

# Photon Unity Networking

v1.51

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# Contents

<b>1</b>	<b>Main Page</b>	<b>1</b>
<b>2</b>	<b>General Documentation</b>	<b>3</b>
2.1	Photon . . . . .	3
2.1.1	Master Server And Lobby . . . . .	4
2.1.2	Remote Procedure Calls . . . . .	7
2.1.3	Instantiating Networked Objects . . . . .	9
<b>3</b>	<b>Network Simulation GUI</b>	<b>13</b>
<b>4</b>	<b>Network Statistics GUI</b>	<b>15</b>
<b>5</b>	<b>Public API Module</b>	<b>17</b>
<b>6</b>	<b>Module Documentation</b>	<b>19</b>
6.1	Public API . . . . .	19
6.1.1	Detailed Description . . . . .	21
6.1.2	Enumeration Type Documentation . . . . .	21
6.1.2.1	DisconnectCause . . . . .	21
6.1.2.2	PeerState . . . . .	21
6.1.2.3	PhotonLogLevel . . . . .	22
6.1.2.4	PhotonNetworkingMessage . . . . .	22
6.1.2.5	PhotonTargets . . . . .	26
6.1.3	Function Documentation . . . . .	26
6.1.3.1	OnPhotonSerializeView . . . . .	26
6.2	Optional Gui Elements . . . . .	27
6.2.1	Detailed Description . . . . .	27
<b>7</b>	<b>Namespace Documentation</b>	<b>29</b>
7.1	Package ExitGames . . . . .	29
7.2	Package ExitGames.Client . . . . .	29
7.3	Package ExitGames.Client.GUI . . . . .	29
7.3.1	Enumeration Type Documentation . . . . .	29
7.3.1.1	GizmoType . . . . .	29

7.4	Package ExitGames.Client.Photon	30
7.5	Package Photon	30
7.5.1	Typedef Documentation	30
7.5.1.1	Hashtable	30
<b>8</b>	<b>Class Documentation</b>	<b>31</b>
8.1	ExitGames.Client.Photon.ActorProperties Class Reference	31
8.1.1	Detailed Description	31
8.1.2	Member Data Documentation	31
8.1.2.1	IsInactive	31
8.1.2.2	PlayerName	31
8.2	AuthenticationValues Class Reference	31
8.2.1	Detailed Description	32
8.2.2	Member Function Documentation	32
8.2.2.1	SetAuthParameters	32
8.2.2.2	SetAuthPostData	32
8.2.2.3	SetAuthPostData	33
8.2.2.4	ToString	33
8.2.3	Member Data Documentation	33
8.2.3.1	AuthParameters	33
8.2.3.2	AuthType	33
8.2.3.3	Secret	33
8.2.4	Property Documentation	33
8.2.4.1	AuthPostData	33
8.3	ExitGames.Client.Photon.EventCode Class Reference	33
8.3.1	Detailed Description	34
8.3.2	Member Data Documentation	34
8.3.2.1	AppStats	34
8.3.2.2	AzureNodeInfo	34
8.3.2.3	GameList	34
8.3.2.4	GameListUpdate	34
8.3.2.5	Join	34
8.3.2.6	Leave	35
8.3.2.7	Match	35
8.3.2.8	PropertiesChanged	35
8.3.2.9	QueueState	35
8.3.2.10	SetProperties	35
8.3.2.11	TypedLobbyStats	35
8.4	Extensions Class Reference	35
8.4.1	Detailed Description	36

8.4.2	Member Function Documentation	36
8.4.2.1	AlmostEquals	36
8.4.2.2	AlmostEquals	36
8.4.2.3	AlmostEquals	36
8.4.2.4	AlmostEquals	36
8.4.2.5	Contains	36
8.4.2.6	GetPhotonView	36
8.4.2.7	GetPhotonViewsInChildren	36
8.4.2.8	Merge	37
8.4.2.9	MergeStringKeys	38
8.4.2.10	StripKeysWithNullValues	38
8.4.2.11	StripToStringKeys	38
8.4.2.12	ToStringFull	38
8.5	FriendInfo Class Reference	38
8.5.1	Detailed Description	39
8.5.2	Member Function Documentation	39
8.5.2.1	ToString	39
8.5.3	Property Documentation	39
8.5.3.1	IsInRoom	39
8.5.3.2	IsOnline	39
8.5.3.3	Name	39
8.5.3.4	Room	39
8.6	GameObjectExtensions Class Reference	39
8.6.1	Detailed Description	39
8.6.2	Member Function Documentation	39
8.6.2.1	GetActive	39
8.7	ExitGames.Client.Photon.GameProperties Class Reference	40
8.7.1	Detailed Description	40
8.7.2	Member Data Documentation	40
8.7.2.1	CleanupCacheOnLeave	40
8.7.2.2	IsOpen	40
8.7.2.3	IsVisible	40
8.7.2.4	MaxPlayers	40
8.7.2.5	PlayerCount	40
8.7.2.6	PropsListedInLobby	41
8.7.2.7	Removed	41
8.8	ExitGames.Client.GUI.GizmoTypeDrawer Class Reference	41
8.8.1	Member Function Documentation	41
8.8.1.1	Draw	41
8.9	IPunCallbacks Interface Reference	41

8.9.1	Detailed Description	42
8.9.2	Member Function Documentation	43
8.9.2.1	OnConnectedToMaster	43
8.9.2.2	OnConnectedToPhoton	43
8.9.2.3	OnConnectionFail	43
8.9.2.4	OnCreatedRoom	43
8.9.2.5	OnCustomAuthenticationFailed	43
8.9.2.6	OnDisconnectedFromPhoton	45
8.9.2.7	OnFailedToConnectToPhoton	45
8.9.2.8	OnJoinedLobby	45
8.9.2.9	OnJoinedRoom	45
8.9.2.10	OnLeftLobby	45
8.9.2.11	OnLeftRoom	46
8.9.2.12	OnMasterClientSwitched	46
8.9.2.13	OnOwnershipRequest	46
8.9.2.14	OnPhotonCreateRoomFailed	46
8.9.2.15	OnPhotonCustomRoomPropertiesChanged	46
8.9.2.16	OnPhotonInstantiate	47
8.9.2.17	OnPhotonJoinRoomFailed	47
8.9.2.18	OnPhotonMaxCccuReached	47
8.9.2.19	OnPhotonPlayerConnected	47
8.9.2.20	OnPhotonPlayerDisconnected	47
8.9.2.21	OnPhotonPlayerPropertiesChanged	47
8.9.2.22	OnPhotonRandomJoinFailed	48
8.9.2.23	OnReceivedRoomListUpdate	48
8.9.2.24	OnUpdatedFriendList	48
8.9.2.25	OnWebRpcResponse	48
8.10	IPunObservable Interface Reference	49
8.10.1	Detailed Description	49
8.11	Photon.MonoBehaviour Class Reference	49
8.11.1	Detailed Description	49
8.11.2	Property Documentation	49
8.11.2.1	networkView	49
8.11.2.2	photonView	49
8.12	ExitGames.Client.Photon.OperationCode Class Reference	49
8.12.1	Detailed Description	50
8.12.2	Member Data Documentation	50
8.12.2.1	Authenticate	50
8.12.2.2	ChangeGroups	50
8.12.2.3	CreateGame	50

8.12.2.4	FindFriends	51
8.12.2.5	GetLobbyStats	51
8.12.2.6	GetProperties	51
8.12.2.7	GetRegions	51
8.12.2.8	JoinGame	51
8.12.2.9	JoinLobby	51
8.12.2.10	JoinRandomGame	51
8.12.2.11	Leave	51
8.12.2.12	LeaveLobby	51
8.12.2.13	RaiseEvent	51
8.12.2.14	SetProperties	51
8.12.2.15	WebRpc	51
8.13	ExitGames.Client.Photon.ParameterCode Class Reference	52
8.13.1	Detailed Description	54
8.13.2	Member Data Documentation	54
8.13.2.1	ActorList	54
8.13.2.2	ActorNr	54
8.13.2.3	Add	54
8.13.2.4	Address	54
8.13.2.5	ApplicationId	54
8.13.2.6	AppVersion	55
8.13.2.7	Broadcast	55
8.13.2.8	Cache	55
8.13.2.9	CheckUserOnJoin	55
8.13.2.10	CleanupCacheOnLeave	55
8.13.2.11	ClientAuthenticationData	55
8.13.2.12	ClientAuthenticationParams	55
8.13.2.13	ClientAuthenticationType	55
8.13.2.14	Code	55
8.13.2.15	CreateIfNotExists	55
8.13.2.16	CustomEventContent	55
8.13.2.17	Data	56
8.13.2.18	EmptyRoomTTL	56
8.13.2.19	EventForward	56
8.13.2.20	ExpectedValues	56
8.13.2.21	FindFriendsRequestList	56
8.13.2.22	FindFriendsResponseOnlineList	56
8.13.2.23	FindFriendsResponseRoomIdList	56
8.13.2.24	GameCount	56
8.13.2.25	GameList	56

8.13.2.26	GameProperties	56
8.13.2.27	Group	56
8.13.2.28	IsInactive	56
8.13.2.29	JoinMode	57
8.13.2.30	LobbyName	57
8.13.2.31	LobbyStats	57
8.13.2.32	LobbyType	57
8.13.2.33	MasterPeerCount	57
8.13.2.34	MatchMakingType	57
8.13.2.35	PeerCount	57
8.13.2.36	PlayerProperties	57
8.13.2.37	PlayerTTL	57
8.13.2.38	Position	57
8.13.2.39	Properties	58
8.13.2.40	ReceiverGroup	58
8.13.2.41	Region	58
8.13.2.42	Remove	58
8.13.2.43	RoomName	58
8.13.2.44	Secret	58
8.13.2.45	SuppressRoomEvents	58
8.13.2.46	TargetActorNr	58
8.13.2.47	UriPath	58
8.13.2.48	UserId	58
8.13.2.49	WebRpcParameters	58
8.13.2.50	WebRpcReturnCode	58
8.13.2.51	WebRpcReturnMessage	59
8.14	PhotonAnimatorView Class Reference	59
8.14.1	Detailed Description	59
8.14.2	Member Enumeration Documentation	60
8.14.2.1	ParameterType	60
8.14.2.2	SynchronizeType	60
8.14.3	Member Function Documentation	60
8.14.3.1	DoesLayerSynchronizeTypeExist	60
8.14.3.2	DoesParameterSynchronizeTypeExist	60
8.14.3.3	GetLayerSynchronizeType	60
8.14.3.4	GetParameterSynchronizeType	61
8.14.3.5	GetSynchronizedLayers	61
8.14.3.6	GetSynchronizedParameters	61
8.14.3.7	SetLayerSynchronized	61
8.14.3.8	SetParameterSynchronized	61



8.15 PhotonLagSimulationGui Class Reference . . . . .	62
8.15.1 Detailed Description . . . . .	62
8.15.2 Member Function Documentation . . . . .	62
8.15.2.1 OnGUI . . . . .	62
8.15.2.2 Start . . . . .	62
8.15.3 Member Data Documentation . . . . .	62
8.15.3.1 Visible . . . . .	62
8.15.3.2 WindowId . . . . .	62
8.15.3.3 WindowRect . . . . .	63
8.15.4 Property Documentation . . . . .	63
8.15.4.1 Peer . . . . .	63
8.16 PhotonMessageInfo Class Reference . . . . .	63
8.16.1 Detailed Description . . . . .	63
8.16.2 Constructor & Destructor Documentation . . . . .	63
8.16.2.1 PhotonMessageInfo . . . . .	63
8.16.2.2 PhotonMessageInfo . . . . .	63
8.16.3 Member Function Documentation . . . . .	63
8.16.3.1 ToString . . . . .	63
8.16.4 Member Data Documentation . . . . .	63
8.16.4.1 photonView . . . . .	63
8.16.4.2 sender . . . . .	64
8.16.5 Property Documentation . . . . .	64
8.16.5.1 timestamp . . . . .	64
8.17 PhotonNetwork Class Reference . . . . .	64
8.17.1 Detailed Description . . . . .	69
8.17.2 Member Function Documentation . . . . .	69
8.17.2.1 AllocateSceneViewID . . . . .	69
8.17.2.2 AllocateViewID . . . . .	70
8.17.2.3 CacheSendMonoMessageTargets . . . . .	70
8.17.2.4 CloseConnection . . . . .	70
8.17.2.5 ConnectToBestCloudServer . . . . .	70
8.17.2.6 ConnectToMaster . . . . .	71
8.17.2.7 ConnectUsingSettings . . . . .	71
8.17.2.8 CreateRoom . . . . .	72
8.17.2.9 CreateRoom . . . . .	72
8.17.2.10 CreateRoom . . . . .	72
8.17.2.11 CreateRoom . . . . .	73
8.17.2.12 Destroy . . . . .	73
8.17.2.13 Destroy . . . . .	74
8.17.2.14 DestroyAll . . . . .	74

8.17.2.15 DestroyPlayerObjects . . . . .	75
8.17.2.16 DestroyPlayerObjects . . . . .	75
8.17.2.17 Disconnect . . . . .	75
8.17.2.18 EventCallback . . . . .	75
8.17.2.19 FetchServerTimestamp . . . . .	76
8.17.2.20 FindFriends . . . . .	76
8.17.2.21 FindGameObjectsWithComponent . . . . .	76
8.17.2.22 GetPing . . . . .	76
8.17.2.23 GetRoomList . . . . .	76
8.17.2.24 InitializeSecurity . . . . .	77
8.17.2.25 Instantiate . . . . .	77
8.17.2.26 Instantiate . . . . .	77
8.17.2.27 InstantiateSceneObject . . . . .	77
8.17.2.28 InternalCleanPhotonMonoFromScenelfStuck . . . . .	78
8.17.2.29 JoinLobby . . . . .	78
8.17.2.30 JoinLobby . . . . .	78
8.17.2.31 JoinOrCreateRoom . . . . .	79
8.17.2.32 JoinRandomRoom . . . . .	79
8.17.2.33 JoinRandomRoom . . . . .	79
8.17.2.34 JoinRandomRoom . . . . .	81
8.17.2.35 JoinRoom . . . . .	81
8.17.2.36 JoinRoom . . . . .	82
8.17.2.37 LeaveLobby . . . . .	82
8.17.2.38 LeaveRoom . . . . .	82
8.17.2.39 LoadLevel . . . . .	82
8.17.2.40 LoadLevel . . . . .	83
8.17.2.41 NetworkStatisticsReset . . . . .	83
8.17.2.42 NetworkStatisticsToString . . . . .	83
8.17.2.43 OverrideBestCloudServer . . . . .	83
8.17.2.44 RaiseEvent . . . . .	83
8.17.2.45 RefreshCloudServerRating . . . . .	84
8.17.2.46 RemoveRPCs . . . . .	84
8.17.2.47 RemoveRPCs . . . . .	84
8.17.2.48 RemoveRPCsInGroup . . . . .	85
8.17.2.49 SendOutgoingCommands . . . . .	85
8.17.2.50 SetLevelPrefix . . . . .	85
8.17.2.51 SetMasterClient . . . . .	85
8.17.2.52 SetPlayerCustomProperties . . . . .	86
8.17.2.53 SetReceivingEnabled . . . . .	86
8.17.2.54 SetReceivingEnabled . . . . .	86

8.17.2.55 SetSendingEnabled . . . . .	86
8.17.2.56 SetSendingEnabled . . . . .	87
8.17.2.57 SwitchToProtocol . . . . .	87
8.17.2.58 UnAllocateViewID . . . . .	87
8.17.2.59 WebRpc . . . . .	87
8.17.3 Member Data Documentation . . . . .	88
8.17.3.1 InstantiateInRoomOnly . . . . .	88
8.17.3.2 logLevel . . . . .	88
8.17.3.3 MAX_VIEW_IDS . . . . .	88
8.17.3.4 OnEventCall . . . . .	88
8.17.3.5 PhotonServerSettings . . . . .	88
8.17.3.6 precisionForFloatSynchronization . . . . .	88
8.17.3.7 precisionForQuaternionSynchronization . . . . .	88
8.17.3.8 precisionForVectorSynchronization . . . . .	88
8.17.3.9 PrefabCache . . . . .	89
8.17.3.10 SendMonoMessageTargets . . . . .	89
8.17.3.11 SendMonoMessageTargetType . . . . .	89
8.17.3.12 serverSettingsAssetFile . . . . .	89
8.17.3.13 serverSettingsAssetPath . . . . .	89
8.17.3.14 UseNameServer . . . . .	89
8.17.3.15 UsePrefabCache . . . . .	89
8.17.3.16 versionPUN . . . . .	89
8.17.4 Property Documentation . . . . .	89
8.17.4.1 AuthValues . . . . .	89
8.17.4.2 autoCleanUpPlayerObjects . . . . .	90
8.17.4.3 autoJoinLobby . . . . .	90
8.17.4.4 automaticallySyncScene . . . . .	90
8.17.4.5 connected . . . . .	90
8.17.4.6 connectedAndReady . . . . .	90
8.17.4.7 connecting . . . . .	90
8.17.4.8 connectionState . . . . .	90
8.17.4.9 connectionStateDetailed . . . . .	91
8.17.4.10 countOfPlayers . . . . .	91
8.17.4.11 countOfPlayersInRooms . . . . .	91
8.17.4.12 countOfPlayersOnMaster . . . . .	91
8.17.4.13 countOfRooms . . . . .	91
8.17.4.14 CrcCheckEnabled . . . . .	91
8.17.4.15 Friends . . . . .	91
8.17.4.16 FriendsListAge . . . . .	91
8.17.4.17 gameVersion . . . . .	91

8.17.4.18 inRoom . . . . .	91
8.17.4.19 insideLobby . . . . .	92
8.17.4.20 isMasterClient . . . . .	92
8.17.4.21 isMessageQueueRunning . . . . .	92
8.17.4.22 isNonMasterClientInRoom . . . . .	92
8.17.4.23 lobby . . . . .	92
8.17.4.24 masterClient . . . . .	92
8.17.4.25 maxConnections . . . . .	92
8.17.4.26 MaxResendsBeforeDisconnect . . . . .	92
8.17.4.27 NetworkStatisticsEnabled . . . . .	93
8.17.4.28 offlineMode . . . . .	93
8.17.4.29 otherPlayers . . . . .	93
8.17.4.30 PacketLossByCrcCheck . . . . .	93
8.17.4.31 player . . . . .	93
8.17.4.32 playerList . . . . .	93
8.17.4.33 playerName . . . . .	93
8.17.4.34 ResentReliableCommands . . . . .	93
8.17.4.35 room . . . . .	93
8.17.4.36 sendRate . . . . .	93
8.17.4.37 sendRateOnSerialize . . . . .	94
8.17.4.38 Server . . . . .	94
8.17.4.39 ServerAddress . . . . .	94
8.17.4.40 time . . . . .	94
8.17.4.41 unreliableCommandsLimit . . . . .	94
8.18 PhotonPingManager Class Reference . . . . .	94
8.18.1 Member Function Documentation . . . . .	95
8.18.1.1 PingSocket . . . . .	95
8.18.1.2 ResolveHost . . . . .	95
8.18.2 Member Data Documentation . . . . .	95
8.18.2.1 Attempts . . . . .	95
8.18.2.2 IgnoreInitialAttempt . . . . .	95
8.18.2.3 MaxMilliseconsPerPing . . . . .	95
8.18.2.4 UseNative . . . . .	95
8.18.3 Property Documentation . . . . .	95
8.18.3.1 BestRegion . . . . .	95
8.18.3.2 Done . . . . .	95
8.19 PhotonPlayer Class Reference . . . . .	95
8.19.1 Detailed Description . . . . .	96
8.19.2 Constructor & Destructor Documentation . . . . .	96
8.19.2.1 PhotonPlayer . . . . .	96

8.19.2.2	PhotonPlayer	97
8.19.3	Member Function Documentation	97
8.19.3.1	Equals	97
8.19.3.2	Find	97
8.19.3.3	Get	97
8.19.3.4	GetHashCode	97
8.19.3.5	GetNext	97
8.19.3.6	GetNextFor	97
8.19.3.7	GetNextFor	97
8.19.3.8	SetCustomProperties	97
8.19.3.9	SetCustomProperties	98
8.19.3.10	ToString	98
8.19.3.11	ToStringFull	98
8.19.4	Member Data Documentation	98
8.19.4.1	isLocal	98
8.19.4.2	TagObject	98
8.19.5	Property Documentation	98
8.19.5.1	allProperties	98
8.19.5.2	customProperties	98
8.19.5.3	ID	98
8.19.5.4	isMasterClient	98
8.19.5.5	name	99
8.20	PhotonRigidbody2DView Class Reference	99
8.20.1	Detailed Description	99
8.21	PhotonRigidbodyView Class Reference	99
8.21.1	Detailed Description	99
8.22	PhotonStatsGui Class Reference	99
8.22.1	Detailed Description	100
8.22.2	Member Function Documentation	100
8.22.2.1	OnGUI	100
8.22.2.2	Start	100
8.22.2.3	TrafficStatsWindow	100
8.22.2.4	Update	100
8.22.3	Member Data Documentation	100
8.22.3.1	buttonsOn	100
8.22.3.2	healthStatsVisible	101
8.22.3.3	statsOn	101
8.22.3.4	statsRect	101
8.22.3.5	statsWindowOn	101
8.22.3.6	trafficStatsOn	101

8.22.3.7 WindowId . . . . .	101
8.23 PhotonStream Class Reference . . . . .	101
8.23.1 Detailed Description . . . . .	102
8.23.2 Constructor & Destructor Documentation . . . . .	102
8.23.2.1 PhotonStream . . . . .	102
8.23.3 Member Function Documentation . . . . .	102
8.23.3.1 PeekNext . . . . .	102
8.23.3.2 ReceiveNext . . . . .	103
8.23.3.3 SendNext . . . . .	103
8.23.3.4 Serialize . . . . .	103
8.23.3.5 Serialize . . . . .	103
8.23.3.6 Serialize . . . . .	103
8.23.3.7 Serialize . . . . .	103
8.23.3.8 Serialize . . . . .	103
8.23.3.9 Serialize . . . . .	103
8.23.3.10 Serialize . . . . .	103
8.23.3.11 Serialize . . . . .	103
8.23.3.12 Serialize . . . . .	103
8.23.3.13 Serialize . . . . .	103
8.23.3.14 ToArray . . . . .	104
8.23.4 Property Documentation . . . . .	104
8.23.4.1 Count . . . . .	104
8.23.4.2 isReading . . . . .	104
8.23.4.3 isWriting . . . . .	104
8.24 PhotonStreamQueue Class Reference . . . . .	104
8.24.1 Detailed Description . . . . .	104
8.24.2 Constructor & Destructor Documentation . . . . .	105
8.24.2.1 PhotonStreamQueue . . . . .	105
8.24.3 Member Function Documentation . . . . .	105
8.24.3.1 Deserialize . . . . .	105
8.24.3.2 HasQueuedObjects . . . . .	105
8.24.3.3 ReceiveNext . . . . .	105
8.24.3.4 Reset . . . . .	105
8.24.3.5 SendNext . . . . .	105
8.24.3.6 Serialize . . . . .	105
8.25 PhotonTransformView Class Reference . . . . .	106
8.25.1 Detailed Description . . . . .	106
8.25.2 Member Function Documentation . . . . .	106
8.25.2.1 SetSynchronizedValues . . . . .	106
8.26 PhotonTransformViewPositionControl Class Reference . . . . .	106

8.26.1	Constructor & Destructor Documentation	107
8.26.1.1	PhotonTransformViewPositionControl	107
8.26.2	Member Function Documentation	107
8.26.2.1	GetExtrapolatedPositionOffset	107
8.26.2.2	GetNetworkPosition	107
8.26.2.3	OnPhotonSerializeView	107
8.26.2.4	SetSynchronizedValues	107
8.26.2.5	UpdatePosition	107
8.27	PhotonTransformViewPositionModel Class Reference	108
8.27.1	Member Enumeration Documentation	108
8.27.1.1	ExtrapolateOptions	108
8.27.1.2	InterpolateOptions	108
8.27.2	Member Data Documentation	109
8.27.2.1	DrawErrorGizmo	109
8.27.2.2	ExtrapolateIncludingRoundTripTime	109
8.27.2.3	ExtrapolateNumberOfStoredPositions	109
8.27.2.4	ExtrapolateOption	109
8.27.2.5	ExtrapolateSpeed	109
8.27.2.6	InterpolateLerpSpeed	109
8.27.2.7	InterpolateMoveTowardsAcceleration	109
8.27.2.8	InterpolateMoveTowardsDeceleration	109
8.27.2.9	InterpolateMoveTowardsSpeed	109
8.27.2.10	InterpolateOption	109
8.27.2.11	InterpolateSpeedCurve	109
8.27.2.12	SynchronizeEnabled	109
8.27.2.13	TeleportEnabled	109
8.27.2.14	TeleportIfDistanceGreaterThan	109
8.28	PhotonTransformViewRotationControl Class Reference	109
8.28.1	Constructor & Destructor Documentation	109
8.28.1.1	PhotonTransformViewRotationControl	109
8.28.2	Member Function Documentation	109
8.28.2.1	GetRotation	110
8.28.2.2	OnPhotonSerializeView	110
8.29	PhotonTransformViewRotationModel Class Reference	110
8.29.1	Member Enumeration Documentation	110
8.29.1.1	InterpolateOptions	110
8.29.2	Member Data Documentation	110
8.29.2.1	InterpolateLerpSpeed	110
8.29.2.2	InterpolateOption	110
8.29.2.3	InterpolateRotateTowardsSpeed	110

8.29.2.4 SynchronizeEnabled . . . . .	110
8.30 PhotonTransformViewScaleControl Class Reference . . . . .	110
8.30.1 Constructor & Destructor Documentation . . . . .	110
8.30.1.1 PhotonTransformViewScaleControl . . . . .	110
8.30.2 Member Function Documentation . . . . .	111
8.30.2.1 GetScale . . . . .	111
8.30.2.2 OnPhotonSerializeView . . . . .	111
8.31 PhotonTransformViewScaleModel Class Reference . . . . .	111
8.31.1 Member Enumeration Documentation . . . . .	111
8.31.1.1 InterpolateOptions . . . . .	111
8.31.2 Member Data Documentation . . . . .	111
8.31.2.1 InterpolateLerpSpeed . . . . .	111
8.31.2.2 InterpolateMoveTowardsSpeed . . . . .	111
8.31.2.3 InterpolateOption . . . . .	111
8.31.2.4 SynchronizeEnabled . . . . .	111
8.32 PhotonView Class Reference . . . . .	111
8.32.1 Detailed Description . . . . .	113
8.32.2 Member Function Documentation . . . . .	113
8.32.2.1 DeserializeComponent . . . . .	113
8.32.2.2 DeserializeView . . . . .	113
8.32.2.3 ExecuteComponentOnSerialize . . . . .	113
8.32.2.4 Find . . . . .	113
8.32.2.5 Get . . . . .	113
8.32.2.6 Get . . . . .	113
8.32.2.7 RequestOwnership . . . . .	113
8.32.2.8 RPC . . . . .	113
8.32.2.9 RPC . . . . .	114
8.32.2.10 RpcSecure . . . . .	114
8.32.2.11 RpcSecure . . . . .	114
8.32.2.12 SerializeComponent . . . . .	115
8.32.2.13 SerializeView . . . . .	115
8.32.2.14 ToString . . . . .	115
8.32.2.15 TransferOwnership . . . . .	115
8.32.2.16 TransferOwnership . . . . .	115
8.32.3 Member Data Documentation . . . . .	115
8.32.3.1 group . . . . .	115
8.32.3.2 instantiationId . . . . .	115
8.32.3.3 observed . . . . .	115
8.32.3.4 ObservedComponents . . . . .	115
8.32.3.5 onSerializeRigidBodyOption . . . . .	115



8.32.3.6	<a href="#">onSerializeTransformOption</a>	115
8.32.3.7	<a href="#">ownerId</a>	115
8.32.3.8	<a href="#">ownershipTransfer</a>	115
8.32.3.9	<a href="#">prefixBackup</a>	115
8.32.3.10	<a href="#">synchronization</a>	115
8.32.4	<a href="#">Property Documentation</a>	115
8.32.4.1	<a href="#">CreatorActorNr</a>	116
8.32.4.2	<a href="#">instantiationData</a>	116
8.32.4.3	<a href="#">isMine</a>	116
8.32.4.4	<a href="#">isOwnerActive</a>	116
8.32.4.5	<a href="#">isSceneView</a>	116
8.32.4.6	<a href="#">owner</a>	116
8.32.4.7	<a href="#">OwnerActorNr</a>	116
8.32.4.8	<a href="#">prefix</a>	116
8.32.4.9	<a href="#">viewID</a>	116
8.33	<a href="#">PingMonoEditor Class Reference</a>	116
8.33.1	<a href="#">Detailed Description</a>	117
8.33.2	<a href="#">Member Function Documentation</a>	117
8.33.2.1	<a href="#">Dispose</a>	117
8.33.2.2	<a href="#">Done</a>	117
8.33.2.3	<a href="#">StartPing</a>	117
8.34	<a href="#">Photon.PunBehaviour Class Reference</a>	117
8.34.1	<a href="#">Detailed Description</a>	118
8.34.2	<a href="#">Member Function Documentation</a>	118
8.34.2.1	<a href="#">OnConnectedToMaster</a>	118
8.34.2.2	<a href="#">OnConnectedToPhoton</a>	119
8.34.2.3	<a href="#">OnConnectionFail</a>	119
8.34.2.4	<a href="#">OnCreatedRoom</a>	119
8.34.2.5	<a href="#">OnCustomAuthenticationFailed</a>	119
8.34.2.6	<a href="#">OnDisconnectedFromPhoton</a>	119
8.34.2.7	<a href="#">OnFailedToConnectToPhoton</a>	120
8.34.2.8	<a href="#">OnJoinedLobby</a>	120
8.34.2.9	<a href="#">OnJoinedRoom</a>	120
8.34.2.10	<a href="#">OnLeftLobby</a>	120
8.34.2.11	<a href="#">OnLeftRoom</a>	120
8.34.2.12	<a href="#">OnMasterClientSwitched</a>	120
8.34.2.13	<a href="#">OnOwnershipRequest</a>	121
8.34.2.14	<a href="#">OnPhotonCreateRoomFailed</a>	121
8.34.2.15	<a href="#">OnPhotonCustomRoomPropertiesChanged</a>	121
8.34.2.16	<a href="#">OnPhotonInstantiate</a>	121

8.34.2.17	OnPhotonJoinRoomFailed	121
8.34.2.18	OnPhotonMaxCccuReached	122
8.34.2.19	OnPhotonPlayerConnected	122
8.34.2.20	OnPhotonPlayerDisconnected	122
8.34.2.21	OnPhotonPlayerPropertiesChanged	122
8.34.2.22	OnPhotonRandomJoinFailed	123
8.34.2.23	OnReceivedRoomListUpdate	123
8.34.2.24	OnUpdatedFriendList	123
8.34.2.25	OnWebRpcResponse	123
8.35	RaiseEventOptions Class Reference	124
8.35.1	Detailed Description	124
8.35.2	Member Data Documentation	124
8.35.2.1	CacheSliceIndex	124
8.35.2.2	CachingOption	124
8.35.2.3	Default	125
8.35.2.4	Encrypt	125
8.35.2.5	ForwardToWebhook	125
8.35.2.6	InterestGroup	125
8.35.2.7	Receivers	125
8.35.2.8	SequenceChannel	125
8.35.2.9	TargetActors	125
8.36	Region Class Reference	125
8.36.1	Member Function Documentation	126
8.36.1.1	Parse	126
8.36.1.2	ToString	126
8.36.2	Member Data Documentation	126
8.36.2.1	Code	126
8.36.2.2	HostAndPort	126
8.36.2.3	Ping	126
8.37	Room Class Reference	126
8.37.1	Detailed Description	127
8.37.2	Member Function Documentation	127
8.37.2.1	SetCustomProperties	127
8.37.2.2	SetCustomProperties	127
8.37.2.3	SetPropertiesListedInLobby	127
8.37.2.4	ToString	127
8.37.2.5	ToStringFull	127
8.37.3	Property Documentation	128
8.37.3.1	autoCleanUp	128
8.37.3.2	maxPlayers	128

8.37.3.3	name	128
8.37.3.4	open	128
8.37.3.5	playerCount	128
8.37.3.6	propertiesListedInLobby	128
8.37.3.7	visible	128
8.38	RoomInfo Class Reference	128
8.38.1	Detailed Description	129
8.38.2	Member Function Documentation	130
8.38.2.1	Equals	130
8.38.2.2	GetHashCode	130
8.38.2.3	ToString	130
8.38.2.4	ToStringFull	130
8.38.3	Member Data Documentation	130
8.38.3.1	autoCleanUpField	130
8.38.3.2	maxPlayersField	130
8.38.3.3	nameField	130
8.38.3.4	openField	130
8.38.3.5	visibleField	130
8.38.4	Property Documentation	131
8.38.4.1	customProperties	131
8.38.4.2	isLocalClientInside	131
8.38.4.3	maxPlayers	131
8.38.4.4	name	131
8.38.4.5	open	131
8.38.4.6	playerCount	131
8.38.4.7	removedFromList	131
8.38.4.8	visible	131
8.39	RoomOptions Class Reference	132
8.39.1	Detailed Description	132
8.39.2	Member Data Documentation	132
8.39.2.1	customRoomProperties	132
8.39.2.2	customRoomPropertiesForLobby	132
8.39.2.3	maxPlayers	132
8.39.3	Property Documentation	133
8.39.3.1	cleanupCacheOnLeave	133
8.39.3.2	isOpen	133
8.39.3.3	isVisible	133
8.40	ServerSettings Class Reference	133
8.40.1	Detailed Description	134
8.40.2	Member Enumeration Documentation	134

8.40.2.1	HostingOption	134
8.40.3	Member Function Documentation	134
8.40.3.1	ToString	134
8.40.3.2	UseCloud	134
8.40.3.3	UseCloud	134
8.40.3.4	UseCloudBestResion	134
8.40.3.5	UseMyServer	134
8.40.4	Member Data Documentation	134
8.40.4.1	AppID	134
8.40.4.2	DisableAutoOpenWizard	134
8.40.4.3	HostType	134
8.40.4.4	PingCloudServersOnAwake	134
8.40.4.5	PreferredRegion	134
8.40.4.6	Protocol	134
8.40.4.7	RpcList	134
8.40.4.8	ServerAddress	134
8.40.4.9	ServerPort	134
8.41	PhotonAnimatorView.SynchronizedLayer Class Reference	135
8.41.1	Member Data Documentation	135
8.41.1.1	LayerIndex	135
8.41.1.2	SynchronizeType	135
8.42	PhotonAnimatorView.SynchronizedParameter Class Reference	135
8.42.1	Member Data Documentation	135
8.42.1.1	Name	135
8.42.1.2	SynchronizeType	135
8.42.1.3	Type	135
8.43	TypedLobby Class Reference	135
8.43.1	Detailed Description	136
8.43.2	Constructor & Destructor Documentation	136
8.43.2.1	TypedLobby	136
8.43.2.2	TypedLobby	136
8.43.3	Member Function Documentation	136
8.43.3.1	ToString	136
8.43.4	Member Data Documentation	136
8.43.4.1	Default	136
8.43.4.2	Name	136
8.43.4.3	Type	136
8.43.5	Property Documentation	136
8.43.5.1	IsDefault	136
8.44	WebRpcResponse Class Reference	136

8.44.1	Detailed Description	137
8.44.2	Constructor & Destructor Documentation	137
8.44.2.1	WebRpcResponse	137
8.44.3	Member Function Documentation	137
8.44.3.1	ToStringFull	137
8.44.4	Property Documentation	137
8.44.4.1	DebugMessage	137
8.44.4.2	Name	137
8.44.4.3	Parameters	137
8.44.4.4	ReturnCode	137
<b>9</b>	<b>File Documentation</b>	<b>139</b>
9.1	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/_Doc/general.md File Reference	139
9.2	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/_Doc/main.md File Reference	139
9.3	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/_Doc/optionalGui.md File Reference	139
9.4	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/_Doc/photonStatsGui.md File Reference	139
9.5	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/_Doc/publicApi.md File Reference	139
9.6	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/CustomTypes.cs File Reference	139
9.6.1	Detailed Description	139
9.7	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/Enums.cs File Reference	140
9.7.1	Detailed Description	141
9.7.2	Enumeration Type Documentation	141
9.7.2.1	CloudRegionCode	141
9.7.2.2	ConnectionState	141
9.7.2.3	LobbyType	142
9.7.2.4	ServerConnection	142
9.8	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/Extensions.cs File Reference	142
9.8.1	Typedef Documentation	142
9.8.1.1	Hashtable	142
9.8.1.2	SupportClass	142
9.9	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/FriendInfo.cs File Reference	142
9.10	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/GizmoType.cs File Reference	143
9.11	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/LoadbalancingPeer.cs File Reference	143
9.11.1	Typedef Documentation	144
9.11.1.1	Hashtable	144
9.11.2	Enumeration Type Documentation	144

9.11.2.1	CustomAuthenticationType	144
9.11.2.2	MatchmakingMode	144
9.12	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/NetworkingPeer.cs File Reference	144
9.12.1	Typedef Documentation	145
9.12.1.1	Hashtable	145
9.13	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonClasses.cs File Reference	145
9.13.1	Detailed Description	146
9.13.2	Typedef Documentation	146
9.13.2.1	Hashtable	146
9.14	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonHandler.cs File Reference	146
9.14.1	Typedef Documentation	146
9.14.1.1	Hashtable	146
9.15	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonLagSimulationGui.cs File Reference	146
9.15.1	Detailed Description	146
9.16	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonNetwork.cs File Reference	146
9.16.1	Typedef Documentation	147
9.16.1.1	Hashtable	147
9.17	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonPlayer.cs File Reference	147
9.17.1	Typedef Documentation	147
9.17.1.1	Hashtable	147
9.18	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonStatsGui.cs File Reference	147
9.18.1	Detailed Description	147
9.19	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonStreamQueue.cs File Reference	147
9.20	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonView.cs File Reference	148
9.20.1	Enumeration Type Documentation	148
9.20.1.1	OnSerializeRigidBody	148
9.20.1.2	OnSerializeTransform	148
9.20.1.3	OwnershipOption	149
9.20.1.4	ViewSynchronization	149
9.21	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PingCloudRegions.cs File Reference	149
9.21.1	Typedef Documentation	149
9.21.1.1	Debug	149

9.22	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Room.cs File Reference . . . . .			149
9.23	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/RoomInfo.cs File Reference . . . . .			150
9.24	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/RPC.cs File Reference . . . . .			150
9.24.1	Detailed Description . . . . .			150
9.25	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/RpcIndexComponent.cs File Reference . . . . .			150
9.25.1	Detailed Description . . . . .			150
9.26	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/ServerSettings.cs File Reference . . . . .			150
9.26.1	Detailed Description . . . . .			150
9.27	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Views/PhotonAnimatorView.cs File Reference . . . . .			151
9.28	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Views/PhotonRigidbody2DView.cs File Reference . . . . .			151
9.29	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Views/PhotonRigidbodyView.cs File Reference . . . . .			151
9.30	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Views/PhotonTransformView.cs File Reference . . . . .			151
9.31	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Views/PhotonTransformViewPositionControl.cs File Reference . . . . .			152
9.32	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Views/PhotonTransformViewPositionModel.cs File Reference . . . . .			152
9.33	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Views/PhotonTransformViewRotationControl.cs File Reference . . . . .			152
9.34	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Views/PhotonTransformViewRotationModel.cs File Reference . . . . .			152
9.35	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Views/PhotonTransformViewScaleControl.cs File Reference . . . . .			152
9.36	C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon	Unity	Networking/Plugins/↔	
	PhotonNetwork/Views/PhotonTransformViewScaleModel.cs File Reference . . . . .			152





# Chapter 1

## Main Page

### Introduction

**Photon** is a real-time multiplayer game development framework that is fast, lean and flexible. **Photon** consists of a server and several client SDKs for major platforms.

**Photon Unity Network (PUN)** is a special client framework which aims to re-implement and enhance the features of Unity's built-in networking. Under the hood, it uses **Photon's** features to communicate and match players.

As the **PhotonNetwork** API is very similar to Unity's built-in solution, users with prior networking experience in Unity should feel at home immediately. An automatic converter could assist you porting existing multiplayer projects to the **Photon** equivalent.

Full source code is available, so you can scale this plugin to support any type of multiplayer game you'd ever need.

This plugin is compatible with the hosted **Photon Cloud** service, which runs **Photon** Servers for you. A setup window registers you (for free) in less than a minute.

Most notable features:

- Dead-easy API
- Server available as hosted service (free of charge for development)
- Partially automatic conversion from Unity Networking to PUN
- Offline mode: re-use your multiplayer code in singleplayer game modes
- Outstanding performance of the **Photon** Server
- Load balanced workflow scales across servers (with no extra effort)
- No direct P2P and no NAT punch-through needed

### First Steps

If you know how to use Unity's networking, then you should feel at home with PUN, too. You might want to run the converter (start in Wizard: ALT+P) on one of your projects and dive into the code.

To read up on PUN, this documentation is split into a [General Documentation](#) and a [Public API reference](#) documentation.

Aside from that, the source of Photon Unity Networking is available to you.



## Chapter 2

# General Documentation

Brief overview of Photon, subscriptions, hosting options and how to start.

### 2.1 Photon

Unlike Unity's built-in networking, PUN always connects to a dedicated server which runs a specific game logic that provides rooms, matchmaking and in-room communication between players. Actually, [Photon](#) Unity Networking uses more than one server behind the scenes: Several "Game Servers" run the actual rooms (matches) while a Master will organize and match rooms.

You have two options for the server side.

#### Exit Games Cloud

The Exit Games Cloud is a service which provides hosted and load balanced [Photon](#) Servers for you, fully managed by Exit Games. Free trials are available and [subscription costs for commercial use](#) are competitively low.

The service runs a fixed logic, so you can't implement your own server-side game logic. Instead, the clients need to be authoritative.

Clients are separated by "application id", which relates to your game title and a "game version". With that, your players won't clash with those of another developer or older game iterations.

#### Subscriptions bought in Asset Store

Follow these steps, if you bought a package with [Photon](#) Cloud Subscription in the Asset Store:

- Register a Photon Cloud Account: [exitgames.com/en/Account/SignUp](https://exitgames.com/en/Account/SignUp)
- Create an App and get your AppID from the [Dashboard](#)
- Send a Mail to: [developer@exitgames.com](mailto:developer@exitgames.com)
- With:
  - Your Name and Company (if applicable)
  - Invoice/Purchase ID from the Asset Store
  - Photon Cloud AppID

## Photon Server SDK

As alternative to the [Photon](#) Cloud service, you can run your own server and develop server side logic on top of our "Load Balancing" C# solution. This gives you full control of the server logic.

The Photon Server SDK can be downloaded on: [www.exitgames.com/en/OnPremise/Download](http://www.exitgames.com/en/OnPremise/Download)

Starting the Server: [doc.exitgames.com/en/onpremise/current/getting-started/photon-server-in-5m](http://doc.exitgames.com/en/onpremise/current/getting-started/photon-server-in-5m)

## First steps

When you import PUN, the "Wizard" window will popup. Either enter your email address to register for the cloud, skip this step to enter the Appld of an existing account or switch to "self hosted" [Photon](#) to enter your server's address.

This creates a configuration for either the cloud service or your own [Photon](#) server in the project: PhotonServerSettings.

PUN consists of quite a few files, however there's only one that truly matters: [PhotonNetwork](#). This class contains all functions and variables needed. If you ever have custom requirements, you can always modify the source files - this plugin is just an implementation of [Photon](#) after all.

If you are using Unityscript, you'll need to move the [Photon](#) Unity Networking \Plugins folder to the root of your project.

To show you how this API works, here are a few examples right away.

### 2.1.1 Master Server And Lobby

PUN always uses a master server and one or more game servers. The master server manages currently running games on the various game servers and will provide a game server address when you join or create a room. PUN (the client) then automatically switches to that game server.

The individual matches are known as Rooms and are grouped into one or multiple lobbies. Lobbies are an optional part in matchmaking. If you don't use custom lobbies explicitly, PUN will use a single lobby for all rooms.

PUN enters the default lobby on connect (to disable set [PhotonNetwork.autoJoinLobby](#) = false before connect). The [LobbyType.default](#) sends a list existing rooms to the client so the user can select a room. While in a lobby, access the list by [PhotonNetwork.GetRoomList\(\)](#). The lists is updated in intervals to keep traffic low.

You can use more than one lobby to organize the lists as needed for your game. Simply make up a new [TypedLobby](#) and use [PhotonNetwork.JoinLobby](#). A client is always just in one lobby and while being in a lobby, creating a room will relate to this lobby, too.

Multiple lobbies mean the clients get shorter rooms lists, which is good. There is no limit to the rooms lists.

