ERP System – APIs Call Functions & Workflows

App Name: ERP System
Version: <mark>6.1</mark>
Frontend: Angular
Backend: ASP.net running on a Docker Container within an Ubuntu server
Communication: RESTful Web APIs (JSON)

Overview

APIs Call Structure

All ERP System's API Calls should be requested via HTTPS using the URL:
(https://erpswa.quantum-pmc.com/SystemAPIs/Call).

The HTTP call's body should be JSON object with the following format:

```
{
        "contents": [byte array]
}
```

The value of the ***contents*** JSON element should be a byte array representing the contents of the request, and it should contain the requests details as follows:

- Request Type: A 4-bytes integer representing the integer value (small-indian presentation) for the ***RequestType*** enum.

- Access Token: A base-64 byte array representation of a *string* object containing the ***AccessToken*** variable. It's should be either ***""*** or ***"-"*** in cases where there is no access token provided with the call.

- Parameters: The array of ***Parameters*** attached to the request. Each parameter should start with a delimiter byte [0x1E] followed by a base-64 byte array representation of a *string* object containing the parameter.

Response Structure

The API call will undergo the following checks route before starting its implementation:

- *Client Side checks:* If there is an issue with the call URL, the HTTP request format, the HTTP parameters format, or CORS issues, the HTTP request will receive a ***4xx Bad Request*** response.

- *Server Side Issues:* In case the API server is down, runtime unhandled errors, or the application crashed, the HTTP request will receive a ***5xx Internal Server Error*** result.

- *Nginx checks:* Nginx will mainly check the HTTPs certification, and the domain of the incoming call. If the call was not routed properly, an ***ERP11000 Access Denied*** error will sent to the client.

- *ERP System HL checks:* The ERP Web APIs application will perform few high-level checks to ensure the integrity of received request before executing it, starting with the request format checks, then followed by checking the Access Token and the request's parameters count. In all cases, the HTTP response will have a **200 OK Status**, and response body will be as follows:

```
{
        "success": true                              [boolean  true or false]
        "message": ""
}
```

The value of **success** will be a Boolean value, equals *true* if everything went fine in the API call and the request was successfully executed, while it will be *false* if the API call failed in the server-side, or if the input parameters have problems as identified in the response message.

While the **message** will contain the error code in case of **success=false**, and otherwise will contain a JSON object containing the return parameters (or = "" if no return parameters are needed).

Accordingly, the following table summarizes all possible HTTP responses which could be received from an ERP System API calls.

Category	HTTP Response		ERP System API Response	
	Return Status	Body	Success	Message
Network Layers				
Client Side Errors	4xx Bad Request	-	-	-
Server Side Errors	5xx Internal Server Error	-	-	-
Nginx Errors	200 OK Status	ERP11000 Access Denied HTML Response	-	-
API Application Layer				
Successful Call	200 OK Status	API Response	true	Response Parameters (if any)
Failed Calls	200 OK Status	API Response	false	Error Code

General Error Codes

The following table represents the high-level generic error codes which could be sent by ERP System to any API call:

ERP API Request	ERP System API Response	
	Error Code	**Description**
Any	ERP11000	Access Denied
	ERP11005	Blocked IP (Permanent)
	ERP11006	Blocked IP (Temporary)
	ERP11010	API call -> Global Execution error
	ERP11020	Invalid Request Format -> Request = null
	ERP11021	Invalid Request Format -> Request.Contents = null
	ERP11022	Invalid Request Format -> Request.Contents = ""
	ERP11030	Unable to unpack the ERP request (i.e. bytes array format issues)
	ERP11050	Request implementation -> Global Execution error
	ERP11051	Request Type implementation under development
	ERP11052	Request Type Unknown
	ERP11053	Error initializing Core Database
	ERP11054	Error initializing ERP Database
	ERP11055	***Access Denied*** -> The user does not have enough privilege to execute this ERP request. This error logically should not happen if all access permissions are properly implemented in the front-end
	ERP11056	Error logging request & related response
	ERP11057	Internal Routing Error -> General Issues
	ERP11058	Internal Routing Error -> Database Issues
	ERP11059	Internal Routing Error -> IP Issues
	ERP11068	Core Database transaction error
	ERP11069	ERP Database transaction error
Request types expecting Access Token	ERP11040	Invalid Access Token -> Not provided
	ERP11041	Invalid Access Token -> Invalid token value (i.e. token does not exist)
	ERP11042	Invalid Access Token -> Token expired
	ERP11060	Error adding new Access Token
	ERP11061	Error extending validity of Access Token
	ERP11062	Error removing expired Access Token
	ERP11063	Entity Deactivated -> The entity to which the active account belongs to was deactivated. The user should be notified accordingly.
Request types expecting Parameters list	ERP11070	Invalid Parameters Count
	ERP11071 to ERP11099	Invalid Data Type for Parameter no. 1 (up to Parameter no. 29, if applicable)

1. System Level APIs

1A. Account and Session Management

Handling actions related to user authentication, session control, and account security. These APIs ensure that users can securely log in using their account credentials, maintain active sessions, and manage their states and account credentials.

Action	Description	Access Token Needed	Parameters	
			Input	Output
Credentials and Session related requests				
Login	Authenticates a user and starts a session	No	1. *string* Username 2. *string* Password	1. *string* Access_Token 2. *int* Account_ID
Verify_2FA	Confirms a two-factor authentication code prior to Login	No	1. *string* Email 2. *string* OTP_Code	1. *string* Access_Token 2. *int* Account_ID
Logout	Ends user session	Yes		
Set_2FA	Set / Unset 2FA login	Yes	1. *boolean* Set	
Change_Password	Updates the current password	Yes	1. *string* Old_Password 2. *string* New_Password	
Reset_Password_Request	Sends an email to user with reset link	No	1. *string* Email	1. *string* Reset_Token, 2. *datetime* Expiry_Time
Reset_Password_Confirm	Confirms and applies new password	No	1. *string* Reset_Token 2. *string* New_Password	
Verify_Email	Validates user's email ownership	No	1. *string* Verification_Token	
Get_Login_Data_Package	Gets all the initial data for account, user, entity & modules required to properly display the account's dashboard	Yes	1. *string* Email	1. *Dictionary<string, object>* Account_Details 2. *Dictionary<string, object>* User_Details 3. *Dictionary<string, object>* Entity_Details 4. *Dictionary<string, object>* Functions_Details 5. *Dictionary<string, object>* Modules_Details 6. *Dictionary<string, object>* Account_Settings
Account related requests				
Create_Account	Adds new account	Yes	1. *string* Email 2. *string* First_Name 3. *string* Last_Name 4. *int* Entity_ID 5. *int* Entity_Role_ID	1. *string* Account_ID
Activate_Account	Enables a new account or previously deactivated account	Yes	1. *string* Email	
Deactivate_Account	Disables a user account	Yes	1. *string* Email	

Action	Description	Access Token Needed	Parameters	
			Input	**Output**
Delete_Account	Remove a user account completely	Yes	1. *string* Email	
Get_Account_Status	Returns current login/session state for the user	Yes	1. *string* Email	1. *int* Account_State (as detailed below) 2. *boolean* Active_Session 3. *datetime* Last_Login
	Possible **Account States**: 0 Inactive Account created but not yet verified 1 Active Running account, no issues 2 Locked The account has been locked due to multiple failed logins 3 Deactivated The account has been deactivated by System or Entity Administrator			
Get_Account_Details	Reads the account's general details	Yes	1. *string* Email	1. *int* Account_ID 2. *string* Email 3. *string* Description 4. *string* Description_Regional 5. *int* User_ID 6. *int* Entity_ID 7. *int* Entity_Role_ID 8. *string* Account_State
Update_Account_Details	Updates the account's general details	Yes	1. *string* Email 2. *string* Description 3. *boolean* Is_Regional	
	Notes: - Email address in only editable by system admin via another API request - The field ***'Is_Regional'*** identified whether or not the (Name, Description and Address) should be stored as Regional fields instead of Regular fields; noting that Regular fields will remain with their previous values.			
Update_Account_Email	Updates the current password	Yes	1. *int* Account_ID 2. *string* Current_Email 3. *string* New_Email	
Update_Account_Entity	Updates the account's details related to assigned entity	Yes	1. *string* Email 2. *int* Entity_ID 3. *int* Entity_Role_ID	
Get_Accounts_Emails	Gets the email address for one or more Accounts	Yes	1. *List<int>* Account_IDs	1. *List<string>* Emails

System Accessibility for API Calls 1(A) Account and Session Management:

API Request		Access Permission				
Code	**Name**	**DEV**	**SADMIN**	**EADMIN**	**USER**	**GUEST**
Credentials and Session related requests						
100	Login	✔	✔	✔	✔	✔
101	Verify_2FA	✔	✔	✔	✔	✔
102	Logout	✔	✔	✔	✔	
103	Set_2FA	✔	✔	✔	✔	
104	Change_Password	✔	✔	✔	✔	
105	Reset_Password_Request	✔	✔	✔	✔	✔
106	Reset_Password_Confirm	✔	✔	✔	✔	✔
107	Verify_Email	✔	✔	✔	✔	✔
110	Get_Login_Data_Package	✔	✔	✔	✔	
Account related requests						
150	Create_Account	✔	✔	✔		
151	Activate_Account	✔	✔			
152	Deactivate_Account	✔	✔	✔		
153	Delete_Account	✔	✔	✔		
	Note: Can be requested by ***SADMIN*** or ***EDMIN***, but will get an error to use Deactivate instead of Delete					
154	Get_Account_Status	✔	✔	✔		
155	Get_Account_Details	✔	✔	✔	✔	
156	Update_Account_Details	✔	✔	✔	✔	
157	Update_Account_Email	✔	✔			
158	Update_Account_Entity	✔	✔	✔		
159	Get_Accounts_Emails	✔	✔			

