]
  permutation = 0, 3
  permutation = 1, 4
```

`ship_by_class = 1, 1, sc_fighters`

This line tells that the encounter is going to be with fighters. It tells FL to look for a fighter in the population_prop.ini in the section of this faction. The fighter with the desired level is then picked. The first digit tells that the encounter will have at least 1 fighter. The 2nd digit tells that the encounter will have 1 fighter as a maximum. These parameters are not limited in itself fundamentally, but limited by the type of formation (formation_by_class). E.g. 5, 7 will spawn a formation with minimal 5 and maximal 7 fighters. The spawning size is random, though on average equally 5, 6 or 7 wingmen will occur.
More choices of shiptypes can be found in the shipclasses.ini.

`pilot_job = scout_job`

This parameter tells that this encounter will have a pilot that will behave as a scout. The scout_job characteristics are laid down in the file pilots_population.ini. Partly the behaviour of encounters is determined by the jobs the pilots have. A scout will survey an area, a defender will defend, and assualters will attack, this is all in the pilots_population.ini.

`make_class = wanderer`

This parameter to which class the pilot-ship combination belongs. They are found in the shipclasses.ini

Wanderer	->
class_patroller	-> patrol yellow 4 ……
class_police_patroller	-> police patrol white 2 …..
class_pirate_patroller	-> pirate patrol gamma 3 ……

All encounters with behaviour trade don't have this line.

```
formation_by_class = fighters
```

This tells that the formation is of a figther type. Depending on the data in the faction.prop.ini for the involved faction the formation = fighters parameter will tell which formation the encounter is going to use from the formation.ini file. The formation capacity limits the number of ships that the encounter should spawn. You can design the encounter to spawn more ships, but those ships will spawn but can't form and will not move untill attacked. There are a lot of different formations available to fit various combinations of different shiptypes in a formation.

```
behavior = wander
```

This tells what the flight-behaviour for the entire encounter formation will be, regardless what other parameters suggest. Has been covered already.

```
arrival = all, -tradelane, -object_jump_gate
```

This tells where and how the encounter formation will spawn. It this case it will spawn everywhere in the zone but it will not spawn from a tradelane or a jumpgate.

- All, the encounter will spawn anywhere in the zone
- Cruise, the encounter will be spawn with cruise speed, what the speed will be after spawning is determined by the behaviour.
- Tradelane, will spawn in or from a tradelane
- -object, will not spawn from an object

```
allow_simultaneous_creation = yes
```

- Yes, all the ships from this encounter will becreated at the same time.
- No, the ships will be created after one and another (battleships)

```
zone_creation_distance = 0
```

Setting this parameter to 0 will result in the highest spawning rate that you will notice, it allows spawning nearby you. When set to 500, spawnings will be at least 500 away, as 2000 will place them at least 2K away. Be aware though, the further away will make it more difficult for you to detect them, and if they are flying away from you, you might never even notice that they were actually there. Unless of course they are hostile towards you and the nature of their job is to come after you.

```
times_to_create = infinite
```

Spawning this encounter is unlimited as long as the player is within the zone. No other values for this parameter have been found. Digits have been tried here without success. It seems that spawns are definitely infinite.

```
[Creation]
permutation = 0, 3
permutation = 1, 4
```

The permutation parameter is another factor that determines the chance that the encounters formations will occur. If there are more encounter formations in an encouter.ini file, each formations has it's own permutation parameter. The 1rst parameter – line belongs to the 1rst encounter formation (0), the 2nd parameter – line to the 2nd encounter formation (1). In this case the 2nd parameter in the 2nd permutation – line is higher, therefore the 2nd formation is more likely to occur.

The area_bh_assault.ini is an encounter where a formation with a leader is formed.
The difference with the above encounter is in the following. This encounter formation has 2 sections with the ship declaration lines:

```
ship_by_class = 1, 1, sc_fighters
pilot_job = assault_leader_job
make_class = wanderer

ship_by_class = 1, 2, sc_fighters, -1
pilot_job = assault_job
make_class = wanderer
```

The 1rst section deals with the patrol leader, obviously there can be only 1 leader. His job is leading assaults, what he going to attack is again in the pilots_population.ini.
The 2nd section deals with his wingmen, which in case can be 1 (minimum) or 2 (maximum). The 4th part of the parameter –1, tells us that the wingmen are going to be 1 level lower in toughness. When the leader gets the highest possible toughness 19, the wingmen will get 18. This parameter can -2, -3 etc.
You can add more of the above sections in the encounter formation, as long as you do not exceed the maximum number of ships that will fit in the formation that is chosen.

This brings us to the 3rd form: a escort formation, one or more vessels escorted by a escort-leader and escorts.

```
[EncounterFormation]
ship_by_class = 1, 1, sc_armoreds
pilot_job = prisoner_job
ship_by_class = 1, 1, sc_fighters
```

