

INT = Internal

CB = Callback

## NetworkRunner

Awake

RegisterNetworkCallbacks()

INT

### All Unity FixedUpdate() callbacks

If PhysicsEngine == None:

### PhysX/Box2D AutoSimulate

## Fusion Update Loop

RegisterNetworkCallbacks()

INT

IBeforeUpdate()

ONLY IF the SceneManager is busy  
AND SceneLoadSpawnMode:Queued (configurable in the NetworkProjectConfig)

Process Spawn Queue

ISpawnd & Spawned() called on new Spawns

CB

IPredictedSpawnBehaviour.PredictedSpawnSpawned()

CB

Get Incoming Network Updates

### Resimulation Loop

Only for Clients in **ServerMode** and **HostMode**

IBeforeClientSidePredictionReset()

CB

State restored to most current Server Snapshot

IBeforeAllTicks(resimulation = true, ticks)

CB

For each resimulation tick:

Update Remote Prefabs

Create Remote Prefabs  
Destroy Remote Prefabs

Player Join/Leave

IONPlayerJoined()

CB

IONPlayerLeft()

CB

Resimulation Tick

IBeforeTick()

CB

RPCs are executed

FixedUpdateNetwork  
aka FUN() for short

FUN() on NetworkBehaviours and SimulationBehaviours

Network Physics  
If PhysicsEngine != None

IBeforePhysicsStep()

CB

Network Physics Step

IAfterPhysicsStep()

CB

Lag Compensation

IBeforeHitboxRegistration()

CB

Hitbox Manager Execution

IAfterTick()

CB

IAfterAllTicks(resimulation = true, ticks)

CB

IPredictedSpawnBehaviour.PredictedSpawnFailed()

CB

IAfterClientSidePredictionReset()

CB

### Forward Loop

IBeforeAllTicks(resimulation = false, tick count)

CB

For each forward tick:

Copy Snapshot from previous

IBeforeCopyPreviousState()

CB

Previous State Snapshot copied to new Snapshot. It is only called between ticks N-1 and N where N is the last current forward tick

Update Remote Prefabs  
Only in **SharedMode**

Create Remote Prefabs  
Destroy Remote Prefabs

Player Join/Leave

IPlayerJoined()

CB

IPlayerLeft()

CB

Forward Tick

IBeforeTick()

CB

RPCs are executed

IONTick()

CB

FixedUpdateNetwork  
aka FUN() for short

FUN() on NetworkBehaviours and SimulationBehaviours

Network Physics  
If PhysicsEngine != None

IBeforePhysicsStep()

CB

Network Physics Step

IAfterPhysicsStep()

CB

Lag Compensation

IBeforeHitboxRegistration()

CB

Hitbox Manager Execution

IPredictedSpawnBehaviour.PredictedSpawnUpdate()

CB

IAfterTick()

CB

IAfterAllTicks(resimulation = false, tickcount)

CB

IPredictedSpawnBehaviour.PredictedSpawnFailed()

CB

OnChange() Callbacks

IAfterUpdate()

CB

If Shutdown requested during FixedUpdateNetwork():

Shutdown Handling

RegisterNetworkCallbacks()

INT

ShutdownNativeSocket()

INT

INetworkRunnerCallbacks.OnShutdown()

CB

Release all objects

DisconnectFromCloud()

INT

Exit Fusion Update Loop

### All Unity MonoBehaviour.Update() Callbacks

## Fusion Render Loop

All Render() callbacks

CB

IPredictedSpawnBehaviour.PredictedSpawnRender()

CB

If Shutdown requested during Render Loop:

Shutdown Handling

RegisterNetworkCallbacks()

INT

ShutdownNativeSocket()

INT

INetworkRunnerCallbacks.OnShutdown()

CB

Release all objects

DisconnectFromCloud()

INT

Exit Fusion Update Loop

### All MonoBehaviour.LateUpdate()