Combu

3.2.2

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1 API Reference 1

1.1 Introduction . . . 1

1.2 Installation . . . 1

1.3 Documentation . . . 2

1.4 Customers from Asset Store . . . 2

2 Off-line documentation 3

3 Web server setup 5

3.1 Live server . . . 5

3.2 Local machine . . . 5

3.3 Server and Client configuration . . . 6

4 Server and Client configuration 7

4.1 Server configuration . . . 7

4.2 Client configuration . . . 9

5 Email configuration and Reset Password 11

5.1 Server configuration . . . 11

6 Server-Client Security 13

6.1 RSA + AES keys handshaking . . . 13

6.2 Data encryption . . . 13

7 Error messages localization 15

7.1 Client request . . . 15

7.2 Server response . . . 15

8 Authentication and Users 17

8.1 Authentication . . . 17

8.1.1 Auto-login . . . 17

8.2 Registration . . . 17

8.2.1 Send confirmation by email . . . 18

8.2.2 Create a guest account . . . 19

8.3 Custom Data . . . 19

8.4 Load users . . . 19

8.5 Online state . . . 20

8.6 Create your User class . . . 20

9 Server Settings 23

9.1 Server . . . 23

9.2 Client . . . 23

10 Linking external platforms 25

10.1 Authentication . . . 25

10.2 Link a platform to the local user . . . 25

10.3 Transfer the external platforms . . . 25
10.4 Load users from platforms . . . 26

11 Managing Contacts **27**
11.1 Loading Contacts . . . 27
11.2 Adding Contacts . . . 27
11.3 Removing Contacts . . . 28

12 Managing Files **29**
12.1 Loading Files . . . 29
12.2 Adding Files . . . 29
12.3 Viewing Files . . . 29
12.4 Liking Files . . . 30
12.5 Removing Files . . . 30

13 Managing Inventory **31**
13.1 Loading Inventory . . . 31
13.2 Adding and Editing Items . . . 31
13.3 Removing Items . . . 32

14 Managing Messages **33**
14.1 Loading Messages . . . 33
14.2 Sending Messages . . . 33
14.2.1 Sending to UserGroup . . . 34
14.3 Marking Messages as Read . . . 34
14.4 Marking Messages as Unread . . . 34
14.5 Removing Items . . . 34
14.6 Loading Conversations . . . 35
14.7 Counting Messages . . . 35

15 Managing User Groups **37**
15.1 Create a new group . . . 37
15.2 Load groups . . . 37
15.3 Join a group . . . 37
15.4 Leave a group . . . 38

16 Managing News **39**
16.1 Loading News . . . 39

17 Managing Leaderboards **41**
17.1 Loading Scores . . . 41
17.2 Reporting Scores . . . 41
17.3 Loading Leaderboards data . . . 42
17.4 Loading the score of a user . . . 42

18 Managing Achievements 43
18.1 Loading Achievements descriptions . . . 43
18.2 Reporting Progress . . . 43

19 Managing Tournaments 45
19.1 Loading Tournaments . . . 45
19.1.1 Loading by Tournament ID . . . 45
19.1.2 Matches of the Tournament . . . 45
19.2 Quick Tournament . . . 46
19.2.1 Create your own Tournament . . . 46
19.3 Removing Tournaments . . . 46

20 Managing Matches 47
20.1 Loading Matches . . . 47
20.1.1 Loading by Match ID . . . 47
20.1.2 Rounds of the Match . . . 47
20.2 Quick Match . . . 47
20.2.1 Create your own Match . . . 48
20.3 Sending Score . . . 48
20.4 Removing Matches . . . 48

21 Customize Web Administration 49
21.1 Javascript . . . 49
21.2 CSS . . . 49

22 Frequently Asked Questions 51
22.1 How do I install Combu on my local/live server? . . . 51
22.2 How can I add my own properties to accounts? . . . 51
22.3 I purchased it on Asset Store, can I download from your website? . . . 52
22.4 When I try to navigate to the web admin, I see a blank page . . . 52

23 Namespace Index 53
23.1 Packages . . . 53

24 Hierarchical Index 55
24.1 Class Hierarchy . . . 55

25 Class Index 57
25.1 Class List . . . 57

26 Namespace Documentation 59
26.1 Combu Namespace Reference . . . 59
26.1.1 Detailed Description . . . 60
26.1.2 Enumeration Type Documentation . . . 60
26.1.2.1 eContactType . . . 60

26.1.2.2 eLeaderboardInterval . . . 61
26.1.2.3 eLeaderboardTimeScope . . . 61
26.1.2.4 eMailList . . . 61
26.1.2.5 eSearchOperator . . . 61
26.1.2.6 eShareType . . . 61

27 Class Documentation **63**

27.1 Combu.Achievement Class Reference . . . 63
27.1.1 Detailed Description . . . 64
27.2 Combu.CombuEncryption Class Reference . . . 64
27.2.1 Member Function Documentation . . . 64
27.2.1.1 DecryptAES() . . . 64
27.2.1.2 DecryptResponse() . . . 65
27.2.1.3 EncryptAES() . . . 65
27.2.1.4 EncryptMD5() . . . 65
27.2.1.5 EncryptRSA() . . . 66
27.2.1.6 EncryptSHA1() . . . 66
27.2.1.7 LoadRSA() [1/2] . . . 66
27.2.1.8 LoadRSA() [2/2] . . . 67
27.2.1.9 SetToken() . . . 67
27.3 Combu.CombuForm Class Reference . . . 67
27.3.1 Member Function Documentation . . . 68
27.3.1.1 AddBinaryData() . . . 68
27.3.1.2 AddField() . . . 68
27.3.1.3 GetBinaryField() . . . 69
27.3.1.4 GetField() . . . 69
27.3.1.5 GetForm() . . . 69
27.4 Combu.CombuManager Class Reference . . . 70
27.4.1 Detailed Description . . . 73
27.4.2 Member Function Documentation . . . 73
27.4.2.1 AutoPing() . . . 73
27.4.2.2 CallWebservice() . . . 73
27.4.2.3 CancelRequest() . . . 73
27.4.2.4 CaptureScreenshot() . . . 73
27.4.2.5 Connect() . . . 74
27.4.2.6 CreateForm() . . . 74
27.4.2.7 DecryptAES() . . . 74
27.4.2.8 DownloadUrl() . . . 75
27.4.2.9 EncryptAES() . . . 75
27.4.2.10 EncryptMD5() . . . 75
27.4.2.11 EncryptSHA1() . . . 76
27.4.2.12 GetServerInfo() . . . 76

27.4.2.13 GetUrl() . . . 76
27.4.2.14 Ping() . . . 77
27.4.2.15 SetLocalUser() . . . 77
27.4.3 Member Data Documentation . . . 77
27.4.3.1 _instance . . . 77
27.4.3.2 _platform . . . 78
27.4.3.3 achievementUIFunction . . . 78
27.4.3.4 achievementUIObject . . . 78
27.4.3.5 appId . . . 78
27.4.3.6 appSecret . . . 78
27.4.3.7 COMBU_VERSION . . . 78
27.4.3.8 connectOnAwake . . . 79
27.4.3.9 dontDestroyOnLoad . . . 79
27.4.3.10 encryption . . . 79
27.4.3.11 language . . . 79
27.4.3.12 leaderboardUIFunction . . . 79
27.4.3.13 leaderboardUIObject . . . 79
27.4.3.14 logDebugInfo . . . 80
27.4.3.15 onlineSeconds . . . 80
27.4.3.16 pingIntervalSeconds . . . 80
27.4.3.17 playingSeconds . . . 80
27.4.3.18 rememberCredentials . . . 80
27.4.3.19 retryConnectAfterSeconds . . . 80
27.4.3.20 setAsDefaultSocialPlatform . . . 81
27.4.3.21 skipCertificateVerification . . . 81
27.4.3.22 urlRootProduction . . . 81
27.4.3.23 urlRootStage . . . 81
27.4.3.24 useExperimentalThreaded . . . 81
27.4.3.25 useStage . . . 81
27.4.4 Property Documentation . . . 82
27.4.4.1 defaultSocialPlatform . . . 82
27.4.4.2 instance . . . 82
27.4.4.3 isAuthenticated . . . 82
27.4.4.4 isCancelling . . . 82
27.4.4.5 isDownloading . . . 82
27.4.4.6 isInitialized . . . 83
27.4.4.7 localUser . . . 83
27.4.4.8 platform . . . 83
27.4.4.9 serverInfo . . . 83
27.4.4.10 sessionToken . . . 83
27.5 Combu.CombuPlatform Class Reference . . . 83
27.5.1 Detailed Description . . . 85

27.5.2 Member Function Documentation . . . 85
27.5.2.1 Authenticate() [1/3] . . . 85
27.5.2.2 Authenticate() [2/3] . . . 85
27.5.2.3 Authenticate() [3/3] . . . 86
27.5.2.4 Authenticate< T >() . . . 86
27.5.2.5 CreateAchievement() . . . 87
27.5.2.6 CreateLeaderboard() . . . 87
27.5.2.7 GetLoading() . . . 87
27.5.2.8 LoadAchievementDescriptions() . . . 88
27.5.2.9 LoadAchievements() . . . 88
27.5.2.10 LoadAchievements< T >() . . . 88
27.5.2.11 LoadFriends() . . . 89
27.5.2.12 LoadScores() [1/4] . . . 89
27.5.2.13 LoadScores() [2/4] . . . 90
27.5.2.14 LoadScores() [3/4] . . . 90
27.5.2.15 LoadScores() [4/4] . . . 91
27.5.2.16 LoadScoresByUser() . . . 91
27.5.2.17 LoadUsers() . . . 91
27.5.2.18 Logout() . . . 93
27.5.2.19 ReportProgress() [1/2] . . . 93
27.5.2.20 ReportProgress() [2/2] . . . 94
27.5.2.21 ReportScore() [1/3] . . . 94
27.5.2.22 ReportScore() [2/3] . . . 94
27.5.2.23 ReportScore() [3/3] . . . 95
27.5.2.24 ResetAllAchievements() . . . 95
27.5.2.25 SetLocalUser() . . . 95
27.5.2.26 ShowAchievementsUI() . . . 96
27.5.2.27 ShowLeaderboardUI() . . . 96
27.6 Combu.CombuServerInfo Class Reference . . . 96
27.6.1 Detailed Description . . . 97
27.6.2 Member Function Documentation . . . 97
27.6.2.1 ToString() . . . 97
27.7 Combu.CombuSkipCertificateHandler Class Reference . . . 97
27.8 Combu.DecryptionJob Class Reference . . . 97
27.9 Combu.Inventory Class Reference . . . 98
27.9.1 Constructor & Destructor Documentation . . . 99
27.9.1.1 Inventory() [1/3] . . . 99
27.9.1.2 Inventory() [2/3] . . . 99
27.9.1.3 Inventory() [3/3] . . . 99
27.9.2 Member Function Documentation . . . 99
27.9.2.1 Delete() [1/2] . . . 99
27.9.2.2 Delete() [2/2] . . . 100

27.9.2.3 FromHashtable() . . . 100
27.9.2.4 FromJson() . . . 100
27.9.2.5 Load() . . . 101
27.9.2.6 Load< T >() . . . 101
27.9.2.7 Update() . . . 101
27.10 Combu.Leaderboard Class Reference . . . 102
27.10.1 Member Function Documentation . . . 103
27.10.1.1 FromJson() . . . 103
27.10.1.2 Load() . . . 103
27.10.1.3 Load< T >() . . . 104
27.10.1.4 LoadScoreByUser() [1/4] . . . 104
27.10.1.5 LoadScoreByUser() [2/4] . . . 105
27.10.1.6 LoadScoreByUser() [3/4] . . . 105
27.10.1.7 LoadScoreByUser() [4/4] . . . 105
27.10.1.8 LoadScores() . . . 106
27.10.1.9 LoadScoresByUser() . . . 106
27.10.1.10 SetUserFilter() . . . 106
27.11 Combu.Mail Class Reference . . . 107
27.11.1 Member Function Documentation . . . 109
27.11.1.1 Count() . . . 109
27.11.1.2 Delete() [1/2] . . . 109
27.11.1.3 Delete() [2/2] . . . 109
27.11.1.4 FromHashtable() . . . 109
27.11.1.5 FromJson() . . . 110
27.11.1.6 GetMessageForm() . . . 110
27.11.1.7 Load< T >() . . . 110
27.11.1.8 LoadConversations() . . . 111
27.11.1.9 Read() [1/4] . . . 111
27.11.1.10 Read() [2/4] . . . 112
27.11.1.11 Read() [3/4] . . . 112
27.11.1.12 Read() [4/4] . . . 112
27.11.1.13 Send() [1/10] . . . 113
27.11.1.14 Send() [2/10] . . . 113
27.11.1.15 Send() [3/10] . . . 113
27.11.1.16 Send() [4/10] . . . 114
27.11.1.17 Send() [5/10] . . . 114
27.11.1.18 Send() [6/10] . . . 115
27.11.1.19 Send() [7/10] . . . 115
27.11.1.20 Send() [8/10] . . . 116
27.11.1.21 Send() [9/10] . . . 116
27.11.1.22 Send() [10/10] . . . 116
27.11.1.23 SendMailToGroup() [1/2] . . . 117

27.11.1.24 SendMailToGroup() [2/2] . . . 117
27.11.1.25 SendMessage() . . . 118
27.11.1.26 Unread() [1/2] . . . 118
27.11.1.27 Unread() [2/2] . . . 118
27.12 Combu.MailCount Class Reference . . . 119
27.13 Combu.Match Class Reference . . . 119
27.13.1 Constructor & Destructor Documentation . . . 120
27.13.1.1 Match() [1/2] . . . 120
27.13.1.2 Match() [2/2] . . . 121
27.13.2 Member Function Documentation . . . 121
27.13.2.1 AddUser() . . . 121
27.13.2.2 Delete() [1/2] . . . 121
27.13.2.3 Delete() [2/2] . . . 121
27.13.2.4 FromHashtable() . . . 122
27.13.2.5 FromJson() . . . 122
27.13.2.6 Load() [1/2] . . . 122
27.13.2.7 Load() [2/2] . . . 123
27.13.2.8 QuickMatch() . . . 123
27.13.2.9 RemoveUser() [1/4] . . . 123
27.13.2.10 RemoveUser() [2/4] . . . 124
27.13.2.11 RemoveUser() [3/4] . . . 124
27.13.2.12 RemoveUser() [4/4] . . . 124
27.13.2.13 Save() . . . 124
27.13.2.14 Score() . . . 125
27.14 Combu.MatchAccount Class Reference . . . 125
27.14.1 Member Function Documentation . . . 125
27.14.1.1 FromHashtable() . . . 126
27.14.1.2 FromJson() . . . 126
27.15 Combu.MatchRound Class Reference . . . 126
27.15.1 Member Function Documentation . . . 127
27.15.1.1 FromHashtable() . . . 127
27.15.1.2 FromJson() . . . 127
27.16 Combu.Match.MatchRoundData Class Reference . . . 127
27.17 Combu.MiniJSON Class Reference . . . 127
27.17.1 Member Function Documentation . . . 128
27.17.1.1 getLastErrorIndex() . . . 128
27.17.1.2 getLastErrorSnippet() . . . 129
27.17.1.3 jsonDecode() . . . 129
27.17.1.4 jsonEncode() . . . 129
27.17.1.5 lastDecodeSuccessful() . . . 130
27.17.2 Member Data Documentation . . . 130
27.17.2.1 lastErrorIndex . . . 130

27.18 Combu.News Class Reference . . . 130
27.18.1 Member Function Documentation . . . 130
27.18.1.1 FromHashtable() . . . 130
27.18.1.2 FromJson() . . . 131
27.18.1.3 Load() . . . 131
27.18.1.4 Load< T >() . . . 131
27.19 Combu.Profile Class Reference . . . 132
27.19.1 Constructor & Destructor Documentation . . . 133
27.19.1.1 Profile() [1/2] . . . 133
27.19.1.2 Profile() [2/2] . . . 133
27.19.2 Member Function Documentation . . . 134
27.19.2.1 FromHashtable() . . . 134
27.19.2.2 FromJson() . . . 134
27.19.3 Member Data Documentation . . . 134
27.19.3.1 appCustomData . . . 134
27.19.3.2 customData . . . 134
27.19.3.3 email . . . 135
27.19.4 Property Documentation . . . 135
27.19.4.1 id . . . 135
27.19.4.2 idLong . . . 135
27.19.4.3 image . . . 135
27.19.4.4 isFriend . . . 135
27.19.4.5 lastSeen . . . 135
27.19.4.6 sessionToken . . . 136
27.19.4.7 state . . . 136
27.19.4.8 userName . . . 136
27.20 Combu.ProfilePlatform Class Reference . . . 136
27.21 Combu.Score Class Reference . . . 136
27.21.1 Member Function Documentation . . . 137
27.21.1.1 Initialize() [1/2] . . . 137
27.21.1.2 Initialize() [2/2] . . . 138
27.21.1.3 ReportScore() . . . 138
27.22 Combu.SearchCustomData Class Reference . . . 138
27.22.1 Detailed Description . . . 139
27.23 Combu.CombuUtils.ServerResponse.SuccessMessage Class Reference . . . 139
27.24 Combu.ThreadedJob Class Reference . . . 139
27.25 Combu.CombuUtils.ServerResponse.Server.Token Class Reference . . . 139
27.26 Combu.Tournament Class Reference . . . 140
27.26.1 Detailed Description . . . 141
27.26.2 Constructor & Destructor Documentation . . . 141
27.26.2.1 Tournament() [1/2] . . . 141
27.26.2.2 Tournament() [2/2] . . . 141

27.26.3 Member Function Documentation . . . 141
27.26.3.1 Delete() [1/2] . . . 141
27.26.3.2 Delete() [2/2] . . . 142
27.26.3.3 FromHashtable() . . . 142
27.26.3.4 FromJson() . . . 142
27.26.3.5 Load() [1/2] . . . 142
27.26.3.6 Load() [2/2] . . . 143
27.26.3.7 QuickTournament() . . . 143
27.26.3.8 Save() . . . 143
27.27 Combu.User Class Reference . . . 144
27.27.1 Detailed Description . . . 146
27.27.2 Member Function Documentation . . . 146
27.27.2.1 AddContact() [1/3] . . . 147
27.27.2.2 AddContact() [2/3] . . . 148
27.27.2.3 AddContact() [3/3] . . . 148
27.27.2.4 Authenticate() [1/3] . . . 148
27.27.2.5 Authenticate() [2/3] . . . 149
27.27.2.6 Authenticate() [3/3] . . . 149
27.27.2.7 AuthenticatePlatform() . . . 149
27.27.2.8 AutoLogin() . . . 150
27.27.2.9 CanAutoLogin() . . . 150
27.27.2.10 ChangePassword() [1/2] . . . 150
27.27.2.11 ChangePassword() [2/2] . . . 152
27.27.2.12 CreateGuest() . . . 152
27.27.2.13 Delete() [1/2] . . . 152
27.27.2.14 Delete() [2/2] . . . 153
27.27.2.15 Exists() . . . 153
27.27.2.16 FromUser() . . . 153
27.27.2.17 GetContact() . . . 154
27.27.2.18 GetContact< T >() . . . 154
27.27.2.19 LinkAccount() . . . 154
27.27.2.20 LinkPlatform() . . . 155
27.27.2.21 Load() [1/6] . . . 155
27.27.2.22 Load() [2/6] . . . 155
27.27.2.23 Load() [3/6] . . . 156
27.27.2.24 Load() [4/6] . . . 156
27.27.2.25 Load() [5/6] . . . 156
27.27.2.26 Load() [6/6] . . . 156
27.27.2.27 Load< T >() . . . 157
27.27.2.28 LoadFriends() [1/2] . . . 157
27.27.2.29 LoadFriends() [2/2] . . . 158
27.27.2.30 LoadFriends< T >() . . . 158

27.27.2.31 Random< T >() . . . 159
27.27.2.32 RemoveContact() [1/3] . . . 159
27.27.2.33 RemoveContact() [2/3] . . . 159
27.27.2.34 RemoveContact() [3/3] . . . 160
27.27.2.35 ResendActivationCode() . . . 160
27.27.2.36 ResetPassword() [1/3] . . . 160
27.27.2.37 ResetPassword() [2/3] . . . 161
27.27.2.38 ResetPassword() [3/3] . . . 161
27.27.2.39 StoreUserCredentials() . . . 161
27.27.2.40 Update() . . . 161
27.28 Combu.UserFile Class Reference . . . 162
27.28.1 Constructor & Destructor Documentation . . . 163
27.28.1.1 UserFile() [1/3] . . . 163
27.28.1.2 UserFile() [2/3] . . . 163
27.28.1.3 UserFile() [3/3] . . . 164
27.28.2 Member Function Documentation . . . 164
27.28.2.1 Delete() [1/2] . . . 164
27.28.2.2 Delete() [2/2] . . . 164
27.28.2.3 Download() . . . 164
27.28.2.4 FromHashtable() . . . 166
27.28.2.5 FromJson() . . . 166
27.28.2.6 Like() [1/3] . . . 166
27.28.2.7 Like() [2/3] . . . 167
27.28.2.8 Like() [3/3] . . . 167
27.28.2.9 Load() [1/2] . . . 167
27.28.2.10 Load() [2/2] . . . 167
27.28.2.11 Load< T >() . . . 168
27.28.2.12 Update() . . . 169
27.28.2.13 View() [1/3] . . . 169
27.28.2.14 View() [2/3] . . . 169
27.28.2.15 View() [3/3] . . . 169
27.29 Combu.UserGroup Class Reference . . . 170
27.29.1 Constructor & Destructor Documentation . . . 171
27.29.1.1 UserGroup() [1/3] . . . 171
27.29.1.2 UserGroup() [2/3] . . . 171
27.29.1.3 UserGroup() [3/3] . . . 171
27.29.2 Member Function Documentation . . . 172
27.29.2.1 Delete() . . . 172
27.29.2.2 FromHashtable() . . . 172
27.29.2.3 FromJson() . . . 172
27.29.2.4 Join() [1/3] . . . 172
27.29.2.5 Join() [2/3] . . . 173

27.29.2.6 Join() [3/3] 173
27.29.2.7 Join< T >() 173
27.29.2.8 Leave() [1/3] 174
27.29.2.9 Leave() [2/3] 174
27.29.2.10 Leave() [3/3] 175
27.29.2.11 Leave< T >() 175
27.29.2.12 Save() 175

Index **177**

Chapter 1

API Reference

1.1 Introduction

Combu is a full featured solution to add online storage management for your player login system, highscores, friends, inventory and more for your games using a web server and MySQL database. It is shipped with client source code for Unity3D.

This documentation is for **version 3.x** only. The documentation for **version 2.x** is located at here.

The 3rd generation of **Combu** features huge improvement to security: now every call from client to server is encrypted through AES keys generated on the fly at the beginning of every launch and exchanged with the server with RSA key (also generated on the fly for each new connection).

1.2 Installation

1. **Purchase Combu**
   You can purchase Combu from **Skared Creations** website or Unity3D Asset Store.
2. **Import Combu package**
   Create an empty scene and import the Combu unitypackage (or from Asset Store window).
3. **Setup the web server**
   Click here to see how to configure your web server, you can use a local web server before going live to production for example XAMPP and extract the file **combu_web.zip** (you find it in the folder *Install* of Combu in Unity) in the root of the web server (or in any other folder of your choice inside the web server tree).
4. **Navigate to /_setup**
   You can use your web browser to navigate to http://yourserver/combu_folder_path/_setup to generate the content for your configuration file (located at */lib/config.php*) and the SQL queries to create the tables on your database.
5. **Configure Combu Manager**
   Drag the prefab *Combu/Prefabs/CombuManager* in the scene and set the correct settings in the **Combu Manager** component inspector in order to connect to your web server. To get started you can just set the properties **Url Root Production** to the URL of your live production environment and **Url Root Stage** to the URL of your development environment (usually your local machine), then select the checkbox **Use Stage** to run the development environment or leave it unchecked to run the live production.

The first time you will access the admin console (at: http://yourserver/combu_folder_path/admin) the system will create a new admin account with username and password ***admin*** and you should be automatically logged. As soon as you access the admin console for the first time on your live server you're strongly suggested to change the password of user **admin** in the section **Admins** or delete it and create a new user with a different username and password.

To start now please visit the welcome page Getting started or go through the Related Pages and API reference in this documentation.

1.3 Documentation

You can download the API documentation as offline PDF or navigate online at https://www.skaredcreations.com/api/combu

You can also use Doxygen to build the HTML/PDF documentation directly from the Unity scripts of Combu.

1.4 Customers from Asset Store

If you purchased Combu on **Unity Asset Store**, now you can redeem the download on this website too at no cost by providing the Invoice No. Click here to redeem your invoice now.

Chapter 2

Off-line documentation

Download this documentation as PDF

Chapter 3

Web server setup

In this section you will learn how to setup a web server on your local machine and install Combu.

3.1 Live server

Combu will work correctly in almost every hosting provider, since the production servers are usually configured correctly. So in production environment you only need to upload all files including the folder *_setup*, navigate with your browser to `http://yourserver/yourcombu/_setup` and complete both the configuration file section and the database tables creation.

You can skip the configuration file section if you already configured it locally, in this case you will edit *lib/config.php* for the database connection and root URL defines (*URL_ROOT*, *GAME_DB_SERVER*, *GAME_DB_NAME*, *GAME_DB_USER* and *GAME_DB_PASS*), as explained in the `tutorial` video.

After the configuration file has been eventually edited and the database tables are created, you should delete the folder *_setup* from your production server.

3.2 Local machine

Before using a live server you may want to test your game earlier and work locally on your machine, in this case you have few alternatives (Microsoft IIS, Apache, XAMPP, etc) and what's to get only depends on your expertise and skills.

