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IPC Autonomous Capture AI

IPCAutonomousCaptureAI is a mod designed for the *Conflict* game mode in Arma Reforger. It introduces an **autonomous AI capture system**, enabling AI units to dynamically capture objectives without player intervention. Spawned AI will automatically locate and move toward the current **Main Objective**, supporting a more immersive and reactive battlefield experience.

1. How to Use the Autonomous Capture Spawn Point

To set up an autonomous AI group that dynamically targets objectives in the *Conflict* mode, simply place the prefab `IPC_AutonomousCaptureSpawnPoint` in your scenario using the World Editor.

Basic Setup

- Ensure the entity has a `SCR_FactionAffiliationComponent` set to the faction you want.
- Place the prefab close to a **military base** or **target point**.
- Upon scenario start, the AI group will **spawn**, **select a target**, and **move toward it** automatically.

⚙ Configurable Attributes Explained

Here’s a breakdown of each configuration field and its effect:

Attribute	Description
`m_eGroupType`	Defines the type of group to spawn (e.g., Fireteam, Squad).
`m_bPickRandomGroupType`	Randomly selects a group type on spawn.
`m_isGroupUpdate`	Enables dynamic group change after X respawns.

`m_iGroupUpdateRate`	Number of respawns before group type is updated.
`m_iRespawnPeriod`	Time (in seconds) before the group respawns. `0 = no respawn`.
`m_fAILimitThreshold`	Prevents spawning if too many AIs already exist globally (as ratio).
`m_iNum`	Number of groups to spawn at once.
`m_eTargetType`	Defines the AI's target type: `MainTarget`, `EnemyMainTarget`, `Base`, `CapturePoint`, or `Player`.
`m_fTargetRange`	Maximum distance to target to allow spawn.
`m_sTargetFactionKey`	Key of the enemy faction (e.g., "USSR") for target logic.
`m_iTargetUpdateTimeout`	Time interval (ms) between target updates.
`m_iWaypointUpdateTimeout`	Time interval (ms) between waypoint recalculations.
`m_fDespawnRange`	If no players are within this range, AI will despawn.
`m_fSpawnProtectRange`	Prevents AI from spawning too close to players.
`SpawnProtect`	Enable/disable spawn protection behavior.
`dynamicDespawn`	Despawn AI when players are far away.
`spawnOnlyNearest`	Only spawn if this base is closest to the current target.
`m_iPlayer`	Number of players required to allow spawn.
`m_sNoSpawnFactionKey`	Disables spawn if nearest base belongs to this faction.
`m_sSpawnOnlyFactionKey`	Enables spawn only if nearest base belongs to this faction.
`m_bShowMarker`	Show map marker for the AI group.
`m_bShowToEveryone`	Make the marker visible to all factions.

□□ AI Behavior

- AI group dynamically updates its waypoint to the selected target type.
- Skill level is scaled depending on the **number of players online**.
- If no valid target is found or conditions are unmet (e.g., players too close), the group will **not spawn**.
- Waypoint and group are updated live based on **real-time campaign state**.

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2. How to Use the Autonomous Capture Spawn Point **with Vehicle**

The `IPC_AutonomousCaptureSpawnPointWithVehicle` prefab works just like the standard version, but includes **vehicle support**. AI groups will spawn with vehicles and automatically mount them before moving to their objective.

□□ Setup Instructions

1. Place the prefab in the **World Editor**, same as the non-vehicle version.
2. Ensure the faction is correctly assigned with a `SCR_FactionAffiliationComponent`.
3. Define which vehicle to use for each group type.
4. AI groups will:
   - Spawn next to the vehicle
   - Mount it using the provided "Get In" waypoint
   - Move toward the target (main objective, base, or enemy unit)

⚙ Additional Configurable Attributes

This prefab inherits **all options** from `IPC_AutonomousCaptureSpawnPointComponent` and adds vehicle-specific settings:

Attribute	Description
`m_sVehicle_TeamSentry`	Prefab for vehicle used by **TEAM_SENTRY** group.
`m_sVehicle_TeamMG`	Prefab for vehicle used by **TEAM_MG** group.
`m_sVehicle_TeamAT`	Prefab for vehicle used by **TEAM_AT** group.
`m_sVehicle_Fireteam`	Prefab for vehicle used by **FIRETEAM** group.
`m_sVehicle_SquadRifle`	Prefab for vehicle used by **SQUAD_RIFLE** group.
`m_sGetInWaypointPrefab`	Waypoint prefab used by AI to mount the vehicle after spawn.

> □□ *Each group type can have its own vehicle. If no vehicle is defined for the type, the AI will behave like a normal foot patrol.*

□□ Vehicle Behavior Logic

- Vehicles are spawned **only once per patrol group**.
- If the patrol despawns (e.g., no players nearby), the vehicle is also **automatically removed**.
- The waypoint used makes sure AI **gets inside** the vehicle before moving.
- Marker icon will change to **motorized** if the patrol includes a vehicle.

□□ Integration with Existing Systems

This prefab is fully compatible with:

- **Dynamic despawn/spawn**
- **Player proximity settings**
- **Faction-based filtering**
- **Marker visibility options**
- **Target type options** (`MainTarget`, `Base`, etc.)

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3. How to Use the Autonomous Capture Spawn Point **with Mortar**

The `IPC_MortarSpawnPoint` prefab is a special variant that deploys AI groups operating **mortar positions**. It enables indirect fire support targeting enemy factions dynamically during gameplay. Ideal for adding long-range artillery threats in *Conflict* scenarios.

□□ Setup Instructions

1. Place the prefab in the **World Editor**, with a `SCR_FactionAffiliationComponent` for correct faction assignment.
2. Define the mortar composition prefab, "Get In" waypoint, and artillery support waypoint in the entity attributes.
3. On activation:
   - The mortar composition is spawned at the prefab's location.
   - An AI group is created and tasked with launching **periodic artillery attacks** toward a valid enemy objective.

⚙ Additional Configurable Attributes

Inherits all settings from `IPC_AutonomousCaptureSpawnPointComponent`, plus the following mortar-specific options:

Attribute	Description
`m_sMortar`	Mortar prefab to be spawned (e.g. `MortarPlacement_S_USSR_01`).
`m_sGetInWaypointPrefab`	Waypoint for AI to enter the mortar (typically `AIWaypoint_GetInNearest`).
`m_sArtillerySupportWaypointPrefab`	Waypoint to handle firing behavior (typically `AIWaypoint_ArtillerySupport`).
`m_iShots`	Number of mortar rounds per firing session (`-1` = infinite, recommended: 5–10).
`m_iMortarTimeout`	Time between two fire waves (milliseconds).
`m_fmaxRange`	Max distance for randomizing target position (meters).

□□ Mortar Behavior

- Mortars will **fire at enemy positions** dynamically based on the configured target type:
  - Main target
  - Enemy base
  - Player proximity
- If players from the target faction are detected near the objective, a **strike is called**.
- Mortars will respect dynamic despawn logic if players move away or the group is wiped.
- After firing, AI waits based on `m_iMortarTimeout` before engaging again.

□□ Example Use Case

You want to simulate **indirect fire support** behind a frontline. Set:

- `TargetType`: `EnemyMainTarget`
- `Shots`: 8
- `Timeout`: 90000 (90 seconds)
- `MaxRange`: 30
- Mortar prefab: USSR or US artillery placement

The AI will fire 8 rounds on the enemy’s main objective every 90 seconds if within range.

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