```
pilot_job = escort_leader_job
ship_by_class = 1, 1, sc_fighters, -1
pilot_job = escort_job
formation_by_class = gunboats
```

This tells us that the formations consists of 1 armored and 2 escorts, 1 fighter escortleader and 1 escort which is also lower in toughness.

Similarities and odd findings (valid for unmodded FL)

- There are 3 encounter types that are not used at all: area_gunboats, patrolp_bh_patrol and tradep_miner_transport.
- Where more than one freighter is spawned, the freighters carry the same cargo when they carry cargo.
- The prisoner encounter types have a different faction weight line: `faction_weight = li_p_grp_prisoners, 4`.
- The area_scout, area_assault and area_defend are almost identical to their area_bh_ counterparts. But in general the area_bh_ encounters will spawn less ship.
- The area_assault encounter has 2 encounter formations but they are exactly the same. The same is valid for the area_bh_assault, patrolp_assault, patrolp_bh_assault, patrolp_gov_patrol encounters.
- The area_bh_ encounters are almost exclusively used by the bounty hunters although sporadic use by other factions has been noticed. The area_scout and the area_bh_scout encounter are similar although the area_scout has 2 encounter formations.
- All encounters with `behaviour = trade` do not have a line `make_class =`.
- The miningp_scavenger is used in 1 system (Bw08) only. It’s behaviour has nothing to do with mining.
- The miningp_trade transport is used in 8 systems. It’s behaviour has nothing to do with mining. Since their behaviour is patrol_path, they do not carry cargo. Another problem is that the transports (trains) can not dock with most bases. If you hang around long enough you’ll have a congestion near the base, because the trains would like to dock and disappear as their escorts do, but they can’t and keep trying it nevertheless.

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Table: Encounters and their major parameters

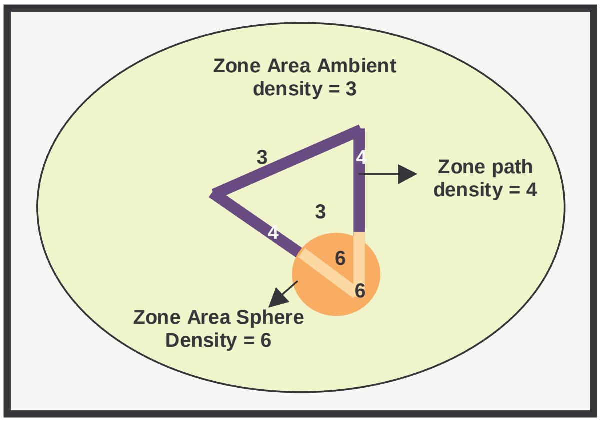
						forma-
		formation_	***primairy***	***com-***		***tions***
Encounter	***behavior***	***by_class***	***job***	***position***	***arrival***	***in ini file***
Zone-area						
area_armored_prisoner	trade	gunboats	prisoner_job	escort	all	1
area_assault	wander	fighters	assault_leader_job	formation	all, -object_jump_gate, -tradelane	2
area_bh_assault	wander	fighters	assault_leader_job	formation	all, -object_jump_gate, -tradelane	2
area_bh_defend	wander	fighters	defend_leader_job	formation	all, -tradelane, -object_jump_gate	1
area_bh_scout	wander	fighters	scout_job	single	all, -tradelane, -object_jump_gate	1
area_defend	wander	fighters	defend_leader_job	formation	all, -tradelane, -object_jump_gate	1
area_gunboats	wander	gunboats	assault_leader_job	single	all, -object_all	1
area_lifter	wander	fighters	lifter_job	single	all, -tradelane, -object_jump_gate	1
area_nomads	wander	fighters	assault_leader_job	formation	cruise	1
area_nomads_m13	wander	fighters	assault_leader_job	formation	cruise	1
area_repair	wander	fighters	repair_job	single	all, -tradelane, -object_jump_gate	1
area_scavenger	wander	fighters	scavenger_job	single	all	1
area_scout	wander	fighters	scout_job	single	all, -tradelane, -object_jump_gate	2
Zone-area_trade						
area_trade_armored	trade	gunboats	armored_job	escort	all	1
area_trade_freighter	trade	freighters	freighter_job	escort	all	2
area_trade_freighter_pirate	trade	freighters	freighter_job	escort	all	1
area_trade_freighter_smuggler	trade	freighters	freighter_smuggler_job	escort	all	1
area_trade_smuggler	trade	fighters	smuggler_job	single		1
area_trade_trader	trade	fighters	trader_job	single		1
area_trade_transport	trade	transports	transport_job	escort	all	2
Zone-path mining						
miningp_scavenger	patrol_path	fighters	scavenger_job	single	cruise	1
miningp_trade_transport	patrol_path	transports	transport_job	escort	cruise	2
Zone-path patrol						
patrolp_assault	patrol_path	fighters	assault_leader_job	formation	cruise	2