Clients don't have to join a lobby to join or create rooms for it. A parameter in JoinRoom, JoinRandomRoom and CreateRoom enables you to select a lobby without joining it.

Players won't notice each other in the Lobby and can't send data (to prevent issues when it's getting crowded).

The servers are all run on dedicated machines - there is no such thing as player-hosted 'servers'. You don't have to bother remembering about the server organization though, as the API all hides this for you.

```
PhotonNetwork.ConnectUsingSettings("v1.0");
```

The code above is required to make use of any [PhotonNetwork](#) features. It sets your client's game version and uses the setup-wizard's config (stored in: PhotonServerSettings). The wizard can also be used when you host [Photon](#) yourself. Alternatively, use Connect() and you can ignore the PhotonServerSettings file.

## Versioning

The loadbalancing logic for [Photon](#) uses your appId to separate your players from anyone else's. The same is done by game version, which separates players with a new client from those with older clients. As we can't guarantee that different [Photon](#) Unity Networking versions are compatible with each other, we add the PUN version to your game's version before sending it (since PUN v1.7).

## Creating and Joining Games

Next, you'll want to join or create a room. The following code showcases some required functions:

```
//Join a room
PhotonNetwork.JoinRoom(roomName);

//Create this room.
PhotonNetwork.CreateRoom(roomName);
// Fails if it already exists and calls: OnPhotonCreateGameFailed

//Tries to join any random game:
PhotonNetwork.JoinRandomRoom();
//Fails if there are no matching games: OnPhotonRandomJoinFailed
```

A list of currently running games is provided by the master server's lobby. It can be joined like other rooms but only provides and updates the list of rooms. The [PhotonNetwork](#) plugin will automatically join the lobby after connecting. When you're joining a room, the list will no longer update.

To display the list of rooms (in a lobby):

```
foreach (RoomInfo game in PhotonNetwork.GetRoomList())
{
    GUILayout.Label(game.name + " " + game.playerCount + "/" + game.maxPlayers);
}
```

Alternatively, the game can use random matchmaking: It will try to join any room and fail if none has room for another player. In that case: Create a room without name and wait until other players join it randomly.

## Advanced Matchmaking & Room Properties

Fully random matchmaking is not always something players enjoy. Sometimes you just want to play a certain map or just two versus two.

In [Photon](#) Cloud and Loadbalancing, you can set arbitrary room properties and filter for those in JoinRandom.

### Room Properties and the Lobby

[Room](#) properties are synced to all players in the room and can be useful to keep track of the current map, round, starttime, etc. They are handled as Hashtable with string keys. Preferably short keys.

You can forward selected properties to the lobby, too. This makes them available for listing them and for random matchmaking, too. Not all room properties are interesting in the lobby, so you define the set of properties for the lobby on room creation.

```
string[] roomPropsInLobby = { "map", "ai" };
Hashtable customRoomProperties = new Hashtable() { { "map", 1 } };
CreateRoom(roomName, true, true, 4, customRoomProperties, roomPropsInLobby);
```

Note that "ai" has no value yet. It won't show up in the lobby until it's set in the game via [Room.SetCustomProperties\(\)](#). When you change the values for "map" or "ai", they will be updated in the lobby with a short delay, too.

Keep the list short to make sure your clients performance doesn't suffer from loading the list.

### Filtering [Room](#) Properties in Join Random

In JoinRandom, you could pass a Hashtable with expected room properties and max player value. These work as filters when the server selects a "fitting" room for you.

```
Hashtable expectedCustomRoomProperties = new Hashtable() { { "map", 1 } };
JoinRandomRoom(expectedCustomRoomProperties, 4);
```

If you pass more filter properties, chances are lower that a room matches them. Better limit the options.

Make sure you never filter for properties that are not known to the lobby (see above).

### MonoBehaviour Callbacks

[PhotonNetwork](#) implements several callbacks to let your game know about state changes, like "connected" or "joined a game". All you have to do is implement the fitting method in any MonoBehaviour and it gets called when the event happens.

The names of all callback methods are defined in the [PhotonNetworkingMessage](#) enum. The description of each item also describes the parameters and the situation when it's called.

The complete list of callbacks is also in the reference part of this documentation.

This covers the basics of setting up game rooms. Next up is actual communication in games.

### Sending messages in rooms

Inside a room you are able to send network messages to other connected players. Furthermore you are able to send buffered messages that will also be sent to players that connect in the future (for spawning your player for instance).

Sending messages can be done using two methods. Either RPCs or by using the [PhotonView](#) property `OnSerializePhotonView`. There is more network interaction though. You can listen for callbacks for certain network events (e.g. `OnPhotonInstantiate`, `OnPhotonPlayerConnected`) and you can trigger some of these events ([PhotonNetwork.Instantiate](#)). Don't worry if you're confused by the last paragraph, next up we'll explain for each of these subjects.

### Using Groups in PUN

Groups are not synchronized when they are changed on any [PhotonView](#). It's up to the developer to keep photonviews in the same groups on all clients, if that's needed. Using different group numbers for the same photonview on several clients will cause some inconsistent behaviour. Some network messages are checked for their receiver group at the receiver side only, namely: RPCs that are targetted to a single player (or MasterClient) RPCs that are buffered (`AllBuffered/OthersBuffered`). This includes [PhotonNetwork.Instantiate](#) (as it is buffered).

Technical reason for this: the photon server only supports interestgroups for messages that are not cached and are not targetted at sepcific actor(s). This might change in the future.

### PhotonView

[PhotonView](#) is a script component that is used to send messages (RPCs and `OnSerializePhotonView`). You need to attach the [PhotonView](#) to your games gameobjects. Note that the [PhotonView](#) is very similar to Unity's `NetworkView`.

At all times, you need at least one [PhotonView](#) in your game in order to send messages and optionally instantiate/allocate other PhotonViews.

To add a [PhotonView](#) to a gameobject, simply select a gameobject and use: "Components/Miscellaneous/Photon View".

### Observe Transform

If you attach a Transform to a PhotonView's Observe property, you can choose to sync Position, Rotation and Scale or a combination of those across the players. This can be a great help for prototyping or smaller games. Note: A change to any observed value will send out all observed values - not just the single value that's changed. Also, updates are not smoothed or interpolated.

### Observe MonoBehaviour

A [PhotonView](#) can be set to observe a MonoBehaviour. In this case, the script's OnPhotonSerializeView method will be called. This method is called for writing an object's state and for reading it, depending on whether the script is controlled by the local player.

The simple code below shows how to add character state synchronization with just a few lines of code more:

```
void OnPhotonSerializeView(PhtonStream stream,
    PhotonMessageInfo info)
{
    if (stream.IsWriting)
    {
        //We own this player: send the others our data
        stream.SendNext((int)controllerScript._characterState);
        stream.SendNext(transform.position);
        stream.SendNext(transform.rotation);
    }
    else
    {
        //Network player, receive data
        controllerScript._characterState = (CharacterState)(int)stream.ReceiveNext();
        correctPlayerPos = (Vector3)stream.ReceiveNext();
        correctPlayerRot = (Quaternion)stream.ReceiveNext();
    }
}
```

If you send something "ReliableDeltaCompressed", make sure to always write data to the stream in the same order. If you write no data to the [PhotonStream](#), the update is not sent. This can be useful in pauses. Now on, to yet another way to communicate: RPCs.

## 2.1.2 Remote Procedure Calls

Remote Procedure Calls (RPCs) are exactly what the name implies: methods that can be called on remote clients in the same room. To enable remote calls for a method of a MonoBehaviour, you must apply the attribute: [RPC]. A [PhotonView](#) instance is needed on the same GameObject, to call the marked functions.

```
[RPC]
void ChatMessage(string a, string b)
{
    Debug.Log("ChatMessage " + a + " " + b);
}
```

To call the method from any script, you need access to a [PhotonView](#) object. If your script derives from [PhotonMonoBehaviour](#), it has a photonView field. Any regular MonoBehaviour or GameObject can use: PhotonView.Get(this) to get access to its [PhotonView](#) component and then call RPCs on it.

```
PhotonView photonView = PhotonView.Get(this);
photonView.RPC("ChatMessage", PhotonTargets.All, "jup", "and jup!");
```

So, instead of directly calling the target method, you call RPC() on a [PhotonView](#). Provide the name of the method to call, which players should call the method and then provide a list of parameters.

Careful: The parameters list used in RPC() has to match the number of expected parameters! If the receiving client can't find a matching method, it will log an error. There is one exception to this rule: The last parameter of a RPC method can be of type [PhotonMessageInfo](#), which will provide some context for each call.

```
[RPC]
void ChatMessage(string a, string b, PhotonMessageInfo info)
{
    Debug.Log(String.Format("Info: {0} {1} {2}", info.sender, info.photonView, info.timestamp));
}
```

## Timing for RPCs and Loading Levels

RPCs are called on specific PhotonViews and always target the matching one on the remote client. If the remote client does not know the fitting [PhotonView](#), the RPC is lost.

A typical cause for lost RPCs is when clients load and set up levels. One client is faster or in the room for a longer time and sends important RPCs for objects that are not yet loaded on the other clients. The same happens when RPCs are buffered.

The solution is to pause the message queue, during scene loading. This code shows how you can do it:

```
private IEnumerator MoveToGameScene()
{
    // Temporary disable processing of further network messages
    PhotonNetwork.IsMessageQueueRunning = false;
    Application.LoadLevel(levelName);
}
```

Alternatively you can use [PhotonNetwork.LoadLevel](#). It temporarily disables the message queue as well.

Disabling the message queue will delay incoming and outgoing messages until the queue is unlocked. Obviously, it's very important to unlock the queue when you're ready to go on.

RPCs that belonged to the previously loaded scene but still arrived will now be discarded. But you should be able to define a break between both scenes by RPC.

## Various topics

### Differences to Unity Networking

#### 1. Host model

- Unity networking is server-client based (NOT P2P!). Servers are run via a Unity client (so via one of the players)
- [Photon](#) is server-client based as well, but has a dedicated server; No more dropped connections due to hosts leaving.

#### 2. Connectivity

- Unity networking works with NAT punchthrough to try to improve connectivity: since players host the network servers, the connection often fails due to firewalls/routers etc. Connectivity can never be guaranteed, there is a low success rate.
- [Photon](#) has a dedicated server, there is no need for NAT punchthrough or other concepts. Connectivity is a guaranteed 100%. If, in the rare case, a connection fails it must be due to a very strict client side network (a business VPN for example).

#### 3. Performance

- [Photon](#) beats Unity networking performance wise. We do not have the figures to prove this yet but the library has been optimized for years now. Furthermore, since the Unity servers are player hosted latency/ping is usually worse; you rely on the connection of the player acting as server. These connections are never any better than the connection of your dedicated [Photon](#) server.

#### 4. Price



- Like the Unity Networking solution, the [Photon](#) Unity Networking plugin is free as well. You can subscribe to use [Photon](#) Cloud hosting service for your game. Alternatively, you can rent your own servers and run [Photon](#) on them. The free license enables up to 100 concurrent players. Other licenses cost a one-time fee (as you do the hosting) and lift the concurrent user limits.

#### 5. Features & maintenance

- Unity does not seem to give much priority to their Networking implementation. There are rarely feature improvements and bugfixes are as seldom. The [Photon](#) solution is actively maintained and parts of it are available with source code. Furthermore, [Photon](#) already offers more features than Unity, such as the built-in load balancing and offline mode.

#### 6. Master Server

- The Master Server for [Photon](#) is a bit different from the Master Server for plain Unity Networking: In our case, it's a [Photon](#) Server that lists room-names of currently played games in so called "lobbies". Like Unity's Master, it will forward clients to the Game Server(s), where the actual gameplay is done.

### 2.1.3 Instantiating Networked Objects

In about every game you need to instantiate one or more player objects for every player. There are various options to do so which are listed below.

#### [PhotonNetwork.Instantiate](#)

PUN can automatically take care of spawning an object by passing a starting position, rotation and a prefab name to the [PhotonNetwork.Instantiate](#) method. Requirement: The prefab should be available directly under a Resources/ folder so that the prefab can be loaded at run time. Watch out with webplayers: Everything in the resources folder will be streamed at the very first scene per default. Under the webplayer settings you can specify the first level that uses assets from the Resources folder by using the "First streamed level". If you set this to your first game scene, your preloader and mainmenu will not be slowed down if they don't use the Resources folder assets.

```
void SpawnMyPlayerEverywhere()
{
    PhotonNetwork.Instantiate("MyPrefabName", new Vector3(0,0,0), Quaternion.identity, 0);
    //The last argument is an optional group number, feel free to ignore it for now.
}
```

#### Gain more control: Manually instantiate

If don't want to rely on the Resources folders to instantiate objects over the network you'll have to manually Instantiate objects as shown in the example at the end of this section.

The main reason for wanting to instantiate manually is gaining control over what is downloaded when for streaming webplayers. The details about streaming and the Resources folder in Unity can be found [here](#).

If you spawn manually, you will have to assign a PhotonViewID yourself, these viewID's are the key to routing network messages to the correct gameobject/scripts. The player who wants to own and spawn a new object should allocate a new viewID using [PhotonNetwork.AllocateViewID\(\)](#); This PhotonViewID should then be send to all other players using a [PhotonView](#) that has already been set up (for example an existing scene [PhotonView](#)). You will have to keep in mind that this RPC needs to be buffered so that any clients that connect later will also receive the spawn instructions. Then the RPC message that is used to spawn the object will need a reference to your desired prefab and instantiate this using Unity's `GameObject.Instantiate`. Finally you will need to set setup the PhotonViews attached to this prefab by assigning all PhotonViews a PhotonViewID.

```
void SpawnMyPlayerEverywhere()
{
    //Manually allocate PhotonViewID
    PhotonViewID id1 = PhotonNetwork.AllocateViewID();

    photonView.RPC("SpawnOnNetwork", PhotonTargets.AllBuffered, transform.position
    ,
```

```

        transform.rotation, id1, PhotonNetwork.player);
    }

    public Transform playerPrefab; //set this in the inspector

    [RPC]
    void SpawnOnNetwork(Vector3 pos, Quaternion rot, PhotonViewID id1, PhotonPlayer np)
    {
        Transform newPlayer = Instantiate(playerPrefab, pos, rot) as Transform;

        //Set the PhotonView
        PhotonView[] nViews = go.GetComponentsInChildren<PhotonView>();
        nViews[0].viewID = id1;
    }

```

If you want to use asset bundles to load your network objects from, all you have to do is add your own assetbundle loading code and replace the “playerPrefab” from the example with the prefab from your asset bundle.

## Offline mode

Offline mode is a feature to be able to re-use your multiplayer code in singleplayer game modes as well.

Mike Hergaarden: At M2H we had to rebuild our games several times as game portals usually require you to remove multiplayer functionality completely. Furthermore, being able to use the same code for single and multiplayer saves a lot of work on itself.

The most common features that you'll want to be able to use in singleplayer are sending RPCs and using [PhotonNetwork.Instantiate](#). The main goal of offline mode is to disable nullreferences and other errors when using [PhotonNetwork](#) functionality while not connected. You would still need to keep track of the fact that you're running a singleplayer game, to set up the game etc. However, while running the game, all code should be reusable.

You need to manually enable offline mode, as [PhotonNetwork](#) needs to be able to distinguish erroneous from intended behaviour. Enabling this feature is very easy:

```
PhotonNetwork.offlineMode = true;
```

You can now reuse certain multiplayer methods without generating any connections and errors. Furthermore there is no noticeable overhead. Below follows a list of [PhotonNetwork](#) functions and variables and their results during offline mode:

[PhotonNetwork.player](#) The player ID is always -1 [PhotonNetwork.playerName](#) Works as expected. [PhotonNetwork.playerList](#) Contains only the local player [PhotonNetwork.otherPlayers](#) Always empty [PhotonNetwork.time](#) returns Time.time; [PhotonNetwork.isMasterClient](#) Always true [PhotonNetwork.AllocateViewID\(\)](#) Works as expected. [PhotonNetwork.Instantiate](#) Works as expected [PhotonNetwork.Destroy](#) Works as expected. [PhotonNetwork.RemoveRPCs/RemoveRPCsInGroup/SetReceivingEnabled/SetSendingEnabled/SetLevelPrefix](#) While these make no sense in Singleplayer, they will not hurt either. [PhotonView.RPC](#) Works as expected.

Note that using other methods than the ones above can yield unexpected results and some will simply do nothing. E.g. [PhotonNetwork.room](#) will, obviously, return null. If you intend on starting a game in singleplayer, but move it to multiplayer at a later stage, you might want to consider hosting a 1 player game instead; this will preserve buffered RPCs and Instantiation calls, whereas offline mode Instantiations will not automatically carry over after Connecting.

Either set [PhotonNetwork.offlineMode](#) = false; or Simply call [Connect\(\)](#) to stop offline mode.

## Limitations

### Views and players

For performance reasons, the [PhotonNetwork](#) API supports up to 1000 PhotonViews per player and a maximum of 2,147,483 players (note that this is WAY higher than your hardware can support!). You can easily allow for more PhotonViews per player, at the cost of maximum players. This works as follows: PhotonViews send out a viewID for every network message. This viewID is an integer and it is composed of the player ID and the player's view ID. The maximum size of an int is 2,147,483,647, divided by our MAX\_VIEW\_IDS(1000) that allows for over 2 million players, each having 1000 view IDs. As you can see, you can easily increase the player count by reducing the

MAX\_VIEW\_IDS. The other way around, you can give all players more VIEW\_IDS at the cost of less maximum players. It is important to note that most games will never need more than a few view ID's per player (one or two for the character..and that's usually it). If you need much more then you might be doing something wrong! It is extremely inefficient to assign a [PhotonView](#) and ID for every bullet that your weapon fires, instead keep track of your fire bullets via the player or weapon's [PhotonView](#).

There is room for improving your bandwidth performance by reducing the int to a short (value range: 32,768 to 32,768). By setting MAX\_VIEW\_IDS to 32 you can then still support 1023 players Search for "//LIMITS NETWORKING RKVIEWS&PLAYERS" for all occurrences of the int viewID. Furthermore, currently the API is not using uint/ushort but only the positive range of the numbers. This is done for simplicity and the usage of viewIDs is not a crucial performance issue for most situations.

### Groups and Scoping

The [PhotonNetwork](#) plugin does not support real network groups and no scoping yet. While Unity's "scope" feature is not implemented, the network groups are currently implemented purely client side: Any RPC that should be ignored due to grouping, will be discarded after it's received. This way, groups are working but won't save bandwidth.

### Feedback

We are interested in your feedback, as this solution is an ongoing project for us. Let us know if something was too hidden, missing or not working. To let us know, post in our Forum: [forum.exitgames.com](http://forum.exitgames.com)

### F.A.Q.

#### Can I use multiple PhotonViews per GameObject? Why?

Yes this is perfectly fine. You will need multiple PhotonViews if you need to observe 2 or more targets; You can only observe one per [PhotonView](#). For your RPC's you'll only ever need one [PhotonView](#) and this can be the same [PhotonView](#) that is already observing something. RPC's never clash with an observed target.

#### Can I use UnityScript / Javascript?

To be able to use the [Photon](#) classes in Unity Script, you'll need to move the Plugins folder in "Photon Unity Networking/Plugins" folder to the root of your project to make sure it's compiled before your code.

## Converting your Unity networking project to [Photon](#)

Converting your Unity networking project to [Photon](#) can be done in one day. Just to be sure, make a backup of your project, as our automated converter will change your scripts. After this is done, run the converter from the [Photon](#) editor window (Window -> [Photon](#) Unity Networking -> Converter -> Start). The automatic conversion takes between 30 seconds to 10 minutes, depending on the size of your project and your computers performance. This automatic conversion takes care of the following:

- All NetworkViews are replaced with PhotonViews and the exact same settings. This is applied for all scenes and all prefabs.
- All scripts (JS/BOO/C#) are scanned for Network API calls, and they are replaced with [PhotonNetwork](#) calls.

There are some minor differences, therefore you will need to manually fix a few script conversion bugs. After conversion, you will most likely see some compile errors. You'll have to fix these first. Most common compile errors:

PhotonNetwork.RemoveRPCs(player); PhotonNetwork.DestroyPlayerObjects(player); These do not exist, and can be safely removed. [Photon](#) automatically cleans up players when they leave (even though you can disable this

and take care of cleanup yourself if you want to) ..CloseConnection takes '2' arguments. . . Remove the second, boolean, argument from this call. PhotonNetwork.GetPing(player); GetPing does not take any arguments, you can only request the ping to the photon server, not ping to other players. myPlayerClass.transform.photonView.XX↔X error You will need to convert code like this to: myPlayerClass.transform.GetComponent<PhotonView>().XXX Inside of scripts, you can use photonView to get the attached [PhotonView](#) component. However, you cannot call this on an external transform directly. RegisterServer There's no more need to register your games to a masterserver, [Photon](#) does this automatically.

You should be able to fix all compile errors in 5-30 minutes. Most errors will originate from main menu/GUI code, related to IPs/Ports/Lobby GUI.

This is where [Photon](#) differs most from Unity's solution:

There is only one [Photon](#) server and you connect using the room names. Therefore all references to IPs/ports can be removed from your code (usually GUI code). [PhotonNetwork.JoinRoom\(string room\)](#) only takes a room argument, you'll need to remove your old IP/port/NAT arguments. If you have been using the "Ultimate Unity networking project" by M2H, you should remove the MultiplayerFunctions class.

Lastly, all old MasterServer calls can be removed. You never need to register servers, and fetching the room list is as easy as calling [PhotonNetwork.GetRoomList\(\)](#). This list is always up to date (no need to fetch/poll etc). Rewriting the room listing can be most work, if your GUI needs to be redone, it might be simpler to write the GUI from scratch.

## Chapter 3

# Network Simulation GUI

Simple GUI element to control the built-in network condition simulation.

The Photon client library can simulate network conditions for lag (message delay) and loss, which can be a good tool for developer when testing with a local server or on near perfect network conditions.

To use it, add the component PhotonNetSimSettingsGui to an enabled GameObject in your scene. At runtime, the top left of the screen shows the current roundtrip time (RTT) and the controls for network simulation:

- RTT: The roundtrip time is the average of milliseconds until a message was acknowledged by the server. The variance value (behind the +/-) shows how stable the rtt is (a lower value being better).
- "Sim" toggle: Enables and disables the simulation. A sudden, big change of network conditions might result in disconnects.
- "Lag" slider: Adds a fixed delay to all outgoing and incoming messages. In milliseconds.
- "Jit" slider: Adds a random delay of "up to X milliseconds" per message.
- "Loss" slider: Drops the set percentage of messages. You can expect less than 2% drop in the internet today.



## Chapter 4

# Network Statistics GUI

The PhotonStatsGui is a simple GUI component to track and show network-metrics at runtime.

### Usage

Just add the [PhotonStatsGui](#) component to any active GameObject in the hierarchy. A window appears (at runtime) and shows the message count.

A few toggles let you configure the window:

- buttons: Show buttons for "stats on", "reset stats" and "to log"
- traffic: Show lower level network traffic (bytes per direction)
- health: Show timing of sending, dispatches and their longest gaps

### Message Statistics

The top most values showns are counter for "messages". Any operation, response and event are counted. Shown are the total count of outgoing, incoming and the sum of those messages as total and as average for the timespan that is tracked.

### Traffic Statistics

These are the byte and packet counters. Anything that leaves or arrives via network is counted here. Even if there are few messages, they could be huge by accident and still cause less powerful clients to drop connection. You also see that there are packages sent when you don't send messages. They keeps the connection alive.

### Health Statistics

The block beginning with "longest delta between" is about the performance of your client. We measure how much time passed between consecutive calls of send and dispatch. Usually they should be called ten times per second. If these values go beyond one second, you should check why Update() calls are delayed.

### Button "Reset"

This resets the stats but keeps tracking them. This is useful to track message counts for different situations.

### Button "To Log"

Pressing this simply logs the current stat values. This can be useful to have a overview how things evolved or just as reference.

**Button "Stats On" (Enabling Traffic Stats)**

The Photon library can track various network statistics but usually this feature is turned off. The PhotonStatsGui will enable the tracking and show those values.

The "stats on" toggle in the Gui controls if traffic stats are collected at all. The "Traffic Stats On" checkbox in the Inspector is the same value.



## Chapter 5

# Public API Module

The Public API module rounds up the most commonly used classes of PUN.

These classes are grouped into a "module" to make it easier to find the important stuff in PUN. Classes like [Photon↔Network](#) and enums like [PhotonNetworkingMessage](#) are good entry points to learn how to code with PUN.

Opposed to that, there are several classes that are for internal use by the PUN framework. Even some of the internally used classes are public. This is for ease of use and in parts a result of how Unity works.

[Open the Public API module](#)



## Chapter 6

# Module Documentation

### 6.1 Public API

Groups the most important classes that you need to understand early on.

#### Classes

- interface [IPunObservable](#)  
*Defines the `OnPhotonSerializeView` method to make it easy to implement correctly for observable scripts.*
- interface [IPunCallbacks](#)  
*Defines all the methods that PUN will call in specific situations, except `OnPhotonSerializeView`. Implemented by `PunBehaviour`.*
- class [Photon.PunBehaviour](#)  
*This class provides a `.photonView` and all callbacks/events that PUN can call. Override the events/methods you want to use.*
- class [PhotonMessageInfo](#)  
*Container class for info about a particular message, RPC or update.*
- class [PhotonStream](#)  
*This container is used in `OnPhotonSerializeView()` to either provide incoming data of a [PhotonView](#) or for you to provide it.*
- class [PhotonNetwork](#)  
*The main class to use the [PhotonNetwork](#) plugin. This class is static.*
- class [PhotonPlayer](#)  
*Summarizes a "player" within a room, identified (in that room) by actorID.*
- class [PhotonView](#)  
*PUN's `NetworkView` replacement class for networking. Use it like a `NetworkView`.*
- class [Room](#)  
*This class resembles a room that PUN joins (or joined). The properties are settable as opposed to those of a [RoomInfo](#) and you can close or hide "your" room.*
- class [RoomInfo](#)  
*A simplified room with just the info required to list and join, used for the room listing in the lobby. The properties are not settable (open, maxPlayers, etc).*

#### Enumerations

- enum [PhotonNetworkingMessage](#) {  
[PhotonNetworkingMessage.OnConnectedToPhoton](#), [PhotonNetworkingMessage.OnLeftRoom](#), [PhotonNetworkingMessage.OnMasterClientSwitched](#), [PhotonNetworkingMessage.OnPhotonCreateRoomFailed](#),  
[PhotonNetworkingMessage.OnPhotonJoinRoomFailed](#), [PhotonNetworkingMessage.OnCreatedRoom](#),

PhotonNetworkingMessage.OnJoinedLobby, PhotonNetworkingMessage.OnLeftLobby,  
 PhotonNetworkingMessage.OnDisconnectedFromPhoton, PhotonNetworkingMessage.OnConnectionFail,  
 PhotonNetworkingMessage.OnFailedToConnectToPhoton, PhotonNetworkingMessage.OnReceivedRoom↵  
 ListUpdate,  
 PhotonNetworkingMessage.OnJoinedRoom, PhotonNetworkingMessage.OnPhotonPlayerConnected,  
 PhotonNetworkingMessage.OnPhotonPlayerDisconnected, PhotonNetworkingMessage.OnPhoton↵  
 RandomJoinFailed,  
 PhotonNetworkingMessage.OnConnectedToMaster, PhotonNetworkingMessage.OnPhotonSerializeView,  
 PhotonNetworkingMessage.OnPhotonInstantiate, PhotonNetworkingMessage.OnPhotonMaxCcuReached,  
 PhotonNetworkingMessage.OnPhotonCustomRoomPropertiesChanged, PhotonNetworkingMessage.On↵  
 PhotonPlayerPropertiesChanged, PhotonNetworkingMessage.OnUpdatedFriendList, PhotonNetworking↵  
 Message.OnCustomAuthenticationFailed,  
 PhotonNetworkingMessage.OnWebRpcResponse, PhotonNetworkingMessage.OnOwnershipRequest }

*This enum defines the set of MonoMessages [Photon](#) Unity Networking is using as callbacks. Implemented by Pun↵  
 Behaviour.*

- enum [PhotonLogLevel](#) { [PhotonLogLevel.ErrorsOnly](#), [PhotonLogLevel.Informational](#), [PhotonLogLevel.Full](#) }

*Used to define the level of logging output created by the PUN classes. Either log errors, info (some more) or full.*

- enum [PhotonTargets](#) {  
[PhotonTargets.All](#), [PhotonTargets.Others](#), [PhotonTargets.MasterClient](#), [PhotonTargets.AllBuffered](#),  
[PhotonTargets.OthersBuffered](#), [PhotonTargets.AllViaServer](#), [PhotonTargets.AllBufferedViaServer](#) }

*Enum of "target" options for RPCs. These define which remote clients get your RPC call.*

- enum [PeerState](#) {  
[PeerState.Uninitialized](#), [PeerState.PeerCreated](#), [PeerState.Queued](#), [PeerState.Authenticated](#),  
[PeerState.JoinedLobby](#), [PeerState.DisconnectingFromMasterserver](#), [PeerState.ConnectingToGameserver](#),  
[PeerState.ConnectedToGameserver](#),  
[PeerState.Joining](#), [PeerState.Joined](#), [PeerState.Leaving](#), [PeerState.DisconnectingFromGameserver](#),  
[PeerState.ConnectingToMasterserver](#), [PeerState.QueuedComingFromGameserver](#), [PeerState.Disconnecting](#),  
[PeerState.Disconnected](#),  
[PeerState.ConnectedToMaster](#), [PeerState.ConnectingToNameServer](#), [PeerState.ConnectedToNameServer](#),  
[PeerState.DisconnectingFromNameServer](#),  
[PeerState.Authenticating](#) }

*Detailed connection / networking peer state. PUN implements a loadbalancing and authentication workflow "behind  
 the scenes", so some states will automatically advance to some follow up state. Those states are commented with  
 "(will-change)".*

- enum [DisconnectCause](#) {  
[DisconnectCause.ExceptionOnConnect](#) = [StatusCode.ExceptionOnConnect](#), [DisconnectCause.Security↵  
 ExceptionOnConnect](#) = [StatusCode.SecurityExceptionOnConnect](#), [DisconnectCause.TimeoutDisconnect](#)  
 = [StatusCode.TimeoutDisconnect](#), [DisconnectCause.DisconnectByClientTimeout](#) = [StatusCode.Timeout↵  
 Disconnect](#),  
[DisconnectCause.InternalReceiveException](#) = [StatusCode.ExceptionOnReceive](#), [DisconnectCause.↵  
 DisconnectByServer](#) = [StatusCode.DisconnectByServer](#), [DisconnectCause.DisconnectByServerTimeout](#)  
 = [StatusCode.DisconnectByServer](#), [DisconnectCause.DisconnectByServerLogic](#) = [StatusCode.Disconnect↵  
 ByServerLogic](#),  
[DisconnectCause.DisconnectByServerUserLimit](#) = [StatusCode.DisconnectByServerUserLimit](#), [Disconnect↵  
 Cause.Exception](#) = [StatusCode.Exception](#), [DisconnectCause.InvalidRegion](#) = [ErrorCode.InvalidRegion](#),  
[DisconnectCause.MaxCcuReached](#) = [ErrorCode.MaxCcuReached](#),  
[DisconnectCause.InvalidAuthentication](#) = [ErrorCode.InvalidAuthentication](#), [DisconnectCause.Authentication↵  
 TicketExpired](#) = [ErrorCode.AuthenticationTicketExpired](#) }

*Summarizes the cause for a disconnect. Used in: [OnConnectionFail](#) and [OnFailedToConnectToPhoton](#).*

## Functions

- void [IPunObservable.OnPhotonSerializeView](#) ([PhotonStream](#) stream, [PhotonMessageInfo](#) info)

*Called by PUN several times per second, so that your script can write and read synchronization data for the [Photon↵  
 View](#).*

### 6.1.1 Detailed Description

Groups the most important classes that you need to understand early on.

### 6.1.2 Enumeration Type Documentation

#### 6.1.2.1 enum DisconnectCause

Summarizes the cause for a disconnect. Used in: OnConnectionFail and OnFailedToConnectToPhoton.

Extracted from the status codes from ExitGames.Client.Photon.StatusCode.

See also

[PhotonNetworkingMessage](#)

Enumerator

**ExceptionOnConnect** Connection could not be established. Possible cause: Local server not running.

**SecurityExceptionOnConnect** The security settings for client or server don't allow a connection (see remarks). A common cause for this is that browser clients read a "crossdomain" file from the server. If that file is unavailable or not configured to let the client connect, this exception is thrown. [Photon](#) usually provides this crossdomain file for Unity. If it fails, read: <http://doc.exitgames.com/photon-server/PolicyApp>

**TimeoutDisconnect** Connection timed out. Possible cause: Remote server not running or required ports blocked (due to router or firewall).

**DisconnectByClientTimeout** Timeout disconnect by client (which decided an ACK was missing for too long).

**InternalReceiveException** Exception in the receive-loop. Possible cause: Socket failure.

**DisconnectByServer** Server actively disconnected this client.

**DisconnectByServerTimeout** Timeout disconnect by server (which decided an ACK was missing for too long).

**DisconnectByServerLogic** Server actively disconnected this client. Possible cause: Server's send buffer full (too much data for client).

**DisconnectByServerUserLimit** Server actively disconnected this client. Possible cause: The server's user limit was hit and client was forced to disconnect (on connect).

**Exception** Some exception caused the connection to close.

**InvalidRegion** (32756) Authorization on the [Photon](#) Cloud failed because the app's subscription does not allow to use a particular region's server.

**MaxCcuReached** (32757) Authorization on the [Photon](#) Cloud failed because the concurrent users (CCU) limit of the app's subscription is reached.

**InvalidAuthentication** (32767) The [Photon](#) Cloud rejected the sent AppId. Check your Dashboard and make sure the AppId you use is complete and correct.

**AuthenticationTicketExpired** (32753) The Authentication ticket expired. Handle this by connecting again (which includes an authenticate to get a fresh ticket).

#### 6.1.2.2 enum PeerState

Detailed connection / networking peer state. PUN implements a loadbalancing and authentication workflow "behind the scenes", so some states will automatically advance to some follow up state. Those states are commented with "(will-change)".

Enumerator

**Uninitialized** Not running. Only set before initialization and first use.

**PeerCreated** Created and available to connect.

**Queued** Not used at the moment.

**Authenticated** The application is authenticated. PUN usually joins the lobby now.(will-change) Unless AutoJoinLobby is false.

**JoinedLobby** Client is in the lobby of the Master Server and gets room listings. Use Join, Create or JoinRandom to get into a room to play.

**DisconnectingFromMasterserver** Disconnecting.(will-change)

**ConnectingToGameserver** Connecting to game server (to join/create a room and play).(will-change)

**ConnectedToGameserver** Similar to Connected state but on game server. Still in process to join/create room.(will-change)

**Joining** In process to join/create room (on game server).(will-change)

**Joined** Final state of a room join/create sequence. This client can now exchange events / call RPCs with other clients.

**Leaving** Leaving a room.(will-change)

**DisconnectingFromGameserver** Workflow is leaving the game server and will re-connect to the master server.(will-change)

**ConnectingToMasterserver** Workflow is connected to master server and will establish encryption and authenticate your app.(will-change)

**QueuedComingFromGameserver** Same Queued but coming from game server.(will-change)

**Disconnecting** PUN is disconnecting. This leads to Disconnected.(will-change)

**Disconnected** No connection is setup, ready to connect. Similar to PeerCreated.

**ConnectedToMaster** Final state for connecting to master without joining the lobby (AutoJoinLobby is false).

**ConnectingToNameServer** Client connects to the NameServer. This process includes low level connecting and setting up encryption. When done, state becomes ConnectedToNameServer.

**ConnectedToNameServer** Client is connected to the NameServer and established encryption already. You should call OpGetRegions or ConnectToRegionMaster.

**DisconnectingFromNameServer** When disconnecting from a Photon NameServer.(will-change)

**Authenticating** When connecting to a Photon Server, this state is intermediate before you can call any operations.(will-change)

### 6.1.2.3 enum PhotonLogLevel

Used to define the level of logging output created by the PUN classes. Either log errors, info (some more) or full.

Enumerator

**ErrorsOnly** Show only errors. Minimal output. Note: Some might be "runtime errors" which you have to expect.

**Informational** Logs some of the workflow, calls and results.

**Full** Every available log call gets into the console/log. Only use for debugging.

### 6.1.2.4 enum PhotonNetworkingMessage

This enum defines the set of MonoMessages Photon Unity Networking is using as callbacks. Implemented by PunBehaviour.

Much like "Update()" in Unity, PUN will call methods in specific situations. Often, these methods are triggered when network operations complete (example: when joining a room).

All those methods are defined and described in this enum and implemented by PunBehaviour (which makes it easy to implement them as override).

Each entry is the name of such a method and the description tells you when it gets used by PUN.

Make sure to read the remarks per entry as some methods have optional parameters.

#### Enumerator

**OnConnectedToPhoton** Called when the initial connection got established but before you can use the server. [OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) are called when PUN is ready. This callback is only useful to detect if the server can be reached at all (technically). Most often, it's enough to implement [OnFailedToConnectToPhoton\(\)](#) and [OnDisconnectedFromPhoton\(\)](#).

*[OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) are called when PUN is ready.*

When this is called, the low level connection is established and PUN will send your AppId, the user, etc in the background. This is not called for transitions from the masterserver to game servers.

Example: void [OnConnectedToPhoton\(\)](#) { ... }

**OnLeftRoom** Called when the local user/client left a room. When leaving a room, PUN brings you back to the Master Server. Before you can use lobbies and join or create rooms, [OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) will get called again.

Example: void [OnLeftRoom\(\)](#) { ... }

**OnMasterClientSwitched** Called after switching to a new MasterClient when the current one leaves. The former already got removed from the player list. This is not called when this client enters a room.

Example: void OnMasterClientSwitched(PhotonPlayer newMasterClient) { ... }

**OnPhotonCreateRoomFailed** Called when a [CreateRoom\(\)](#) call failed. Optional parameters provide [ErrorCode](#) and message. Most likely because the room name is already in use (some other client was faster than you). PUN logs some info if the [PhotonNetwork.logLevel](#) is  $\geq$  [PhotonLogLevel.Informational](#).

Example: void [OnPhotonCreateRoomFailed\(\)](#) { ... }

Example: void OnPhotonCreateRoomFailed(object[] codeAndMsg) { // codeAndMsg[0] is int ErrorCode. codeAndMsg[1] is string debug msg. }

**OnPhotonJoinRoomFailed** Called when a [JoinRoom\(\)](#) call failed. Optional parameters provide [ErrorCode](#) and message. Most likely error is that the room does not exist or the room is full (some other client was faster than you). PUN logs some info if the [PhotonNetwork.logLevel](#) is  $\geq$  [PhotonLogLevel.Informational](#).

Example: void [OnPhotonJoinRoomFailed\(\)](#) { ... }

Example: void OnPhotonJoinRoomFailed(object[] codeAndMsg) { // codeAndMsg[0] is int ErrorCode. codeAndMsg[1] is string debug msg. }

**OnCreatedRoom** Called when this client created a room and entered it. [OnJoinedRoom\(\)](#) will be called as well. This callback is only called on the client which created a room (see [PhotonNetwork.CreateRoom\(\)](#)).

As any client might close (or drop connection) anytime, there is a chance that the creator of a room does not execute [OnCreatedRoom](#).

If you need specific room properties or a "start signal", it is safer to implement [OnMasterClientSwitched\(\)](#) and to make the new MasterClient check the room's state.

Example: void [OnCreatedRoom\(\)](#) { ... }

**OnJoinedLobby** Called on entering a lobby on the Master Server. The actual room-list updates will call [OnReceivedRoomListUpdate\(\)](#). Note: When [PhotonNetwork.autoJoinLobby](#) is false, [OnConnectedToMaster\(\)](#) will be called and the room list won't become available.

While in the lobby, the roomlist is automatically updated in fixed intervals (which you can't modify).

Example: void [OnJoinedLobby\(\)](#) { ... }

**OnLeftLobby** Called after leaving a lobby. When you leave a lobby, [CreateRoom](#) and [JoinRandomRoom](#) automatically refer to the default lobby.

Example: void [OnLeftLobby\(\)](#) { ... }

**OnDisconnectedFromPhoton** Called after disconnecting from the [Photon](#) server. In some cases, other callbacks are called before [OnDisconnectedFromPhoton](#) is called. Examples: [OnConnectionFail\(\)](#) and [OnFailedToConnectToPhoton\(\)](#).

Example: void [OnDisconnectedFromPhoton\(\)](#) { ... }

**OnConnectionFail** Called when something causes the connection to fail (after it was established), followed by a call to [OnDisconnectedFromPhoton\(\)](#). If the server could not be reached in the first place, [OnFailedToConnectToPhoton](#) is called instead. The reason for the error is provided as [StatusCode](#).

Example: void OnConnectionFail(DisconnectCause cause) { ... }

**OnFailedToConnectToPhoton** Called if a connect call to the [Photon](#) server failed before the connection was established, followed by a call to [OnDisconnectedFromPhoton\(\)](#). [OnConnectionFail](#) only gets called when a connection to a [Photon](#) server was established in the first place.

Example: `void OnFailedToConnectToPhoton(DisconnectCause cause) { ... }`

**OnReceivedRoomListUpdate** Called for any update of the room listing (no matter if "new" list or "update for known" list). Only called in the Lobby state (on master server). Not all types of lobbies provide a listing of rooms to the client. Some are silent and specialized for server-side matchmaking.

PUN provides the list of rooms by [PhotonNetwork.GetRoomList\(\)](#). Each item is a [RoomInfo](#) which might include custom properties (provided you defined those as lobby-listed when creating a room).

Example: `void OnReceivedRoomListUpdate() { ... }`

**OnJoinedRoom** Called when entering a room (by creating or joining it). Called on all clients (including the Master Client). This method is commonly used to instantiate player characters. If a match has to be started "actively", you can instead call an [RPC](#) triggered by a user's button-press or a timer.

When this is called, you can usually already access the existing players in the room via [PhotonNetwork.playerList](#). Also, all custom properties should be already available as [Room.customProperties](#). Check [Room.playerCount](#) to find out if enough players are in the room to start playing.

Example: `void OnJoinedRoom() { ... }`

**OnPhotonPlayerConnected** Called when a remote player entered the room. This [PhotonPlayer](#) is already added to the playerlist at this time. If your game starts with a certain number of players, this callback can be useful to check the [Room.playerCount](#) and find out if you can start.

Example: `void OnPhotonPlayerConnected(PHOTON newPlayer) { ... }`

**OnPhotonPlayerDisconnected** Called when a remote player left the room. This [PhotonPlayer](#) is already removed from the playerlist at this time. When your client calls [PhotonNetwork.leaveRoom](#), PUN will call this method on the remaining clients. When a remote client drops connection or gets closed, this callback gets executed. after a timeout of several seconds.

Example: `void OnPhotonPlayerDisconnected(PHOTON otherPlayer) { ... }`

**OnPhotonRandomJoinFailed** Called after a [JoinRandom\(\)](#) call failed. Optional parameters provide [Error](#) Code and message. Most likely all rooms are full or no rooms are available. When using multiple lobbies (via [JoinLobby](#) or [TypedLobby](#)), another lobby might have more/fitting rooms. PUN logs some info if the [PhotonNetwork.logLevel](#) is  $\geq$  [PhotonLogLevel.Informational](#).

Example: `void OnPhotonRandomJoinFailed() { ... }`

Example: `void OnPhotonRandomJoinFailed(object[] codeAndMsg) { // codeAndMsg[0] is int ErrorCode. codeAndMsg[1] is string debug msg. }`

**OnConnectedToMaster** Called after the connection to the master is established and authenticated but only when [PhotonNetwork.autoJoinLobby](#) is false. If you set [PhotonNetwork.autoJoinLobby](#) to true, [OnJoinedLobby\(\)](#) will be called instead of this.

You can join rooms and create them even without being in a lobby. The default lobby is used in that case. The list of available rooms won't become available unless you join a lobby via [PhotonNetwork.joinLobby](#).

Example: `void OnConnectedToMaster() { ... }`

**OnPhotonSerializeView** Implement to customize the data a [PhotonView](#) regularly synchronizes. Called every 'network-update' when observed by [PhotonView](#). This method will be called in scripts that are assigned as Observed component of a [PhotonView](#). [PhotonNetwork.sendRateOnSerialize](#) affects how often this method is called. [PhotonNetwork.sendRate](#) affects how often packages are sent by this client.

Implementing this method, you can customize which data a [PhotonView](#) regularly synchronizes. Your code defines what is being sent (content) and how your data is used by receiving clients.

