CelloSaaS Self-Guided Live Tour

Ver. 1.0

The purpose of this Self-Guide is to help you walk through the features and modules of CelloSaaS. You will see how easy it is to manage common SaaS requirements such as,

- **Customer mgmt.**
- **Subscription mgmt.**
- **Security**
- **Membership**
- **Billing & Metering**
- **White Label**
- **Workflow**
- **Business Rules**
- **Reporting**
- **Event System**
- **SaaS Notification Management**

This guide addresses some of the key features from a Product Administrator/Tenant Administrator/ End User perspective. There are several features of Cello that has not been addressed as part of this guide. However, you will find the same from our website

techcello

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1 Introduction to CelloSaaS

CelloSaaS is a cloud ready application development framework for building Robust, Multi-Tenant, Internet Scalable SaaS and Enterprise Applications. CelloSaaS offers several pre-built modules that heavy-lifts most of the complex, non-functional requirements and operational needs of Multi-Tenant applications. ISVs and Enterprises can easily integrate the modules of CelloSaaS with their applications in a ready-to-use form like APIs, WCF services and inheritable classes. This will allow them to focus on building their business functionalities. Applications built using CelloSaaS can be hosted anywhere, from public cloud (such as amazon, azure) or private cloud, to on premise Servers.

CelloSaaS comes in two editions,

1. Business Edition (Click here to see the complete Feature)
2. Ultimate Edition (Click here to see the complete Feature)

This document focuses on Decision Makers, Architects and developers to get a feeler and hands on how to get started with the CelloSaaS.

2 Nomenclature

Icon	Description
	Notes icon refers to some Special instructions on a topic
	Reference icon refers to additional resources within in this document or external document to refer from.
	This icon informs click on certain links to navigate to specific page.
	Try icon refers to procedures need to be followed by the user to try and execute the step by step process
	Warning icon refers to mandatory things that needs to validated or entered in a feature.

3 Intro to Live Demo

This Live Demo Application assumes that you have built a Multi-Tenant Project Management Application integrated with Cello Ultimate Edition and hosted in some public or some on premise servers. Now let's look at various steps involved in configuring the product to make it servable to customers.

4 Step 1: Setup Product

Setting up the Product refers to the initial configurations that you have to perform in order to publish your application LIVE.

4.1 Login as Product Administrator

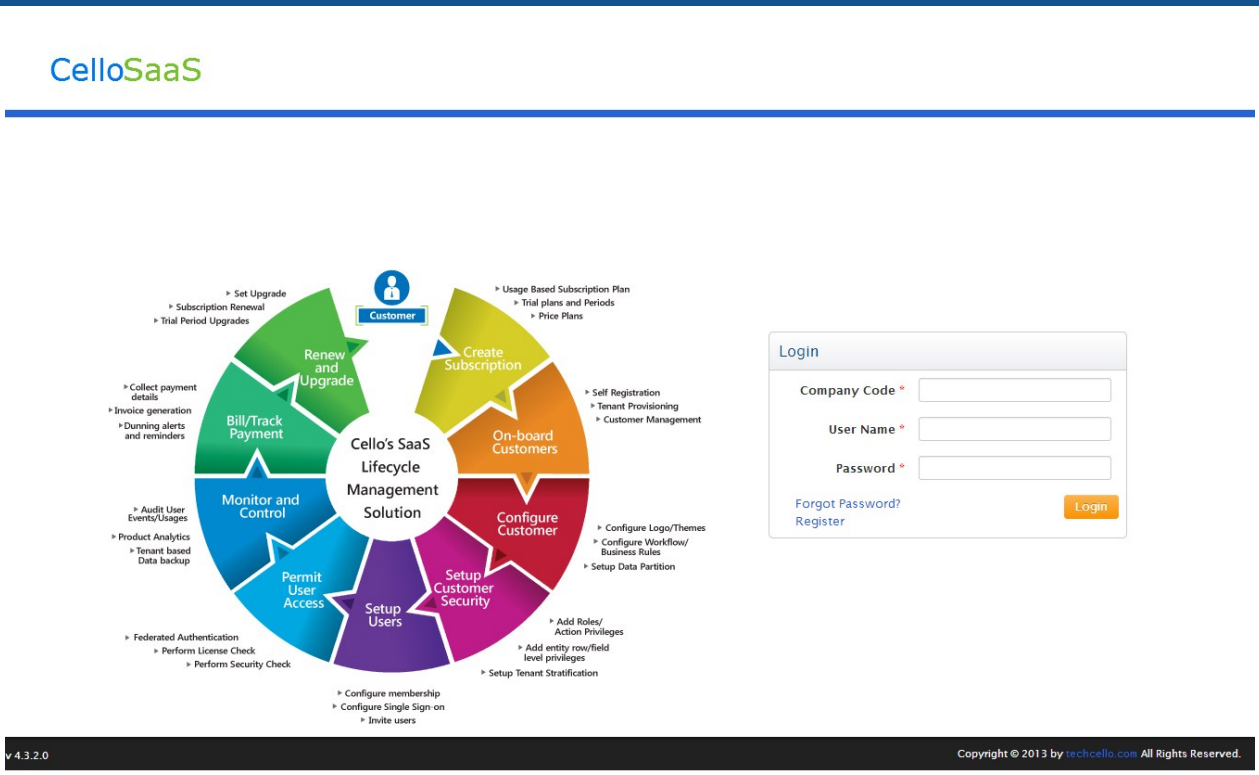
CelloSaaS preloads with an administrator user who will act as a super administrator otherwise called as Product Administrator. The Super Administrator can control the entire product behaviour such as, On-boarding Tenants, Setting up Subscriptions, configuring Merchant Billing Account and almost all the functionalities. The default username, password and privileges can be changed at any point of time.