patrolp_bh_assault	patrol_path	fighters	assault_leader_job	formation	cruise	2
patrolp_bh_patrol	patrol_path	fighters	patrol_leader_job	formation	cruise	1
patrolp_gov_patrol	patrol_path	fighters	patrol_leader_job	formation	cruise	2
patrolp_gunboats	patrol_path	gunboats	assault_leader_job	single	cruise	1
patrolp_pirate_patrol	patrol_path	fighters	patrol_leader_job	formation	cruise	1
Zone-path trade						
tradep_armored_prisoner	trade	gunboats	prisoner_job	escort	tradelane	1
tradep_miner_transport	trade	gunboats	transport_job	escort	tradelane	2
tradep_trade_armored	trade	freighters	armored_job	escort	tradelane	1
tradep_trade_freighter	trade	transports	freighter_job	escort	tradelane	2
Zone-path trade patrol						
tradep_trade_freighter_pirate	patrol_path	gunboats	freighter_job	escort	cruise	1
tradep_trade_freighter_smuggler	patrol_path	transports	freighter_smuggler_job	escort	cruise	1
tradep_trade_smuggler	patrol_path	gunboats	trader_job	single	cruise	1
tradep_trade_trader	patrol_path	freighters2	trader_job	single	cruise	1
tradep_trade_transport	patrol_path	freighters	transport_job	escort	cruise	2
Zone-tradelane						
tradelane_armored_prisoner	patrol_path	freighters	prisoner_job	escort	cruise	1
tradelane_trade_armored	patrol_path	fighters	armored_job	escort	cruise	1
tradelane_trade_freighter	patrol_path	fighters	freighter_job	escort	cruise	2
tradelane_trade_transport	patrol_path	transports	transport_job	escort	cruise	2

Zones

In the ini file of a system is declared which, where and how many encounters are going to appear.
In relation to encounters there are 3 types of zones: **area, path and Tradelane** oriented. Each zone type has its own set of encounters: area's have area_scouts that wander within the area, path type zones have patrol encounters that follow a specific path and tradelanes have tradelane traffic generating encounters.
The declaration of the actual encounter in a system is found in a routine. This routine can be broken down in 3 parts:

- Zone-header, which lays down the type of zone: area or path, the position, the rotation, the size, the shape.
- Zone variable part, which lays down some of the variable characteristics for the zone. These are valid for all encounters in that zone.
- Encounter part, here is laid down what factions are involved in this zone, of which encounter type they are going to be and the chances for them to appear.

Zones and their order in "system".ini files



In the system ini files zones are placed in a special order for a reason. This has to do with the encounter density and max. battle size.
The zones are declared in this order:

1. the tradelane zones, these are declared directly following the tradelane they are going to the generate traffic for.
2. next the smaller area zones are declared
3. followed by the path zones (patrol and trade)
4. lastly the large zones like the area ambient are declared.

Hopefully the drawing makes it more clear, but pay attention. The drawing shows an undesired situation just for explanatory reasons: In this case the area sphere with density 6 is declared first. Next the zone paths with density = 4 are declared. The parts of the zone paths that fall in the area-sphere zone will now have density = 6 because they fall in the area sphere zone, which was declared second. Last is the area ambient zone that fills the empty spaces with a density = 3. Would this zone have been declared first, than the whole area would have a density = 3. But not only that: since the sphere is over the tradelane zone, the tradelane encounters are not created in that area.

Area-zones

Area-zones can be found in stand-alone form or can be found merged in a asteroid field or cloud, which are also declared in zones. The header part is the same as it is for asteroid_fields or clouds, obviously whenever merged it needs to be declared only once.
All encounters bearing a name starting with **area** are designed to be used in this type of zone and in this type of zone only. The routine headers look like this:

```
[zone]
nickname = zone_system_1
pos = 306, 0, 16950
shape = SPHERE
size = 4000
pop_type = wormhole
```

```
[zone]
nickname = zone_system_2
pos = -19432, 0, -14107
rotate = 0, 40, 0
shape = ELLIPSOID
size = 10000, 7000, 13000
pop_type = nonlootable_core_ast_field
```

This is pretty straight forward, but for the pop_type variable. There is clear link between the pop_type and the actual encounters and the area that they are assigned to. I have not been able to connect any specific additional or different behaviour to these parameters.
Changing them did gave the following observation results:

- Removing the pop_type line from the zone did result in having the ships spawn, using their arrival speed and then hold postion without moving. The number of encounters that spawn is limited by the density parameter. The relief_time does not seem to be activated yet.
- Changing the pop_type line to a pop_type that is used in other zone-types, e.g. changing pop_type = wormhole to pop_type = trade_path has the same effects as mentioned above.
- Changing the pop_type line to a pop_type that is used in the same zone-type, e.g. changing pop_type = wormhole to pop_type = extend_law seems to have no effect on the behaviour of the encountered ships.

Conclusion: so far it seems that the pop_type parameter has to be one of the types that is used in similar zones and it does not seem to matter which one you use. See paragraph on behaviour earlier for additional information on behaviour. Next my guess is that they are explanatory comments for which activity (read encounter type) this particular area is created. I've found the following pop_types related to area's:

- Area's controlled by local authorities like police, navy, companies:
    - any_grp, base_cluster_law, area with multiple bases, objects
    - any_grp, any_grp, base_cluster_law, area with multiple bases, objects
    - any_grp,single_base_law, area near a base.
    - extend law,.used to create a larger area around bases and other objects with a lower density and 1 or 2 factions
    - any_grp, single_base_law, jumpgate, area near a base and a jumpgate nearby
    - single_base_law
- Area's controlled by local pirates:
    - any_grp, single_base_unlaw
- Other area's:
    - lootable_field, encounters in an mineable debris area.
    - lootable_ast_field, encounters in an mineable asteroid field.
    - nonlootable_ast_field non mineable asteroid/debris field.
    - lootable_core_field
    - nonlootable_core_ast_field encounters in an nonmineable asteroid field
    - wormhole, area near a jumphole.
    - jumpgate, area near a jumpgate.
- waypoint
- background, used in pop_ambient area-zones (see pop_ambient area-zones)

There is one pop_type = background that needs some more attention.

Pop_ambient area-zones

Almost every system has one or more, mostly they cover very large area's. The pop_ambient area's have some distinctive parameters: pop_type = background and population_additive = false.
Important!: Without a pop ambient area covering the area no patrol path's will operate!!!!
Pop_type = background, suggests that the included encounters are used to fill larger parts of the system with some traffic. This area is also responsible for the political map in the navmap. Factions mentioned here will show up colouring the area either white, red or green. Normally these zones don't carry a *"visit* = " line. A line "visit = 128" in the the zone will prevent the zone to display its political attitude on the navmap.
Population_additive = false, almost all pop_ambient zones have this parameter. It's name suggests that the addition of the encounters declared here are generated only in area's where no other zones are active (false).
In these area's the encounter types area_scout, area_bh_scout and area_nomads are used. But in fact any area-encounter type can be used here.

Path-zones

Where in area's npc's wander, in path-zones they follow a straight line. Although the Tradelane zones also use paths, there are almost no similarities between them.

Paths and the navmap

Important!: again, without a pop ambient area covering the area no patrol path's will operate!!!!
All paths are displayed on the navmap, provided you have been in their vicinity (visited them). The color of the line is determined by your reputation with the faction that is using the path. If 2 or more factions use the path and your reputation with them is not the same, then the color of the path will be white (neutral).

All encounters bearing a name starting with **patrolp, tradep** and **miningp** are designed to be used in this type of zone and in this type of zone only. The path zone routine header looks like this:

```
[zone]
nickname = Zone_Path_1
pos = 19049, 0, 22904
rotate = -90, 20, 0
shape = CYLINDER
size = 750, 11300
attack_ids = 3
tradelane_attack = 30
path_label = rogues1, 1
pop_type = field_patrol
usage = patrol
mission_eligible = True
```

This type of path can be laid out anywhere in the system, provided the the path starts near a base from which the ships originate. Only factions that are in the mbases.ini declared as a BaseFaction can have a path or path-route starting from this base. Asmall entry in the mbases.ini is sufficient to remedy this:

```
[BaseFaction]
faction = you faction
weight =1
```

Paths not running from a base need to be running from a jumphole. In that case you can use any faction that has fighters assigned.
Warning! If the path is not within approx. 4K of the base or jumphole involved, a CTD will occur the moment the encounter is to be created. Paths will not run from a jumpgate, they will cause CTD's!!!
Imagine the path as a straight, wide road drawn in space and that the ships are flying over that road. Ships might spawn anywhere alongside the road. After spawing they will fly to the end of the road, turn around and fly "on the other side" of the road back to their starting point. When you fly with them, they will continue doing this untill their to time to be relieved is there, then they will dock with a nearby object, like jumpgates, jumpholes, stations. Again, this behaviour can only be observed when you are in visual (scan) range.

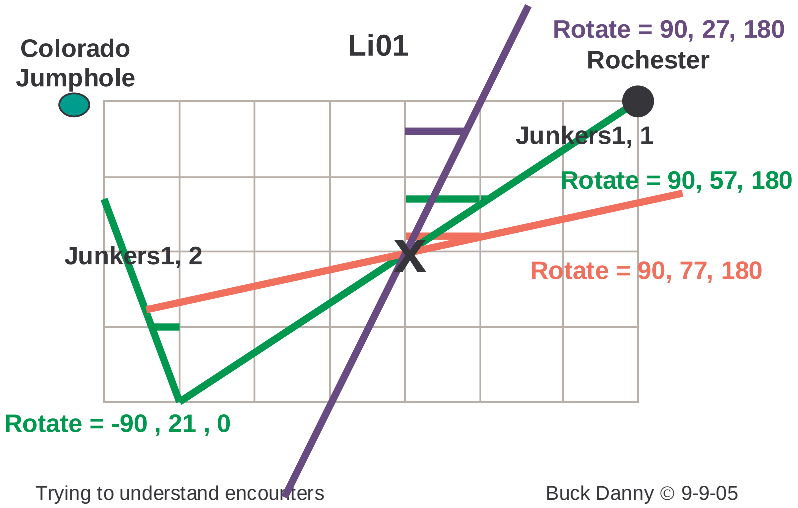
The paths used for tradep and miningp generally form a connection between 2 dockable objects, like base and jumphole. The trade path must start/end at a base where the faction has a BAseFAction entry, otherwise a CTD will occur!

Path-route. This is not a parameter, but it is an effect that can be achieved by linking path's together, in this way creating a flight path with virtual waypoints, consisting of several legs. Obviously the preceeding legs' end must be over the next legs' start, to create a ongoing flightpath between the legs. If the legs don't form a closed loop (the last leg's end is not over the first leg's start and more than 4K away), then the ships will turn around and fly the route in the opposite direction. Mostly the route ends where it starts, at the base. If the legs are not connected the ships will find the next leg eventually provided it is nearby. Observed behaviour is like they seem to take a break, do a little bit of turning and tossing and then to pick up the next leg.

The path labels must have their first name part in the path-label incommon like: ***path_label = rogues1,****1* – ***path_label = rogues1,****2* – ***path_label = rogues1,****3* and so on. The declarations for linked legs are the same except of course for the pos, rotate and size parameters. Mostly that is what I found, tough you can have diffferent values for the repop, relief parameters and other parameters. There is sufficient prove of that. Legs in a path-route have been found with additional lines for tradelane attack in legs near a tradelane. Other differences have also been noticed.

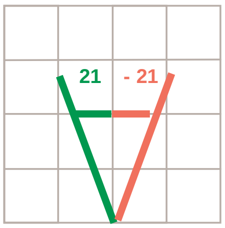
Mostly each faction has it's own patrolpaths. Some ini files have multiple factions use the same path. Outcasts and Liberty Roques, Blood Dragons and GC's have been noticed to be declared together.
In order to allow for both faction to spawn from this path, faction must have similar npcships entries, meaning the available difficult level should be the same. If not than only one faction will spawn. This depends on how the faction's npcships entry fit the desired encounter difficulty level.In fact I have not seen both factions spawning from the same path, only faction will spawn.
It is possible though to use patrolp, miningp and tradep encounters in the same path but this can only be safely done when the encounters are used by the same faction. I advise to declare separte paths.

- ***Pos***, the position here determines the **center**-point of the path (road). When declared correctly the path will show up on your navmap as a straight line, when you activate the patrol icon. White when the faction is neutral towards you, green when friendly and red when hostile.
- ***Rotate***, now this requires special attention.

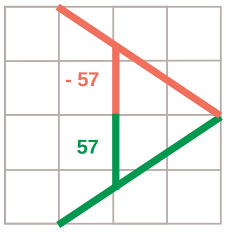


This drawing has been made from the first 2 legs of a path-route for the Junkers at Rochester. The green values are in the values from the LI01.ini file. The blue and red paths show how the deviation will be if you change the middle value.
Within path routine only the following 2 variations have be found for the 1rst and 3^{rd} value: rotate = `-90, value, 0` or `90, value, 180`. This has to do with the shape being cylindrical.

rotate = -90, 21, 0



rotate = 90, 57, 180



Although other combinations will have the same results, I suggest to be on the safe side that you use either one of these to create a path that is in line with X-axis of the system and to show up on your navmap as a line. (If you don't use these parameters but use `0, value, 0` the patrols are going to be vertical and not horizontal, they it will show up as a dot on your navmap.)
The parameter in the middle determines the actual rotation on the X-axis and this value in relation to the other parameter combination positions the path on the map.

- **Shape**. The shape is always cylinder.
- **Size.** The first parameter determines the wideness of the "road", I've found only 750's for it, but no doubt other (wider) values can be used. The second parameter determines the length of the "road".
- **Attack_ids**. If this path is used for unlawfulls (criminals) to attack the tradelane you have to insert a unique id for this system. Mostly numbers like 1, 2, 3, etc. are used. Mostly the patrol path is parallel to the Tradelane that is going to be attacked, but that is not necessary, crossing or partly parallel is also possible. The likelihood of attack will obviously be affected by doing that. This parameter is serves only identicifation of the path. The behaviour of the encounter is determined by the type of encounter and the job type that is declared in there.
- **Tradelane_attack**. Here the lane_id number of the tradelane that is going to be attacked.
- **Path_label**. Usually the label consist of the faction and a number like : police2, 3. The breakdown is : this is a police patrol path, it is the 2nd police patrol in this system and it is the 3rd leg for this patrol.
- **Pop_type**.The following types have been found :
  - Field patrol in connection with patrolp_xy_….. encounters
  - Attack_patrol in connection with patrolp_xy_assault encounters
  - Trade_path in connection with tradep_xy_….. encounters
  - Lane_patrol in connection with patrolp_gov_patrol encounters
  - Mining_path in connection with miningp_xy_….. encounters

  I have not been able to connect any specific behaviour to these parameters, changing them with any of the above mentioned op_types did not result in any altered behaviour. My guess therefore is that they are just explanatory comments for which activity (read encounter type) this particular path is created. Finding pop_type = field_patrol paths that have attack tradelane lines in them, seems to support this.
- **Usage**. The following types have been found :
  - Patrol in connection with patrolp_xy_….. encounters.
  - Trade in connection with miningp_xy_….. encounters.
  - Trade in connection with tradep_xy_….. encounters.
  - Trade, patrol when the path zone has patrolp and tradep or miningp encounters as well. (1 faction only!)
- **Mission_eligible**. There are 2 possiblilities here : True or False. The fast majority of zones have the condition True. This allows random missions to take place in this encounter area. Suggest using condition True.

Tradelane-zones

This zone is used to generate traffic in tradelanes. Mostly this zone is declared in the system-ini directly after the tradelane section it is connected with. This path shows up in the political navmap, but will be very hard to notice. All encounters bearing a name starting with **tradelane** are designed to be used in this type of zone and in this type of zone only. The Tradelane path routine header looks like this:

```
[zone]
nickname = Zone_Tradelane_1
pos = -23407, 0, -7350
rotate = 0, -145, 0
shape = BOX
size = 520, 520, 23020
lane_id = 1
tradelane_down = 30
pop_type = major_tradelane
```

- ***Pos***, again the position here determines the **center**-point of the path (road), which is equal to the center of the tradelane.
- ***Rotate***, this is simple. The rotation is the same as the rotation of the tradelane.
- **Shape**. The shape is always box.

- **Size.** The first and the second parameter determine the hight and width of the box, I've found mostly 520's for it. The third parameter determines the length of the box.
- **Lane_id.** If you are planning for attack on the tradelane you could insert a unique id for this system for explanatory purposes. Mostly numbers like 1,2, 3, etc. are used.
- **Tradelane_down.** Again, if you are planning for tradelane attack, you have to specifiy here the amount of time the tradelane is down and can't be used.
- **Pop_type**.The following types have been found :
  - Major_tradelane in connection with tradelane_xy_….. encounters
  - Minor_tradelane in connection with tradelane_xy_….. encounters

  See earlier remarks on pop-types. This seems to be mostly explanatory related to the amount of traffic for the tradelane.

Zone - variable part

- **Sort.** In some systems every zone has another number and mostly the count starts with 1. Majority findings are 99. Likely this is a residu of earlier programming insights that have been abandoned. Suggest using value 99.
- **Toughness**. Observations of encounter behaviour makes me believe that this entry here does not influence the actual toughness of the encounter. Lowering this value here from 19 to 1 had no effect on the actual level of the spawned encounters in the zone.The actual toughness of the encounter is declared in the encounter line in the encounter part section. I suggest that to be on the safe side that you give parameter always a value that is equal to the highest toughness value declared in the encounter part. It is likely to be serving explanatory purposes.
- **Density**. This determines the amount of encounters generated by this zone, that can be present at the same time. It is unlikely that this parameter limits the number of ships present. To support this: in many area's with a density of 3 more than 3 ships originating from the same encounter zone are present at the same time. So it is likely limiteing the number of enounters spawning/present at the same time.
- **Repop_time**. This timer determines the moment that the next encounter might be spawned. There is another value within the encounter line that detemines the percentage that a spawn will actually take place.
- **Max_battle_size**. This value determines the maximum amount of ships that will be attacking at the same time.
- **Relief_time**. This timer determines the latest moment that a spawned encounter is going to disappear. Either by being out of range or by docking with a base, jumphole, jumpgate.
- **Density_restriction**. This entry is used to control the number of encounter formations of a certain kind that can be present in the zone at the same time. Could be considered to be an extension of the density parameter.

  Example found single entry:
  ```
  density_restriction = 4, unlawfuls
  ```
  Example found multiple entry:
  ```
  density_restriction = 1, patroller
  density_restriction = 1, police_patroller
  density_restriction = 1, pirate_patroller
  density_restriction = 4, lawfuls
  density_restriction.= 4, unlawfuls
  ```

Zone - Encounter part

The encounter types used must be in line with the area they are going to be used in and what is more the encounter types have to be also in line with the job that has to be done. (see table earlier)

- **Faction_weight**. `faction_weight = fc_g_grp, 10`
  The purpose of this parameter is not clear. Encounters will occur whether the faction is in the weight list or not. It could be that this parameter's only purpose is to determine the reputation behaviour for the Tradelane and/or area's, but then again all tradelanes carry a reputation = parameter. Others believe that t*his parameter determines the faction that the encountered ship(s) will be originating from. And the value presents the relative weight that this faction will have in relation towards other factions in the zone listing.*
  I could not find any prove of that. My best guess is that this parameter has been abandoned.
  You can have as many factions in the list as you like. (Note: whether these values are percentages or relative to one another does not really matter. There are too many parameters involved and the answers can probably only be found by disassembling the Freelancer.exe).
  Total the values of all the factions and divide value of a faction by this total and you've got the approximate percentage that this faction will be involved in an encounter. Earlier posts spoke of a maximum of 100 in total. I've found entries in Li01 and Br01 that exceeded that value, but I have not noticed problems because of that. Although it might not cause any errors, I suggest you don't exceed 100, because there is really no need to do that.

- **Encounter**. encounter = area_defend, 7, 0.190000

  This parameter determines the actual encounter type that will be called. There can be multiple encounter types in a zone. The first value determines the difficulty of the involved pilots, their ships and the ships loadout (weapons). Highest toughness for fighters is found in Hi02 and is 19. The values are in line with d1…..d19 values in the npcships.ini. Increasing a lower value to 19 does not automatically imply that you will see level 19 ships. This depends entirely on the maximum level that is available for the faction involved.

  The second value in this line represent the percentage of chance that an encounter of this type will spawn. (Note: whether these values are percentages or relative to one another does not really matter. There are too many parameters involved and the answers can probably only be found by disassembling the Freelancer.exe).

  Therefore: the sum for the encounter 2nd parameter-values should always be 1.0. More than 1 digits behind the dot is useless in my opinion. You really won't notice the difference, exactness here is ridicule. (0.29 or 0.3, 022 or 0.2 you won't notice it.)
- **Faction**. faction = fc_g_grp, 0.560000

  This parameter determines which faction(s) are going to perform the above described encounter. Multiple factions can be assigned to an encounter. The value following the faction name, is the percentage of chance this faction is to occur.(Note: whether these values are percentages or relative to one another does not really matter. There are too many parameters involved and the answers can probably only be found by disassembling the Freelancer.exe). Earlier posts spoke of a maximum of 1.0 in total for each encounter to be divided among the factions. I've found entries in Li01 and Br01 that exceeded that value, but I have not noticed problems because of that. Although it might not cause any errors, I suggest you don't exceed 1.0, because there is really no need to exceed this value.

  Therefore: the sum for the faction parameter values should always be 1.0. More than 1 digits behind the dot is useless in my opinion. You really won't notice the difference, exactness here is ridicule. (0.29 or 0.3, 022 or 0.2 you won't notice it.)

  Example found multiple entry:

  ```
  faction_weight = co_be_grp, 10
  faction_weight = br_m_grp, 10
  faction_weight = co_nws_grp, 10
  faction_weight = co_os_grp, 4
  faction_weight = co_ss_grp, 10
  faction_weight = gd_im_grp, 5
  encounter = tradelane_trade_freighter, 4, 0.200000
  faction = co_be_grp, 0.290000
  faction = br_m_grp, 0.290000
  faction = co_nws_grp, 0.290000
  faction = gd_im_grp, 0.140000
  encounter = tradelane_trade_transport, 4, 0.130000
  faction = co_be_grp, 0.220000
  faction = br_m_grp, 0.220000
  faction = co_nws_grp, 0.220000
  faction = co_ss_grp, 0.220000
  faction = gd_im_grp, 0.110000
  ```

Encounter-level built up

A good example of a level built up is found in the table for the Outcasts on next page.

The next 2 tables show the usage of encounter types by factions in unmodded FL.

Trying to understand encounters

Outcast levelling up Example

[NPCShipArch]

	loadout =				***pilot =***		***npc_class =***
							unlawful,
nickname	***fc_ou_bw_***	***level***	***ship_archetype***		***pilot_outcast_***	***state_graph***	***class_fighter,***
fc_ou_bw_fighter_d1-4	fighter_loadout01	d4	bw_fighter	Dagger	hard	FIGHTER	d1, d2, d3, d4
fc_ou_bw_fighter_d5	fighter_loadout01	d5	bw_fighter	Dagger	ace	FIGHTER	d5
fc_ou_bw_fighter_d6	fighter_loadout02	d6	bw_fighter	Dagger	med	FIGHTER	d6
fc_ou_bw_fighter_d7	fighter_loadout02	d7	bw_fighter	Dagger	hard	FIGHTER	d7
fc_ou_bw_fighter_d8	fighter_loadout02	d8	bw_fighter	Dagger	ace	FIGHTER	d8
fc_ou_bw_elite_d9	elite_loadout01	d9	bw_elite	Stiletto	med	FIGHTER	d9
fc_ou_bw_elite_d10	elite_loadout01	d10	bw_elite	Stiletto	hard	FIGHTER	d10
fc_ou_bw_elite_d11	elite_loadout01	d11	bw_elite	Stiletto	ace	FIGHTER	d11
fc_ou_bw_elite_d12	elite_loadout02	d12	bw_elite	Stiletto	med	FIGHTER	d12
fc_ou_bw_elite_d13	elite_loadout02	d13	bw_elite	Stiletto	hard	FIGHTER	d13
fc_ou_bw_elite_d14	elite_loadout02	d14	bw_elite	Stiletto	ace	FIGHTER	d14
fc_ou_bw_elite2_d15	elite2_loadout01	d15	bw_elite2	Sabre	med	FIGHTER	d15
fc_ou_bw_elite2_d16	elite2_loadout01	d16	bw_elite2	Sabre	hard	FIGHTER	d16
fc_ou_bw_elite2_d17	elite2_loadout01	d17	bw_elite2	Sabre	ace	FIGHTER	d17
fc_ou_bw_elite2_d18	elite2_loadout02	d18	bw_elite2	Sabre	hard	FIGHTER	d18
fc_ou_bw_elite2_d19	elite2_loadout02	d19	bw_elite2	Sabre	ace	FIGHTER	d19

[Loadout]

nickname =	***Equip***	***equip***	***equip***	***equip***	***equip***	***equip***	***equip***
loadout =	***HpWeapon01***	***HpWeapon02***	***HpWeapon03***	***HpWeapon04***	***HpWeapon05***	***HpWeapon06***	***HpTurret01***
fc_ou_bw_	***fc_ou_***	***fc_ou_***	***fc_ou_***	***fc_ou_***	***Fc_ou_***		***fc_ou_***
fighter_loadout01	gun02_mark01	gun02_mark01					turret01_mark01
fighter_loadout02	gun02_mark01	gun02_mark01	gun02_mark02	missile01_mark02			turret01_mark01
elite_loadout01	gun01_mark03	gun01_mark03	gun01_mark03	gun01_mark02	gun01_mark02	missile01_mark01	turret01_mark01
elite_loadout02	gun01_mark04	gun01_mark04	gun01_mark03	gun01_mark03	gun01_mark03	missile01_mark02	turret01_mark01
elite2_loadout01	gun01_mark05	gun01_mark04	gun01_mark04	gun01_mark04	gun01_mark04	missile01_mark03	turret01_mark02
elite2_loadout02	gun01_mark05	gun01_mark05	gun01_mark05	gun01_mark05	gun01_mark05	missile01_mark03	turret01_mark02
Dagger	Pyros Type 1	Pyros Type 1					Dragoon Turret type 1
Dagger	Pyros Type 1	Pyros Type 1	Pyros Type 2				Dragoon Turret type 1
Stiletto	Dragoon Type 3	Dragoon Type 3	Dragoon Type 3	Dragoon Type 2	Dragoon Type 2	Javelin	Dragoon Turret type 1
Stiletto	Wyrm Type 1	Wyrm Type 1	Dragoon Type 3	Dragoon Type 3	Dragoon Type 3	Slingshot	Dragoon Turret type 1
Sabre	Wyrm Type 2	Wyrm Type 1	Wyrm Type 1	Wyrm Type 1	Wyrm Type 1	Catapult	Dragoon Turret type 2
Sabre	Wyrm Type 2	Wyrm Type 2	Wyrm Type 2	Wyrm Type 2	Wyrm Type 2	Catapult	Dragoon Turret type 2

Trying to understand encounters

Encounter usage table	br_m	br_n	br_p	co_alg	co_be	co_hsp	co_khc	co_kt	co_me	co_ni	co_nws	co_os	co_rs	co_shi	co_ss	co_ti	co_vr	gd_bh	gd_gm	gd_im	gd_z
area_armored_prisoner			√																		
area_assault	√						√														
area_bh_assault		√		√				√				√		√				√	√	√	
area_bh_defend																		√			
area_bh_scout																		√			
area_defend	√	√	√	√	√		√	√			√	√	√	√		√				√	√
area_gunboats																					
area_lifter								√	√				√	√	√	√					
area_nomads																					
area_repair								√	√				√	√	√	√					
area_scavenger	√			√																√	√
area_scout	√	√	√	√		√	√	√	√			√		√		√	√		√	√	√
area_trade_armored					√		√				√	√		√						√	
area_trade_freighter	√			√	√	√	√	√	√		√		√	√	√	√	√		√	√	
area_trade_freighter_pirate																					√
area_trade_freighter_smuggler																					
area_trade_smuggler																					
area_trade_trader																					
area_trade_transport	√			√	√	√	√	√	√	√	√		√	√	√	√	√		√	√	
miningp_scavenger	√																				
miningp_trade_transport	√															√					
patrolp_assault	√	√	√				√	√	√			√		√		√			√	√	√
patrolp_bh_assault																		√			
patrolp_bh_patrol																					
patrolp_gov_patrol		√	√																		
patrolp_gunboats		√																			
patrolp_pirate_patrol																					
tradelane_armored_prisoner			√																		
tradelane_trade_armored					√		√				√										
tradelane_trade_freighter	√			√	√	√	√	√	√		√		√	√	√	√	√			√	
tradelane_trade_transport	√			√	√	√	√	√	√	√	√		√	√	√	√	√			√	