Error Codes for API Calls 1(A) Account and Session Management

In addition to the generic codes listed above (ERP11000 to ERP11099), the following error codes could be issued for Account and Session Management requests:
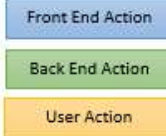
ERP API Request	ERP System API Response	
	Error Code	**Description**
Login	ERP11100	***Account Deactivated:*** A notification page to appear telling the user that his account has been deactivated, and to contact the administrator
	ERP11101	***Email not verified (Account Inactive):*** A notification page to appear telling the user to verify his email, and to tell him that the verification link email was sent
	ERP11102	***Account Locked:*** A notification page informing that an email was sent with password reset link
	ERP11103	***2 Factor Authentication required:*** A 2FA page to appear for entering OTP, with note that OTP was sent via email
	ERP11104	Invalid Login Credentials, whether email not found or wrong password
Verify_2FA	ERP11110	Invalid Verification Token
Logout	-	-

ERP API Request	ERP System API Response	
	Error Code	Description
Set_2FA	-	-
Change_Password	ERP11125	Invalid New Password -> Same as Old Password
	ERP11126	Invalid New Password -> Format is incompliant
Reset_Password_Request	ERP11130	Invalid email address format
Reset_Password_Confirm	ERP11135	Invalid Reset Token
	ERP11136	Invalid New Password -> Empty value
	ERP11137	Invalid New Password -> Format is incompliant
Verify_Email	ERP11140	Invalid Verification Token
Get_Login_Data_Package	ERP11150	Invalid email address -> The Entity does not have an account with this email address
Create_Account	ERP11130	Invalid email address format
	ERP11141	An account with the same email already exists
	ERP11142	Invalid First Name format -> Empty or contains special characters
	ERP11143	Invalid First Last format -> Empty or contains special characters
	ERP11144	Invalid Entity ID -> The database does not have an Entity with this ID
	ERP11145	Invalid Role ID -> The entity does not have a Role with this ID

Note: For **all the following account actions**, the action will be available for all accounts if requester's System Role is: Developer or System Admin; however, it will only be available to Entity Admin for accounts under their entity tree

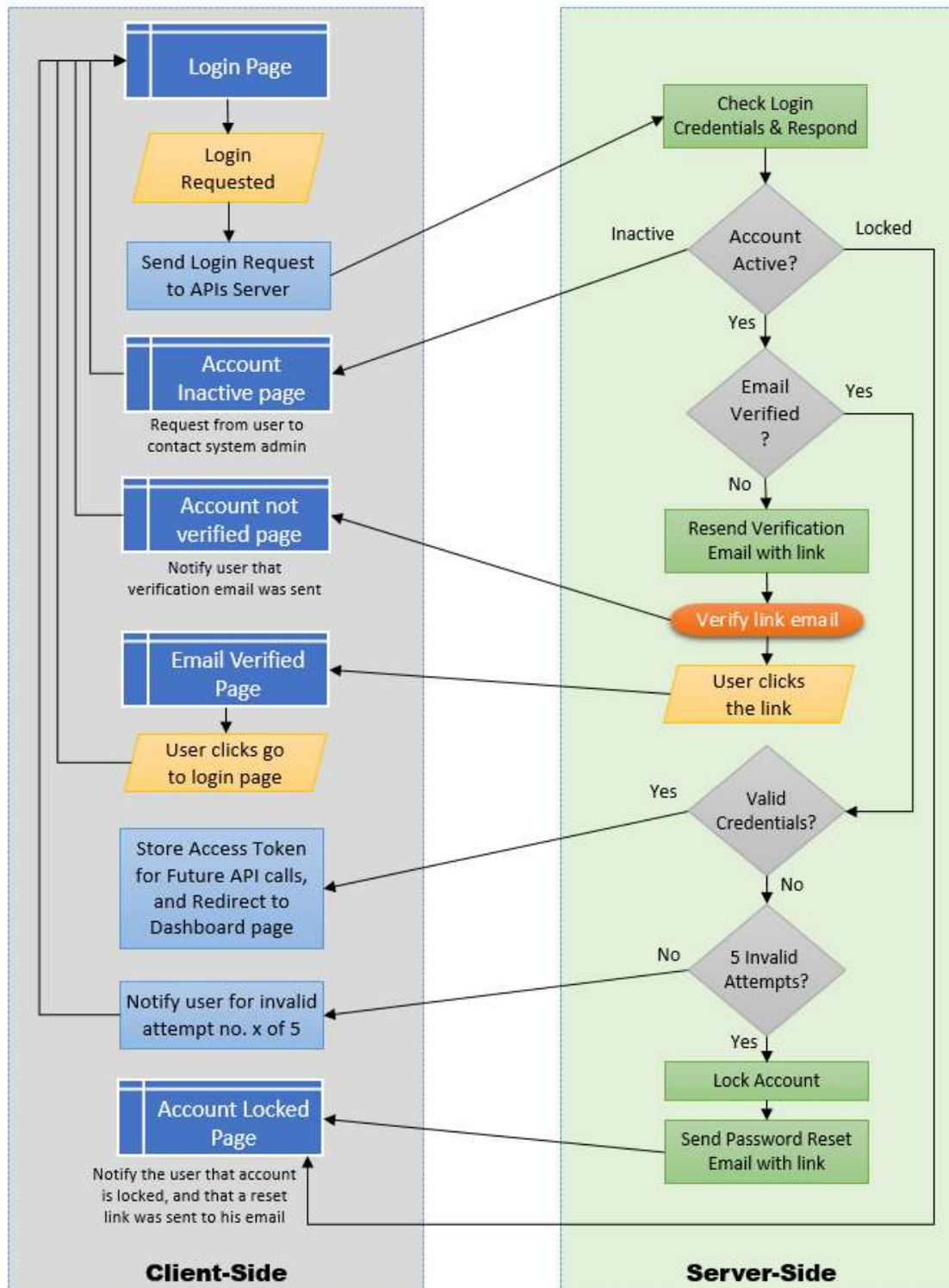| ERP API Request	Error Code	Description
Activate_Account	ERP11150	Invalid email address -> The Entity does not have an account with this email address
	ERP11151	The account is already active
Deactivate_Account	ERP11150	Invalid email address -> The Entity does not have an account with this email address
	ERP11152	The account was already deactivated
Delete_Account	ERP11150	Invalid email address -> The Entity does not have an account with this email address
	ERP11153	Account was already created. **Deactivate_Account** to be used instead *Note:* This error will be given to System admin or Entity Admin, while developer access will be granted the delete action without errors
Get_Account_Status	ERP11150	Invalid email address -> The Entity does not have an account with this email address
Get_Account_Details	ERP11150	Invalid email address -> The Entity does not have an account with this email address
Update_Account_Details	ERP11150	Invalid email address -> The Entity does not have an account with this email address
	ERP11154	Invalid **'Description'** format
Update_Account_Email	ERP11150	Invalid email address -> The Entity does not have an account with this email address
	ERP11141	An account with the same email already exists
	ERP11160	**'Account_ID'** not matching with '**Current Email**'
	ERP11161	Invalid format for the **'New_Email'**
Update_Account_Entity	ERP11150	Invalid email address -> Entity does not have account with this email
	ERP11144	Invalid Entity ID -> The database does not have an Entity with this ID
	ERP11145	Invalid Role ID -> The entity does not have a Role with this ID
Get_Accounts_Emails	ERP11162	Invalid one or more Account ID

ERP System – APIs Workflows

1. System Level APIs
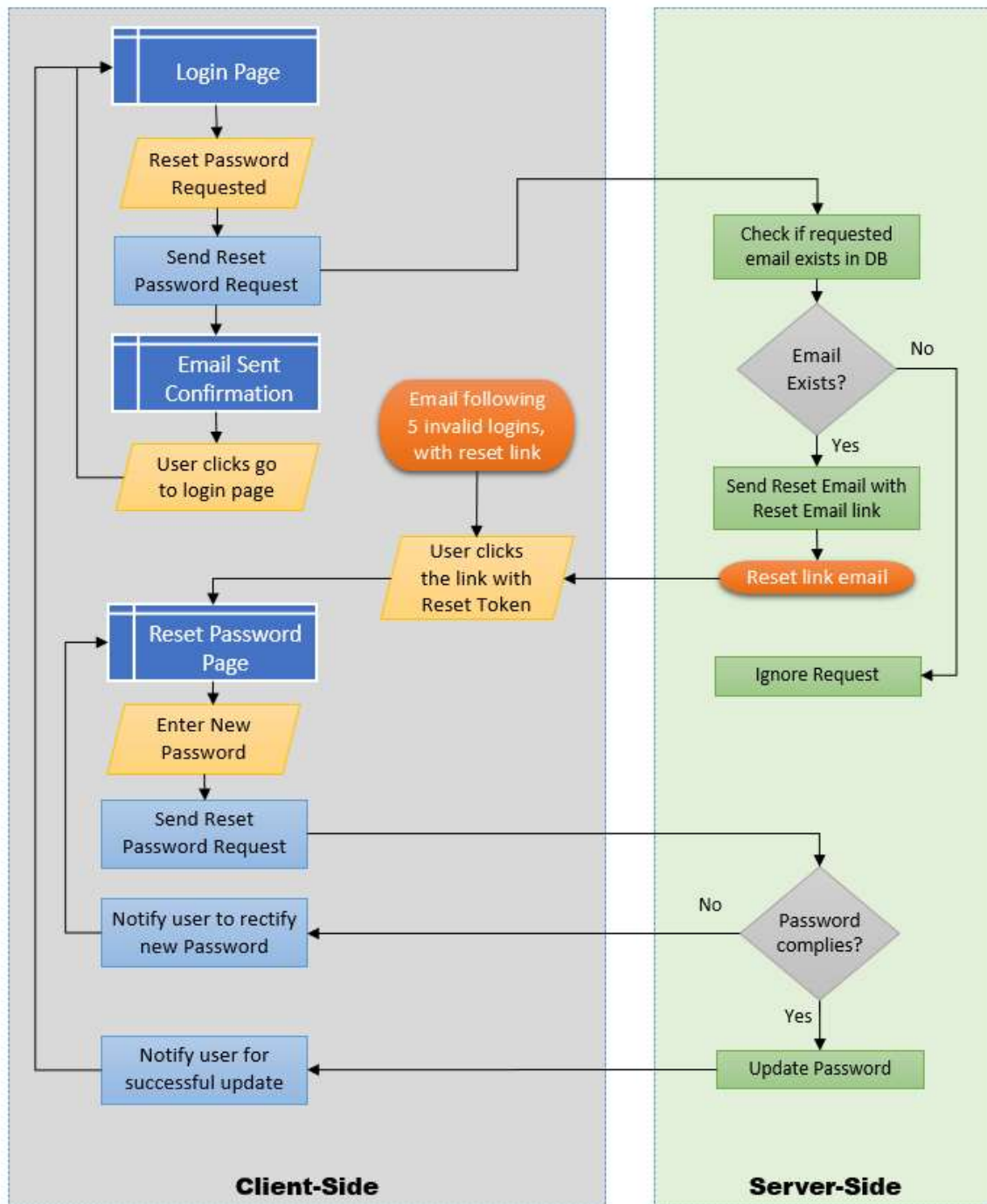
1A. Account and Session Management

Legend
Front End Action
Back End Action
User Action

Login request workflow

Client-Side

- Login Page
- Login Requested
- Send Login Request to APIs Server
- Account Inactive page
  - Request from user to contact system admin
- Account not verified page
  - Notify user that verification email was sent
- Email Verified Page
- User clicks go to login page
- Store Access Token for Future API calls, and Redirect to Dashboard page
- Notify user for invalid attempt no. x of 5
- Account Locked Page
  - Notify the user that account is locked, and that a reset link was sent to his email