Default Credentials (Product Administrator)

Company Code: company

Username: admin@company.com

Password: company#123 (Case Sensitive)



Click here to read more

4.2 Access Administration Portal

To perform the initial Configurations, login as a Super Administrator. You will be navigated to the main dashboard page after the successful authentication process. This entire portal is provided out-of-the-box solution and works immediately after installation without any configuration or modification in Cello except the SQL Configuration (You have to point the application to connect to the Cello Metadata DB and application DB if required). The Cello Administration portal provides all functionalities required to manage your SaaS application. Now, you can start setting up the product.

4.3 Create Subscription

The first step of product setup is to configure the subscription packages, Click here to read more about Subscriptions. In order to configure subscriptions, the custom Modules and Features built using Cello must be registered with the framework,

Click here for more references.

4.4 Getting Started with "Live Tour"

For the purposes of Live Tour this demo Application is preloaded with two modules namely,

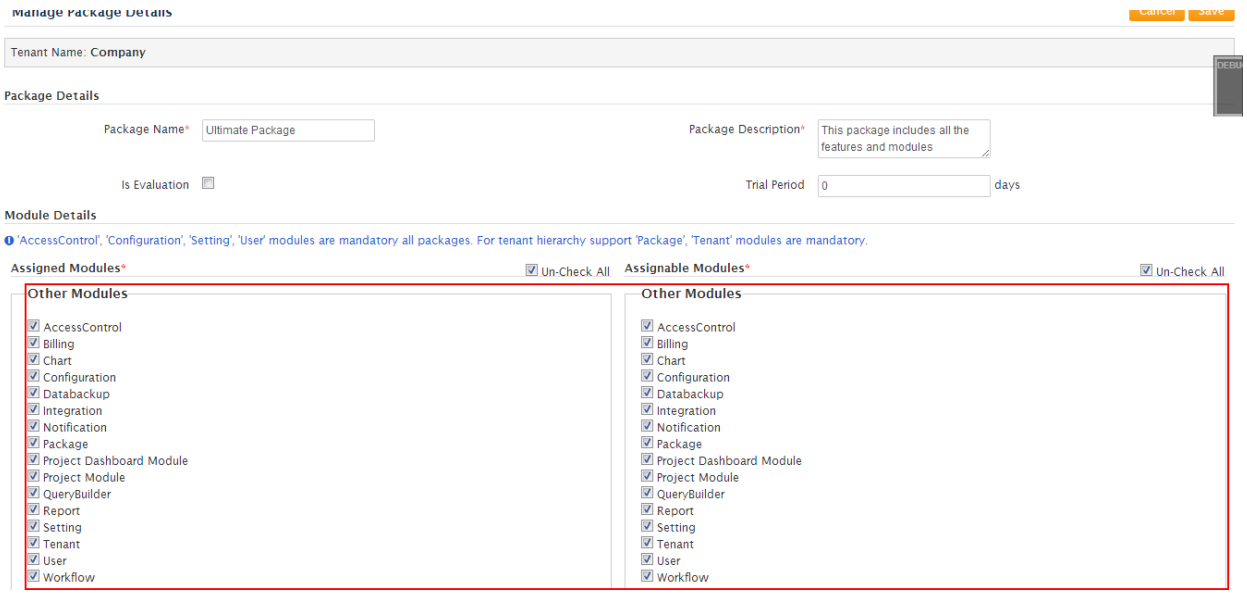
- Project Management
- Task Management

For the live tour, create two packages

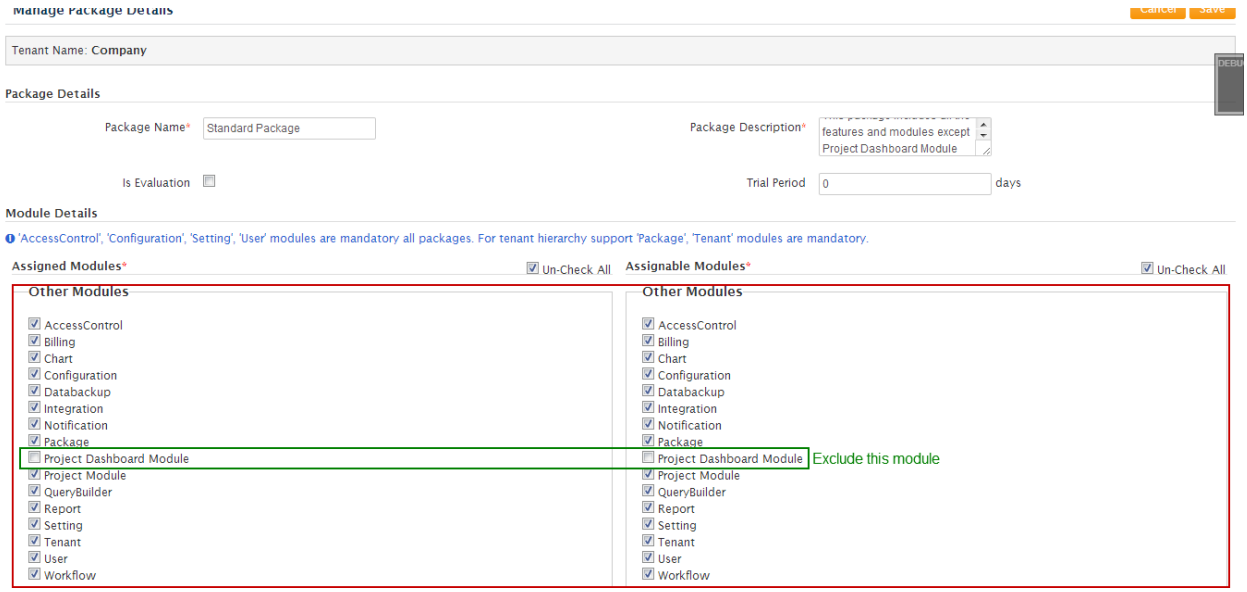
Navigate to Subscription >> Manage Subscriptions – Click Add Button

1. **Ultimate Package** (Include all the default modules and features as shown in the below Screenshot and do not exclude any modules. The Idea is to provide all the features and functionalities to customers who purchase the **Ultimate** package.

The below screenshot displays the custom module (Project Dashboard Module, Project Module) integrated with the framework along with the out-of-the-box modules and features.