Unlike other callbacks, *OnPhotonSerializeView only gets called when it is assigned to a [PhotonView](#) as [PhotonView.observed](#) script.*

To make use of this method, the [PhotonStream](#) is essential. It will be in "writing" mode" on the client that controls a [PhotonView](#) ([PhotonStream.isWriting](#) == true) and in "reading mode" on the remote clients that just receive that the controlling client sends.

If you skip writing any value into the stream, PUN will skip the update. Used carefully, this can conserve bandwidth and messages (which have a limit per room/second).

Note that [OnPhotonSerializeView](#) is not called on remote clients when the sender does not send any update. This can't be used as "x-times per second Update()".

Example: `void OnPhotonSerializeView(PHOTON stream, PhotonMessageInfo info) { ... }`



**OnPhotonInstantiate** Called on all scripts on a `GameObject` (and children) that have been Instantiated using `PhotonNetwork.Instantiate`. `PhotonMessageInfo` parameter provides info about who created the object and when (based off `PhotonNetworking.time`).

Example: `void OnPhotonInstantiate(PhotonMessageInfo info) { ... }`

**OnPhotonMaxCcuReached** Because the concurrent user limit was (temporarily) reached, this client is rejected by the server and disconnecting. When this happens, the user might try again later. You can't create or join rooms in `OnPhotonMaxCcuReached()`, cause the client will be disconnecting. You can raise the CCU limits with a new license (when you host yourself) or extended subscription (when using the `Photon` Cloud). The `Photon` Cloud will mail you when the CCU limit was reached. This is also visible in the Dashboard (webpage).

Example: `void OnPhotonMaxCcuReached() { ... }`

**OnPhotonCustomRoomPropertiesChanged** Called when a room's custom properties changed. The `propertiesThatChanged` contains all that was set via `Room.SetCustomProperties`. Since v1.25 this method has one parameter: `Hashtable propertiesThatChanged`. Changing properties must be done by `Room.SetCustomProperties`, which causes this callback locally, too.

Example: `void OnPhotonCustomRoomPropertiesChanged(Hashtable propertiesThatChanged) { ... }`

**OnPhotonPlayerPropertiesChanged** Called when custom player-properties are changed. Player and the changed properties are passed as `object[]`. Since v1.25 this method has one parameter: `object[] playerAndUpdatedProps`, which contains two entries.

[0] is the affected `PhotonPlayer`.

[1] is the `Hashtable` of properties that changed.

We are using a `object[]` due to limitations of Unity's `GameObject.SendMessage` (which has only one optional parameter).

Changing properties must be done by `PhotonPlayer.SetCustomProperties`, which causes this callback locally, too.

Example:

```
void OnPhotonPlayerPropertiesChanged(object[] playerAndUpdatedProps) {
    PhotonPlayer player = playerAndUpdatedProps[0] as PhotonPlayer;
    Hashtable props = playerAndUpdatedProps[1] as Hashtable;
    //...
}
```

**OnUpdatedFriendList** Called when the server sent the response to a `FindFriends` request and updated `PhotonNetwork.Friends`. The friends list is available as `PhotonNetwork.Friends`, listing name, online state and the room a user is in (if any).

Example: `void OnUpdatedFriendList() { ... }`

**OnCustomAuthenticationFailed** Called when the custom authentication failed. Followed by disconnect! Custom Authentication can fail due to user-input, bad tokens/secrets. If authentication is successful, this method is not called. Implement `OnJoinedLobby()` or `OnConnectedToMaster()` (as usual).

During development of a game, it might also fail due to wrong configuration on the server side. In those cases, logging the `debugMessage` is very important.

Unless you setup a custom authentication service for your app (in the `Dashboard`), this won't be called!

Example: `void OnCustomAuthenticationFailed(string debugMessage) { ... }`

**OnWebRpcResponse** Called by PUN when the response to a `WebRpc` is available. See `PhotonNetwork.WebRpc`. Important: The `response.ReturnCode` is 0 if `Photon` was able to reach your web-service. The content of the response is what your web-service sent. You can create a `WebResponse` instance from it. Example: `WebResponse webResponse = new WebResponse(operationResponse);`

Please note: Class `OperationResponse` is in a namespace which needs to be "used": using `ExitGames.Client.Photon`; // includes `OperationResponse` (and other classes)

The `OperationResponse.ReturnCode` by `Photon` is: 0 for "OK" -3 for "Web-Service not configured" (see Dashboard / WebHooks) -5 for "Web-Service does now have RPC path/name" (at least for Azure)

Example: `void OnWebRpcResponse(OperationResponse response) { ... }`

**OnOwnershipRequest** Called when another player requests ownership of a `PhotonView` from you (the current owner). The parameter `viewAndPlayer` contains:

```
PhotonView view = viewAndPlayer[0] as PhotonView;
PhotonPlayer requestingPlayer = viewAndPlayer[1] as PhotonPlayer;
void OnOwnershipRequest(object[] viewAndPlayer) {} //
```

### 6.1.2.5 enum PhotonTargets

Enum of "target" options for RPCs. These define which remote clients get your RPC call.

#### Enumerator

- All** Sends the RPC to everyone else and executes it immediately on this client. Player who join later will not execute this RPC.
- Others** Sends the RPC to everyone else. This client does not execute the RPC. Player who join later will not execute this RPC.
- MasterClient** Sends the RPC to MasterClient only. Careful: The MasterClient might disconnect before it executes the RPC and that might cause dropped RPCs.
- AllBuffered** Sends the RPC to everyone else and executes it immediately on this client. New players get the RPC when they join as it's buffered (until this client leaves).
- OthersBuffered** Sends the RPC to everyone. This client does not execute the RPC. New players get the RPC when they join as it's buffered (until this client leaves).
- AllViaServer** Sends the RPC to everyone (including this client) through the server. This client executes the RPC like any other when it received it from the server. Benefit: The server's order of sending the RPCs is the same on all clients.
- AllBufferedViaServer** Sends the RPC to everyone (including this client) through the server and buffers it for players joining later. This client executes the RPC like any other when it received it from the server. Benefit: The server's order of sending the RPCs is the same on all clients.

## 6.1.3 Function Documentation

### 6.1.3.1 void IPunObservable.OnPhotonSerializeView ( PhotonStream stream, PhotonMessageInfo info )

Called by PUN several times per second, so that your script can write and read synchronization data for the [PhotonView](#).

This method will be called in scripts that are assigned as Observed component of a [PhotonView](#).

[PhotonNetwork.sendRateOnSerialize](#) affects how often this method is called.

[PhotonNetwork.sendRate](#) affects how often packages are sent by this client.

Implementing this method, you can customize which data a [PhotonView](#) regularly synchronizes. Your code defines what is being sent (content) and how your data is used by receiving clients.

Unlike other callbacks, *OnPhotonSerializeView only gets called when it is assigned to a [PhotonView](#) as [PhotonView.observed](#) script.*

To make use of this method, the [PhotonStream](#) is essential. It will be in "writing" mode" on the client that controls a PhotonView ([PhotonStream.isWriting](#) == true) and in "reading mode" on the remote clients that just receive that the controlling client sends.

If you skip writing any value into the stream, PUN will skip the update. Used carefully, this can conserve bandwidth and messages (which have a limit per room/second).

Note that OnPhotonSerializeView is not called on remote clients when the sender does not send any update. This can't be used as "x-times per second Update()".

## 6.2 Optional Gui Elements

Useful GUI elements for PUN.

### Classes

- class [PhotonLagSimulationGui](#)

*This MonoBehaviour is a basic GUI for the [Photon](#) client's network-simulation feature. It can modify lag (fixed delay), jitter (random lag) and packet loss.*

- class [PhotonStatsGui](#)

*Basic GUI to show traffic and health statistics of the connection to [Photon](#), toggled by shift+tab.*

### 6.2.1 Detailed Description

Useful GUI elements for PUN.



## Chapter 7

# Namespace Documentation

### 7.1 Package ExitGames

#### Namespaces

- package [Client](#)

### 7.2 Package ExitGames.Client

#### Namespaces

- package [GUI](#)
- package [Photon](#)

### 7.3 Package ExitGames.Client.GUI

#### Classes

- class [GizmoTypeDrawer](#)

#### Enumerations

- enum [GizmoType](#) { [GizmoType.WireSphere](#), [GizmoType.Sphere](#), [GizmoType.WireCube](#), [GizmoType.Cube](#) }

#### 7.3.1 Enumeration Type Documentation

##### 7.3.1.1 enum ExitGames.Client.GUI.GizmoType

#### Enumerator

***WireSphere***

***Sphere***

***WireCube***

***Cube***

## 7.4 Package ExitGames.Client.Photon

### Classes

- class [ActorProperties](#)  
*Class for constants. These (byte) values define "well known" properties for an Actor / Player. Pun uses these constants internally.*
- class **ErrorCode**  
*Class for constants. These (int) values represent error codes, as defined and sent by the [Photon](#) LoadBalancing logic. Pun uses these constants internally.*
- class [EventCode](#)  
*Class for constants. These values are for events defined by [Photon](#) Loadbalancing. Pun uses these constants internally.*
- class [GameProperties](#)  
*Class for constants. These (byte) values are for "well known" room/game properties used in [Photon](#) Loadbalancing. Pun uses these constants internally.*
- class **LoadbalancingPeer**  
*Internally used by PUN, a LoadbalancingPeer provides the operations and enum definitions needed to use the [Photon](#) Loadbalancing server (or the [Photon](#) Cloud).*
- class [OperationCode](#)  
*Class for constants. Contains operation codes. Pun uses these constants internally.*
- class [ParameterCode](#)  
*Class for constants. Codes for parameters of Operations and Events. Pun uses these constants internally.*

## 7.5 Package Photon

### Classes

- class [MonoBehaviour](#)  
*This class adds the property photonView, while logging a warning when your game still uses the networkView.*
- class [PunBehaviour](#)  
*This class provides a .photonView and all callbacks/events that PUN can call. Override the events/methods you want to use.*

### Typedefs

- using [Hashtable](#) = ExitGames.Client.Photon.Hashtable

### 7.5.1 Typedef Documentation

#### 7.5.1.1 using Photon.Hashtable = typedef ExitGames.Client.Photon.Hashtable

## Chapter 8

# Class Documentation

### 8.1 ExitGames.Client.Photon.ActorProperties Class Reference

Class for constants. These (byte) values define "well known" properties for an Actor / Player. Pun uses these constants internally.

#### Public Attributes

- const byte `PlayerName` = 255  
(255) Name of a player/actor.
- const byte `IsInactive` = 254  
(254) Tells you if the player is currently in this game (getting events live).

#### 8.1.1 Detailed Description

Class for constants. These (byte) values define "well known" properties for an Actor / Player. Pun uses these constants internally.

"Custom properties" have to use a string-type as key. They can be assigned at will.

#### 8.1.2 Member Data Documentation

##### 8.1.2.1 const byte ExitGames.Client.Photon.ActorProperties.IsInactive = 254

(254) Tells you if the player is currently in this game (getting events live).

A server-set value for async games, where players can leave the game and return later.

##### 8.1.2.2 const byte ExitGames.Client.Photon.ActorProperties.PlayerName = 255

(255) Name of a player/actor.

### 8.2 AuthenticationValues Class Reference

Container for "Custom Authentication" values in `Photon` (default: user and token). Set `AuthParameters` before connecting - all else is handled.

## Public Member Functions

- virtual void [SetAuthPostData](#) (string stringData)  
*Sets the data to be passed-on to the auth service via POST.*
- virtual void [SetAuthPostData](#) (byte[] byteData)  
*Sets the data to be passed-on to the auth service via POST.*
- virtual void [SetAuthParameters](#) (string user, string token)  
*Creates the default parameter string from a user and token value, escaping both. Alternatively set AuthParameters yourself.*
- override string [ToString](#) ()

## Public Attributes

- [CustomAuthenticationType](#) [AuthType](#) = [CustomAuthenticationType.Custom](#)  
*The type of custom authentication provider that should be used. Currently only "Custom" or "None" (turns this off).*
- string [AuthParameters](#)  
*This string must contain any (http get) parameters expected by the used authentication service. By default, username and token.*
- string [Secret](#)  
*After initial authentication, [Photon](#) provides a secret for this client / user, which is subsequently used as (cached) validation.*

## Properties

- object [AuthPostData](#) [get, set]  
*Data to be passed-on to the auth service via POST. Default: null (not sent). Either string or byte[] (see setters).*

### 8.2.1 Detailed Description

Container for "Custom Authentication" values in [Photon](#) (default: user and token). Set AuthParameters before connecting - all else is handled.

Custom Authentication lets you verify end-users by some kind of login or token. It sends those values to [Photon](#) which will verify them before granting access or disconnecting the client.

The [Photon](#) Cloud Dashboard will let you enable this feature and set important server values for it. <https://www.exitgames.com/dashboard>

### 8.2.2 Member Function Documentation

#### 8.2.2.1 virtual void AuthenticationValues.SetAuthParameters ( string user, string token ) [virtual]

Creates the default parameter string from a user and token value, escaping both. Alternatively set AuthParameters yourself.

The default parameter string is: "username={user}&token={token}"

#### Parameters

<i>user</i>	Name or other end-user ID used in custom authentication service.
<i>token</i>	Token provided by authentication service to be used on initial "login" to <a href="#">Photon</a> .

#### 8.2.2.2 virtual void AuthenticationValues.SetAuthPostData ( string stringData ) [virtual]

Sets the data to be passed-on to the auth service via POST.



## Parameters

<i>byteData</i>	Binary token / auth-data to pass on. Empty string will set AuthPostData to null.
-----------------	--

**8.2.2.3** virtual void AuthenticationValues.SetAuthPostData ( byte[] *byteData* ) [virtual]

Sets the data to be passed-on to the auth service via POST.

## Parameters

<i>byteData</i>	Binary token / auth-data to pass on.
-----------------	--------------------------------------

**8.2.2.4** override string AuthenticationValues.ToString ( )

## 8.2.3 Member Data Documentation

**8.2.3.1** string AuthenticationValues.AuthParameters

This string must contain any (http get) parameters expected by the used authentication service. By default, username and token.

Standard http get parameters are used here and passed on to the service that's defined in the server ([Photon](#) Cloud Dashboard).

**8.2.3.2** CustomAuthenticationType AuthenticationValues.AuthType = CustomAuthenticationType.Custom

The type of custom authentication provider that should be used. Currently only "Custom" or "None" (turns this off).

**8.2.3.3** string AuthenticationValues.Secret

After initial authentication, [Photon](#) provides a secret for this client / user, which is subsequently used as (cached) validation.

## 8.2.4 Property Documentation

**8.2.4.1** object AuthenticationValues.AuthPostData [get], [set]

Data to be passed-on to the auth service via POST. Default: null (not sent). Either string or byte[] (see setters).

## 8.3 ExitGames.Client.Photon.EventCode Class Reference

Class for constants. These values are for events defined by [Photon](#) Loadbalancing. Pun uses these constants internally.

### Public Attributes

- const byte [GameList](#) = 230  
(230) Initial list of RoomInfos (in lobby on Master)
- const byte [GameListUpdate](#) = 229  
(229) Update of RoomInfos to be merged into "initial" list (in lobby on Master)
- const byte [QueueState](#) = 228

- (228) Currently not used. State of queueing in case of server-full

  - const byte [Match](#) = 227

(227) Currently not used. Event for matchmaking
- const byte [AppStats](#) = 226

(226) Event with stats about this application (players, rooms, etc)
- const byte [TypedLobbyStats](#) = 224

(224) This event provides a list of lobbies with their player and game counts.
- const byte [AzureNodeInfo](#) = 210

(210) Internally used in case of hosting by Azure
- const byte [Join](#) = (byte)LiteEventCode.Join

(255) Event Join: someone joined the game. The new actorNumber is provided as well as the properties of that actor (if set in OpJoin).
- const byte [Leave](#) = (byte)LiteEventCode.Leave

(254) Event Leave: The player who left the game can be identified by the actorNumber.
- const byte [PropertiesChanged](#) = (byte)LiteEventCode.PropertiesChanged

(253) When you call OpSetProperties with the broadcast option "on", this event is fired. It contains the properties being set.
- const byte [SetProperties](#) = (byte)LiteEventCode.PropertiesChanged

(253) When you call OpSetProperties with the broadcast option "on", this event is fired. It contains the properties being set.

### 8.3.1 Detailed Description

Class for constants. These values are for events defined by [Photon](#) Loadbalancing. Pun uses these constants internally.

They start at 255 and go DOWN. Your own in-game events can start at 0.

### 8.3.2 Member Data Documentation

#### 8.3.2.1 const byte ExitGames.Client.Photon.EventCode.AppStats = 226

(226) Event with stats about this application (players, rooms, etc)

#### 8.3.2.2 const byte ExitGames.Client.Photon.EventCode.AzureNodeInfo = 210

(210) Internally used in case of hosting by Azure

#### 8.3.2.3 const byte ExitGames.Client.Photon.EventCode.GameList = 230

(230) Initial list of RoomInfos (in lobby on Master)

#### 8.3.2.4 const byte ExitGames.Client.Photon.EventCode.GameListUpdate = 229

(229) Update of RoomInfos to be merged into "initial" list (in lobby on Master)

#### 8.3.2.5 const byte ExitGames.Client.Photon.EventCode.Join = (byte)LiteEventCode.Join

(255) Event Join: someone joined the game. The new actorNumber is provided as well as the properties of that actor (if set in OpJoin).

8.3.2.6 `const byte ExitGames.Client.Photon.EventCode.Leave = (byte)LiteEventCode.Leave`

(254) Event Leave: The player who left the game can be identified by the actorNumber.

8.3.2.7 `const byte ExitGames.Client.Photon.EventCode.Match = 227`

(227) Currently not used. Event for matchmaking

8.3.2.8 `const byte ExitGames.Client.Photon.EventCode.PropertiesChanged = (byte)LiteEventCode.PropertiesChanged`

(253) When you call `OpSetProperties` with the broadcast option "on", this event is fired. It contains the properties being set.

8.3.2.9 `const byte ExitGames.Client.Photon.EventCode.QueueState = 228`

(228) Currently not used. State of queueing in case of server-full

8.3.2.10 `const byte ExitGames.Client.Photon.EventCode.SetProperties = (byte)LiteEventCode.PropertiesChanged`

(253) When you call `OpSetProperties` with the broadcast option "on", this event is fired. It contains the properties being set.

8.3.2.11 `const byte ExitGames.Client.Photon.EventCode.TypedLobbyStats = 224`

(224) This event provides a list of lobbies with their player and game counts.

## 8.4 Extensions Class Reference

This static class defines some useful extension methods for several existing classes (e.g. `Vector3`, `float` and others).

### Static Public Member Functions

- static `PhotonView[] GetPhotonViewsInChildren` (this `UnityEngine.GameObject` go)
- static `PhotonView GetPhotonView` (this `UnityEngine.GameObject` go)
- static bool `AlmostEquals` (this `Vector3` target, `Vector3` second, float `sqrMagnitudePrecision`)  
*compares the squared magnitude of target - second to given float value*
- static bool `AlmostEquals` (this `Vector2` target, `Vector2` second, float `sqrMagnitudePrecision`)  
*compares the squared magnitude of target - second to given float value*
- static bool `AlmostEquals` (this `Quaternion` target, `Quaternion` second, float `maxAngle`)  
*compares the angle between target and second to given float value*
- static bool `AlmostEquals` (this float target, float second, float `floatDiff`)  
*compares two floats and returns true if their difference is less than floatDiff*
- static void `Merge` (this `IDictionary` target, `IDictionary` addHash)  
*Merges all keys from addHash into the target. Adds new keys and updates the values of existing keys in target.*
- static void `MergeStringKeys` (this `IDictionary` target, `IDictionary` addHash)  
*Merges keys of type string to target Hashtable.*
- static string `ToStringFull` (this `IDictionary` origin)  
*Returns a string-representation of the IDictionary's content, including type-information. Note: This might turn out a "heavy-duty" call if used frequently but it's useful to debug Dictionary or Hashtable content.*

- static [Hashtable StripToStringKeys](#) (this IDictionary original)  
*This method copies all string-typed keys of the original into a new Hashtable.*
- static void [StripKeysWithNullValues](#) (this IDictionary original)  
*This removes all key-value pairs that have a null-reference as value. [Photon](#) properties are removed by setting their value to null. Changes the original passed IDictionary!*
- static bool [Contains](#) (this int[] target, int nr)  
*Checks if a particular integer value is in an int-array.*

### 8.4.1 Detailed Description

This static class defines some useful extension methods for several existing classes (e.g. Vector3, float and others).

### 8.4.2 Member Function Documentation

8.4.2.1 static bool Extensions.AlmostEquals ( this Vector3 *target*, Vector3 *second*, float *sqrMagnitudePrecision* )  
[static]

compares the squared magnitude of target - second to given float value

8.4.2.2 static bool Extensions.AlmostEquals ( this Vector2 *target*, Vector2 *second*, float *sqrMagnitudePrecision* )  
[static]

compares the squared magnitude of target - second to given float value

8.4.2.3 static bool Extensions.AlmostEquals ( this Quaternion *target*, Quaternion *second*, float *maxAngle* ) [static]

compares the angle between target and second to given float value

8.4.2.4 static bool Extensions.AlmostEquals ( this float *target*, float *second*, float *floatDiff* ) [static]

compares two floats and returns true if their difference is less than floatDiff

8.4.2.5 static bool Extensions.Contains ( this int[] *target*, int *nr* ) [static]

Checks if a particular integer value is in an int-array.

This might be useful to look up if a particular actorNumber is in the list of players of a room.

#### Parameters

<i>target</i>	The array of ints to check.
<i>nr</i>	The number to lookup in target.

#### Returns

True if nr was found in target.

8.4.2.6 static PhotonView Extensions.GetPhotonView ( this UnityEngine.GameObject *go* ) [static]

8.4.2.7 static PhotonView [] Extensions.GetPhotonViewsInChildren ( this UnityEngine.GameObject *go* ) [static]

8.4.2.8 static void Extensions.Merge ( this IDictionary *target*, IDictionary *addHash* ) [static]

Merges all keys from addHash into the target. Adds new keys and updates the values of existing keys in target.

## Parameters

<i>target</i>	The IDictionary to update.
<i>addHash</i>	The IDictionary containing data to merge into target.

8.4.2.9 static void Extensions.MergeStringKeys ( this IDictionary *target*, IDictionary *addHash* ) [static]

Merges keys of type string to target Hashtable.

Does not remove keys from target (so non-string keys CAN be in target if they were before).

## Parameters

<i>target</i>	The target IDictionary passed in plus all string-typed keys from the addHash.
<i>addHash</i>	A IDictionary that should be merged partly into target to update it.

8.4.2.10 static void Extensions.StripKeysWithNullValues ( this IDictionary *original* ) [static]

This removes all key-value pairs that have a null-reference as value. [Photon](#) properties are removed by setting their value to null. Changes the original passed IDictionary!

## Parameters

<i>original</i>	The IDictionary to strip of keys with null-values.
-----------------	--

8.4.2.11 static Hashtable Extensions.StripToStringKeys ( this IDictionary *original* ) [static]

This method copies all string-typed keys of the original into a new Hashtable.

Does not recurse (!) into hashes that might be values in the root-hash. This does not modify the original.

## Parameters

<i>original</i>	The original IDictionary to get string-typed keys from.
-----------------	---

## Returns

New Hashtable containing only string-typed keys of the original.

8.4.2.12 static string Extensions.ToStringFull ( this IDictionary *origin* ) [static]

Returns a string-representation of the IDictionary's content, including type-information. Note: This might turn out a "heavy-duty" call if used frequently but it's useful to debug Dictionary or Hashtable content.

## Parameters

<i>origin</i>	Some Dictionary or Hashtable.
---------------	-------------------------------

## Returns

String of the content of the IDictionary.

## 8.5 FriendInfo Class Reference

Used to store info about a friend's online state and in which room he/she is.

## Public Member Functions

- override string [ToString](#) ()

## Properties

- string [Name](#) [get, set]
- bool [IsOnline](#) [get, set]
- string [Room](#) [get, set]
- bool [IsInRoom](#) [get]

### 8.5.1 Detailed Description

Used to store info about a friend's online state and in which room he/she is.

### 8.5.2 Member Function Documentation

8.5.2.1 override string [FriendInfo.ToString](#) ( )

### 8.5.3 Property Documentation

8.5.3.1 bool [FriendInfo.IsInRoom](#) [get]

8.5.3.2 bool [FriendInfo.IsOnline](#) [get], [set]

8.5.3.3 string [FriendInfo.Name](#) [get], [set]

8.5.3.4 string [FriendInfo.Room](#) [get], [set]

## 8.6 GameObjectExtensions Class Reference

Small number of extension methods that make it easier for PUN to work cross-Unity-versions.

## Static Public Member Functions

- static bool [GetActive](#) (this [GameObject](#) target)  
*Unity-version-independent replacement for active GO property.*

### 8.6.1 Detailed Description

Small number of extension methods that make it easier for PUN to work cross-Unity-versions.

### 8.6.2 Member Function Documentation

8.6.2.1 static bool [GameObjectExtensions.GetActive](#) ( this [GameObject](#) *target* ) [static]

Unity-version-independent replacement for active GO property.

## Returns

Unity 3.5: active. Any newer Unity: [activeInHierarchy](#).

## 8.7 ExitGames.Client.Photon.GameProperties Class Reference

Class for constants. These (byte) values are for "well known" room/game properties used in [Photon](#) Loadbalancing. Pun uses these constants internally.

### Public Attributes

- const byte [MaxPlayers](#) = 255  
(255) Max number of players that "fit" into this room. 0 is for "unlimited".
- const byte [IsVisible](#) = 254  
(254) Makes this room listed or not in the lobby on master.
- const byte [IsOpen](#) = 253  
(253) Allows more players to join a room (or not).
- const byte [PlayerCount](#) = 252  
(252) Current count of players in the room. Used only in the lobby on master.
- const byte [Removed](#) = 251  
(251) True if the room is to be removed from room listing (used in update to room list in lobby on master)
- const byte [PropsListedInLobby](#) = 250  
(250) A list of the room properties to pass to the [RoomInfo](#) list in a lobby. This is used in [CreateRoom](#), which defines this list once per room.
- const byte [CleanupCacheOnLeave](#) = 249  
(249) Equivalent of Operation Join parameter CleanupCacheOnLeave.

### 8.7.1 Detailed Description

Class for constants. These (byte) values are for "well known" room/game properties used in [Photon](#) Loadbalancing. Pun uses these constants internally.

"Custom properties" have to use a string-type as key. They can be assigned at will.

### 8.7.2 Member Data Documentation

#### 8.7.2.1 const byte ExitGames.Client.Photon.GameProperties.CleanupCacheOnLeave = 249

(249) Equivalent of Operation Join parameter CleanupCacheOnLeave.

#### 8.7.2.2 const byte ExitGames.Client.Photon.GameProperties.IsOpen = 253

(253) Allows more players to join a room (or not).

#### 8.7.2.3 const byte ExitGames.Client.Photon.GameProperties.IsVisible = 254

(254) Makes this room listed or not in the lobby on master.

#### 8.7.2.4 const byte ExitGames.Client.Photon.GameProperties.MaxPlayers = 255

(255) Max number of players that "fit" into this room. 0 is for "unlimited".

#### 8.7.2.5 const byte ExitGames.Client.Photon.GameProperties.PlayerCount = 252

(252) Current count of players in the room. Used only in the lobby on master.



8.7.2.6 `const byte ExitGames.Client.Photon.GameProperties.PropsListedInLobby = 250`

(250) A list of the room properties to pass to the [RoomInfo](#) list in a lobby. This is used in `CreateRoom`, which defines this list once per room.

8.7.2.7 `const byte ExitGames.Client.Photon.GameProperties.Removed = 251`

(251) True if the room is to be removed from room listing (used in update to room list in lobby on master)

## 8.8 ExitGames.Client.GUI.GizmoTypeDrawer Class Reference

### Static Public Member Functions

- static void [Draw](#) (Vector3 center, [GizmoType](#) type, Color color, float size)

### 8.8.1 Member Function Documentation

8.8.1.1 `static void ExitGames.Client.GUI.GizmoTypeDrawer.Draw ( Vector3 center, GizmoType type, Color color, float size )`  
[static]

## 8.9 IPunCallbacks Interface Reference

Defines all the methods that PUN will call in specific situations, except `OnPhotonSerializeView`. Implemented by `PunBehaviour`.

Inherited by [Photon.PunBehaviour](#).

### Public Member Functions

- void [OnConnectedToPhoton](#) ()  
*Called when the initial connection got established but before you can use the server. [OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) are called when PUN is ready.*
- void [OnLeftRoom](#) ()  
*Called when the local user/client left a room.*
- void [OnMasterClientSwitched](#) ([PhotonPlayer](#) newMasterClient)  
*Called after switching to a new MasterClient when the current one leaves. The former already got removed from the player list.*
- void [OnPhotonCreateRoomFailed](#) (object[] codeAndMsg)  
*Called when a `CreateRoom()` call failed. The parameter provides ErrorCode and message (as array).*
- void [OnPhotonJoinRoomFailed](#) (object[] codeAndMsg)  
*Called when a `JoinRoom()` call failed. The parameter provides ErrorCode and message (as array).*
- void [OnCreatedRoom](#) ()  
*Called when this client created a room and entered it. [OnJoinedRoom\(\)](#) will be called as well.*
- void [OnJoinedLobby](#) ()  
*Called on entering a lobby on the Master Server. The actual room-list updates will call [OnReceivedRoomListUpdate\(\)](#).*
- void [OnLeftLobby](#) ()  
*Called after leaving a lobby.*
- void [OnFailedToConnectToPhoton](#) ([DisconnectCause](#) cause)  
*Called if a connect call to the [Photon](#) server failed before the connection was established, followed by a call to [OnDisconnectedFromPhoton\(\)](#).*
- void [OnConnectionFail](#) ([DisconnectCause](#) cause)

Called when something causes the connection to fail (after it was established), followed by a call to [OnDisconnectedFromPhoton\(\)](#).

- void [OnDisconnectedFromPhoton](#) ()

Called after disconnecting from the [Photon](#) server.

- void [OnPhotonInstantiate](#) ([PhotonMessageInfo](#) info)

Called on all scripts on a [GameObject](#) (and children) that have been Instantiated using [PhotonNetwork.Instantiate](#).

- void [OnReceivedRoomListUpdate](#) ()

Called for any update of the room listing (no matter if "new" list or "update for known" list). Only called in the Lobby state (on master server).

- void [OnJoinedRoom](#) ()

Called when entering a room (by creating or joining it). Called on all clients (including the Master Client).

- void [OnPhotonPlayerConnected](#) ([PhotonPlayer](#) newPlayer)

Called when a remote player entered the room. This [PhotonPlayer](#) is already added to the playlist at this time.

- void [OnPhotonPlayerDisconnected](#) ([PhotonPlayer](#) otherPlayer)

Called when a remote player left the room. This [PhotonPlayer](#) is already removed from the playlist at this time.

- void [OnPhotonRandomJoinFailed](#) (object[] codeAndMsg)

Called when a [JoinRandom\(\)](#) call failed. The parameter provides [ErrorCode](#) and message.

- void [OnConnectedToMaster](#) ()

Called after the connection to the master is established and authenticated but only when [PhotonNetwork.autoJoinLobby](#) is false.

- void [OnPhotonMaxCccuReached](#) ()

Because the concurrent user limit was (temporarily) reached, this client is rejected by the server and disconnecting.

- void [OnPhotonCustomRoomPropertiesChanged](#) ([Hashtable](#) propertiesThatChanged)

Called when a room's custom properties changed. The [propertiesThatChanged](#) contains all that was set via [Room.SetCustomProperties](#).

- void [OnPhotonPlayerPropertiesChanged](#) (object[] playerAndUpdatedProps)

Called when custom player-properties are changed. Player and the changed properties are passed as [object\[\]](#).

- void [OnUpdatedFriendList](#) ()

Called when the server sent the response to a [FindFriends](#) request and updated [PhotonNetwork.Friends](#).

- void [OnCustomAuthenticationFailed](#) (string debugMessage)

Called when the custom authentication failed. Followed by disconnect!

- void [OnWebRpcResponse](#) ([OperationResponse](#) response)

Called by PUN when the response to a [WebRPC](#) is available. See [PhotonNetwork.WebRPC](#).

- void [OnOwnershipRequest](#) (object[] viewAndPlayer)

Called when another player requests ownership of a [PhotonView](#) from you (the current owner).

### 8.9.1 Detailed Description

Defines all the methods that PUN will call in specific situations, except [OnPhotonSerializeView](#). Implemented by [PunBehaviour](#).

PUN will call these methods on any script that implements them, analog to Unity's events and callbacks. The situation that triggers the call is described per method.

Please simply extend [PunBehaviour](#) to implement individual methods.

[OnPhotonSerializeView](#) is NOT called like these callbacks! It's usage frequency is much higher and it is implemented in: [IPunObservable](#).

## 8.9.2 Member Function Documentation

### 8.9.2.1 void IPunCallbacks.OnConnectedToMaster ( )

Called after the connection to the master is established and authenticated but only when [PhotonNetwork.autoJoinLobby](#) is false.

If you set [PhotonNetwork.autoJoinLobby](#) to true, [OnJoinedLobby\(\)](#) will be called instead of this.

You can join rooms and create them even without being in a lobby. The default lobby is used in that case. The list of available rooms won't become available unless you join a lobby via [PhotonNetwork.joinLobby](#).

Implemented in [Photon.PunBehaviour](#).

### 8.9.2.2 void IPunCallbacks.OnConnectedToPhoton ( )

Called when the initial connection got established but before you can use the server. [OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) are called when PUN is ready.

This callback is only useful to detect if the server can be reached at all (technically). Most often, it's enough to implement [OnFailedToConnectToPhoton\(\)](#) and [OnDisconnectedFromPhoton\(\)](#).

*[OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) are called when PUN is ready.*

When this is called, the low level connection is established and PUN will send your AppId, the user, etc in the background. This is not called for transitions from the master server to game servers.

Implemented in [Photon.PunBehaviour](#).

### 8.9.2.3 void IPunCallbacks.OnConnectionFail ( DisconnectCause cause )

Called when something causes the connection to fail (after it was established), followed by a call to [OnDisconnectedFromPhoton\(\)](#).

If the server could not be reached in the first place, [OnFailedToConnectToPhoton](#) is called instead. The reason for the error is provided as [DisconnectCause](#).

Implemented in [Photon.PunBehaviour](#).

### 8.9.2.4 void IPunCallbacks.OnCreatedRoom ( )

Called when this client created a room and entered it. [OnJoinedRoom\(\)](#) will be called as well.

This callback is only called on the client which created a room (see [PhotonNetwork.CreateRoom](#)).

As any client might close (or drop connection) anytime, there is a chance that the creator of a room does not execute [OnCreatedRoom](#).

If you need specific room properties or a "start signal", it is safer to implement [OnMasterClientSwitched\(\)](#) and to make the new MasterClient check the room's state.

Implemented in [Photon.PunBehaviour](#).

### 8.9.2.5 void IPunCallbacks.OnCustomAuthenticationFailed ( string debugMessage )

Called when the custom authentication failed. Followed by disconnect!

Custom Authentication can fail due to user-input, bad tokens/secrets. If authentication is successful, this method is not called. Implement [OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) (as usual).

During development of a game, it might also fail due to wrong configuration on the server side. In those cases, logging the [debugMessage](#) is very important.

Unless you setup a custom authentication service for your app (in the [Dashboard](#)), this won't be called!

## Parameters

<i>debugMessage</i>	Contains a debug message why authentication failed. This has to be fixed during development time.
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Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.6 void IPunCallbacks.OnDisconnectedFromPhoton ( )

Called after disconnecting from the [Photon](#) server.

In some cases, other callbacks are called before OnDisconnectedFromPhoton is called. Examples: [OnConnectionFail\(\)](#) and [OnFailedToConnectToPhoton\(\)](#).

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.7 void IPunCallbacks.OnFailedToConnectToPhoton ( DisconnectCause cause )

Called if a connect call to the [Photon](#) server failed before the connection was established, followed by a call to [OnDisconnectedFromPhoton\(\)](#).

This is called when no connection could be established at all. It differs from OnConnectionFail, which is called when an existing connection fails.

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.8 void IPunCallbacks.OnJoinedLobby ( )

Called on entering a lobby on the Master Server. The actual room-list updates will call [OnReceivedRoomListUpdate\(\)](#).

Note: When [PhotonNetwork.autoJoinLobby](#) is false, [OnConnectedToMaster\(\)](#) will be called and the room list won't become available.

While in the lobby, the roomlist is automatically updated in fixed intervals (which you can't modify).

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.9 void IPunCallbacks.OnJoinedRoom ( )

Called when entering a room (by creating or joining it). Called on all clients (including the Master Client).

This method is commonly used to instantiate player characters. If a match has to be started "actively", you can call an [RPC](#) triggered by a user's button-press or a timer.

When this is called, you can usually already access the existing players in the room via [PhotonNetwork.playerList](#). Also, all custom properties should be already available as [Room.customProperties](#). Check [Room.playerCount](#) to find out if enough players are in the room to start playing.

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.10 void IPunCallbacks.OnLeftLobby ( )

Called after leaving a lobby.

When you leave a lobby, [CreateRoom](#) and [JoinRandomRoom](#) automatically refer to the default lobby.

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.11 void IPunCallbacks.OnLeftRoom ( )

Called when the local user/client left a room.

When leaving a room, PUN brings you back to the Master Server. Before you can use lobbies and join or create rooms, [OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) will get called again.

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.12 void IPunCallbacks.OnMasterClientSwitched ( PhotonPlayer newMasterClient )

Called after switching to a new MasterClient when the current one leaves. The former already got removed from the player list.

This is not called when this client enters a room.

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.13 void IPunCallbacks.OnOwnershipRequest ( object[] viewAndPlayer )

Called when another player requests ownership of a [PhotonView](#) from you (the current owner).

The parameter viewAndPlayer contains:

[PhotonView](#) view = viewAndPlayer[0] as [PhotonView](#);

[PhotonPlayer](#) requestingPlayer = viewAndPlayer[1] as [PhotonPlayer](#);

Parameters

<i>viewAndPlayer</i>	The <a href="#">PhotonView</a> is viewAndPlayer[0] and the requesting player is viewAndPlayer[1].
----------------------	---

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.14 void IPunCallbacks.OnPhotonCreateRoomFailed ( object[] codeAndMsg )

Called when a CreateRoom() call failed. The parameter provides ErrorCode and message (as array).

Most likely because the room name is already in use (some other client was faster than you). PUN logs some info if the [PhotonNetwork.logLevel](#) is  $\geq$  PhotonLogLevel.Informational.

Parameters

<i>codeAndMsg</i>	codeAndMsg[0] is an integer ErrorCode and codeAndMsg[1] is a string debug msg.
-------------------	--

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.15 void IPunCallbacks.OnPhotonCustomRoomPropertiesChanged ( Hashtable propertiesThatChanged )

Called when a room's custom properties changed. The propertiesThatChanged contains all that was set via [Room.SetCustomProperties](#).

Since v1.25 this method has one parameter: Hashtable propertiesThatChanged.

Changing properties must be done by [Room.SetCustomProperties](#), which causes this callback locally, too.

Parameters

<i>propertiesThatChanged</i>	
------------------------------	--

Implemented in [Photon.PunBehaviour](#).

**8.9.2.16 void IPunCallbacks.OnPhotonInstantiate ( PhotonMessageInfo info )**

Called on all scripts on a GameObject (and children) that have been Instantiated using [PhotonNetwork.Instantiate](#). [PhotonMessageInfo](#) parameter provides info about who created the object and when (based off PhotonNetworking.time).

Implemented in [Photon.PunBehaviour](#).

**8.9.2.17 void IPunCallbacks.OnPhotonJoinRoomFailed ( object[] codeAndMsg )**

Called when a JoinRoom() call failed. The parameter provides ErrorCode and message (as array).

Most likely error is that the room does not exist or the room is full (some other client was faster than you). PUN logs some info if the [PhotonNetwork.logLevel](#) is  $\geq$  PhotonLogLevel.Informational.

Parameters

<i>codeAndMsg</i>	<i>codeAndMsg</i> [0] is int ErrorCode. <i>codeAndMsg</i> [1] is string debug msg.
-------------------	--

Implemented in [Photon.PunBehaviour](#).

**8.9.2.18 void IPunCallbacks.OnPhotonMaxCcuReached ( )**

Because the concurrent user limit was (temporarily) reached, this client is rejected by the server and disconnecting.

When this happens, the user might try again later. You can't create or join rooms in OnPhotonMaxCcuReached(), cause the client will be disconnecting. You can raise the CCU limits with a new license (when you host yourself) or extended subscription (when using the [Photon](#) Cloud). The [Photon](#) Cloud will mail you when the CCU limit was reached. This is also visible in the Dashboard (webpage).

Implemented in [Photon.PunBehaviour](#).

**8.9.2.19 void IPunCallbacks.OnPhotonPlayerConnected ( PhotonPlayer newPlayer )**

Called when a remote player entered the room. This [PhotonPlayer](#) is already added to the playerlist at this time.

If your game starts with a certain number of players, this callback can be useful to check the [Room.playerCount](#) and find out if you can start.

Implemented in [Photon.PunBehaviour](#).

**8.9.2.20 void IPunCallbacks.OnPhotonPlayerDisconnected ( PhotonPlayer otherPlayer )**

Called when a remote player left the room. This [PhotonPlayer](#) is already removed from the playerlist at this time.

When your client calls PhotonNetwork.leaveRoom, PUN will call this method on the remaining clients. When a remote client drops connection or gets closed, this callback gets executed. after a timeout of several seconds.

Implemented in [Photon.PunBehaviour](#).

**8.9.2.21 void IPunCallbacks.OnPhotonPlayerPropertiesChanged ( object[] playerAndUpdatedProps )**

Called when custom player-properties are changed. Player and the changed properties are passed as object[].

Since v1.25 this method has one parameter: object[] playerAndUpdatedProps, which contains two entries.

[0] is the affected [PhotonPlayer](#).

[1] is the Hashtable of properties that changed.

We are using a `object[]` due to limitations of Unity's `GameObject.SendMessage` (which has only one optional parameter).

Changing properties must be done by [PhotonPlayer.SetCustomProperties](#), which causes this callback locally, too.

Example:

```
void OnPhotonPlayerPropertiesChanged(object[] playerAndUpdatedProps) {
    PhotonPlayer player = playerAndUpdatedProps[0] as PhotonPlayer;
    Hashtable props = playerAndUpdatedProps[1] as Hashtable;
    //...
}
```

#### Parameters

<i>playerAndUpdatedProps</i>	Contains <a href="#">PhotonPlayer</a> and the properties that changed See remarks.
------------------------------	--

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.22 void IPunCallbacks.OnPhotonRandomJoinFailed ( object[] codeAndMsg )

Called when a `JoinRandom()` call failed. The parameter provides `ErrorCode` and message.

Most likely all rooms are full or no rooms are available.

When using multiple lobbies (via `JoinLobby` or [TypedLobby](#)), another lobby might have more/fitting rooms.

PUN logs some info if the [PhotonNetwork.logLevel](#) is `>= PhotonLogLevel.Informational`.

#### Parameters

<i>codeAndMsg</i>	<code>codeAndMsg[0]</code> is <code>int ErrorCode</code> . <code>codeAndMsg[1]</code> is string debug msg.
-------------------	--

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.23 void IPunCallbacks.OnReceivedRoomListUpdate ( )

Called for any update of the room listing (no matter if "new" list or "update for known" list). Only called in the Lobby state (on master server).

Not all types of lobbies provide a listing of rooms to the client. Some are silent and specialized for server-side matchmaking.

PUN provides the list of rooms by [PhotonNetwork.GetRoomList\(\)](#).

Each item is a [RoomInfo](#) which might include custom properties (provided you defined those as lobby-listed when creating a room).

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.24 void IPunCallbacks.OnUpdatedFriendList ( )

Called when the server sent the response to a `FindFriends` request and updated [PhotonNetwork.Friends](#).

The friends list is available as [PhotonNetwork.Friends](#), listing name, online state and the room a user is in (if any).

Implemented in [Photon.PunBehaviour](#).

#### 8.9.2.25 void IPunCallbacks.OnWebRpcResponse ( OperationResponse response )

Called by PUN when the response to a WebRPC is available. See [PhotonNetwork.WebRPC](#).

Important: The `response.ReturnCode` is 0 if [Photon](#) was able to reach your web-service. The content of the response is what your web-service sent. You can create a `WebResponse` instance from it. Example: [WebRpcResponse](#) `webResponse = new WebRpcResponse(operationResponse);`



Please note: Class `OperationResponse` is in a namespace which needs to be "used": using `ExitGames.Client.Photon`; // includes `OperationResponse` (and other classes)

The `OperationResponse.ReturnCode` by `Photon` is:

```
0 for "OK"
-3 for "Web-Service not configured" (see Dashboard / WebHooks)
-5 for "Web-Service does now have RPC path/name" (at least for Azure)
```

Implemented in `Photon.PunBehaviour`.