1. For the sake of this sample we will assume you have installed **`XAMPP`**, it's a well-known free package that contains both the web server Apache and the MySQL server engine (it exists few similar packages, like LAMPP, they're almost the same for this example)
2. **MySQL** must be configured with case-sensitivity for table names, it's usually already configured on live servers by hosting providers; if you're running on your local **Windows** machine then edit the file **my.ini** (you'll find it in one of the folders inside XAMPP installation) and add a new line with **lower_case_table_names=2** just below the line that contains **[mysqld]** (if you haven't the section *[mysqld]* then add both lines at the end of the file)
3. Start both HTTP and MySQL services (if you're using XAMPP, it can be done through the XAMPP Control Panel else from Windows Services)

4. Create an empty database with name **combu** (or any other name of your choice) in phpMyAdmin (in XAMPP it's usually installed at *http://localhost/phpmyadmin*) or MySQL Workbench (here is a tutorial about how to use Workbench from Guru99).

5. Uncompress the file **combu_web.zip** into your local web server root (if you're using XAMPP then it's usually located in the folder *xamppfiles/htdocs*) and use your web browser to navigate to http://yourserver/combu_folder_path/_setup (for example http://localhost/combu/_setup) to generate the content for your configuration file (located at */lib/config.php*) and the SQL queries to create the tables on your database.

3.3 Server and Client configuration

Now that you learned how to setup your web server and have installed **Combu** server, you can configure the system at your needs.

Continue to Server and Client configuration.

Chapter 4

Server and Client configuration

In this section you will learn how to setup your server and client.

4.1 Server configuration

We really suggest to navigate to `http://yourserver/combu_folder_path/_setup` of your development environment to get the content for your configuration file, because it's mantained up to date with all the settings that can be configured with detailed descriptions.

The configuration file is located at **lib/config.php** and contains the PHP defines of every configuration setting (if you are new to PHP, "define" is the equivalent of "const" in C#):

- Generic
  - **URL_ROOT** (default: /combu/): Define the relative URL of Combu folder, including the last path separator (e.g.: /your_combu_path/)
  - **WS_DEBUG** (default: FALSE): Debug the web services data: if TRUE then the data is loaded from both GET and POST, else it is loaded only from POST (set to FALSE or comment in the production environment)
  - **DEFAULT_LIST_LIMIT** (default: 20): Default size of a records list when limit is not specified in the REQUEST (must be greater than zero)
  - **RANDOM_CODE_CHARS** (default: bcdfghjklmnpqrstvwxzBCDFGHJKLMNPQRSTVWXZ0123456789)↩ : Alphanumeric characters used to generate a random code (e.g.: Activation Code and Reset Password Authorization Code)
  - **RANDOM_CODE_LENGTH** (default: 10): Default length of a random code (e.g.: Activation Code and Reset Password Authorization Code)
- Database connection
  - **GAME_DB_USE_PDO** (default: TRUE): Should use PDO for the database functions? (If FALSE then it uses mysqli)
  - **GAME_DB_TYPE** (default: mysql): Database engine (only if PDO is enabled, this must be supported by PDO)
  - **GAME_DB_SERVER**: Database Server hostname or IP (if the engine is running on the same machine use 'localhost')
  - **GAME_DB_PORT** (default: 3306): The port of the database connection (default MySql port is 3306)
  - **GAME_DB_NAME**: The name of the database

  - **GAME_DB_PREFIX**: Prefix for table names
  - **GAME_DB_USER**: The username of the database connection
  - **GAME_DB_PASS**: The password of the database connection

- Security
  - **RSA_PRIVATE_KEY_BITS** (default: 2048): Key bits length for RSA generation (higher values increase security but require more time to generate keys), can be 1024, 2048 or 4096
  - **RESPONSE_ENCRYPTED** (default: TRUE): Should encrypt the server response to web services? (TRUE increase security but requires more resources/time both in server and in client)
  - **DENY_UNVERSIONED_CLIENT** (default: FALSE): Should refuse the connections when the clients don't send their version number?
  - **MIN_CLIENT_VERSION** (default: empty): Minimum version of client's CombuManager.COMBU_↩ VERSION to be considered as out of range
  - **MAX_CLIENT_VERSION** (default: empty): Maximum version of client's CombuManager.COMBU_↩ VERSION to be considered as out of range
  - **DENY_OUTRANGE_VERSIONS** (default: FALSE): Should refuse the connections with out of range versions?

- Email
  - **EMAIL_SMTP** (default: FALSE): it allows to send the emails through SMTP server
  - **EMAIL_SMTP_SECURE** (default: NULL): secure authentication type for the SMTP connection (can be: NULL, 'ssl' or 'tls')
  - **EMAIL_SMTP_HOSTNAME** (default: NULL): server hostname or IP for the SMTP connection
  - **EMAIL_SMTP_PORT** (default: NULL): server port for the SMTP connection (e.g. 465)
  - **EMAIL_SMTP_USERNAME** (default: NULL): username for the SMTP connection
  - **EMAIL_SMTP_PASSWORD** (default: NULL): password for the SMTP connection
  - **EMAIL_SENDER_ADDRESS** (default: noreply@yourserver.com): the sender address of outgoing mail
  - **EMAIL_SENDER_NAME** (default: Your App Title): the sender name of outgoing mail

- Email
  - **NEWSLETTER_SENDER_ADDRESS** (default: noreply@yourserver.com): the sender address of outgoing newsletters
  - **NEWSLETTER_SENDER_NAME** (default: Your Newsletter): the sender name of outgoing newsletters

- User Registration
  - **REGISTER_EMAIL_REQUIRED** (default: FALSE): it will require a valid email address upon new user creation
  - **REGISTER_EMAIL_MULTIPLE** (default: FALSE): it allows to use the same email address for multiple accounts
  - **REGISTER_EMAIL_ACTIVATION** (default: FALSE): it will create an activation code during user creation and sends it by email, then will require to activate the account before being able to login
  - **REGISTER_EMAIL_SUBJECT** (default: Confirm account registration): the subject text of the user registration email
  - **REGISTER_EMAIL_MESSAGE** (default: email_register.html): Name of the HTML/text file containing the mail message (the file must exists in /email_templates); the HTML/text file can contain the following special words:
    - **{ACTIVATION_URL}**: it will be replaced with the URL to activate the account (if **REGISTER_↩ EMAIL_ACTIVATION** is *TRUE*)
    - **{USERNAME}**: it will be replaced with the chosen username
  - **REGISTER_EMAIL_HTML**: it establishes if the user registration email is in HTML or text

  - **RESETPWD_EMAIL_SUBJECT** (default: Reset your password): the reset-password mail subject
  - **RESETPWD_EMAIL_MESSAGE** (default: email_resetpwd.html): Name of the HTML/text file containing the mail message (the file must exists in /email_templates); the HTML/text file can contain the following special words:
    * **{CODE}**: it will be replaced with the code to pass to User.ChangePassword to set a new password (if the user has an e-mail address stored)
    * **{USERNAME}**: it will be replaced with the username

- Users
  - **ONLINE_SECONDS**: time interval in seconds to consider a user online from last action registered
  - **CLEAR_PLAYER_SESSIONS**: if set to TRUE then every time a player logs in, the system will delete older login sessions to maintain the sessions table cleaned and as smaller as possible
  - **GUEST_PREFIX**: the prefix string attached to the id for guest accounts (ex.: "Guest-")
  - **FRIENDS_REQUIRE_ACCEPT** (default: FALSE): if set to TRUE then the friend add action will require the destination user to accept or decline the request before it appears in the friends list

- Upload
  - **UPLOAD_DELETE_OLD_FILES** (default: TRUE): if TRUE will keep your upload folder clean with latest changes to UserFile by deleting old file upon upload of new content

- Log
  - **LOG_FILENAME** (default: app.log): Name of the log file (in the folder /_logs)
  - **LOG_MAXFILESIZE**: it is the maximum size in bytes of the log file
  - **LOG_BANNED** (default: FALSE): if set to TRUE then the system will add the requests from banned IP address in the log file
  - **LOG_MAXFILESIZE** (default: FALSE): if set to TRUE then the system will add the unauthorized/invalid requests in the log file

4.2 Client configuration

In the inspector of **CombuManager** script (the prefab is just a GameObject with *CombuManager* script attached) you will find the following properties:

- **Dont Destroy On Load** (default: TRUE): if checked, this GameObject will be alive for the whole lifetime of your game/app; if you want to login in one scene (for example main menu) and last until the game quits then you should enable this flag
- **Set As Default Social Platform**: since Combu implements the Unity **ISocialPlatform** interface, if you enable this flag the Combu will be set as current platform on Unity and you will be able to use it also through **Social.↩ Active**
- **Url Root Production**: is the URL to the folder where you installed the web services on your production server (e.g.: *http://www.yourserver.com/combu/*)
- **Url Root Stage**: is the URL to the folder where you installed the web services on your stage/development server, usually local machine (e.g.: *http://localhost/combu/*)
- **Use Stage**: if checked, the web services calls will be directed to the stage server instead of production
- **Log Debug Info**: if checked, all the calls to webservices will add the result text in the console log
- **Remember Credentials**: if checked, the last successful login action will store the username and password (encrypted) in PlayerPrefs to be used with User.AutoLogin() later

- **Ping Interval Seconds** (default: 0): it's the interval in seconds to send auto-ping to server in order to maintain the online state of local user; to disable auto-ping set this to *0*
- **Online Seconds** (default: 120): it's the time in seconds from last action registered to be considered as Online (last action and online state are cached in User class, you will need to reload over time if you need a precise info)
- **Playing Seconds** (default: 60): it's the time in seconds from last action to be considered as Playing
- **Language** (default: en): the language for server response messages localization
- **Achievement UI Object**: the GameObject that handles the user interface of Achievements
- **Achievement UI Function**: the name of method to call on **Achievement UI Object** as result to **Social.↩ ShowAchievementsUI**
- **Leaderboard UI Object**: the GameObject that handles the user interface of Leaderboard
- **Leaderboard UI Function**: the name of method to call on **Leaderboard UI Object** as result to **Social.↩ ShowLeaderboardUI**

Chapter 5

Email configuration and Reset Password

In this section you will learn how to setup your server to send email to clients and reset the user's password.

5.1 Server configuration

To enable sending mails to your users you need to set **REGISTER_EMAIL_REQUIRED** to **TRUE** in */lib/config.php* and start to store the users email address.

If you want to send an email as welcome after registration then you also need to set **REGISTER_EMAIL_↩ ACTIVATION** to **TRUE**, then set your custom message for subject in **REGISTER_EMAIL_SUBJECT** and a file name (it must exist in */email_templates*) in **REGISTER_EMAIL_MESSAGE**.

We suggest to create a copy of */email_templates/email_register.html* and use it as your own, same for any other sample files that you find in */email_templates* which may be overwritten during updates).

The built-in method **User.ResetPassword** (to reset the password of a user when it has been lost) sends a random generated code by email to the user, so this feature also requires **REGISTER_EMAIL_REQUIRED** to **TRUE**. In your interface you need a frame where he can input the code received by email and you call **User.ChangePassword** like here:

```
// Generate a random code and send to the user's email address
User.ResetPassword("username", (bool success, string error) =>
{
    Debug.Log(success + " -- " + error);
});
// User has received the code 'codeReceivedByEmail' by email after ResetPassword
User.ChangePassword(0, "username", "codeReceivedByEmail", "newPasswordChosen", (bool success, string error)
      =>
{
    Debug.Log("Success: " + success + " --- Error: " + error);
});
```

You can customize the email sent to the user by setting **RESETPWD_EMAIL_SUBJECT** and **RESETPWD_↩ EMAIL_MESSAGE** (same as above for *REGISTER_EMAIL_*∗).

Chapter 6

Server-Client Security

Let's take a look at the implementation of security in Combu

6.1 RSA + AES keys handshaking

What happens when the Unity client starts:

1. **CombuManager** calls a web service to initialize the connection to the server (remember we talk about "connection" but HTTP is an asynchronous protocol, so we haven't a real-time synchronized connection like it could be in TCP)
2. the server generates private and public RSA keys on the fly for the incoming connection and returns back the public key to the client
3. the client then generates AES keys and send them back to the server encrypting them with the RSA public key received
4. now both the server and client have the same AES keys that can be used to encrypt/decrypt the content of every web serbice and the client is ready to work

The reason why we added a double layer of security and don't use only RSA is because RSA encryption/decryption requires more resources (and so time) than AES, besides the fact it effectively adds more security and standard management for such situations.

6.2 Data encryption

Every call to the web services after the initialization is sent to the server encrypted with the AES keys, here is an example of request:

```
http://yourserver/your_combu_path/server.php?token=Q0ItNThhNmQzNjVlMzlkYTguMTIzNTgxNDc%3d&data=2h
```

The server response is also encrypted with the same keys if RESPONSE_ENCRYPTED is defined and set to TRUE in *config.php*:

```
{"t":"2017-04-18 20:32:09","d":"vWH4DEOwj+GI34QOgHzuYWR\/e8rqqlG7hOZxW5nQYzPG6Cv4aQ6BNY4L4T5LruFZA
```

Chapter 7

Error messages localization

Localize the error messages sent from server

7.1 Client request

You can decide in what language the server will output the error messages by setting the property **language** in the **CombuManager** instance.

7.2 Server response

The default language for messages output is 'en' (english), but if the client sends a specific language request then it is used instead. The file **'errors_{language}.php'** must exist in the folder */error_messages* of the server.

Chapter 8

Authentication and Users

In this section you will learn how to authenticate the local user, create a new user and load your users.

8.1 Authentication

To authenticate the local user you need to call **CombuManager.instance.platform.Authenticate**:

```
CombuManager.platform.Authenticate( "username", "password", (bool success, string error) => {
    if (success)
        Debug.Log("Login success: ID " + CombuManager.localUser.id);
    else
        Debug.Log("Login failed: " + error);
});
```

You can store the last successful login credentials when **Remember Credentials** is set to **true** on **CombuManager** inspector (or programmatically), the credentials will be stored in PlayerPref (password encrypted) to be used later with **User.AutoLogin()** method.

8.1.1 Auto-login

If you want to auto-login a previously saved session then you must have stored the credentials by setting **Remember Credentials** to **true** on the instance of **CombuManager** and then call **User.AutoLogin()**:

```
User.AutoLogin ((bool success, string error) => {
    Debug.Log ("AutoLogin: " + success + " -- " + error);
});
```

You can also check if Autologin is possible (that is username and password were stored before) by using **User.CanAutoLogin**:

```
string storedUsername, storedPassword;
if (User.CanAutoLogin(out storedUsername, out storedPassword)) {
    User.AutoLogin ((bool success, string error) => {
        Debug.Log ("AutoLogin: " + success + " -- " + error);
    });
}
```

8.2 Registration

To create a new user you need to create a new instance of **User** class, set at least *username* and *password* and then call **Update** on the instance:

```
User newUser = new User();
newUser.userName = "username";
newUser.password = "password";
newUser.Update( (bool success, string error) => {
    // NB: registration does NOT automatically make the user authenticated
    if (success)
        Debug.Log("Save success: ID " + newUser.id);
    else
        Debug.Log("Save failed: " + error);
});
```

8.2.1 Send confirmation by email

If you set **REGISTER_EMAIL_REQUIRED** to **TRUE** in *config.php* on your server, then you also need to assign the property **email** of your *User* object and, if also **REGISTER_EMAIL_ACTIVATION** is set to **TRUE**, it will send an email to the new users with a link to activate their account (to prevent spam registrations).

You can customize the content of the registration email by editing the HTML file */email_templates/email_↩ register.html*, for more information please read the constants *EMAIL_∗* at Server configuration.

If you want to test the sending of email on your local development server then you need to either install a mail server or set the *EMAIL_SMTP∗* defines in *config.php*

About sending out emails, **Combu** uses the library **PHPMailer**, so if you're having issues with sending options with SMTP you can create a small PHP test script that uses the PHPMailer class (doing a search on google produces tons of examples for the most common free mail servers like gmail) and when you find the correct settings with it then you can bring them in your *config.php*.

Here is the correspondence of config.php with PHPMailer properties:

- EMAIL_SMTP: if TRUE then call *PHPMailer->isSMTP()* to set PHPMailer to use SMTP
- EMAIL_SMTP_HOSTNAME: *PHPMailer->Host* and *PHPMailer->Hostname*
- EMAIL_SMTP_PORT: *PHPMailer->Port*
- EMAIL_SMTP_SECURE: *PHPMailer->SMTPSecure*
- EMAIL_SMTP_USERNAME: *PHPMailer->Username* (and set *PHPMailer->SMTPAuth* to TRUE)
- EMAIL_SMTP_PASSWORD: *PHPMailer->Password*

Example of */combu/test_mail.php*:

```
<?php
use PHPMailer\PHPMailer\PHPMailer;
use PHPMailer\PHPMailer\Exception;
include_once "vendor/autoload.php";
$mail = new PHPMailer(true);
try {
    $mail->isSMTP();
    $mail->Host = 'smtp1.example.com';
    $mail->SMTPAuth = true;
    $mail->Username = 'user@example.com';
    $mail->Password = 'secret';
    $mail->SMTPSecure = 'tls';
    $mail->Port = 587;
    $mail->setFrom('from@example.com', 'Mailer');
    $mail->addAddress('ellen@example.com');
    $mail->isHTML(true);
    $mail->Subject = 'Here is the subject';
    $mail->Body    = 'This is the HTML message body <b>in bold!</b>';
    $mail->AltBody = 'This is the body in plain text for non-HTML mail clients';
    $mail->send();
    echo 'Message has been sent';
} catch (Exception $e) {
    echo 'Message could not be sent. Mailer Error: ', $mail->ErrorInfo;
}
```

8.2.2 Create a guest account

If you want to create a guest account then you need to call **CreateGuest** on a **User** object, you could activate **rememberCredentials** to use **AutoLogin** later:

```
// First try to auto-login
CombuManager.instance.rememberCredentials = true;
string storedUsername, storedPassword;
if (User.CanAutoLogin(out storedUsername, out storedPassword)) {
    Debug.Log ("Try to auto-login with username '" + storedUsername + "' and password '" + storedPassword +
       "'");
    User.AutoLogin ((bool loginSuccess, string loginError) => {
        Debug.Log ("AutoLogin: " + loginSuccess + " -- " + loginError);
        if (loginSuccess)
            Debug.Log("Logged in");
    });
    return;
}
// If autologin fails then create a guest account
var user = new User ();
user.CreateGuest ((bool success, string error) => {
    if (success) {
        Debug.Log ("CreateGuest - Success=" + success + " > Error=" + error);
    }
});
```

8.3 Custom Data

Each user has a *Hashtable* property **customData** that you can use to store your own strings, numbers, JSON etc that should be visible from all Apps (for example a Premium/VIP status of the user in your games-hub).

Recently it was introduced another similar property **appCustomData** that you can use to set the properties, attributes, statistics etc which are relevant to the App that is currently running in the game.

By using these key/value dictionaries you can create the profile that better fits your need and extend it by code without any limitation at no cost, for example:

```
// Global custom data (all Apps)
CombuManager.localUser.customData["VIP"] = true;
// Local custom data (only current App)
CombuManager.localUser.appCustomData["Nickname"] = "MyNickname";
CombuManager.localUser.appCustomData["Gold"] = 100;
CombuManager.localUser.appCustomData["Experience"] = 1000;
// Send the changes to the server
CombuManager.localUser.Update((bool success, string error) => {
    if (success)
        Debug.Log("Saved");
    else
        Debug.Log("Failed: " + error);
});
```

8.4 Load users

To load the users data you can call **CombuManager.instance.platform.LoadUsers()**, or one of the **User.Load()** overloads (with *User.Load* form you will not need to cast back from **IUserProfile** to **User**):

```
// Load a user by Id
User.Load ( 123, ( User user ) => {
    Debug.Log("Success: " + (user == null ? "false" : "true"));
});
// Load a user by userName
User.Load ( "user1", ( User user ) => {
    Debug.Log("Success: " + (user == null ? "false" : "true"));
});
// Load users by Id
User.Load ( new long[] { 123, 456 }, ( User[] users ) => {
    Debug.Log("Loaded: " + users.Length);
});
// Search users by Username, Email, CustomData
// Filter players with custom data "Level" between 5 and 10
SearchCustomData[] searchData = new SearchCustomData[] {
    new SearchCustomData("Level", eSearchOperator.GreaterOrEquals, "5"),
```

```
    new SearchCustomData("Level", eSearchOperator.LowerOrEquals, "10")
};
User.Load("part-of-username", "email@server.com", searchData, 1, 1, (User[] users, int resultsCount, int
       pagesCount) => {
    Debug.Log("Loaded: " + users.Length);
});
```

You can also load a list of random users (excluding localUser):

```
// Filter players with custom data "Level" between 5 and 10
SearchCustomData[] searchData = new SearchCustomData[] {
    new SearchCustomData("Level", eSearchOperator.GreaterOrEquals, "5"),
    new SearchCustomData("Level", eSearchOperator.LowerOrEquals, "10")
};
User.Random(searchData, 3, (User[] users) => {
    foreach (User user in users)
    {
        if (user.lastSeen == null)
            Debug.Log(user.userName + " Never seen");
        else
        {
            System.DateTime seen = (System.DateTime)user.lastSeen;
            Debug.Log(user.userName + " Last seen: " + seen.ToLongDateString() + " at " +
       seen.ToLongTimeString() + " - Online state: " + user.state);
        }
    }
});
```

8.5 Online state

The Profile class implements the **IUserProfile** interface, so it also provides the *state* property to get the online state of your users. Of course remember that we are in an asynchronous environment, so your players are not really connected in real-time and if you need to rely on the online state then you will need to implement your own polling system to refresh your lists from time to time.

To mantain the online state CombuManager uses the settings *pingIntervalSeconds*, *onlineSeconds* and *playing↩ Seconds*. Besides the ping function that is called every *pingIntervalSeconds* seconds (set 0 to disable, anyway we'd recommend to have the interval not too small, a value of 30 should be fine else you may suffer of high traffic), every action served by the webservices updates the "last action" date/time of a user.

8.6 Create your User class

Since you're able to extend the basic **User** class with the *customData* (for global data available to all apps) or *app↩ CustomData* (for the current app data) properties, the best way to work with the system is to create your own class for users by inheriting from **User**.

This way you can create your own account properties, that for sure are much more readable than *appCustom↩ Data["myProperty"]* (especially if you need non-string values, it would be lot of explicit casts or Parse!).

Remember to:

- set their values in *appCustomData*, so they will be passed to **Update** and saved to server
- override **FromHashtable** to fill the internal variables from the *appCustomData* (or *customData*) received from server

```
public class CombuDemoUser : Combu.User
{
    string _myProperty1 = "";
    int _myProperty2 = 0;
    public string myProperty1
    {
        get { return _myProperty1; }
        set { _myProperty1 = value; appCustomData["myProperty1"] = _myProperty1; }
    }

    public int myProperty2
    {
        get { return _myProperty2; }
        set { _myProperty2 = value; appCustomData["myProperty2"] = _myProperty2; }
    }
    public CombuDemoUser()
    {
        myProperty1 = "";
        myProperty2 = 0;
    }
    public override void FromHashtable (Hashtable hash)
    {
        // Set User class properties
        base.FromHashtable (hash);
        // Set our own custom properties that we store in appCustomData
        if (appCustomData.ContainsKey("myProperty1"))
            _myProperty1 = appCustomData["myProperty1"].ToString();
        if (appCustomData.ContainsKey("myProperty2")) {
            if (!int.TryParse(appCustomData["myProperty2"].ToString(), out _myProperty2))
                _myProperty2 = 0;
        }
    }
}
```

To use the new class in your code, you will need to pass the referenced type to the user-wise methods:

```
// Create new user
CombuDemoUser newUser = new CombuDemoUser();
newUser.userName = "username";
newUser.password = "password";
newUser.myProperty1 = "Value";
newUser.myProperty2 = 100;
newUser.Update( (bool success, string error) => {
    // NB: registration does not make the user logged
    if (success)
        Debug.Log("Save success: ID " + newUser.id);
    else
        Debug.Log("Save failed: " + error);
});
// Authenticate user
CombuManager.platform.Authenticate <CombuDemoUser> ( "username", "password", (bool success, string error) =>
       {
    if (success) {
        // Now you can safely cast localUser
        CombuDemoUser user = CombuManager.localUser as CombuDemoUser;
        Debug.Log("Success: " + user.myProperty2);
    } else {
        Debug.Log("Failed: " + error);
    }
});
```

Chapter 9

Server Settings

In this section you will learn how to create server settings and access them from client.

9.1 Server

You can create server settings in the administration console, in the section **Settings**.

9.2 Client

The client automatically loads the settings in **CombuManager.instance.serverInfo.settings**:

```
while (!CombuManager.isInitialized)
    yield return null;
string mySetting = CombuManager.instance.serverInfo.settings["mySetting"].ToString();
```

Chapter 10

Linking external platforms

In this section you will learn how to authenticate and link the local user to an external platform like GameCenter, Facebook etc.