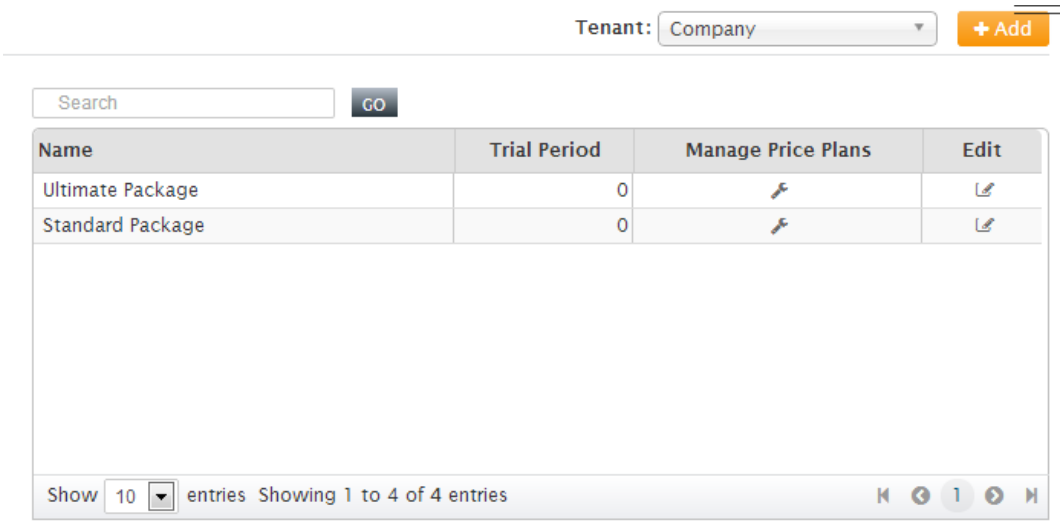


2. **Standard Package**(Include all the modules and features except Project Dashboard Module)



After creating the two packages as requested above, the Package Listing page will appear as below.

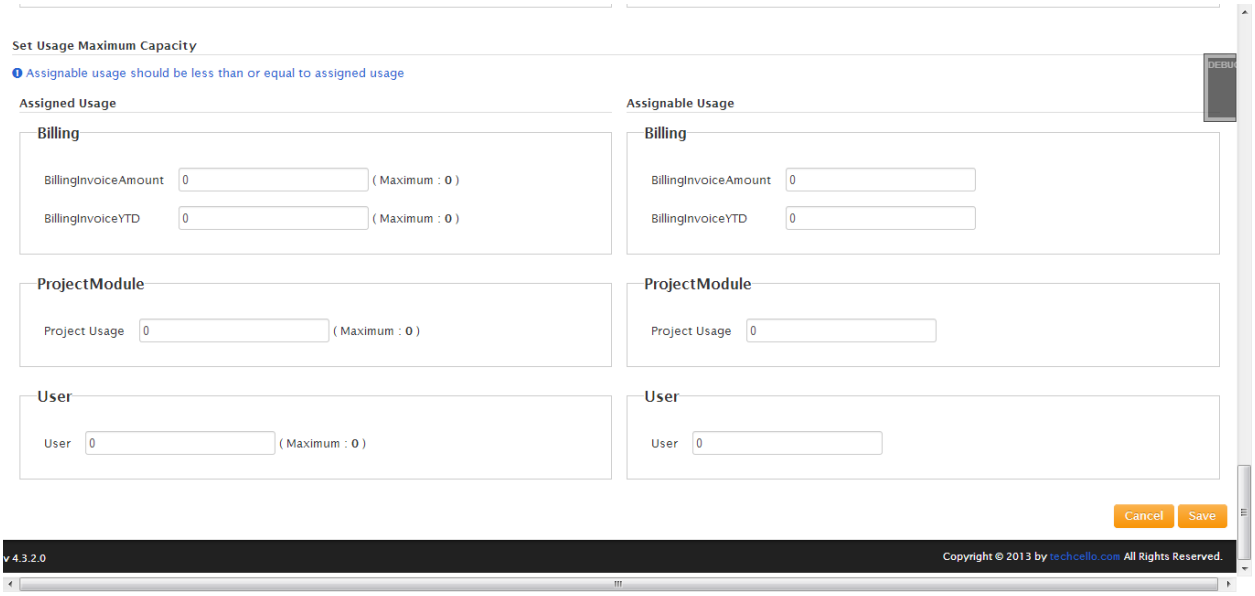
Note : Assignable modules relates to a feature called **"Tenant Hierarchy",** for this live tour just select all the features and modules from both "**Assigned**" and "**Assignable modules**". To read more about Tenant hierarchy, click here.