Server-Side

- Check Login Credentials & Respond
- Account Active?
  - Inactive
  - Locked
  - Yes
- Email Verified?
  - Yes
  - No
- Resend Verification Email with link
- Verify link email
- User clicks the link
- Valid Credentials?
  - Yes
  - No
- 5 Invalid Attempts?
  - No
  - Yes
- Lock Account
- Send Password Reset Email with link

ERP System – APIs Workflows

1. System Level APIs

1A. Account and Session Management

Reset Password workflow

Legend:
- Front End Action
- Back End Action
- User Action

Client-Side

- Login Page
- Reset Password Requested
- Send Reset Password Request
- Email Sent Confirmation
- User clicks go to login page
- Email following 5 invalid logins, with reset link
- User clicks the link with Reset Token
- Reset Password Page
- Enter New Password
- Send Reset Password Request
- Notify user to rectify new Password
- Notify user for successful update

Server-Side

- Check if requested email exists in DB
- Email Exists?
  - No → Ignore Request
  - Yes → Send Reset Email with Reset Email link
- Reset link email
- Password complies?
  - No → Notify user to rectify new Password
  - Yes → Update Password

ERP System – APIs Workflows
1. System Level APIs

1A. Account and Session Management

Front End Action

Back End Action

User Action

Change Password workflow

Client-Side

- User Profile Page
- Change Password Requested
- Change Password Page
- Enter New Password
- Send Change Password Request
- Notify user to rectify new Password
- Notify user for successful update

Server-Side

- Password complies?
  - No
  - Yes
- Update Password Update
- Send Password Change Confirmation Email to user including a link to securely reset the password if he didn't change the password

1B. Users and Profiles Management

Overview: Manages user information, profiles, and personal settings. Includes CRUD operations for users and updates to user-specific details such as contact info and display preferences.

Action	Description	Access Token Needed	Parameters	
			Input	Output
Users related actions				
Create_User	Registers a new user in the system	Yes	1. *string* First_Name 2. *string* Last_Name	1. *int* User_ID

Get_User_Details	Retrieves user profile information	Yes	1. *int* User_ID	1. *int* User_ID
				2. *string* First_Name
				3. *string* Middle_Name
				4. *string* Last_Name
				5. *varchar(10)* Prefix
				6. *string* First_Name_Regional
				7. *string* Middle_Name_Regional
				8. *string* Last_Name_Regional
				9. *varchar(10)* Prefix_Regional
				10. *bool* Gender
				   [True: Male, False: Female]
				11. *boolean* Is_Active
				   [True if has account]

Update_User_Details	Updates user details and profile information	Yes	1. *int* User_ID 2. *string* First_Name 3. *string* Middle_Name 4. *string* Last_Name 5. *varchar(10)* Prefix 6. *bool* Is_Regional 7. *bool* Gender	
Delete_User	Removes a user from the system	Yes	1. *int* User_ID	
Get_User_Contact_Info	Get user's main email, phone, and address	Yes	1. *int* User_ID	1. *string* Address 2. *string* Address_Regional 3. *string[]* Phone_Numbers 4. *string* Linkedin_Page 5. *string* Facebook_Page 6. *string* Instagram_Page 7. *string* Twitter_Page
Update_User_Contact_Info	Updates user's main email, phone, or address	Yes	1. *int* User_ID 2. *string* Address 3. *boolean* Is_Regional 4. *string[]* Phone_Numbers 5. *string* Linkedin_Page 6. *string* Facebook_Page 7. *string* Instagram_Page 8. *string* Twitter_Page	

Action	Description	Access Token Needed	Parameters	
			Input	**Output**
Merge_Account_Request	Merges another user with the user of current account	Yes	1. *int* User_ID 2. *string* Email	1. *int* Other_User_ID
Merge_Account_Confirm	Confirms the account merge	Yes	1. *string* Merge_OTP 2. *int* Dominant_User_ID 3. *boolean* Merge_Data	
Profiles related actions				
Set_User_Preferences	Modifies personal interface or notification settings	Yes	1. *int* User_ID 2. *Dictionary<string, string>* User_Preferences	
Get_User_Preferences	Fetches user's UI preferences	Yes	1. *int* User_ID	1. *Dictionary<string, string>* User_Preferences
Remove_User_Preference	Removes a specific user setting	Yes	1. *int* Account_ID 2. *string* Setting_Name	-
Assign_Profile_Picture	Add/update the profile picture	Yes	1. *int* User_ID 2. *string* Image_Format 3. *byte[]* Image	
Note: Image Format should be checked in the front end and confirmed as one of the following formats: 'png', 'jpg', 'jpe', 'jpeg', 'gif', 'bmp', 'tiff', 'tif' or 'pict'.				
Get_Profile_Picture	Gets the user's profile picture	Yes	1. *int* User_ID	1. *string* Image_Format 2. *byte[]* Image
Remove_Profile_Picture	Deletes user's profile picture	Yes	1. *int* User_ID	

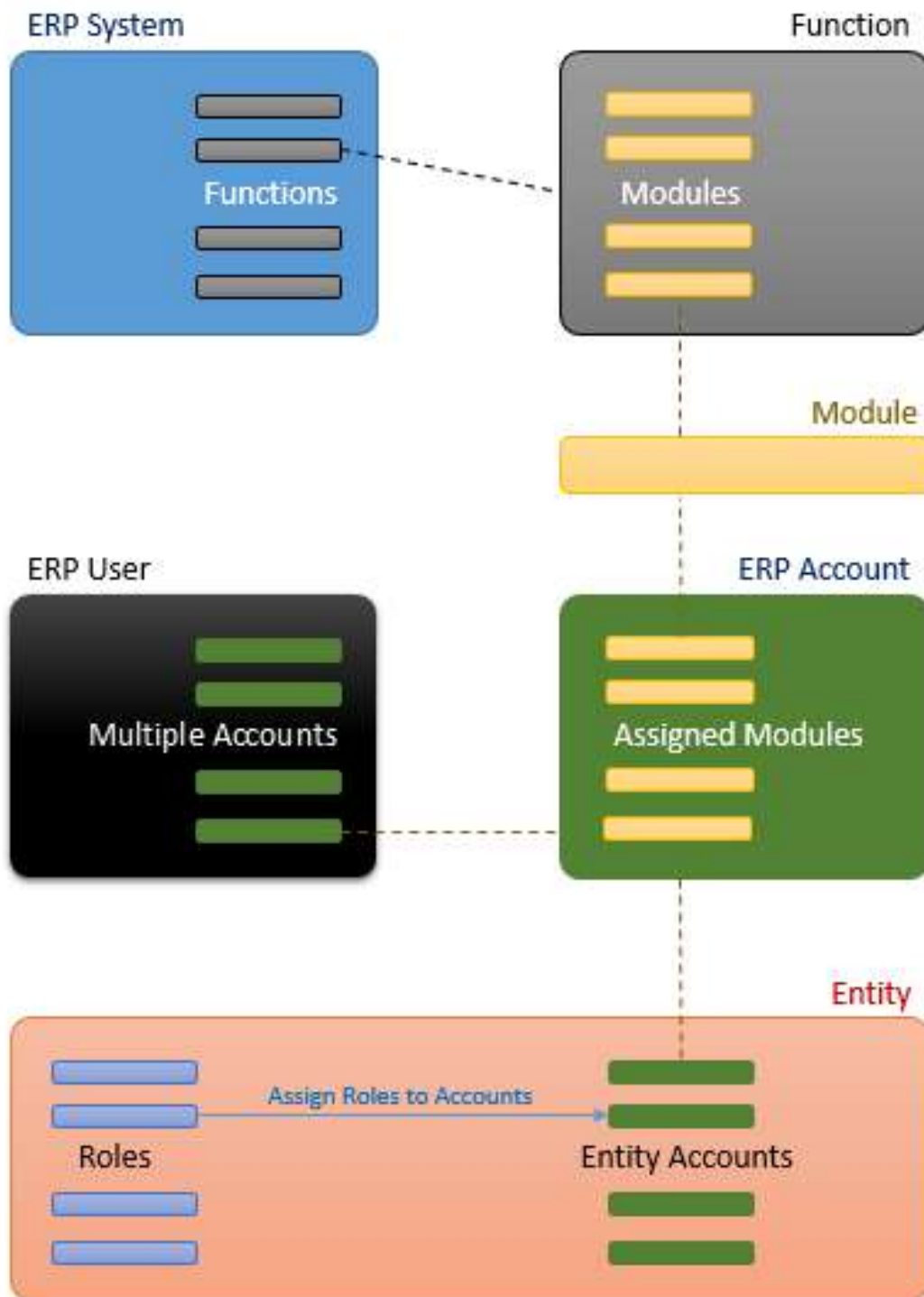*System Accessibility for API Calls 1(B) Users and Profiles Management:*