10.1 Authentication

To authenticate the local user with a platform Id you need to call **CombuManager.localUser.AuthenticatePlatform**. If the platform key+id exists then it will return the registered account, else it will create a new account with username **PlatformName_PlatformId** (including the underscore symbol).

```
// After you have logged in with Facebook SDK (http://u3d.as/5j1)
CombuManager.localUser.AuthenticatePlatform("Facebook", FB.UserId, (bool success, string error) => {
    if (success)
        Debug.Log("Login success: ID " + CombuManager.localUser.id);
    else
        Debug.Log("Login failed: " + error);
});
```

10.2 Link a platform to the local user

If the local user is already logged, you can link a platform Id to the account with **CombuManager.localUser.Link↩ Platform**:

```
CombuManager.localUser.LinkPlatform("YourPlatformName", "YourPlatformId", (bool success, string error) => {
    if (success)
        Debug.Log("Link success");
    else
        Debug.Log("Link failed: " + error);
});
```

10.3 Transfer the external platforms

Sometimes may happen that you need to move the external platforms of the local user to another account, in this case you can use **CombuManager.localUser.LinkAccount** (the platforms key+id of the local user account will be transferred to the new account, the account and all its data/scores/etc deleted, and the new account will be assigned to the local user):

```
CombuManager.localUser.LinkAccount("other_username", "other_password", (bool success, string error) => {
    if (success)
        Debug.Log("Transfer success");
    else
        Debug.Log("Transfer failed: " + error);
});
```

10.4 Load users from platforms

If your users have logged with their platform profile then you can retrieve their Combu profiles later (for example after a call to Facebook API that returns the list of friends to show who is playing your game by matching the existance of a profile in Combu):

```
// Assign platform and related id to all users that you want to search, for example coming from Facebook
       friends API
List<string> platforms = new List<string>() { "Facebook", "Facebook" }; // you have passed "Facebook" as
       platform key to AuthenticatePlatform
List<string> ids = new List<string>() { "000000", "111111" };
User.LoadPlatform(platforms, ids, (User[] users) => {
    Debug.Log("Users found: " + users.Length);
});
```

Chapter 11

Managing Contacts

In this section you will learn how to retrieve the contacts lists of the local user and how to add/remove users to the friends/ignore lists.

11.1 Loading Contacts

To retrieve the list of contacts from the local user you need to call the *LoadFriends* method on **CombuManager.localUser** and then access to the results list accordingly to the eContactType value passed to the function (**CombuManager.localUser.friends** for **eContactType.Friend**, **CombuManager.localUser.requests** for **eContactType.Request**, **CombuManager.localUser.ignored** for **eContactType.Ignore**, **CombuManager.localUser.pendingRequests** for **eContactType.PendingRequest**):

```
CombuManager.localUser.LoadFriends( eContactType.Friend, (bool success) => {
    if (success)
        Debug.Log("Success: " + CombuManager.localUser.friends.Length);
    else
        Debug.Log("Failed");
});
```

11.2 Adding Contacts

To add another user to a contact list of the local user you need to call *AddContact* and pass either a User/Profile object or a username and *eContactType.Friend* as contact type:

```
// Add by User/Profile object
CombuManager.localUser.AddContact(otherUser, eContactType.Friend, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Add by username
CombuManager.localUser.AddContact("username", eContactType.Friend, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

11.3 Removing Contacts

To remove a user from the contact lists of the local user you need to call *RemoveContact*:

```
// Remove by User/Profile object
CombuManager.localUser.RemoveContact(otherUser, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Remove by username
CombuManager.localUser.RemoveContact("username", (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

Chapter 12

Managing Files

In this section you will learn how to retrieve the files lists of the local user or anyway accessible by him and how to add/remove files.

12.1 Loading Files

To retrieve a list of files you need to call **UserFile.Load**:

```
bool includeShared = true;
int pageNumber = 1;
int countPerPage = 10;
UserFile.Load(CombuManager.localUser.id, includeShared, pageNumber, countPerPage, (UserFile[] files, int
       resultsCount, int pagesCount, string error) => {
    if (string.IsNullOrEmpty(error))
        Debug.Log("Files loaded: " + files.Length);
    else
        Debug.Log(error);
});
```

12.2 Adding Files

To add a file associated to the local user you need to create a new instance of **UserFile**, set *sharing* property and call **Update**:

```
byte[] screenshot = CombuManager.instance.CaptureScreenShot();
UserFile newFile = new UserFile();
newFile.sharing = UserFile.eShareType.Everybody;
newFile.customData ["Prop"] = "Value";
newFile.Update(screenshot, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

12.3 Viewing Files

To increase the **View** count of a file you need to call **UserFile.View**, or call the method **View** on a **UserFile** instance:

```
// View by File ID
UserFile.View(123, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
```

```
        Debug.Log("Failed: " + error);
});
// View by UserFile object
myFile.View( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

12.4 Liking Files

To increase the **Like** count of a file you need to call **UserFile.Like**, or call the method **Like** on a **UserFile** instance:

```
// Like by File ID
UserFile.Like(123, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Like by UserFile object
myFile.Like( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

12.5 Removing Files

To remove a file owned by the local user you need to call **UserFile.Delete**, or call the method **Delete** on a **UserFile** instance:

```
// Remove by File ID
UserFile.Delete(123, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Remove from a UserFile object
myFile.Delete( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

Chapter 13

Managing Inventory

In this section you will learn how to manage the inventory of the local user.

13.1 Loading Inventory

To retrieve the list of items in the inventory of a user you need to call the **Inventory.Load**:

```
// Load the inventory of user ID '123'
Inventory.Load( "123", (Inventory[] items, string error) => {
    if (success)
        Debug.Log("Success: " + items.Length);
    else
        Debug.Log("Failed: " + error);
});
```

13.2 Adding and Editing Items

To add a new item in the inventory of the local user you need to create a new **Inventory** instance, set *name*, *quantity* and *customData* and then call **Update**:

```
// Add a new item
Inventory newItem = new Inventory();
newItem.name = "My item";
newItem.quantity = 1;
newItem.customData["Durability"] = 100;
newItem.Update( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Edit an item previously loaded
myItem.quantity--;
myItem.Update( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

13.3 Removing Items

To remove an item from the inventory of the local user you need to call **Inventory.Delete**:

```
// Remove by inventory ID '123'
Inventory.Delete(123, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Remove by Inventory object
myItem.Delete( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

Chapter 14

Managing Messages

In this section you will learn how to manage the in-game inbox of the local user.

14.1 Loading Messages

To retrieve the list of messages of a user you need to call the **Message.Load**:

```
// Load the received messages from the page 1 with 3 results per page
Mail.Load(eMailList.Received, 1, 3, (Mail[] messages, int count, int pagesCount, string error) => {
    if (string.IsNullOrEmpty(error))
        Debug.Log("Success: " + messages.Length);
    else
        Debug.Log("Failed: " + error);
});
```

14.2 Sending Messages

To send a new message to a user you need to call one of the overloads of **Mail.Send**:

```
// Send a private message to a user by Id
Mail.Send(123, "Subject", "Message body", false, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Send a private message to a user by Username
Mail.Send("user1", "Subject", "Message body", false, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Send a private message to multiple users by Id
Mail.Send( new long[] { 123, 456 }, "Subject", "Message body", false, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Send a private message to multiple users by Username
Mail.Send( new string[] { "user1", "user2" }, "Subject", "Message body", false, (bool success, string error)
      => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

14.2.1 Sending to UserGroup

If you want to send a message to a UserGroup then you need to call **Mail.SendMailToGroup**:

```
// Send a message to the UserGroup ID '123'
Mail.SendMailToGroup(123, "Subject", "Message body", false, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

14.3 Marking Messages as Read

To mark a message as **Read** you need to call **Mail.Read**, or call the method **Read** on a **Mail** instance:

```
// Mark as Read by Mail ID
Mail.Read( new long[] { 123, 456 }, new long[0], (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Mark as Read by Group ID
Mail.Read( new long[0], new long[] { 123, 456 }, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Mark as Read by Mail object
myMail.Read( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

14.4 Marking Messages as Unread

To mark a message as **Unread** you need to call **Mail.Unread**, or call the method **Unread** on a **Mail** instance:

```
// Mark as Unread by Mail ID
Mail.Unread( 123, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Mark as Unread by Mail object
myMail.Unread( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

14.5 Removing Items

To delete a message you need to call **Message.Delete**, or call the method **Delete** on a **Mail** instance:

```
// Remove by Message ID '123'
Mail.Delete(123, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Remove by Mail object
myMail.Delete( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

14.6 Loading Conversations

To load the list of discussions of the local user with others you can call **Mail.LoadConversations**, it will fill an **ArrayList** with objects of type **User** or **UserGroup** (based on the *idGroup* associated to the **Mail** object):

```
Mail.LoadConversations( (ArrayList conversations, int count, string error) => {
    if (string.IsNullOrEmpty(error))
        Debug.Log("Success: " + conversations.Count);
    else
        Debug.Log("Failed: " + error);
});
```

14.7 Counting Messages

To count the messages in the inbox of the local user you can call **Mail.Count**:

```
// Count the messages sent from users ID
Mail.Count( new long[] { 123, 456 }, new long[0], (MailCount[] counts, string error) => {
    if (string.IsNullOrEmpty(error))
        Debug.Log("Success: " + counts.Length);
    else
        Debug.Log("Failed: " + error);
});
// Count the messages sent from groups ID
Mail.Count( new long[0], new long[] { 123, 456 }, (MailCount[] counts, string error) => {
    if (string.IsNullOrEmpty(error))
        Debug.Log("Success: " + counts.Length);
    else
        Debug.Log("Failed: " + error);
});
```

Chapter 15

Managing User Groups

In this section you will learn how to manage the user groups.

15.1 Create a new group

You can create a new group with **UserGroup.Save** (call this also to edit a group that was loaded):

```
UserGroup group = new UserGroup();
group.name = "My Group";
// Add some users
group.users = new User[] { {userName="OtherUser1"}, {userName="OtherUser2"} };
group.Save((bool success, string error) => {
    Debug.Log("Group saved: " + success);
});
```

15.2 Load groups

To load groups you have 3 choices:

- load groups owned by local user
  ```
  UserGroup.Load(CombuManager.localUser.idLong, (UserGroup[] groups, string error) => {
      Debug.Log(groups.Length);
  });
  ```
- load groups in which local user is a member (owners are also members)
  ```
  UserGroup.LoadMembership(CombuManager.localUser.idLong, (UserGroup[] groups, string error) => {
      Debug.Log(groups.Length);
  });
  ```

15.3 Join a group

You can join a group with **UserGroup.Join**:

```
// Join local user
group.Join((bool success, string error) => {
    Debug.Log("Group joined: " + success);
});
// Join a list of users
group.Join(new string[] {"user1"}, (bool success, string error) => {
    Debug.Log("Group joined: " + success);
});
```

15.4 Leave a group

You can leave a group with **UserGroup.Leave**:

```
// Leave local user
group.Leave((bool success, string error) => {
    Debug.Log("Group joined: " + success);
});
// Leave a list of users
group.Leave(new string[] {"user1"}, (bool success, string error) => {
    Debug.Log("Group joined: " + success);
});
```

Chapter 16

Managing News

In this section you will learn how to retrieve the in-game news.

16.1 Loading News

To retrieve the list of latest news you need to call **News.Load**:

```
// Load the page 1 with 10 results per page
News.Load(1, 10, (News[] news, int resultsCount, int pagesCount, string error) => {
    if (string.IsNullOrEmpty(error))
        Debug.Log("Success: " + news.Length);
    else
        Debug.Log("Failed: " + error);
});
```

Chapter 17

Managing Leaderboards

In this section you will learn how to access the leaderboards data and report a score.

17.1 Loading Scores

To retrieve the scores list of a leaderboard you can call **CombuManager.platform.LoadScores** (by default loads the first page with 10 results), or you can instantiate a new **Leaderboard** object (created with **CombuManager.platform.CreateLeaderboard**), set *timeScope*, *customTimescope* and *range* and then call **LoadScores**:

```
// Load the scores of the leaderboard ID '123' from the page 2 with 10 results per page
CombuManager.platform.LoadScores(123, 2, 10, (IScore[] scores) => {
    Debug.Log("Scores loaded: " + scores.Length);
});
// Load the scores of the leaderboard ID '123' from the page 1 with 10 results per page
ILeaderboard board = CombuManager.platform.CreateLeaderboard ();
board.id = "123";
board.timeScope = UnityEngine.SocialPlatforms.TimeScope.AllTime;
board.range = new UnityEngine.SocialPlatforms.Range(1, 10);
board.LoadScores((bool loaded) => {
    // Now you can access board.scores and board.localUserScore
});
```

17.2 Reporting Scores

To report a new score of the local user you need to call **CombuManager.platform.ReportScore**, or you can call the method **ReportScore** on a **Score** instance:

```
// Report a score of 1000 to the leaderboard ID '123'
CombuManager.platform.ReportScore(1000, "123", (bool success) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed");
});
// Report a score of 1000 on a Score object,
// (previously loaded with LoadScores or a new with leaderboardID set)
myScore.value = 1000;
myScore.ReportScore( (bool success) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed");
});
```

17.3 Loading Leaderboards data

To load the leaderboards data like the title, description etc, you need to call **Leaderboard.Load**:

```
// Load the leaderboard ID '123'
Leaderboard.Load("123", (Leaderboard leaderboard, string error) => {
    if (leaderboard != null)
        Debug.Log("Success: " + leaderboard.title);
    else
        Debug.Log("Failed: " + error);
});
```

17.4 Loading the score of a user

To retrieve the best score of a user you need to call **LoadScoreByUser** on a **Leaderboard** instance:

```
// Load the best score of leaderboard ID '123' (or you can use the code) for the User object with 10 results
       per page (to be attendible 'page', the limit must be the same as used with LoadScores)
Leaderboard leaderboard = new Leaderboard { id = "123" };
leaderboard.LoadScoreByUser(CombuManager.localUser, eLeaderboardInterval.Total, 10, (Score score, int page,
       string error) => {
    if (score != null)
        Debug.Log("Success: rank #" + score.rank + " with value " + score.value + " at page " + page);
    else
        Debug.Log("Failed: " + error);
});
```

Chapter 18

Managing Achievements

In this section you will learn how to load the achievements and report a progress.

18.1 Loading Achievements descriptions

To retrieve the list of achievements you can call **CombuManager.platform.LoadAchievementDescriptions** or **CombuManager.platform.LoadAchievements** (the latter form is preferred because you will not need to cast back from *IAchievement* to *Achievement*):

```
// Load the achievement descriptions
CombuManager.platform.LoadAchievements( (Achievement[] achievements) => {
    Debug.Log("Achievements loaded: " + achievements.Length);
});
```

18.2 Reporting Progress

To report a new progress of the local user you need to call **CombuManager.platform.ReportProgress**, or you can call the method **ReportProgress** on a **Score** instance:

```
// Report a score of 1000 to the achievement ID '123'
CombuManager.platform.ReportProgress(1000, "123", (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Report a progress of 30% on an Achievement object,
// (previously loaded with LoadAchievements or created with
       <strong>CombuManager.platform.CreateAchievement</strong> and with <em>id</em> set)
myAchievement.percentCompleted = 0.3;
myAchievement.ReportProgress( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

Chapter 19

Managing Tournaments

In this section you will learn how to retrieve the tournaments list of the local user and how to add/remove tournaments.

19.1 Loading Tournaments

To retrieve the list of tournaments accessible by the local user you need to call **Tournament.Load**:

```
// Load the active tournaments, no filter by customData
Tournament.Load(false, null, (Tournament[] tournaments) => {
    Debug.Log("Tournaments loaded: " + tournaments.Length);
});
```

19.1.1 Loading by Tournament ID

You can also load a single Tournament by its ID:

```
// Load a Tournament by ID
Tournament.Load(123, (Tournament tournament) => {
    if (tournament != null)
        Debug.Log("Success: " + tournament.title);
    else
        Debug.Log("Failed");
});
```

19.1.2 Matches of the Tournament

Once that the Tournament has been loaded, the property *matches* gives you access to its matches and their extra data.

19.2 Quick Tournament

To create a quick tournament with other users user you need to call **Tournament.QuickTournament**:

```
// Load 2 random users
User.Random( null, 2, (User[] users) => {
    Tournament t = Tournament.QuickTournament(users);
    if (t.matches.Count == 0)
    {
        Debug.Log("Something going wrong, no matches created");
    }
    else
    {
        t.title = "My Tournament 1";
        t.customData["Key1"] = "Value";

        t.Save((bool success, string error) => {

            Debug.Log("Success: " + success + " - Matches: " + t.matches.Count);

        });
    }
});
```

19.2.1 Create your own Tournament

You can take a look at the code in **Tournament.QuickTournament** to see how to create a **Tournament** and use the code as base to create your own type of tournaments.

19.3 Removing Tournaments

To delete a tournament you need to call **Tournament.Delete**, or call the method **Delete** on a **Tournament** instance:

```
// Remove by Tournament ID
Tournament.Delete(123, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Remove by Tournament object
myTournament.Delete( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

Chapter 20

Managing Matches

In this section you will learn how to retrieve the matches list of the local user and how to add/remove matches.

20.1 Loading Matches

To retrieve the list of matches of the local user you need to call **Match.Load**:

```
// Load the active matches, no Tournament ID, no filter by title
Match.Load(0, true, string.Empty, (Matches[] matches) => {
    Debug.Log("Matches loaded: " + matches.Length);
});
```

20.1.1 Loading by Match ID

You can also load a single Matches by its ID:

```
// Load a Matches by ID
Match.Load(123, (Match match) => {
    if (match != null)
        Debug.Log("Success: " + match.title);
    else
        Debug.Log("Failed");
});
```

20.1.2 Rounds of the Match

Once that the Match has been loaded, the property *rounds* gives you access to its rounds and scores: the collection *users* contains the **MatchAccount** objects (relationship between Match and Account), the collection *scores* contains the **MatchRound** objects (relationship between the Match-Account association and a round).

20.2 Quick Match

To create a quick match with another user you need to call **Match.QuickMatch**:

```
// Load 2 random users (not only friends), no filter by customData, 1 round
Match.QuickMatch(false, null, 1, (Match match) => {
    if (match != null)
        Debug.Log("Success: " + match.title);
    else
        Debug.Log("Failed");
});
```

20.2.1 Create your own Match

You can take a look at the code in **Match.QuickMatch** to see how to create a **Match** and use the code as base to create your own matches.

20.3 Sending Score

To send a score for the next round you need to call the method **Score** on a **Match** instance:

```
// Send a score of 1000
myMatch.Score(1000, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

20.4 Removing Matches

To delete a match you need to call **Match.Delete**, or call the method **Delete** on a **Match** instance:

```
// Remove by Match ID
Match.Delete(123, (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
// Remove by Match object
myMatch.Delete( (bool success, string error) => {
    if (success)
        Debug.Log("Success");
    else
        Debug.Log("Failed: " + error);
});
```

Chapter 21

Customize Web Administration

Learn how to customize the web administration through CSS and JS

21.1 Javascript

You can add your own JS code by creating a file called **custom.js** in the folder /**admin**/**js**, if this file exists then it will be automatically added to the HTML output of the web administration.

21.2 CSS

You can override any CSS class by creating a file called **custom.css** in the folder /**admin**/**css**, if this file exists then it will be automatically added to the HTML output of the web administration.

For example to change the Combu logo displayed at top left of every page with your own, you can upload your own logo into the folder /**admin**/**images** and create the file /**admin**/**css**/**custom.css** with the following content:

```
#logo-title {background-image: url('../images/your_logo.png');}
```

Chapter 22

Frequently Asked Questions

Read the FAQ if you're having issues before sending a post on forum.

22.1 How do I install Combu on my local/live server?

Read the section Web server setup and Server and Client configuration.

22.2 How can I add my own properties to accounts?

In **Combu** you don't need to manually modify the core user class or database table to add your own properties to accounts like *FirstName*, *LastName*, *Coins* and so on.

All you need is to use user's **customData**: it's a Hashtable that can store every data you need. Let's see how you can extend the core user class and add a couple of custom properties as example.

First you need to create a class inheriting from *User*:

```
using System.Collections;
using Combu;
public class CombuDemoUser : User
{
   string _myProperty1 = "";
   int _myProperty2 = 0;
   int _coins = 0;
   public string myProperty1
   {
       get { return _myProperty1; }
       set { _myProperty1 = value; customData["myProperty1"] = _myProperty1; }
   }
   public int myProperty2
   {
       get { return _myProperty2; }
       set { _myProperty2 = value; customData["myProperty2"] = _myProperty2; }
   }
   public int coins
   {
       get { return _coins; }
       set { _coins = value; customData["Coins"] = _coins; }
   }
   public CombuDemoUser()
   {
       myProperty1 = "";
       myProperty2 = 0;
       coins = 0;
   }
   public override void FromHashtable (Hashtable hash)
   {
       // Set User class properties
```

```
        base.FromHashtable (hash);
        // Set our own custom properties that we store in customData
        if (customData.ContainsKey("myProperty1"))
            _myProperty1 = customData["myProperty1"].ToString();
        if (customData.ContainsKey("myProperty2"))
            _myProperty2 = int.Parse(customData["myProperty2"].ToString());
        if (customData.ContainsKey("Coins"))
            _coins = int.Parse(customData["Coins"].ToString());
    }
}
```

Now we can use this new class for Authenticate and AutLogin to safely cast **CombuManager.instance.loggedUser** after a successful login (similar syntax can be used for other methods like **User.AutoLogin** or **CombuManager.↩ LoadContacts**):

```
CombuManager.platform.Authenticate<CombuDemoUser> (username, password, (bool loginSuccess, string
        loginError) => {
    CombuDemoUser myUser = (CombuDemoUser)CombuManager.localUser;
    Debug.Log("Login: " + loginSuccess + " -- " + loginError);
    if (loginSuccess)
        Debug.Log("Property1: " + myUser.myProperty1);
});
```

22.3 I purchased it on Asset Store, can I download from your website?

Yes, you can redeem your Unity invoice (both server and addons packages) from here and you will get free access to all downloads that you purchased on Asset Store.

22.4 When I try to navigate to the web admin, I see a blank page

If you see a blank page then there's probably an internal server error and your web server is configured to hide errors from web pages, so your first step is to enable "display_errors" variable in *php.ini* or *.htaccess* (search on internet or ask to your hosting provider how to do).

Remember the requirements that your web server should meet:

- PHP version must be 5.5 or greater
- the zip extension module must be enabled on PHP (if it isn't enabled then the auto-updater will not be able to uncompress and install the updates, but you can still use it to automatically execute the SQL queries if required)
- to successfully use the auto-updater feature, the server user (Apache user on OSX/Linux or IUSR/↩ NETWORK_SERVICE on Windows) must have write permissions on Combu root folder

Also make sure you have set the correct connection settings in your */lib/config.php*.

Chapter 23

Namespace Index

23.1 Packages

Here are the packages with brief descriptions (if available):

Combu
This class encodes and decodes JSON strings. Spec. details, see http://www.json.org/ 59

Chapter 24

Hierarchical Index

24.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

CertificateHandler
    Combu.CombuSkipCertificateHandler 97
Combu.CombuEncryption 64
Combu.CombuForm 67
Combu.CombuServerInfo 96
IAchievement
    Combu.Achievement 63
IAchievementDescription
    Combu.Achievement 63
IComparer
    Combu.Achievement 63
ILeaderboard
    Combu.Leaderboard 102
ILocalUser
    Combu.User 144
Combu.Inventory 98
IScore
    Combu.Score 136
ISocialPlatform
    Combu.CombuPlatform 83
IUserProfile
    Combu.Profile 132
        Combu.User 144
Combu.Mail 107
Combu.MailCount 119
Combu.Match 119
Combu.MatchAccount 125
Combu.MatchRound 126
Combu.Match.MatchRoundData 127
Combu.MiniJSON 127
MonoBehaviour
    Combu.CombuManager 70
Combu.News 130
Combu.ProfilePlatform 136
Combu.SearchCustomData 138

Combu.CombuUtils.ServerResponse.SuccessMessage 139
Combu.ThreadedJob 139
Combu.DecryptionJob 97
Combu.CombuUtils.ServerResponse.Server.Token 139
Combu.Tournament 140
Combu.UserFile 162
Combu.UserGroup 170

Chapter 25

Class Index

25.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Combu.Achievement
: Achievement class implementing the Unity built-in Social interfaces (IAchievement, IAchievementDescription) . . . 63

Combu.CombuEncryption . . . 64

Combu.CombuForm . . . 67

Combu.CombuManager
: Combu Manager class, it follows the Singleton pattern design (accessible through the 'instance' static property), it means that you shouldn't have more than one instance of this component in your scene . . . 70

Combu.CombuPlatform
: Combu Platform implementation of Unity built-in Social interfaces (ISocialPlatform) . . . 83

Combu.CombuServerInfo
: Class to handle Combu server informations . . . 96

Combu.CombuSkipCertificateHandler . . . 97

Combu.DecryptionJob . . . 97

Combu.Inventory . . . 98

Combu.Leaderboard . . . 102

Combu.Mail . . . 107

Combu.MailCount . . . 119

Combu.Match . . . 119

Combu.MatchAccount . . . 125

Combu.MatchRound . . . 126

Combu.Match.MatchRoundData . . . 127

Combu.MiniJSON . . . 127

Combu.News . . . 130

Combu.Profile . . . 132

Combu.ProfilePlatform . . . 136

Combu.Score . . . 136

Combu.SearchCustomData
: Class to handle generic a generic search filter . . . 138

Combu.CombuUtils.ServerResponse.SuccessMessage . . . 139

Combu.ThreadedJob . . . 139

Combu.CombuUtils.ServerResponse.Server.Token . . . 139

Combu.Tournament
: Tournaments class . . . 140

Combu.User
User class implementing the Unity built-in Social interfaces (specialized IUserProfile, ILocalUser) 144
Combu.UserFile 162
Combu.UserGroup 170

Chapter 26

Namespace Documentation

26.1 Combu Namespace Reference

This class encodes and decodes JSON strings. Spec. details, see http://www.json.org/

Classes

- class Achievement

  Achievement class implementing the Unity built-in Social interfaces (IAchievement, IAchievementDescription).
- class CombuEncryption
- class CombuForm
- class CombuManager

  Combu Manager class, it follows the Singleton pattern design (accessible through the 'instance' static property), it means that you shouldn't have more than one instance of this component in your scene.
- class CombuPlatform

  Combu Platform implementation of Unity built-in Social interfaces (ISocialPlatform).
- class CombuServerInfo

  Class to handle Combu server informations.
- class CombuSkipCertificateHandler
- class ThreadedJob
- class DecryptionJob
- class **CombuUtils**
- class Inventory
- class Leaderboard
- class Score
- class Mail
- class MailCount
- class Match
- class MatchAccount
- class MatchRound
- class MiniJSON
- class **MiniJsonExtensions**
- class News
- class Profile
- class ProfilePlatform
- class SearchCustomData

Class to handle generic a generic search filter.