4.5 Usage assigning process

Usage Variables are the base for metering the transactions by the Tenants. These usage variables have to be identified during the time of development for each and every module based on your metering requirement.

For this live Tour App, there are two usage variables registered within the application. They are **ProjectModule Usage** and **User Usage** variables. To view the same, navigate Subscription >> Manage Subscription >> Click add button and select the project module and its sub features. Similarly, select the access control module and its sub features and scroll down to the bottom of the page.



While creating the subscription, setup some usage limit as per the subscriptions. When the package is subscribed by a customer and whenever a particular feature is consumed, the metering engine of Cello will continuously monitor the usage of the customer. To learn more about the Metering Engine, click here.

4.6 Create Price plans

Price plan refers to the computational logic to bill the Customer. Pricing plans are subset of subscriptions and hence a Subscription plan can have any number of Pricing Plans under it.

Example:

1. **Silver Subscription**
   - **1.1. Price Plan-1**
   - **1.2. Price Plan-2**
2. **Gold subscription**
   - **2.1. Price Plan-1**
   - **2.2. Price Plan-2**

3. Platinum Subscription:
   3.1. Price Plan-1
   3.2. Price Plan-2

4.7 Types of Price Plan

There are two types of Price Plans supported in CelloSaaS, They are

1. Flat Pricing

Example

In this model, a flat cost is set for a subscription; the same cost will be charged from the customer on a month on month basis or based on the frequency assigned by the Product Administrator.

Refer Billing Cycles Topic to understand more about Frequencies

	Silver	Gold	Platinum
	$ 49	$ 69	$ 79
Validity	1 Year	1 Year	1 Year
Storage	1 GB	3 GB	5 GB
Blog posts/Month	2	3	5
Social Media Branding	No	No	Yes
Social Bookmarking	No	No	Yes
	Sign up	Sign up	Sign up

Version B (new)

With a flat cost, customers are required to pay the subscription cost irrespective of whether or not they use the subscription. There are no additional costs except the Tax components if any.

2. **Pay as you Go**

As the name implies, the subscription cost depends on the metered usage [Click here to understand Usage Metering] of the service with or without base price.

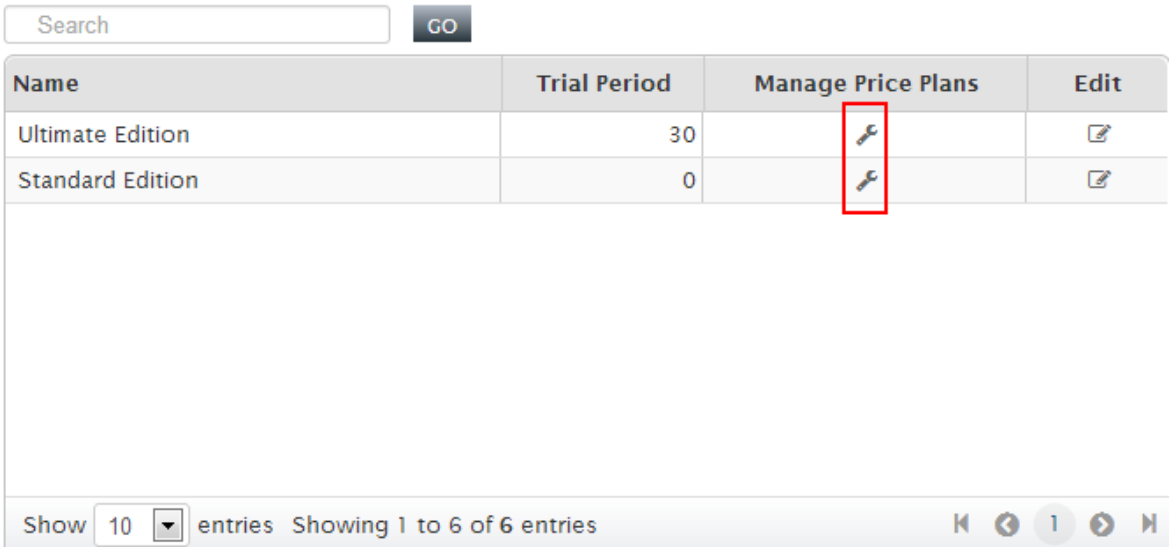
Pay as you go model can work in two modes. They are