API Request		Access Permission				
Code	Name	DEV	SADMIN	EADMIN	USER	GUEST
Users related actions						
200	Create_User	✔	✔	✔	✔	
201	Get_User_Details	✔	✔	✔	✔	
202	Update_User_Details	✔	✔	✔	✔	
203	Delete_User	✔				
204	Get_User_Contact_Info	✔	✔	✔	✔	
205	Update_User_Contact_Info	✔	✔	✔	✔	
206	Merge_Account_Request	✔	✔	✔	✔	
Note: Merge accounts is a personal action, and accordingly is allowed to SADMIN, EADMIN and USER only for their accounts, especially that this will require an OTP to be sent						
207	Merge_Account_Confirm	✔	✔	✔	✔	
Note: If the User selected not to merge Users, a notification should be issued to confirm deleting the details & contact info stored in the non-dominant						
Profiles related actions						
300	Set_User_Preferences	✔	✔	✔	✔	
301	Get_User_Preferences	✔	✔	✔	✔	
302	Remove_User_Preference	✔	✔	✔	✔	
303	Assign_Profile_Picture	✔	✔	✔	✔	
304	Get_Profile_Picture	✔	✔	✔	✔	
305	Remove_Profile_Picture	✔	✔	✔	✔	

Error Codes for API Calls 1(B) Users and Profiles Management

In addition to the generic codes (ERP11000 to ERP11099), the following error codes could be issued for Users and Profiles Management requests:

ERP API Request	ERP System API Response	
	Error Code	**Description**
Users related actions		
Create_User	ERP11180	Invalid format for First Name
	ERP11181	Invalid format for Last Name
Note: In all the following actions, error ***ERP11190*** will be issued either if the provided *User_ID* does not exist in the database, or if the requesting account is neither related to this User nor related to a Developer. So, this code will be issued if a System Admin or Entity Admin attempts to get/modify a different User data even if the user is in their entity tree. In summary, the User data belongs to the User himself, and should be altered only by him.		
Get_User_Details	ERP11190	Invalid User ID
Update_User_Details	ERP11190	Invalid User ID
	ERP11180	Invalid format for First Name
	ERP11181	Invalid format for Last Name
	ERP11182	Invalid format for Middle Name
	ERP11183	Invalid format for Prefix
Delete_User	ERP11190	Invalid User ID
Get_User_Contact_Info	ERP11190	Invalid User ID
Update_User_Contact_Info	ERP11190	Invalid User ID
	ERP11191	Invalid format for one or more of the Phone Numbers
	ERP11192	Invalid link for the Linkedin Page
	ERP11193	Invalid link for the Facebook Page
	ERP11194	Invalid link for the Instagram Page
	ERP11195	Invalid link for the Twitter Page
Merge_Account_Request	ERP11190	Invalid User ID
	ERP11197	Invalid Email Address
Merge_Account_Confirm	ERP11190	Invalid User ID -> For provided Dominant User ID, either not in the database, or is neither equal to the User of the Current Account nor to the User of the Selected Email Address
	ERP11198	Invalid OTP
Profiles related actions		
Set_User_Preferences	ERP11190	Invalid User ID
	ERP11200	Invalid format for Preference Dictionary
Get_User_Preferences	ERP11190	Invalid User ID
Remove_User_Preference	ERP11190	Invalid User ID
	ERP11201	Invalid Preference Name
Assign_Profile_Picture	ERP11190	Invalid User ID
	ERP11220	Unknown image file format
	ERP11221	Empty contents for Image file
Get_Profile_Picture	ERP11190	Invalid User ID
Remove_Profile_Picture	ERP11190	Invalid User ID

ERP System Data Architecture

ERP System

Functions

Function

Modules

Module

ERP User

Multiple Accounts

ERP Account

Assigned Modules

Entity

Roles

Assign Roles to Accounts

Entity Accounts

1C. Entity and Organization Management

Overview: Covers creation, configuration, and management of business entities within the ERP ecosystem. Entities represent companies or organizations operating under the system umbrella.

Action	Description	Access Token Needed	Parameters	
			Input	**Output**
Entity related requests				
Add_Entity	Creates a new company/entity in the system	Yes	1. *string* Code 2. *string* Name 3. *string* Description 4. *int* Parent_Entity_ID 5. *boolean* Is_Personal	1. *int* Entity_ID
Note: *Parent_Entity_ID* should be equal to 'zero' if the entity to be added is a root entity.				
Activate_Entity	Re-activates a previously deactivated entity	Yes	1. *int* Entity_ID	
Deactivate_Entity	Temporarily disables an entity and all its sub-entities	Yes	1. *int* Entity_ID	
	Note: This action will forcibly logout all accounts under this entity's tree, and will not allow any login process for related accounts. So, the Entity Admin should be notified accordingly, and to explicitly confirm such action.			
Get_Entity_Details	Retrieves an entity's high level details	Yes	1. *int* Entity_ID	1. *int* Entity_ID 2. *string* Code 3. *string* Name 4. *string* Description 5. *string* Name_Regional 6. *string* Description_Regional 7. *int* Parent_Entity_ID 8. *boolean* Is_Active 9. *boolean* Is_Personal
Update_Entity_Details	Updates entity configuration or details	Yes	1. *int* Entity_ID 2. *string* Code 3. *string* Name 4. *string* Description 5. *int* Parent_Entity_ID 6. *boolean* Is_Regional 7. *boolean* Is_Personal	
Delete_Entity	Removes an entity completely	Yes	1. *int* Entity_ID	
List_Entities	Lists all entities available to a system admin	Yes	1. *int* Last_Entity_ID *(-ve if page number)* 2. *int* Filter_Count *(min 5, max 100)* 3. *string* Text_Filter *(empty string to ignore)*	1. *int* Total_Count 2. *Dictionary<int, Dictionary<string, object>* Entities_List

Action	Description	Access Token Needed	Parameters	
			Input	**Output**
Get_Entity_Contacts	Fetches the address, contact numbers and emails of the selected entity	Yes	1. *int* Entity_ID	1. *string* Address 2. *string* Address_Regional 3. *string[]* Phone_Numbers 4. *string[]* Fax_Numbers 5. *string[]* Emails
Update_Entity_Contacts	Updates the address, contact numbers and emails of an entity	Yes	1. *int* Entity_ID 2. *string* Address 3. *boolean* Is_Regional 4. *string[]* Phone_Numbers 5. *string[]* Fax_Numbers 6. *string[]* Emails	
Assign_Entity_Admin	Sets an entity administrator for a specified entity	Yes	1. *int* Entity_ID 2. *int* Account_ID	
Get_Entity_Admins	Gets list of entity administrator(s) for an entity	Yes	1. *int* Entity_ID	1. *List<Account>* Accounts
Delete_Entity_Admin	Removes an entity administrator	Yes	1. *int* Entity_ID 2. *int* Account_ID	
Assign_Entity_Logo	Add/update a logo image to be displayed for an entity	Yes	1. *int* Entity_ID 2. *string* Image_Format 3. *byte[]* Logo_Image	
Note: Image Format should be checked in the front end and confirmed as one of the following formats: 'png', 'jpg', 'jpe', 'jpeg', 'gif', 'bmp', 'tiff', 'tif' or 'pict'.				
Get_Entity_Logo	Get a copy of an entity's logo image	Yes	1. *int* Entity_ID	1. *string* Image_Format 2. *byte[]* Logo_Image
Remove_Entity_Logo	Deletes the logo image of an entity	Yes	1. *int* Entity_ID	
Organization management related requests				
Get_Entity_Accounts_List	Gets the list of all Accounts under an entity	Yes	1. *int* Entity_ID 2. *bool* Include_Subentities 3. *bool* Active_Only 4. *int* Last_Account_ID *(-ve if page number)* 5. *int* Filter_Count *(min 5, max 100)* 6. *string* Text_Filter *(empty string to ignore)* 7. *bool* IDs_And_Emails_Only	1. *int* Total_Count 2. *List<Account>* Accounts ***or*** 1. *int* Total_Count 2. *Dictionary<int,string>* Accounts

Action	Description	Access Token Needed	Parameters	
			Input	**Output**
Get_Entity_Tree	Gets the list of all Entities under the selected entity	Yes	1. *int* Entity_ID 2. *bool* IDs_Only 3. *bool* Active_Only	1. *List<Entity>* Entities ***or*** 1. *List<int>* Entities_IDs
Get_Entity_Roles_Accounts_List	Get the list of accounts		1. *List<int>* Role_IDs 2. *bool* IDs_And_Emails_Only	1. *List<Account>* Accounts ***or*** 1. *Dictionary<int,string>* Accounts
Create_Account_Group	Creates a new Accounts Group	Yes	1. *string* Title 2. *string* Description 3. *int* Entity_ID *[Entity ID to be zero if the group is personal]*	1. *int* Group_ID
Get_Account_Group	Gets the details of an Accounts Group	Yes	1. *int* Group_ID	1. *string* Title 2. *string* Description 3. *string* Title_Regional 4. *string* Description_Regional 5. *int* Entity_ID
Update_Account_Group	Updates an Accounts Group	Yes	1. *int* Group_ID 2. *string* Title 3. *string* Description 4. *boolean* Is_Regional	-
Activate_Account_Group	Activates an Accounts Group	Yes	1. *int* Group_ID	-
Deactivate_Account_Group	Deactivates an Accounts Group	Yes	1. *int* Group_ID	-
Delete_Account_Group	Deletes an Accounts Group	Yes	1. *int* Group_ID	-
List_Personal_Account_Groups	Lists account groups created by a specific account	Yes	1. *int* Account_ID 2. *bool* Active_Only	1. *List<Group>* Account_Groups
List_Entity_Account_Groups	Lists account groups for an entity	Yes	1. *int* Entity_ID 2. *bool* Active_Only	1. *List<Group>* Account_Groups
Assign_Group_Members	Deletes a group members and adds new accounts list	Yes	1. *int* Group_ID 2. *List<int>* Account_IDs	-
Add_Group_Members	Adds one or more accounts to the group	Yes	1. *int* Group_ID 2. *List<int>* Account_IDs	-
Get_Group_Members	Lists all accounts within a group	Yes	1. *int* Group_ID 2. *bool* IDs_And_Emails	1. *List<int>* Account_IDs ***or*** 1. *Dictionary<int,string>* Accounts
Remove_Group_Members	Removes one or more accounts to the group	Yes	1. *int* Group_ID 2. *List<int>* Account_IDs	-