- class Tournament

  Tournaments class.

- class User

  User class implementing the Unity built-in Social interfaces (specialized IUserProfile, ILocalUser).

- class UserFile
- class UserGroup

Enumerations

- enum class eContactType : int {
  PendingRequest = -1 , **Friend** = 0 , **Request** , **Ignore** ,
  MinValue = Friend , **MaxValue** = Ignore }

  Contact type.

- enum class eMailList : int { **Received** = 0 , **Sent** , **Both** , **Unread** }

  Mail list.

- enum class eSearchOperator {
  Equals , **Disequals** , **Like** , **Greater** ,
  GreaterOrEquals , **Lower** , **LowerOrEquals** }

  Custom search operator.

- enum class eLeaderboardInterval : int { **Total** = 0 , **Month** , **Week** , **Today** }

  Leaderboard interval.

- enum class eLeaderboardTimeScope : int { **None** , **Month** }

  Leaderboard time scope.

- enum class eShareType { **Everybody** , **Nobody** , **Friends** }

  Object sharing type.

26.1.1 Detailed Description

This class encodes and decodes JSON strings. Spec. details, see http://www.json.org/

All enum types used in Combu namespace are defined here

JSON uses Arrays and Objects. These correspond here to the datatypes ArrayList and Hashtable. All numbers are parsed to doubles.

26.1.2 Enumeration Type Documentation

26.1.2.1 eContactType

```
enum Combu.eContactType : int [strong]
```

Contact type.

26.1.2.2 eLeaderboardInterval

```
enum Combu.eLeaderboardInterval : int [strong]
```

Leaderboard interval.

26.1.2.3 eLeaderboardTimeScope

```
enum Combu.eLeaderboardTimeScope : int [strong]
```

Leaderboard time scope.

26.1.2.4 eMailList

```
enum Combu.eMailList : int [strong]
```

Mail list.

26.1.2.5 eSearchOperator

```
enum Combu.eSearchOperator [strong]
```

Custom search operator.

26.1.2.6 eShareType

```
enum Combu.eShareType [strong]
```

Object sharing type.

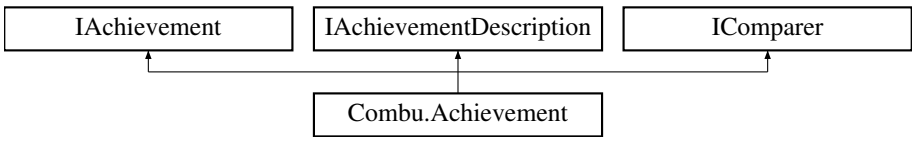
Chapter 27

Class Documentation

27.1 Combu.Achievement Class Reference

Achievement class implementing the Unity built-in Social interfaces (IAchievement, IAchievementDescription).

Inheritance diagram for Combu.Achievement:



Public Member Functions

- **Achievement** (string jsonString)
- virtual void **FromJson** (string jsonString)
- void **ReportProgress** (System.Action< bool > callback)
- int **Compare** (object x, object y)

Protected Attributes

- Texture2D **_image** = null

Properties

- string **id** `[get, set]`
- double **percentCompleted** `[get, set]`
- bool **completed** `[get]`
- bool **hidden** `[get]`
- System.DateTime **lastReportedDate** `[get]`
- string **title** `[get]`
- string **description** `[get]`
- int **finished** `[get]`
- Texture2D **image** `[get]`
- string **achievedDescription** `[get]`
- string **unachievedDescription** `[get]`
- int **points** `[get]`

27.1.1 Detailed Description

Achievement class implementing the Unity built-in Social interfaces (IAchievement, IAchievementDescription).

27.2 Combu.CombuEncryption Class Reference

Public Member Functions

- void SetToken (string sessionToken)

  Sets the session token.
- void LoadRSA (string sessionToken, string xml)

  Sets the session token and loads the RSA data from XML (Public Key).
- void LoadRSA (string sessionToken, string modulus, string exponent)

  Sets the session token and loads the Modulus and Exponent of the RSA Public Key.
- string EncryptRSA (string inputString)

  Encrypts a string with RSA.
- string EncryptAES (string inputString)

  Encrypts a string with AES.
- string DecryptAES (string inputString)

  Decrypts a string what was encrypted with the current AES Key/IV.
- string EncryptMD5 (string inputString)

  Encrypts a string in MD5 hash.
- string EncryptSHA1 (string inputString)

  Encrypts a string in SHA1 hash.
- string DecryptResponse (string text)

  Decrypts the response from server.

Properties

- string **Token** `[get]`
- string **Key** `[get]`
- string **IV** `[get]`

27.2.1 Member Function Documentation

27.2.1.1 DecryptAES()

```
string Combu.CombuEncryption.DecryptAES (
            string inputString )
```

Decrypts a string what was encrypted with the current AES Key/IV.

Returns

The decrypted string.

Parameters

inputString	Input string.

27.2.1.2 DecryptResponse()

```
string Combu.CombuEncryption.DecryptResponse (
            string text )
```

Decrypts the response from server.

Returns

The response decrypted.

Parameters

text	Response text.

27.2.1.3 EncryptAES()

```
string Combu.CombuEncryption.EncryptAES (
            string inputString )
```

Encrypts a string with AES.

Returns

The AE.

Parameters

inputString	Input string.

27.2.1.4 EncryptMD5()

```
string Combu.CombuEncryption.EncryptMD5 (
            string inputString )
```

Encrypts a string in MD5 hash.

Returns

The MD5 encrypted string.

Parameters

inputString	Input string.

27.2.1.5 EncryptRSA()

```
string Combu.CombuEncryption.EncryptRSA (
            string inputString )
```

Encrypts a string with RSA.

Returns

The RS.

Parameters

inputString	Text to encrypt.

27.2.1.6 EncryptSHA1()

```
string Combu.CombuEncryption.EncryptSHA1 (
            string inputString )
```

Encrypts a string in SHA1 hash.

Returns

The SHA1 encrypted.

Parameters

inputString	Input string.

27.2.1.7 LoadRSA() [1/2]

```
void Combu.CombuEncryption.LoadRSA (
            string sessionToken,
```

```
            string modulus,
            string exponent )
```

Sets the session token and loads the Modulus and Exponent of the RSA Public Key.

Parameters

sessionToken	Session token.
modulus	Modulus.
exponent	Exponent.

27.2.1.8 LoadRSA() [2/2]

```
void Combu.CombuEncryption.LoadRSA (
            string sessionToken,
            string xml )
```

Sets the session token and loads the RSA data from XML (Public Key).

Parameters

sessionToken	Session token.
xml	RSA Xml.

27.2.1.9 SetToken()

```
void Combu.CombuEncryption.SetToken (
            string sessionToken )
```

Sets the session token.

Parameters

sessionToken	Session token.

27.3 Combu.CombuForm Class Reference

Public Member Functions

- void AddField (string fieldName, string value)

  Adds a string parameter to the form.
- void AddBinaryData (string fieldName, byte[ ] content)

  Adds a binary parameter to the form.

- string GetField (string fieldName)

  Gets a string parameter from the form.
- byte[ ] GetBinaryField (string fieldName)

  Gets a binary parameter from the form.
- WWWForm GetForm ()

  Gets the WWWForm representation to pass to the web services with encrypted data.

Static Public Member Functions

- static implicit **operator WWWForm** (CombuForm me)

27.3.1 Member Function Documentation

27.3.1.1 AddBinaryData()

```
void Combu.CombuForm.AddBinaryData (
            string fieldName,
            byte[] content )
```

Adds a binary parameter to the form.

Parameters

fieldName	Field name.
content	Content.

27.3.1.2 AddField()

```
void Combu.CombuForm.AddField (
            string fieldName,
            string value )
```

Adds a string parameter to the form.

Parameters

fieldName	Field name.
value	Value.

27.3.1.3 GetBinaryField()

```
byte [] Combu.CombuForm.GetBinaryField (
            string fieldName )
```

Gets a binary parameter from the form.

Returns

The binary field.

Parameters

fieldName	Field name.

27.3.1.4 GetField()

```
string Combu.CombuForm.GetField (
            string fieldName )
```

Gets a string parameter from the form.

Returns

The field.

Parameters

fieldName	Field name.

27.3.1.5 GetForm()

```
WWWForm Combu.CombuForm.GetForm ( )
```

Gets the WWWForm representation to pass to the web services with encrypted data.

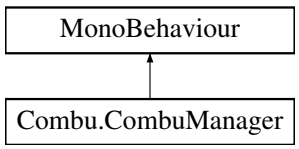
Returns

The form.

27.4 Combu.CombuManager Class Reference

Combu Manager class, it follows the Singleton pattern design (accessible through the 'instance' static property), it means that you shouldn't have more than one instance of this component in your scene.

Inheritance diagram for Combu.CombuManager:



Public Member Functions

- void Connect ()

  Connect to server if not already initialized.
- void CallWebservice (string url, WWWForm form, System.Action< string, string > onComplete)

  Calls a webservice.
- void CancelRequest ()

  Cancels the current request (next frame).
- CombuForm CreateForm ()

  Creates a new form to be passed to a webservice.
- string GetUrl (string relativeUrl)

  Gets the absolute URL from a relative.
- virtual void SetLocalUser (User user)

  Sets the local user. For internal use only (e.g. User.Authenticate), it's not recommended to call this method directly.
- virtual void GetServerInfo (Action< bool, CombuServerInfo > callback)

  Gets the server info.
- virtual void Ping (bool onlyIfAuthenticated=true, Action< bool > callback=null)

  Ping the server.

Static Public Member Functions

- static byte[ ] CaptureScreenshot (int thumbnailHeight=720, List< Camera > excludeCams=null)

  Captures the screen shot.
- static string EncryptMD5 (string inputString)

  Encrypts a string in MD5.
- static string EncryptSHA1 (string inputString)

  Encrypts a string in SHA1.
- static string EncryptAES (string inputString)

  Encrypts a string in AES.
- static string DecryptAES (string inputString)

  Decrypts a string in AES.

Public Attributes

- bool dontDestroyOnLoad = true

  Should call DontDestroyOnLoad on the CombuManager gameObject? Recommended: set to true
- bool setAsDefaultSocialPlatform

  Should set Combu as the active social platform? The previous platform is accessible from defaultSocialPlatform
- bool connectOnAwake = true

  Auto-connect to server on Awake.
- bool useExperimentalThreaded

  Enable the use of the experimental job to run the decryption process in a separated thread.
- float retryConnectAfterSeconds = 0f

  Upon failed connection to server, it will retry to connect after specified seconds (set 0 to disable auto-retry).
- string appId

  The app identifier.
- string appSecret

  The app secret key.
- string urlRootProduction

  The URL root for the production environment.
- string urlRootStage

  The URL root for the stage environment.
- bool useStage

  If true sets the stage as current environment (default: false for production).
- bool skipCertificateVerification

  Skip the verification of the SSL certificate in UnityWebRequest (Unity 2017.1 or newer)
- bool logDebugInfo

  Print debug info in the console log.
- bool rememberCredentials

  Store the user credentials in PlayerPrefs to auto-login on next connection.
- float pingIntervalSeconds = 30f

  The ping interval in seconds (set 0 to disable automatic pings). Ping is currently used to mantain the online state of the local user and is automatically called only if the local user is authenticated.
- int onlineSeconds = 120

  *The max seconds from now to a user's **lastSeen** to consider the online state.*
- int playingSeconds = 120

  *The max seconds from now to a user's **lastSeen** to consider the playing state.*
- string language = "en"

  The language to localize the error messages from web services.
- GameObject achievementUIObject

  The achievement user interface object for CombuPlatform.ShowAchievementsUI().
- string achievementUIFunction

  The achievement user interface function for CombuPlatform.ShowAchievementsUI().
- GameObject leaderboardUIObject

  The leaderboard user interface object for CombuPlatform.ShowLeaderboardUI().
- string leaderboardUIFunction

  The leaderboard user interface function for CombuPlatform.ShowLeaderboardUI().

Static Public Attributes

- const string COMBU_VERSION = "3.2.2"

  Current API version.

Protected Member Functions

- virtual void **Awake** ()
- virtual void **Start** ()
- virtual void **OnEnable** ()
- virtual void **OnDisable** ()
- virtual void AutoPing ()

  This is InvokeRepeated on enable and automatically pings the server. If the user was authenticated and the ping fails, the local user is automatically disconnected.
- IEnumerator DownloadUrl (string url, WWWForm form, Action< string, string > onComplete)

  Downloads the content of an URL with the specified form.

Protected Attributes

- ISocialPlatform **_defaultSocialPlatform**
- CombuServerInfo **_serverInfo**
- bool **downloading**

Static Protected Attributes

- static CombuManager _instance

  The singleton instance of CombuManager
- static CombuPlatform _platform

  The singleton instance of CombuPlatform.
- static CombuEncryption encryption = new CombuEncryption()

  The instance of data encryption.

Properties

- static string? sessionToken `[get]`

  Gets the session token.
- static CombuManager instance `[get]`

  Gets the current singleton instance.
- static CombuPlatform platform `[get]`

  Gets the Combu ISocialPlatform implementation.
- static User? localUser `[get]`

  Gets the local user.
- static bool isInitialized `[get]`

  Gets a value indicating whether the Singleton instance of Combu.CombuManager is initialized.
- ISocialPlatform defaultSocialPlatform `[get]`

  Gets the default social platform defined (this is set before Combu is set as activate, eventually).
- bool isDownloading `[get]`

  Gets a value indicating whether this Combu.CombuManager is downloading from a webservice.
- bool isCancelling `[get]`

  Gets a value indicating whether this Combu.CombuManager is cancelling a webservice request.
- bool isAuthenticated `[get]`

  Gets a value indicating whether Combu.CombuManager.localUser is authenticated.
- CombuServerInfo serverInfo `[get]`

  Gets the server info.

27.4.1 Detailed Description

Combu Manager class, it follows the Singleton pattern design (accessible through the 'instance' static property), it means that you shouldn't have more than one instance of this component in your scene.

27.4.2 Member Function Documentation

27.4.2.1 AutoPing()

```
virtual void Combu.CombuManager.AutoPing ( )  [protected], [virtual]
```

This is InvokeRepeated on enable and automatically pings the server. If the user was authenticated and the ping fails, the local user is automatically disconnected.

27.4.2.2 CallWebservice()

```
void Combu.CombuManager.CallWebservice (
            string url,
            WWWForm form,
            System.Action< string, string > onComplete )
```

Calls a webservice.

Parameters

url	URL.
form	Form.
onComplete	On complete callback.

27.4.2.3 CancelRequest()

```
void Combu.CombuManager.CancelRequest ( )
```

Cancels the current request (next frame).

27.4.2.4 CaptureScreenshot()

```
static byte [] Combu.CombuManager.CaptureScreenshot (
            int thumbnailHeight = 720,
            List< Camera > excludeCams = null )  [static]
```

Captures the screen shot.

Returns

The screen shot.

Parameters

thumbnailHeight	Thumbnail height.
excludeCams	Exclude cams.

27.4.2.5 Connect()

```
void Combu.CombuManager.Connect ( )
```

Connect to server if not already initialized.

27.4.2.6 CreateForm()

```
CombuForm Combu.CombuManager.CreateForm ( )
```

Creates a new form to be passed to a webservice.

Returns

The form.

27.4.2.7 DecryptAES()

```
static string Combu.CombuManager.DecryptAES (
            string inputString )  [static]
```

Decrypts a string in AES.

Returns

The decrypted string.

Parameters

inputString	Input string.

27.4.2.8 DownloadUrl()

```
IEnumerator Combu.CombuManager.DownloadUrl (
            string url,
            WWWForm form,
            Action< string, string > onComplete )  [protected]
```

Downloads the content of an URL with the specified form.

Returns

The URL.

Parameters

url	URL.
form	Form.
onComplete	On complete.

27.4.2.9 EncryptAES()

```
static string Combu.CombuManager.EncryptAES (
            string inputString )  [static]
```

Encrypts a string in AES.

Returns

The encrypted string.

Parameters

inputString	Input string.

27.4.2.10 EncryptMD5()

```
static string Combu.CombuManager.EncryptMD5 (
            string inputString )  [static]
```

Encrypts a string in MD5.

Returns

The encrypted string.

Parameters

inputString	Input string.

27.4.2.11 EncryptSHA1()

```
static string Combu.CombuManager.EncryptSHA1 (
            string inputString )  [static]
```

Encrypts a string in SHA1.

Returns

The encrypted string.

Parameters

inputString	Input string.

27.4.2.12 GetServerInfo()

```
virtual void Combu.CombuManager.GetServerInfo (
            Action< bool, CombuServerInfo > callback )  [virtual]
```

Gets the server info.

Parameters

callback	Callback.

27.4.2.13 GetUrl()

```
string Combu.CombuManager.GetUrl (
            string relativeUrl )
```

Gets the absolute URL from a relative.

Returns

The URL.

Parameters

relativeUrl	Relative URL.

27.4.2.14 Ping()

```
virtual void Combu.CombuManager.Ping (
            bool onlyIfAuthenticated = true,
            Action< bool > callback = null )  [virtual]
```

Ping the server.

Parameters

onlyIfAuthenticated	If set to `true` then it runs only if local user is authenticated.
callback	Callback.

27.4.2.15 SetLocalUser()

```
virtual void Combu.CombuManager.SetLocalUser (
            User user )  [virtual]
```

Sets the local user. For internal use only (e.g. User.Authenticate), it's not recommended to call this method directly.

Parameters

user	User.

27.4.3 Member Data Documentation

27.4.3.1 _instance

```
CombuManager Combu.CombuManager._instance  [static], [protected]
```

The singleton instance of CombuManager

27.4.3.2 _platform

```
CombuPlatform Combu.CombuManager._platform  [static], [protected]
```

The singleton instance of CombuPlatform.

27.4.3.3 achievementUIFunction

```
string Combu.CombuManager.achievementUIFunction
```

The achievement user interface function for CombuPlatform.ShowAchievementsUI().

27.4.3.4 achievementUIObject

```
GameObject Combu.CombuManager.achievementUIObject
```

The achievement user interface object for CombuPlatform.ShowAchievementsUI().

27.4.3.5 appId

```
string Combu.CombuManager.appId
```

The app identifier.

27.4.3.6 appSecret

```
string Combu.CombuManager.appSecret
```

The app secret key.

27.4.3.7 COMBU_VERSION

```
const string Combu.CombuManager.COMBU_VERSION = "3.2.2"  [static]
```

Current API version.

27.4.3.8 connectOnAwake

```
bool Combu.CombuManager.connectOnAwake = true
```

Auto-connect to server on Awake.

27.4.3.9 dontDestroyOnLoad

```
bool Combu.CombuManager.dontDestroyOnLoad = true
```

Should call DontDestroyOnLoad on the CombuManager gameObject? Recommended: set to true

27.4.3.10 encryption

```
CombuEncryption Combu.CombuManager.encryption = new CombuEncryption()  [static], [protected]
```

The instance of data encryption.

27.4.3.11 language

```
string Combu.CombuManager.language = "en"
```

The language to localize the error messages from web services.

27.4.3.12 leaderboardUIFunction

```
string Combu.CombuManager.leaderboardUIFunction
```

The leaderboard user interface function for CombuPlatform.ShowLeaderboardUI().

27.4.3.13 leaderboardUIObject

```
GameObject Combu.CombuManager.leaderboardUIObject
```

The leaderboard user interface object for CombuPlatform.ShowLeaderboardUI().

27.4.3.14 logDebugInfo

```
bool Combu.CombuManager.logDebugInfo
```

Print debug info in the console log.

27.4.3.15 onlineSeconds

```
int Combu.CombuManager.onlineSeconds = 120
```

The max seconds from now to a user's **lastSeen** to consider the online state.

27.4.3.16 pingIntervalSeconds

```
float Combu.CombuManager.pingIntervalSeconds = 30f
```

The ping interval in seconds (set 0 to disable automatic pings). Ping is currently used to mantain the online state of the local user and is automatically called only if the local user is authenticated.

27.4.3.17 playingSeconds

```
int Combu.CombuManager.playingSeconds = 120
```

The max seconds from now to a user's **lastSeen** to consider the playing state.

27.4.3.18 rememberCredentials

```
bool Combu.CombuManager.rememberCredentials
```

Store the user credentials in PlayerPrefs to auto-login on next connection.

27.4.3.19 retryConnectAfterSeconds

```
float Combu.CombuManager.retryConnectAfterSeconds = 0f
```

Upon failed connection to server, it will retry to connect after specified seconds (set 0 to disable auto-retry).

27.4.3.20 setAsDefaultSocialPlatform

```
bool Combu.CombuManager.setAsDefaultSocialPlatform
```

Should set Combu as the active social platform? The previous platform is accessible from defaultSocialPlatform

27.4.3.21 skipCertificateVerification

```
bool Combu.CombuManager.skipCertificateVerification
```

Skip the verification of the SSL certificate in UnityWebRequest (Unity 2017.1 or newer)

27.4.3.22 urlRootProduction

```
string Combu.CombuManager.urlRootProduction
```

The URL root for the production environment.

27.4.3.23 urlRootStage

```
string Combu.CombuManager.urlRootStage
```

The URL root for the stage environment.

27.4.3.24 useExperimentalThreaded

```
bool Combu.CombuManager.useExperimentalThreaded
```

Enable the use of the experimental job to run the decryption process in a separated thread.

27.4.3.25 useStage

```
bool Combu.CombuManager.useStage
```

If *true* sets the stage as current environment (default: false for production).

27.4.4 Property Documentation

27.4.4.1 defaultSocialPlatform

```
ISocialPlatform Combu.CombuManager.defaultSocialPlatform  [get]
```

Gets the default social platform defined (this is set before Combu is set as activate, eventually).

The default social platform.

27.4.4.2 instance

```
CombuManager Combu.CombuManager.instance  [static], [get]
```

Gets the current singleton instance.

The instance.

27.4.4.3 isAuthenticated

```
bool Combu.CombuManager.isAuthenticated  [get]
```

Gets a value indicating whether Combu.CombuManager.localUser is authenticated.

`true` if is authenticated; otherwise, `false`.

27.4.4.4 isCancelling

```
bool Combu.CombuManager.isCancelling  [get]
```

Gets a value indicating whether this Combu.CombuManager is cancelling a webservice request.

`true` if is cancelling; otherwise, `false`.

27.4.4.5 isDownloading

```
bool Combu.CombuManager.isDownloading  [get]
```

Gets a value indicating whether this Combu.CombuManager is downloading from a webservice.

`true` if is downloading; otherwise, `false`.

27.4.4.6 isInitialized

```
bool Combu.CombuManager.isInitialized  [static], [get]
```

Gets a value indicating whether the Singleton instance of Combu.CombuManager is initialized.

`true` if is initialized; otherwise, `false`.

27.4.4.7 localUser

```
User?  Combu.CombuManager.localUser  [static], [get]
```

Gets the local user.

The local user.

27.4.4.8 platform

```
CombuPlatform Combu.CombuManager.platform  [static], [get]
```

Gets the Combu ISocialPlatform implementation.

The platform.

27.4.4.9 serverInfo

```
CombuServerInfo Combu.CombuManager.serverInfo  [get]
```

Gets the server info.

The server info.

27.4.4.10 sessionToken

```
string?  Combu.CombuManager.sessionToken  [static], [get]
```

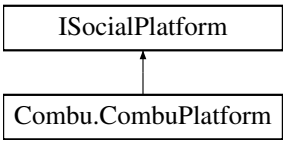
Gets the session token.

The session token.

27.5 Combu.CombuPlatform Class Reference

Combu Platform implementation of Unity built-in Social interfaces (ISocialPlatform).

Inheritance diagram for Combu.CombuPlatform:



Public Member Functions

- virtual void Authenticate (ILocalUser user, System.Action< bool > callback)

  Authenticates the user.
- virtual void Authenticate (string username, string password, System.Action< bool, string > callback)

  Authenticates the user with specified username and password.
- virtual void Authenticate< T > (string username, string password, System.Action< bool, string > callback)

  Authenticates the user with specified username and password using the specified profile class.
- virtual void Authenticate (ILocalUser user, System.Action< bool, string > callback)

  Authenticate the specified user.
- virtual void LoadUsers (string[ ] userIDs, System.Action< IUserProfile[ ]> callback)

  Loads the users by Id.
- virtual void ReportProgress (string achievementId, double progress, System.Action< bool > callback)

  Reports the progress of an Achievement expressed as percentage. The progress will be multiplied by 100.0 and finally rounded to int.
- virtual void ReportProgress (string achievementId, int progress, System.Action< bool > callback)

  Reports the progress of an Achievement.
- virtual void LoadAchievementDescriptions (System.Action< IAchievementDescription[ ]> callback)

  Loads the achievement descriptions.
- virtual void LoadAchievements (System.Action< IAchievement[ ]> callback)

  Loads the achievements.
- virtual void LoadAchievements< T > (System.Action< T[ ]> callback)

  Loads the achievements.
- virtual IAchievement CreateAchievement ()

  Creates the achievement.
- virtual void ReportScore (long score, string board, System.Action< bool > callback)

  Reports the score of a Leaderboard.
- virtual void ReportScore (string score, string board, System.Action< bool > callback)

  Reports the score of a Leaderboard.
- virtual void ReportScore (string score, string board, string username, System.Action< bool > callback)

  Reports the score of a Leaderboard.
- virtual void LoadScores (string leaderboardID, System.Action< IScore[ ]> callback)

  Loads the scores of a Leaderboard.
- virtual void LoadScores (string leaderboardID, int page, int countPerPage, System.Action< IScore[ ]> callback)

  Loads the scores of a Leaderboard.
- void LoadScores (string leaderboardID, TimeScope timeScope, int page, int countPerPage, System.Action< IScore[ ]> callback)

  Loads the scores of a Leaderboard.
- virtual ILeaderboard CreateLeaderboard ()

  Creates the leaderboard.
- virtual void ShowAchievementsUI ()

  Shows the achievements UI. Requires achievementUIObject and eventually achievementUIFunction set in order to work.
- virtual void ShowLeaderboardUI ()

  Shows the leaderboard UI. Requires leaderboardUIObject and eventually leaderboardUIFunction set in order to work.
- virtual void LoadFriends (ILocalUser user, System.Action< bool > callback)

  Loads the friends of localUser.
- virtual void LoadScores (ILeaderboard board, System.Action< bool > callback)

  Loads the scores of a Leaderboard.
- virtual bool GetLoading (ILeaderboard board)

  Gets the loading state of a Leaderboard.