## 8.10 IPunObservable Interface Reference

Defines the `OnPhotonSerializeView` method to make it easy to implement correctly for observable scripts.

### Public Member Functions

- void `OnPhotonSerializeView` (`PhotonStream` stream, `PhotonMessageInfo` info)  
*Called by PUN several times per second, so that your script can write and read synchronization data for the `PhotonView`.*

#### 8.10.1 Detailed Description

Defines the `OnPhotonSerializeView` method to make it easy to implement correctly for observable scripts.

## 8.11 Photon.MonoBehaviour Class Reference

This class adds the property `photonView`, while logging a warning when your game still uses the `networkView`.

Inherits `MonoBehaviour`.

Inherited by `Photon.PunBehaviour`, `PhotonHandler`, and `PhotonView`.

### Properties

- `PhotonView photonView` [get]
- new `PhotonView networkView` [get]

#### 8.11.1 Detailed Description

This class adds the property `photonView`, while logging a warning when your game still uses the `networkView`.

#### 8.11.2 Property Documentation

8.11.2.1 new `PhotonView Photon.MonoBehaviour.networkView` [get]

8.11.2.2 `PhotonView Photon.MonoBehaviour.photonView` [get]

## 8.12 ExitGames.Client.Photon.OperationCode Class Reference

Class for constants. Contains operation codes. Pun uses these constants internally.

## Public Attributes

- const byte [Authenticate](#) = 230  
(230) Authenticates this peer and connects to a virtual application
- const byte [JoinLobby](#) = 229  
(229) Joins lobby (on master)
- const byte [LeaveLobby](#) = 228  
(228) Leaves lobby (on master)
- const byte [CreateGame](#) = 227  
(227) Creates a game (or fails if name exists)
- const byte [JoinGame](#) = 226  
(226) Join game (by name)
- const byte [JoinRandomGame](#) = 225  
(225) Joins random game (on master)
- const byte [Leave](#) = (byte)LiteOpCode.Leave  
(254) Code for OpLeave, to get out of a room.
- const byte [RaiseEvent](#) = (byte)LiteOpCode.RaiseEvent  
(253) Raise event (in a room, for other actors/players)
- const byte [SetProperties](#) = (byte)LiteOpCode.SetProperties  
(252) Set Properties (of room or actor/player)
- const byte [GetProperties](#) = (byte)LiteOpCode.GetProperties  
(251) Get Properties
- const byte [ChangeGroups](#) = (byte)LiteOpCode.ChangeGroups  
(248) Operation code to change interest groups in Rooms (Lite application and extending ones).
- const byte [FindFriends](#) = 222  
(222) Request the rooms and online status for a list of friends (by name, which should be unique).
- const byte [GetLobbyStats](#) = 221  
(221) Request statistics about a specific list of lobbies (their user and game count).
- const byte [GetRegions](#) = 220  
(220) Get list of regional servers from a NameServer.
- const byte [WebRpc](#) = 219  
(219) WebRpc Operation.

### 8.12.1 Detailed Description

Class for constants. Contains operation codes. Pun uses these constants internally.

### 8.12.2 Member Data Documentation

#### 8.12.2.1 const byte ExitGames.Client.Photon.OperationCode.Authenticate = 230

(230) Authenticates this peer and connects to a virtual application

#### 8.12.2.2 const byte ExitGames.Client.Photon.OperationCode.ChangeGroups = (byte)LiteOpCode.ChangeGroups

(248) Operation code to change interest groups in Rooms (Lite application and extending ones).

#### 8.12.2.3 const byte ExitGames.Client.Photon.OperationCode.CreateGame = 227

(227) Creates a game (or fails if name exists)

8.12.2.4 `const byte ExitGames.Client.Photon.OperationCode.FindFriends = 222`

(222) Request the rooms and online status for a list of friends (by name, which should be unique).

8.12.2.5 `const byte ExitGames.Client.Photon.OperationCode.GetLobbyStats = 221`

(221) Request statistics about a specific list of lobbies (their user and game count).

8.12.2.6 `const byte ExitGames.Client.Photon.OperationCode.GetProperties = (byte)LiteOpCode.GetProperties`

(251) Get Properties

8.12.2.7 `const byte ExitGames.Client.Photon.OperationCode.GetRegions = 220`

(220) Get list of regional servers from a NameServer.

8.12.2.8 `const byte ExitGames.Client.Photon.OperationCode.JoinGame = 226`

(226) Join game (by name)

8.12.2.9 `const byte ExitGames.Client.Photon.OperationCode.JoinLobby = 229`

(229) Joins lobby (on master)

8.12.2.10 `const byte ExitGames.Client.Photon.OperationCode.JoinRandomGame = 225`

(225) Joins random game (on master)

8.12.2.11 `const byte ExitGames.Client.Photon.OperationCode.Leave = (byte)LiteOpCode.Leave`

(254) Code for OpLeave, to get out of a room.

8.12.2.12 `const byte ExitGames.Client.Photon.OperationCode.LeaveLobby = 228`

(228) Leaves lobby (on master)

8.12.2.13 `const byte ExitGames.Client.Photon.OperationCode.RaiseEvent = (byte)LiteOpCode.RaiseEvent`

(253) Raise event (in a room, for other actors/players)

8.12.2.14 `const byte ExitGames.Client.Photon.OperationCode.SetProperties = (byte)LiteOpCode.SetProperties`

(252) Set Properties (of room or actor/player)

8.12.2.15 `const byte ExitGames.Client.Photon.OperationCode.WebRpc = 219`

(219) WebRpc Operation.

## 8.13 ExitGames.Client.Photon.ParameterCode Class Reference

Class for constants. Codes for parameters of Operations and Events. Pun uses these constants internally.

### Public Attributes

- const byte [SuppressRoomEvents](#) = 237  
(237) Optional parameter to suppress events Join and Leave for a room (which might be used as lobby/chat room then).
- const byte [EventForward](#) = 234  
(234) Optional parameter of OpRaiseEvent to forward the event to some web-service.
- const byte [IsInactive](#) = (byte)233  
(233) Used in EvLeave to describe if a user is inactive (and might come back) or not. In async / Turnbased games, inactive is default.
- const byte [CheckUserOnJoin](#) = (byte)232  
(232) Used when creating rooms to define if any userid can join the room only once.
- const byte [ExpectedValues](#) = (byte)231  
(231) Code for "Check And Swap" (CAS) when changing properties.
- const byte [Address](#) = 230  
(230) Address of a (game) server to use.
- const byte [PeerCount](#) = 229  
(229) Count of players in rooms (connected to game servers for this application, used in stats event)
- const byte [GameCount](#) = 228  
(228) Count of games in this application (used in stats event)
- const byte [MasterPeerCount](#) = 227  
(227) Count of players on the master server (connected to master server for this application, looking for games, used in stats event)
- const byte [UserId](#) = 225  
(225) User's ID
- const byte [ApplicationId](#) = 224  
(224) Your application's ID: a name on your own [Photon](#) or a GUID on the [Photon](#) Cloud
- const byte [Position](#) = 223  
(223) Not used (as "Position" currently). If you get queued before connect, this is your position
- const byte [MatchMakingType](#) = 223  
(223) Modifies the matchmaking algorithm used for OpJoinRandom. Allowed parameter values are defined in enum MatchmakingMode.
- const byte [GameList](#) = 222  
(222) List of RoomInfos about open / listed rooms
- const byte [Secret](#) = 221  
(221) Internally used to establish encryption
- const byte [AppVersion](#) = 220  
(220) Version of your application
- const byte [RoomName](#) = (byte)LiteOpKey.GameId  
(255) Code for the gameId/roomName (a unique name per room). Used in OpJoin and similar.
- const byte [Broadcast](#) = (byte)LiteOpKey.Broadcast  
(250) Code for broadcast parameter of OpSetProperties method.
- const byte [ActorList](#) = (byte)LiteOpKey.ActorList  
(252) Code for list of players in a room. Currently not used.
- const byte [ActorNr](#) = (byte)LiteOpKey.ActorNr  
(254) Code of the Actor of an operation. Used for property get and set.
- const byte [PlayerProperties](#) = (byte)LiteOpKey.ActorProperties

- (249) Code for property set (Hashtable).

  - const byte [CustomEventContent](#) = (byte)LiteOpKey.Data

(245) Code of data/custom content of an event. Used in *OpRaiseEvent*.
- const byte [Data](#) = (byte)LiteOpKey.Data

(245) Code of data of an event. Used in *OpRaiseEvent*.
- const byte [Code](#) = (byte)LiteOpKey.Code

(244) Code used when sending some code-related parameter, like *OpRaiseEvent*'s event-code.
- const byte [GameProperties](#) = (byte)LiteOpKey.GameProperties

(248) Code for property set (Hashtable).
- const byte [Properties](#) = (byte)LiteOpKey.Properties

(251) Code for property-set (Hashtable). This key is used when sending only one set of properties. If either [Actor→Properties](#) or [GameProperties](#) are used (or both), check those keys.
- const byte [TargetActorNr](#) = (byte)LiteOpKey.TargetActorNr

(253) Code of the target Actor of an operation. Used for property set. Is 0 for game
- const byte [ReceiverGroup](#) = (byte)LiteOpKey.ReceiverGroup

(246) Code to select the receivers of events (used in Lite, Operation *RaiseEvent*).
- const byte [Cache](#) = (byte)LiteOpKey.Cache

(247) Code for caching events while raising them.
- const byte [CleanupCacheOnLeave](#) = (byte)241

(241) Bool parameter of *CreateGame* Operation. If true, server cleans up roomcache of leaving players (their cached events get removed).
- const byte [Group](#) = LiteOpKey.Group

(240) Code for "group" operation-parameter (as used in *Op RaiseEvent*).
- const byte [Remove](#) = LiteOpKey.Remove

(239) The "Remove" operation-parameter can be used to remove something from a list. E.g. remove groups from player's interest groups.
- const byte [Add](#) = LiteOpKey.Add

(238) The "Add" operation-parameter can be used to add something to some list or set. E.g. add groups to player's interest groups.
- const byte [EmptyRoomTTL](#) = 236

(236) Time To Live (TTL) for a room when the last player leaves. Keeps room in memory for case a player re-joins soon. In milliseconds.
- const byte [PlayerTTL](#) = 235

(235) Time To Live (TTL) for an 'actor' in a room. If a client disconnects, this actor is inactive first and removed after this timeout. In milliseconds.
- const byte [ClientAuthenticationType](#) = 217

(217) This key's (byte) value defines the target custom authentication type/service the client connects with. Used in *OpAuthenticate*
- const byte [ClientAuthenticationParams](#) = 216

(216) This key's (string) value provides parameters sent to the custom authentication type/service the client connects with. Used in *OpAuthenticate*
- const byte [CreateIfNotExists](#) = 215

(215) Makes the server create a room if it doesn't exist. *OpJoin* uses this to always enter a room, unless it exists and is full/closed.
- const byte [JoinMode](#) = 215

(215) The *JoinMode* enum defines which variant of joining a room will be executed: Join only if available, create if not exists or re-join.
- const byte [ClientAuthenticationData](#) = 214

(214) This key's (string or byte[]) value provides parameters sent to the custom authentication service setup in [Photon Dashboard](#). Used in *OpAuthenticate*
- const byte [LobbyName](#) = (byte)213

(213) Used in matchmaking-related methods and when creating a room to name a lobby (to join or to attach a room to).

- const byte [LobbyType](#) = (byte)212  
(212) Used in matchmaking-related methods and when creating a room to define the type of a lobby. Combined with the lobby name this identifies the lobby.
- const byte [LobbyStats](#) = (byte)211  
(211) This (optional) parameter can be sent in Op Authenticate to turn on Lobby Stats (info about lobby names and their user- and game-counts). See: [PhotonNetwork.Lobbies](#)
- const byte [Region](#) = (byte)210  
(210) Used for region values in OpAuth and OpGetRegions.
- const byte [UriPath](#) = 209  
(209) Path of the WebRPC that got called. Also known as "WebRpc Name". Type: string.
- const byte [WebRpcParameters](#) = 208  
(208) Parameters for a WebRPC as: Dictionary<string, object>. This will get serialized to JSON.
- const byte [WebRpcReturnCode](#) = 207  
(207) ReturnCode for the WebRPC, as sent by the web service (not by [Photon](#), which uses ErrorCode). Type: byte.
- const byte [WebRpcReturnMessage](#) = 206  
(206) Message returned by WebRPC server. Analog to [Photon](#)'s debug message. Type: string.
- const byte [FindFriendsRequestList](#) = (byte)1  
(1) Used in Op FindFriends request. Value must be string[] of friends to look up.
- const byte [FindFriendsResponseOnlineList](#) = (byte)1  
(1) Used in Op FindFriends response. Contains bool[] list of online states (false if not online).
- const byte [FindFriendsResponseRoomIdList](#) = (byte)2  
(2) Used in Op FindFriends response. Contains string[] of room names ("" where not known or no room joined).

### 8.13.1 Detailed Description

Class for constants. Codes for parameters of Operations and Events. Pun uses these constants internally.

### 8.13.2 Member Data Documentation

#### 8.13.2.1 const byte ExitGames.Client.Photon.ParameterCode.ActorList = (byte)LiteOpKey.ActorList

(252) Code for list of players in a room. Currently not used.

#### 8.13.2.2 const byte ExitGames.Client.Photon.ParameterCode.ActorNr = (byte)LiteOpKey.ActorNr

(254) Code of the Actor of an operation. Used for property get and set.

#### 8.13.2.3 const byte ExitGames.Client.Photon.ParameterCode.Add = LiteOpKey.Add

(238) The "Add" operation-parameter can be used to add something to some list or set. E.g. add groups to player's interest groups.

#### 8.13.2.4 const byte ExitGames.Client.Photon.ParameterCode.Address = 230

(230) Address of a (game) server to use.

#### 8.13.2.5 const byte ExitGames.Client.Photon.ParameterCode.ApplicationId = 224

(224) Your application's ID: a name on your own [Photon](#) or a GUID on the [Photon](#) Cloud

8.13.2.6 `const byte ExitGames.Client.Photon.ParameterCode.AppVersion = 220`

(220) Version of your application

8.13.2.7 `const byte ExitGames.Client.Photon.ParameterCode.Broadcast = (byte)LiteOpKey.Broadcast`

(250) Code for broadcast parameter of OpSetProperties method.

8.13.2.8 `const byte ExitGames.Client.Photon.ParameterCode.Cache = (byte)LiteOpKey.Cache`

(247) Code for caching events while raising them.

8.13.2.9 `const byte ExitGames.Client.Photon.ParameterCode.CheckUserOnJoin = (byte)232`

(232) Used when creating rooms to define if any userid can join the room only once.

8.13.2.10 `const byte ExitGames.Client.Photon.ParameterCode.CleanupCacheOnLeave = (byte)241`

(241) Bool parameter of CreateGame Operation. If true, server cleans up roomcache of leaving players (their cached events get removed).

8.13.2.11 `const byte ExitGames.Client.Photon.ParameterCode.ClientAuthenticationData = 214`

(214) This key's (string or byte[]) value provides parameters sent to the custom authentication service setup in [Photon](#) Dashboard. Used in OpAuthenticate

8.13.2.12 `const byte ExitGames.Client.Photon.ParameterCode.ClientAuthenticationParams = 216`

(216) This key's (string) value provides parameters sent to the custom authentication type/service the client connects with. Used in OpAuthenticate

8.13.2.13 `const byte ExitGames.Client.Photon.ParameterCode.ClientAuthenticationType = 217`

(217) This key's (byte) value defines the target custom authentication type/service the client connects with. Used in OpAuthenticate

8.13.2.14 `const byte ExitGames.Client.Photon.ParameterCode.Code = (byte)LiteOpKey.Code`

(244) Code used when sending some code-related parameter, like OpRaiseEvent's event-code.

This is not the same as the Operation's code, which is no longer sent as part of the parameter Dictionary in [Photon](#) 3.

8.13.2.15 `const byte ExitGames.Client.Photon.ParameterCode.CreateIfNotExists = 215`

(215) Makes the server create a room if it doesn't exist. OpJoin uses this to always enter a room, unless it exists and is full/closed.

8.13.2.16 `const byte ExitGames.Client.Photon.ParameterCode.CustomEventContent = (byte)LiteOpKey.Data`

(245) Code of data/custom content of an event. Used in OpRaiseEvent.

**8.13.2.17** `const byte ExitGames.Client.Photon.ParameterCode.Data = (byte)LiteOpKey.Data`

(245) Code of data of an event. Used in OpRaiseEvent.

**8.13.2.18** `const byte ExitGames.Client.Photon.ParameterCode.EmptyRoomTTL = 236`

(236) Time To Live (TTL) for a room when the last player leaves. Keeps room in memory for case a player re-joins soon. In milliseconds.

**8.13.2.19** `const byte ExitGames.Client.Photon.ParameterCode.EventForward = 234`

(234) Optional parameter of OpRaiseEvent to forward the event to some web-service.

**8.13.2.20** `const byte ExitGames.Client.Photon.ParameterCode.ExpectedValues = (byte)231`

(231) Code for "Check And Swap" (CAS) when changing properties.

**8.13.2.21** `const byte ExitGames.Client.Photon.ParameterCode.FindFriendsRequestList = (byte)1`

(1) Used in Op FindFriends request. Value must be string[] of friends to look up.

**8.13.2.22** `const byte ExitGames.Client.Photon.ParameterCode.FindFriendsResponseOnlineList = (byte)1`

(1) Used in Op FindFriends response. Contains bool[] list of online states (false if not online).

**8.13.2.23** `const byte ExitGames.Client.Photon.ParameterCode.FindFriendsResponseRoomIdList = (byte)2`

(2) Used in Op FindFriends response. Contains string[] of room names ("" where not known or no room joined).

**8.13.2.24** `const byte ExitGames.Client.Photon.ParameterCode.GameCount = 228`

(228) Count of games in this application (used in stats event)

**8.13.2.25** `const byte ExitGames.Client.Photon.ParameterCode.GameList = 222`

(222) List of RoomInfos about open / listed rooms

**8.13.2.26** `const byte ExitGames.Client.Photon.ParameterCode.GameProperties = (byte)LiteOpKey.GameProperties`

(248) Code for property set (Hashtable).

**8.13.2.27** `const byte ExitGames.Client.Photon.ParameterCode.Group = LiteOpKey.Group`

(240) Code for "group" operation-parameter (as used in Op RaiseEvent).

**8.13.2.28** `const byte ExitGames.Client.Photon.ParameterCode.IsInactive = (byte)233`

(233) Used in EvLeave to describe if a user is inactive (and might come back) or not. In async / Turnbased games, inactive is default.



**8.13.2.29 const byte ExitGames.Client.Photon.ParameterCode.JoinMode = 215**

(215) The JoinMode enum defines which variant of joining a room will be executed: Join only if available, create if not exists or re-join.

Replaces CreateIfNotExists which was only a bool-value.

**8.13.2.30 const byte ExitGames.Client.Photon.ParameterCode.LobbyName = (byte)213**

(213) Used in matchmaking-related methods and when creating a room to name a lobby (to join or to attach a room to).

**8.13.2.31 const byte ExitGames.Client.Photon.ParameterCode.LobbyStats = (byte)211**

(211) This (optional) parameter can be sent in Op Authenticate to turn on Lobby Stats (info about lobby names and their user- and game-counts). See: PhotonNetwork.Lobbies

**8.13.2.32 const byte ExitGames.Client.Photon.ParameterCode.LobbyType = (byte)212**

(212) Used in matchmaking-related methods and when creating a room to define the type of a lobby. Combined with the lobby name this identifies the lobby.

**8.13.2.33 const byte ExitGames.Client.Photon.ParameterCode.MasterPeerCount = 227**

(227) Count of players on the master server (connected to master server for this application, looking for games, used in stats event)

**8.13.2.34 const byte ExitGames.Client.Photon.ParameterCode.MatchMakingType = 223**

(223) Modifies the matchmaking algorithm used for OpJoinRandom. Allowed parameter values are defined in enum MatchmakingMode.

**8.13.2.35 const byte ExitGames.Client.Photon.ParameterCode.PeerCount = 229**

(229) Count of players in rooms (connected to game servers for this application, used in stats event)

**8.13.2.36 const byte ExitGames.Client.Photon.ParameterCode.PlayerProperties = (byte)LiteOpKey.ActorProperties**

(249) Code for property set (Hashtable).

**8.13.2.37 const byte ExitGames.Client.Photon.ParameterCode.PlayerTTL = 235**

(235) Time To Live (TTL) for an 'actor' in a room. If a client disconnects, this actor is inactive first and removed after this timeout. In milliseconds.

**8.13.2.38 const byte ExitGames.Client.Photon.ParameterCode.Position = 223**

(223) Not used (as "Position" currently). If you get queued before connect, this is your position

**8.13.2.39** `const byte ExitGames.Client.Photon.ParameterCode.Properties = (byte)LiteOpKey.Properties`

(251) Code for property-set (Hashtable). This key is used when sending only one set of properties. If either [Actor↔Properties](#) or [GameProperties](#) are used (or both), check those keys.

**8.13.2.40** `const byte ExitGames.Client.Photon.ParameterCode.ReceiverGroup = (byte)LiteOpKey.ReceiverGroup`

(246) Code to select the receivers of events (used in Lite, Operation RaiseEvent).

**8.13.2.41** `const byte ExitGames.Client.Photon.ParameterCode.Region = (byte)210`

(210) Used for region values in OpAuth and OpGetRegions.

**8.13.2.42** `const byte ExitGames.Client.Photon.ParameterCode.Remove = LiteOpKey.Remove`

(239) The "Remove" operation-parameter can be used to remove something from a list. E.g. remove groups from player's interest groups.

**8.13.2.43** `const byte ExitGames.Client.Photon.ParameterCode.RoomName = (byte)LiteOpKey.GameId`

(255) Code for the gameId/roomName (a unique name per room). Used in OpJoin and similar.

**8.13.2.44** `const byte ExitGames.Client.Photon.ParameterCode.Secret = 221`

(221) Internally used to establish encryption

**8.13.2.45** `const byte ExitGames.Client.Photon.ParameterCode.SuppressRoomEvents = 237`

(237) Optional parameter to suppress events Join and Leave for a room (which might be used as lobby/chat room then).

**8.13.2.46** `const byte ExitGames.Client.Photon.ParameterCode.TargetActorNr = (byte)LiteOpKey.TargetActorNr`

(253) Code of the target Actor of an operation. Used for property set. Is 0 for game

**8.13.2.47** `const byte ExitGames.Client.Photon.ParameterCode.UriPath = 209`

(209) Path of the WebRPC that got called. Also known as "WebRpc Name". Type: string.

**8.13.2.48** `const byte ExitGames.Client.Photon.ParameterCode.UserId = 225`

(225) User's ID

**8.13.2.49** `const byte ExitGames.Client.Photon.ParameterCode.WebRpcParameters = 208`

(208) Parameters for a WebRPC as: Dictionary<string, object>. This will get serialized to JSON.

**8.13.2.50** `const byte ExitGames.Client.Photon.ParameterCode.WebRpcReturnCode = 207`

(207) ReturnCode for the WebRPC, as sent by the web service (not by [Photon](#), which uses ErrorCode). Type: byte.

8.13.2.51 `const byte ExitGames.Client.Photon.ParameterCode.WebRpcReturnMessage = 206`

(206) Message returned by WebRPC server. Analog to [Photon](#)'s debug message. Type: string.

## 8.14 PhotonAnimatorView Class Reference

This class helps you to synchronize Mecanim animations Simply add the component to your GameObject and make sure that the [PhotonAnimatorView](#) is added to the list of observed components

Inherits MonoBehaviour.

### Classes

- class [SynchronizedLayer](#)
- class [SynchronizedParameter](#)

### Public Types

- enum [ParameterType](#) { [ParameterType.Float](#) = 1, [ParameterType.Int](#) = 3, [ParameterType.Bool](#) = 4, [ParameterType.Trigger](#) = 9 }
- enum [SynchronizeType](#) { [SynchronizeType.Disabled](#) = 0, [SynchronizeType.Discrete](#) = 1, [SynchronizeType.Continuous](#) = 2 }

### Public Member Functions

- bool [DoesLayerSynchronizeTypeExist](#) (int layerIndex)  
*Check if a specific layer is configured to be synchronize*
- bool [DoesParameterSynchronizeTypeExist](#) (string name)  
*Check if the specified parameter is configured to be synchronized*
- List< [SynchronizedLayer](#) > [GetSynchronizedLayers](#) ()  
*Get a list of all synchronized layers*
- List< [SynchronizedParameter](#) > [GetSynchronizedParameters](#) ()  
*Get a list of all synchronized parameters*
- [SynchronizeType](#) [GetLayerSynchronizeType](#) (int layerIndex)  
*Gets the type how the layer is synchronized*
- [SynchronizeType](#) [GetParameterSynchronizeType](#) (string name)  
*Gets the type how the parameter is synchronized*
- void [SetLayerSynchronized](#) (int layerIndex, [SynchronizeType](#) synchronizeType)  
*Sets the how a layer should be synchronized*
- void [SetParameterSynchronized](#) (string name, [ParameterType](#) type, [SynchronizeType](#) synchronizeType)  
*Sets the how a parameter should be synchronized*

#### 8.14.1 Detailed Description

This class helps you to synchronize Mecanim animations Simply add the component to your GameObject and make sure that the [PhotonAnimatorView](#) is added to the list of observed components

## 8.14.2 Member Enumeration Documentation

### 8.14.2.1 enum PhotonAnimatorView.ParameterType

Enumerator

***Float***

***Int***

***Bool***

***Trigger***

### 8.14.2.2 enum PhotonAnimatorView.SynchronizeType

Enumerator

***Disabled***

***Discrete***

***Continuous***

## 8.14.3 Member Function Documentation

### 8.14.3.1 bool PhotonAnimatorView.DoesLayerSynchronizeTypeExist ( int *layerIndex* )

Check if a specific layer is configured to be synchronize

Parameters

<i>layerIndex</i>	Index of the layer.
-------------------	---------------------

Returns

True if the layer is synchronized

### 8.14.3.2 bool PhotonAnimatorView.DoesParameterSynchronizeTypeExist ( string *name* )

Check if the specified parameter is configured to be synchronized

Parameters

<i>name</i>	The name of the parameter.
-------------	----------------------------

Returns

True if the parameter is synchronized

### 8.14.3.3 SynchronizeType PhotonAnimatorView.GetLayerSynchronizeType ( int *layerIndex* )

Gets the type how the layer is synchronized

Parameters

---

<i>layerIndex</i>	Index of the layer.
-------------------	---------------------

**Returns**

Disabled/Discrete/Continuous

**8.14.3.4 SynchronizeType PhotonAnimatorView.GetParameterSynchronizeType ( string name )**

Gets the type how the parameter is synchronized

**Parameters**

<i>name</i>	The name of the parameter.
-------------	----------------------------

**Returns**

Disabled/Discrete/Continuous

**8.14.3.5 List<SynchronizedLayer> PhotonAnimatorView.GetSynchronizedLayers ( )**

Get a list of all synchronized layers

**Returns**

List of [SynchronizedLayer](#) objects

**8.14.3.6 List<SynchronizedParameter> PhotonAnimatorView.GetSynchronizedParameters ( )**

Get a list of all synchronized parameters

**Returns**

List of [SynchronizedParameter](#) objects

**8.14.3.7 void PhotonAnimatorView.SetLayerSynchronized ( int layerIndex, SynchronizeType synchronizeType )**

Sets the how a layer should be synchronized

**Parameters**

<i>layerIndex</i>	Index of the layer.
<i>synchronizeType</i>	Disabled/Discrete/Continuous

**8.14.3.8 void PhotonAnimatorView.SetParameterSynchronized ( string name, ParameterType type, SynchronizeType synchronizeType )**

Sets the how a parameter should be synchronized

**Parameters**

<i>name</i>	The name of the parameter.
<i>synchronizeType</i>	Disabled/Discrete/Continuous

## 8.15 PhotonLagSimulationGui Class Reference

This MonoBehaviour is a basic GUI for the [Photon](#) client's network-simulation feature. It can modify lag (fixed delay), jitter (random lag) and packet loss.

Inherits MonoBehaviour.

### Public Member Functions

- void [Start](#) ()
- void [OnGUI](#) ()

### Public Attributes

- Rect [WindowRect](#) = new Rect(0, 100, 120, 100)  
*Positioning rect for window.*
- int [WindowId](#) = 101  
*Unity GUI Window ID (must be unique or will cause issues).*
- bool [Visible](#) = true  
*Shows or hides GUI (does not affect settings).*

### Properties

- PhotonPeer [Peer](#) [get, set]  
*The peer currently in use (to set the network simulation).*

#### 8.15.1 Detailed Description

This MonoBehaviour is a basic GUI for the [Photon](#) client's network-simulation feature. It can modify lag (fixed delay), jitter (random lag) and packet loss.

#### 8.15.2 Member Function Documentation

8.15.2.1 void PhotonLagSimulationGui.OnGUI ( )

8.15.2.2 void PhotonLagSimulationGui.Start ( )

#### 8.15.3 Member Data Documentation

8.15.3.1 bool PhotonLagSimulationGui.Visible = true

Shows or hides GUI (does not affect settings).

8.15.3.2 int PhotonLagSimulationGui.WindowId = 101

Unity GUI Window ID (must be unique or will cause issues).

8.15.3.3 `Rect PhotonLagSimulationGui.WindowRect = new Rect(0, 100, 120, 100)`

Positioning rect for window.

## 8.15.4 Property Documentation

8.15.4.1 `PhotonPeer PhotonLagSimulationGui.Peer` `[get]`, `[set]`

The peer currently in use (to set the network simulation).

## 8.16 PhotonMessageInfo Class Reference

Container class for info about a particular message, RPC or update.

### Public Member Functions

- [PhotonMessageInfo](#) ()  
*Initializes a new instance of the [PhotonMessageInfo](#) class. To create an empty messageinfo only!*
- [PhotonMessageInfo](#) ([PhotonPlayer](#) player, int timestamp, [PhotonView](#) view)
- override string [ToString](#) ()

### Public Attributes

- [PhotonPlayer](#) sender
- [PhotonView](#) photonView

### Properties

- double [timestamp](#) `[get]`

### 8.16.1 Detailed Description

Container class for info about a particular message, RPC or update.

### 8.16.2 Constructor & Destructor Documentation

8.16.2.1 `PhotonMessageInfo.PhotonMessageInfo ( )`

Initializes a new instance of the [PhotonMessageInfo](#) class. To create an empty messageinfo only!

8.16.2.2 `PhotonMessageInfo.PhotonMessageInfo ( PhotonPlayer player, int timestamp, PhotonView view )`

### 8.16.3 Member Function Documentation

8.16.3.1 `override string PhotonMessageInfo.ToString ( )`

### 8.16.4 Member Data Documentation

8.16.4.1 `PhotonView PhotonMessageInfo.photonView`

#### 8.16.4.2 PhotonPlayer PhotonMessageInfo.sender

### 8.16.5 Property Documentation

#### 8.16.5.1 double PhotonMessageInfo.timestamp [get]

## 8.17 PhotonNetwork Class Reference

The main class to use the [PhotonNetwork](#) plugin. This class is static.

### Public Member Functions

- delegate void [EventCallback](#) (byte eventCode, object content, int senderId)  
*Defines the delegate usable in OnEventCall.*

### Static Public Member Functions

- static bool [SetMasterClient](#) ([PhotonPlayer](#) masterClientPlayer)  
*Allows the current Master Client to assign someone else as MC - custom selection should pick the same user on any client.*
- static void [CacheSendMonoMessageTargets](#) (Type type)  
*Populates SendMonoMessageTargets with currently existing GameObjects that have a Component of type.*
- static HashSet< GameObject > [FindGameObjectsWithComponent](#) (Type type)
- static void [NetworkStatisticsReset](#) ()  
*Resets the traffic stats and re-enables them.*
- static string [NetworkStatisticsToString](#) ()  
*Only available when NetworkStatisticsEnabled was used to gather some stats.*
- static void [SwitchToProtocol](#) (ConnectionProtocol cp)  
*While offline, the network protocol can be switched (which affects the ports you can use to connect).*
- static void [InternalCleanPhotonMonoFromSceneIfStuck](#) ()  
*Internally used by Editor scripts, called on Hierarchy change (includes scene save) to remove surplus hidden Photon↔ Handlers.*
- static bool [ConnectUsingSettings](#) (string gameVersion)  
*Connect to [Photon](#) as configured in the editor (saved in PhotonServerSettings file).*
- static bool [ConnectToMaster](#) (string masterServerAddress, int port, string appId, string gameVersion)  
*Connect to a [Photon](#) Master Server by address, port, appId and game(client) version.*
- static bool [ConnectToBestCloudServer](#) (string gameVersion)  
*Connect to the [Photon](#) Cloud region with the lowest ping (on platforms that support Unity's Ping).*
- static void [OverrideBestCloudServer](#) (CloudRegionCode region)  
*Overwrites the region that is used for [ConnectToBestCloudServer\(string gameVersion\)](#).*
- static void [RefreshCloudServerRating](#) ()  
*Pings all cloud servers again to find the one with best ping (currently).*
- static void [Disconnect](#) ()  
*Makes this client disconnect from the photon server, a process that leaves any room and calls OnDisconnected↔ FromPhoton on completion.*
- static void [InitializeSecurity](#) ()  
*Used for compatibility with Unity networking only. Encryption is automatically initialized while connecting.*
- static bool [FindFriends](#) (string[] friendsToFind)  
*Requests the rooms and online status for a list of friends and saves the result in [PhotonNetwork.Friends](#).*
- static bool [CreateRoom](#) (string roomName, bool isVisible, bool isOpen, int maxPlayers)  
*Creates a room with given name but fails if this room is existing already.*



- static bool [CreateRoom](#) (string roomName, bool isVisible, bool isOpen, int maxPlayers, [Hashtable](#) customRoomProperties, string[] propsToListInLobby)  
*Creates a room with given name but fails if this room is existing already.*
- static bool [CreateRoom](#) (string roomName)  
*Creates a room with given name but fails if this room(name) is existing already. Creates random name for roomName null.*
- static bool [CreateRoom](#) (string roomName, [RoomOptions](#) roomOptions, [TypedLobby](#) typedLobby)  
*Creates a room but fails if this room is existing already. Can only be called on Master Server.*
- static bool [JoinRoom](#) (string roomName, bool createIfNotExists)  
*Join room by roomName with an option to create it on the fly if not existing.*
- static bool [JoinRoom](#) (string roomName)  
*Join room by roomname and on success calls [OnJoinedRoom\(\)](#). This is not affected by lobbies.*
- static bool [JoinOrCreateRoom](#) (string roomName, [RoomOptions](#) roomOptions, [TypedLobby](#) typedLobby)  
*Lets you either join a named room or create it on the fly - you don't have to know if someone created the room already.*
- static bool [JoinRandomRoom](#) ()  
*Joins any available room of the currently used lobby and fails if none is available.*
- static bool [JoinRandomRoom](#) ([Hashtable](#) expectedCustomRoomProperties, byte expectedMaxPlayers)  
*Attempts to join an open room with fitting, custom properties but fails if none is currently available.*
- static bool [JoinRandomRoom](#) ([Hashtable](#) expectedCustomRoomProperties, byte expectedMaxPlayers, [MatchmakingMode](#) matchingType, [TypedLobby](#) typedLobby, string sqlLobbyFilter)  
*Attempts to join an open room with fitting, custom properties but fails if none is currently available.*
- static bool [JoinLobby](#) ()  
*On MasterServer this joins the default lobby which list rooms currently in use.*
- static bool [JoinLobby](#) ([TypedLobby](#) typedLobby)  
*On a Master Server you can join a lobby to get lists of available rooms.*
- static bool [LeaveLobby](#) ()  
*Leave a lobby to stop getting updates about available rooms.*
- static bool [LeaveRoom](#) ()  
*Leave the current room and return to the Master Server where you can join or create rooms (see remarks).*
- static [RoomInfo](#)[] [GetRoomList](#) ()  
*Gets currently known rooms as [RoomInfo](#) array. This is available and updated while in a lobby (check insideLobby).*
- static void [SetPlayerCustomProperties](#) ([Hashtable](#) customProperties)  
*Sets this (local) player's properties and synchronizes them to the other players (don't modify them directly).*
- static bool [RaiseEvent](#) (byte eventCode, object eventContent, bool sendReliable, [RaiseEventOptions](#) options)  
*Sends fully customizable events in a room. Events consist of at least an EventCode (0..199) and can have content.*
- static int [AllocateViewID](#) ()  
*Allocates a viewID that's valid for the current/local player.*
- static int [AllocateSceneViewID](#) ()  
*Enables the Master Client to allocate a viewID that is valid for scene objects.*
- static void [UnAllocateViewID](#) (int viewID)  
*Unregister a viewID (of manually instantiated and destroyed networked objects).*
- static GameObject [Instantiate](#) (string prefabName, Vector3 position, Quaternion rotation, int group)  
*Instantiate a prefab over the network. This prefab needs to be located in the root of a "Resources" folder.*
- static GameObject [Instantiate](#) (string prefabName, Vector3 position, Quaternion rotation, int group, object[] data)  
*Instantiate a prefab over the network. This prefab needs to be located in the root of a "Resources" folder.*
- static GameObject [InstantiateSceneObject](#) (string prefabName, Vector3 position, Quaternion rotation, int group, object[] data)  
*Instantiate a scene-owned prefab over the network. The PhotonViews will be controllable by the MasterClient. This prefab needs to be located in the root of a "Resources" folder.*
- static int [GetPing](#) ()

*The current roundtrip time to the photon server.*

- static void [FetchServerTimestamp](#) ()

*Refreshes the server timestamp (async operation, takes a roundtrip).*

- static void [SendOutgoingCommands](#) ()

*Can be used to immediately send the RPCs and Instantiates just called, so they are on their way to the other players.*

- static bool [CloseConnection](#) ([PhotonPlayer](#) kickPlayer)

*Request a client to disconnect (KICK). Only the master client can do this*

- static void [Destroy](#) ([PhotonView](#) targetView)

*Network-Destroy the GameObject associated with the [PhotonView](#), unless the [PhotonView](#) is static or not under this client's control.*

- static void [Destroy](#) (GameObject targetGo)

*Network-Destroy the GameObject, unless it is static or not under this client's control.*

- static void [DestroyPlayerObjects](#) ([PhotonPlayer](#) targetPlayer)

*Network-Destroy all GameObjects, PhotonViews and their RPCs of targetPlayer. Can only be called on local player (for "self") or Master Client (for anyone).*

- static void [DestroyPlayerObjects](#) (int targetPlayerId)

*Network-Destroy all GameObjects, PhotonViews and their RPCs of this player (by ID). Can only be called on local player (for "self") or Master Client (for anyone).*

- static void [DestroyAll](#) ()

*Network-Destroy all GameObjects, PhotonViews and their RPCs in the room. Removes anything buffered from the server. Can only be called by Master Client (for anyone).*

- static void [RemoveRPCs](#) ([PhotonPlayer](#) targetPlayer)

*Remove all buffered RPCs from server that were sent by targetPlayer. Can only be called on local player (for "self") or Master Client (for anyone).*

- static void [RemoveRPCs](#) ([PhotonView](#) targetPhotonView)

*Remove all buffered RPCs from server that were sent via targetPhotonView. The Master Client and the owner of the targetPhotonView may call this.*

- static void [RemoveRPCsInGroup](#) (int targetGroup)

*Remove all buffered RPCs from server that were sent in the targetGroup, if this is the Master Client or if this controls the individual [PhotonView](#).*

- static void [SetReceivingEnabled](#) (int group, bool enabled)

*Enable/disable receiving on given group (applied to PhotonViews)*

- static void [SetReceivingEnabled](#) (int[] enableGroups, int[] disableGroups)

*Enable/disable receiving on given groups (applied to PhotonViews)*

- static void [SetSendingEnabled](#) (int group, bool enabled)

*Enable/disable sending on given group (applied to PhotonViews)*

- static void [SetSendingEnabled](#) (int[] enableGroups, int[] disableGroups)

*Enable/disable sending on given groups (applied to PhotonViews)*

- static void [SetLevelPrefix](#) (short prefix)

*Sets level prefix for PhotonViews instantiated later on. Don't set it if you need only one!*

- static void [LoadLevel](#) (int levelNumber)

*Wraps loading a level to pause the network message-queue. Optionally syncs the loaded level in a room.*

- static void [LoadLevel](#) (string levelName)

*Wraps loading a level to pause the network message-queue. Optionally syncs the loaded level in a room.*

- static bool [WebRpc](#) (string name, object parameters)

*This operation makes [Photon](#) call your custom web-service by name (path) with the given parameters.*

## Public Attributes

- const string [versionPUN](#) = "1.51"  
Version number of PUN. Also used in *GameVersion* to separate client version from each other.
- const string [serverSettingsAssetFile](#) = "PhotonServerSettings"  
Name of the *PhotonServerSettings* file (used to load and by *PhotonEditor* to save new files).
- const string [serverSettingsAssetPath](#) = "Assets/Photon Unity Networking/Resources/" + [PhotonNetwork.serverSettingsAssetFile](#) + ".asset"  
Path to the *PhotonServerSettings* file (used by *PhotonEditor*).

## Static Public Attributes

- static readonly int [MAX\\_VIEW\\_IDS](#) = 1000  
The maximum amount of assigned *PhotonViews* PER player (or scene). See the documentation on how to raise this limitation
- static [ServerSettings](#) [PhotonServerSettings](#) = ([ServerSettings](#))Resources.Load([PhotonNetwork.serverSettingsAssetFile](#), typeof([ServerSettings](#)))  
Serialized server settings, written by the Setup Wizard for use in *ConnectUsingSettings*.
- static float [precisionForVectorSynchronization](#) = 0.000099f  
The minimum difference that a *Vector2* or *Vector3*(e.g. a transforms rotation) needs to change before we send it via a *PhotonView*'s *OnSerialize/ObservingComponent* Note that this is the *sqrMagnitude*. E.g. to send only after a 0.01 change on the Y-axis, we use  $0.01f * 0.01f = 0.0001f$ . As a remedy against float inaccuracy we use 0.000099f instead of 0.0001f.
- static float [precisionForQuaternionSynchronization](#) = 1.0f  
The minimum angle that a rotation needs to change before we send it via a *PhotonView*'s *OnSerialize/ObservingComponent*
- static float [precisionForFloatSynchronization](#) = 0.01f  
The minimum difference between floats before we send it via a *PhotonView*'s *OnSerialize/ObservingComponent*
- static bool [InstantiateInRoomOnly](#) = true  
If true, *Instantiate* methods will check if you are in a room and fail if you are not.
- static [PhotonLogLevel](#) [logLevel](#) = [PhotonLogLevel.ErrorsOnly](#)  
Network log level. Controls how verbose PUN is.
- static bool [UsePrefabCache](#) = true  
While enabled (true), *Instantiate* uses [PhotonNetwork.PrefabCache](#) to keep game objects in memory (improving instantiation of the same prefab).
- static Dictionary< string, GameObject > [PrefabCache](#) = new Dictionary<string, GameObject>()  
Keeps references to *GameObjects* for frequent instantiation (out of memory instead of loading the Resources).
- static bool [UseNameServer](#) = true
- static HashSet< GameObject > [SendMonoMessageTargets](#)  
If not null, this is the (exclusive) list of *GameObjects* that get called by *PUN SendMonoMessage()*.
- static Type [SendMonoMessageTargetType](#) = typeof(MonoBehaviour)
- static [EventCallback](#) [OnEventCall](#)  
Register your *RaiseEvent* handling methods here by using "+=".