System Accessibility for API Calls 1(C) Entity and Organization Management:

API Request		Access Permission				
Code	Name	DEV	SADMIN	EADMIN	USER	GUEST
Entity related requests						
400	Add_Entity	✔	✔	✔		
401	Activate_Entity	✔	✔	✔		
402	Deactivate_Entity	✔	✔	✔		
	Note: An Entity Administrator is provided access to Activate/Deactivate Entity requests to enable him to activate or deactivate sub-entities, but error ***ERP11261*** will be issued if he attempts to run those requests on his main entity					
403	Get_Entity_Details	✔	✔	✔	✔	
404	Update_Entity_Details	✔	✔	✔		
405	Delete_Entity	✔				
406	List_Entities	✔	✔	✔		
407	Get_Entity_Contacts	✔	✔	✔		
408	Update_Entity_Contacts	✔	✔	✔		
410	Assign_Entity_Admin	✔	✔	✔		
411	Get_Entity_Admins	✔	✔	✔		
412	Delete_Entity_Admin	✔	✔	✔		
420	Assign_Entity_Logo	✔	✔	✔		
421	Get_Entity_Logo	✔	✔	✔	✔	
422	Remove_Entity_Logo	✔	✔	✔		
Organization management related requests						
500	Get_Entity_Accounts_List	✔	✔	✔		
501	Get_Entity_Tree	✔	✔	✔	✔	
502	Get_Entity_Roles_Accounts_List	✔	✔	✔		
	Note: For the following Account Groups requests, all personal requests can be managed only by the Account which created the group, while Entity Groups can only be manage by related Entity Admins					
570	Create_Account_Group	✔	✔	✔	✔	
571	Get_Account_Group	✔	✔	✔	✔	
572	Update_Account_Group	✔	✔	✔	✔	
573	Activate_Account_Group	✔	✔	✔	✔	
574	Deactivate_Account_Group	✔	✔	✔	✔	
575	Delete_Account_Group	✔	✔	✔	✔	
576	List_Personal_Account_Groups	✔	✔	✔	✔	
577	List_Entity_Account_Groups	✔	✔	✔		
580	Assign_Group_Members	✔	✔	✔	✔	
581	Add_Group_Members	✔	✔	✔	✔	
582	Get_Group_Members	✔	✔	✔	✔	
583	Remove_Group_Members	✔	✔	✔	✔	

Error Codes for API Calls 1(C) Entity and Organization Management

In addition to the generic codes (ERP11000 to ERP11099), the following error codes could be issued for Entity and Organization Management requests:

ERP API Request	ERP System API Response	
	Error Code	Description
Entity related requests		
Add_Entity	ERP11250	Invalid Parent Entity ID
	ERP11251	Invalid 'Code' format
	ERP11252	Invalid 'Name' format
	ERP11253	Invalid 'Description' format
	ERP11254	The 'Code' is not unique in the main root Entity tree. The administrator adding the entity should be notified to adjust the 'Code' field
Note: For all coming requests, error **ERP11260** will be issued in the following cases: (a) The Entity ID does not exist in the database, (b) An entity administrator is requesting an action for an entity not under his entity tree, or (c) A user is requesting an action related to an entity different than his entity.		
Activate_Entity	ERP11260	Invalid Entity ID
	ERP11261	An entity administrator cannot activate/deactivate his parent entity
	ERP11262	The entity is already active
Deactivate_Entity	ERP11260	Invalid Entity ID
	ERP11261	An entity administrator cannot activate/deactivate his parent entity
	ERP11263	The entity is already deactivated
Get_Entity_Details	ERP11260	Invalid Entity ID
Update_Entity_Details	ERP11260	Invalid Entity ID
	ERP11250	Invalid Parent Entity ID
	ERP11251	Invalid 'Code' format
	ERP11252	Invalid 'Name' format
	ERP11253	Invalid 'Description' format
	ERP11254	The 'Code' is not unique in the main root Entity tree. The administrator adding the entity should be notified to adjust the 'Code' field
Delete_Entity	ERP11260	Invalid Entity ID
	ERP11270	The entity contains accounts and other data. It should be either deactivated, or all linked records need to be deleted first
List_Entities	ERP11255	Invalid value for the *Filter_Count* parameter, should be a minimum of 5 records, and a maximum of 100 records
Get_Entity_Contacts	ERP11260	Invalid Entity ID
Update_Entity_Contacts	ERP11260	Invalid Entity ID
	ERP11271	Invalid format for provided Address
	ERP11272	Invalid format for one or more of provided Phone Number(s) **Note:** Only digits are allowed (no '+', '-', '/' or spaces)
	ERP11273	Invalid format for one or more of provided Fax Number(s) **Note:** Only digits are allowed (no '+', '-', '/' or spaces)
	ERP11274	Invalid format for one or more of provided Email(s)

ERP API Request	ERP System API Response	
	Error Code	**Description**
Assign_Entity_Admin	ERP11260	Invalid Entity ID
	ERP11277	Invalid Account ID **_Note:_** This error will occur if the Account ID was not found in database, or if an entity administrator tries to assign an account outside his tree
	ERP11278	Invalid action. The Entity Admin account must be assigned directly to the entity (i.e. the Account's Entity_ID must be equal to the Entity_ID)
Get_Entity_Admins	ERP11260	Invalid Entity ID
Delete_Entity_Admin	ERP11260	Invalid Entity ID
	ERP11279	Invalid Account ID. Provided ID is not part of the Entity's admins
Assign_Entity_Logo	ERP11260	Invalid Entity ID
	ERP11281	Unknown image file format
	ERP11282	Empty contents for Image file
Get_Entity_Logo	ERP11260	Invalid Entity ID
Remove_Entity_Logo	ERP11260	Invalid Entity ID
Organization management related requests		
Get_Entity_Accounts_List	ERP11260	Invalid Entity ID
	ERP11255	Invalid value for the _Filter_Count_ parameter, should be 5 to 100 records
Get_Entity_Tree	ERP11260	Invalid Entity ID
Get_Entity_Roles_ Accounts_List	ERP11280	Invalid one or more Entity Role ID
Note: For all coming Account Group requests: - Error **_ERP11260_** will be issued in the following cases: (a) The Entity ID does not exist in the database, (b) An entity administrator is requesting an action for an Entity Group created outside his entity tree. - Error **_ERP11287_** will be issued in the following cases: (a) The Account ID does not exist in the database, (b) An entity administrator is requesting an action for a Personal Group created by another account.		
Create_Account_Group	ERP11285	Invalid 'Title' format
	ERP11286	Invalid 'Description' format
	ERP11260	Invalid Entity ID
Get_Account_Group	ERP11290	Invalid Group ID
Update_Account_Group	ERP11290	Invalid Group ID
	ERP11260	Invalid 'Title' format
	ERP11285	Invalid 'Description' format
Activate_Account_Group	ERP11290	Invalid Group ID
Deactivate_Account_Group	ERP11290	Invalid Group ID
Delete_Account_Group	ERP11290	Invalid Group ID
List_Personal_Account_ Groups	ERP11287	Invalid Account ID
List_Entity_Account_Groups	ERP11260	Invalid Entity ID
Assign_Group_Members	ERP11290	Invalid Group ID
	ERP11290	Invalid Group ID
Add_Group_Members	ERP11290	Invalid Group ID
	ERP11290	Invalid Group ID
Get_Group_Members	ERP11290	Invalid Group ID
Remove_Group_Members	ERP11290	Invalid Group ID
	ERP11288	Invalid one or more Account ID

1D. Roles and Access Control

Overview: Defines roles, permissions, and access levels across system and entity scopes. Supports role assignment and security policy enforcement.

Action	Description	Access Token Needed	Parameters	
			Input	**Output**
General Entity Roles Requests				
Create_Entity_Role	Creates a new functional role under an entity	Yes	1. *int* Entity_ID 2. *string* Title 3. *string* Description	1. *int* Entity_Role_ID
Get_Entity_Role_Details	Gets the details of an Entity Role	Yes	1. *int* Entity_Role_ID	1. *int* Entity_ID 2. *string* Title 3. *string* Description 4. *string* Title_Regional 5. *string* Description_Regional 6. *List<int>* Functions 7. *List<int>* Modules
Update_Entity_Role	Updates the details of an Entity Role	Yes	1. *int* Entity_Role_ID 2. *string* Title 3. *string* Description 4. *bool* Is_Regional	-
Remove_Entity_Role	Removes a Role from an Entity	Yes	1. *int* Entity_Role_ID	-
List_Entity_Roles	List all Roles within an Entity	Yes	1. *int* Entity_ID 2. *int* Last_Role_ID *(-ve if page number)* 3. *int* Filter_Count *(min 5, max 100)*	1. *int* Total_Count 2. *List<EntityRole>* Entity_Roles
Assign_Role_To_Account	Assign an Entity Role to a specific Account	Yes	1. *int* Entity_Role_ID 2. *int* Account_ID	-
Roles Permissions Requests				
Set_Role_Functions	Defines the allowed functions for a role	Yes	1. *int* Entity_Role_ID 2. *List<int>* Functions	
Get_Role_Functions	Gets the functions list allowed to a role	Yes	1. *int* Entity_Role_ID	1. *List<int>* Functions
Set_Role_Modules	Defines/Updates the allowed modules list	Yes	1. *int* Entity_Role_ID 2. *List<int>* Modules	
Get_Role_Modules	Gets the modules list allowed to a role	Yes	1. *int* Entity_Role_ID	1. *List<int>* Modules

Notes on Functions & Modules lists:

1. An integer list encapsulated in a string parameter, for ex: **"{1,5,6}"**. Duplicates will be removed.
2. An empty list can be included as **"{}"**
3. The list can be identified using the form listed above (just functions/modules numbers), or it can be identified using the *'all wildcard'*: **"{0}"** for all available functions and/or modules.
4. If the *'all wildcard'* is used, then exceptions can also be used in parallel. For example: a functions list of **"{0,-2}"** will include all functions except the function with the ID=2. Note: exceptions will be ignored if the *'all wildcard'* is not used, for ex.: **"{1, 5,-2}"** , **"{1, 5,-5}"** are all equal to **"{1,5}"**
5. If Modules list is empty, then all modules within the selected functions will be included.
6. If Modules list is specified, then it will be included only for selected functions, as "AND" filter