- virtual void SetLocalUser (User user)

  Sets the local user. For internal use only (e.g. User.Authenticate), it's not recommended to call this method directly.
- virtual void Logout (System.Action callback)

  Logout localUser.
- virtual void LoadScoresByUser (string leaderboardId, User user, eLeaderboardInterval interval, int limit, System.Action< Score, int, string > callback)

  Loads the scores of a Leaderboard by user.

Static Public Member Functions

- static void ResetAllAchievements (System.Action< bool > callback)

  Resets all achievements of localUser.

Properties

- ILocalUser **localUser** `[get]`

27.5.1 Detailed Description

Combu Platform implementation of Unity built-in Social interfaces (ISocialPlatform).

27.5.2 Member Function Documentation

27.5.2.1 Authenticate() [1/3]

```
virtual void Combu.CombuPlatform.Authenticate (
            ILocalUser user,
            System.Action< bool > callback )  [virtual]
```

Authenticates the user.

Parameters

user	User.
callback	Callback.

Example of usage:

```
CombuManager.platform.Authenticate (user, (bool success) => {
   Debug.Log("Authenticate: " + success);
});
```

27.5.2.2 Authenticate() [2/3]

```
virtual void Combu.CombuPlatform.Authenticate (
```

```
            ILocalUser user,
            System.Action< bool, string > callback )  [virtual]
```

Authenticate the specified user.

Parameters

user	User.
callback	Callback.

Example of usage:

```
CombuManager.platform.Authenticate (user, (bool success, string error) => {
   Debug.Log("Authenticate: " + success + " -- " + error);
});
```

27.5.2.3 Authenticate() [3/3]

```
virtual void Combu.CombuPlatform.Authenticate (
            string username,
            string password,
            System.Action< bool, string > callback )  [virtual]
```

Authenticates the user with specified username and password.

Parameters

username	Username.
password	Password.
callback	Callback.

Example of usage:

```
CombuManager.platform.Authenticate ("username", "password", (bool success, string error) => {
   Debug.Log("Authenticate: " + success + " -- " + error);
});
```

27.5.2.4 Authenticate< T >()

```
virtual void Combu.CombuPlatform.Authenticate< T > (
            string username,
            string password,
            System.Action< bool, string > callback )  [virtual]
```

Authenticates the user with specified username and password using the specified profile class.

Parameters

username	Username.
password	Password.
callback	Callback.

Template Parameters

T	Type of the returned profiles.

Example of usage:
```
CombuManager.platform.Authenticate<MyUserClass> ("username", "password", (bool success, string error) => {
   Debug.Log("Authenticate: " + success + " -- " + error);
});
```

Type Constraints

T* : *User

T* : *new()

27.5.2.5 CreateAchievement()

```
virtual IAchievement Combu.CombuPlatform.CreateAchievement ( )  [virtual]
```

Creates the achievement.

Returns

The achievement.

Example of usage:
```
IAchievement achievement = CombuManager.platform.CreateAchievement();
```

27.5.2.6 CreateLeaderboard()

```
virtual ILeaderboard Combu.CombuPlatform.CreateLeaderboard ( )  [virtual]
```

Creates the leaderboard.

Returns

The leaderboard.

Example of usage:
```
ILeaderboard leaderboard = CombuManager.platform.CreateLeaderboard();
```

27.5.2.7 GetLoading()

```
virtual bool Combu.CombuPlatform.GetLoading (
            ILeaderboard board )  [virtual]
```

Gets the loading state of a Leaderboard.

Returns

`true`, if loading was gotten, `false` otherwise.

Parameters

board	Board.

Example of usage:
```
Debug.Log("LoadFriends: " + CombuManager.platform.GetLoading(myLeaderboard));
```

27.5.2.8 LoadAchievementDescriptions()

```
virtual void Combu.CombuPlatform.LoadAchievementDescriptions (
            System.Action< IAchievementDescription[]> callback )  [virtual]
```

Loads the achievement descriptions.

Parameters

callback	Callback.

Example of usage:
```
CombuManager.platform.LoadAchievementDescriptions ((IAchievementDescription[] descriptions) => {
   Debug.Log("Achievement descriptions: " + descriptions.Length);
});
```

27.5.2.9 LoadAchievements()

```
virtual void Combu.CombuPlatform.LoadAchievements (
            System.Action< IAchievement[]> callback )  [virtual]
```

Loads the achievements.

Parameters

callback	Callback.

Example of usage:
```
CombuManager.platform.LoadAchievements ((IAchievement[] achievements) => {
   Debug.Log("Achievements: " + achievements.Length);
});
```

27.5.2.10 LoadAchievements< T >()

```
virtual void Combu.CombuPlatform.LoadAchievements< T > (
            System.Action< T[]> callback )  [virtual]
```

Loads the achievements.

Parameters

callback	Callback.

Template Parameters

T	The 1st type parameter.

Example of usage:
```
CombuManager.platform.LoadAchievements<MyAchievementClass> ((MyAchievementClass[] achievements) => {
   Debug.Log("Achievements: " + achievements.Length);
});
```

Type Constraints

T* : *Achievement

T* : *new()

27.5.2.11 LoadFriends()

```
virtual void Combu.CombuPlatform.LoadFriends (
            ILocalUser user,
            System.Action< bool > callback )  [virtual]
```

Loads the friends of localUser.

Parameters

user	User.
callback	Callback.

Example of usage:
```
CombuManager.platform.LoadFriends (CombuManager.localUser, (bool success) => {
   Debug.Log("LoadFriends: " + success);
});
```

27.5.2.12 LoadScores() [1/4]

```
virtual void Combu.CombuPlatform.LoadScores (
            ILeaderboard board,
            System.Action< bool > callback )  [virtual]
```

Loads the scores of a Leaderboard.

Parameters

board	Board.
callback	Callback.

Example of usage:
```
Leaderboard myLeaderboard = CombuManager.platform.CreateLeaderboard();
myLeaderboard.id = "123";
myLeaderboard.timeScope = UnityEngine.SocialPlatforms.TimeScope.AllTime;
myLeaderboard.range = new UnityEngine.SocialPlatforms.Range(1, 10);
CombuManager.platform.LoadScores (myLeaderboard, (bool success) => {
   Debug.Log("LoadScores: " + success);
});
```

27.5.2.13 LoadScores() [2/4]

```
virtual void Combu.CombuPlatform.LoadScores (
            string leaderboardID,
            int page,
            int countPerPage,
            System.Action< IScore[]> callback )  [virtual]
```

Loads the scores of a Leaderboard.

Parameters

leaderboardID	Leaderboard I.
page	Page.
countPerPage	Count per page.
callback	Callback.

Example of usage:
```
CombuManager.platform.LoadScores ("1234", 1, 10, (IScore[] scores) => {
   Debug.Log("Scores: " + scores.Length);
});
```

27.5.2.14 LoadScores() [3/4]

```
virtual void Combu.CombuPlatform.LoadScores (
            string leaderboardID,
            System.Action< IScore[]> callback )  [virtual]
```

Loads the scores of a Leaderboard.

Parameters

leaderboardID	Leaderboard I.
callback	Callback.

Example of usage:
```
CombuManager.platform.LoadScores ("1234", (IScore[] scores) => {
   Debug.Log("Scores: " + scores.Length);
});
```

27.5.2.15 LoadScores() [4/4]

```
void Combu.CombuPlatform.LoadScores (
            string leaderboardID,
            TimeScope timeScope,
            int page,
            int countPerPage,
            System.Action< IScore[]> callback )
```

Loads the scores of a Leaderboard.

Parameters

leaderboardID	Leaderboard identifier.
timeScope	Time scope.
page	Page.
countPerPage	Count per page.
callback	Callback.

27.5.2.16 LoadScoresByUser()

```
virtual void Combu.CombuPlatform.LoadScoresByUser (
            string leaderboardId,
            User user,
            eLeaderboardInterval interval,
            int limit,
            System.Action< Score, int, string > callback )  [virtual]
```

Loads the scores of a Leaderboard by user.

Parameters

leaderboardId	Leaderboard identifier.
user	User.
interval	Interval.
callback	Callback.

Example of usage:

```
CombuManager.platform.LoadScores ("1234", CombuManager.localUser, eLeaderboardInterval.Week, 10, (Score
       score, int page, string error) => {
   Debug.Log("Score: " + score.rank);
});
```

27.5.2.17 LoadUsers()

```
virtual void Combu.CombuPlatform.LoadUsers (
            string[] userIDs,
            System.Action< IUserProfile[]> callback )  [virtual]
```

Loads the users by Id.

Parameters

userIDs	User I ds.
callback	Callback.

Example of usage:
```
CombuManager.platform.LoadUsers (new string[] {1234, 5678, 9012}, (IUserProfile[] users) => {
   Debug.Log("Users: " + users.Length);
});
```

27.5.2.18 Logout()

```
virtual void Combu.CombuPlatform.Logout (
             System.Action callback )  [virtual]
```

Logout localUser.

Parameters

callback	Callback.

Example of usage:
```
CombuManager.platform.Logout();
```

27.5.2.19 ReportProgress() [1/2]

```
virtual void Combu.CombuPlatform.ReportProgress (
             string achievementId,
             double progress,
             System.Action< bool > callback )  [virtual]
```

Reports the progress of an Achievement expressed as percentage. The progress will be multiplied by 100.0 and finally rounded to int.

Parameters

achievementID	Achievement identifier.
progress	Progress.
callback	Callback.

Example of usage:
```
CombuManager.platform.ReportProgress ("1234", 1.0, (bool success) => {
   Debug.Log("ReportProgress: " + success);
});
```

27.5.2.20 ReportProgress() [2/2]

```
virtual void Combu.CombuPlatform.ReportProgress (
            string achievementId,
            int progress,
            System.Action< bool > callback )  [virtual]
```

Reports the progress of an Achievement.

Parameters

achievement↩ Id	Achievement identifier.
progress	Progress.
callback	Callback.

Example of usage:
```
CombuManager.platform.ReportProgress ("1234", 100, (bool success) => {
   Debug.Log("ReportProgress: " + success);
});
```

27.5.2.21 ReportScore() [1/3]

```
virtual void Combu.CombuPlatform.ReportScore (
            long score,
            string board,
            System.Action< bool > callback )  [virtual]
```

Reports the score of a Leaderboard.

Parameters

score	Score.
board	Board.
callback	Callback.

Example of usage:
```
CombuManager.platform.ReportScore (1000, "1234", (bool success) => {
   Debug.Log("ReportScore: " + success);
});
```

27.5.2.22 ReportScore() [2/3]

```
virtual void Combu.CombuPlatform.ReportScore (
            string score,
            string board,
            string username,
            System.Action< bool > callback )  [virtual]
```

Reports the score of a Leaderboard.

Parameters

score	Score.
board	Board.
username	Username.
callback	Callback.

Example of usage:

```
CombuManager.platform.ReportScore ("1000", "1234", "username", (bool success) => {
   Debug.Log("ReportScore: " + success);
});
```

27.5.2.23 ReportScore() [3/3]

```
virtual void Combu.CombuPlatform.ReportScore (
            string score,
            string board,
            System.Action< bool > callback )  [virtual]
```

Reports the score of a Leaderboard.

Parameters

score	Score.
board	Board.
callback	Callback.

Example of usage:

```
CombuManager.platform.ReportScore ("1000", "1234", (bool success) => {
   Debug.Log("ReportScore: " + success);
});
```

27.5.2.24 ResetAllAchievements()

```
static void Combu.CombuPlatform.ResetAllAchievements (
            System.Action< bool > callback )  [static]
```

Resets all achievements of localUser.

Parameters

callback	Callback.

27.5.2.25 SetLocalUser()

```
virtual void Combu.CombuPlatform.SetLocalUser (
```

```
User user )  [virtual]
```

Sets the local user. For internal use only (e.g. User.Authenticate), it's not recommended to call this method directly.

Parameters

user	User.

27.5.2.26 ShowAchievementsUI()

```
virtual void Combu.CombuPlatform.ShowAchievementsUI ( )  [virtual]
```

Shows the achievements UI. Requires achievementUIObject and eventually achievementUIFunction set in order to work.

Example of usage:
```
CombuManager.platform.ShowAchievementsUI();
```

27.5.2.27 ShowLeaderboardUI()

```
virtual void Combu.CombuPlatform.ShowLeaderboardUI ( )  [virtual]
```

Shows the leaderboard UI. Requires leaderboardUIObject and eventually leaderboardUIFunction set in order to work.

Example of usage:
```
CombuManager.platform.ShowAchievementsUI();
```

27.6 Combu.CombuServerInfo Class Reference

Class to handle Combu server informations.

Public Member Functions

- **CombuServerInfo** (Hashtable data)
- override string ToString ()

  Returns a T:System.String that represents the current T:Combu.CombuServerInfo.

Public Attributes

- string **version** = string.Empty
- bool **requireUpdate**
- DateTime **time** = DateTime.MinValue
- Hashtable **settings** = new Hashtable()
- bool **responseEncrypted**

27.6.1 Detailed Description

Class to handle Combu server informations.

27.6.2 Member Function Documentation

27.6.2.1 ToString()

```
override string Combu.CombuServerInfo.ToString ( )
```

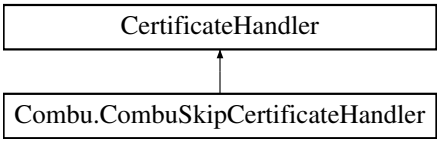
Returns a T:System.String that represents the current T:Combu.CombuServerInfo.

Returns

A T:System.String that represents the current T:Combu.CombuServerInfo.

27.7 Combu.CombuSkipCertificateHandler Class Reference

Inheritance diagram for Combu.CombuSkipCertificateHandler:

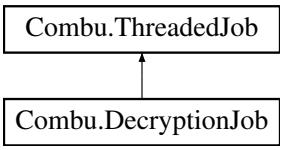


Protected Member Functions

- override bool **ValidateCertificate** (byte[ ] certificateData)

27.8 Combu.DecryptionJob Class Reference

Inheritance diagram for Combu.DecryptionJob:



Public Member Functions

- **DecryptionJob** (CombuEncryption encryption, string text, Action onFinished)

Protected Member Functions

- override void **ThreadFunction** ()
- override void **OnFinished** ()

Properties

- string **decrypted** `[get]`

27.9 Combu.Inventory Class Reference

Public Member Functions

- Inventory ()

  Initializes a new instance of the Inventory class.
- Inventory (string jsonString)

  Initializes a new instance of the Inventory class from a JSON formatted string.
- Inventory (Hashtable hash)

  Initializes a new instance of the Inventory class from a Hashtable.
- virtual void FromJson (string jsonString)

  Initialize the object from a JSON formatted string.
- virtual void FromHashtable (Hashtable hash)

  Initialize the object from a hashtable.
- virtual void Update (System.Action< bool, string > callback)

  Update this inventory item to server.
- virtual void Delete (System.Action< bool, string > callback)

  Delete this inventory item from server.

Static Public Member Functions

- static void Load (string userId, System.Action< Inventory[ ], string > callback)

  Load the inventory items of a User.
- static void Load< T > (string userId, System.Action< T[ ], string > callback)

  Load the inventory of a User.
- static void Delete (long idInventory, System.Action< bool, string > callback)

  Delete the specified inventory item from server.

Public Attributes

- string **name** = ""
- int **quantity** = 0
- Hashtable **customData** = new Hashtable()

Properties

- long **id** `[get]`

27.9.1 Constructor & Destructor Documentation

27.9.1.1 Inventory() [1/3]

```
Combu.Inventory.Inventory ( )
```

Initializes a new instance of the Inventory class.

27.9.1.2 Inventory() [2/3]

```
Combu.Inventory.Inventory (
            string jsonString )
```

Initializes a new instance of the Inventory class from a JSON formatted string.

Parameters

jsonString	JSON formatted string.

27.9.1.3 Inventory() [3/3]

```
Combu.Inventory.Inventory (
            Hashtable hash )
```

Initializes a new instance of the Inventory class from a Hashtable.

Parameters

hash	Hash.

27.9.2 Member Function Documentation

27.9.2.1 Delete() [1/2]

```
static void Combu.Inventory.Delete (
            long idInventory,
            System.Action< bool, string > callback )  [static]
```

Delete the specified inventory item from server.

Parameters

idInventory	Identifier inventory.
callback	Callback.

27.9.2.2 Delete() [2/2]

```
virtual void Combu.Inventory.Delete (
            System.Action< bool, string > callback )  [virtual]
```

Delete this inventory item from server.

Parameters

callback	Callback.

27.9.2.3 FromHashtable()

```
virtual void Combu.Inventory.FromHashtable (
            Hashtable hash )  [virtual]
```

Initialize the object from a hashtable.

Parameters

hash	Hash.

27.9.2.4 FromJson()

```
virtual void Combu.Inventory.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.9.2.5 Load()

```
static void Combu.Inventory.Load (
            string userId,
            System.Action< Inventory[], string > callback )  [static]
```

Load the inventory items of a User.

Parameters

userId	User identifier.
callback	Callback.

27.9.2.6 Load< T >()

```
static void Combu.Inventory.Load< T > (
            string userId,
            System.Action< T[], string > callback )  [static]
```

Load the inventory of a User.

Parameters

userId	User identifier.
callback	Callback.

Template Parameters

T	The 1st type parameter.

Type Constraints

T* : *Inventory

T* : *new()

27.9.2.7 Update()

```
virtual void Combu.Inventory.Update (
            System.Action< bool, string > callback )  [virtual]
```

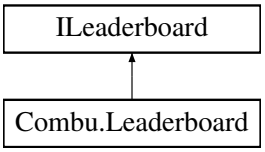
Update this inventory item to server.

Parameters

callback	Callback.

27.10 Combu.Leaderboard Class Reference

Inheritance diagram for Combu.Leaderboard:



Public Member Functions

- **Leaderboard** (string jsonString)
- virtual void FromJson (string jsonString)

  Initialize the object from a JSON formatted string.
- void SetUserFilter (string[ ] userIDs)

  Sets the user filter.
- void **SetGroupFilter** (long groupId)
- void LoadScores (Action< bool > callback)

  Loads the scores.
- virtual void **LoadScoresByUser** (User user, eLeaderboardInterval interval, int limit, Action< Score, int, string > callback)
- virtual void **LoadScoresByUser** (long userId, eLeaderboardInterval interval, int limit, Action< Score, int, string > callback)
- virtual void **LoadScoresByUser** (string userName, eLeaderboardInterval interval, int limit, Action< Score, int, string > callback)
- virtual void LoadScoreByUser (User user, eLeaderboardInterval interval, int limit, Action< Score, int, string > callback)

  Loads the scores of a user on this leaderboard.
- virtual void LoadScoreByUser (long userId, eLeaderboardInterval interval, int limit, Action< Score, int, string > callback)

  Loads the scores by user id.
- virtual void LoadScoreByUser (string userName, eLeaderboardInterval interval, int limit, Action< Score, int, string > callback)

  Loads the scores by userName.

Static Public Member Functions

- static void Load (string leaderboardId, Action< Leaderboard, string > callback)

  Load the specified leaderboardId.
- static void Load< T > (string leaderboardId, Action< Leaderboard, string > callback)

  Load the specified leaderboardId.
- static void LoadScoresByUser (User user, eLeaderboardInterval interval, Action< Score[ ], string > callback)

  Loads the scores of a user.

Public Attributes

- bool **highestScorePerPlayer**
- bool **sumScoresPerPlayer**

Protected Member Functions

- void LoadScoreByUser (long userId, string userName, eLeaderboardInterval interval, int limit, Action< Score, int, string > callback)

  Loads the scores by user.

Properties

- bool **loading** `[get]`
- string **id** `[get, set]`
- string **code** `[get, set]`
- UserScope **userScope** `[get, set]`
- Range **range** `[get, set]`
- TimeScope **timeScope** `[get, set]`
- eLeaderboardTimeScope **customTimescope** `[get, set]`
- IScore **localUserScore** `[get]`
- uint **maxRange** `[get]`
- IScore[ ] **scores** `[get]`
- string **title** `[get]`
- string **description** `[get]`

27.10.1 Member Function Documentation

27.10.1.1 FromJson()

```
virtual void Combu.Leaderboard.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.10.1.2 Load()

```
static void Combu.Leaderboard.Load (
            string leaderboardId,
            Action< Leaderboard, string > callback )  [static]
```

Load the specified leaderboardId.

Parameters

leaderboard↩ Id	Leaderboard identifier.
callback	Callback.

27.10.1.3 Load< T >()

```
static void Combu.Leaderboard.Load< T > (
            string leaderboardId,
            Action< Leaderboard, string > callback )  [static]
```

Load the specified leaderboardId.

Parameters

leaderboard↩ Id	Leaderboard identifier.
callback	Callback.

Template Parameters

T	The 1st type parameter.

Type Constraints

T* : *Leaderboard

T* : *new()

27.10.1.4 LoadScoreByUser() [1/4]

```
virtual void Combu.Leaderboard.LoadScoreByUser (
            long userId,
            eLeaderboardInterval interval,
            int limit,
            Action< Score, int, string > callback )  [virtual]
```

Loads the scores by user id.

Parameters

userId	User identifier.
interval	Interval.
limit	Limit.
callback	Callback.

27.10.1.5 LoadScoreByUser() [2/4]

```
void Combu.Leaderboard.LoadScoreByUser (
            long userId,
            string userName,
            eLeaderboardInterval interval,
            int limit,
            Action< Score, int, string > callback )  [protected]
```

Loads the scores by user.

Parameters

userId	User identifier.
userName	User name.
interval	Interval.
limit	Limit.
callback	Callback.

27.10.1.6 LoadScoreByUser() [3/4]

```
virtual void Combu.Leaderboard.LoadScoreByUser (
            string userName,
            eLeaderboardInterval interval,
            int limit,
            Action< Score, int, string > callback )  [virtual]
```

Loads the scores by userName.

Parameters

userName	User name.
interval	Interval.
limit	Limit.
callback	Callback.

27.10.1.7 LoadScoreByUser() [4/4]

```
virtual void Combu.Leaderboard.LoadScoreByUser (
            User user,
            eLeaderboardInterval interval,
            int limit,
            Action< Score, int, string > callback )  [virtual]
```

Loads the scores of a user on this leaderboard.

Parameters

user	User.
interval	Interval.
callback	Callback.

27.10.1.8 LoadScores()

```
void Combu.Leaderboard.LoadScores (
            Action< bool > callback )
```

Loads the scores.

Parameters

callback	Callback.

27.10.1.9 LoadScoresByUser()

```
static void Combu.Leaderboard.LoadScoresByUser (
            User user,
            eLeaderboardInterval interval,
            Action< Score[], string > callback )  [static]
```

Loads the scores of a user.

Parameters

user	User.
interval	Interval.
callback	Callback.

27.10.1.10 SetUserFilter()

```
void Combu.Leaderboard.SetUserFilter (
            string[] userIDs )
```

Sets the user filter.

Parameters

userIDs	User I ds.

27.11 Combu.Mail Class Reference

Public Member Functions

- virtual void FromJson (string jsonString)

  Initialize the object from a JSON formatted string.
- virtual void FromHashtable (Hashtable hash)

  Initialize the object from a hashtable.
- void Read (Action< bool, string > callback)

  Sends this message and auto-loads the stored data from server on callback (including id after creation).
- void Unread (Action< bool, string > callback)

  Mark this mail as read.
- virtual void Delete (Action< bool, string > callback)

  Delete this instance.

Static Public Member Functions

- static void **Load** (eMailList listType, int pageNumber, int limit, System.Action< Mail[ ], int, int, string > callback)
- static void **Load** (eMailList listType, long idRecipient, long idSender, long idGroup, int pageNumber, int limit, System.Action< Mail[ ], int, int, string > callback)
- static void Load< T > (eMailList listType, long idRecipient, long idSender, long idGroup, int pageNumber, int limit, System.Action< T[ ], int, int, string > callback)

  Load mails list from specified page and number of records.
- static void Send (long recipientId, string subject, string message, bool isPublic, System.Action< bool, string > callback)

  Sends a mail to a user.
- static void Send (long[ ] recipientsId, string subject, string message, bool isPublic, System.Action< bool, string > callback)

  Sends the mail to multiple users.
- static void Send (string recipientUsername, string subject, string message, bool isPublic, System.Action< bool, string > callback)

  Sends a mail to a user.
- static void Send (string[ ] recipientsUsername, string subject, string message, bool isPublic, System.Action< bool, string > callback)

  Sends the mail to multiple users.
- static void SendMailToGroup (long groupId, string subject, string message, bool isPublic, System.Action< bool, string > callback)

  Sends the mail to group.
- static void Send (long recipientId, string subject, string message, bool isPublic, Action< Mail, string > callback)

  Sends a mail to a user.
- static void Send (long[ ] recipientsId, string subject, string message, bool isPublic, Action< Mail, string > callback)

  Sends the mail to multiple users.
- static void Send (string recipientUsername, string subject, string message, bool isPublic, Action< Mail, string > callback)

  Sends a mail to a user.
- static void Send (string[ ] recipientsUsername, string subject, string message, bool isPublic, Action< Mail, string > callback)

  Sends the mail to multiple users.