## Properties

- static string [gameVersion](#) [get, set]
- static string [ServerAddress](#) [get]  
Currently used server address (no matter if master or game server).
- static bool [connected](#) [get]  
False until you connected to *Photon* initially. True in offline mode, while connected to any server and even while switching servers but

- static bool [connecting](#) [get]  
*True when you called [ConnectUsingSettings](#) (or similar) until the low level connection to [Photon](#) gets established.*
- static bool [connectedAndReady](#) [get]  
*A refined version of [connected](#) which is true only if your connection to the server is ready to accept operations like join, leave, etc.*
- static [ConnectionState](#) [connectionState](#) [get]  
*Simplified connection state*
- static [PeerState](#) [connectionStateDetailed](#) [get]  
*Detailed connection state (ignorant of PUN, so it can be "disconnected" while switching servers).*
- static [AuthenticationValues](#) [AuthValues](#) [get, set]  
*A user's authentication values used during connect for Custom Authentication with [Photon](#) (and a custom service/community). Set these before calling [Connect](#) if you want custom authentication.*
- static [Room](#) [room](#) [get]  
*Get the room we're currently in. Null if we aren't in any room.*
- static [PhotonPlayer](#) [player](#) [get]  
*The local [PhotonPlayer](#). Always available and represents this player. CustomProperties can be set before entering a room and will be synced as well.*
- static [PhotonPlayer](#) [masterClient](#) [get]  
*The [PhotonPlayer](#) of the master client. The master client is the 'virtual owner' of the room. You can use it if you need authoritative decision made by one of the players.*
- static string [playerName](#) [get, set]  
*This local player's name.*
- static [PhotonPlayer\[\]](#) [playerList](#) [get]  
*The full [PhotonPlayer](#) list, including the local player.*
- static [PhotonPlayer\[\]](#) [otherPlayers](#) [get]  
*The other PhotonPlayers, not including our local player.*
- static List< [FriendInfo](#) > [Friends](#) [get, set]  
*Read-only list of friends, their online status and the room they are in. Null until initialized by a [FindFriends](#) call.*
- static int [FriendsListAge](#) [get]  
*Age of friend list info (in milliseconds). It's 0 until a friend list is fetched.*
- static bool [offlineMode](#) [get, set]  
*Offline mode can be set to re-use your multiplayer code in singleplayer game modes. When this is on [Photon↔Network](#) will not create any connections and there is near to no overhead. Mostly usefull for reusing RPC's and [PhotonNetwork.Instantiate](#)*
- static int [maxConnections](#) [get, set]  
*The maximum number of players for a room. Better: Set it in [CreateRoom](#). If no room is opened, this will return 0.*
- static bool [automaticallySyncScene](#) [get, set]  
*Defines if PUN automatically synchronizes the loaded level per room. Default: false / disabled.*
- static bool [autoCleanUpPlayerObjects](#) [get, set]  
*This setting defines if players in a room should destroy a leaving player's instantiated GameObjects and PhotonViews.*
- static bool [autoJoinLobby](#) [get, set]  
*Defines if the [PhotonNetwork](#) should join the "lobby" when connected to the Master server.*
- static bool [insideLobby](#) [get]  
*True while this client is in a lobby.*
- static [TypedLobby](#) [lobby](#) [get, set]  
*The lobby that will be used when PUN joins a lobby or creates a game.*
- static int [sendRate](#) [get, set]  
*Defines how many times per second [PhotonNetwork](#) should send a package. If you change this, do not forget to also change 'sendRateOnSerialize'.*
- static int [sendRateOnSerialize](#) [get, set]  
*Defines how many times per second [OnPhotonSerialize](#) should be called on PhotonViews.*
- static bool [isMessageQueueRunning](#) [get, set]

- Can be used to pause dispatching of incoming events (RPCs, Instantiates and anything else incoming).*
- static int [unreliableCommandsLimit](#) [get, set]  
*Used once per dispatch to limit unreliable commands per channel (so after a pause, many channels can still cause a lot of unreliable commands)*
  - static double [time](#) [get]  
*Photon network time, synched with the server*
  - static bool [isMasterClient](#) [get]  
*Are we the master client?*
  - static bool [inRoom](#) [get]  
*Is true while being in a room (connectionStateDetailed == PeerState.Joined).*
  - static bool [isNonMasterClientInRoom](#) [get]  
*True if we are in a room (client) and NOT the room's masterclient*
  - static int [countOfPlayersOnMaster](#) [get]  
*The count of players currently looking for a room (available on MasterServer in 5sec intervals).*
  - static int [countOfPlayersInRooms](#) [get]  
*Count of users currently playing your app in some room (sent every 5sec by Master Server). Use playerList.Count to get the count of players in the room you're in!*
  - static int [countOfPlayers](#) [get]  
*The count of players currently using this application (available on MasterServer in 5sec intervals).*
  - static int [countOfRooms](#) [get]  
*The count of rooms currently in use (available on MasterServer in 5sec intervals).*
  - static bool [NetworkStatisticsEnabled](#) [get, set]  
*Enables or disables the collection of statistics about this client's traffic.*
  - static int [ResentReliableCommands](#) [get]  
*Count of commands that got repeated (due to local repeat-timing before an ACK was received).*
  - static bool [CrcCheckEnabled](#) [get, set]  
*Crc checks can be useful to detect and avoid issues with broken datagrams. Can be enabled while not connected.*
  - static int [PacketLossByCrcCheck](#) [get]  
*If CrcCheckEnabled, this counts the incoming packages that don't have a valid CRC checksum and got rejected.*
  - static int [MaxResendsBeforeDisconnect](#) [get, set]  
*Defines the number of times a reliable message can be resent before not getting an ACK for it will trigger a disconnect. Default: 5.*
  - static [ServerConnection Server](#) [get]  
*The server this client is currently connected or connecting to.*

### 8.17.1 Detailed Description

The main class to use the [PhotonNetwork](#) plugin. This class is static.

### 8.17.2 Member Function Documentation

#### 8.17.2.1 static int PhotonNetwork.AllocateSceneViewID( ) [static]

Enables the Master Client to allocate a viewID that is valid for scene objects.

#### Returns

A viewID that can be used for a new [PhotonView](#) or -1 in case of an error.

### 8.17.2.2 static int PhotonNetwork.AllocateViewID ( ) [static]

Allocates a viewID that's valid for the current/local player.

#### Returns

A viewID that can be used for a new [PhotonView](#).

### 8.17.2.3 static void PhotonNetwork.CacheSendMessageTargets ( Type type ) [static]

Populates SendMessageTargets with currently existing GameObjects that have a Component of type.

#### Parameters

<i>type</i>	If null, this will use SendMessageTargets as component-type (MonoBehaviour by default).
-------------	---

### 8.17.2.4 static bool PhotonNetwork.CloseConnection ( PhotonPlayer kickPlayer ) [static]

Request a client to disconnect (KICK). Only the master client can do this

Only the target player gets this event. That player will disconnect automatically, which is what the others will notice, too.

#### Parameters

<i>kickPlayer</i>	The <a href="#">PhotonPlayer</a> to kick.
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### 8.17.2.5 static bool PhotonNetwork.ConnectToBestCloudServer ( string gameVersion ) [static]

Connect to the [Photon](#) Cloud region with the lowest ping (on platforms that support Unity's Ping).

Will save the result of pinging all cloud servers in PlayerPrefs. Calling this the first time can take +-2 seconds. The ping result can be overridden via [PhotonNetwork.OverrideBestCloudServer\(..\)](#) This call can take up to 2 seconds if it is the first time you are using this, all cloud servers will be pinged to check for the best region.

The PUN Setup Wizard stores your appId in a settings file and applies a server address/port. To connect to the [Photon](#) Cloud, a valid AppId must be in the settings file (shown in the [Photon](#) Cloud Dashboard). <https://www.exitgames.com/dashboard>

Connecting to the [Photon](#) Cloud might fail due to:

- Invalid AppId (calls: [OnFailedToConnectToPhoton\(\)](#). check exact AppId value)
- Network issues (calls: [OnFailedToConnectToPhoton\(\)](#))
- Invalid region (calls: [OnConnectionFail\(\)](#) with DisconnectCause.InvalidRegion)
- Subscription CCU limit reached (calls: [OnConnectionFail\(\)](#) with DisconnectCause.MaxCcuReached. also calls: [OnPhotonMaxCcuReached\(\)](#))

More about the connection limitations: <http://doc.exitgames.com/en/pun>

#### Parameters

<i>gameVersion</i>	This client's version number. Users are separated from each other by gameversion (which allows you to make breaking changes).
--------------------	---

#### Returns

If this client is going to connect to cloud server based on ping. Even if true, this does not guarantee a connection but the attempt is being made.

**8.17.2.6** `static bool PhotonNetwork.ConnectToMaster ( string masterServerAddress, int port, string appId, string gameVersion ) [static]`

Connect to a [Photon](#) Master Server by address, port, appId and game(client) version.

To connect to the [Photon](#) Cloud, a valid AppId must be in the settings file (shown in the [Photon](#) Cloud Dashboard).  
<https://www.exitgames.com/dashboard>

Connecting to the [Photon](#) Cloud might fail due to:

- Invalid AppId (calls: [OnFailedToConnectToPhoton\(\)](#). check exact AppId value)
- Network issues (calls: [OnFailedToConnectToPhoton\(\)](#))
- Invalid region (calls: [OnConnectionFail\(\)](#) with DisconnectCause.InvalidRegion)
- Subscription CCU limit reached (calls: [OnConnectionFail\(\)](#) with DisconnectCause.MaxCcuReached. also calls: [OnPhotonMaxCcuReached\(\)](#))

More about the connection limitations: <http://doc.exitgames.com/en/pun>

#### Parameters

<i>masterServerAddress</i>	The server's address (either your own or <a href="#">Photon</a> Cloud address).
<i>port</i>	The server's port to connect to.
<i>appId</i>	Your application ID ( <a href="#">Photon</a> Cloud provides you with a GUID for your game).
<i>gameVersion</i>	This client's version number. Users are separated by gameversion (which allows you to make breaking changes).

**8.17.2.7** `static bool PhotonNetwork.ConnectUsingSettings ( string gameVersion ) [static]`

Connect to [Photon](#) as configured in the editor (saved in PhotonServerSettings file).

This method will disable offlineMode (which won't destroy any instantiated GOs) and it will set isMessageQueueRunning to true.

Your server configuration is created by the PUN Wizard and contains the AppId and region for [Photon](#) Cloud games and the server address if you host [Photon](#) yourself. These settings usually don't change often.

To ignore the config file and connect anywhere call: [PhotonNetwork.ConnectToMaster](#).

To connect to the [Photon](#) Cloud, a valid AppId must be in the settings file (shown in the [Photon](#) Cloud Dashboard).  
<https://www.exitgames.com/dashboard>

Connecting to the [Photon](#) Cloud might fail due to:

- Invalid AppId (calls: [OnFailedToConnectToPhoton\(\)](#). check exact AppId value)
- Network issues (calls: [OnFailedToConnectToPhoton\(\)](#))
- Invalid region (calls: [OnConnectionFail\(\)](#) with DisconnectCause.InvalidRegion)
- Subscription CCU limit reached (calls: [OnConnectionFail\(\)](#) with DisconnectCause.MaxCcuReached. also calls: [OnPhotonMaxCcuReached\(\)](#))

More about the connection limitations: <http://doc.exitgames.com/en/pun>

#### Parameters



<i>gameVersion</i>	This client's version number. Users are separated from each other by gameversion (which allows you to make breaking changes).
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#### 8.17.2.8 `static bool PhotonNetwork.CreateRoom ( string roomName, bool isVisible, bool isOpen, int maxPlayers )` [static]

Creates a room with given name but fails if this room is existing already.

If you don't want to create a unique room-name, pass null or "" as name and the server will assign a roomName (a GUID as string).

The created room is automatically placed in the currently used lobby or the default-lobby if you didn't explicitly join one.

Call this only on the master server. Internally, the master will respond with a server-address (and roomName, if needed). Both are used internally to switch to the assigned game server and roomName

##### Parameters

<i>roomName</i>	Unique name of the room to create. Pass null or "" to make the server generate a name.
<i>isVisible</i>	Shows (or hides) this room from the lobby's listing of rooms.
<i>isOpen</i>	Allows (or disallows) others to join this room.
<i>maxPlayers</i>	Max number of players that can join the room.

#### 8.17.2.9 `static bool PhotonNetwork.CreateRoom ( string roomName, bool isVisible, bool isOpen, int maxPlayers, Hashtable customRoomProperties, string[] propsToListInLobby )` [static]

Creates a room with given name but fails if this room is existing already.

If you don't want to create a unique room-name, pass null or "" as name and the server will assign a roomName (a GUID as string).

The created room is automatically placed in the currently used lobby or the default-lobby if you didn't explicitly join one.

Call this only on the master server. Internally, the master will respond with a server-address (and roomName, if needed). Both are used internally to switch to the assigned game server and roomName.

[PhotonNetwork.autoCleanUpPlayerObjects](#) will become this room's AutoCleanUp property and that's used by all clients that join this room.

##### Parameters

<i>roomName</i>	Unique name of the room to create. Pass null or "" to make the server generate a name.
<i>isVisible</i>	Shows (or hides) this room from the lobby's listing of rooms.
<i>isOpen</i>	Allows (or disallows) others to join this room.
<i>maxPlayers</i>	Max number of players that can join the room.
<i>customRoom↔ Properties</i>	Custom properties of the new room (set on create, so they are immediately available).
<i>propsToListIn↔ Lobby</i>	Array of custom-property-names that should be forwarded to the lobby (include only the useful ones).

#### 8.17.2.10 `static bool PhotonNetwork.CreateRoom ( string roomName )` [static]

Creates a room with given name but fails if this room(name) is existing already. Creates random name for room↔  
Name null.

If you don't want to create a unique room-name, pass null or "" as name and the server will assign a roomName (a GUID as string).



The created room is automatically placed in the currently used lobby (if any) or the default-lobby if you didn't explicitly join one.

Call this only on the master server. Internally, the master will respond with a server-address (and `roomName`, if needed). Both are used internally to switch to the assigned game server and `roomName`.

[PhotonNetwork.autoCleanUpPlayerObjects](#) will become this room's `AutoCleanUp` property and that's used by all clients that join this room.

#### Parameters

<i>roomName</i>	Unique name of the room to create.
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**8.17.2.11** `static bool PhotonNetwork.CreateRoom ( string roomName, RoomOptions roomOptions, TypedLobby typedLobby ) [static]`

Creates a room but fails if this room is existing already. Can only be called on Master Server.

When successful, this calls the callbacks `OnCreatedRoom` and `OnJoinedRoom` (the latter, cause you join as first player). If the room can't be created (because it exists already), `OnPhotonCreateRoomFailed` gets called.

If you don't want to create a unique room-name, pass null or "" as name and the server will assign a `roomName` (a GUID as string).

Rooms can be created in any number of lobbies. Those don't have to exist before you create a room in them (they get auto-created on demand). Lobbies can be useful to split room lists on the server-side already. That can help keep the room lists short and manageable. If you set a `typedLobby` parameter, the room will be created in that lobby (no matter if you are active in any). If you don't set a `typedLobby`, the room is automatically placed in the currently active lobby (if any) or the default-lobby.

Call this only on the master server. Internally, the master will respond with a server-address (and `roomName`, if needed). Both are used internally to switch to the assigned game server and `roomName`.

[PhotonNetwork.autoCleanUpPlayerObjects](#) will become this room's `autoCleanUp` property and that's used by all clients that join this room.

#### Parameters

<i>roomName</i>	Unique name of the room to create. Pass null or "" to make the server generate a name.
<i>roomOptions</i>	Common options for the room like <code>maxPlayers</code> , initial custom room properties and similar. See <a href="#">RoomOptions</a> type..
<i>typedLobby</i>	If null, the room is automatically created in the currently used lobby (which is "default" when you didn't join one explicitly).

**8.17.2.12** `static void PhotonNetwork.Destroy ( PhotonView targetView ) [static]`

Network-Destroy the `GameObject` associated with the [PhotonView](#), unless the [PhotonView](#) is static or not under this client's control.

Destroying a networked `GameObject` while in a [Room](#) includes:

- Removal of the `Instantiate` call from the server's room buffer.
- Removing RPCs buffered for `PhotonViews` that got created indirectly with the [PhotonNetwork.Instantiate](#) call.
- Sending a message to other clients to remove the `GameObject` also (affected by network lag).

Usually, when you leave a room, the GOs get destroyed automatically. If you have to destroy a GO while not in a room, the `Destroy` is only done locally.

Destroying networked objects works only if they got created with [PhotonNetwork.Instantiate\(\)](#). Objects loaded with a scene are ignored, no matter if they have [PhotonView](#) components.

The `GameObject` must be under this client's control:

- Instantiated and owned by this client.
- Instantiated objects of players who left the room are controlled by the Master Client.
- Scene-owned game objects are controlled by the Master Client.
- GameObject can be destroyed while client is not in a room.

#### Returns

Nothing. Check error debug log for any issues.

#### 8.17.2.13 `static void PhotonNetwork.Destroy ( GameObject targetGo ) [static]`

Network-Destroy the GameObject, unless it is static or not under this client's control.

Destroying a networked GameObject includes:

- Removal of the Instantiate call from the server's room buffer.
- Removing RPCs buffered for PhotonViews that got created indirectly with the [PhotonNetwork.Instantiate](#) call.
- Sending a message to other clients to remove the GameObject also (affected by network lag).

Usually, when you leave a room, the GOs get destroyed automatically. If you have to destroy a GO while not in a room, the Destroy is only done locally.

Destroying networked objects works only if they got created with [PhotonNetwork.Instantiate\(\)](#). Objects loaded with a scene are ignored, no matter if they have [PhotonView](#) components.

The GameObject must be under this client's control:

- Instantiated and owned by this client.
- Instantiated objects of players who left the room are controlled by the Master Client.
- Scene-owned game objects are controlled by the Master Client.
- GameObject can be destroyed while client is not in a room.

#### Returns

Nothing. Check error debug log for any issues.

#### 8.17.2.14 `static void PhotonNetwork.DestroyAll ( ) [static]`

Network-Destroy all GameObjects, PhotonViews and their RPCs in the room. Removes anything buffered from the server. Can only be called by Master Client (for anyone).

Can only be called by Master Client (for anyone). Unlike the Destroy methods, this will remove anything from the server's room buffer. If your game buffers anything beyond Instantiate and RPC calls, that will be cleaned as well from server.

Destroying all includes:

- Remove anything from the server's room buffer (Instantiate, RPCs, anything buffered).
- Sending a message to other clients to destroy everything locally, too (affected by network lag).

Destroying networked objects works only if they got created with [PhotonNetwork.Instantiate\(\)](#). Objects loaded with a scene are ignored, no matter if they have [PhotonView](#) components.

#### Returns

Nothing. Check error debug log for any issues.

**8.17.2.15** `static void PhotonNetwork.DestroyPlayerObjects ( PhotonPlayer targetPlayer ) [static]`

Network-Destroy all GameObjects, PhotonViews and their RPCs of targetPlayer. Can only be called on local player (for "self") or Master Client (for anyone).

Destroying a networked GameObject includes:

- Removal of the Instantiate call from the server's room buffer.
- Removing RPCs buffered for PhotonViews that got created indirectly with the [PhotonNetwork.Instantiate](#) call.
- Sending a message to other clients to remove the GameObject also (affected by network lag).

Destroying networked objects works only if they got created with [PhotonNetwork.Instantiate\(\)](#). Objects loaded with a scene are ignored, no matter if they have [PhotonView](#) components.

**Returns**

Nothing. Check error debug log for any issues.

**8.17.2.16** `static void PhotonNetwork.DestroyPlayerObjects ( int targetPlayerId ) [static]`

Network-Destroy all GameObjects, PhotonViews and their RPCs of this player (by ID). Can only be called on local player (for "self") or Master Client (for anyone).

Destroying a networked GameObject includes:

- Removal of the Instantiate call from the server's room buffer.
- Removing RPCs buffered for PhotonViews that got created indirectly with the [PhotonNetwork.Instantiate](#) call.
- Sending a message to other clients to remove the GameObject also (affected by network lag).

Destroying networked objects works only if they got created with [PhotonNetwork.Instantiate\(\)](#). Objects loaded with a scene are ignored, no matter if they have [PhotonView](#) components.

**Returns**

Nothing. Check error debug log for any issues.

**8.17.2.17** `static void PhotonNetwork.Disconnect ( ) [static]`

Makes this client disconnect from the photon server, a process that leaves any room and calls OnDisconnected↵FromPhoton on completion.

When you disconnect, the client will send a "disconnecting" message to the server. This speeds up leave/disconnect messages for players in the same room as you (otherwise the server would timeout this client's connection). When used in offlineMode, the state-change and event-call OnDisconnectedFromPhoton are immediate. Offline mode is set to false as well. Once disconnected, the client can connect again. Use ConnectUsingSettings.

**8.17.2.18** `delegate void PhotonNetwork.EventCallback ( byte eventCode, object content, int senderId )`

Defines the delegate usable in OnEventCall.

Any eventCode < 200 will be forwarded to your delegate(s).

## Parameters

<i>eventCode</i>	The code assignend to the incoming event.
<i>content</i>	The content the sender put into the event.
<i>senderId</i>	The ID of the player who sent the event. It might be 0, if the "room" sent the event.

## 8.17.2.19 static void PhotonNetwork.FetchServerTimestamp ( ) [static]

Refreshes the server timestamp (async operation, takes a roundtrip).

Can be useful if a bad connection made the timestamp unusable or imprecise.

## 8.17.2.20 static bool PhotonNetwork.FindFriends ( string[] friendsToFind ) [static]

Requests the rooms and online status for a list of friends and saves the result in [PhotonNetwork.Friends](#).

Works only on Master Server to find the rooms played by a selected list of users.

The result will be stored in [PhotonNetwork.Friends](#) when available. That list is initialized on first use of [OpFindFriends](#) (before that, it is null). To refresh the list, call FindFriends again (in 5 seconds or 10 or 20).

Users identify themselves by setting a unique username via [PhotonNetwork.playerName](#) or by [PhotonNetwork.AuthValues](#). The user id set in AuthValues overrides the playerName, so make sure you know the ID your friends use to authenticate. The AuthValues are sent in [OpAuthenticate](#) when you connect, so the AuthValues must be set before you connect!

Note: Changing a player's name doesn't make sense when using a friend list.

The list of friends must be fetched from some other source (not provided by [Photon](#)).

Internal: The server response includes 2 arrays of info (each index matching a friend from the request): [ParameterCode.FindFriendsResponseOnlineList](#) = bool[] of online states [ParameterCode.FindFriendsResponseRoomIdList](#) = string[] of room names (empty string if not in a room)

## Parameters

<i>friendsToFind</i>	Array of friend (make sure to use unique playerName or AuthValues).
----------------------	---

## Returns

If the operation could be sent (requires connection, only one request is allowed at any time). Always false in offline mode.

## 8.17.2.21 static HashSet&lt;GameObject&gt; PhotonNetwork.FindGameObjectsWithComponent ( Type type ) [static]

## 8.17.2.22 static int PhotonNetwork.GetPing ( ) [static]

The current roundtrip time to the photon server.

## Returns

Roundtrip time (to server and back).

## 8.17.2.23 static RoomInfo [] PhotonNetwork.GetRoomList ( ) [static]

Gets currently known rooms as [RoomInfo](#) array. This is available and updated while in a lobby (check [insideLobby](#)).

This list is a cached copy of the internal rooms list so it can be accessed each frame if needed. Per [RoomInfo](#) you can check if the room is full by comparing playerCount and maxPlayers before you allow a join.

The name of a room must be used to join it (via JoinRoom).

Closed rooms are also listed by lobbies but they can't be joined. While in a room, any player can set [Room.visible](#) and [Room.open](#) to hide rooms from matchmaking and close them.

#### Returns

[RoomInfo\[\]](#) of current rooms in lobby.

#### 8.17.2.24 static void PhotonNetwork.InitializeSecurity ( ) [static]

Used for compatibility with Unity networking only. Encryption is automatically initialized while connecting.

#### 8.17.2.25 static GameObject PhotonNetwork.Instantiate ( string *prefabName*, Vector3 *position*, Quaternion *rotation*, int *group* ) [static]

Instantiate a prefab over the network. This prefab needs to be located in the root of a "Resources" folder.

Instead of using prefabs in the Resources folder, you can manually Instantiate and assign PhotonViews. See doc.

#### Parameters

<i>prefabName</i>	Name of the prefab to instantiate.
<i>position</i>	Position Vector3 to apply on instantiation.
<i>rotation</i>	Rotation Quaternion to apply on instantiation.
<i>group</i>	The group for this <a href="#">PhotonView</a> .

#### Returns

The new instance of a GameObject with initialized [PhotonView](#).

#### 8.17.2.26 static GameObject PhotonNetwork.Instantiate ( string *prefabName*, Vector3 *position*, Quaternion *rotation*, int *group*, object[] *data* ) [static]

Instantiate a prefab over the network. This prefab needs to be located in the root of a "Resources" folder.

Instead of using prefabs in the Resources folder, you can manually Instantiate and assign PhotonViews. See doc.

#### Parameters

<i>prefabName</i>	Name of the prefab to instantiate.
<i>position</i>	Position Vector3 to apply on instantiation.
<i>rotation</i>	Rotation Quaternion to apply on instantiation.
<i>group</i>	The group for this <a href="#">PhotonView</a> .
<i>data</i>	Optional instantiation data. This will be saved to it's <a href="#">PhotonView.instantiationData</a> .

#### Returns

The new instance of a GameObject with initialized [PhotonView](#).

#### 8.17.2.27 static GameObject PhotonNetwork.InstantiateSceneObject ( string *prefabName*, Vector3 *position*, Quaternion *rotation*, int *group*, object[] *data* ) [static]

Instantiate a scene-owned prefab over the network. The PhotonViews will be controllable by the MasterClient. This prefab needs to be located in the root of a "Resources" folder.

Only the master client can Instantiate scene objects. Instead of using prefabs in the Resources folder, you can manually Instantiate and assign PhotonViews. See doc.

## Parameters

<i>prefabName</i>	Name of the prefab to instantiate.
<i>position</i>	Position Vector3 to apply on instantiation.
<i>rotation</i>	Rotation Quaternion to apply on instantiation.
<i>group</i>	The group for this <a href="#">PhotonView</a> .
<i>data</i>	Optional instantiation data. This will be saved to it's <a href="#">PhotonView.instantiationData</a> .

## Returns

The new instance of a GameObject with initialized [PhotonView](#).

#### 8.17.2.28 static void PhotonNetwork.InternalCleanPhotonMonoFromScenelfStuck ( ) [static]

Internally used by Editor scripts, called on Hierarchy change (includes scene save) to remove surplus hidden PhotonHandlers.

#### 8.17.2.29 static bool PhotonNetwork.JoinLobby ( ) [static]

On MasterServer this joins the default lobby which list rooms currently in use.

The room list is sent and refreshed by the server. You can access this cached list by [PhotonNetwork.GetRoomList\(\)](#).

Per room you should check if it's full or not before joining. [Photon](#) also lists rooms that are full, unless you close and hide them (room.open = false and room.visible = false).

In best case, you make your clients join random games, as described here: <http://doc.exitgames.com/en/realtime/current/reference/matchmaking-and-lobby>

You can show your current players and room count without joining a lobby (but you must be on the master server). Use: countOfPlayers, countOfPlayersOnMaster, countOfPlayersInRooms and countOfRooms.

You can use more than one lobby to keep the room lists shorter. See [JoinLobby\(TypedLobby lobby\)](#). When creating new rooms, they will be "attached" to the currently used lobby or the default lobby.

You can use JoinRandomRoom without being in a lobby! Set autoJoinLobby = false before you connect, to not join a lobby. In that case, the connect-workflow will call OnConnectedToMaster (if you implement it) when it's done.

#### 8.17.2.30 static bool PhotonNetwork.JoinLobby ( TypedLobby typedLobby ) [static]

On a Master Server you can join a lobby to get lists of available rooms.

The room list is sent and refreshed by the server. You can access this cached list by [PhotonNetwork.GetRoomList\(\)](#).

Any client can "make up" any lobby on the fly. Splitting rooms into multiple lobbies will keep each list shorter. However, having too many lists might ruin the matchmaking experience.

In best case, you create a limited number of lobbies. For example, create a lobby per game-mode: "koth" for king of the hill and "ffa" for free for all, etc.

There is no listing of lobbies at the moment.

Sql-typed lobbies offer a different filtering model for random matchmaking. This might be more suited for skillbased-games. However, you will also need to follow the conventions for naming filterable properties in sql-lobbies! Both is explained in the matchmaking doc linked below.

In best case, you make your clients join random games, as described here: <http://confluence.exitgames.com/display/PTN/Op+JoinRandomGame>

Per room you should check if it's full or not before joining. [Photon](#) does list rooms that are full, unless you close and hide them (room.open = false and room.visible = false).

You can show your games current players and room count without joining a lobby (but you must be on the master server). Use: `countOfPlayers`, `countOfPlayersOnMaster`, `countOfPlayersInRooms` and `countOfRooms`.

When creating new rooms, they will be "attached" to the currently used lobby or the default lobby.

You can use `JoinRandomRoom` without being in a lobby! Set `autoJoinLobby = false` before you connect, to not join a lobby. In that case, the connect-workflow will call `OnConnectedToMaster` (if you implement it) when it's done.

#### Parameters

<i>typedLobby</i>	A typed lobby to join (must have name and type).
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#### 8.17.2.31 `static bool PhotonNetwork.JoinOrCreateRoom ( string roomName, RoomOptions roomOptions, TypedLobby typedLobby ) [static]`

Lets you either join a named room or create it on the fly - you don't have to know if someone created the room already.

This makes it easier for groups of players to get into the same room. Once the group exchanged a `roomName`, any player can call `JoinOrCreateRoom` and it doesn't matter who actually joins or creates the room.

The parameters `roomOptions` and `typedLobby` are only used when the room actually gets created by this client. You know if this client created a room, if you get a callback `OnCreatedRoom` (before `OnJoinedRoom` gets called as well).

#### Parameters

<i>roomName</i>	Name of the room to join. Must be non null.
<i>roomOptions</i>	Options for the room, in case it does not exist yet. Else these values are ignored.
<i>typedLobby</i>	Lobby you want a new room to be listed in. Ignored if the room was existing and got joined.

#### Returns

If the operation got queued and will be sent.

#### 8.17.2.32 `static bool PhotonNetwork.JoinRandomRoom ( ) [static]`

Joins any available room of the currently used lobby and fails if none is available.

Rooms can be created in arbitrary lobbies which get created on demand. You can join rooms from any lobby without actually joining the lobby. Use the `JoinRandomRoom` overload with `TypedLobby` parameter.

This method will only match rooms attached to one lobby! If you use many lobbies, you might have to repeat `JoinRandomRoom`, to find some fitting room. This method looks up a room in the currently active lobby or (if no lobby is joined) in the default lobby.

If this fails, you can still create a room (and make this available for the next who uses `JoinRandomRoom`). Alternatively, try again in a moment.

#### 8.17.2.33 `static bool PhotonNetwork.JoinRandomRoom ( Hashtable expectedCustomRoomProperties, byte expectedMaxPlayers ) [static]`

Attempts to join an open room with fitting, custom properties but fails if none is currently available.

Rooms can be created in arbitrary lobbies which get created on demand. You can join rooms from any lobby without actually joining the lobby. Use the `JoinRandomRoom` overload with `TypedLobby` parameter.

This method will only match rooms attached to one lobby! If you use many lobbies, you might have to repeat `JoinRandomRoom`, to find some fitting room. This method looks up a room in the currently active lobby or (if no lobby is joined) in the default lobby.

If this fails, you can still create a room (and make this available for the next who uses `JoinRandomRoom`). Alternatively, try again in a moment.



## Parameters

<i>expectedCustomRoomProperties</i>	Filters for rooms that match these custom properties (string keys and values). To ignore, pass null.
<i>expectedMaxPlayers</i>	Filters for a particular maxplayer setting. Use 0 to accept any maxPlayer value.

**8.17.2.34** `static bool PhotonNetwork.JoinRandomRoom ( Hashtable expectedCustomRoomProperties, byte expectedMaxPlayers, MatchmakingMode matchingType, TypedLobby typedLobby, string sqlLobbyFilter ) [static]`

Attempts to join an open room with fitting, custom properties but fails if none is currently available.

Rooms can be created in arbitrary lobbies which get created on demand. You can join rooms from any lobby without actually joining the lobby with this overload.

This method will only match rooms attached to one lobby! If you use many lobbies, you might have to repeat JoinRandomRoom, to find some fitting room. This method looks up a room in the specified lobby or the currently active lobby (if none specified) or in the default lobby (if none active).

If this fails, you can still create a room (and make this available for the next who uses JoinRandomRoom). Alternatively, try again in a moment.

In offlineMode, a room will be created but no properties will be set and all parameters of this JoinRandomRoom call are ignored. The event/callback OnJoinedRoom gets called (see enum PhotonNetworkingMessage).

## Parameters

<i>expectedCustomRoomProperties</i>	Filters for rooms that match these custom properties (string keys and values). To ignore, pass null.
<i>expectedMaxPlayers</i>	Filters for a particular maxplayer setting. Use 0 to accept any maxPlayer value.
<i>matchingType</i>	Selects one of the available matchmaking algorithms. See MatchmakingMode enum for options.
<i>typedLobby</i>	The lobby in which you want to lookup a room. Pass null, to use the default lobby. This does not join that lobby and neither sets the lobby property.
<i>sqlLobbyFilter</i>	A filter-string for SQL-typed lobbies.

**8.17.2.35** `static bool PhotonNetwork.JoinRoom ( string roomName, bool createlfNotExists ) [static]`

Join room by roomName with an option to create it on the fly if not existing.

Join will try to enter a room by roomName. If this room is full or closed, this will fail. If the room is not existing, JoinRoom will also fail by default.

You can set createlfNotExists to true to make the server create the room if required. This makes it easier for groups of players to get into the same room. Once the group exchanged a roomName, any player can try to join or create the room in one step - it doesn't matter who's first.

[OnJoinedRoom\(\)](#) gets called if the room existed and was joined, [OnCreatedRoom\(\)](#) gets called if the room didn't exist and this client created it. [OnPhotonJoinRoomFailed\(\)](#) gets called if the room couldn't be joined or created. Implement either in any script in the scene to react to joining/creating a room.

To join a room from the lobby's listing, use [RoomInfo.name](#) as roomName here.

In OfflineMode, this always "finds" and joins a room.

PhotonNetworkingMessage.OnPhotonJoinRoomFailed PhotonNetworkingMessage.OnJoinedRoom

## Parameters

<i>roomName</i>	Unique name of the room to join (or create if <code>createIfNotExists</code> is true).
<i>createIfNotExists</i>	If true, the server will attempt to create a room, making the success callback <a href="#">OnCreatedRoom()</a> .

**8.17.2.36** `static bool PhotonNetwork.JoinRoom ( string roomName ) [static]`

Join room by roomname and on success calls [OnJoinedRoom\(\)](#). This is not affected by lobbies.

On success, the method [OnJoinedRoom\(\)](#) is called on any script. You can implement it to react to joining a room.

`JoinRoom` fails if the room is either full or no longer available (it might become empty while you attempt to join). Implement [OnPhotonJoinRoomFailed\(\)](#) to get a callback in error case.

To join a room from the lobby's listing, use [RoomInfo.name](#) as `roomName` here. Despite using multiple lobbies, a `roomName` is always "global" for your application and so you don't have to specify which lobby it's in. The Master Server will find the room. In the [Photon](#) Cloud, an application is defined by AppId, Game- and PUN-version.

`PhotonNetworkingMessage.OnPhotonJoinRoomFailed` `PhotonNetworkingMessage.OnJoinedRoom`

## Parameters

<i>roomName</i>	Unique name of the room to join.
-----------------	----------------------------------

**8.17.2.37** `static bool PhotonNetwork.LeaveLobby ( ) [static]`

Leave a lobby to stop getting updates about available rooms.

This does not reset [PhotonNetwork.lobby](#)! This allows you to join this particular lobby later easily.

The values `countOfPlayers`, `countOfPlayersOnMaster`, `countOfPlayersInRooms` and `countOfRooms` are received even without being in a lobby.

You can use `JoinRandomRoom` without being in a lobby. Use `autoJoinLobby` to not join a lobby when you connect.

**8.17.2.38** `static bool PhotonNetwork.LeaveRoom ( ) [static]`

Leave the current room and return to the Master Server where you can join or create rooms (see remarks).

This will clean up all (network) `GameObjects` with a [PhotonView](#), unless you changed `autoCleanUp` to false. Returns to the Master Server.

In `OfflineMode`, the local "fake" room gets cleaned up and `OnLeftRoom` gets called immediately.

**8.17.2.39** `static void PhotonNetwork.LoadLevel ( int levelNumber ) [static]`

Wraps loading a level to pause the network message-queue. Optionally syncs the loaded level in a room.

While loading levels, it makes sense to not dispatch messages received by other players. This method takes care of that by setting [PhotonNetwork.isMessageQueueRunning](#) = false and enabling the queue when the level was loaded.

To sync the loaded level in a room, set [PhotonNetwork.automaticallySyncScene](#) to true. The Master Client of a room will then sync the loaded level with every other player in the room.

You should make sure you don't fire RPCs before you load another scene (which doesn't contain the same `GameObjects` and `PhotonViews`). You can call this in `OnJoinedRoom`.

This uses `Application.LoadLevel`.

## Parameters

<i>levelNumber</i>	Number of the level to load. When using level numbers, make sure they are identical on all clients.
--------------------	---

8.17.2.40 static void PhotonNetwork.LoadLevel ( string *levelName* ) [static]

Wraps loading a level to pause the network message-queue. Optionally syncs the loaded level in a room.

While loading levels, it makes sense to not dispatch messages received by other players. This method takes care of that by setting [PhotonNetwork.isMessageQueueRunning](#) = false and enabling the queue when the level was loaded.

To sync the loaded level in a room, set [PhotonNetwork.automaticallySyncScene](#) to true. The Master Client of a room will then sync the loaded level with every other player in the room.

You should make sure you don't fire RPCs before you load another scene (which doesn't contain the same Game↔Objects and PhotonViews). You can call this in OnJoinedRoom.

This uses Application.LoadLevel.

## Parameters

<i>levelName</i>	Name of the level to load. Make sure it's available to all clients in the same room.
------------------	--

## 8.17.2.41 static void PhotonNetwork.NetworkStatisticsReset ( ) [static]

Resets the traffic stats and re-enables them.

## 8.17.2.42 static string PhotonNetwork.NetworkStatisticsToString ( ) [static]

Only available when NetworkStatisticsEnabled was used to gather some stats.

## Returns

A string with vital networking statistics.

8.17.2.43 static void PhotonNetwork.OverrideBestCloudServer ( CloudRegionCode *region* ) [static]

Overwrites the region that is used for [ConnectToBestCloudServer\(string gameVersion\)](#).

This will overwrite the result of pinging all cloud servers. Use this to allow your users to save a manually selected region in the prefs.

8.17.2.44 static bool PhotonNetwork.RaiseEvent ( byte *eventCode*, object *eventContent*, bool *sendReliable*, RaiseEventOptions *options* ) [static]

Sends fully customizable events in a room. Events consist of at least an EventCode (0..199) and can have content.

To receive the events someone sends, register your handling method in [PhotonNetwork.OnEventCall](#).

Example: private void OnEventHandler(byte eventCode, object content, int senderId) { Debug.Log("OnEvent↔Handler"); }

[PhotonNetwork.OnEventCall](#) += this.OnEventHandler;

With the senderId, you can look up the [PhotonPlayer](#) who sent the event. It is best practice to assign an eventCode for each different type of content and action. You have to cast the content.

The eventContent is optional. To be able to send something, it must be a "serializable type", something that the client can turn into a byte[] basically. Most basic types and arrays of them are supported, including Unity's Vector2,

Vector3, Quaternion. Transforms or classes some project defines are NOT supported! You can make your own class a "serializable type" by following the example in [CustomTypes.cs](#).

The [RaiseEventOptions](#) have some (less intuitive) combination rules: If you set `targetActors` (an array of [PhotonPlayer.ID](#) values), the `receivers` parameter gets ignored. When using event caching, the `targetActors`, `receivers` and `interestGroup` can't be used. Buffered events go to all. When using `cachingOption removeFromRoomCache`, the `eventCode` and `content` are actually not sent but used as filter.

#### Parameters

<i>eventCode</i>	A byte identifying the type of event. You might want to use a code per action or to signal which content can be expected. Allowed: 0..199.
<i>eventContent</i>	Some serializable object like string, byte, integer, float (etc) and arrays of those. Hashtables with byte keys are good to send variable content.
<i>sendReliable</i>	Makes sure this event reaches all players. It gets acknowledged, which requires bandwidth and it can't be skipped (might add lag in case of loss).
<i>options</i>	Allows more complex usage of events. If null, <a href="#">RaiseEventOptions.Default</a> will be used (which is fine).

#### Returns

False if event could not be sent

#### 8.17.2.45 static void PhotonNetwork.RefreshCloudServerRating ( ) [static]

Pings all cloud servers again to find the one with best ping (currently).

#### 8.17.2.46 static void PhotonNetwork.RemoveRPCs ( PhotonPlayer targetPlayer ) [static]

Remove all buffered RPCs from server that were sent by `targetPlayer`. Can only be called on local player (for "self") or Master Client (for anyone).

This method requires either:

- This is the `targetPlayer`'s client.
- This client is the Master Client (can remove any [PhotonPlayer](#)'s RPCs).

If the `targetPlayer` calls RPCs at the same time that this is called, network lag will determine if those get buffered or cleared like the rest.

#### Parameters

<i>targetPlayer</i>	This player's buffered RPCs get removed from server buffer.
---------------------	---

#### 8.17.2.47 static void PhotonNetwork.RemoveRPCs ( PhotonView targetPhotonView ) [static]

Remove all buffered RPCs from server that were sent via `targetPhotonView`. The Master Client and the owner of the `targetPhotonView` may call this.

This method requires either:

- The `targetPhotonView` is owned by this client (Instantiated by it).
- This client is the Master Client (can remove any [PhotonView](#)'s RPCs).

## Parameters

<i>targetPhotonView</i>	RPCs buffered for this <a href="#">PhotonView</a> get removed from server buffer.
-------------------------	---

8.17.2.48 static void PhotonNetwork.RemoveRPCsInGroup ( int *targetGroup* ) [static]

Remove all buffered RPCs from server that were sent in the targetGroup, if this is the Master Client or if this controls the individual [PhotonView](#).

This method requires either:

- This client is the Master Client (can remove any RPCs per group).
- Any other client: each [PhotonView](#) is checked if it is under this client's control. Only those RPCs are removed.

## Parameters

<i>targetGroup</i>	Interest group that gets all RPCs removed.
--------------------	--

## 8.17.2.49 static void PhotonNetwork.SendOutgoingCommands ( ) [static]

Can be used to immediately send the RPCs and Instantiates just called, so they are on their way to the other players.

This could be useful if you do a RPC to load a level and then load it yourself. While loading, no RPCs are sent to others, so this would delay the "load" RPC. You can send the RPC to "others", use this method, disable the message queue (by `isMessageQueueRunning`) and then load.

8.17.2.50 static void PhotonNetwork.SetLevelPrefix ( short *prefix* ) [static]

Sets level prefix for PhotonViews instantiated later on. Don't set it if you need only one!

Important: If you don't use multiple level prefixes, simply don't set this value. The default value is optimized out of the traffic.

This won't affect existing PhotonViews (they can't be changed yet for existing PhotonViews).

Messages sent with a different level prefix will be received but not executed. This affects RPCs, Instantiates and synchronization.

Be aware that PUN never resets this value, you'll have to do so yourself.

## Parameters

<i>prefix</i>	Max value is <code>short.MaxValue = 32767</code>
---------------	--

8.17.2.51 static bool PhotonNetwork.SetMasterClient ( [PhotonPlayer](#) *masterClientPlayer* ) [static]

Allows the current Master Client to assign someone else as MC - custom selection should pick the same user on any client.

The `ReceiverGroup.MasterClient` (usable in RPCs) is not affected by this (still points to lowest player.ID in room). Avoid using this enum value (and send to a specific player instead).

If the current Master Client leaves, PUN will detect a new one by "lowest player ID". Implement `OnMasterClientSwitched` to get a callback in this case. The PUN-selected Master Client might assign a new one.

Make sure you don't create an endless loop of Master-assigning! When selecting a custom Master Client, all clients should point to the same player, no matter who actually assigns this player.

Locally the Master Client is immediately switched, while remote clients get an event. This means the game is temporarily without Master Client like when a current Master Client leaves.

When switching the Master Client manually, keep in mind that this user might leave and not do it's work, just like any Master Client.

#### Parameters

<i>masterClient</i> ↔ <i>Player</i>	The player of the next Master Client.
--	---------------------------------------

#### Returns

False when this synced action couldn't be done. Must be online and Master Client.

#### 8.17.2.52 static void PhotonNetwork.SetPlayerCustomProperties ( Hashtable *customProperties* ) [static]

Sets this (local) player's properties and synchronizes them to the other players (don't modify them directly).

While in a room, your properties are synced with the other players. CreateRoom, JoinRoom and JoinRandomRoom will all apply your player's custom properties when you enter the room. The whole Hashtable will get sent. Minimize the traffic by setting only updated key/values.

If the Hashtable is null, the custom properties will be cleared. Custom properties are never cleared automatically, so they carry over to the next room, if you don't change them.

Don't set properties by modifying PhotonNetwork.player.customProperties!

#### Parameters

<i>custom</i> ↔ <i>Properties</i>	Only string-typed keys will be used from this hashtable. If null, custom properties are all deleted.
--------------------------------------	--

#### 8.17.2.53 static void PhotonNetwork.SetReceivingEnabled ( int *group*, bool *enabled* ) [static]

Enable/disable receiving on given group (applied to PhotonViews)

#### Parameters

<i>group</i>	The interest group to affect.
<i>enabled</i>	Sets if receiving from group to enabled (or not).