System Accessibility for API Calls 1(D) Roles and Access Control:

API Request		Access Permission				
Code	Name	DEV	SADMIN	EADMIN	USER	GUEST
General Entity Roles Requests						
600	Create_Entity_Role	✔	✔	✔		
601	Get_Entity_Role_Details	✔	✔	✔		
602	Update_Entity_Role	✔	✔	✔		
603	Remove_Entity_Role	✔	✔	✔		
604	List_Entity_Roles	✔	✔	✔		
605	Assign_Role_To_Account	✔	✔	✔		
Roles Permissions Requests						
610	Set_Role_Functions	✔	✔	✔		
611	Get_Role_Functions	✔	✔	✔	✔	
612	Set_Role_Modules	✔	✔	✔		
613	Get_Role_Modules	✔	✔	✔	✔	

Error Codes for API Calls 1(D) Roles and Access Control

In addition to the generic codes (ERP11000 to ERP11099), the following error codes could be issued for Roles and Access Control requests:

ERP API Request	ERP System API Response	
	Error Code	**Description**
Note: For all the following actions Error **ERP11305 (Access Denied to Entity Roles)** will be issued if the account calling the API request is not an Entity Administrator (or above), or does not have access to the Entity within which he is adding/altering a role.		
Create_Entity_Role	ERP11300	Invalid Entity ID
	ERP11301	Invalid Title Format
	ERP11302	Invalid Description Format
	ERP11303	Duplicate Title with another Role in the same Entity
Get_Entity_Role_Details	ERP11310	Invalid Entity Role ID
Update_Entity_Role	ERP11310	Invalid Entity Role ID
	ERP11301	Invalid Title Format
	ERP11302	Invalid Description Format
	ERP11303	Duplicate Title with another Role in the same Entity
Remove_Entity_Role	ERP11310	Invalid Entity Role ID
	ERP11311	Cannot remove Entity Role if already assigned to accounts. Role assignments should be removed first
List_Entity_Roles	ERP11300	Invalid Entity ID
	ERP11312	Invalid value for the *Filter_Count* parameter, should be a minimum of 5 records, and a maximum of 100 records
Assign_Role_To_Account	ERP11310	Invalid Entity Role ID
	ERP11315	Invalid Account ID
	Note: Error ERP11315 will be issued if the Account ID does not exist in the database or if the account does not belong to the same entity tree	
Set_Role_Functions	ERP11310	Invalid Entity Role ID
	ERP11316	Invalid one or more values within the Functions list
Get_Role_Functions	ERP11310	Invalid Entity Role ID
Set_Role_Modules	ERP11310	Invalid Entity Role ID
	ERP11318	Invalid one or more values within the Modules list
Get_Role_Modules	ERP11310	Invalid Entity Role ID

1E. Settings and Configurations

Overview: Handles system, entity, and account-level settings and configurations. Provides flexible customization of UI, notifications, and default operational parameters.

Action	Description	Access Token Needed	Parameters Input	Parameters Output
Requests related to Functions & Modules				
Add_Function	Adds new function (to group modules)	Yes	1. *string* Code 2. *string* Name	1. *int* Function_ID
Get_Function_Details	Gets the details of a function	Yes	1. *int* Function_ID	1. *int* Function_ID 2. *string* Code 3. *string* Name 4. *string* Name_Regional 5. *int* Default_Order 6. *string* URL 7. *bool* Is_Active
Update_Function_Details	Updates the details of a function	Yes	1. *int* Function_ID 2. *string* Code 3. *string* Name 4. *bool* Is_Regional 5. *int* Default_Order 6. *string* URL	-
Activate_Function	Activates previously deactivated function	Yes	1. *int* Function_ID	-
Deactivate_Function	Deactivates a function	Yes	1. *int* Function_ID	-
Get_Functions_List	Lists all functions	Yes	-	1. *Dictionary<string, object>* Functions_List
Set_Function_Logo	Adds/Updates the logo of a function	Yes	1. *int* Function_ID 2. *string* Image_Format 3. *byte[]* Logo_Image	-
Get_Function_Logo	Gets a copy of a function's logo	Yes	1. *int* Function_ID	1. *string* Image_Format 2. *byte[]* Logo_Image
Add_Module	Adds a new module to the system	Yes	1. *int* Function_ID 2. *string* Code 3. *string* Name	1. *int* Module_ID
Get_Module_Details	Gets the details of a module	Yes	1. *int* Module_ID	1. *int* Module_ID 2. *int* Function_ID 3. *string* Code 4. *string* Name 5. *string* Name_Regional 6. *int* Default_Order 7. *string* URL 8. *bool* Is_Active

Action	Description	Access Token Needed	Parameters	
			Input	**Output**
Update_Module_Details	Updates the details of a module	Yes	1. *int* Module_ID 2. *int* Module_ID 3. *string* Code 4. *string* Name 5. *bool* Is_Regional 6. *int* Default_Order 7. *string* URL	-
Activate_Module	Activates a previously deactivated module	Yes	1. *int* Module_ID	-
Deactivate_Module	Deactivates a module	Yes	1. *int* Module_ID	-
Get_Modules_List	Lists all modules	Yes	-	1. *Dictionary<string, object>* Modules_List
Set_Module_Logo	Adds/Updates the logo of a module	Yes	1. *int* Module_ID 2. *string* Image_Format 3. *byte[]* Logo_Image	-
Get_Module_Logo	Gets a copy of a module's logo	Yes	1. *int* Module_ID	1. *string* Image_Format 2. *byte[]* Logo_Image

Note: Image Format for Function Logo or Module Logo should be checked in the front end and confirmed as one of the following formats: 'png', 'jpg', 'jpe', 'jpeg', 'gif', 'bmp', 'tiff', 'tif' or 'pict'.

Requests related to System Settings

Action	Description	Access Token Needed	Input	Output
Set_ERP_System_Settings	Adds/Updates ERP System settings/ configurations	Yes	1. *Dictionary< string,string>* Settings_List *[KeyValuePairs, name & value]*	-
Get_ERP_System_Settings	Retrieves system-specific settings/ configurations	Yes	-	1. *Dictionary<string, string>* Settings_List
Remove_ERP_System_Setting	Removes a specific ERP System setting	Yes	1. *string* Setting_Name	

Requests related to Accounts Settings

Action	Description	Access Token Needed	Input	Output
Set_Default_Account_Settings	Adds/Updates the default settings for all accounts	Yes	1. *Dictionary< string,string>* Settings_List *[KeyValuePairs, name & value]*	-
Get_Default_Account_Settings	Retrieves the default settings for all accounts	Yes	-	1. *Dictionary<string, string>* Settings_List

Note: Default Account Settings are the values which will be retrieved for any setting if there is nothing stored for this setting under the current account

Action	Description	Access Token Needed	Parameters	
			Input	**Output**
Set_Account_Settings	Adds/Updates account settings/ configurations	Yes	1. *int* Account_ID 2. *Dictionary< string, string>* Settings_List	-
Get_Account_Settings	Retrieves account-specific settings/ configurations	Yes	1. *int* Account_ID	1. *Dictionary<string, string>* Settings_List
Remove_Account_Setting	Removes a specific account setting	Yes	1. *int* Account_ID 2. *string* Setting_Name	-
Requests related to Entities Settings				
Set_Default_Entity_Settings	Adds/Updates the default settings for all Entities	Yes	1. *Dictionary< string,string>* Settings_List *[KeyValuePairs, name & value]*	-
Get_Default_Entity_Settings	Retrieves the default settings for all Entities	Yes	-	1. *Dictionary<string, string>* Settings_List
Note: Default Entity Settings are the values which will be retrieved for any setting if there is nothing stored for this setting under the current Entity				
Set_Entity_Settings	Adds/Updates Entity settings/ configurations	Yes	1. *int* Entity_ID 2. *Dictionary<string, string>* Settings_List	-
Get_Entity_Settings	Retrieves Entity-specific settings/ configurations	Yes	1. *int* Entity_ID	1. *Dictionary<string, string>* Settings_List
Remove_Entity_Setting	Removes a specific Entity setting	Yes	1. *int* Entity_ID 2. *string* Setting_Name	-

Notes on Settings Dictionaries:

1. Any of the above settings dictionaries should be in the form of a JSON dictionary:
   "{ { "Key 1" : "Value 1" } , { "Key 2" : "Value 2"} }"   or
   "[{ "Key 1" : "Value 1" } , { "Key 2" : "Value 2"}]"
   Spaces are not required, those are just for illustration
2. Keys or values can contain spaces or special characters

System Accessibility for API Calls 1(E) Settings and Configurations:

API Request		Access Permission				
Code	Name	DEV	SADMIN	EADMIN	USER	GUEST
Requests related to Functions & Modules						
700	Add_Function	✔				
701	Get_Function_Details	✔	✔			
702	Update_Function_Details	✔	✔			
703	Activate_Function	✔				
704	Deactivate_Function	✔				
705	Get_Functions_List	✔	✔			
706	Set_Function_Logo	✔	✔			
707	Get_Function_Logo	✔	✔			
710	Add_Module	✔				
711	Get_Module_Details	✔	✔			
712	Update_Module_Details	✔	✔			
713	Activate_Module	✔				
714	Deactivate_Module	✔				
715	Get_Modules_List	✔	✔			
716	Set_Module_Logo	✔	✔			
717	Get_Module_Logo	✔	✔			
Requests related to System Settings						
730	Set_ERP_System_Settings	✔				
731	Get_ERP_System_Settings	✔				
732	Remove_ERP_System_Setting	✔				
Requests related to Accounts Settings						
760	Set_Default_Account_Settings	✔	✔			
761	Get_Default_Account_Settings	✔	✔			
762	Set_Account_Settings	✔	✔	✔	✔	
763	Get_Account_Settings	✔	✔	✔	✔	
764	Remove_Account_Setting	✔	✔	✔	✔	
Requests related to Entities Settings						
780	Set_Default_Entity_Settings	✔	✔			
781	Get_Default_Entity_Settings	✔	✔			
782	Set_Entity_Settings	✔	✔	✔		
783	Get_Entity_Settings	✔	✔	✔		
784	Remove_Entity_Setting	✔	✔	✔		