tradep_armored_prisoner			√																	€	
tradep_miner_transport																					
tradep_trade_armored							√							√						√	
tradep_trade_freighter	√				√									√	√	√				√	
tradep_trade_freighter_pirate																					√
tradep_trade_freighter_smuggler																					
tradep_trade_smuggler																					
tradep_trade_trader																					
tradep_trade_transport	√			√	√	√	√		√				√	√	√	√			√	√	
	br_m	br_n	br_p	co_alg	co_be	co_hsp	co_khc	co_kt	co_me	co_ni	co_nws	co_os	co_rs	co_shi	co_ss	co_ti	co_vr	gd_bh	gd_gm	gd_im	gd_z

Trying to understand encounters

Encounter usage table	fc_b	fc_bd	fc_c	fc_fa	fc_g	fc_gc	fc_h	fc_j	fc_lh	fc_lr	fc_lwb	fc_m	fc_n	fc_ou	fc_rh	fc_u	fc_x	ku_n	ku_p	li_n	li_p	rh_m	rh_n	rh_p
area_armored_prisoner																			√		√			√
area_assault			√							√					√	√	√				√			
area_bh_assault					√				√					√				√				√	√	
area_bh_defend																								
area_bh_scout								√																
area_defend	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√
area_gunboats																								
area_lifter																								
area_nomads													√											
area_repair																				√	√			
area_scavenger			√					√							√							√		
area_scout	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√
area_trade_armored																						√		
area_trade_freighter																						√		
area_trade_freighter_pirate										√														
area_trade_freighter_smuggler										√														
area_trade_smuggler								√																
area_trade_trader	√	√	√	√	√	√	√	√	√		√	√		√	√	√	√		√					
area_trade_transport														√								√		
miningp_scavenger																								
miningp_trade_transport																		€						
patrolp_assault	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√
patrolp_bh_assault																								
patrolp_bh_patrol																								
patrolp_gov_patrol																		√	√	√	√			√
patrolp_gunboats																		√						
patrolp_pirate_patrol								√	√	√				√			√							
tradelane_armored_prisoner																			√		√			√
tradelane_trade_armored																			√			√		
tradelane_trade_freighter																						√		
tradelane_trade_transport																						√		
tradep_armored_prisoner																			√			€		√
tradep_miner_transport																								
tradep_trade_armored																						√		
tradep_trade_freighter																								
tradep_trade_freighter_pirate										√														
tradep_trade_freighter_smuggler										√														
tradep_trade_smuggler								√																
tradep_trade_trader	√	√	√	√	√	√	√	√	√		√	√		√	√	√	√							
tradep_trade_transport																						√		
	fc_b	fc_bd	fc_c	fc_fa	fc_g	fc_gc	fc_h	fc_j	fc_lh	fc_lr	fc_lwb	fc_m	fc_n	fc_ou	fc_rh	fc_u	fc_x	ku_n	ku_p	li_n	li_p	rh_m	rh_n	rh_p

Trying to understand encounters

	single pilot	***formation***	***escort***
[EncounterFormation]	**area_bh_scout**	**area_assault**	**tradep_miner_transport**
ship_by_class	1, 1, sc_fighters	1, 1, sc_fighters	1, 1, sc_transports
pilot_job	scout_job	assault_leader_job	transport_job
make_class	wanderer	wanderer	class_patroller
ship_by_class		2, 3, sc_fighters, -1	0, 1, sc_fighters
pilot_job		assault_job	escort_leader_job
make_class		wanderer	
ship_by_class			0, 2, sc_fighters, -1
pilot_job			escort_job
formation_by_class	fighters	fighters	transports
behavior	wander	wander	patrol_path
arrival	all, -tradelane,	all, -object_jump_gate,	cruise
	-object_jump_gate	-tradelane	
allow_simult._creation	Yes	yes	yes
zone_creation_distance	0	0	0
times_to_create	infinite	infinite	infinite
[Creation] - permutation	0, 3	0, 3	0, 5

Found variations - ship_by_class

1rst job	***2nd job***	***3rd job***
1, 1, fighters	0, 1, sc_fighters	0, 1, sc_fighters
1, 1, sc_armoreds	0, 1, sc_fighters, -1	0, 1, sc_fighters, -1
1, 1, sc_fighter_smugglers	1, 1, sc_fighters	0, 2, sc_fighters
1, 1, sc_fighters	1, 1, sc_freighters	0, 2, sc_fighters, -1
1, 1, sc_freighter_smugglers	1, 1, sc_transports	1, 1, sc_fighters, -1
1, 1, sc_gunboats	1, 2, sc_fighters, -1	1, 2, sc_fighters, -1
1, 1, sc_lifters	2, 2, sc_fighters, -1	
1, 1, sc_repairs	2, 3, sc_fighters, -1	
1, 1, sc_transports	3, 3, fighters	
Occur only when 2 encounters in one ini		
2, 2, sc_fighters		
2, 2, sc_freighters		
2, 2, sc_transports		

Found variations - pilot_job

1rst job	***2nd job***	***3rd job***
armored_job	escort_leader_job	escort_job
assault_leader_job	assault_job	
defend_leader_job	defend_job	
freighter_job		
freighter_smuggler_job	freighter_job	
lifter_job		
patrol_leader_job	patrol_job	
prisoner_job		
repair_job		
scavenger_job		
scout_job		
smuggler_job		
trader_job		
transport_job	transport_job	

Trying to understand encounters

Found variations – make_class

1rst job	*1rst job*	*2nd job*
wanderer		wanderer
wanderer	class_patroller	
class_police_patroller	wanderer	
class_patroller		
class_pirate_patroller		

Found variations – formation_by_class

1rst job	*2nd job*	*3rd job*
fighters	fighters	gunboats
gunboats		freighters
		freighters2
		transports
		transports2

Found variations – behaviour

1rst job	*2nd job*	*3rd job*
wander	wander	trade
trade	patrol_path	patrol_path
patrol_path		

Found variations – arrival

all
all, -object_all
all, -object_jump_gate, -tradelane
all, -tradelane, -object_jump_gate
cruise
tradelane