a. With Base Cost
b. Without Base Cost

For this Live Demo Tour, let's create a simple Flat Plan for easier understanding.

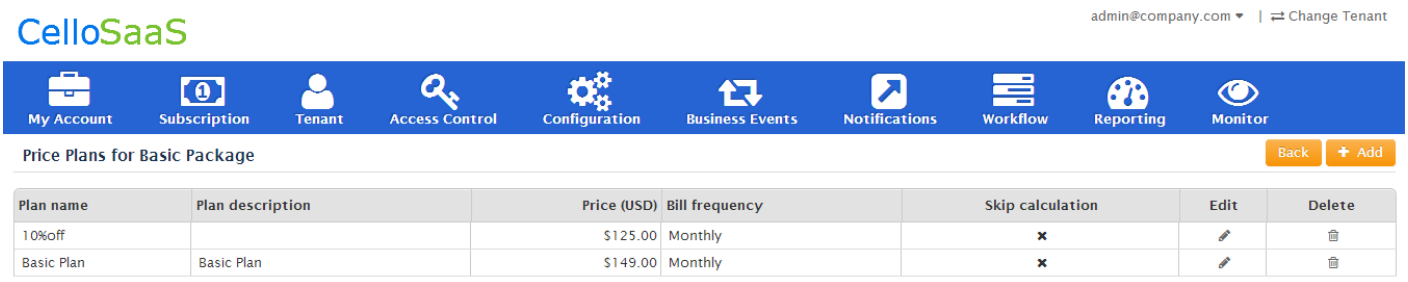
Navigate to Admin>> Manage Subscriptions

- Click on Manage Price Plan icon against Ultimate Edition and create price plan of type 'Flat' with cost 199$ [Refer below screenshot]
- Click on Manage Price Plan icon against Standard Edition and create a price plan of type Flat with cost 99$ [Refer below screenshot]



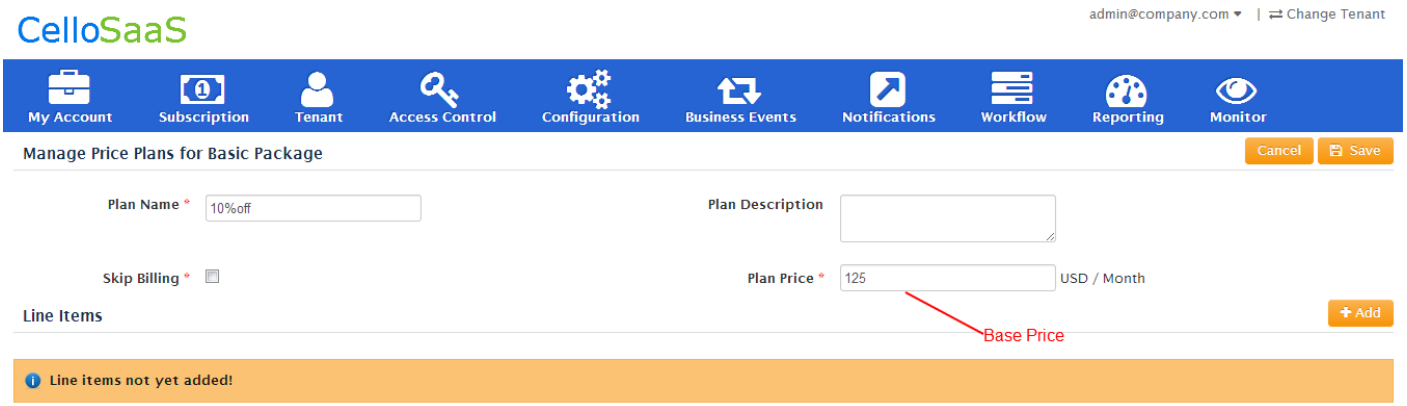
Package Management

- On clicking on the "Manage Price Plan", you will be redirected to "Price Plan Listing Page" [Refer below screenshot]