Error Codes for API Calls 1(E) Settings and Configurations

In addition to the generic codes (ERP11000 to ERP11099), the following error codes could be issued for Settings and Configurations requests:

ERP API Request	ERP System API Response	
	Error Code	Description
Requests related to Functions & Modules		
Add_Function	ERP11401	Invalid Code format, duplicate code, or length > 10 characters
	ERP11402	Invalid Name format, or length > 30 characters
Get_Function_Details	ERP11400	Invalid Function ID
Update_Function_Details	ERP11400	Invalid Function ID
	ERP11401	Invalid Code format
	ERP11402	Invalid Name format
	ERP11403	Invalid Default Order value -> value must be greater than zero
	ERP11404	Invalid URL format
Activate_Function	ERP11400	Invalid Function ID
	ERP11406	Function already Active
Deactivate_Function	ERP11400	Invalid Function ID
	ERP11407	Function already Inactive
Get_Functions_List	-	-
Set_Function_Logo	ERP11400	Invalid Function ID
	ERP11408	Unknown image file format
	ERP11409	Empty contents for logo file
Get_Function_Logo	ERP11400	Invalid Function ID
Add_Module	ERP11400	Invalid Function ID
	ERP11401	Invalid Code format, duplicate code, or length > 10 characters
	ERP11402	Invalid Name format, or length > 30 characters
Get_Module_Details	ERP11410	Invalid Module ID
Update_Module_Details	ERP11400	Invalid Function ID
	ERP11410	Invalid Module ID
	ERP11401	Invalid Code format
	ERP11402	Invalid Name format
	ERP11403	Invalid Default Order value -> value must be greater than zero
	ERP11404	Invalid URL format
Activate_Module	ERP11410	Invalid Module ID
	ERP11411	Module already Active
Deactivate_Module	ERP11410	Invalid Module ID
	ERP11412	Module already Inactive
Get_Modules_List	-	-
Set_Module_Logo	ERP11410	Invalid Module ID
	ERP11408	Unknown image file format
	ERP11409	Empty contents for logo file
Get_Module_Logo	ERP11410	Invalid Module ID

ERP API Request	ERP System API Response	
	Error Code	Description
Requests related to System Settings		
Set_ERP_System_Settings	ERP11420	Invalid Setting key -> Empty
	ERP11421	Invalid Setting value -> Empty
Get_ERP_System_Settings	-	-
Remove_ERP_System_Setting	ERP11422	Invalid Setting title -> Not found
Requests related to Accounts Settings		
Set_Default_Account_Settings	ERP11420	Invalid Setting key -> Empty
	ERP11421	Invalid Setting value -> Empty
Get_Default_Account_Settings	-	-
Set_Account_Settings	ERP11425	Invalid Account ID
	ERP11420	Invalid Setting key -> Empty
	ERP11421	Invalid Setting value -> Empty
Get_Account_Settings	ERP11425	Invalid Account ID
Remove_Account_Setting	ERP11425	Invalid Account ID
	ERP11422	Invalid Setting title -> Not found
Requests related to Entities Settings		
Set_Default_Entity_Settings	ERP11420	Invalid Setting key -> Empty
	ERP11421	Invalid Setting value -> Empty
Get_Default_Entity_Settings	-	-
Set_Entity_Settings	ERP11426	Invalid Entity ID
	ERP11420	Invalid Setting key -> Empty
	ERP11421	Invalid Setting value -> Empty
Get_Entity_Settings	ERP11426	Invalid Entity ID
Remove_Entity_Setting	ERP11426	Invalid Entity ID
	ERP11422	Invalid Setting title -> Not found

1F. Actions and Notifications

Overview: Manages actionable items and system notifications. Actions require user input or approval, while notifications provide system or informational alerts.

Action	Description	Access Token Needed	Parameters	
			Input	Output
Notifications Related Requests				
Notification Types				
List_Notification_Types	Lists all types of notifications	Yes	-	1. *List<object>* Notification_Types
Notification Categories				
Create_Notification_Category	Creates a new notification category	Yes	1. *short* Type_ID 2. *string* Title 3. *string* Description 4. *boolean* Can_Be_ Unsubscribed	1. *int* Category_ID
Get_Notification_Category	Gets a specific notification category	Yes	1. *int* Category_ID	1. *short* Type_ID 2. *string* Title 3. *string* Description 4. *string* Title_Regional 5. *string* Description_Regional 6. *boolean* Can_Be_ Unsubscribed
List_Notification_Categories	Lists all categories of notifications	Yes	1. *int* Last_Category_ID *(-ve if page number)* 2. *int* Filter_Count *(min 5, max 100)*	1. *int* Total_Count 2. *List<object>* Notification_Categories
Update_Notification_Category	Updates a specific notification category	Yes	1. *int* Category_ID 2. *short* Type_ID 3. *string* Title 4. *string* Description 5. *boolean* Is_Regional 6. *boolean* Can_Be_ Unsubscribed	-
Delete_Notification_Category	Deletes a specific notification category	Yes	1. *int* Category_ID	-
Create_Entity_Notification_ Category	Creates a new entity notification category	Yes	1. *int* Entity_ID 2. *short* Type_ID 3. *string* Title 4. *string* Description 5. *boolean* Can_Be_ Unsubscribed	1. *int* Category_ID

Action	Description	Access Token Needed	Parameters	
			Input	Output
Get_Entity_Notification_ Category	Gets a specific entity notification category	Yes	1. *int* Category_ID	1. *int* Category_ID 2. *short* Type_ID 3. *string* Title 4. *string* Description 5. *string* Title_Regional 6. *string* Description_Regional 7. *boolean* Can_Be_ Unsubscribed
List_Entity_Notification_ Categories	Lists all notifications categories for an entity	Yes	1. *int* Entity_ID 2. *int* Last_Category_ID *(-ve if page number)* 3. *int* Filter_Count *(min 5, max 100)*	1. *int* Total_Count 2. *List<object>* Notification_Categories
Update_Entity_Notification_ Category	Updates an entity notification category	Yes	1. *int* Category_ID 2. *short* Type_ID 3. *string* Title 4. *string* Description 5. *boolean* Is_Regional 6. *boolean* Can_Be_ Unsubscribed	-
Delete_Entity_Notification_ Category	Deletes an entity notification category	Yes	1. *int* Category_ID	-
Notifications				
Create_Notification	Creates a new notification	Yes	1. *int* Module_ID *[The Module_ID depends on the calling Module from Frontend]* 2. *int* Category_ID 3. *string* Title 4. *string* Message 5. *string* Reference_Type 6. *int* Reference_ID	1. *int* Notification_ID

Note: References are simply an attachment, which can be an '***Image***', a '***File***', a '***Document***', a '***Workflow***' or any other type which can be attached to the notification, and stored elsewhere in the database. The ID of this reference or attachment is its ID in the related table, for example the *Reference_ID* will be the *Image_ID* in the Images table

Action	Description	Access Token Needed	Parameters	
			Input	**Output**
Get_Notification	Retrieves a specific notification	Yes	1. *int* Notification_ID	1. *int* Notification_ID 2. *int* Module_ID 3. *int* Type_ID 4. *int* Category_ID 5. *string* Title 6. *string* Message 7. *string* Title_Regional 8. *string* Message_Regional 9. *string* Reference_Type 10. *int* Reference_ID
List_Notifications	Lists all notifications as per the included filter(s)	Yes	1. *List<int>* Type_Filter 2. *List<int>* Category_Filter 3. *string* Text_Filter 4. *int* Last_Notification_ID *(-ve if page number)* 5. *int* Filter_Count *(min 5, max 100)*	1. *int* Total_Count 2. *List<object>* Notifications
	Note: The *Type_Filter* and *Category_Filter* will be ignored if included as *'{0}'* or simply *'{}'*, and similarly, the *Text_Filter* will be ignored if contains an empty string			
Update_Notification	Updates a specific notification	Yes	1. *int* Notification_ID 2. *int* Category_ID 3. *string* Title 4. *string* Message 5. *bool* Is_Regional 6. *string* Reference_Type 7. *int* Reference_ID	-
Delete_Notification	Deletes a specific notification	Yes	1. *int* Notification_ID	-
Create_Entity_Notification	Creates a new entity notification	Yes	1. *int* Module_ID *The Module_ID depends on the calling Module from Frontend]* 2. *int* Category_ID 3. *int* Entity_ID 4. *string* Title 5. *string* Message 6. *string* Reference_Type 7. *int* Reference_ID	1. *int* Notification_ID

Action	Description	Access Token Needed	Parameters	
			Input	**Output**
Get_Entity_Notification	Retrieves a specific entity notification	Yes	1. *int* Notification_ID	1. *int* Notification_ID 2. *int* Module_ID 3. *int* Type_ID 4. *int* Category_ID 5. *int* Entity_ID 6. *string* Title 7. *string* Message 8. *string* Title_Regional 9. *string* Message_Regional 10. *string* Reference_Type 11. *int* Reference_ID
List_Entity_Notifications	Lists all entity's notifications as per the included filter(s)	Yes	1. *int* Entity_ID 2. *List<int>* Type_Filter 3. *List<int>* Category_Filter 4. *string* Text_Filter 5. *int* Last_Notification_ID *(-ve if page number)* 6. *int* Filter_Count *(min 5, max 100)*	1. *int* Total_Count 2. *List<object>* Notifications
	Note: The *Type_Filter* and *Category_Filter* will be ignored if included as *'{0}'* or simply *'{}'*, and similarly, the *Text_Filter* will be ignored if contains an empty string			
Update_Entity_Notification	Updates a specific entity notification	Yes	1. *int* Notification_ID 2. *int* Category_ID 3. *string* Title 4. *string* Message 5. *bool* Is_Regional 6. *string* Reference_Type 7. *int* Reference_ID	-
Delete_Entity_Notifications	Deletes a specific entity notification	Yes	1. *int* Notification_ID	-
Send Notification				
Send_Notification_To_Accounts	Send a specific notification to a group of accounts	Yes	1. *int* Notification_ID 2. *List<int>* Account_IDs	-
Send_Notification_To_Groups	Send a notification to a list of predefined groups of accounts	Yes	1. *int* Notification_ID 2. *List<int>* Group_IDs	-
Send_Notification_To_Roles	Send a notification to the accounts under a group of entity roles	Yes	1. *int* Notification_ID 2. *List<int>* Entity_Role_IDs	-