- static void SendMailToGroup (long groupId, string subject, string message, bool isPublic, Action< Mail, string > callback)

  Sends the mail to group.
- static void Read (long idMail, Action< bool, string > callback)

  Mark a single mail as read.
- static void Read (long[ ] idSenders, long[ ] idGroups, Action< bool, string > callback)

  Mark a set of mails as read.
- static void Unread (long idMail, Action< bool, string > callback)

  Mark a single mail as read.
- static void Delete (long idMail, Action< bool, string > callback)

  Delete the specified Mail.
- static void LoadConversations (Action< ArrayList, int, string > callback)

  Loads the conversations (list of senders as both users and groups).
- static void Count (long[ ] idUsers, long[ ] idGroups, Action< MailCount[ ], string > callback)

  Loads the read/unread messages from list of senders and groups.

Public Attributes

- long **id** = 0
- DateTime **sendDate** = DateTime.MinValue
- DateTime **readDate** = DateTime.MinValue
- string **subject** = ""
- string **message** = ""
- bool **isPublic** = false
- User **fromUser**
- User **toUser**
- long **idGroup** = 0
- UserGroup **toGroup**

Static Protected Member Functions

- static void Send (long[ ] recipientsId, string[ ] recipientsUsername, long recipientGroupId, string subject, string message, bool isPublic, System.Action< bool, string > callback)

  Sends the mail.
- static CombuForm GetMessageForm (long[ ] recipientsId, string[ ] recipientsUsername, long recipientGroup↩ Id, string subject, string message, bool isPublic)

  Gets the message form.
- static void SendMessage (long[ ] recipientsId, string[ ] recipientsUsername, long recipientGroupId, string subject, string message, bool isPublic, Action< bool, string, string > callback)

  Sends the message.
- static void Send (long[ ] recipientsId, string[ ] recipientsUsername, long recipientGroupId, string subject, string message, bool isPublic, Action< Mail, string > callback)

  Sends the mail.
- static void Read (long idMail, long[ ] idSenders, long[ ] idGroups, Action< bool, string > callback)

  Mark a single mail or a set of mails as read.

Properties

- bool **isRead** `[get]`

27.11.1 Member Function Documentation

27.11.1.1 Count()

```
static void Combu.Mail.Count (
            long[] idUsers,
            long[] idGroups,
            Action< MailCount[], string > callback )  [static]
```

Loads the read/unread messages from list of senders and groups.

27.11.1.2 Delete() [1/2]

```
virtual void Combu.Mail.Delete (
            Action< bool, string > callback )  [virtual]
```

Delete this instance.

27.11.1.3 Delete() [2/2]

```
static void Combu.Mail.Delete (
            long idMail,
            Action< bool, string > callback )  [static]
```

Delete the specified Mail.

Parameters

idMail	Identifier mail.
callback	Callback.

27.11.1.4 FromHashtable()

```
virtual void Combu.Mail.FromHashtable (
            Hashtable hash )  [virtual]
```

Initialize the object from a hashtable.

Parameters

hash	Hash.

27.11.1.5 FromJson()

```
virtual void Combu.Mail.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.11.1.6 GetMessageForm()

```
static CombuForm Combu.Mail.GetMessageForm (
            long[] recipientsId,
            string[] recipientsUsername,
            long recipientGroupId,
            string subject,
            string message,
            bool isPublic )  [static], [protected]
```

Gets the message form.

Returns

The message form.

Parameters

recipientsId	Recipients identifier.
recipientsUsername	Recipients username.
recipientGroupId	Recipient group identifier.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.7 Load< T >()

```
static void Combu.Mail.Load< T > (
            eMailList listType,
            long idRecipient,
            long idSender,
```

```
            long idGroup,
            int pageNumber,
            int limit,
            System.Action< T[], int, int, string > callback )  [static]
```

Load mails list from specified page and number of records.

Parameters

pageNumber	Page number.
limit	Limit.

Template Parameters

T	Type of returned objects.

Type Constraints

T* : *Mail

T* : *new()

27.11.1.8 LoadConversations()

```
static void Combu.Mail.LoadConversations (
            Action< ArrayList, int, string > callback )  [static]
```

Loads the conversations (list of senders as both users and groups).

27.11.1.9 Read() [1/4]

```
void Combu.Mail.Read (
            Action< bool, string > callback )
```

Sends this message and auto-loads the stored data from server on callback (including id after creation).

Parameters

callback	Callback.

Mark this mail as read.

Parameters

callback	Callback.

27.11.1.10 Read() [2/4]

```
static void Combu.Mail.Read (
            long idMail,
            Action< bool, string > callback )  [static]
```

Mark a single mail as read.

Parameters

idMail	Identifier mail.
callback	Callback.

27.11.1.11 Read() [3/4]

```
static void Combu.Mail.Read (
            long idMail,
            long[] idSenders,
            long[] idGroups,
            Action< bool, string > callback )  [static], [protected]
```

Mark a single mail or a set of mails as read.

Parameters

idMail	Identifier mail.
idSenders	Identifier senders.
idGroups	Identifier groups.
callback	Callback.

27.11.1.12 Read() [4/4]

```
static void Combu.Mail.Read (
            long[] idSenders,
            long[] idGroups,
            Action< bool, string > callback )  [static]
```

Mark a set of mails as read.

Parameters

idSenders	Identifier senders.
idGroups	Identifier groups.

27.11.1.13 Send() [1/10]

```
static void Combu.Mail.Send (
            long recipientId,
            string subject,
            string message,
            bool isPublic,
            Action< Mail, string > callback )  [static]
```

Sends a mail to a user.

Parameters

recipient↩ Id	Identifier Id of the destination user.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.14 Send() [2/10]

```
static void Combu.Mail.Send (
            long recipientId,
            string subject,
            string message,
            bool isPublic,
            System.Action< bool, string > callback )  [static]
```

Sends a mail to a user.

Parameters

recipient↩ Id	Identifier Id of the destination user.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.15 Send() [3/10]

```
static void Combu.Mail.Send (
            long[] recipientsId,
            string subject,
```

```
            string message,
            bool isPublic,
            Action< Mail, string > callback )  [static]
```

Sends the mail to multiple users.

Parameters

recipients↩ Id	Recipients identifier.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.16 Send() [4/10]

```
static void Combu.Mail.Send (
            long[] recipientsId,
            string subject,
            string message,
            bool isPublic,
            System.Action< bool, string > callback )  [static]
```

Sends the mail to multiple users.

Parameters

recipients↩ Id	Recipients identifier.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.17 Send() [5/10]

```
static void Combu.Mail.Send (
            long[] recipientsId,
            string[] recipientsUsername,
            long recipientGroupId,
            string subject,
            string message,
            bool isPublic,
            Action< Mail, string > callback )  [static], [protected]
```

Sends the mail.

Parameters

recipientsId	Recipients identifier.
recipientsUsername	Recipients username.
recipientGroupId	Recipient group identifier.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.18 Send() [6/10]

```
static void Combu.Mail.Send (
            long[] recipientsId,
            string[] recipientsUsername,
            long recipientGroupId,
            string subject,
            string message,
            bool isPublic,
            System.Action< bool, string > callback )  [static], [protected]
```

Sends the mail.

Parameters

recipientsId	Recipients identifier.
recipientsUsername	Recipients username.
recipientGroupId	Recipient group identifier.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.19 Send() [7/10]

```
static void Combu.Mail.Send (
            string recipientUsername,
            string subject,
            string message,
            bool isPublic,
            Action< Mail, string > callback )  [static]
```

Sends a mail to a user.

Parameters

recipientUsername	Username of the destination user.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.20 Send() [8/10]

```
static void Combu.Mail.Send (
            string recipientUsername,
            string subject,
            string message,
            bool isPublic,
            System.Action< bool, string > callback )  [static]
```

Sends a mail to a user.

Parameters

recipientUsername	Username of the destination user.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.21 Send() [9/10]

```
static void Combu.Mail.Send (
            string[] recipientsUsername,
            string subject,
            string message,
            bool isPublic,
            Action< Mail, string > callback )  [static]
```

Sends the mail to multiple users.

Parameters

recipientsUsername	Recipients username.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.22 Send() [10/10]

```
static void Combu.Mail.Send (
            string[] recipientsUsername,
            string subject,
            string message,
```

```
            bool isPublic,
            System.Action< bool, string > callback )  [static]
```

Sends the mail to multiple users.

Parameters

recipientsUsername	Recipients username.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.23 SendMailToGroup() [1/2]

```
static void Combu.Mail.SendMailToGroup (
            long groupId,
            string subject,
            string message,
            bool isPublic,
            Action< Mail, string > callback )  [static]
```

Sends the mail to group.

Parameters

groupId	Group identifier.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.24 SendMailToGroup() [2/2]

```
static void Combu.Mail.SendMailToGroup (
            long groupId,
            string subject,
            string message,
            bool isPublic,
            System.Action< bool, string > callback )  [static]
```

Sends the mail to group.

Parameters

groupId	Group identifier.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.

27.11.1.25 SendMessage()

```
static void Combu.Mail.SendMessage (
            long[] recipientsId,
            string[] recipientsUsername,
            long recipientGroupId,
            string subject,
            string message,
            bool isPublic,
            Action< bool, string, string > callback )  [static], [protected]
```

Sends the message.

Parameters

recipientsId	Recipients identifier.
recipientsUsername	Recipients username.
recipientGroupId	Recipient group identifier.
subject	Subject.
message	Message.
isPublic	If set to `true` is public.
callback	Callback.

27.11.1.26 Unread() [1/2]

```
void Combu.Mail.Unread (
            Action< bool, string > callback )
```

Mark this mail as read.

Parameters

callback	Callback.

27.11.1.27 Unread() [2/2]

```
static void Combu.Mail.Unread (
            long idMail,
            Action< bool, string > callback )  [static]
```

Mark a single mail as read.

Parameters

idMail	Identifier mail.
callback	Callback.

27.12 Combu.MailCount Class Reference

Public Member Functions

- **MailCount** (Hashtable hash)

Public Attributes

- long **idSender** = 0
- long **idGroup** = 0
- int **read** = 0
- int **unread** = 0

27.13 Combu.Match Class Reference

Classes

- class MatchRoundData

Public Member Functions

- Match (string jsonString)

  Initializes a new instance of the Combu.Match class.
- Match (Hashtable data)

  Initializes a new instance of the Combu.Match class.
- virtual void FromJson (string jsonString)

  Initialize the object from a JSON formatted string.
- virtual void FromHashtable (Hashtable hash)

  Initialize the object from a hashtable.
- virtual void AddUser (Profile user)

  Adds the user to this match.
- virtual void RemoveUser (Profile user)

  Removes the user.
- virtual void RemoveUser (long idUser)

  Removes the user.
- virtual void RemoveUser (string username)

  Removes the user.
- void Score (float score, Action< bool, string > callback)

  Send the specified score.
- void Save (Action< bool, string > callback)

  Save the this instance in the server.
- virtual void Delete (Action< bool, string > callback)

  Delete this instance from the database.

Static Public Member Functions

- static void Delete (long idMatch, Action< bool, string > callback)

  Delete the specified Match.
- static void QuickMatch (bool friendsOnly, SearchCustomData[] customData, int rounds, Action< Match > callback)

  Creates a quick match.
- static void Load (long idTournament, bool activeOnly, string title, Action< Match[]> callback)

  Load the list of Matchs by specified filters.
- static void Load (long idMatch, Action< Match > callback)

  Load the specified Match.

Public Attributes

- long **id** = 0
- long **idTournament** = 0
- string **title** = ""
- int **roundsCount** = 1
- DateTime **dateCreation** = DateTime.Now
- DateTime? **dateExpire** = null
- Hashtable **customData** = new Hashtable()

Protected Member Functions

- virtual void RemoveUser (long idUser, string username)

  Removes the user.

Properties

- List< MatchAccount > **users** `[get]`
- List< MatchRoundData > **rounds** `[get]`
- bool **finished** `[get]`
- bool **searchingQuickMatch** `[get]`

27.13.1 Constructor & Destructor Documentation

27.13.1.1 Match() [1/2]

```
Combu.Match.Match (
            string jsonString )
```

Initializes a new instance of the Combu.Match class.

Parameters

jsonString	JSON string to initialize the instance.

27.13.1.2 Match() [2/2]

```
Combu.Match.Match (
            Hashtable data )
```

Initializes a new instance of the Combu.Match class.

Parameters

data	Data to initialize the instance.

27.13.2 Member Function Documentation

27.13.2.1 AddUser()

```
virtual void Combu.Match.AddUser (
            Profile user )  [virtual]
```

Adds the user to this match.

Parameters

user	User.

27.13.2.2 Delete() [1/2]

```
virtual void Combu.Match.Delete (
            Action< bool, string > callback )  [virtual]
```

Delete this instance from the database.

27.13.2.3 Delete() [2/2]

```
static void Combu.Match.Delete (
            long idMatch,
            Action< bool, string > callback )  [static]
```

Delete the specified Match.

Parameters

idMatch	Identifier match.
callback	Callback.

27.13.2.4 FromHashtable()

```
virtual void Combu.Match.FromHashtable (
            Hashtable hash )  [virtual]
```

Initialize the object from a hashtable.

Parameters

hash	Hash.

27.13.2.5 FromJson()

```
virtual void Combu.Match.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.13.2.6 Load() [1/2]

```
static void Combu.Match.Load (
            long idMatch,
            Action< Match > callback )  [static]
```

Load the specified Match.

Parameters

idMatch	Identifier match.
callback	Callback.

27.13.2.7 Load() [2/2]

```
static void Combu.Match.Load (
            long idTournament,
            bool activeOnly,
            string title,
            Action< Match[]> callback )  [static]
```

Load the list of Matchs by specified filters.

Parameters

idTournament	Identifier tournament.
activeOnly	If set to `true` then displays active matches only, else archived matches.
title	Title.
callback	Callback.

27.13.2.8 QuickMatch()

```
static void Combu.Match.QuickMatch (
            bool friendsOnly,
            SearchCustomData[] customData,
            int rounds,
            Action< Match > callback )  [static]
```

Creates a quick match.

Parameters

callback	Callback.

27.13.2.9 RemoveUser() [1/4]

```
virtual void Combu.Match.RemoveUser (
            long idUser )  [virtual]
```

Removes the user.

Parameters

idUser	Identifier user.

27.13.2.10 RemoveUser() [2/4]

```
virtual void Combu.Match.RemoveUser (
            long idUser,
            string username )  [protected], [virtual]
```

Removes the user.

Parameters

idUser	Identifier user.
username	Username.

27.13.2.11 RemoveUser() [3/4]

```
virtual void Combu.Match.RemoveUser (
            Profile user )  [virtual]
```

Removes the user.

Parameters

user	User.

27.13.2.12 RemoveUser() [4/4]

```
virtual void Combu.Match.RemoveUser (
            string username )  [virtual]
```

Removes the user.

Parameters

username	Username.

27.13.2.13 Save()

```
void Combu.Match.Save (
            Action< bool, string > callback )
```

Save the this instance in the server.

Parameters

callback	Callback.

27.13.2.14 Score()

```
void Combu.Match.Score (
            float score,
            Action< bool, string > callback )
```

Send the specified score.

Parameters

score	Score.
callback	Callback.

27.14 Combu.MatchAccount Class Reference

Public Member Functions

- **MatchAccount** (string jsonString)
- **MatchAccount** (Hashtable data)
- virtual void FromJson (string jsonString)

  Initialize the object from a JSON formatted string.
- virtual void FromHashtable (Hashtable hash)

  Initialize the object from a hashtable.

Public Attributes

- long **id** = 0
- long **idMatch** = 0
- long **idAccount** = 0
- Hashtable **customData** = new Hashtable()
- float **score** = 0
- DateTime? **dateScore** = null
- Profile **user** = null

Properties

- List< MatchRound > **rounds** `[get]`

27.14.1 Member Function Documentation

27.14.1.1 FromHashtable()

```
virtual void Combu.MatchAccount.FromHashtable (
            Hashtable hash )  [virtual]
```

Initialize the object from a hashtable.

Parameters

hash	Hash.

27.14.1.2 FromJson()

```
virtual void Combu.MatchAccount.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.15 Combu.MatchRound Class Reference

Public Member Functions

- **MatchRound** (string jsonString)
- **MatchRound** (Hashtable data)
- virtual void FromJson (string jsonString)

  Initialize the object from a JSON formatted string.
- virtual void FromHashtable (Hashtable hash)

  Initialize the object from a hashtable.

Public Attributes

- long **id** = 0
- long **idMatchAccount** = 0
- float **score** = 0
- DateTime? **dateScore** = null

Properties

- bool **hasScore** `[get]`

27.15.1 Member Function Documentation

27.15.1.1 FromHashtable()

```
virtual void Combu.MatchRound.FromHashtable (
            Hashtable hash )  [virtual]
```

Initialize the object from a hashtable.

Parameters

hash	Hash.

27.15.1.2 FromJson()

```
virtual void Combu.MatchRound.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.16 Combu.Match.MatchRoundData Class Reference

Public Attributes

- List< MatchAccount > **users** = new List<MatchAccount>()
- List< MatchRound > **scores** = new List<MatchRound>()

27.17 Combu.MiniJSON Class Reference

Static Public Member Functions

- static object jsonDecode (string json)

  Parses the string json into a value
- static string jsonEncode (object json)

  Converts a Hashtable / ArrayList / Dictionary(string,string) object into a JSON string
- static bool lastDecodeSuccessful ()

On decoding, this function returns the position at which the parse failed (-1 = no error).

- static int getLastErrorIndex ()

  On decoding, this function returns the position at which the parse failed (-1 = no error).

- static string getLastErrorSnippet ()

  If a decoding error occurred, this function returns a piece of the JSON string at which the error took place. To ease debugging.

Static Protected Member Functions

- static Hashtable **parseObject** (char[ ] json, ref int index)
- static ArrayList **parseArray** (char[ ] json, ref int index)
- static object **parseValue** (char[ ] json, ref int index, ref bool success)
- static string **parseString** (char[ ] json, ref int index)
- static double **parseNumber** (char[ ] json, ref int index)
- static int **getLastIndexOfNumber** (char[ ] json, int index)
- static void **eatWhitespace** (char[ ] json, ref int index)
- static int **lookAhead** (char[ ] json, int index)
- static int **nextToken** (char[ ] json, ref int index)
- static bool **serializeObjectOrArray** (object objectOrArray, StringBuilder builder)
- static bool **serializeObject** (Hashtable anObject, StringBuilder builder)
- static bool **serializeDictionary** (Dictionary< string, string > dict, StringBuilder builder)
- static bool **serializeArray** (ArrayList anArray, StringBuilder builder)
- static bool **serializeValue** (object value, StringBuilder builder)
- static void **serializeString** (string aString, StringBuilder builder)
- static void **serializeNumber** (double number, StringBuilder builder)

Static Protected Attributes

- static int lastErrorIndex = -1

  On decoding, this value holds the position at which the parse failed (-1 = no error).

- static string **lastDecode** = ""

27.17.1 Member Function Documentation

27.17.1.1 getLastErrorIndex()

```
static int Combu.MiniJSON.getLastErrorIndex ( )  [static]
```

On decoding, this function returns the position at which the parse failed (-1 = no error).

Returns

27.17.1.2 getLastErrorSnippet()

```
static string Combu.MiniJSON.getLastErrorSnippet ( )  [static]
```

If a decoding error occurred, this function returns a piece of the JSON string at which the error took place. To ease debugging.

Returns

27.17.1.3 jsonDecode()

```
static object Combu.MiniJSON.jsonDecode (
            string json )  [static]
```

Parses the string json into a value

Parameters

json	A JSON string.

Returns

An ArrayList, a Hashtable, a double, a string, null, true, or false

27.17.1.4 jsonEncode()

```
static string Combu.MiniJSON.jsonEncode (
            object json )  [static]
```

Converts a Hashtable / ArrayList / Dictionary(string,string) object into a JSON string

Parameters

json	A Hashtable / ArrayList

Returns

A JSON encoded string, or null if object 'json' is not serializable

27.17.1.5 lastDecodeSuccessful()

```
static bool Combu.MiniJSON.lastDecodeSuccessful ( )  [static]
```

On decoding, this function returns the position at which the parse failed (-1 = no error).

Returns

27.17.2 Member Data Documentation

27.17.2.1 lastErrorIndex

```
int Combu.MiniJSON.lastErrorIndex = -1  [static], [protected]
```

On decoding, this value holds the position at which the parse failed (-1 = no error).

27.18 Combu.News Class Reference

Public Member Functions

- virtual void FromJson (string jsonString)
  Initialize the object from a JSON formatted string.
- virtual void FromHashtable (Hashtable hash)
  Initialize the object from a hashtable.

Static Public Member Functions

- static void Load (int pageNumber, int limit, Action< News[ ], int, int, string > callback)
  Load the specified pageNumber and limit of news.
- static void Load< T > (int pageNumber, int limit, Action< News[ ], int, int, string > callback)
  Load the specified pageNumber and limit of news.

Public Attributes

- long **id** = 0
- DateTime **date** = DateTime.MinValue
- string **subject** = ""
- string **message** = ""
- string **url** = ""

27.18.1 Member Function Documentation

27.18.1.1 FromHashtable()

```
virtual void Combu.News.FromHashtable (
            Hashtable hash )  [virtual]
```

Initialize the object from a hashtable.

Parameters

hash	Hash.

27.18.1.2 FromJson()

```
virtual void Combu.News.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.18.1.3 Load()

```
static void Combu.News.Load (
            int pageNumber,
            int limit,
            Action< News[], int, int, string > callback )  [static]
```

Load the specified pageNumber and limit of news.

Parameters

pageNumber	Page number.
limit	Limit.
callback	Callback.

27.18.1.4 Load< T >()

```
static void Combu.News.Load< T > (
            int pageNumber,
            int limit,
            Action< News[], int, int, string > callback )  [static]
```

Load the specified pageNumber and limit of news.

Parameters

pageNumber	Page number.
limit	Limit.
callback	Callback.

Template Parameters

T	The 1st type parameter.

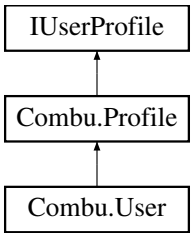
Type Constraints

T* : *News

T* : *new()

27.19 Combu.Profile Class Reference

Inheritance diagram for Combu.Profile:



Public Member Functions

- Profile (string jsonString)

  Initializes a new instance of the CBUser class from a JSON formatted string.
- Profile (Hashtable hash)

  Initializes a new instance of the CBUser class from a Hashtable.
- virtual void FromJson (string jsonString)

  Initialize the object from a JSON formatted string.
- virtual void FromHashtable (Hashtable hash)

  Initialize the object from a hashtable.

Public Attributes

- string email

  The email address.
- Hashtable customData = new Hashtable()

  The global custom data shared between apps.
- Hashtable appCustomData = new Hashtable()

  The custom data for the current app scope.

Protected Attributes

- long **_id** = 0
- string **_userName** = ""
- Texture2D **_image**
- string **_sessionToken** = ""
- System.? DateTime **_lastSeen**

Properties

- List< ProfilePlatform > **platforms** [get]
- string id [get]

  Gets the identifier value as string.
- long idLong [get]

  Gets the identifier value as long. id is just a ToString() of idLong, since Ids are stored as long in the database.
- string userName [get, set]

  Gets or sets the name of the user.
- bool isFriend [get]

  Gets a value indicating whether this Combu.Profile is a friend of the local user.
- virtual UserState state [get]

  Gets the online state.
- Texture2D image [get, set]

  Gets or sets the image.
- string sessionToken [get]

  Gets the session token.
- System.? DateTime lastSeen [get]

  Gets the last seen date/time.

27.19.1 Constructor & Destructor Documentation

27.19.1.1 Profile() [1/2]

```
Combu.Profile.Profile (
            string jsonString )
```

Initializes a new instance of the CBUser class from a JSON formatted string.

Parameters

jsonString	JSON formatted string.

27.19.1.2 Profile() [2/2]

```
Combu.Profile.Profile (
            Hashtable hash )
```

Initializes a new instance of the CBUser class from a Hashtable.

Parameters

hash	Hash.

27.19.2 Member Function Documentation

27.19.2.1 FromHashtable()

```
virtual void Combu.Profile.FromHashtable (
            Hashtable hash )  [virtual]
```

Initialize the object from a hashtable.

Parameters

hash	Hash.

27.19.2.2 FromJson()

```
virtual void Combu.Profile.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.19.3 Member Data Documentation

27.19.3.1 appCustomData

```
Hashtable Combu.Profile.appCustomData = new Hashtable()
```

The custom data for the current app scope.

27.19.3.2 customData

```
Hashtable Combu.Profile.customData = new Hashtable()
```

The global custom data shared between apps.

27.19.3.3 email

```
string Combu.Profile.email
```

The email address.

27.19.4 Property Documentation

27.19.4.1 id

```
string Combu.Profile.id  [get]
```

Gets the identifier value as string.

The identifier.

27.19.4.2 idLong

```
long Combu.Profile.idLong  [get]
```

Gets the identifier value as long. id is just a ToString() of idLong, since Ids are stored as long in the database.

The identifier long.

27.19.4.3 image

```
Texture2D Combu.Profile.image  [get], [set]
```

Gets or sets the image.

The image.

27.19.4.4 isFriend

```
bool Combu.Profile.isFriend  [get]
```

Gets a value indicating whether this Combu.Profile is a friend of the local user.

`true` if is friend; otherwise, `false`.

27.19.4.5 lastSeen

```
System.?  DateTime Combu.Profile.lastSeen  [get]
```

Gets the last seen date/time.

The last seen.

27.19.4.6 sessionToken

```
string Combu.Profile.sessionToken  [get]
```

Gets the session token.

The session token.

27.19.4.7 state

```
virtual UserState Combu.Profile.state  [get]
```

Gets the online state.

The state.