#### 8.17.2.54 static void PhotonNetwork.SetReceivingEnabled ( int[] *enableGroups*, int[] *disableGroups* ) [static]

Enable/disable receiving on given groups (applied to PhotonViews)

#### Parameters

<i>enableGroups</i>	The interest groups to enable (or null).
<i>disableGroups</i>	The interest groups to disable (or null).

#### 8.17.2.55 static void PhotonNetwork.SetSendingEnabled ( int *group*, bool *enabled* ) [static]

Enable/disable sending on given group (applied to PhotonViews)

## Parameters

<i>group</i>	The interest group to affect.
<i>enabled</i>	Sets if sending to group is enabled (or not).

**8.17.2.56** `static void PhotonNetwork.SetSendingEnabled ( int[] enableGroups, int[] disableGroups ) [static]`

Enable/disable sending on given groups (applied to PhotonViews)

## Parameters

<i>enableGroups</i>	The interest groups to enable sending on (or null).
<i>disableGroups</i>	The interest groups to disable sending on (or null).

**8.17.2.57** `static void PhotonNetwork.SwitchToProtocol ( ConnectionProtocol cp ) [static]`

While offline, the network protocol can be switched (which affects the ports you can use to connect).

When you switch the protocol, make sure to also switch the port for the master server. Default ports are: TCP: 4530  
UDP: 5055

This could look like this:

```
Connect(serverAddress, <udpport|tcpport>, applID, gameVersion)
```

Or when you use [ConnectUsingSettings\(\)](#), the PORT in the settings can be switched like so:

```
PhotonNetwork.PhotonServerSettings.ServerPort = 4530;
```

The current protocol can be read this way:

```
PhotonNetwork.networkingPeer.UsedProtocol
```

This does not work with the native socket plugin of PUN+ on mobile!

## Parameters

<i>cp</i>	Network protocol to use as low level connection. UDP is default. TCP is not available on all platforms (see remarks).
-----------	---

**8.17.2.58** `static void PhotonNetwork.UnAllocateViewID ( int viewID ) [static]`

Unregister a viewID (of manually instantiated and destroyed networked objects).

## Parameters

<i>viewID</i>	A viewID manually allocated by this player.
---------------	---

**8.17.2.59** `static bool PhotonNetwork.WebRpc ( string name, object parameters ) [static]`

This operation makes [Photon](#) call your custom web-service by name (path) with the given parameters.

This is a server-side feature which must be setup in the [Photon Cloud Dashboard](#) prior to use. See the Turnbased Feature Overview for a short intro. <http://doc.exitgames.com/en/turnbased/current/getting-started/fea>

The Parameters will be converted into JSON format, so make sure your parameters are compatible.

See [PhotonNetworkingMessage.OnWebRpcResponse](#) on how to get a response.

It's important to understand that the [OperationResponse](#) only tells if the WebRPC could be called. The content of the response contains any values your web-service sent and the error/success code. In case the web-service failed in some way, an error code and a debug message are usually inside the [OperationResponse](#).

The class [WebRpcResponse](#) is a helper-class that extracts the most valuable content from the WebRPC response.

Example callback implementation:

```
public void OnWebRpcResponse(OperationResponse response) { WebRpcResponse webResponse = new WebRpcResponse(operationResponse); if (webResponse.ReturnCode != 0) { ... }
switch (webResponse.Name) { ... } // and so on }
```

### 8.17.3 Member Data Documentation

#### 8.17.3.1 bool PhotonNetwork.InstantiateInRoomOnly = true [static]

If true, Instantiate methods will check if you are in a room and fail if you are not.

Instantiating anything outside of a specific room is very likely to break things. Turn this off only if you know what you do.

#### 8.17.3.2 PhotonLogLevel PhotonNetwork.logLevel = PhotonLogLevel.ErrorsOnly [static]

Network log level. Controls how verbose PUN is.

#### 8.17.3.3 readonly int PhotonNetwork.MAX\_VIEW\_IDS = 1000 [static]

The maximum amount of assigned PhotonViews PER player (or scene). See the documentation on how to raise this limitation

#### 8.17.3.4 EventCallback PhotonNetwork.OnEventCall [static]

Register your RaiseEvent handling methods here by using "+=".

Any eventCode < 200 will be forwarded to your delegate(s).

[RaiseEvent](#)

#### 8.17.3.5 ServerSettings PhotonNetwork.PhotonServerSettings = (ServerSettings)Resources.Load(PhotonNetwork.serverSettingsAssetFile, typeof(ServerSettings)) [static]

Serialized server settings, written by the Setup Wizard for use in ConnectUsingSettings.

#### 8.17.3.6 float PhotonNetwork.precisionForFloatSynchronization = 0.01f [static]

The minimum difference between floats before we send it via a [PhotonView](#)'s OnSerialize/ObservingComponent

#### 8.17.3.7 float PhotonNetwork.precisionForQuaternionSynchronization = 1.0f [static]

The minimum angle that a rotation needs to change before we send it via a [PhotonView](#)'s OnSerialize/ObservingComponent

#### 8.17.3.8 float PhotonNetwork.precisionForVectorSynchronization = 0.000099f [static]

The minimum difference that a Vector2 or Vector3(e.g. a transforms rotation) needs to change before we send it via a [PhotonView](#)'s OnSerialize/ObservingComponent Note that this is the sqrMagnitude. E.g. to send only after a 0.01 change on the Y-axis, we use 0.01f\*0.01f=0.0001f. As a remedy against float inaccuracy we use 0.000099f instead of 0.0001f.



**8.17.3.9** `Dictionary<string, GameObject> PhotonNetwork.PrefabCache = new Dictionary<string, GameObject>()`  
`[static]`

Keeps references to GameObjects for frequent instantiation (out of memory instead of loading the Resources).

You should be able to modify the cache anytime you like, except while `Instantiate` is used. Best do it only in the main-Thread.

**8.17.3.10** `HashSet<GameObject> PhotonNetwork.SendMonoMessageTargets` `[static]`

If not null, this is the (exclusive) list of GameObjects that get called by `PUN SendMonoMessage()`.

For all callbacks defined in `PhotonNetworkingMessage`, PUN will use `SendMonoMessage` and call `FindObjectsOfType()` to find all scripts and GameObjects that might want a callback by PUN.

PUN callbacks are not very frequent (in-game, property updates are most frequent) but `FindObjectsOfType` is time consuming and with a large number of GameObjects, performance might suffer.

Optionally, `SendMonoMessageTargets` can be used to supply a list of target GameObjects. This skips the `FindObjectsOfType()` but any GameObject that needs callbacks will have to Add itself to this list.

If null, the default behaviour is to do a `SendMessage` on each GameObject with a `MonoBehaviour`.

**8.17.3.11** `Type PhotonNetwork.SendMonoMessageTargetType = typeof(MonoBehaviour)` `[static]`

**8.17.3.12** `const string PhotonNetwork.serverSettingsAssetFile = "PhotonServerSettings"`

Name of the `PhotonServerSettings` file (used to load and by `PhotonEditor` to save new files).

**8.17.3.13** `const string PhotonNetwork.serverSettingsAssetPath = "Assets/Photon Unity Networking/Resources/" + PhotonNetwork.serverSettingsAssetFile + ".asset"`

Path to the `PhotonServerSettings` file (used by `PhotonEditor`).

**8.17.3.14** `bool PhotonNetwork.UseNameServer = true` `[static]`

**8.17.3.15** `bool PhotonNetwork.UsePrefabCache = true` `[static]`

While enabled (true), `Instantiate` uses [PhotonNetwork.PrefabCache](#) to keep game objects in memory (improving instantiation of the same prefab).

Setting `UsePrefabCache` to false during runtime will not clear `PrefabCache` but will ignore it right away. You could clean and modify the cache yourself. Read its comments.

**8.17.3.16** `const string PhotonNetwork.versionPUN = "1.51"`

Version number of PUN. Also used in `GameVersion` to separate client version from each other.

## 8.17.4 Property Documentation

**8.17.4.1** `AuthenticationValues PhotonNetwork.AuthValues` `[static], [get], [set]`

A user's authentication values used during connect for Custom Authentication with [Photon](#) (and a custom service/community). Set these before calling `Connect` if you want custom authentication.

If authentication fails for any values, PUN will call your implementation of `OnCustomAuthenticationFailed(string debugMsg)`. See: `PhotonNetworkingMessage.OnCustomAuthenticationFailed`

#### 8.17.4.2 `bool PhotonNetwork.autoCleanUpPlayerObjects` `[static], [get], [set]`

This setting defines if players in a room should destroy a leaving player's instantiated GameObjects and PhotonViews.

When "this client" creates a room/game, `autoCleanUpPlayerObjects` is copied to that room's properties and used by all PUN clients in that room (no matter what their `autoCleanUpPlayerObjects` value is).

If `room.AutoCleanUp` is enabled in a room, the PUN clients will destroy a player's objects on leave.

When enabled, the server will clean RPCs, instantiated GameObjects and PhotonViews of the leaving player and joining players won't get those anymore.

Once a room is created, this setting can't be changed anymore.

Enabled by default.

#### 8.17.4.3 `bool PhotonNetwork.autoJoinLobby` `[static], [get], [set]`

Defines if the [PhotonNetwork](#) should join the "lobby" when connected to the Master server.

If this is false, `OnConnectedToMaster()` will be called when connection to the Master is available. `OnJoinedLobby()` will NOT be called if this is false.

Enabled by default.

The room listing will not become available. Rooms can be created and joined (randomly) without joining the lobby (and getting sent the room list).

#### 8.17.4.4 `bool PhotonNetwork.automaticallySyncScene` `[static], [get], [set]`

Defines if PUN automatically synchronizes the loaded level per room. Default: false / disabled.

If the MasterClient loads a level, all clients will load the new scene too. This also takes care of smooth loading of the game scene after joining a game.

In best case, use [PhotonNetwork.LoadLevel](#) on the Master Client to change levels.

true if automatically sync scene; otherwise, false.

#### 8.17.4.5 `bool PhotonNetwork.connected` `[static], [get]`

False until you connected to [Photon](#) initially. True in offline mode, while connected to any server and even while switching servers but

#### 8.17.4.6 `bool PhotonNetwork.connectedAndReady` `[static], [get]`

A refined version of `connected` which is true only if your connection to the server is ready to accept operations like join, leave, etc.

#### 8.17.4.7 `bool PhotonNetwork.connecting` `[static], [get]`

True when you called `ConnectUsingSettings` (or similar) until the low level connection to [Photon](#) gets established.

#### 8.17.4.8 `ConnectionState PhotonNetwork.connectionState` `[static], [get]`

Simplified connection state

**8.17.4.9 PeerState PhotonNetwork.connectionStateDetailed** [static], [get]

Detailed connection state (ignorant of PUN, so it can be "disconnected" while switching servers).

In OfflineMode, this is PeerState.Joined (after create/join) or it is ConnectedToMaster in all other cases.

**8.17.4.10 int PhotonNetwork.countOfPlayers** [static], [get]

The count of players currently using this application (available on MasterServer in 5sec intervals).

**8.17.4.11 int PhotonNetwork.countOfPlayersInRooms** [static], [get]

Count of users currently playing your app in some room (sent every 5sec by Master Server). Use `playerList.Count` to get the count of players in the room you're in!

**8.17.4.12 int PhotonNetwork.countOfPlayersOnMaster** [static], [get]

The count of players currently looking for a room (available on MasterServer in 5sec intervals).

**8.17.4.13 int PhotonNetwork.countOfRooms** [static], [get]

The count of rooms currently in use (available on MasterServer in 5sec intervals).

While inside the lobby you can also check the count of listed rooms as: `PhotonNetwork.GetRoomList().Length`. Since PUN v1.25 this is only based on the statistic event `Photon` sends (counting all rooms).

**8.17.4.14 bool PhotonNetwork.CrcCheckEnabled** [static], [get], [set]

Crc checks can be useful to detect and avoid issues with broken datagrams. Can be enabled while not connected.

**8.17.4.15 List<FriendInfo> PhotonNetwork.Friends** [static], [get], [set]

Read-only list of friends, their online status and the room they are in. Null until initialized by a FindFriends call.

Do not modify this list! It is internally handled by FindFriends and only available to read the values. The value of FriendsListAge tells you how old the data is in milliseconds.

Don't get this list more often than useful (> 10 seconds). In best case, keep the list you fetch really short. You could (e.g.) get the full list only once, then request a few updates only for friends who are online. After a while (e.g. 1 minute), you can get the full list again (to update online states).

**8.17.4.16 int PhotonNetwork.FriendsListAge** [static], [get]

Age of friend list info (in milliseconds). It's 0 until a friend list is fetched.

**8.17.4.17 string PhotonNetwork.gameVersion** [static], [get], [set]**8.17.4.18 bool PhotonNetwork.inRoom** [static], [get]

Is true while being in a room (`connectionStateDetailed == PeerState.Joined`).

Many actions can only be executed in a room, like Instantiate or Leave, etc. You can join a room in offline mode, too.

#### 8.17.4.19 `bool PhotonNetwork.insideLobby` [static], [get]

True while this client is in a lobby.

You are automatically leaving any lobby when you join a room! Lobbies only exist on the Master Server (whereas rooms are handled by Game Servers).

#### 8.17.4.20 `bool PhotonNetwork.isMasterClient` [static], [get]

Are we the master client?

#### 8.17.4.21 `bool PhotonNetwork.isMessageQueueRunning` [static], [get], [set]

Can be used to pause dispatching of incoming events (RPCs, Instantiates and anything else incoming).

While `IsMessageQueueRunning == false`, the `OnPhotonSerializeView` calls are not done and nothing is sent by a client. Also, incoming messages will be queued until you re-activate the message queue.

This can be useful if you first want to load a level, then go on receiving data of PhotonViews and RPCs. The client will go on receiving and sending acknowledgements for incoming packages and your RPCs/Events. This adds "lag" and can cause issues when the pause is longer, as all incoming messages are just queued.

#### 8.17.4.22 `bool PhotonNetwork.isNonMasterClientInRoom` [static], [get]

True if we are in a room (client) and NOT the room's masterclient

#### 8.17.4.23 `TypedLobby PhotonNetwork.lobby` [static], [get], [set]

The lobby that will be used when PUN joins a lobby or creates a game.

The default lobby uses an empty string as name. PUN will enter a lobby on the Master Server if `autoJoinLobby` is set to true. So when you connect or leave a room, PUN automatically gets you into a lobby again.

Check [PhotonNetwork.insideLobby](#) if the client is in a lobby. ([Master Server And Lobby](#))

#### 8.17.4.24 `PhotonPlayer PhotonNetwork.masterClient` [static], [get]

The [PhotonPlayer](#) of the master client. The master client is the 'virtual owner' of the room. You can use it if you need authoritative decision made by one of the players.

The `masterClient` is null until a room is joined and becomes null again when the room is left.

#### 8.17.4.25 `int PhotonNetwork.maxConnections` [static], [get], [set]

The maximum number of players for a room. Better: Set it in `CreateRoom`. If no room is opened, this will return 0.

#### 8.17.4.26 `int PhotonNetwork.MaxResendsBeforeDisconnect` [static], [get], [set]

Defines the number of times a reliable message can be resent before not getting an ACK for it will trigger a disconnect. Default: 5.

Less resends mean quicker disconnects, while more can lead to much more lag without helping. Min: 3. Max: 10.

**8.17.4.27** `bool PhotonNetwork.NetworkStatisticsEnabled` `[static], [get], [set]`

Enables or disables the collection of statistics about this client's traffic.

If you encounter issues with clients, the traffic stats are a good starting point to find solutions. Only with enabled stats, you can use `GetVitalStats`

**8.17.4.28** `bool PhotonNetwork.offlineMode` `[static], [get], [set]`

Offline mode can be set to re-use your multiplayer code in singleplayer game modes. When this is on [PhotonNetwork](#) will not create any connections and there is near to no overhead. Mostly usefull for reusing RPC's and [PhotonNetwork.Instantiate](#)

**8.17.4.29** `PhotonPlayer [] PhotonNetwork.otherPlayers` `[static], [get]`

The other PhotonPlayers, not including our local player.

**8.17.4.30** `int PhotonNetwork.PacketLossByCrcCheck` `[static], [get]`

If `CrcCheckEnabled`, this counts the incoming packages that don't have a valid CRC checksum and got rejected.

**8.17.4.31** `PhotonPlayer PhotonNetwork.player` `[static], [get]`

The local [PhotonPlayer](#). Always available and represents this player. `CustomProperties` can be set before entering a room and will be synced as well.

**8.17.4.32** `PhotonPlayer [] PhotonNetwork.playerList` `[static], [get]`

The full [PhotonPlayer](#) list, including the local player.

**8.17.4.33** `string PhotonNetwork.playerName` `[static], [get], [set]`

This local player's name.

Setting the name will automatically send it, if connected. Setting null, won't change the name.

**8.17.4.34** `int PhotonNetwork.ResentReliableCommands` `[static], [get]`

Count of commands that got repeated (due to local repeat-timing before an ACK was received).

**8.17.4.35** `Room PhotonNetwork.room` `[static], [get]`

Get the room we're currently in. Null if we aren't in any room.

**8.17.4.36** `int PhotonNetwork.sendRate` `[static], [get], [set]`

Defines how many times per second [PhotonNetwork](#) should send a package. If you change this, do not forget to also change 'sendRateOnSerialize'.

Less packages are less overhead but more delay. Setting the `sendRate` to 50 will create up to 50 packages per second (which is a lot!). Keep your target platform in mind: mobile networks are slower and less reliable.

**8.17.4.37** `int PhotonNetwork.sendRateOnSerialize` `[static], [get], [set]`

Defines how many times per second `OnPhotonSerialize` should be called on `PhotonViews`.

Choose this value in relation to 'sendRate'. `OnPhotonSerialize` will create the commands to be put into packages. A lower rate takes up less performance but will cause more lag.

**8.17.4.38** `ServerConnection PhotonNetwork.Server` `[static], [get]`

The server this client is currently connected or connecting to.

**8.17.4.39** `string PhotonNetwork.ServerAddress` `[static], [get]`

Currently used server address (no matter if master or game server).

**8.17.4.40** `double PhotonNetwork.time` `[static], [get]`

[Photon](#) network time, synched with the server

v1.3: This time reflects milliseconds since start of the server, cut down to 4 bytes. It will overflow every 49 days from a high value to 0. We do not (yet) compensate this overflow. Master- and Game-Server will have different time values. v1.10: Fixed issues with precision for high server-time values. This should update with 15ms precision by default.

**8.17.4.41** `int PhotonNetwork.unreliableCommandsLimit` `[static], [get], [set]`

Used once per dispatch to limit unreliable commands per channel (so after a pause, many channels can still cause a lot of unreliable commands)

## 8.18 PhotonPingManager Class Reference

### Public Member Functions

- `IEnumerator` [PingSocket](#) ([Region](#) region)

### Static Public Member Functions

- static `string` [ResolveHost](#) (`string` hostName)  
*Attempts to resolve a hostname into an IP string or returns empty string if that fails.*

### Public Attributes

- `bool` [UseNative](#)

### Static Public Attributes

- static `int` [Attempts](#) = 5
- static `bool` [IgnoreInitialAttempt](#) = true
- static `int` [MaxMillisecondsPerPing](#) = 800

## Properties

- [Region BestRegion](#) [get]
- bool [Done](#) [get]

## 8.18.1 Member Function Documentation

### 8.18.1.1 IEnumerator PhotonPingManager.PingSocket ( [Region region](#) )

Affected by frame-rate of app, as this Coroutine checks the socket for a result once per frame.

### 8.18.1.2 static string PhotonPingManager.ResolveHost ( [string hostName](#) ) [static]

Attempts to resolve a hostname into an IP string or returns empty string if that fails.

Parameters

<i>hostName</i>	Hostname to resolve.
-----------------	----------------------

Returns

IP string or empty string if resolution fails

## 8.18.2 Member Data Documentation

### 8.18.2.1 int PhotonPingManager.Attempts = 5 [static]

### 8.18.2.2 bool PhotonPingManager.IgnoreInitialAttempt = true [static]

### 8.18.2.3 int PhotonPingManager.MaxMillisecondsPerPing = 800 [static]

### 8.18.2.4 bool PhotonPingManager.UseNative

## 8.18.3 Property Documentation

### 8.18.3.1 [Region PhotonPingManager.BestRegion](#) [get]

### 8.18.3.2 bool [PhotonPingManager.Done](#) [get]

## 8.19 PhotonPlayer Class Reference

Summarizes a "player" within a room, identified (in that room) by actorID.

## Public Member Functions

- [PhotonPlayer](#) (bool [isLocal](#), int actorID, string [name](#))  
*Creates a [PhotonPlayer](#) instance.*
- override bool [Equals](#) (object p)  
*Makes [PhotonPlayer](#) comparable*
- override int [GetHashCode](#) ()
- void [SetCustomProperties](#) ([Hashtable](#) propertiesToSet)  
*Updates and synchronizes the named properties of this Player with the values of propertiesToSet.*
- void [SetCustomProperties](#) ([Hashtable](#) propertiesToSet, [Hashtable](#) expectedValues)

- [PhotonPlayer Get](#) (int id)
- [PhotonPlayer GetNext](#) ()
- [PhotonPlayer GetNextFor](#) ([PhotonPlayer](#) currentPlayer)
- [PhotonPlayer GetNextFor](#) (int currentPlayerId)
- override string [ToString](#) ()  
*Brief summary string of the [PhotonPlayer](#). Includes name or player.ID and if it's the Master Client.*
- string [ToStringFull](#) ()  
*String summary of the [PhotonPlayer](#): player.ID, name and all custom properties of this user.*

## Static Public Member Functions

- static [PhotonPlayer Find](#) (int ID)  
*Try to get a specific player by id.*

## Public Attributes

- readonly bool [isLocal](#) = false  
*Only one player is controlled by each client. Others are not local.*
- object [TagObject](#)  
*Can be used to store a reference that's useful to know "by player".*

## Protected Member Functions

- [PhotonPlayer](#) (bool [isLocal](#), int actorID, [Hashtable](#) properties)  
*Internally used to create players from event Join*

## Properties

- int [ID](#) [get]  
*This player's actorID*
- string [name](#) [get, set]  
*Nickname of this player.*
- bool [isMasterClient](#) [get]  
*The player with the lowest actorID is the master and could be used for special tasks.*
- [Hashtable customProperties](#) [get, set]  
*Read-only cache for custom properties of player. Set via [Player.SetCustomProperties](#).*
- [Hashtable allProperties](#) [get]  
*Creates a Hashtable with all properties (custom and "well known" ones).*

### 8.19.1 Detailed Description

Summarizes a "player" within a room, identified (in that room) by actorID.

Each player has an actorId (or ID), valid for that room. It's -1 until it's assigned by server. Each client can set it's player's custom properties with [SetCustomProperties](#), even before being in a room. They are synced when joining a room.

### 8.19.2 Constructor & Destructor Documentation

#### 8.19.2.1 [PhotonPlayer.PhotonPlayer](#) ( bool *isLocal*, int *actorID*, string *name* )

Creates a [PhotonPlayer](#) instance.



## Parameters

<i>isLocal</i>	If this is the local peer's player (or a remote one).
<i>actorID</i>	ID or ActorNumber of this player in the current room (a shortcut to identify each player in room)
<i>name</i>	Name of the player (a "well known property").

8.19.2.2 PhotonPlayer.PhotonPlayer ( bool *isLocal*, int *actorID*, Hashtable *properties* ) [protected]

Internally used to create players from event Join

## 8.19.3 Member Function Documentation

8.19.3.1 override bool PhotonPlayer.Equals ( object *p* )

Makes [PhotonPlayer](#) comparable

8.19.3.2 static PhotonPlayer PhotonPlayer.Find ( int *ID* ) [static]

Try to get a specific player by id.

## Parameters

<i>ID</i>	ActorID
-----------	---------

## Returns

The player with matching actorID or null, if the actorID is not in use.

8.19.3.3 PhotonPlayer PhotonPlayer.Get ( int *id* )

## 8.19.3.4 override int PhotonPlayer.GetHashCode ( )

## 8.19.3.5 PhotonPlayer PhotonPlayer.GetNext ( )

8.19.3.6 PhotonPlayer PhotonPlayer.GetNextFor ( PhotonPlayer *currentPlayer* )8.19.3.7 PhotonPlayer PhotonPlayer.GetNextFor ( int *currentPlayerId* )8.19.3.8 void PhotonPlayer.SetCustomProperties ( Hashtable *propertiesToSet* )

Updates and synchronizes the named properties of this Player with the values of propertiesToSet.

Any player's properties are available in a [Room](#) only and only until the player disconnect or leaves. Access any player's properties by: Player.CustomProperties (read-only!) but don't modify that hashtable.

New properties are added, existing values are updated. Other values will not be changed, so only provide values that changed or are new. To delete a named (custom) property of this player, use null as value. Only string-typed keys are applied (everything else is ignored).

Local cache is updated immediately, other players are updated through [Photon](#) with a fitting operation. To reduce network traffic, set only values that actually changed.

## Parameters

<i>propertiesToSet</i>	Hashtable of props to update, set and sync. See description.
------------------------	--

8.19.3.9 void PhotonPlayer.SetCustomProperties ( Hashtable *propertiesToSet*, Hashtable *expectedValues* )

8.19.3.10 override string PhotonPlayer.ToString ( )

Brief summary string of the [PhotonPlayer](#). Includes name or player.ID and if it's the Master Client.

8.19.3.11 string PhotonPlayer.ToStringFull ( )

String summary of the [PhotonPlayer](#): player.ID, name and all custom properties of this user.

Use with care and not every frame! Converts the customProperties to a String on every single call.

## 8.19.4 Member Data Documentation

8.19.4.1 readonly bool PhotonPlayer.isLocal = false

Only one player is controlled by each client. Others are not local.

8.19.4.2 object PhotonPlayer.TagObject

Can be used to store a reference that's useful to know "by player".

Example: Set a player's character as Tag by assigning the GameObject on Instantiate.

## 8.19.5 Property Documentation

8.19.5.1 Hashtable PhotonPlayer.allProperties [get]

Creates a Hashtable with all properties (custom and "well known" ones).

If used more often, this should be cached.

8.19.5.2 Hashtable PhotonPlayer.customProperties [get], [set]

Read-only cache for custom properties of player. Set via Player.SetCustomProperties.

Don't modify the content of this Hashtable. Use SetCustomProperties and the properties of this class to modify values. When you use those, the client will sync values with the server.

8.19.5.3 int PhotonPlayer.ID [get]

This player's actorID

8.19.5.4 bool PhotonPlayer.isMasterClient [get]

The player with the lowest actorID is the master and could be used for special tasks.

8.19.5.5 `string PhotonPlayer.name` `[get]`, `[set]`

Nickname of this player.

## 8.20 PhotonRigidbody2DView Class Reference

This class helps you to synchronize the velocities of a 2d physics Rigidbody. Note that only the velocities are synchronized and because Unitys physics engine is not deterministic (ie. the results aren't always the same on all computers) - the actual positions of the objects may go out of sync. If you want to have the position of this object the same on all clients, you should also add a [PhotonTransformView](#) to synchronize the position. Simply add the component to your GameObject and make sure that the [PhotonRigidbody2DView](#) is added to the list of observed components

Inherits MonoBehaviour.

### 8.20.1 Detailed Description

This class helps you to synchronize the velocities of a 2d physics Rigidbody. Note that only the velocities are synchronized and because Unitys physics engine is not deterministic (ie. the results aren't always the same on all computers) - the actual positions of the objects may go out of sync. If you want to have the position of this object the same on all clients, you should also add a [PhotonTransformView](#) to synchronize the position. Simply add the component to your GameObject and make sure that the [PhotonRigidbody2DView](#) is added to the list of observed components

## 8.21 PhotonRigidbodyView Class Reference

This class helps you to synchronize the velocities of a physics Rigidbody. Note that only the velocities are synchronized and because Unitys physics engine is not deterministic (ie. the results aren't always the same on all computers) - the actual positions of the objects may go out of sync. If you want to have the position of this object the same on all clients, you should also add a [PhotonTransformView](#) to synchronize the position. Simply add the component to your GameObject and make sure that the [PhotonRigidbodyView](#) is added to the list of observed components

Inherits MonoBehaviour.

### 8.21.1 Detailed Description

This class helps you to synchronize the velocities of a physics Rigidbody. Note that only the velocities are synchronized and because Unitys physics engine is not deterministic (ie. the results aren't always the same on all computers) - the actual positions of the objects may go out of sync. If you want to have the position of this object the same on all clients, you should also add a [PhotonTransformView](#) to synchronize the position. Simply add the component to your GameObject and make sure that the [PhotonRigidbodyView](#) is added to the list of observed components

## 8.22 PhotonStatsGui Class Reference

Basic GUI to show traffic and health statistics of the connection to [Photon](#), toggled by shift+tab.

Inherits MonoBehaviour.

## Public Member Functions

- void [Start](#) ()
- void [Update](#) ()  
*Checks for shift+tab input combination (to toggle statsOn).*
- void [OnGUI](#) ()
- void [TrafficStatsWindow](#) (int windowID)

## Public Attributes

- bool [statsWindowOn](#) = true  
*Shows or hides GUI (does not affect if stats are collected).*
- bool [statsOn](#) = true  
*Option to turn collecting stats on or off (used in [Update\(\)](#)).*
- bool [healthStatsVisible](#)  
*Shows additional "health" values of connection.*
- bool [trafficStatsOn](#)  
*Shows additional "lower level" traffic stats.*
- bool [buttonsOn](#)  
*Show buttons to control stats and reset them.*
- Rect [statsRect](#) = new Rect(0, 100, 200, 50)  
*Positioning rect for window.*
- int [WindowId](#) = 100  
*Unity GUI Window ID (must be unique or will cause issues).*

### 8.22.1 Detailed Description

Basic GUI to show traffic and health statistics of the connection to [Photon](#), toggled by shift+tab.

The shown health values can help identify problems with connection losses or performance. Example: If the time delta between two consecutive `SendOutgoingCommands` calls is a second or more, chances rise for a disconnect being caused by this (because acknowledgements to the server need to be sent in due time).

### 8.22.2 Member Function Documentation

8.22.2.1 void [PhotonStatsGui.OnGUI](#) ( )

8.22.2.2 void [PhotonStatsGui.Start](#) ( )

8.22.2.3 void [PhotonStatsGui.TrafficStatsWindow](#) ( int *windowID* )

8.22.2.4 void [PhotonStatsGui.Update](#) ( )

Checks for shift+tab input combination (to toggle statsOn).

### 8.22.3 Member Data Documentation

8.22.3.1 bool [PhotonStatsGui.buttonsOn](#)

Show buttons to control stats and reset them.

## 8.22.3.2 bool PhotonStatsGui.healthStatsVisible

Shows additional "health" values of connection.

## 8.22.3.3 bool PhotonStatsGui.statsOn = true

Option to turn collecting stats on or off (used in [Update\(\)](#)).

## 8.22.3.4 Rect PhotonStatsGui.statsRect = new Rect(0, 100, 200, 50)

Positioning rect for window.

## 8.22.3.5 bool PhotonStatsGui.statsWindowOn = true

Shows or hides GUI (does not affect if stats are collected).

## 8.22.3.6 bool PhotonStatsGui.trafficStatsOn

Shows additional "lower level" traffic stats.

## 8.22.3.7 int PhotonStatsGui.WindowId = 100

Unity GUI Window ID (must be unique or will cause issues).

## 8.23 PhotonStream Class Reference

This container is used in [OnPhotonSerializeView\(\)](#) to either provide incoming data of a [PhotonView](#) or for you to provide it.

### Public Member Functions

- [PhotonStream](#) (bool write, object[] incomingData)  
*Creates a stream and initializes it. Used by PUN internally.*
- object [ReceiveNext](#) ()  
*Read next piece of data from the stream when isReading is true.*
- object [PeekNext](#) ()  
*Read next piece of data from the stream without advancing the "current" item.*
- void [SendNext](#) (object obj)  
*Add another piece of data to send it when isWriting is true.*
- object[] [ToArray](#) ()  
*Turns the stream into a new object[].*
- void [Serialize](#) (ref bool myBool)  
*Will read or write the value, depending on the stream's isWriting value.*
- void [Serialize](#) (ref int myInt)  
*Will read or write the value, depending on the stream's isWriting value.*
- void [Serialize](#) (ref string value)  
*Will read or write the value, depending on the stream's isWriting value.*
- void [Serialize](#) (ref char value)  
*Will read or write the value, depending on the stream's isWriting value.*

- void [Serialize](#) (ref short value)  
*Will read or write the value, depending on the stream's isWriting value.*
- void [Serialize](#) (ref float obj)  
*Will read or write the value, depending on the stream's isWriting value.*
- void [Serialize](#) (ref [PhotonPlayer](#) obj)  
*Will read or write the value, depending on the stream's isWriting value.*
- void [Serialize](#) (ref Vector3 obj)  
*Will read or write the value, depending on the stream's isWriting value.*
- void [Serialize](#) (ref Vector2 obj)  
*Will read or write the value, depending on the stream's isWriting value.*
- void [Serialize](#) (ref Quaternion obj)  
*Will read or write the value, depending on the stream's isWriting value.*

## Properties

- bool [isWriting](#) [get]  
*If true, this client should add data to the stream to send it.*
- bool [isReading](#) [get]  
*If true, this client should read data send by another client.*
- int [Count](#) [get]  
*Count of items in the stream.*

### 8.23.1 Detailed Description

This container is used in [OnPhotonSerializeView\(\)](#) to either provide incoming data of a [PhotonView](#) or for you to provide it.

The isWriting property will be true if this client is the "owner" of the [PhotonView](#) (and thus the GameObject). Add data to the stream and it's sent via the server to the other players in a room. On the receiving side, isWriting is false and the data should be read.

Send as few data as possible to keep connection quality up. An empty [PhotonStream](#) will not be sent.

Use either [Serialize\(\)](#) for reading and writing or [SendNext\(\)](#) and [ReceiveNext\(\)](#). The latter two are just explicit read and write methods but do about the same work as [Serialize\(\)](#). It's a matter of preference which methods you use.

See also

[PhotonNetworkingMessage](#)

### 8.23.2 Constructor & Destructor Documentation

#### 8.23.2.1 PhotonStream.PhotonStream ( bool write, object[] incomingData )

Creates a stream and initializes it. Used by PUN internally.

### 8.23.3 Member Function Documentation

#### 8.23.3.1 object PhotonStream.PeekNext ( )

Read next piece of data from the stream without advancing the "current" item.

#### 8.23.3.2 object PhotonStream.ReceiveNext ( )

Read next piece of data from the stream when isReading is true.

#### 8.23.3.3 void PhotonStream.SendNext ( object *obj* )

Add another piece of data to send it when isWriting is true.

#### 8.23.3.4 void PhotonStream.Serialize ( ref bool *myBool* )

Will read or write the value, depending on the stream's isWriting value.

#### 8.23.3.5 void PhotonStream.Serialize ( ref int *myInt* )

Will read or write the value, depending on the stream's isWriting value.

#### 8.23.3.6 void PhotonStream.Serialize ( ref string *value* )

Will read or write the value, depending on the stream's isWriting value.

#### 8.23.3.7 void PhotonStream.Serialize ( ref char *value* )

Will read or write the value, depending on the stream's isWriting value.

#### 8.23.3.8 void PhotonStream.Serialize ( ref short *value* )

Will read or write the value, depending on the stream's isWriting value.

#### 8.23.3.9 void PhotonStream.Serialize ( ref float *obj* )

Will read or write the value, depending on the stream's isWriting value.

#### 8.23.3.10 void PhotonStream.Serialize ( ref PhotonPlayer *obj* )

Will read or write the value, depending on the stream's isWriting value.

#### 8.23.3.11 void PhotonStream.Serialize ( ref Vector3 *obj* )

Will read or write the value, depending on the stream's isWriting value.

#### 8.23.3.12 void PhotonStream.Serialize ( ref Vector2 *obj* )

Will read or write the value, depending on the stream's isWriting value.

#### 8.23.3.13 void PhotonStream.Serialize ( ref Quaternion *obj* )

Will read or write the value, depending on the stream's isWriting value.

#### 8.23.3.14 object [] PhotonStream.ToArray ( )

Turns the stream into a new object[].

### 8.23.4 Property Documentation

#### 8.23.4.1 int PhotonStream.Count [get]

Count of items in the stream.

#### 8.23.4.2 bool PhotonStream.isReading [get]

If true, this client should read data send by another client.

#### 8.23.4.3 bool PhotonStream.isWriting [get]

If true, this client should add data to the stream to send it.

## 8.24 PhotonStreamQueue Class Reference

The [PhotonStreamQueue](#) helps you poll object states at higher frequencies then what [PhotonNetwork.sendRate](#) dictates and then sends all those states at once when [Serialize\(\)](#) is called. On the receiving end you can call [Deserialize\(\)](#) and then the stream will roll out the received object states in the same order and timeStep they were recorded in.

### Public Member Functions

- [PhotonStreamQueue](#) (int sampleRate)  
*Initializes a new instance of the [PhotonStreamQueue](#) class.*
- void [Reset](#) ()  
*Resets the [PhotonStreamQueue](#). You need to do this whenever the amount of objects you are observing changes*
- void [SendNext](#) (object obj)  
*Adds the next object to the queue. This works just like [PhotonStream.SendNext](#)*
- bool [HasQueuedObjects](#) ()  
*Determines whether the queue has stored any objects*
- object [ReceiveNext](#) ()  
*Receives the next object from the queue. This works just like [PhotonStream.ReceiveNext](#)*
- void [Serialize](#) ([PhotonStream](#) stream)  
*Serializes the specified stream. Call this in your OnPhotonSerializeView method to send the whole recorded stream.*
- void [Deserialize](#) ([PhotonStream](#) stream)  
*Deserializes the specified stream. Call this in your OnPhotonSerializeView method to receive the whole recorded stream.*

#### 8.24.1 Detailed Description

The [PhotonStreamQueue](#) helps you poll object states at higher frequencies then what [PhotonNetwork.sendRate](#) dictates and then sends all those states at once when [Serialize\(\)](#) is called. On the receiving end you can call [Deserialize\(\)](#) and then the stream will roll out the received object states in the same order and timeStep they were recorded in.



## 8.24.2 Constructor & Destructor Documentation

### 8.24.2.1 PhotonStreamQueue.PhotonStreamQueue ( int *sampleRate* )

Initializes a new instance of the [PhotonStreamQueue](#) class.

Parameters

<i>sampleRate</i>	How many times per second should the object states be sampled
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## 8.24.3 Member Function Documentation

### 8.24.3.1 void PhotonStreamQueue.Deserialize ( PhotonStream *stream* )

Deserializes the specified stream. Call this in your OnPhotonSerializeView method to receive the whole recorded stream.

Parameters

<i>stream</i>	The <a href="#">PhotonStream</a> you receive as a parameter in OnPhotonSerializeView
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### 8.24.3.2 bool PhotonStreamQueue.HasQueuedObjects ( )

Determines whether the queue has stored any objects

### 8.24.3.3 object PhotonStreamQueue.ReceiveNext ( )

Receives the next object from the queue. This works just like [PhotonStream.ReceiveNext](#)

Returns

### 8.24.3.4 void PhotonStreamQueue.Reset ( )

Resets the [PhotonStreamQueue](#). You need to do this whenever the amount of objects you are observing changes

### 8.24.3.5 void PhotonStreamQueue.SendNext ( object *obj* )

Adds the next object to the queue. This works just like [PhotonStream.SendNext](#)

Parameters

<i>obj</i>	The object you want to add to the queue
------------	---

### 8.24.3.6 void PhotonStreamQueue.Serialize ( PhotonStream *stream* )

Serializes the specified stream. Call this in your OnPhotonSerializeView method to send the whole recorded stream.

Parameters

<i>stream</i>	The <a href="#">PhotonStream</a> you receive as a parameter in OnPhotonSerializeView
---------------	--

## 8.25 PhotonTransformView Class Reference

This class helps you to synchronize position, rotation and scale of a GameObject. It also gives you many different options to make the synchronized values appear smooth, even when the data is only send a couple of times per second. Simply add the component to your GameObject and make sure that the [PhotonTransformView](#) is added to the list of observed components

Inherits MonoBehaviour.

### Public Member Functions

- void [SetSynchronizedValues](#) (Vector3 speed, float turnSpeed)

*These values are synchronized to the remote objects if the interpolation mode or the extrapolation mode SynchronizeValues is used. Your movement script should pass on the current speed (in units/second) and turning speed (in angles/second) so the remote object can use them to predict the objects movement.*

### 8.25.1 Detailed Description

This class helps you to synchronize position, rotation and scale of a GameObject. It also gives you many different options to make the synchronized values appear smooth, even when the data is only send a couple of times per second. Simply add the component to your GameObject and make sure that the [PhotonTransformView](#) is added to the list of observed components

### 8.25.2 Member Function Documentation

#### 8.25.2.1 void PhotonTransformView.SetSynchronizedValues ( Vector3 speed, float turnSpeed )

These values are synchronized to the remote objects if the interpolation mode or the extrapolation mode SynchronizeValues is used. Your movement script should pass on the current speed (in units/second) and turning speed (in angles/second) so the remote object can use them to predict the objects movement.

#### Parameters

<i>speed</i>	The current movement vector of the object in units/second.
<i>turnSpeed</i>	The current turn speed of the object in angles/second.

## 8.26 PhotonTransformViewPositionControl Class Reference

### Public Member Functions

- [PhotonTransformViewPositionControl](#) ([PhotonTransformViewPositionModel](#) model)
- void [SetSynchronizedValues](#) (Vector3 speed, float turnSpeed)

*These values are synchronized to the remote objects if the interpolation mode or the extrapolation mode SynchronizeValues is used. Your movement script should pass on the current speed (in units/second) and turning speed (in angles/second) so the remote object can use them to predict the objects movement.*

- Vector3 [UpdatePosition](#) (Vector3 currentPosition)

*Calculates the new position based on the values setup in the inspector*

- Vector3 [GetNetworkPosition](#) ()

*Gets the last position that was received through the network*

- Vector3 [GetExtrapolatedPositionOffset](#) ( )

*Calculates an estimated position based on the last synchronized position, the time when the last position was received and the movement speed of the object*

- void [OnPhotonSerializeView](#) (Vector3 currentPosition, [PhotonStream](#) stream, [PhotonMessageInfo](#) info)

## 8.26.1 Constructor & Destructor Documentation

- 8.26.1.1 [PhotonTransformViewPositionControl.PhotonTransformViewPositionControl](#) ( [PhotonTransformViewPositionControl](#) *model* )

## 8.26.2 Member Function Documentation

- 8.26.2.1 Vector3 [PhotonTransformViewPositionControl.GetExtrapolatedPositionOffset](#) ( )

Calculates an estimated position based on the last synchronized position, the time when the last position was received and the movement speed of the object

### Returns

Estimated position of the remote object

- 8.26.2.2 Vector3 [PhotonTransformViewPositionControl.GetNetworkPosition](#) ( )

Gets the last position that was received through the network

### Returns

- 8.26.2.3 void [PhotonTransformViewPositionControl.OnPhotonSerializeView](#) ( Vector3 *currentPosition*, [PhotonStream](#) *stream*, [PhotonMessageInfo](#) *info* )

- 8.26.2.4 void [PhotonTransformViewPositionControl.SetSynchronizedValues](#) ( Vector3 *speed*, float *turnSpeed* )

These values are synchronized to the remote objects if the interpolation mode or the extrapolation mode [SynchronizeValues](#) is used. Your movement script should pass on the current speed (in units/second) and turning speed (in angles/second) so the remote object can use them to predict the objects movement.

### Parameters

<i>speed</i>	The current movement vector of the object in units/second.
<i>turnSpeed</i>	The current turn speed of the object in angles/second.

- 8.26.2.5 Vector3 [PhotonTransformViewPositionControl.UpdatePosition](#) ( Vector3 *currentPosition* )

Calculates the new position based on the values setup in the inspector

### Parameters

<code>currentPosition</code>	The current position.
------------------------------	-----------------------

#### Returns

The new position.