Action	Description	Access Token Needed	Parameters	
			Input	Output
Send_Notification_To_Entities	Send a notification to the accounts under a group of entities	Yes	1. *int* Notification_ID 2. *List\<int\>* Entity_IDs	-
Send_Notification_To_All	Send a notification to all system users	Yes	1. *int* Notification_ID	-
Account Notifications				
Mark_Notifications_Read	Marks on or more of the account's notifications as Read	Yes	1. *int* Account_ID 2. *List\<int\>* Notification_IDs	-
Mark_Notifications_Unread	Marks on or more of the account's notifications as Unread	Yes	1. *int* Account_ID 2. *List\<int\>* Notification_IDs	-
Delete_Notifications	Deletes on or more of the account's notifications	Yes	1. *int* Account_ID 2. *List\<int\>* Notification_IDs	-
List_Account_Notifications	Lists all entity's notifications as per the included filter(s)	Yes	1. *int* Account_ID 2. *List\<int\>* Type_Filter 3. *List\<int\>* Category_Filter 4. *string* Text_Filter 5. *int* Last_Notification_ID *(-ve if page number)* 6. *int* Filter_Count *(min 5, max 100)*	1. *int* Total_Count 2. *List\<object\>* Notifications
Subscribe_To_ Notification_Category	Requests that the account is notified for a specific category	Yes	1. *int* Account_ID 2. *int* Category_ID	-
Unsubscribe_To_ Notification_Category	Requests that the account is not notified for a specific category	Yes	1. *int* Account_ID 2. *int* Category_ID	-
Actions Related Requests				
Add_Action	Retrieves notifications for a user	Yes	User_ID	Notifications[]
Mark_Action_As_ Complete	Marks an action as completed or resolved	Yes	Action_ID, User_ID	
List_Actions	Lists pending actions assigned to a user	Yes	User_ID	Action_List[]

System Accessibility for API Calls 1(F) Actions and Notifications:

API Request		Access Permission				
Code	Name	DEV	SADMIN	EADMIN	USER	GUEST
Notifications Related Requests						
	Notification Types					
800	List_Notification_Types	✔	✔			
	Notification Categories					
810	Create_Notification_Category	✔	✔			
811	Get_Notification_Category	✔	✔			
812	List_Notification_Categories	✔	✔			
813	Update_Notification_Category	✔	✔			
814	Delete_Notification_Category	✔	✔			
815	Create_Entity_Notification_Category	✔	✔	✔		
816	Get_Entity_Notification_Category	✔	✔	✔		
817	List_Entity_Notification_Categories	✔	✔	✔		
818	Update_Entity_Notification_Category	✔	✔	✔		
819	Delete_Entity_Notification_Category	✔	✔	✔		
	Notifications					
820	Create_Notification	✔	✔			
821	Get_Notification	✔	✔			
822	List_Notifications	✔	✔			
823	Update_Notification	✔	✔			
824	Delete_Notification	✔	✔			
825	Create_Entity_Notification	✔	✔	✔		
826	Get_Entity_Notification	✔	✔	✔		
827	List_Entity_Notifications	✔	✔	✔		
828	Update_Entity_Notification	✔	✔	✔		
829	Delete_Entity_Notification	✔	✔	✔		
	Send Notification					
830	Send_Notification_To_Accounts	✔	✔	✔		
831	Send_Notification_To_Groups	✔	✔	✔		
832	Send_Notification_To_Roles	✔	✔	✔		
833	Send_Notification_To_Entities	✔	✔	✔		
834	Send_Notification_To_All	✔	✔			

API Request		DEV	SADMIN	EADMIN	USER	GUEST
Code	**Name**					
	Account Notifications					
840	Mark_Notifications_Read	✔	✔	✔	✔	
841	Mark_Notifications_Unread	✔	✔	✔	✔	
842	Delete_Notifications	✔	✔	✔	✔	
843	List_Account_Notifications	✔	✔	✔	✔	
844	Subscribe_To_Notification_Category	✔	✔	✔	✔	
845	Unsubscribe_To_Notification_Category	✔	✔	✔	✔	
Actions Related Requests						
	[Under development]					

Note: The top header row spans "API Request" (Code, Name) and "Access Permission" (DEV, SADMIN, EADMIN, USER, GUEST).

Error Codes for API Calls 1(F) Actions and Notifications

In addition to the generic codes (ERP11000 to ERP11099), the following error codes could be issued for Actions and Notifications requests:

ERP API Request	ERP System API Response	
	Error Code	Description
Notifications Related Requests		
List_Notification_Types	-	-
Create_Notification_Category	ERP11451	Invalid Category Title
	ERP11452	Invalid Category Description
	ERP11453	Invalid Type ID
Get_Notification_Category	ERP11450	Invalid Category ID
List_Notification_Categories	-	-
Update_Notification_Category	ERP11450	Invalid Category ID
	ERP11451	Invalid Category Title
	ERP11452	Invalid Category Description
Delete_Notification_Category	ERP11450	Invalid Category ID
Note: In the following requests, error ERP11455 will be issued in two cases: (a) if the *Entity_ID* specified does not exist in the database, (b) if the Entity Administrator is trying to access a Category created outside his entity tree		
Create_Entity_Notification_ Category	ERP11451	Invalid Category Title
	ERP11452	Invalid Category Description
	ERP11453	Invalid Type ID
	ERP11455	Invalid Entity ID
Get_Entity_Notification_ Category	ERP11450	Invalid Category ID
	ERP11455	Invalid Entity ID
List_Entity_Notification_ Categories	ERP11455	Invalid Entity ID
Update_Entity_Notification_ Category	ERP11450	Invalid Category ID
	ERP11451	Invalid Category Title
	ERP11452	Invalid Category Description
	ERP11455	Invalid Entity ID
Delete_Entity_Notification_ Category	ERP11450	Invalid Category ID
	ERP11455	Invalid Entity ID
Create_Notification	ERP11460	Invalid Module ID
	ERP11450	Invalid Category ID
	ERP11461	Invalid Notification Title
	ERP11462	Invalid Notification Message -> Empty or length > 1000
	ERP11463	Invalid Reference Type
	ERP11464	Invalid Reference ID
Note: References are simply an attachment, which can be an '*Image*', a '*File*', a '*Document*', a '*Workflow*' or any other type which can be attached to the notification, and stored elsewhere in the database. The ID of this reference or attachment is its ID in the related table, for example the *Reference_ID* will be the *Image_ID* in the Images table		
Get_Notification	ERP11465	Invalid Notification ID

ERP API Request	ERP System API Response	
	Error Code	Description
List_Notifications	ERP11456	Invalid one or more Type_ID
	ERP11457	Invalid one or more Category_ID
	ERP11458	Invalid value for the *Filter_Count* parameter, should be a minimum of 5 records, and a maximum of 100 records
Update_Notification	ERP11465	Invalid Notification ID
	ERP11450	Invalid Category ID
	ERP11461	Invalid Notification Title
	ERP11462	Invalid Notification Message
	ERP11463	Invalid Reference Type
	ERP11464	Invalid Reference ID
Delete_Notification	ERP11465	Invalid Notification ID
Create_Entity_Notification	ERP11460	Invalid Module ID
	ERP11450	Invalid Category ID
	ERP11455	Invalid Entity ID
	ERP11461	Invalid Notification Title
	ERP11462	Invalid Notification Message
	ERP11463	Invalid Reference Type
	ERP11464	Invalid Reference ID
Get_Entity_Notification	ERP11455	Invalid Entity ID
	ERP11465	Invalid Notification ID
List_Entity_Notifications	ERP11455	Invalid Entity ID
	ERP11456	Invalid one or more Type_ID
	ERP11457	Invalid one or more Category_ID
	ERP11458	Invalid value for the *Filter_Count* parameter, should be a minimum of 5 records, and a maximum of 100 records
Update_Entity_Notification	ERP11465	Invalid Notification ID
	ERP11450	Invalid Category ID
	ERP11455	Invalid Entity ID
	ERP11461	Invalid Notification Title
	ERP11462	Invalid Notification Message
	ERP11463	Invalid Reference Type
	ERP11464	Invalid Reference ID
Delete_Entity_Notification	ERP11455	Invalid Entity ID
	ERP11465	Invalid Notification ID
Send_Notification_To_Accounts	ERP11465	Invalid Notification ID
	ERP11466	Invalid one or more of the Account IDs ***Note:*** Will be issued also if one or more of the Accounts is outside the Entity Administrator's entity tree
Send_Notification_To_Groups	ERP11465	Invalid Notification ID
	ERP11467	Invalid one or more of the Group IDs ***Note:*** Will be issued also if one or more of the Groups is outside the Entity Administrator's entity tree

ERP API Request	ERP System API Response	
	Error Code	Description
Send_Notification_To_Roles	ERP11465	Invalid Notification ID
	ERP11468	Invalid ==one or more of== the Entity Role IDs
Send_Notification_To_Entities	ERP11465	Invalid Notification ID
	ERP11469	Invalid ==one or more of== the Entity IDs ***Note:*** ==Will be issued also if one or more of the Entities is outside the Entity Administrator's entity tree==
Send_Notification_To_All	ERP11465	Invalid Notification ID
Mark_Notifications_Read	ERP11470	Invalid Account ID
	ERP11471	Invalid one or more of the Notification IDs
Mark_Notifications_Unread	ERP11470	Invalid Account ID
	ERP11471	Invalid one or more of the Notification IDs
Delete_Notifications	ERP11470	Invalid Account ID
	ERP11471	Invalid one or more of the Notification IDs
List_Account_Notifications	ERP11470	Invalid Account ID
Subscribe_To_Notification_ Category	ERP11465	Invalid Notification ID
	ERP11470	Invalid Account ID
Unsubscribe_To_Notification_ Category	ERP11465	Invalid Notification ID
	ERP11470	Invalid Account ID
Actions Related Requests		

1G. Audit and Logging

Overview: Provides system-wide audit trails and logs for accountability, tracking user actions and configuration changes across all modules.

[Under development]