27.19.4.8 userName

```
string Combu.Profile.userName  [get], [set]
```

Gets or sets the name of the user.

The name of the user.

27.20 Combu.ProfilePlatform Class Reference

Public Member Functions

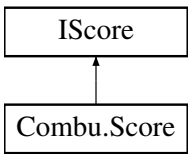
- **ProfilePlatform** (Hashtable data)

Public Attributes

- string **platformKey** = ""
- string **platformId** = ""

27.21 Combu.Score Class Reference

Inheritance diagram for Combu.Score:



Public Member Functions

- **Score** (string idLeaderboard, int rank, User user, double score)
- **Score** (string idLeaderboard, string codeLeaderboard, int rank, User user, double score)
- void Initialize (string idLeaderboard, int rank, Profile user, double score)

  Initialize this Score with the specified idLeaderboard, rank, user and score.
- void Initialize (string idLeaderboard, string codeLeaderboard, int rank, Profile user, double score)

  Initialize this Score with the specified idLeaderboard, rank, user and score.
- void ReportScore (Action< bool > callback)

  Reports the score.

Properties

- string **leaderboardID** `[get, set]`
- string **leaderboardCode** `[get, set]`
- DateTime **date** `[get]`
- string **formattedValue** `[get]`
- string? **userID** `[get]`
- Profile **user** `[get]`
- int **rank** `[get]`
- long **value** `[get, set]`
- float **valueFloat** `[get, set]`
- double **valueDouble** `[get, set]`

27.21.1 Member Function Documentation

27.21.1.1 Initialize() [1/2]

```
void Combu.Score.Initialize (
            string idLeaderboard,
            int rank,
            Profile user,
            double score )
```

Initialize this Score with the specified idLeaderboard, rank, user and score.

Parameters

idLeaderboard	Identifier leaderboard.
rank	Rank.
user	User.
score	Score.

27.21.1.2 Initialize() [2/2]

```
void Combu.Score.Initialize (
            string idLeaderboard,
            string codeLeaderboard,
            int rank,
            Profile user,
            double score )
```

Initialize this Score with the specified idLeaderboard, rank, user and score.

Parameters

idLeaderboard	Identifier of the leaderboard.
codeLeaderboard	Code of the leaderboard.
rank	Rank.
user	User.
score	Score.

27.21.1.3 ReportScore()

```
void Combu.Score.ReportScore (
            Action< bool > callback )
```

Reports the score.

Parameters

callback	Callback.

27.22 Combu.SearchCustomData Class Reference

Class to handle generic a generic search filter.

Public Member Functions

- **SearchCustomData** (string key, eSearchOperator op, string value)

Public Attributes

- string **key**
- eSearchOperator **op**
- string **value**

27.22.1 Detailed Description

Class to handle generic a generic search filter.

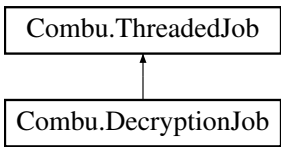
27.23 Combu.CombuUtils.ServerResponse.SuccessMessage Class Reference

Properties

- bool **success** `[get, set]`
- string **message** `[get, set]`

27.24 Combu.ThreadedJob Class Reference

Inheritance diagram for Combu.ThreadedJob:



Public Member Functions

- virtual void **Start** ()
- virtual void **Abort** ()
- virtual bool **Update** ()
- IEnumerator **WaitFor** ()

Protected Member Functions

- virtual void **ThreadFunction** ()
- virtual void **OnFinished** ()

Properties

- bool **IsDone** `[get, set]`

27.25 Combu.CombuUtils.ServerResponse.Server.Token Class Reference

Properties

- string **token** `[get, set]`
- string **xml** `[get, set]`
- string **modulus** `[get, set]`
- string **exponent** `[get, set]`

27.26 Combu.Tournament Class Reference

Tournaments class.

Public Member Functions

- Tournament (string jsonString)

  Initializes a new instance of the Combu.Tournament class.
- Tournament (Hashtable data)

  Initializes a new instance of the Combu.Tournament class.
- virtual void FromJson (string jsonString)

  Initialize the object from a JSON formatted string.
- virtual void FromHashtable (Hashtable hash)

  Initialize the object from a hashtable.
- virtual void Save (Action< bool, string > callback)

  Save this instance in the database.
- virtual void Delete (Action< bool, string > callback)

  Delete this instance from the database.
- void **Leave** (Action< bool, string > callback)

Static Public Member Functions

- static void Delete (long idTournament, Action< bool, string > callback)

  Delete the specified Tournament.
- static void Load (bool finished, SearchCustomData[ ] customData, System.Action< Tournament[ ]> callback)

  Load the list of tournaments with the specified filters.
- static void Load (long id, System.Action< Tournament > callback)

  Load the tournament with the specified id.
- static void **Leave** (long idTournament, long idUser, Action< bool, string > callback)
- static Tournament QuickTournament (Profile[ ] users)

  Creates a quick tournament. If the number of other users is 1 then it creates 3 rounds, else 2 rounds for each enemy.

Public Attributes

- long **id** = 0
- long **idOwner** = 0
- string **title** = ""
- DateTime **dateCreation** = DateTime.Now
- DateTime? **dateFinished** = null
- Hashtable **customData** = new Hashtable()

Properties

- Profile **owner** `[get]`
- List< Match > **matches** `[get]`
- bool **finished** `[get]`

27.26.1 Detailed Description

Tournaments class.

27.26.2 Constructor & Destructor Documentation

27.26.2.1 Tournament() [1/2]

```
Combu.Tournament.Tournament (
            string jsonString )
```

Initializes a new instance of the Combu.Tournament class.

Parameters

jsonString	JSON string to initialize the instance.

27.26.2.2 Tournament() [2/2]

```
Combu.Tournament.Tournament (
            Hashtable data )
```

Initializes a new instance of the Combu.Tournament class.

Parameters

data	Data to initialize the instance.

27.26.3 Member Function Documentation

27.26.3.1 Delete() [1/2]

```
virtual void Combu.Tournament.Delete (
            Action< bool, string > callback )  [virtual]
```

Delete this instance from the database.

27.26.3.2 Delete() [2/2]

```
static void Combu.Tournament.Delete (
            long idTournament,
            Action< bool, string > callback )  [static]
```

Delete the specified Tournament.

Parameters

idTournament	Identifier tournament.
callback	Callback.

27.26.3.3 FromHashtable()

```
virtual void Combu.Tournament.FromHashtable (
            Hashtable hash )  [virtual]
```

Initialize the object from a hashtable.

Parameters

hash	Hash.

27.26.3.4 FromJson()

```
virtual void Combu.Tournament.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.26.3.5 Load() [1/2]

```
static void Combu.Tournament.Load (
            bool finished,
            SearchCustomData[] customData,
            System.Action< Tournament[]> callback )  [static]
```

Load the list of tournaments with the specified filters.

Parameters

finished	If set to `true` then it returns also the finished tournaments.
customData	Custom data.
callback	Callback.

27.26.3.6 Load() [2/2]

```
static void Combu.Tournament.Load (
            long id,
            System.Action< Tournament > callback )  [static]
```

Load the tournament with the specified id.

Parameters

id	Identifier.
callback	Callback.

27.26.3.7 QuickTournament()

```
static Tournament Combu.Tournament.QuickTournament (
            Profile[] users )  [static]
```

Creates a quick tournament. If the number of other users is 1 then it creates 3 rounds, else 2 rounds for each enemy.

Returns

The tournament.

Parameters

users	The list of other users (excluding localUser).

27.26.3.8 Save()

```
virtual void Combu.Tournament.Save (
            Action< bool, string > callback )  [virtual]
```

Save this instance in the database.

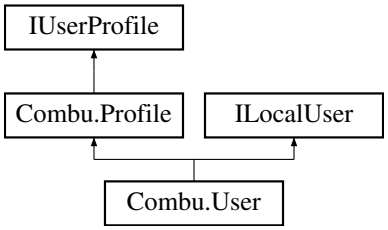
Parameters

callback	Callback.

27.27 Combu.User Class Reference

User class implementing the Unity built-in Social interfaces (specialized IUserProfile, ILocalUser).

Inheritance diagram for Combu.User:



Public Member Functions

- **User** (bool authenticated)
- **User** (string jsonString)
- **User** (Hashtable hash)
- virtual void FromUser (User source)

  Sets the data from another user object.
- virtual void Authenticate (Action< bool > callback)

  Authenticate the user.
- virtual void Authenticate (Action< bool, string > callback)

  Authenticate the user.
- virtual void Authenticate (string password, Action< bool, string > callback)

  Authenticate the user with the specified password.
- virtual void CreateGuest (Action< bool, string > callback)

  Creates a guest account.
- virtual void LoadFriends (Action< bool > callback)

  Loads the friends of the current logged user.
- virtual void LoadFriends (eContactType contactType, Action< bool > callback)

  Loads the friends of the current logged user.
- virtual void LoadFriends< T > (eContactType contactType, Action< bool > callback)

  Loads the friends of the current logged user.
- virtual void Update (Action< bool, string > callback, bool requestUpdateFromServer=true, bool requestReplaceCustomData=false, bool requestReplaceAppCustomData=false)

  Update or Create this user to server, whether id is positive and greater than zero.
- virtual void Delete (Action< bool, string > callback)

  Delete this instance from the server.
- void Load (Action< bool > callback)

  Load of the current user from server.
- virtual void ResetPassword (Action< bool, string > callback)

  Resets the password of this user.

- virtual void ChangePassword (string newPassword, Action< bool, string > callback)

  Changes the password of this user.
- virtual void AuthenticatePlatform (string platformKey, string platformId, Action< bool, string > callback)

  Authenticates the user from an external platform (like Facebook, Game Center, GooglePlay etc). Note you are the only responsible for the external authentication, Combu only stores the info that you send.
- virtual void **AuthenticatePlatform**< **T** > (string platformKey, string platformId, Action< bool, string > callback)
- virtual void LinkAccount (string username, string password, Action< bool, string > callback)

  Links the currently logged account to another: all the platforms Ids of the current user will be transferred to the new account and the current account will be deleted.
- virtual void LinkPlatform (string platformKey, string platformId, Action< bool, string > callback)

  Links a new platform Id to the logged account.
- void GetContact (string idOrUsername, Action< bool, string, eContactType?, User > callback)

  Gets the contact information with loggedAccount if there's a pending request or is in the friends/ignored lists. If there's no relation found then the callback will return a failure.
- void GetContact< T > (string idOrUsername, Action< bool, string, eContactType?, User > callback)

  Gets the contact information with loggedAccount if there's a pending request or is in the friends/ignored lists. If there's no relation found then the callback will return a failure.
- void AddContact (string otherUsername, eContactType contactType, Action< bool, string > callback)

  Adds the contact.
- void AddContact (long otherId, eContactType contactType, Action< bool, string > callback)

  Adds the contact.
- void AddContact (Profile otherUser, eContactType contactType, Action< bool, string > callback)

  Adds the contact.
- void RemoveContact (string otherUsername, Action< bool, string > callback)

  Removes the contact.
- void RemoveContact (long otherId, Action< bool, string > callback)

  Removes the contact.
- void RemoveContact (Profile otherUser, Action< bool, string > callback)

  Removes the contact.

Static Public Member Functions

- static bool CanAutoLogin (out string username, out string password)

  Determines if can auto-login and output the stored username and password.
- static void AutoLogin (Action< bool, string > callback)

  Automatically logins with the credentials stored in PlayerPrefs.
- static void **AutoLogin**< **T** > (Action< bool, string > callback)
- static void ResendActivationCode (string usernameEmailOrId, Action< bool, string > callback)

  Resends the activation code by email.
- static void Delete (string username, string password, Action< bool, string > callback)

  Delete a user from the server.
- static void Load (User[ ] updateUsers, Action< bool > callback)

  Reload the specified users from server (by Id).
- static void Load (long userId, Action< User > callback)

  Loads a user by Id.
- static void Load (string userName, Action< User > callback)

  Loads a user by userName.
- static void Load (long[ ] userIds, Action< User[ ]> callback)

  Loads the users by Id.
- static void Load (string[ ] userNames, Action< User[ ]> callback)

Loads the users by userName.

- static void Load< T > (string username, string email, SearchCustomData[ ] customData, bool isOnline, int pageNumber, int limit, Action< T[ ], int, int > callback)

  Loads the users by searching for the specified parameters.
- static void Random< T > (SearchCustomData[ ] customData, int count, Action< T[ ]> callback)

  Loads a specified count of random users.
- static void Exists (string username, string email, Action< bool, string > callback)

  Verify if it exists an account with the specified username and email.
- static void ResetPassword (long idUser, Action< bool, string > callback)

  Resets the password of a user by Id Account.
- static void ResetPassword (string username, Action< bool, string > callback)

  Resets the password of a user by Username.
- static void ChangePassword (long idUser, string username, string resetCode, string newPassword, Action< bool, string > callback)

  Changes the password of a user.
- static void **LoadPlatform** (IEnumerable< string > platformKeys, IEnumerable< string > platformIds, Action< User[ ]> callback)
- static void **LoadPlatform**< **T** > (IEnumerable< string > platformKeys, IEnumerable< string > platformIds, Action< T[ ]> callback)

Public Attributes

- string **password**

Protected Member Functions

- virtual void StoreUserCredentials (string storeUserName, string storePassword)

  Stores the user credentials.

Properties

- IUserProfile[ ] **friends** `[get]`
- IUserProfile[ ] **ignored** `[get]`
- IUserProfile[ ] **requests** `[get]`
- IUserProfile[ ] **pendingRequests** `[get]`
- bool **authenticated** `[get]`
- virtual bool **underage** `[get]`

Additional Inherited Members

27.27.1 Detailed Description

User class implementing the Unity built-in Social interfaces (specialized IUserProfile, ILocalUser).

27.27.2 Member Function Documentation

27.27.2.1 AddContact() [1/3]

```
void Combu.User.AddContact (
            long otherId,
            eContactType contactType,
            Action< bool, string > callback )
```

Adds the contact.

Parameters

otherId	Other identifier.
contactType	Contact type.
callback	Callback.

27.27.2.2 AddContact() [2/3]

```
void Combu.User.AddContact (
            Profile otherUser,
            eContactType contactType,
            Action< bool, string > callback )
```

Adds the contact.

Parameters

otherUser	Other user.
contactType	Contact type.
callback	Callback.

27.27.2.3 AddContact() [3/3]

```
void Combu.User.AddContact (
            string otherUsername,
            eContactType contactType,
            Action< bool, string > callback )
```

Adds the contact.

Parameters

otherUsername	Other username.
contactType	Contact type.
callback	Callback.

27.27.2.4 Authenticate() [1/3]

```
virtual void Combu.User.Authenticate (
            Action< bool > callback )  [virtual]
```

Authenticate the user.

Parameters

callback	Callback.

27.27.2.5 Authenticate() [2/3]

```
virtual void Combu.User.Authenticate (
            Action< bool, string > callback )  [virtual]
```

Authenticate the user.

Parameters

callback	Callback.

27.27.2.6 Authenticate() [3/3]

```
virtual void Combu.User.Authenticate (
            string password,
            Action< bool, string > callback )  [virtual]
```

Authenticate the user with the specified password.

Parameters

password	Password.
callback	Callback.

Template Parameters

T	Type for User.

27.27.2.7 AuthenticatePlatform()

```
virtual void Combu.User.AuthenticatePlatform (
            string platformKey,
            string platformId,
            Action< bool, string > callback )  [virtual]
```

Authenticates the user from an external platform (like Facebook, Game Center, GooglePlay etc). Note you are the only responsible for the external authentication, Combu only stores the info that you send.

Parameters

platformKey	Platform key.
platformId	Platform identifier.
callback	Callback.

27.27.2.8 AutoLogin()

```
static void Combu.User.AutoLogin (
            Action< bool, string > callback )  [static]
```

Automatically logins with the credentials stored in PlayerPrefs.

Parameters

callback	Callback.

27.27.2.9 CanAutoLogin()

```
static bool Combu.User.CanAutoLogin (
            out string username,
            out string password )  [static]
```

Determines if can auto-login and output the stored username and password.

Returns

`true` if can auto-login; otherwise, `false`.

Parameters

username	Username stored.
password	Password stored.

27.27.2.10 ChangePassword() [1/2]

```
static void Combu.User.ChangePassword (
            long idUser,
            string username,
            string resetCode,
```

```
string newPassword,
Action< bool, string > callback )  [static]
```

Changes the password of a user.

Parameters

idUser	Identifier user.
username	Username.
resetCode	Reset code.
newPassword	New password.
callback	Callback.

27.27.2.11 ChangePassword() [2/2]

```
virtual void Combu.User.ChangePassword (
            string newPassword,
            Action< bool, string > callback )  [virtual]
```

Changes the password of this user.

Parameters

newPassword	New password.
callback	Callback.

27.27.2.12 CreateGuest()

```
virtual void Combu.User.CreateGuest (
            Action< bool, string > callback )  [virtual]
```

Creates a guest account.

Parameters

callback	Callback.

27.27.2.13 Delete() [1/2]

```
virtual void Combu.User.Delete (
            Action< bool, string > callback )  [virtual]
```

Delete this instance from the server.

Parameters

callback	Callback.

27.27.2.14 Delete() [2/2]

```
static void Combu.User.Delete (
            string username,
            string password,
            Action< bool, string > callback )  [static]
```

Delete a user from the server.

Parameters

username	Username.
password	Password.
callback	Callback.

27.27.2.15 Exists()

```
static void Combu.User.Exists (
            string username,
            string email,
            Action< bool, string > callback )  [static]
```

Verify if it exists an account with the specified username and email.

Parameters

username	Username.
email	Email.
callback	Callback.

27.27.2.16 FromUser()

```
virtual void Combu.User.FromUser (
            User source )  [virtual]
```

Sets the data from another user object.

Parameters

source	Source.

27.27.2.17 GetContact()

```
void Combu.User.GetContact (
            string idOrUsername,
            Action< bool, string, eContactType?, User > callback )
```

Gets the contact information with loggedAccount if there's a pending request or is in the friends/ignored lists. If there's no relation found then the callback will return a failure.

Parameters

idOrUsername	User id or username.
callback	Callback.

27.27.2.18 GetContact< T >()

```
void Combu.User.GetContact< T > (
            string idOrUsername,
            Action< bool, string, eContactType?, User > callback )
```

Gets the contact information with loggedAccount if there's a pending request or is in the friends/ignored lists. If there's no relation found then the callback will return a failure.

Parameters

idOrUsername	User id or username.
callback	Callback.

Type Constraints

T* : *User

T* : *new()

27.27.2.19 LinkAccount()

```
virtual void Combu.User.LinkAccount (
            string username,
            string password,
            Action< bool, string > callback )  [virtual]
```

Links the currently logged account to another: all the platforms Ids of the current user will be transferred to the new account and the current account will be deleted.

Parameters

username	Username.
password	Password.
callback	Callback.

27.27.2.20 LinkPlatform()

```
virtual void Combu.User.LinkPlatform (
            string platformKey,
            string platformId,
            Action< bool, string > callback )  [virtual]
```

Links a new platform Id to the logged account.

Parameters

platformKey	Platform key.
platformId	Platform identifier.
callback	Callback.

27.27.2.21 Load() [1/6]

```
void Combu.User.Load (
            Action< bool > callback )
```

Load of the current user from server.

Parameters

callback	Callback.

27.27.2.22 Load() [2/6]

```
static void Combu.User.Load (
            long userId,
            Action< User > callback )  [static]
```

Loads a user by Id.

Parameters

userId	User Id.
callback	Callback.

27.27.2.23 Load() [3/6]

```
static void Combu.User.Load (
            long[] userIds,
            Action< User[]> callback )  [static]
```

Loads the users by Id.

Parameters

userIds	User Ids.
callback	Callback.
updateUser	If passed its data will be replaced with the server result.

27.27.2.24 Load() [4/6]

```
static void Combu.User.Load (
            string userName,
            Action< User > callback )  [static]
```

Loads a user by userName.

Parameters

userName	User Name.
callback	Callback.

27.27.2.25 Load() [5/6]

```
static void Combu.User.Load (
            string[] userNames,
            Action< User[]> callback )  [static]
```

Loads the users by userName.

Parameters

userNames	User Names.
callback	Callback.

27.27.2.26 Load() [6/6]

```
static void Combu.User.Load (
```

```
            User[] updateUsers,
            Action< bool > callback )  [static]
```

Reload the specified users from server (by Id).

Parameters

updateUsers	List of users.
callback	Callback.

27.27.2.27 Load< T >()

```
static void Combu.User.Load< T > (
            string username,
            string email,
            SearchCustomData[] customData,
            bool isOnline,
            int pageNumber,
            int limit,
            Action< T[], int, int > callback )  [static]
```

Loads the users by searching for the specified parameters.

Parameters

username	Username.
email	Email.
customData	Custom data.
pageNumber	Page number.
limit	Limit.
callback	Callback.

Type Constraints

T* : *User

T* : *new()

27.27.2.28 LoadFriends() [1/2]

```
virtual void Combu.User.LoadFriends (
            Action< bool > callback )  [virtual]
```

Loads the friends of the current logged user.

Parameters

callback	Callback.

27.27.2.29 LoadFriends() [2/2]

```
virtual void Combu.User.LoadFriends (
            eContactType contactType,
            Action< bool > callback )  [virtual]
```

Loads the friends of the current logged user.

Parameters

contactType	Contact type.
callback	Callback.

27.27.2.30 LoadFriends< T >()

```
virtual void Combu.User.LoadFriends< T > (
            eContactType contactType,
            Action< bool > callback )  [virtual]
```

Loads the friends of the current logged user.

Parameters

contactType	Contact type.
callback	Callback.

Template Parameters

T	Type for User.

Type Constraints

T* : *User

T* : *new()

27.27.2.31 Random< T >()

```
static void Combu.User.Random< T > (
            SearchCustomData[] customData,
            int count,
            Action< T[]> callback )  [static]
```

Loads a specified count of random users.

Parameters

customData	Custom data.
count	Count.
callback	Callback.

Type Constraints

T* : *User

T* : *new()

27.27.2.32 RemoveContact() [1/3]

```
void Combu.User.RemoveContact (
            long otherId,
            Action< bool, string > callback )
```

Removes the contact.

Parameters

otherId	Other identifier.
callback	Callback.

27.27.2.33 RemoveContact() [2/3]

```
void Combu.User.RemoveContact (
            Profile otherUser,
            Action< bool, string > callback )
```

Removes the contact.

Parameters

otherUser	Other user.
callback	Callback.

27.27.2.34 RemoveContact() [3/3]

```
void Combu.User.RemoveContact (
            string otherUsername,
            Action< bool, string > callback )
```

Removes the contact.

Parameters

otherUsername	Other username.
callback	Callback.

27.27.2.35 ResendActivationCode()

```
static void Combu.User.ResendActivationCode (
            string usernameEmailOrId,
            Action< bool, string > callback )  [static]
```

Resends the activation code by email.

Parameters

usernameEmail↩ OrId	Username, e-mail or identifier.
callback	Callback.

27.27.2.36 ResetPassword() [1/3]

```
virtual void Combu.User.ResetPassword (
            Action< bool, string > callback )  [virtual]
```

Resets the password of this user.

Parameters

callback	Callback.

27.27.2.37 ResetPassword() [2/3]

```
static void Combu.User.ResetPassword (
            long idUser,
            Action< bool, string > callback )  [static]
```

Resets the password of a user by Id Account.

Parameters

idUser	Identifier user.
callback	Callback.

27.27.2.38 ResetPassword() [3/3]

```
static void Combu.User.ResetPassword (
            string username,
            Action< bool, string > callback )  [static]
```

Resets the password of a user by Username.

Parameters

username	Username.
callback	Callback.

27.27.2.39 StoreUserCredentials()

```
virtual void Combu.User.StoreUserCredentials (
            string storeUserName,
            string storePassword )  [protected], [virtual]
```

Stores the user credentials.

Parameters

storeUserName	User name.
storePassword	Password.

27.27.2.40 Update()

```
virtual void Combu.User.Update (
            Action< bool, string > callback,
```

```
bool requestUpdateFromServer = true,
bool requestReplaceCustomData = false,
bool requestReplaceAppCustomData = false )  [virtual]
```

Update or Create this user to server, whether id is positive and greater than zero.

Parameters

callback	Callback.

27.28 Combu.UserFile Class Reference

Public Member Functions

- UserFile ()

  Initializes a new instance of the UserFile class.
- UserFile (string jsonString)

  Initializes a new instance of the UserFile class from a JSON formatted string.
- UserFile (Hashtable hash)

  Initializes a new instance of the UserFile class from a Hashtable.
- virtual void FromJson (string jsonString)

  Initialize the object from a JSON formatted string.
- virtual void FromHashtable (Hashtable hash)

  Initialize the object from a hashtable.
- virtual void Update (byte[ ] contents, Action< bool, string > callback)

  Update this file to server.
- virtual void Delete (Action< bool, string > callback)

  Deletes this UserFile from server.
- virtual void View (Action< bool, string > callback)

  Increase the View count of this UserFile.
- virtual void Like (Action< bool, string > callback)

  Increase the Like count of this UserFile.
- void Download (Action< byte[ ]> callback)

  Download the bytes from the url.

Static Public Member Functions

- static void Load (long fileId, Action< UserFile, string > callback)

  Load the file file with the specified Id and callback.
- static void Load (string userId, bool includeShared, int pageNumber, int countPerPage, Action< UserFile[ ], int, int, string > callback)

  Load the UserFiles with the specified userId, includeShared, pageNumber, countPerPage and callback.
- static void Load< T > (string userId, bool includeShared, int pageNumber, int countPerPage, Action< UserFile[ ], int, int, string > callback)

  Load the UserFiles with the specified userId, includeShared, pageNumber, countPerPage and callback.
- static void Delete (long idFile, Action< bool, string > callback)

  Deletes the specified File from server.
- static void View (long idFile, Action< bool, string > callback)

  Increase the View count of a UserFile.
- static void Like (long idFile, Action< bool, string > callback)

  Increase the Like count of a UserFile.

Public Attributes

- string **name** = ""
- string **url** = ""
- eShareType **sharing** = eShareType.Nobody
- Hashtable **customData** = new Hashtable()

Static Protected Member Functions

- static void View (UserFile file, long idFile, Action< bool, string > callback)

  Increase the View count of a UserFile.
- static void Like (UserFile file, long idFile, Action< bool, string > callback)

  Increase the Like count of a UserFile.

Properties

- long **id** `[get]`
- long **idAccount** `[get]`
- int **views** `[get]`
- int **likes** `[get]`

27.28.1 Constructor & Destructor Documentation

27.28.1.1 UserFile() [1/3]

```
Combu.UserFile.UserFile ( )
```

Initializes a new instance of the UserFile class.

27.28.1.2 UserFile() [2/3]

```
Combu.UserFile.UserFile (
            string jsonString )
```

Initializes a new instance of the UserFile class from a JSON formatted string.

Parameters

jsonString	JSON formatted string.

27.28.1.3 UserFile() [3/3]

```
Combu.UserFile.UserFile (
            Hashtable hash )
```

Initializes a new instance of the UserFile class from a Hashtable.

Parameters

hash	Hash.

27.28.2 Member Function Documentation

27.28.2.1 Delete() [1/2]

```
virtual void Combu.UserFile.Delete (
            Action< bool, string > callback )  [virtual]
```

Deletes this UserFile from server.

Parameters

callback	Callback.

27.28.2.2 Delete() [2/2]

```
static void Combu.UserFile.Delete (
            long idFile,
            Action< bool, string > callback )  [static]
```

Deletes the specified File from server.

Parameters

idFile	Identifier file.
callback	Callback.

27.28.2.3 Download()

```
void Combu.UserFile.Download (
            Action< byte[]> callback )
```

Download the bytes from the url.

Parameters

callback	Callback.

27.28.2.4 FromHashtable()

```
virtual void Combu.UserFile.FromHashtable (
            Hashtable hash )  [virtual]
```

Initialize the object from a hashtable.

Parameters

hash	Hash.

27.28.2.5 FromJson()

```
virtual void Combu.UserFile.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.28.2.6 Like() [1/3]

```
virtual void Combu.UserFile.Like (
            Action< bool, string > callback )  [virtual]
```

Increase the Like count of this UserFile.