## 8.27 PhotonTransformViewPositionModel Class Reference

### Public Types

- enum [InterpolateOptions](#) { [InterpolateOptions.Disabled](#), [InterpolateOptions.FixedSpeed](#), [InterpolateOptions.EstimatedSpeed](#), [InterpolateOptions.SynchronizeValues](#), [InterpolateOptions.Lerp](#) }
- enum [ExtrapolateOptions](#) { [ExtrapolateOptions.Disabled](#), [ExtrapolateOptions.SynchronizeValues](#), [ExtrapolateOptions.EstimateSpeedAndTurn](#), [ExtrapolateOptions.FixedSpeed](#) }

### Public Attributes

- bool [SynchronizeEnabled](#)
- bool [TeleportEnabled](#) = true
- float [TeleportIfDistanceGreaterThan](#) = 3f
- [InterpolateOptions](#) [InterpolateOption](#) = [InterpolateOptions.EstimatedSpeed](#)
- float [InterpolateMoveTowardsSpeed](#) = 1f
- float [InterpolateLerpSpeed](#) = 1f
- float [InterpolateMoveTowardsAcceleration](#) = 2
- float [InterpolateMoveTowardsDeceleration](#) = 2
- AnimationCurve [InterpolateSpeedCurve](#)
- [ExtrapolateOptions](#) [ExtrapolateOption](#) = [ExtrapolateOptions.Disabled](#)
- float [ExtrapolateSpeed](#) = 1f
- bool [ExtrapolateIncludingRoundTripTime](#) = true
- int [ExtrapolateNumberOfStoredPositions](#) = 1
- bool [DrawErrorGizmo](#) = true

### 8.27.1 Member Enumeration Documentation

#### 8.27.1.1 enum PhotonTransformViewPositionModel.ExtrapolateOptions

##### Enumerator

***Disabled***  
***SynchronizeValues***  
***EstimateSpeedAndTurn***  
***FixedSpeed***

#### 8.27.1.2 enum PhotonTransformViewPositionModel.InterpolateOptions

##### Enumerator

***Disabled***  
***FixedSpeed***  
***EstimatedSpeed***  
***SynchronizeValues***  
***Lerp***

### 8.27.2 Member Data Documentation

8.27.2.1 `bool PhotonTransformViewPositionModel.DrawErrorGizmo = true`

8.27.2.2 `bool PhotonTransformViewPositionModel.ExtrapolateIncludingRoundTripTime = true`

8.27.2.3 `int PhotonTransformViewPositionModel.ExtrapolateNumberOfStoredPositions = 1`

8.27.2.4 `ExtrapolateOptions PhotonTransformViewPositionModel.ExtrapolateOption = ExtrapolateOptions.Disabled`

8.27.2.5 `float PhotonTransformViewPositionModel.ExtrapolateSpeed = 1f`

8.27.2.6 `float PhotonTransformViewPositionModel.InterpolateLerpSpeed = 1f`

8.27.2.7 `float PhotonTransformViewPositionModel.InterpolateMoveTowardsAcceleration = 2`

8.27.2.8 `float PhotonTransformViewPositionModel.InterpolateMoveTowardsDeceleration = 2`

8.27.2.9 `float PhotonTransformViewPositionModel.InterpolateMoveTowardsSpeed = 1f`

8.27.2.10 `InterpolateOptions PhotonTransformViewPositionModel.InterpolateOption = InterpolateOptions.EstimatedSpeed`

8.27.2.11 `AnimationCurve PhotonTransformViewPositionModel.InterpolateSpeedCurve`

**Initial value:**

```
= new AnimationCurve( new Keyframe[] {
    new Keyframe( -1, 0, 0, Mathf.Infinity ),
    new Keyframe( 0, 1, 0, 0 ),
    new Keyframe( 1, 1, 0, 1 ),
    new Keyframe( 4, 4, 1, 0 ) }
)
```

8.27.2.12 `bool PhotonTransformViewPositionModel.SynchronizeEnabled`

8.27.2.13 `bool PhotonTransformViewPositionModel.TeleportEnabled = true`

8.27.2.14 `float PhotonTransformViewPositionModel.TeleportIfDistanceGreaterThan = 3f`

## 8.28 PhotonTransformViewRotationControl Class Reference

### Public Member Functions

- [PhotonTransformViewRotationControl](#) ([PhotonTransformViewRotationModel](#) model)
- Quaternion [GetRotation](#) (Quaternion currentRotation)
- void [OnPhotonSerializeView](#) (Quaternion currentRotation, [PhotonStream](#) stream, [PhotonMessageInfo](#) info)

### 8.28.1 Constructor & Destructor Documentation

8.28.1.1 `PhotonTransformViewRotationControl.PhotonTransformViewRotationControl ( PhotonTransformViewRotationModel model )`

### 8.28.2 Member Function Documentation

8.28.2.1 Quaternion PhotonTransformViewRotationControl.GetRotation ( Quaternion *currentRotation* )

8.28.2.2 void PhotonTransformViewRotationControl.OnPhotonSerializeView ( Quaternion *currentRotation*, PhotonStream *stream*, PhotonMessageInfo *info* )

## 8.29 PhotonTransformViewRotationModel Class Reference

### Public Types

- enum [InterpolateOptions](#) { [InterpolateOptions.Disabled](#), [InterpolateOptions.RotateTowards](#), [InterpolateOptions.Lerp](#) }

### Public Attributes

- bool [SynchronizeEnabled](#)
- [InterpolateOptions](#) [InterpolateOption](#) = [InterpolateOptions.RotateTowards](#)
- float [InterpolateRotateTowardsSpeed](#) = 180
- float [InterpolateLerpSpeed](#) = 5

### 8.29.1 Member Enumeration Documentation

8.29.1.1 enum PhotonTransformViewRotationModel.InterpolateOptions

Enumerator

***Disabled***

***RotateTowards***

***Lerp***

### 8.29.2 Member Data Documentation

8.29.2.1 float PhotonTransformViewRotationModel.InterpolateLerpSpeed = 5

8.29.2.2 [InterpolateOptions](#) PhotonTransformViewRotationModel.InterpolateOption = [InterpolateOptions.RotateTowards](#)

8.29.2.3 float PhotonTransformViewRotationModel.InterpolateRotateTowardsSpeed = 180

8.29.2.4 bool PhotonTransformViewRotationModel.SynchronizeEnabled

## 8.30 PhotonTransformViewScaleControl Class Reference

### Public Member Functions

- [PhotonTransformViewScaleControl](#) ([PhotonTransformViewScaleModel](#) model)
- Vector3 [GetScale](#) (Vector3 *currentScale*)
- void [OnPhotonSerializeView](#) (Vector3 *currentScale*, [PhotonStream](#) *stream*, [PhotonMessageInfo](#) *info*)

### 8.30.1 Constructor & Destructor Documentation

8.30.1.1 PhotonTransformViewScaleControl.PhotonTransformViewScaleControl ( [PhotonTransformViewScaleModel](#) *model* )

### 8.30.2 Member Function Documentation

8.30.2.1 `Vector3 PhotonTransformViewScaleControl.GetScale ( Vector3 currentScale )`

8.30.2.2 `void PhotonTransformViewScaleControl.OnPhotonSerializeView ( Vector3 currentScale, PhotonStream stream, PhotonMessageInfo info )`

## 8.31 PhotonTransformViewScaleModel Class Reference

### Public Types

- enum [InterpolateOptions](#) { [InterpolateOptions.Disabled](#), [InterpolateOptions.MoveTowards](#), [InterpolateOptions.Lerp](#) }

### Public Attributes

- bool [SynchronizeEnabled](#)
- [InterpolateOptions](#) [InterpolateOption](#) = [InterpolateOptions.Disabled](#)
- float [InterpolateMoveTowardsSpeed](#) = 1f
- float [InterpolateLerpSpeed](#)

### 8.31.1 Member Enumeration Documentation

8.31.1.1 enum `PhotonTransformViewScaleModel.InterpolateOptions`

Enumerator

***Disabled***

***MoveTowards***

***Lerp***

### 8.31.2 Member Data Documentation

8.31.2.1 float `PhotonTransformViewScaleModel.InterpolateLerpSpeed`

8.31.2.2 float `PhotonTransformViewScaleModel.InterpolateMoveTowardsSpeed` = 1f

8.31.2.3 [InterpolateOptions](#) `PhotonTransformViewScaleModel.InterpolateOption` = [InterpolateOptions.Disabled](#)

8.31.2.4 bool `PhotonTransformViewScaleModel.SynchronizeEnabled`

## 8.32 PhotonView Class Reference

PUN's NetworkView replacement class for networking. Use it like a NetworkView.

Inherits [Photon.MonoBehaviour](#).

### Public Member Functions

- void [RequestOwnership](#) ()  
Depending on the [PhotonView](#)'s *ownershipTransfer* setting, any client can request to become owner of the [PhotonView](#).
- void [TransferOwnership](#) ([PhotonPlayer](#) newOwner)

*Transfers the ownership of this [PhotonView](#) (and [GameObject](#)) to another player.*

- void [TransferOwnership](#) (int newOwnerId)

*Transfers the ownership of this [PhotonView](#) (and [GameObject](#)) to another player.*

- void [SerializeView](#) ([PhotonStream](#) stream, [PhotonMessageInfo](#) info)
- void [DeserializeView](#) ([PhotonStream](#) stream, [PhotonMessageInfo](#) info)
- void [RPC](#) (string methodName, [PhotonTargets](#) target, params object[] parameters)

*Call a RPC method of this [GameObject](#) on remote clients of this room (or on all, including this client).*

- void [RpcSecure](#) (string methodName, [PhotonTargets](#) target, bool encrypt, params object[] parameters)

*Call a RPC method of this [GameObject](#) on remote clients of this room (or on all, including this client).*

- void [RPC](#) (string methodName, [PhotonPlayer](#) targetPlayer, params object[] parameters)

*Call a RPC method of this [GameObject](#) on remote clients of this room (or on all, including this client).*

- void [RpcSecure](#) (string methodName, [PhotonPlayer](#) targetPlayer, bool encrypt, params object[] parameters)

*Call a RPC method of this [GameObject](#) on remote clients of this room (or on all, including this client).*

- override string [ToString](#) ()

## Static Public Member Functions

- static [PhotonView Get](#) (Component component)
- static [PhotonView Get](#) (GameObject gameObj)
- static [PhotonView Find](#) (int viewID)

## Public Attributes

- int [ownerId](#)
- int [group](#) = 0
- int [prefixBackup](#) = -1
- Component [observed](#)
- [ViewSynchronization](#) [synchronization](#)
- [OnSerializeTransform](#) [onSerializeTransformOption](#) = [OnSerializeTransform.PositionAndRotation](#)
- [OnSerializeRigidBody](#) [onSerializeRigidBodyOption](#) = [OnSerializeRigidBody.All](#)
- [OwnershipOption](#) [ownershipTransfer](#) = [OwnershipOption.Fixed](#)

*Defines if ownership of this [PhotonView](#) is fixed, can be requested or simply taken.*

- List< Component > [ObservedComponents](#)
- int [instantiationId](#)

## Protected Member Functions

- void [DeserializeComponent](#) (Component component, [PhotonStream](#) stream, [PhotonMessageInfo](#) info)
- void [SerializeComponent](#) (Component component, [PhotonStream](#) stream, [PhotonMessageInfo](#) info)
- void [ExecuteComponentOnSerialize](#) (Component component, [PhotonStream](#) stream, [PhotonMessageInfo](#) info)

## Properties

- int [prefix](#) [get, set]
- object[] [instantiationData](#) [get, set]

*This is the instantiationData that was passed when calling [PhotonNetwork.Instantiate\\*](#) (if that was used to spawn this prefab)*

- int [viewID](#) [get, set]

*The ID of the [PhotonView](#). Identifies it in a networked game (per room).*

- bool [isSceneView](#) [get]



True if the [PhotonView](#) was loaded with the scene (game object) or instantiated with `InstantiateSceneObject`.

- [PhotonPlayer owner](#) [get]

The owner of a [PhotonView](#) is the player who created the `GameObject` with that view. Objects in the scene don't have an owner.

- int [OwnerActorNr](#) [get]
- bool [isOwnerActive](#) [get]
- int [CreatorActorNr](#) [get]
- bool [isMine](#) [get]

True if the [PhotonView](#) is "mine" and can be controlled by this client.

### 8.32.1 Detailed Description

PUN's `NetworkView` replacement class for networking. Use it like a `NetworkView`.

### 8.32.2 Member Function Documentation

8.32.2.1 void `PhotonView.DeserializeComponent ( Component component, PhotonStream stream, PhotonMessageInfo info )` [protected]

8.32.2.2 void `PhotonView.DeserializeView ( PhotonStream stream, PhotonMessageInfo info )`

8.32.2.3 void `PhotonView.ExecuteComponentOnSerialize ( Component component, PhotonStream stream, PhotonMessageInfo info )` [protected]

8.32.2.4 static `PhotonView PhotonView.Find ( int viewID )` [static]

8.32.2.5 static `PhotonView PhotonView.Get ( Component component )` [static]

8.32.2.6 static `PhotonView PhotonView.Get ( GameObject gameObj )` [static]

8.32.2.7 void `PhotonView.RequestOwnership ( )`

Depending on the [PhotonView](#)'s `ownershipTransfer` setting, any client can request to become owner of the [PhotonView](#).

Requesting ownership can give you control over a [PhotonView](#), if the `ownershipTransfer` setting allows that. The current owner might have to implement [IPunCallbacks.OnOwnershipRequest](#) to react to the ownership request.

The owner/controller of a [PhotonView](#) is also the client which sends position updates of the `GameObject`.

8.32.2.8 void `PhotonView.RPC ( string methodName, PhotonTargets target, params object[] parameters )`

Call a RPC method of this `GameObject` on remote clients of this room (or on all, including this client).

[Remote Procedure Calls](#) are an essential tool in making multiplayer games with PUN. It enables you to make every client in a room call a specific method.

RPC calls can target "All" or the "Others". Usually, the target "All" gets executed locally immediately after sending the RPC. The "`*ViaServer`" options send the RPC to the server and execute it on this client when it's sent back. Of course, calls are affected by this client's lag and that of remote clients.

Each call automatically is routed to the same [PhotonView](#) (and `GameObject`) that was used on the originating client.

See: [Remote Procedure Calls](#).

## Parameters

<i>methodName</i>	The name of a fitting method that was has the RPC attribute.
<i>target</i>	The group of targets and the way the RPC gets sent.
<i>parameters</i>	The parameters that the RPC method has (must fit this call!).

8.32.2.9 `void PhotonView.RPC ( string methodName, PhotonPlayer targetPlayer, params object[] parameters )`

Call a RPC method of this GameObject on remote clients of this room (or on all, including this client).

[Remote Procedure Calls](#) are an essential tool in making multiplayer games with PUN. It enables you to make every client in a room call a specific method.

This method allows you to make an RPC calls on a specific player's client. Of course, calls are affected by this client's lag and that of remote clients.

Each call automatically is routed to the same [PhotonView](#) (and GameObject) that was used on the originating client.

See: [Remote Procedure Calls](#).

## Parameters

<i>methodName</i>	The name of a fitting method that was has the RPC attribute.
<i>targetPlayer</i>	The group of targets and the way the RPC gets sent.
<i>parameters</i>	The parameters that the RPC method has (must fit this call!).

8.32.2.10 `void PhotonView.RpcSecure ( string methodName, PhotonTargets target, bool encrypt, params object[] parameters )`

Call a RPC method of this GameObject on remote clients of this room (or on all, including this client).

[Remote Procedure Calls](#) are an essential tool in making multiplayer games with PUN. It enables you to make every client in a room call a specific method.

RPC calls can target "All" or the "Others". Usually, the target "All" gets executed locally immediately after sending the RPC. The "\*ViaServer" options send the RPC to the server and execute it on this client when it's sent back. Of course, calls are affected by this client's lag and that of remote clients.

Each call automatically is routed to the same [PhotonView](#) (and GameObject) that was used on the originating client.

See: [Remote Procedure Calls](#).

param name="methodName">The name of a fitting method that was has the RPC attribute.

param name="target">The group of targets and the way the RPC gets sent.

param name="encrypt">

param name="parameters">The parameters that the RPC method has (must fit this call!).

8.32.2.11 `void PhotonView.RpcSecure ( string methodName, PhotonPlayer targetPlayer, bool encrypt, params object[] parameters )`

Call a RPC method of this GameObject on remote clients of this room (or on all, including this client).

[Remote Procedure Calls](#) are an essential tool in making multiplayer games with PUN. It enables you to make every client in a room call a specific method.

This method allows you to make an RPC calls on a specific player's client. Of course, calls are affected by this client's lag and that of remote clients.

Each call automatically is routed to the same [PhotonView](#) (and GameObject) that was used on the originating client.

See: [Remote Procedure Calls](#).

param name="methodName">The name of a fitting method that was has the RPC attribute.

param name="targetPlayer">The group of targets and the way the RPC gets sent.

param name="encrypt">

param name="parameters">The parameters that the RPC method has (must fit this call!).

**8.32.2.12** void PhotonView.SerializeComponent ( Component *component*, PhotonStream *stream*, PhotonMessageInfo *info* ) [protected]

**8.32.2.13** void PhotonView.SerializeView ( PhotonStream *stream*, PhotonMessageInfo *info* )

**8.32.2.14** override string PhotonView.ToString ( )

**8.32.2.15** void PhotonView.TransferOwnership ( PhotonPlayer *newOwner* )

Transfers the ownership of this [PhotonView](#) (and GameObject) to another player.

The owner/controller of a [PhotonView](#) is also the client which sends position updates of the GameObject.

**8.32.2.16** void PhotonView.TransferOwnership ( int *newOwnerId* )

Transfers the ownership of this [PhotonView](#) (and GameObject) to another player.

The owner/controller of a [PhotonView](#) is also the client which sends position updates of the GameObject.

### 8.32.3 Member Data Documentation

**8.32.3.1** int PhotonView.group = 0

**8.32.3.2** int PhotonView.instantiationId

**8.32.3.3** Component PhotonView.observed

**8.32.3.4** List<Component> PhotonView.ObservedComponents

**8.32.3.5** OnSerializeRigidBody PhotonView.onSerializeRigidBodyOption = OnSerializeRigidBody.All

**8.32.3.6** OnSerializeTransform PhotonView.onSerializeTransformOption = OnSerializeTransform.PositionAndRotation

**8.32.3.7** int PhotonView.ownerId

**8.32.3.8** OwnershipOption PhotonView.ownershipTransfer = OwnershipOption.Fixed

Defines if ownership of this [PhotonView](#) is fixed, can be requested or simply taken.

Note that you can't edit this value at runtime. The options are described in enum OwnershipOption. The current owner has to implement [IPunCallbacks.OnOwnershipRequest](#) to react to the ownership request.

**8.32.3.9** int PhotonView.prefixBackup = -1

**8.32.3.10** ViewSynchronization PhotonView.synchronization

### 8.32.4 Property Documentation

8.32.4.1 `int PhotonView.CreatorActorNr` [get]

8.32.4.2 `object [] PhotonView.instantiationData` [get], [set]

This is the instantiationData that was passed when calling [PhotonNetwork.Instantiate\\*](#) (if that was used to spawn this prefab)

8.32.4.3 `bool PhotonView.isMine` [get]

True if the [PhotonView](#) is "mine" and can be controlled by this client.

PUN has an ownership concept that defines who can control and destroy each [PhotonView](#). True in case the owner matches the local [PhotonPlayer](#). True if this is a scene photonview on the Master client.

8.32.4.4 `bool PhotonView.isOwnerActive` [get]

8.32.4.5 `bool PhotonView.isSceneView` [get]

True if the [PhotonView](#) was loaded with the scene (game object) or instantiated with `InstantiateSceneObject`.

Scene objects are not owned by a particular player but belong to the scene. Thus they don't get destroyed when their creator leaves the game and the current Master Client can control them (whoever that is). The ownerId is 0 (player IDs are 1 and up).

8.32.4.6 `PhotonPlayer PhotonView.owner` [get]

The owner of a [PhotonView](#) is the player who created the GameObject with that view. Objects in the scene don't have an owner.

The owner/controller of a [PhotonView](#) is also the client which sends position updates of the GameObject.

Ownership can be transferred to another player with [PhotonView.TransferOwnership](#) or any player can request ownership by calling the [PhotonView](#)'s `RequestOwnership` method. The current owner has to implement [IPunCallbacks.OnOwnershipRequest](#) to react to the ownership request.

8.32.4.7 `int PhotonView.OwnerActorNr` [get]

8.32.4.8 `int PhotonView.prefix` [get], [set]

8.32.4.9 `int PhotonView.viewID` [get], [set]

The ID of the [PhotonView](#). Identifies it in a networked game (per room).

See: [Network Instantiation](#)

## 8.33 PingMonoEditor Class Reference

Uses C# Socket class from System.Net.Sockets (as Unity usually does).

Inherits [PhotonPing](#).

### Public Member Functions

- override bool [StartPing](#) (string ip)
- override bool [Done](#) ()
- override void [Dispose](#) ()

### 8.33.1 Detailed Description

Uses C# Socket class from System.Net.Sockets (as Unity usually does).

Incompatible with Windows 8 Store/Phone API.

### 8.33.2 Member Function Documentation

8.33.2.1 `override void PingMonoEditor.Dispose ( )`

8.33.2.2 `override bool PingMonoEditor.Done ( )`

8.33.2.3 `override bool PingMonoEditor.StartPing ( string ip )`

## 8.34 Photon.PunBehaviour Class Reference

This class provides a `.photonView` and all callbacks/events that PUN can call. Override the events/methods you want to use.

Inherits [Photon.MonoBehaviour](#), and [IPunCallbacks](#).

### Public Member Functions

- virtual void [OnConnectedToPhoton](#) ()  
*Called when the initial connection got established but before you can use the server. [OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) are called when PUN is ready.*
- virtual void [OnLeftRoom](#) ()  
*Called when the local user/client left a room.*
- virtual void [OnMasterClientSwitched](#) ([PhotonPlayer](#) newMasterClient)  
*Called after switching to a new MasterClient when the current one leaves. The former already got removed from the player list.*
- virtual void [OnPhotonCreateRoomFailed](#) (object[] codeAndMsg)  
*Called when a [CreateRoom\(\)](#) call failed. The parameter provides ErrorCode and message (as array).*
- virtual void [OnPhotonJoinRoomFailed](#) (object[] codeAndMsg)  
*Called when a [JoinRoom\(\)](#) call failed. The parameter provides ErrorCode and message (as array).*
- virtual void [OnCreatedRoom](#) ()  
*Called when this client created a room and entered it. [OnJoinedRoom\(\)](#) will be called as well.*
- virtual void [OnJoinedLobby](#) ()  
*Called on entering a lobby on the Master Server. The actual room-list updates will call [OnReceivedRoomListUpdate\(\)](#).*
- virtual void [OnLeftLobby](#) ()  
*Called after leaving a lobby.*
- virtual void [OnFailedToConnectToPhoton](#) ([DisconnectCause](#) cause)  
*Called if a connect call to the [Photon](#) server failed before the connection was established, followed by a call to [OnDisconnectedFromPhoton\(\)](#).*
- virtual void [OnDisconnectedFromPhoton](#) ()  
*Called after disconnecting from the [Photon](#) server.*
- virtual void [OnConnectionFail](#) ([DisconnectCause](#) cause)  
*Called when something causes the connection to fail (after it was established), followed by a call to [OnDisconnectedFromPhoton\(\)](#).*
- virtual void [OnPhotonInstantiate](#) ([PhotonMessageInfo](#) info)  
*Called on all scripts on a GameObject (and children) that have been Instantiated using [PhotonNetwork.Instantiate](#).*
- virtual void [OnReceivedRoomListUpdate](#) ()

Called for any update of the room listing (no matter if "new" list or "update for known" list). Only called in the Lobby state (on master server).

- virtual void [OnJoinedRoom](#) ()

Called when entering a room (by creating or joining it). Called on all clients (including the Master Client).

- virtual void [OnPhotonPlayerConnected](#) ([PhotonPlayer](#) newPlayer)

Called when a remote player entered the room. This [PhotonPlayer](#) is already added to the playerlist at this time.

- virtual void [OnPhotonPlayerDisconnected](#) ([PhotonPlayer](#) otherPlayer)

Called when a remote player left the room. This [PhotonPlayer](#) is already removed from the playerlist at this time.

- virtual void [OnPhotonRandomJoinFailed](#) (object[] codeAndMsg)

Called when a [JoinRandom\(\)](#) call failed. The parameter provides [ErrorCode](#) and message.

- virtual void [OnConnectedToMaster](#) ()

Called after the connection to the master is established and authenticated but only when [PhotonNetwork.autoJoinLobby](#) is false.

- virtual void [OnPhotonMaxCccuReached](#) ()

Because the concurrent user limit was (temporarily) reached, this client is rejected by the server and disconnecting.

- virtual void [OnPhotonCustomRoomPropertiesChanged](#) ([Hashtable](#) propertiesThatChanged)

Called when a room's custom properties changed. The [propertiesThatChanged](#) contains all that was set via [Room.SetCustomProperties](#).

- virtual void [OnPhotonPlayerPropertiesChanged](#) (object[] playerAndUpdatedProps)

Called when custom player-properties are changed. Player and the changed properties are passed as [object\[\]](#).

- virtual void [OnUpdatedFriendList](#) ()

Called when the server sent the response to a [FindFriends](#) request and updated [PhotonNetwork.Friends](#).

- virtual void [OnCustomAuthenticationFailed](#) (string debugMessage)

Called when the custom authentication failed. Followed by disconnect!

- virtual void [OnWebRpcResponse](#) ([OperationResponse](#) response)

Called by PUN when the response to a [WebRPC](#) is available. See [PhotonNetwork.WebRPC](#).

- virtual void [OnOwnershipRequest](#) (object[] viewAndPlayer)

Called when another player requests ownership of a [PhotonView](#) from you (the current owner).

## Additional Inherited Members

### 8.34.1 Detailed Description

This class provides a [.photonView](#) and all callbacks/events that PUN can call. Override the events/methods you want to use.

This class implements [IPunCallbacks](#) where the callback methods are described. By extending this class, you can implement individual methods as override. Visual Studio and MonoDevelop should provide the list of methods when you begin typing "override". Your implementation does not have to call "base.method()".

### 8.34.2 Member Function Documentation

#### 8.34.2.1 virtual void Photon.PunBehaviour.OnConnectedToMaster ( ) [virtual]

Called after the connection to the master is established and authenticated but only when [PhotonNetwork.autoJoinLobby](#) is false.

If you set [PhotonNetwork.autoJoinLobby](#) to true, [OnJoinedLobby\(\)](#) will be called instead of this.

You can join rooms and create them even without being in a lobby. The default lobby is used in that case. The list of available rooms won't become available unless you join a lobby via [PhotonNetwork.joinLobby](#).

Implements [IPunCallbacks](#).

#### 8.34.2.2 virtual void Photon.PunBehaviour.OnConnectedToPhoton ( ) [virtual]

Called when the initial connection got established but before you can use the server. [OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) are called when PUN is ready.

This callback is only useful to detect if the server can be reached at all (technically). Most often, it's enough to implement [OnFailedToConnectToPhoton\(\)](#) and [OnDisconnectedFromPhoton\(\)](#).

*[OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) are called when PUN is ready.*

When this is called, the low level connection is established and PUN will send your AppId, the user, etc in the background. This is not called for transitions from the masterserver to game servers.

Implements [IPunCallbacks](#).

#### 8.34.2.3 virtual void Photon.PunBehaviour.OnConnectionFail ( DisconnectCause cause ) [virtual]

Called when something causes the connection to fail (after it was established), followed by a call to [OnDisconnectedFromPhoton\(\)](#).

If the server could not be reached in the first place, [OnFailedToConnectToPhoton\(\)](#) is called instead. The reason for the error is provided as [DisconnectCause](#).

Implements [IPunCallbacks](#).

#### 8.34.2.4 virtual void Photon.PunBehaviour.OnCreatedRoom ( ) [virtual]

Called when this client created a room and entered it. [OnJoinedRoom\(\)](#) will be called as well.

This callback is only called on the client which created a room (see [PhotonNetwork.CreateRoom\(\)](#)).

As any client might close (or drop connection) anytime, there is a chance that the creator of a room does not execute [OnCreatedRoom](#).

If you need specific room properties or a "start signal", it is safer to implement [OnMasterClientSwitched\(\)](#) and to make the new [MasterClient](#) check the room's state.

Implements [IPunCallbacks](#).

#### 8.34.2.5 virtual void Photon.PunBehaviour.OnCustomAuthenticationFailed ( string debugMessage ) [virtual]

Called when the custom authentication failed. Followed by disconnect!

Custom Authentication can fail due to user-input, bad tokens/secrets. If authentication is successful, this method is not called. Implement [OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) (as usual).

During development of a game, it might also fail due to wrong configuration on the server side. In those cases, logging the [debugMessage](#) is very important.

Unless you setup a custom authentication service for your app (in the [Dashboard](#)), this won't be called!

Parameters

<i>debugMessage</i>	Contains a debug message why authentication failed. This has to be fixed during development time.
---------------------	---

Implements [IPunCallbacks](#).

#### 8.34.2.6 virtual void Photon.PunBehaviour.OnDisconnectedFromPhoton ( ) [virtual]

Called after disconnecting from the [Photon](#) server.

In some cases, other callbacks are called before [OnDisconnectedFromPhoton](#) is called. Examples: [OnConnectionFail\(\)](#) and [OnFailedToConnectToPhoton\(\)](#).

Implements [IPunCallbacks](#).

**8.34.2.7** `virtual void Photon.PunBehaviour.OnFailedToConnectToPhoton ( DisconnectCause cause ) [virtual]`

Called if a connect call to the [Photon](#) server failed before the connection was established, followed by a call to [OnDisconnectedFromPhoton\(\)](#).

This is called when no connection could be established at all. It differs from [OnConnectionFail](#), which is called when an existing connection fails.

Implements [IPunCallbacks](#).

**8.34.2.8** `virtual void Photon.PunBehaviour.OnJoinedLobby ( ) [virtual]`

Called on entering a lobby on the Master Server. The actual room-list updates will call [OnReceivedRoomListUpdate\(\)](#).

Note: When [PhotonNetwork.autoJoinLobby](#) is false, [OnConnectedToMaster\(\)](#) will be called and the room list won't become available.

While in the lobby, the roomlist is automatically updated in fixed intervals (which you can't modify).

Implements [IPunCallbacks](#).

**8.34.2.9** `virtual void Photon.PunBehaviour.OnJoinedRoom ( ) [virtual]`

Called when entering a room (by creating or joining it). Called on all clients (including the Master Client).

This method is commonly used to instantiate player characters. If a match has to be started "actively", you can call an [RPC](#) triggered by a user's button-press or a timer.

When this is called, you can usually already access the existing players in the room via [PhotonNetwork.playerList](#). Also, all custom properties should be already available as [Room.customProperties](#). Check [Room.playerCount](#) to find out if enough players are in the room to start playing.

Implements [IPunCallbacks](#).

**8.34.2.10** `virtual void Photon.PunBehaviour.OnLeftLobby ( ) [virtual]`

Called after leaving a lobby.

When you leave a lobby, [CreateRoom](#) and [JoinRandomRoom](#) automatically refer to the default lobby.

Implements [IPunCallbacks](#).

**8.34.2.11** `virtual void Photon.PunBehaviour.OnLeftRoom ( ) [virtual]`

Called when the local user/client left a room.

When leaving a room, PUN brings you back to the Master Server. Before you can use lobbies and join or create rooms, [OnJoinedLobby\(\)](#) or [OnConnectedToMaster\(\)](#) will get called again.

Implements [IPunCallbacks](#).

**8.34.2.12** `virtual void Photon.PunBehaviour.OnMasterClientSwitched ( PhotonPlayer newMasterClient ) [virtual]`

Called after switching to a new MasterClient when the current one leaves. The former already got removed from the player list.

This is not called when this client enters a room.



Implements [IPunCallbacks](#).

8.34.2.13 `virtual void Photon.PunBehaviour.OnOwnershipRequest ( object[] viewAndPlayer ) [virtual]`

Called when another player requests ownership of a [PhotonView](#) from you (the current owner).

The parameter viewAndPlayer contains:

[PhotonView](#) view = viewAndPlayer[0] as [PhotonView](#);

[PhotonPlayer](#) requestingPlayer = viewAndPlayer[1] as [PhotonPlayer](#);

Parameters

<i>viewAndPlayer</i>	The <a href="#">PhotonView</a> is viewAndPlayer[0] and the requesting player is viewAndPlayer[1].
----------------------	---

Implements [IPunCallbacks](#).

8.34.2.14 `virtual void Photon.PunBehaviour.OnPhotonCreateRoomFailed ( object[] codeAndMsg ) [virtual]`

Called when a CreateRoom() call failed. The parameter provides ErrorCode and message (as array).

Most likely because the room name is already in use (some other client was faster than you). PUN logs some info if the [PhotonNetwork.logLevel](#) is  $\geq$  PhotonLogLevel.Informational.

Parameters

<i>codeAndMsg</i>	codeAndMsg[0] is an integer ErrorCode and codeAndMsg[1] is a string debug msg.
-------------------	--

Implements [IPunCallbacks](#).

8.34.2.15 `virtual void Photon.PunBehaviour.OnPhotonCustomRoomPropertiesChanged ( Hashtable propertiesThatChanged ) [virtual]`

Called when a room's custom properties changed. The propertiesThatChanged contains all that was set via [Room.SetCustomProperties](#).

Since v1.25 this method has one parameter: Hashtable propertiesThatChanged.

Changing properties must be done by [Room.SetCustomProperties](#), which causes this callback locally, too.

Parameters

<i>propertiesThatChanged</i>	
------------------------------	--

Implements [IPunCallbacks](#).

8.34.2.16 `virtual void Photon.PunBehaviour.OnPhotonInstantiate ( PhotonMessageInfo info ) [virtual]`

Called on all scripts on a GameObject (and children) that have been Instantiated using [PhotonNetwork.Instantiate](#).

[PhotonMessageInfo](#) parameter provides info about who created the object and when (based off PhotonNetwork.time).

Implements [IPunCallbacks](#).

8.34.2.17 `virtual void Photon.PunBehaviour.OnPhotonJoinRoomFailed ( object[] codeAndMsg ) [virtual]`

Called when a JoinRoom() call failed. The parameter provides ErrorCode and message (as array).

Most likely error is that the room does not exist or the room is full (some other client was faster than you). PUN logs some info if the [PhotonNetwork.logLevel](#) is  $\geq$  PhotonLogLevel.Informational.

## Parameters

<i>codeAndMsg</i>	<code>codeAndMsg[0]</code> is int ErrorCode. <code>codeAndMsg[1]</code> is string debug msg.
-------------------	--

Implements [IPunCallbacks](#).

#### 8.34.2.18 virtual void Photon.PunBehaviour.OnPhotonMaxCcuReached ( ) [virtual]

Because the concurrent user limit was (temporarily) reached, this client is rejected by the server and disconnecting.

When this happens, the user might try again later. You can't create or join rooms in `OnPhotonMaxCcuReached()`, cause the client will be disconnecting. You can raise the CCU limits with a new license (when you host yourself) or extended subscription (when using the [Photon](#) Cloud). The [Photon](#) Cloud will mail you when the CCU limit was reached. This is also visible in the Dashboard (webpage).

Implements [IPunCallbacks](#).

#### 8.34.2.19 virtual void Photon.PunBehaviour.OnPhotonPlayerConnected ( PhotonPlayer newPlayer ) [virtual]

Called when a remote player entered the room. This [PhotonPlayer](#) is already added to the playerlist at this time.

If your game starts with a certain number of players, this callback can be useful to check the [Room.playerCount](#) and find out if you can start.

Implements [IPunCallbacks](#).

#### 8.34.2.20 virtual void Photon.PunBehaviour.OnPhotonPlayerDisconnected ( PhotonPlayer otherPlayer ) [virtual]

Called when a remote player left the room. This [PhotonPlayer](#) is already removed from the playerlist at this time.

When your client calls `PhotonNetwork.leaveRoom`, PUN will call this method on the remaining clients. When a remote client drops connection or gets closed, this callback gets executed. after a timeout of several seconds.

Implements [IPunCallbacks](#).

#### 8.34.2.21 virtual void Photon.PunBehaviour.OnPhotonPlayerPropertiesChanged ( object[] playerAndUpdatedProps ) [virtual]

Called when custom player-properties are changed. Player and the changed properties are passed as `object[]`.

Since v1.25 this method has one parameter: `object[] playerAndUpdatedProps`, which contains two entries.

`[0]` is the affected [PhotonPlayer](#).

`[1]` is the Hashtable of properties that changed.

We are using a `object[]` due to limitations of Unity's `GameObject.SendMessage` (which has only one optional parameter).

Changing properties must be done by [PhotonPlayer.SetCustomProperties](#), which causes this callback locally, too.

Example:

```
void OnPhotonPlayerPropertiesChanged(object[] playerAndUpdatedProps) {
    PhotonPlayer player = playerAndUpdatedProps[0] as PhotonPlayer;
    Hashtable props = playerAndUpdatedProps[1] as Hashtable;
    //...
}
```

## Parameters

<i>playerAnd↵ UpdatedProps</i>	Contains <a href="#">PhotonPlayer</a> and the properties that changed See remarks.
------------------------------------	--

Implements [IPunCallbacks](#).

#### 8.34.2.22 virtual void Photon.PunBehaviour.OnPhotonRandomJoinFailed ( object[] *codeAndMsg* ) [virtual]

Called when a JoinRandom() call failed. The parameter provides ErrorCode and message.

Most likely all rooms are full or no rooms are available.

When using multiple lobbies (via JoinLobby or [TypedLobby](#)), another lobby might have more/fitting rooms.

PUN logs some info if the [PhotonNetwork.logLevel](#) is >= PhotonLogLevel.Informational.

## Parameters

<i>codeAndMsg</i>	codeAndMsg[0] is int ErrorCode. codeAndMsg[1] is string debug msg.
-------------------	--

Implements [IPunCallbacks](#).

#### 8.34.2.23 virtual void Photon.PunBehaviour.OnReceivedRoomListUpdate ( ) [virtual]

Called for any update of the room listing (no matter if "new" list or "update for known" list). Only called in the Lobby state (on master server).

Not all types of lobbies provide a listing of rooms to the client. Some are silent and specialized for server-side matchmaking.

PUN provides the list of rooms by [PhotonNetwork.GetRoomList\(\)](#).

Each item is a [RoomInfo](#) which might include custom properties (provided you defined those as lobby-listed when creating a room).

Implements [IPunCallbacks](#).

#### 8.34.2.24 virtual void Photon.PunBehaviour.OnUpdatedFriendList ( ) [virtual]

Called when the server sent the response to a FindFriends request and updated [PhotonNetwork.Friends](#).

The friends list is available as [PhotonNetwork.Friends](#), listing name, online state and the room a user is in (if any).

Implements [IPunCallbacks](#).

#### 8.34.2.25 virtual void Photon.PunBehaviour.OnWebRpcResponse ( OperationResponse *response* ) [virtual]

Called by PUN when the response to a WebRPC is available. See [PhotonNetwork.WebRPC](#).

Important: The response.ReturnCode is 0 if [Photon](#) was able to reach your web-service. The content of the response is what your web-service sent. You can create a WebResponse instance from it. Example: [WebRpc↵  
Response](#) webResponse = new [WebRpcResponse\(operationResponse\)](#);

Please note: Class OperationResponse is in a namespace which needs to be "used": using [ExitGames.Client.↵  
Photon](#); // includes OperationResponse (and other classes)

The OperationResponse.ReturnCode by [Photon](#) is:

```
0 for "OK"
-3 for "Web-Service not configured" (see Dashboard / WebHooks)
-5 for "Web-Service does now have RPC path/name" (at least for Azure)
```

Implements [IPunCallbacks](#).

## 8.35 RaiseEventOptions Class Reference

Aggregates several less-often used options for operation RaiseEvent. See field descriptions for usage details.

### Public Attributes

- EventCaching [CachingOption](#)  
*Defines if the server should simply send the event, put it in the cache or remove events that are like this one.*
- byte [InterestGroup](#)  
*The number of the Interest Group to send this to. 0 goes to all users but to get 1 and up, clients must subscribe to the group first.*
- int[] [TargetActors](#)  
*A list of PhotonPlayer.IDs to send this event to. You can implement events that just go to specific users this way.*
- ReceiverGroup [Receivers](#)  
*Sends the event to All, MasterClient or Others (default). Be careful with MasterClient, as the client might disconnect before it got the event and it gets lost.*
- byte [SequenceChannel](#)  
*Events are ordered per "channel". If you have events that are independent of others, they can go into another sequence or channel.*
- bool [ForwardToWebhook](#)  
*Events can be forwarded to Webhooks, which can evaluate and use the events to follow the game's state.*
- int [CacheSliceIndex](#)  
*Used along with CachingOption SliceSetIndex, SlicePurgeIndex or SlicePurgeUpToIndex if you want to set or purge a specific cache-slice.*
- bool [Encrypt](#)  
*Use rarely. The binary message gets encrypted before being sent. Any receiver in the room will be able to decrypt the message, of course.*

### Static Public Attributes

- static readonly [RaiseEventOptions Default](#) = new [RaiseEventOptions](#)()  
*Default options: CachingOption: DoNotCache, InterestGroup: 0, targetActors: null, receivers: Others, sequence↔ Channel: 0.*

### 8.35.1 Detailed Description

Aggregates several less-often used options for operation RaiseEvent. See field descriptions for usage details.

### 8.35.2 Member Data Documentation

#### 8.35.2.1 int RaiseEventOptions.CacheSliceIndex

Used along with CachingOption SliceSetIndex, SlicePurgeIndex or SlicePurgeUpToIndex if you want to set or purge a specific cache-slice.

#### 8.35.2.2 EventCaching RaiseEventOptions.CachingOption

Defines if the server should simply send the event, put it in the cache or remove events that are like this one.

When using option: SliceSetIndex, SlicePurgeIndex or SlicePurgeUpToIndex, set a CacheSliceIndex. All other options except SequenceChannel get ignored.

**8.35.2.3** readonly **RaiseEventOptions** **RaiseEventOptions.Default** = new **RaiseEventOptions**() [static]

Default options: CachingOption: DoNotCache, InterestGroup: 0, targetActors: null, receivers: Others, sequence↔ Channel: 0.

**8.35.2.4** bool **RaiseEventOptions.Encrypt**

Use rarely. The binary message gets encrypted before being sent. Any receiver in the room will be able to decrypt the message, of course.

**8.35.2.5** bool **RaiseEventOptions.ForwardToWebhook**

Events can be forwarded to Webhooks, which can evaluate and use the events to follow the game's state.

**8.35.2.6** byte **RaiseEventOptions.InterestGroup**

The number of the Interest Group to send this to. 0 goes to all users but to get 1 and up, clients must subscribe to the group first.

**8.35.2.7** ReceiverGroup **RaiseEventOptions.Receivers**

Sends the event to All, MasterClient or Others (default). Be careful with MasterClient, as the client might disconnect before it got the event and it gets lost.

**8.35.2.8** byte **RaiseEventOptions.SequenceChannel**

Events are ordered per "channel". If you have events that are independent of others, they can go into another sequence or channel.

**8.35.2.9** int [] **RaiseEventOptions.TargetActors**

A list of PhotonPlayer.IDs to send this event to. You can implement events that just go to specific users this way.

## 8.36 Region Class Reference

### Public Member Functions

- override string [ToString](#) ()

### Static Public Member Functions

- static [CloudRegionCode Parse](#) (string codeAsString)

### Public Attributes

- [CloudRegionCode Code](#)
- string [HostAndPort](#)
- int [Ping](#)

## 8.36.1 Member Function Documentation

8.36.1.1 `static CloudRegionCode Region.Parse ( string codeAsString )` `[static]`

8.36.1.2 `override string Region.ToString ( )`

## 8.36.2 Member Data Documentation

8.36.2.1 `CloudRegionCode Region.Code`

8.36.2.2 `string Region.HostAndPort`

8.36.2.3 `int Region.Ping`

## 8.37 Room Class Reference

This class resembles a room that PUN joins (or joined). The properties are settable as opposed to those of a [RoomInfo](#) and you can close or hide "your" room.

Inherits [RoomInfo](#).

### Public Member Functions

- void [SetCustomProperties](#) ([Hashtable](#) propertiesToSet)  
*Updates and synchronizes the named properties of this [Room](#) with the values of propertiesToSet.*
- void [SetCustomProperties](#) ([Hashtable](#) propertiesToSet, [Hashtable](#) expectedValues)
- void [SetPropertiesListedInLobby](#) (string[] propsListedInLobby)  
*Enables you to define the properties available in the lobby if not all properties are needed to pick a room.*
- override string [ToString](#) ()  
*Returns a summary of this [Room](#) instance as string.*
- new string [ToStringFull](#) ()  
*Returns a summary of this [Room](#) instance as longer string, including Custom Properties.*

### Properties

- new int [playerCount](#) `[get]`  
*Count of players in this room.*
- new string [name](#) `[get, set]`  
*The name of a room. Unique identifier (per Loadbalancing group) for a room/match.*
- new int [maxPlayers](#) `[get, set]`  
*Sets a limit of players to this room. This property is shown in lobby, too. If the room is full (players count == maxplayers), joining this room will fail.*
- new bool [open](#) `[get, set]`  
*Defines if the room can be joined. This does not affect listing in a lobby but joining the room will fail if not open. If not open, the room is excluded from random matchmaking. Due to racing conditions, found matches might become closed before they are joined. Simply re-connect to master and find another. Use property "visible" to not list the room.*
- new bool [visible](#) `[get, set]`  
*Defines if the room is listed in its lobby. Rooms can be created invisible, or changed to invisible. To change if a room can be joined, use property: open.*
- string[] [propertiesListedInLobby](#) `[get, set]`  
*A list of custom properties that should be forwarded to the lobby and listed there.*
- bool [autoCleanUp](#) `[get]`  
*Gets if this room uses autoCleanUp to remove all (buffered) RPCs and instantiated GameObjects when a player leaves.*

## Additional Inherited Members

### 8.37.1 Detailed Description

This class resembles a room that PUN joins (or joined). The properties are settable as opposed to those of a [RoomInfo](#) and you can close or hide "your" room.