Price Plan Listing Page

- Click on Add button to add a new Pricing plan for a Package (Refer the above screen).

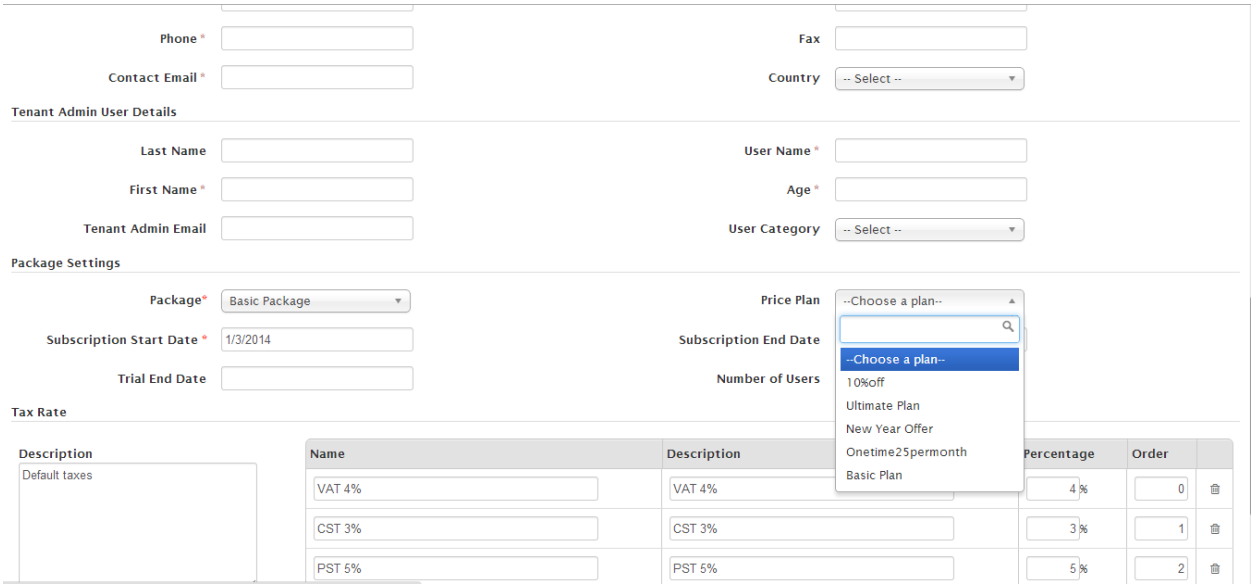


Add Price Plan

- Fill in the mandatory information and click and Save

Field	Description
Plan Name	Describes your plan. The plan will appear on the subscriber's invoice.
Plan Description	A description of the plan that will appear in the self-registration pages as well as on the subscriber's email invoice, if configured in email templates.
Plan Price	Base cost amount charged to a plan's subscribers. Click here to understand how to setup price plan with base Cost.
Skip Billing	Check this option if you don't want to use Cello's Invoicing Engine

The Configured Price Plans can be viewed in the Add Tenant Page under **Tenant** >> **Manage Tenants – Click Add button and scroll down**