Parameters

callback	Callback.

27.28.2.7 Like() [2/3]

```
static void Combu.UserFile.Like (
            long idFile,
            Action< bool, string > callback )  [static]
```

Increase the Like count of a UserFile.

Parameters

idFile	Identifier file.
callback	Callback.

27.28.2.8 Like() [3/3]

```
static void Combu.UserFile.Like (
            UserFile file,
            long idFile,
            Action< bool, string > callback )  [static], [protected]
```

Increase the Like count of a UserFile.

Parameters

file	File.
idFile	Identifier file (if File is null).
callback	Callback.

27.28.2.9 Load() [1/2]

```
static void Combu.UserFile.Load (
            long fileId,
            Action< UserFile, string > callback )  [static]
```

Load the file file with the specified Id and callback.

Parameters

fileId	File identifier.
callback	Callback.

27.28.2.10 Load() [2/2]

```
static void Combu.UserFile.Load (
```

```
            string userId,
            bool includeShared,
            int pageNumber,
            int countPerPage,
            Action< UserFile[], int, int, string > callback )  [static]
```

Load the UserFiles with the specified userId, includeShared, pageNumber, countPerPage and callback.

Parameters

userId	User identifier.
includeShared	If set to `true` include shared.
pageNumber	Page number.
countPerPage	Count per page.
callback	Callback.

27.28.2.11 Load< T >()

```
static void Combu.UserFile.Load< T > (
            string userId,
            bool includeShared,
            int pageNumber,
            int countPerPage,
            Action< UserFile[], int, int, string > callback )  [static]
```

Load the UserFiles with the specified userId, includeShared, pageNumber, countPerPage and callback.

Parameters

userId	User identifier.
includeShared	If set to `true` include shared.
pageNumber	Page number.
countPerPage	Count per page.
callback	Callback.

Template Parameters

T	Type for UserFile.

Type Constraints

T* : *UserFile

T* : *new()

27.28.2.12 Update()

```
virtual void Combu.UserFile.Update (
            byte[] contents,
            Action< bool, string > callback )  [virtual]
```

Update this file to server.

Parameters

contents	Contents of the file to send.
callback	Callback.

27.28.2.13 View() [1/3]

```
virtual void Combu.UserFile.View (
            Action< bool, string > callback )  [virtual]
```

Increase the View count of this UserFile.

Parameters

callback	Callback.

27.28.2.14 View() [2/3]

```
static void Combu.UserFile.View (
            long idFile,
            Action< bool, string > callback )  [static]
```

Increase the View count of a UserFile.

Parameters

idFile	Identifier file.
callback	Callback.

27.28.2.15 View() [3/3]

```
static void Combu.UserFile.View (
            UserFile file,
```

```
long idFile,
Action< bool, string > callback )  [static], [protected]
```

Increase the View count of a UserFile.

Parameters

file	File.
idFile	Identifier file (if File is null).
callback	Callback.

27.29 Combu.UserGroup Class Reference

Public Member Functions

- UserGroup ()
  Initializes a new instance of the UserGroup class.
- UserGroup (string jsonString)
  Initializes a new instance of the UserGroup class.
- UserGroup (Hashtable hash)
  Initializes a new instance of the UserGroup class.
- virtual void FromJson (string jsonString)
  Initialize the object from a JSON formatted string.
- virtual void FromHashtable (Hashtable hash)
  Initialize the object from a hashtable.
- virtual void Save (System.Action< bool, string > callback)
  Save this instance.
- virtual void Delete (System.Action< bool, string > callback)
  Delete this instance.
- virtual void Join (System.Action< bool, string > callback)
  Join the local user to this group.
- virtual void Join (long[ ] idUsers, System.Action< bool, string > callback)
  Join the specified idUsers to this group.
- virtual void Join (string[ ] usernames, System.Action< bool, string > callback)
  Join the specified usernames to this group.
- virtual void Leave (System.Action< bool, string > callback)
  Leave the local user from this group.
- virtual void Leave (long[ ] idUsers, System.Action< bool, string > callback)
  Leave the specified idUsers from this group.
- virtual void Leave (string[ ] usernames, System.Action< bool, string > callback)
  Leave the specified usernames from this group.

Static Public Member Functions

- static void **Load** (long idOwner, System.Action< UserGroup[ ], string > callback)
- static void **Load** (string usernameOwner, System.Action< UserGroup[ ], string > callback)
- static void **LoadMembership** (long idMember, System.Action< UserGroup[ ], string > callback)
- static void **LoadMembership** (string usernameMember, System.Action< UserGroup[ ], string > callback)
- static void **Load** (string groupName, int pageNumber, int limit, System.Action< UserGroup[ ], int, int, string > callback)

Public Attributes

- long **id** = 0
- string **name**
- long **idOwner**
- User **owner**
- Hashtable **customData** = new Hashtable()
- User[ ] **users** = new User[0]

Protected Member Functions

- virtual void Join< T > (long[ ] idUsers, string[ ] usernames, System.Action< bool, string > callback)

  Join the specified idUsers/usernames to this group.
- virtual void Leave< T > (long[ ] idUsers, string[ ] usernames, System.Action< bool, string > callback)

  Leave the specified idUsers/usernames from this group.

27.29.1 Constructor & Destructor Documentation

27.29.1.1 UserGroup() [1/3]

```
Combu.UserGroup.UserGroup ( )
```

Initializes a new instance of the UserGroup class.

27.29.1.2 UserGroup() [2/3]

```
Combu.UserGroup.UserGroup (
            string jsonString )
```

Initializes a new instance of the UserGroup class.

Parameters

jsonString	Json string.

27.29.1.3 UserGroup() [3/3]

```
Combu.UserGroup.UserGroup (
            Hashtable hash )
```

Initializes a new instance of the UserGroup class.

Parameters

hash	Hash.

27.29.2 Member Function Documentation

27.29.2.1 Delete()

```
virtual void Combu.UserGroup.Delete (
            System.Action< bool, string > callback )  [virtual]
```

Delete this instance.

27.29.2.2 FromHashtable()

```
virtual void Combu.UserGroup.FromHashtable (
            Hashtable hash )  [virtual]
```

Initialize the object from a hashtable.

Parameters

hash	Hash.

27.29.2.3 FromJson()

```
virtual void Combu.UserGroup.FromJson (
            string jsonString )  [virtual]
```

Initialize the object from a JSON formatted string.

Parameters

jsonString	Json string.

27.29.2.4 Join() [1/3]

```
virtual void Combu.UserGroup.Join (
```

```
            long[] idUsers,
            System.Action< bool, string > callback )  [virtual]
```

Join the specified idUsers to this group.

Parameters

idUsers	Identifier users.
callback	Callback.

27.29.2.5 Join() [2/3]

```
virtual void Combu.UserGroup.Join (
            string[] usernames,
            System.Action< bool, string > callback )  [virtual]
```

Join the specified usernames to this group.

Parameters

usernames	Usernames.
callback	Callback.

27.29.2.6 Join() [3/3]

```
virtual void Combu.UserGroup.Join (
            System.Action< bool, string > callback )  [virtual]
```

Join the local user to this group.

Parameters

callback	Callback.

27.29.2.7 Join< T >()

```
virtual void Combu.UserGroup.Join< T > (
            long[] idUsers,
            string[] usernames,
            System.Action< bool, string > callback )  [protected], [virtual]
```

Join the specified idUsers/usernames to this group.

Parameters

idUsers	Identifier users.
usernames	Usernames.
callback	Callback.

Template Parameters

T	Type for UserGroup records.

Type Constraints

T* : *UserGroup

T* : *new()

27.29.2.8 Leave() [1/3]

```
virtual void Combu.UserGroup.Leave (
            long[] idUsers,
            System.Action< bool, string > callback )  [virtual]
```

Leave the specified idUsers from this group.

Parameters

idUsers	Identifier users.
callback	Callback.

27.29.2.9 Leave() [2/3]

```
virtual void Combu.UserGroup.Leave (
            string[] usernames,
            System.Action< bool, string > callback )  [virtual]
```

Leave the specified usernames from this group.

Parameters

usernames	Usernames.
callback	Callback.

27.29.2.10 Leave() [3/3]

```
virtual void Combu.UserGroup.Leave (
            System.Action< bool, string > callback )  [virtual]
```

Leave the local user from this group.

Parameters

callback	Callback.

27.29.2.11 Leave< T >()

```
virtual void Combu.UserGroup.Leave< T > (
            long[] idUsers,
            string[] usernames,
            System.Action< bool, string > callback )  [protected], [virtual]
```

Leave the specified idUsers/usernames from this group.

Parameters

idUsers	Identifier users.
usernames	Usernames.
callback	Callback.

Template Parameters

T	Type for UserGroup records.

Type Constraints

T* : *UserGroup

T* : *new()

27.29.2.12 Save()

```
virtual void Combu.UserGroup.Save (
            System.Action< bool, string > callback )  [virtual]
```

Save this instance.

Index

_instance
    Combu.CombuManager, 77
_platform
    Combu.CombuManager, 77

achievementUIFunction
    Combu.CombuManager, 78
achievementUIObject
    Combu.CombuManager, 78
AddBinaryData
    Combu.CombuForm, 68
AddContact
    Combu.User, 146, 148
AddField
    Combu.CombuForm, 68
AddUser
    Combu.Match, 121
appCustomData
    Combu.Profile, 134
appId
    Combu.CombuManager, 78
appSecret
    Combu.CombuManager, 78
Authenticate
    Combu.CombuPlatform, 85, 86
    Combu.User, 148, 149
Authenticate< T >
    Combu.CombuPlatform, 86
AuthenticatePlatform
    Combu.User, 149
AutoLogin
    Combu.User, 150
AutoPing
    Combu.CombuManager, 73

CallWebservice
    Combu.CombuManager, 73
CanAutoLogin
    Combu.User, 150
CancelRequest
    Combu.CombuManager, 73
CaptureScreenshot
    Combu.CombuManager, 73
ChangePassword
    Combu.User, 150, 152
Combu, 59
    eContactType, 60
    eLeaderboardInterval, 60
    eLeaderboardTimeScope, 61
    eMailList, 61
    eSearchOperator, 61
    eShareType, 61
Combu.Achievement, 63
Combu.CombuEncryption, 64
    DecryptAES, 64
    DecryptResponse, 65
    EncryptAES, 65
    EncryptMD5, 65
    EncryptRSA, 66
    EncryptSHA1, 66
    LoadRSA, 66, 67
    SetToken, 67
Combu.CombuForm, 67
    AddBinaryData, 68
    AddField, 68
    GetBinaryField, 68
    GetField, 69
    GetForm, 69
Combu.CombuManager, 70
    _instance, 77
    _platform, 77
    achievementUIFunction, 78
    achievementUIObject, 78
    appId, 78
    appSecret, 78
    AutoPing, 73
    CallWebservice, 73
    CancelRequest, 73
    CaptureScreenshot, 73
    COMBU_VERSION, 78
    Connect, 74
    connectOnAwake, 78
    CreateForm, 74
    DecryptAES, 74
    defaultSocialPlatform, 82
    dontDestroyOnLoad, 79
    DownloadUrl, 74
    EncryptAES, 75
    encryption, 79
    EncryptMD5, 75
    EncryptSHA1, 76
    GetServerInfo, 76
    GetUrl, 76
    instance, 82
    isAuthenticated, 82
    isCancelling, 82
    isDownloading, 82
    isInitialized, 82
    language, 79

leaderboardUIFunction, 79
leaderboardUIObject, 79
localUser, 83
logDebugInfo, 79
onlineSeconds, 80
Ping, 77
pingIntervalSeconds, 80
platform, 83
playingSeconds, 80
rememberCredentials, 80
retryConnectAfterSeconds, 80
serverInfo, 83
sessionToken, 83
setAsDefaultSocialPlatform, 80
SetLocalUser, 77
skipCertificateVerification, 81
urlRootProduction, 81
urlRootStage, 81
useExperimentalThreaded, 81
useStage, 81
Combu.CombuPlatform, 83
Authenticate, 85, 86
Authenticate< T >, 86
CreateAchievement, 87
CreateLeaderboard, 87
GetLoading, 87
LoadAchievementDescriptions, 88
LoadAchievements, 88
LoadAchievements< T >, 88
LoadFriends, 89
LoadScores, 89, 90
LoadScoresByUser, 91
LoadUsers, 91
Logout, 93
ReportProgress, 93
ReportScore, 94, 95
ResetAllAchievements, 95
SetLocalUser, 95
ShowAchievementsUI, 96
ShowLeaderboardUI, 96
Combu.CombuServerInfo, 96
ToString, 97
Combu.CombuSkipCertificateHandler, 97
Combu.CombuUtils.ServerResponse.Server.Token, 139
Combu.CombuUtils.ServerResponse.SuccessMessage, 139
Combu.DecryptionJob, 97
Combu.Inventory, 98
Delete, 99, 100
FromHashtable, 100
FromJson, 100
Inventory, 99
Load, 100
Load< T >, 101
Update, 101
Combu.Leaderboard, 102
FromJson, 103
Load, 103
Load< T >, 104
LoadScoreByUser, 104, 105
LoadScores, 106
LoadScoresByUser, 106
SetUserFilter, 106
Combu.Mail, 107
Count, 109
Delete, 109
FromHashtable, 109
FromJson, 110
GetMessageForm, 110
Load< T >, 110
LoadConversations, 111
Read, 111, 112
Send, 113–116
SendMailToGroup, 117
SendMessage, 118
Unread, 118
Combu.MailCount, 119
Combu.Match, 119
AddUser, 121
Delete, 121
FromHashtable, 122
FromJson, 122
Load, 122
Match, 120, 121
QuickMatch, 123
RemoveUser, 123, 124
Save, 124
Score, 125
Combu.Match.MatchRoundData, 127
Combu.MatchAccount, 125
FromHashtable, 125
FromJson, 126
Combu.MatchRound, 126
FromHashtable, 127
FromJson, 127
Combu.MiniJSON, 127
getLastErrorIndex, 128
getLastErrorSnippet, 128
jsonDecode, 129
jsonEncode, 129
lastDecodeSuccessful, 129
lastErrorIndex, 130
Combu.News, 130
FromHashtable, 130
FromJson, 131
Load, 131
Load< T >, 131
Combu.Profile, 132
appCustomData, 134
customData, 134
email, 134
FromHashtable, 134
FromJson, 134
id, 135
idLong, 135
image, 135

isFriend, 135
lastSeen, 135
Profile, 133
sessionToken, 135
state, 136
userName, 136
Combu.ProfilePlatform, 136
Combu.Score, 136
Initialize, 137
ReportScore, 138
Combu.SearchCustomData, 138
Combu.ThreadedJob, 139
Combu.Tournament, 140
Delete, 141
FromHashtable, 142
FromJson, 142
Load, 142, 143
QuickTournament, 143
Save, 143
Tournament, 141
Combu.User, 144
AddContact, 146, 148
Authenticate, 148, 149
AuthenticatePlatform, 149
AutoLogin, 150
CanAutoLogin, 150
ChangePassword, 150, 152
CreateGuest, 152
Delete, 152, 153
Exists, 153
FromUser, 153
GetContact, 153
GetContact< T >, 154
LinkAccount, 154
LinkPlatform, 155
Load, 155, 156
Load< T >, 157
LoadFriends, 157, 158
LoadFriends< T >, 158
Random< T >, 158
RemoveContact, 159, 160
ResendActivationCode, 160
ResetPassword, 160, 161
StoreUserCredentials, 161
Update, 161
Combu.UserFile, 162
Delete, 164
Download, 164
FromHashtable, 166
FromJson, 166
Like, 166, 167
Load, 167
Load< T >, 168
Update, 168
UserFile, 163
View, 169
Combu.UserGroup, 170
Delete, 172
FromHashtable, 172
FromJson, 172
Join, 172, 173
Join< T >, 173
Leave, 174
Leave< T >, 175
Save, 175
UserGroup, 171
COMBU_VERSION
Combu.CombuManager, 78
Connect
Combu.CombuManager, 74
connectOnAwake
Combu.CombuManager, 78
Count
Combu.Mail, 109
CreateAchievement
Combu.CombuPlatform, 87
CreateForm
Combu.CombuManager, 74
CreateGuest
Combu.User, 152
CreateLeaderboard
Combu.CombuPlatform, 87
customData
Combu.Profile, 134

DecryptAES
Combu.CombuEncryption, 64
Combu.CombuManager, 74
DecryptResponse
Combu.CombuEncryption, 65
defaultSocialPlatform
Combu.CombuManager, 82
Delete
Combu.Inventory, 99, 100
Combu.Mail, 109
Combu.Match, 121
Combu.Tournament, 141
Combu.User, 152, 153
Combu.UserFile, 164
Combu.UserGroup, 172
dontDestroyOnLoad
Combu.CombuManager, 79
Download
Combu.UserFile, 164
DownloadUrl
Combu.CombuManager, 74

eContactType
Combu, 60
eLeaderboardInterval
Combu, 60
eLeaderboardTimeScope
Combu, 61
email
Combu.Profile, 134
eMailList
Combu, 61

EncryptAES
Combu.CombuEncryption, 65
Combu.CombuManager, 75
encryption
Combu.CombuManager, 79
EncryptMD5
Combu.CombuEncryption, 65
Combu.CombuManager, 75
EncryptRSA
Combu.CombuEncryption, 66
EncryptSHA1
Combu.CombuEncryption, 66
Combu.CombuManager, 76
eSearchOperator
Combu, 61
eShareType
Combu, 61
Exists
Combu.User, 153

FromHashtable
Combu.Inventory, 100
Combu.Mail, 109
Combu.Match, 122
Combu.MatchAccount, 125
Combu.MatchRound, 127
Combu.News, 130
Combu.Profile, 134
Combu.Tournament, 142
Combu.UserFile, 166
Combu.UserGroup, 172
FromJson
Combu.Inventory, 100
Combu.Leaderboard, 103
Combu.Mail, 110
Combu.Match, 122
Combu.MatchAccount, 126
Combu.MatchRound, 127
Combu.News, 131
Combu.Profile, 134
Combu.Tournament, 142
Combu.UserFile, 166
Combu.UserGroup, 172
FromUser
Combu.User, 153

GetBinaryField
Combu.CombuForm, 68
GetContact
Combu.User, 153
GetContact< T >
Combu.User, 154
GetField
Combu.CombuForm, 69
GetForm
Combu.CombuForm, 69
getLastErrorIndex
Combu.MiniJSON, 128
getLastErrorSnippet
Combu.MiniJSON, 128
GetLoading
Combu.CombuPlatform, 87
GetMessageForm
Combu.Mail, 110
GetServerInfo
Combu.CombuManager, 76
GetUrl
Combu.CombuManager, 76

id
Combu.Profile, 135
idLong
Combu.Profile, 135
image
Combu.Profile, 135
Initialize
Combu.Score, 137
instance
Combu.CombuManager, 82
Inventory
Combu.Inventory, 99
isAuthenticated
Combu.CombuManager, 82
isCancelling
Combu.CombuManager, 82
isDownloading
Combu.CombuManager, 82
isFriend
Combu.Profile, 135
isInitialized
Combu.CombuManager, 82

Join
Combu.UserGroup, 172, 173
Join< T >
Combu.UserGroup, 173
jsonDecode
Combu.MiniJSON, 129
jsonEncode
Combu.MiniJSON, 129

language
Combu.CombuManager, 79
lastDecodeSuccessful
Combu.MiniJSON, 129
lastErrorIndex
Combu.MiniJSON, 130
lastSeen
Combu.Profile, 135
leaderboardUIFunction
Combu.CombuManager, 79
leaderboardUIObject
Combu.CombuManager, 79
Leave
Combu.UserGroup, 174
Leave< T >
Combu.UserGroup, 175
Like

Combu.UserFile, 166, 167
LinkAccount
Combu.User, 154
LinkPlatform
Combu.User, 155
Load
Combu.Inventory, 100
Combu.Leaderboard, 103
Combu.Match, 122
Combu.News, 131
Combu.Tournament, 142, 143
Combu.User, 155, 156
Combu.UserFile, 167
Load< T >
Combu.Inventory, 101
Combu.Leaderboard, 104
Combu.Mail, 110
Combu.News, 131
Combu.User, 157
Combu.UserFile, 168
LoadAchievementDescriptions
Combu.CombuPlatform, 88
LoadAchievements
Combu.CombuPlatform, 88
LoadAchievements< T >
Combu.CombuPlatform, 88
LoadConversations
Combu.Mail, 111
LoadFriends
Combu.CombuPlatform, 89
Combu.User, 157, 158
LoadFriends< T >
Combu.User, 158
LoadRSA
Combu.CombuEncryption, 66, 67
LoadScoreByUser
Combu.Leaderboard, 104, 105
LoadScores
Combu.CombuPlatform, 89, 90
Combu.Leaderboard, 106
LoadScoresByUser
Combu.CombuPlatform, 91
Combu.Leaderboard, 106
LoadUsers
Combu.CombuPlatform, 91
localUser
Combu.CombuManager, 83
logDebugInfo
Combu.CombuManager, 79
Logout
Combu.CombuPlatform, 93

Match
Combu.Match, 120, 121

onlineSeconds
Combu.CombuManager, 80

Ping
Combu.CombuManager, 77
pingIntervalSeconds
Combu.CombuManager, 80
platform
Combu.CombuManager, 83
playingSeconds
Combu.CombuManager, 80
Profile
Combu.Profile, 133

QuickMatch
Combu.Match, 123
QuickTournament
Combu.Tournament, 143

Random< T >
Combu.User, 158
Read
Combu.Mail, 111, 112
rememberCredentials
Combu.CombuManager, 80
RemoveContact
Combu.User, 159, 160
RemoveUser
Combu.Match, 123, 124
ReportProgress
Combu.CombuPlatform, 93
ReportScore
Combu.CombuPlatform, 94, 95
Combu.Score, 138
ResendActivationCode
Combu.User, 160
ResetAllAchievements
Combu.CombuPlatform, 95
ResetPassword
Combu.User, 160, 161
retryConnectAfterSeconds
Combu.CombuManager, 80

Save
Combu.Match, 124
Combu.Tournament, 143
Combu.UserGroup, 175
Score
Combu.Match, 125
Send
Combu.Mail, 113–116
SendMailToGroup
Combu.Mail, 117
SendMessage
Combu.Mail, 118
serverInfo
Combu.CombuManager, 83
sessionToken
Combu.CombuManager, 83
Combu.Profile, 135
setAsDefaultSocialPlatform
Combu.CombuManager, 80
SetLocalUser

Combu.CombuManager, 77
Combu.CombuPlatform, 95
SetToken
Combu.CombuEncryption, 67
SetUserFilter
Combu.Leaderboard, 106
ShowAchievementsUI
Combu.CombuPlatform, 96
ShowLeaderboardUI
Combu.CombuPlatform, 96
skipCertificateVerification
Combu.CombuManager, 81
state
Combu.Profile, 136
StoreUserCredentials
Combu.User, 161

ToString
Combu.CombuServerInfo, 97
Tournament
Combu.Tournament, 141

Unread
Combu.Mail, 118
Update
Combu.Inventory, 101
Combu.User, 161
Combu.UserFile, 168
urlRootProduction
Combu.CombuManager, 81
urlRootStage
Combu.CombuManager, 81
useExperimentalThreaded
Combu.CombuManager, 81
UserFile
Combu.UserFile, 163
UserGroup
Combu.UserGroup, 171
userName
Combu.Profile, 136
useStage
Combu.CombuManager, 81

View
Combu.UserFile, 169