### 8.37.2 Member Function Documentation

#### 8.37.2.1 void Room.SetCustomProperties ( Hashtable *propertiesToSet* )

Updates and synchronizes the named properties of this [Room](#) with the values of *propertiesToSet*.

Any player can set a [Room](#)'s properties. [Room](#) properties are available until changed, deleted or until the last player leaves the room. Access them by: `Room.CustomProperties` (read-only!).

To reduce network traffic, set only values that actually changed.

New properties are added, existing values are updated. Other values will not be changed, so only provide values that changed or are new. To delete a named (custom) property of this room, use null as value. Only string-typed keys are applied (everything else is ignored).

Local cache is updated immediately, other clients are updated through [Photon](#) with a fitting operation.

#### Parameters

<i>propertiesToSet</i>	Hashtable of props to update, set and sync. See description.
------------------------	--

#### 8.37.2.2 void Room.SetCustomProperties ( Hashtable *propertiesToSet*, Hashtable *expectedValues* )

#### 8.37.2.3 void Room.SetPropertiesListedInLobby ( string[] *propsListedInLobby* )

Enables you to define the properties available in the lobby if not all properties are needed to pick a room.

It makes sense to limit the amount of properties sent to users in the lobby as this improves speed and stability.

#### Parameters

<i>propsListedInLobby</i>	An array of custom room property names to forward to the lobby.
---------------------------	---

#### 8.37.2.4 override string Room.ToString ( )

Returns a summary of this [Room](#) instance as string.

#### Returns

Summary of this [Room](#) instance.

#### 8.37.2.5 new string Room.ToStringFull ( )

Returns a summary of this [Room](#) instance as longer string, including Custom Properties.

#### Returns

Summary of this [Room](#) instance.

### 8.37.3 Property Documentation

#### 8.37.3.1 `bool Room.autoCleanUp` `[get]`

Gets if this room uses autoCleanUp to remove all (buffered) RPCs and instantiated GameObjects when a player leaves.

#### 8.37.3.2 `new int Room.maxPlayers` `[get]`, `[set]`

Sets a limit of players to this room. This property is shown in lobby, too. If the room is full (players count == maxplayers), joining this room will fail.

#### 8.37.3.3 `new string Room.name` `[get]`, `[set]`

The name of a room. Unique identifier (per Loadbalancing group) for a room/match.

#### 8.37.3.4 `new bool Room.open` `[get]`, `[set]`

Defines if the room can be joined. This does not affect listing in a lobby but joining the room will fail if not open. If not open, the room is excluded from random matchmaking. Due to racing conditions, found matches might become closed before they are joined. Simply re-connect to master and find another. Use property "visible" to not list the room.

#### 8.37.3.5 `new int Room.playerCount` `[get]`

Count of players in this room.

#### 8.37.3.6 `string [] Room.propertiesListedInLobby` `[get]`, `[set]`

A list of custom properties that should be forwarded to the lobby and listed there.

#### 8.37.3.7 `new bool Room.visible` `[get]`, `[set]`

Defines if the room is listed in its lobby. Rooms can be created invisible, or changed to invisible. To change if a room can be joined, use property: open.

## 8.38 RoomInfo Class Reference

A simplified room with just the info required to list and join, used for the room listing in the lobby. The properties are not settable (open, maxPlayers, etc).

Inherited by [Room](#).

### Public Member Functions

- override `bool Equals` (object p)  
*Makes [RoomInfo](#) comparable (by name).*
- override `int GetHashCode` ()  
*Accompanies Equals, using the name's GetHashCode as return.*
- override `string ToString` ()  
*Simple printing in method.*



- string [ToStringFull](#) ()  
*Simple printing in method.*

## Protected Attributes

- byte [maxPlayersField](#) = 0  
*Backing field for property.*
- bool [openField](#) = true  
*Backing field for property.*
- bool [visibleField](#) = true  
*Backing field for property.*
- bool [autoCleanUpField](#) = [PhotonNetwork.autoCleanUpPlayerObjects](#)  
*Backing field for property. False unless the GameProperty is set to true (else it's not sent).*
- string [nameField](#)  
*Backing field for property.*

## Properties

- bool [removedFromList](#) [get, set]  
*Used internally in lobby, to mark rooms that are no longer listed.*
- [Hashtable customProperties](#) [get]  
*Read-only "cache" of custom properties of a room. Set via [Room.SetCustomProperties](#) (not available for [RoomInfo](#) class!).*
- string [name](#) [get]  
*The name of a room. Unique identifier (per Loadbalancing group) for a room/match.*
- int [playerCount](#) [get, set]  
*Only used internally in lobby, to display number of players in room (while you're not in).*
- bool [isLocalClientInside](#) [get, set]  
*State if the local client is already in the game or still going to join it on gameserver (in lobby always false).*
- byte [maxPlayers](#) [get]  
*Sets a limit of players to this room. This property is shown in lobby, too. If the room is full (players count == maxplayers), joining this room will fail.*
- bool [open](#) [get]  
*Defines if the room can be joined. This does not affect listing in a lobby but joining the room will fail if not open. If not open, the room is excluded from random matchmaking. Due to racing conditions, found matches might become closed before they are joined. Simply re-connect to master and find another. Use property "IsVisible" to not list the room.*
- bool [visible](#) [get]  
*Defines if the room is listed in its lobby. Rooms can be created invisible, or changed to invisible. To change if a room can be joined, use property: open.*

### 8.38.1 Detailed Description

A simplified room with just the info required to list and join, used for the room listing in the lobby. The properties are not settable (open, maxPlayers, etc).

This class resembles info about available rooms, as sent by the Master server's lobby. Consider all values as readonly. None are synced (only updated by events by server).

## 8.38.2 Member Function Documentation

### 8.38.2.1 override bool RoomInfo.Equals ( object *p* )

Makes [RoomInfo](#) comparable (by name).

### 8.38.2.2 override int RoomInfo.GetHashCode ( )

Accompanies Equals, using the name's GetHashCode as return.

Returns

### 8.38.2.3 override string RoomInfo.ToString ( )

Simple printingin method.

Returns

Summary of this [RoomInfo](#) instance.

### 8.38.2.4 string RoomInfo.ToStringFull ( )

Simple printingin method.

Returns

Summary of this [RoomInfo](#) instance.

## 8.38.3 Member Data Documentation

### 8.38.3.1 bool RoomInfo.autoCleanUpField = PhotonNetwork.autoCleanUpPlayerObjects [protected]

Backing field for property. False unless the GameProperty is set to true (else it's not sent).

### 8.38.3.2 byte RoomInfo.maxPlayersField = 0 [protected]

Backing field for property.

### 8.38.3.3 string RoomInfo.nameField [protected]

Backing field for property.

### 8.38.3.4 bool RoomInfo.openField = true [protected]

Backing field for property.

### 8.38.3.5 bool RoomInfo.visibleField = true [protected]

Backing field for property.

### 8.38.4 Property Documentation

#### 8.38.4.1 Hashtable RoomInfo.customProperties [get]

Read-only "cache" of custom properties of a room. Set via [Room.SetCustomProperties](#) (not available for [RoomInfo](#) class!).

All keys are string-typed and the values depend on the game/application.

#### 8.38.4.2 bool RoomInfo.isLocalClientInside [get], [set]

State if the local client is already in the game or still going to join it on gameserver (in lobby always false).

#### 8.38.4.3 byte RoomInfo.maxPlayers [get]

Sets a limit of players to this room. This property is shown in lobby, too. If the room is full (players count == maxplayers), joining this room will fail.

As part of [RoomInfo](#) this can't be set. As part of a [Room](#) (which the player joined), the setter will update the server and all clients.

#### 8.38.4.4 string RoomInfo.name [get]

The name of a room. Unique identifier (per Loadbalancing group) for a room/match.

#### 8.38.4.5 bool RoomInfo.open [get]

Defines if the room can be joined. This does not affect listing in a lobby but joining the room will fail if not open. If not open, the room is excluded from random matchmaking. Due to racing conditions, found matches might become closed before they are joined. Simply re-connect to master and find another. Use property "IsVisible" to not list the room.

As part of [RoomInfo](#) this can't be set. As part of a [Room](#) (which the player joined), the setter will update the server and all clients.

#### 8.38.4.6 int RoomInfo.playerCount [get], [set]

Only used internally in lobby, to display number of players in room (while you're not in).

#### 8.38.4.7 bool RoomInfo.removedFromList [get], [set]

Used internally in lobby, to mark rooms that are no longer listed.

#### 8.38.4.8 bool RoomInfo.visible [get]

Defines if the room is listed in its lobby. Rooms can be created invisible, or changed to invisible. To change if a room can be joined, use property: open.

As part of [RoomInfo](#) this can't be set. As part of a [Room](#) (which the player joined), the setter will update the server and all clients.

## 8.39 RoomOptions Class Reference

Wraps up common room properties needed when you create rooms.

### Public Attributes

- int [maxPlayers](#)  
*Max number of players that can be in the room at any time. 0 means "no limit".*
- [Hashtable](#) [customRoomProperties](#)  
*The room's custom properties to set. Use string keys!*
- string[] [customRoomPropertiesForLobby](#) = new string[0]  
*Defines the custom room properties that get listed in the lobby.*

### Properties

- bool [isVisible](#) [get, set]  
*Defines if this room is listed in the lobby. If not, it also is not joined randomly.*
- bool [isOpen](#) [get, set]  
*Defines if this room can be joined at all.*
- bool [cleanupCacheOnLeave](#) [get, set]  
*Removes a user's events and properties from the room when a user leaves.*

### 8.39.1 Detailed Description

Wraps up common room properties needed when you create rooms.

This directly maps to what the fields in the [Room](#) class.

### 8.39.2 Member Data Documentation

#### 8.39.2.1 [Hashtable](#) [RoomOptions.customRoomProperties](#)

The room's custom properties to set. Use string keys!

Custom room properties are any key-values you need to define the game's setup. The shorter your keys are, the better. Example: Map, Mode (could be "m" when used with "Map"), TileSet (could be "t").

#### 8.39.2.2 string [] [RoomOptions.customRoomPropertiesForLobby](#) = new string[0]

Defines the custom room properties that get listed in the lobby.

Name the custom room properties that should be available to clients that are in a lobby. Use with care. Unless a custom property is essential for matchmaking or user info, it should not be sent to the lobby, which causes traffic and delays for clients in the lobby.

Default: No custom properties are sent to the lobby.

#### 8.39.2.3 int [RoomOptions.maxPlayers](#)

Max number of players that can be in the room at any time. 0 means "no limit".

### 8.39.3 Property Documentation

#### 8.39.3.1 `bool RoomOptions.cleanupCacheOnLeave` `[get]`, `[set]`

Removes a user's events and properties from the room when a user leaves.

This makes sense when in rooms where players can't place items in the room and just vanish entirely. When you disable this, the event history can become too long to load if the room stays in use indefinitely. Default: true. Cleans up the cache and props of leaving users.

#### 8.39.3.2 `bool RoomOptions.isOpen` `[get]`, `[set]`

Defines if this room can be joined at all.

If a room is closed, no player can join this. As example this makes sense when 3 of 4 possible players start their gameplay early and don't want anyone to join during the game. The room can still be listed in the lobby (set `isVisible` to control lobby-visibility).

#### 8.39.3.3 `bool RoomOptions.isVisible` `[get]`, `[set]`

Defines if this room is listed in the lobby. If not, it also is not joined randomly.

A room that is not visible will be excluded from the room lists that are sent to the clients in lobbies. An invisible room can be joined by name but is excluded from random matchmaking.

Use this to "hide" a room and simulate "private rooms". Players can exchange a roomname and create it invisible to avoid anyone else joining it.

## 8.40 ServerSettings Class Reference

Collection of connection-relevant settings, used internally by [PhotonNetwork.ConnectUsingSettings](#).

Inherits `ScriptableObject`.

### Public Types

- enum [HostingOption](#) {  
[HostingOption.NotSet](#), [HostingOption.PhotonCloud](#), [HostingOption.SelfHosted](#), [HostingOption.OfflineMode](#),  
[HostingOption.BestRegion](#) }

### Public Member Functions

- void [UseCloudBestResion](#) (string cloudAppid)
- void [UseCloud](#) (string cloudAppid)
- void [UseCloud](#) (string cloudAppid, [CloudRegionCode](#) code)
- void [UseMyServer](#) (string serverAddress, int serverPort, string application)
- override string [ToString](#) ()

### Public Attributes

- [HostingOption](#) [HostType](#) = [HostingOption.NotSet](#)
- [ConnectionProtocol](#) [Protocol](#) = [ConnectionProtocol.Udp](#)
- string [ServerAddress](#) = ""
- int [ServerPort](#) = 5055

- [CloudRegionCode PreferredRegion](#)
- string [AppID](#) = ""
- bool [PingCloudServersOnAwake](#) = false
- List< string > [RpcList](#) = new List<string>()
- bool [DisableAutoOpenWizard](#)

### 8.40.1 Detailed Description

Collection of connection-relevant settings, used internally by [PhotonNetwork.ConnectUsingSettings](#).

### 8.40.2 Member Enumeration Documentation

#### 8.40.2.1 enum [ServerSettings.HostingOption](#)

Enumerator

***NotSet***  
***PhotonCloud***  
***SelfHosted***  
***OfflineMode***  
***BestRegion***

### 8.40.3 Member Function Documentation

- 8.40.3.1 override string [ServerSettings.ToString](#) ( )
- 8.40.3.2 void [ServerSettings.UseCloud](#) ( string *cloudAppid* )
- 8.40.3.3 void [ServerSettings.UseCloud](#) ( string *cloudAppid*, [CloudRegionCode](#) *code* )
- 8.40.3.4 void [ServerSettings.UseCloudBestResion](#) ( string *cloudAppid* )
- 8.40.3.5 void [ServerSettings.UseMyServer](#) ( string *serverAddress*, int *serverPort*, string *application* )

### 8.40.4 Member Data Documentation

- 8.40.4.1 string [ServerSettings.AppID](#) = ""
- 8.40.4.2 bool [ServerSettings.DisableAutoOpenWizard](#)
- 8.40.4.3 [HostingOption](#) [ServerSettings.HostType](#) = [HostingOption.NotSet](#)
- 8.40.4.4 bool [ServerSettings.PingCloudServersOnAwake](#) = false
- 8.40.4.5 [CloudRegionCode](#) [ServerSettings.PreferredRegion](#)
- 8.40.4.6 [ConnectionProtocol](#) [ServerSettings.Protocol](#) = [ConnectionProtocol.Udp](#)
- 8.40.4.7 List<string> [ServerSettings.RpcList](#) = new List<string>()
- 8.40.4.8 string [ServerSettings.ServerAddress](#) = ""
- 8.40.4.9 int [ServerSettings.ServerPort](#) = 5055

## 8.41 PhotonAnimatorView.SynchronizedLayer Class Reference

### Public Attributes

- [SynchronizeType](#) [SynchronizeType](#)
- int [LayerIndex](#)

### 8.41.1 Member Data Documentation

8.41.1.1 int PhotonAnimatorView.SynchronizedLayer.LayerIndex

8.41.1.2 [SynchronizeType](#) PhotonAnimatorView.SynchronizedLayer.SynchronizeType

## 8.42 PhotonAnimatorView.SynchronizedParameter Class Reference

### Public Attributes

- [ParameterType](#) [Type](#)
- [SynchronizeType](#) [SynchronizeType](#)
- string [Name](#)

### 8.42.1 Member Data Documentation

8.42.1.1 string PhotonAnimatorView.SynchronizedParameter.Name

8.42.1.2 [SynchronizeType](#) PhotonAnimatorView.SynchronizedParameter.SynchronizeType

8.42.1.3 [ParameterType](#) PhotonAnimatorView.SynchronizedParameter.Type

## 8.43 TypedLobby Class Reference

Refers to a specific lobby (and type) on the server.

### Public Member Functions

- [TypedLobby](#) ()
- [TypedLobby](#) (string name, [LobbyType](#) type)
- override string [ToString](#) ()

### Public Attributes

- string [Name](#)  
*The name of the Lobby. Can be any string. Default lobby uses "".*
- [LobbyType](#) [Type](#)  
*The type of the Lobby. Default lobby uses LobbyType.Default.*

### Static Public Attributes

- static readonly [TypedLobby](#) [Default](#) = new [TypedLobby](#)()

## Properties

- bool [IsDefault](#) [get]

### 8.43.1 Detailed Description

Refers to a specific lobby (and type) on the server.

The name and type are the unique identifier for a lobby.

Join a lobby via [PhotonNetwork.JoinLobby\(TypedLobby lobby\)](#).

The current lobby is stored in [PhotonNetwork.lobby](#).

### 8.43.2 Constructor & Destructor Documentation

8.43.2.1 [TypedLobby.TypedLobby \( \)](#)

8.43.2.2 [TypedLobby.TypedLobby \( string name, LobbyType type \)](#)

### 8.43.3 Member Function Documentation

8.43.3.1 override string [TypedLobby.ToString \( \)](#)

### 8.43.4 Member Data Documentation

8.43.4.1 readonly [TypedLobby TypedLobby.Default = new TypedLobby\(\)](#) [static]

8.43.4.2 string [TypedLobby.Name](#)

The name of the Lobby. Can be any string. Default lobby uses "".

8.43.4.3 [LobbyType TypedLobby.Type](#)

The type of the Lobby. Default lobby uses [LobbyType.Default](#).

### 8.43.5 Property Documentation

8.43.5.1 bool [TypedLobby.IsDefault](#) [get]

## 8.44 WebRpcResponse Class Reference

Provides easy access to most common WebRpc-Response values.

### Public Member Functions

- [WebRpcResponse](#) (OperationResponse response)
- string [ToStringFull \(\)](#)

## Properties

- string [Name](#) [get, set]
- int [ReturnCode](#) [get, set]

-1 tells you: Got not ReturnCode from WebRpc service.



- string [DebugMessage](#) [get, set]
- Dictionary< string, object > [Parameters](#) [get, set]

### 8.44.1 Detailed Description

Provides easy access to most common WebRpc-Response values.

See method [PhotonNetwork.WebRpc](#).

Instantiate as new [WebRpcResponse\(operationResponse\)](#) for operationResponse.OperationCode == Operation↵  
Code.WebRpc.

### 8.44.2 Constructor & Destructor Documentation

8.44.2.1 [WebRpcResponse.WebRpcResponse \( OperationResponse \*response\* \)](#)

### 8.44.3 Member Function Documentation

8.44.3.1 [string WebRpcResponse.ToStringFull \( \)](#)

### 8.44.4 Property Documentation

8.44.4.1 [string WebRpcResponse.DebugMessage](#) [get], [set]

8.44.4.2 [string WebRpcResponse.Name](#) [get], [set]

8.44.4.3 [Dictionary<string, object> WebRpcResponse.Parameters](#) [get], [set]

8.44.4.4 [int WebRpcResponse.ReturnCode](#) [get], [set]

-1 tells you: Got not ReturnCode from WebRpc service.



## Chapter 9

# File Documentation

- 9.1 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/\_Doc/general.md File Reference
- 9.2 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/\_Doc/main.md File Reference
- 9.3 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/\_Doc/optionalGui.md File Reference
- 9.4 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/\_Doc/photonStatsGui.md File Reference
- 9.5 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/\_Doc/publicApi.md File Reference
- 9.6 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/CustomTypes.cs File Reference

Sets up support for Unity-specific types. Can be a blueprint how to register your own Custom Types for sending.

### Classes

- class **CustomTypes**

*Internally used class, containing de/serialization methods for various Unity-specific classes. Adding those to the [Photon](#) serialization protocol allows you to send them in events, etc.*

#### 9.6.1 Detailed Description

Sets up support for Unity-specific types. Can be a blueprint how to register your own Custom Types for sending.

## 9.7 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/Enums.cs File Reference

Wraps up several of the commonly used enumerations.

### Enumerations

- enum [PhotonNetworkingMessage](#) {  
[PhotonNetworkingMessage.OnConnectedToPhoton](#), [PhotonNetworkingMessage.OnLeftRoom](#), [PhotonNetworkingMessage.OnMasterClientSwitched](#), [PhotonNetworkingMessage.OnPhotonCreateRoomFailed](#),  
[PhotonNetworkingMessage.OnPhotonJoinRoomFailed](#), [PhotonNetworkingMessage.OnCreatedRoom](#),  
[PhotonNetworkingMessage.OnJoinedLobby](#), [PhotonNetworkingMessage.OnLeftLobby](#),  
[PhotonNetworkingMessage.OnDisconnectedFromPhoton](#), [PhotonNetworkingMessage.OnConnectionFail](#),  
[PhotonNetworkingMessage.OnFailedToConnectToPhoton](#), [PhotonNetworkingMessage.OnReceivedRoomListUpdate](#),  
[PhotonNetworkingMessage.OnJoinedRoom](#), [PhotonNetworkingMessage.OnPhotonPlayerConnected](#),  
[PhotonNetworkingMessage.OnPhotonPlayerDisconnected](#), [PhotonNetworkingMessage.OnPhotonRandomJoinFailed](#),  
[PhotonNetworkingMessage.OnConnectedToMaster](#), [PhotonNetworkingMessage.OnPhotonSerializeView](#),  
[PhotonNetworkingMessage.OnPhotonInstantiate](#), [PhotonNetworkingMessage.OnPhotonMaxCccuReached](#),  
[PhotonNetworkingMessage.OnPhotonCustomRoomPropertiesChanged](#), [PhotonNetworkingMessage.OnPhotonPlayerPropertiesChanged](#), [PhotonNetworkingMessage.OnUpdatedFriendList](#), [PhotonNetworkingMessage.OnCustomAuthenticationFailed](#),  
[PhotonNetworkingMessage.OnWebRpcResponse](#), [PhotonNetworkingMessage.OnOwnershipRequest](#) }  
*This enum defines the set of MonoMessages [Photon Unity Networking](#) is using as callbacks. Implemented by [PunBehaviour](#).*
- enum [PhotonLogLevel](#) { [PhotonLogLevel.ErrorsOnly](#), [PhotonLogLevel.Informational](#), [PhotonLogLevel.Full](#) }  
*Used to define the level of logging output created by the PUN classes. Either log errors, info (some more) or full.*
- enum [PhotonTargets](#) {  
[PhotonTargets.All](#), [PhotonTargets.Others](#), [PhotonTargets.MasterClient](#), [PhotonTargets.AllBuffered](#),  
[PhotonTargets.OthersBuffered](#), [PhotonTargets.AllViaServer](#), [PhotonTargets.AllBufferedViaServer](#) }  
*Enum of "target" options for RPCs. These define which remote clients get your RPC call.*
- enum [LobbyType](#) : byte { [LobbyType.Default](#) = 0, [LobbyType.SqlLobby](#) = 2 }  
*Options of lobby types available. Lobby types might be implemented in certain [Photon](#) versions and won't be available on older servers.*
- enum [CloudRegionCode](#) {  
[CloudRegionCode.eu](#) = 0, [CloudRegionCode.us](#) = 1, [CloudRegionCode.asia](#) = 2, [CloudRegionCode.jp](#) = 3,  
[CloudRegionCode.au](#) = 5, [CloudRegionCode.none](#) = 4 }  
*Currently available cloud regions as enum.*
- enum [ServerConnection](#) { [ServerConnection.MasterServer](#), [ServerConnection.GameServer](#), [ServerConnection.NameServer](#) }  
*Available server (types) for internally used field: server.*
- enum [ConnectionState](#) {  
[ConnectionState.Disconnected](#), [ConnectionState.Connecting](#), [ConnectionState.Connected](#), [ConnectionState.Disconnecting](#),  
[ConnectionState.InitializingApplication](#) }  
*High level connection state of the client. Better use the more detailed [PeerState](#).*
- enum [PeerState](#) {  
[PeerState.Uninitialized](#), [PeerState.PeerCreated](#), [PeerState.Queued](#), [PeerState.Authenticated](#),  
[PeerState.JoinedLobby](#), [PeerState.DisconnectingFromMasterserver](#), [PeerState.ConnectingToGameserver](#),  
[PeerState.ConnectedToGameserver](#),  
[PeerState.Joining](#), [PeerState.Joined](#), [PeerState.Leaving](#), [PeerState.DisconnectingFromGameserver](#),  
[PeerState.ConnectingToMasterserver](#), [PeerState.QueuedComingFromGameserver](#), [PeerState.Disconnecting](#),  
[PeerState.Disconnected](#),  
[PeerState.ConnectedToMaster](#), [PeerState.ConnectingToNameServer](#), [PeerState.ConnectedToNameServer](#),

```
PeerState.DisconnectingFromNameServer,
PeerState.Authenticating }
```

*Detailed connection / networking peer state. PUN implements a loadbalancing and authentication workflow "behind the scenes", so some states will automatically advance to some follow up state. Those states are commented with "(will-change)".*

- enum [DisconnectCause](#) {  
[DisconnectCause.ExceptionOnConnect](#) = StatusCode.ExceptionOnConnect, [DisconnectCause.SecurityExceptionOnConnect](#) = StatusCode.SecurityExceptionOnConnect, [DisconnectCause.TimeoutDisconnect](#) = StatusCode.TimeoutDisconnect, [DisconnectCause.DisconnectByClientTimeout](#) = StatusCode.TimeoutDisconnect,  
[DisconnectCause.InternalReceiveException](#) = StatusCode.ExceptionOnReceive, [DisconnectCause.DisconnectByServer](#) = StatusCode.DisconnectByServer, [DisconnectCause.DisconnectByServerTimeout](#) = StatusCode.DisconnectByServer, [DisconnectCause.DisconnectByServerLogic](#) = StatusCode.DisconnectByServerLogic,  
[DisconnectCause.DisconnectByServerUserLimit](#) = StatusCode.DisconnectByServerUserLimit, [DisconnectCause.Exception](#) = StatusCode.Exception, [DisconnectCause.InvalidRegion](#) = ErrorCode.InvalidRegion, [DisconnectCause.MaxCcuReached](#) = ErrorCode.MaxCcuReached,  
[DisconnectCause.InvalidAuthentication](#) = ErrorCode.InvalidAuthentication, [DisconnectCause.AuthenticationTicketExpired](#) = ErrorCode.AuthenticationTicketExpired }

*Summarizes the cause for a disconnect. Used in: OnConnectionFail and OnFailedToConnectToPhoton.*

### 9.7.1 Detailed Description

Wraps up several of the commonly used enumerations.

### 9.7.2 Enumeration Type Documentation

#### 9.7.2.1 enum [CloudRegionCode](#)

Currently available cloud regions as enum.

Must match order in [CloudServerRegionNames](#) and [CloudServerRegionPrefixes](#). To keep things compatible with older [ServerSettings](#), "none" is the final value, not the first.

Enumerator

```
eu
us
asia
jp
au
none
```

#### 9.7.2.2 enum [ConnectionState](#)

High level connection state of the client. Better use the more detailed [PeerState](#).

Enumerator

```
Disconnected
Connecting
Connected
Disconnecting
InitializingApplication
```

### 9.7.2.3 enum LobbyType : byte

Options of lobby types available. Lobby types might be implemented in certain [Photon](#) versions and won't be available on older servers.

#### Enumerator

**Default** This lobby is used unless another is defined by game or JoinRandom. Room-lists will be sent and JoinRandomRoom can filter by matching properties.

**SqlLobby** This lobby type lists rooms like Default but JoinRandom has a parameter for SQL-like "where" clauses for filtering. This allows bigger, less, or and and combinations.

### 9.7.2.4 enum ServerConnection

Available server (types) for internally used field: server.

#### Enumerator

**MasterServer**

**GameServer**

**NameServer**

## 9.8 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/Extensions.cs File Reference

### Classes

- class [Extensions](#)  
*This static class defines some useful extension methods for several existing classes (e.g. Vector3, float and others).*
- class [GameObjectExtensions](#)  
*Small number of extension methods that make it easier for PUN to work cross-Unity-versions.*

### Typedefs

- using [Hashtable](#) = ExitGames.Client.Photon.Hashtable
- using [SupportClass](#) = ExitGames.Client.Photon.SupportClass

### 9.8.1 Typedef Documentation

9.8.1.1 using [Hashtable](#) = ExitGames.Client.Photon.Hashtable

9.8.1.2 using [SupportClass](#) = ExitGames.Client.Photon.SupportClass

## 9.9 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/FriendInfo.cs File Reference

### Classes

- class [FriendInfo](#)  
*Used to store info about a friend's online state and in which room he/she is.*

## 9.10 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/GizmoType.cs File Reference ↩↪

### Classes

- class [ExitGames.Client.GUI.GizmoTypeDrawer](#)

### Namespaces

- package [ExitGames.Client.GUI](#)

### Enumerations

- enum [ExitGames.Client.GUI.GizmoType](#) { [ExitGames.Client.GUI.GizmoType.WireSphere](#), [ExitGames.Client.GUI.GizmoType.Sphere](#), [ExitGames.Client.GUI.GizmoType.WireCube](#), [ExitGames.Client.GUI.GizmoType.Cube](#) }

## 9.11 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/LoadbalancingPeer.cs File Reference ↩↪

### Classes

- class **ExitGames.Client.Photon.LoadbalancingPeer**  
*Internally used by PUN, a LoadbalancingPeer provides the operations and enum definitions needed to use the [Photon](#) Loadbalancing server (or the [Photon](#) Cloud).*
- class **ExitGames.Client.Photon.ErrorCode**  
*Class for constants. These (int) values represent error codes, as defined and sent by the [Photon](#) LoadBalancing logic. Pun uses these constants internally.*
- class [ExitGames.Client.Photon.ActorProperties](#)  
*Class for constants. These (byte) values define "well known" properties for an Actor / Player. Pun uses these constants internally.*
- class [ExitGames.Client.Photon.GameProperties](#)  
*Class for constants. These (byte) values are for "well known" room/game properties used in [Photon](#) Loadbalancing. Pun uses these constants internally.*
- class [ExitGames.Client.Photon.EventCode](#)  
*Class for constants. These values are for events defined by [Photon](#) Loadbalancing. Pun uses these constants internally.*
- class [ExitGames.Client.Photon.ParameterCode](#)  
*Class for constants. Codes for parameters of Operations and Events. Pun uses these constants internally.*
- class [ExitGames.Client.Photon.OperationCode](#)  
*Class for constants. Contains operation codes. Pun uses these constants internally.*
- class [AuthenticationValues](#)  
*Container for "Custom Authentication" values in [Photon](#) (default: user and token). Set AuthParameters before connecting - all else is handled.*

### Namespaces

- package [ExitGames.Client.Photon](#)

## Typedefs

- using [Hashtable](#) = ExitGames.Client.Photon.Hashtable

## Enumerations

- enum [MatchmakingMode](#) : byte { [MatchmakingMode.FillRoom](#) = 0, [MatchmakingMode.SerialMatching](#) = 1, [MatchmakingMode.RandomMatching](#) = 2 }  
Options for matchmaking rules for *OpJoinRandom*.
- enum [CustomAuthenticationType](#) : byte { [CustomAuthenticationType.Custom](#) = 0, [CustomAuthenticationType.Steam](#) = 1, [CustomAuthenticationType.Facebook](#) = 2, [CustomAuthenticationType.None](#) = byte.MaxValue }  
Options for optional "Custom Authentication" services used with [Photon](#). Used by *OpAuthenticate* after connecting to [Photon](#).

### 9.11.1 Typedef Documentation

- 9.11.1.1 using [Hashtable](#) = ExitGames.Client.Photon.Hashtable

### 9.11.2 Enumeration Type Documentation

- 9.11.2.1 enum [CustomAuthenticationType](#) : byte

Options for optional "Custom Authentication" services used with [Photon](#). Used by *OpAuthenticate* after connecting to [Photon](#).

#### Enumerator

**Custom** Use a custom authentication service. Currently the only implemented option.

**Steam** Authenticates users by their Steam Account. Set auth values accordingly!

**Facebook** Authenticates users by their Facebook Account. Set auth values accordingly!

**None** Disables custom authentication. Same as not providing any [AuthenticationValues](#) for connect (more precisely for: *OpAuthenticate*).

- 9.11.2.2 enum [MatchmakingMode](#) : byte

Options for matchmaking rules for *OpJoinRandom*.

#### Enumerator

**FillRoom** Fills up rooms (oldest first) to get players together as fast as possible. Default. Makes most sense with *MaxPlayers* > 0 and games that can only start with more players.

**SerialMatching** Distributes players across available rooms sequentially but takes filter into account. Without filter, rooms get players evenly distributed.

**RandomMatching** Joins a (fully) random room. Expected properties must match but aside from this, any available room might be selected.

## 9.12 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/NetworkingPeer.cs File Reference

### Classes

- class [NetworkingPeer](#)



Implements [Photon](#) LoadBalancing used in PUN. This class is used internally by [PhotonNetwork](#) and not intended as public API.

## Typedefs

- using [Hashtable](#) = ExitGames.Client.Photon.Hashtable

### 9.12.1 Typedef Documentation

#### 9.12.1.1 using Hashtable = ExitGames.Client.Photon.Hashtable

## 9.13 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonClasses.cs File Reference ↩

Wraps up smaller classes that don't need their own file.

## Classes

- interface [IPunObservable](#)  
*Defines the OnPhotonSerializeView method to make it easy to implement correctly for observable scripts.*
- interface [IPunCallbacks](#)  
*Defines all the methods that PUN will call in specific situations, except OnPhotonSerializeView. Implemented by PunBehaviour.*
- class [Photon.MonoBehaviour](#)  
*This class adds the property photonView, while logging a warning when your game still uses the networkView.*
- class [Photon.PunBehaviour](#)  
*This class provides a .photonView and all callbacks/events that PUN can call. Override the events/methods you want to use.*
- class [PhotonMessageInfo](#)  
*Container class for info about a particular message, RPC or update.*
- class [RoomOptions](#)  
*Wraps up common room properties needed when you create rooms.*
- class [TypedLobby](#)  
*Refers to a specific lobby (and type) on the server.*
- class [RaiseEventOptions](#)  
*Aggregates several less-often used options for operation RaiseEvent. See field descriptions for usage details.*
- class **PunEvent**  
*Defines [Photon](#) event-codes as used by PUN.*
- class [PhotonStream](#)  
*This container is used in [OnPhotonSerializeView\(\)](#) to either provide incoming data of a [PhotonView](#) or for you to provide it.*
- class [WebRpcResponse](#)  
*Provides easy access to most common WebRpc-Response values.*

## Namespaces

- package [Photon](#)

## Typedefs

- using [Hashtable](#) = ExitGames.Client.Photon.Hashtable
- using [Photon.Hashtable](#) = ExitGames.Client.Photon.Hashtable

### 9.13.1 Detailed Description

Wraps up smaller classes that don't need their own file.

### 9.13.2 Typedef Documentation

#### 9.13.2.1 using Hashtable = ExitGames.Client.Photon.Hashtable

## 9.14 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonHandler.cs File Reference

### Classes

- class **PhotonHandler**  
*Internal MonoBehaviour that allows [Photon](#) to run an Update loop.*

## Typedefs

- using [Hashtable](#) = ExitGames.Client.Photon.Hashtable

### 9.14.1 Typedef Documentation

#### 9.14.1.1 using Hashtable = ExitGames.Client.Photon.Hashtable

## 9.15 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonLagSimulationGui.cs File Reference

Part of the [Optional GUI](#).

### Classes

- class [PhotonLagSimulationGui](#)  
*This MonoBehaviour is a basic GUI for the [Photon](#) client's network-simulation feature. It can modify lag (fixed delay), jitter (random lag) and packet loss.*

### 9.15.1 Detailed Description

Part of the [Optional GUI](#).

## 9.16 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonNetwork.cs File Reference

## Classes

- class [PhotonNetwork](#)

*The main class to use the [PhotonNetwork](#) plugin. This class is static.*

## Typedefs

- using [Hashtable](#) = ExitGames.Client.Photon.Hashtable

### 9.16.1 Typedef Documentation

- 9.16.1.1 using [Hashtable](#) = ExitGames.Client.Photon.Hashtable

## 9.17 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonPlayer.cs File Reference ↩

## Classes

- class [PhotonPlayer](#)

*Summarizes a "player" within a room, identified (in that room) by actorID.*

## Typedefs

- using [Hashtable](#) = ExitGames.Client.Photon.Hashtable

### 9.17.1 Typedef Documentation

- 9.17.1.1 using [Hashtable](#) = ExitGames.Client.Photon.Hashtable

## 9.18 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonStatsGui.cs File Reference ↩

Part of the [Optional GUI](#).

## Classes

- class [PhotonStatsGui](#)

*Basic GUI to show traffic and health statistics of the connection to [Photon](#), toggled by shift+tab.*

### 9.18.1 Detailed Description

Part of the [Optional GUI](#).

## 9.19 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonStreamQueue.cs File Reference ↩

## Classes

- class [PhotonStreamQueue](#)

The [PhotonStreamQueue](#) helps you poll object states at higher frequencies than what [PhotonNetwork.sendRate](#) dictates and then sends all those states at once when [Serialize\(\)](#) is called. On the receiving end you can call [Deserialize\(\)](#) and then the stream will roll out the received object states in the same order and timeStep they were recorded in.

## 9.20 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PhotonView.cs File Reference

### Classes

- class [PhotonView](#)

PUN's [NetworkView](#) replacement class for networking. Use it like a [NetworkView](#).

### Enumerations

- enum [ViewSynchronization](#) { [ViewSynchronization.Off](#), [ViewSynchronization.ReliableDeltaCompressed](#), [ViewSynchronization.Unreliable](#), [ViewSynchronization.UnreliableOnChange](#) }
- enum [OnSerializeTransform](#) { [OnSerializeTransform.OnlyPosition](#), [OnSerializeTransform.OnlyRotation](#), [OnSerializeTransform.OnlyScale](#), [OnSerializeTransform.PositionAndRotation](#), [OnSerializeTransform.All](#) }
- enum [OnSerializeRigidBody](#) { [OnSerializeRigidBody.OnlyVelocity](#), [OnSerializeRigidBody.OnlyAngularVelocity](#), [OnSerializeRigidBody.All](#) }
- enum [OwnershipOption](#) { [OwnershipOption.Fixed](#), [OwnershipOption.Takeover](#), [OwnershipOption.Request](#) }

Options to define how Ownership Transfer is handled per [PhotonView](#).

### 9.20.1 Enumeration Type Documentation

#### 9.20.1.1 enum [OnSerializeRigidBody](#)

##### Enumerator

***OnlyVelocity***

***OnlyAngularVelocity***

***All***

#### 9.20.1.2 enum [OnSerializeTransform](#)

##### Enumerator

***OnlyPosition***

***OnlyRotation***

***OnlyScale***

***PositionAndRotation***

***All***

## 9.20.1.3 enum OwnershipOption

Options to define how Ownership Transfer is handled per [PhotonView](#).

This setting affects how RequestOwnership and TransferOwnership work at runtime.

## Enumerator

**Fixed** Ownership is fixed. Instantiated objects stick with their creator, scene objects always belong to the Master Client.

**Takeover** Ownership can be taken away from the current owner who can't object.

**Request** Ownership can be requested with [PhotonView.RequestOwnership](#) but the current owner has to agree to give up ownership. The current owner has to implement [IPunCallbacks.OnOwnershipRequest](#) to react to the ownership request.

## 9.20.1.4 enum ViewSynchronization

## Enumerator

**Off**

**ReliableDeltaCompressed**

**Unreliable**

**UnreliableOnChange**

## 9.21 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/PingCloudRegions.cs File Reference

## Classes

- class [PingMonoEditor](#)  
*Uses C# Socket class from System.Net.Sockets (as Unity usually does).*
- class [PhotonPingManager](#)

## Typedefs

- using [Debug](#) = UnityEngine.Debug

## 9.21.1 Typedef Documentation

## 9.21.1.1 using Debug = UnityEngine.Debug

## 9.22 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/Room.cs File Reference

## Classes

- class [Room](#)  
*This class resembles a room that PUN joins (or joined). The properties are settable as opposed to those of a [RoomInfo](#) and you can close or hide "your" room.*

## 9.23 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/RoomInfo.cs File Reference

### Classes

- class [RoomInfo](#)

*A simplified room with just the info required to list and join, used for the room listing in the lobby. The properties are not settable (open, maxPlayers, etc).*

## 9.24 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/RPC.cs File Reference

Implements a RPC Attribute for platforms that don't have it in UnityEngine.

### 9.24.1 Detailed Description

Implements a RPC Attribute for platforms that don't have it in UnityEngine.

## 9.25 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/RpcIndexComponent.cs File Reference

Outdated. Here to overwrite older files on import.

### 9.25.1 Detailed Description

Outdated. Here to overwrite older files on import.

## 9.26 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/ServerSettings.cs File Reference

ScriptableObject defining a server setup. An instance is created as **PhotonServerSettings**.

### Classes

- class [Region](#)
- class [ServerSettings](#)

*Collection of connection-relevant settings, used internally by [PhotonNetwork.ConnectUsingSettings](#).*

### 9.26.1 Detailed Description

ScriptableObject defining a server setup. An instance is created as **PhotonServerSettings**.

## 9.27 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/Views/PhotonAnimatorView.cs File Reference ↩

### Classes

- class [PhotonAnimatorView](#)

*This class helps you to synchronize Mecanim animations. Simply add the component to your GameObject and make sure that the [PhotonAnimatorView](#) is added to the list of observed components.*

- class [PhotonAnimatorView.SynchronizedParameter](#)
- class [PhotonAnimatorView.SynchronizedLayer](#)

## 9.28 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/Views/PhotonRigidbody2DView.cs File Reference ↩

### Classes

- class [PhotonRigidbody2DView](#)

*This class helps you to synchronize the velocities of a 2d physics RigidBody. Note that only the velocities are synchronized and because Unity's physics engine is not deterministic (ie. the results aren't always the same on all computers) - the actual positions of the objects may go out of sync. If you want to have the position of this object the same on all clients, you should also add a [PhotonTransformView](#) to synchronize the position. Simply add the component to your GameObject and make sure that the [PhotonRigidbody2DView](#) is added to the list of observed components.*

## 9.29 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/Views/PhotonRigidbodyView.cs File Reference ↩

### Classes

- class [PhotonRigidbodyView](#)

*This class helps you to synchronize the velocities of a physics RigidBody. Note that only the velocities are synchronized and because Unity's physics engine is not deterministic (ie. the results aren't always the same on all computers) - the actual positions of the objects may go out of sync. If you want to have the position of this object the same on all clients, you should also add a [PhotonTransformView](#) to synchronize the position. Simply add the component to your GameObject and make sure that the [PhotonRigidbodyView](#) is added to the list of observed components.*

## 9.30 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/Plugins/PhotonNetwork/Views/PhotonTransformView.cs File Reference ↩

### Classes

- class [PhotonTransformView](#)

*This class helps you to synchronize position, rotation and scale of a GameObject. It also gives you many different options to make the synchronized values appear smooth, even when the data is only sent a couple of times per second. Simply add the component to your GameObject and make sure that the [PhotonTransformView](#) is added to the list of observed components.*

### 9.31 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/↔ Plugins/PhotonNetwork/Views/PhotonTransformViewPositionControl.cs File Refer- ence

#### Classes

- class [PhotonTransformViewPositionControl](#)

### 9.32 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/↔ Plugins/PhotonNetwork/Views/PhotonTransformViewPositionModel.cs File Refer- ence

#### Classes

- class [PhotonTransformViewPositionModel](#)

### 9.33 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/↔ Plugins/PhotonNetwork/Views/PhotonTransformViewRotationControl.cs File Refer- ence

#### Classes

- class [PhotonTransformViewRotationControl](#)

### 9.34 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/↔ Plugins/PhotonNetwork/Views/PhotonTransformViewRotationModel.cs File Refer- ence

#### Classes

- class [PhotonTransformViewRotationModel](#)

### 9.35 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/↔ Plugins/PhotonNetwork/Views/PhotonTransformViewScaleControl.cs File Refer- ence

#### Classes

- class [PhotonTransformViewScaleControl](#)

### 9.36 C:/Dev/photon-sdk-dotnet/Unity/PhotonNetworking/Assets/Photon Unity Networking/↔ Plugins/PhotonNetwork/Views/PhotonTransformViewScaleModel.cs File Reference



## Classes

- class [PhotonTransformViewScaleModel](#)