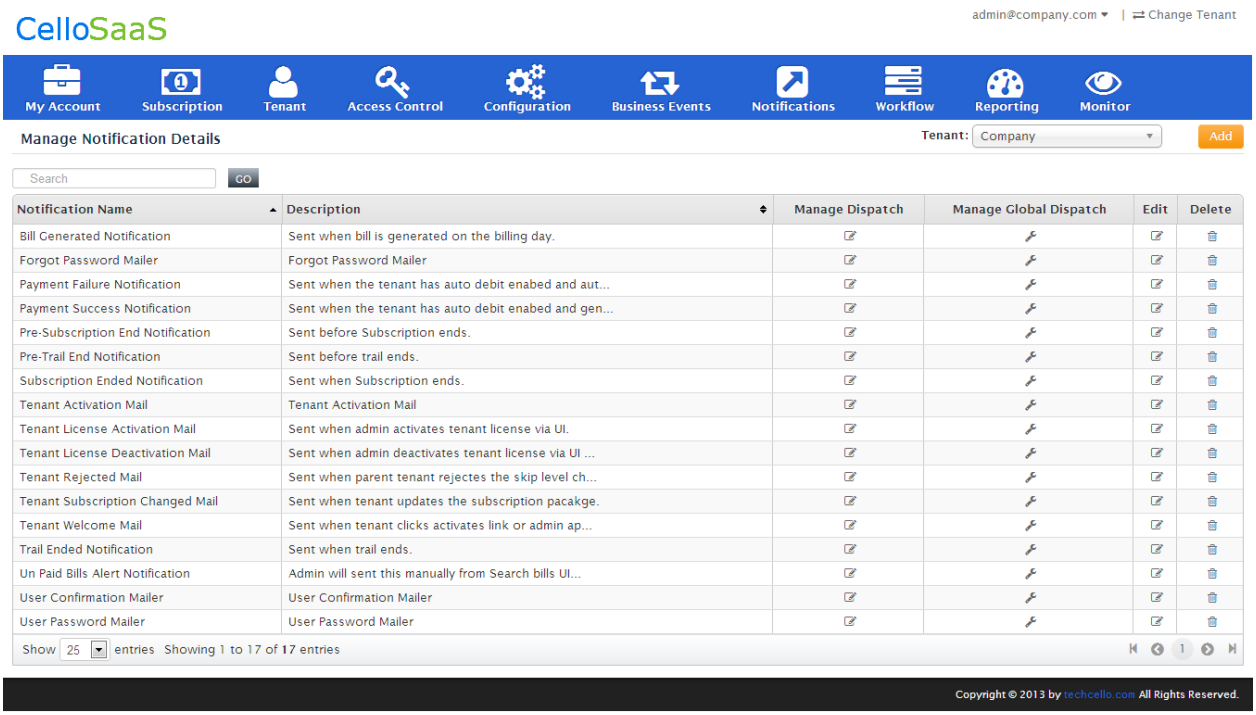
4.8 Configure Subscription Related Notifications

CelloSaaS provides Locale aware, Multi-Tenant Notification Engine which is responsible to send out Messaging / Notifications on successful creation of Tenants, Users and other interesting events that occur within the system.

Below is the default notifications configured within the product,

Notification Name	**Description**
Bill Generated Notification	Sent when bill is generated on the billing day.
Forgot Password Mailer	Forgot Password Mailer
Payment Failure Notification	Sent when the tenant has auto debit enabled and aut...
Payment Success Notification	Sent when the tenant has auto debit enabled and gen...
Pre-Subscription End Notification	Sent before Subscription ends.
Pre-Trail End Notification	Sent before trail ends.
Reset Password Mail	Reset Password Mail
Subscription Ended Notification	Sent when Subscription ends.
Task Assigned Mail	Sent when task is assigned to employee

Task Status Mail	Sent when task was accepted/rejected by employee
Tenant Activation Mail	Tenant Activation Mail
Tenant License Activation Mail	Sent when admin activates tenant license via UI.
Tenant License Deactivation Mail	Sent when admin deactivates tenant license via UI ...
Tenant Rejected Mail	Sent when parent tenant rejects the skip level ch...
Tenant Subscription Changed Mail	Sent when tenant updates the subscription package.
Tenant Welcome Mail	Sent when tenant clicks activates link or admin ap...
Trail Ended Notification	Sent when trail ends.
Un Paid Bills Alert Notification	Admin will send this manually from Search bills UI...
User Confirmation Mailer	Sent when new user is created within the application
User Password Mailer	Sent when user change his/her password

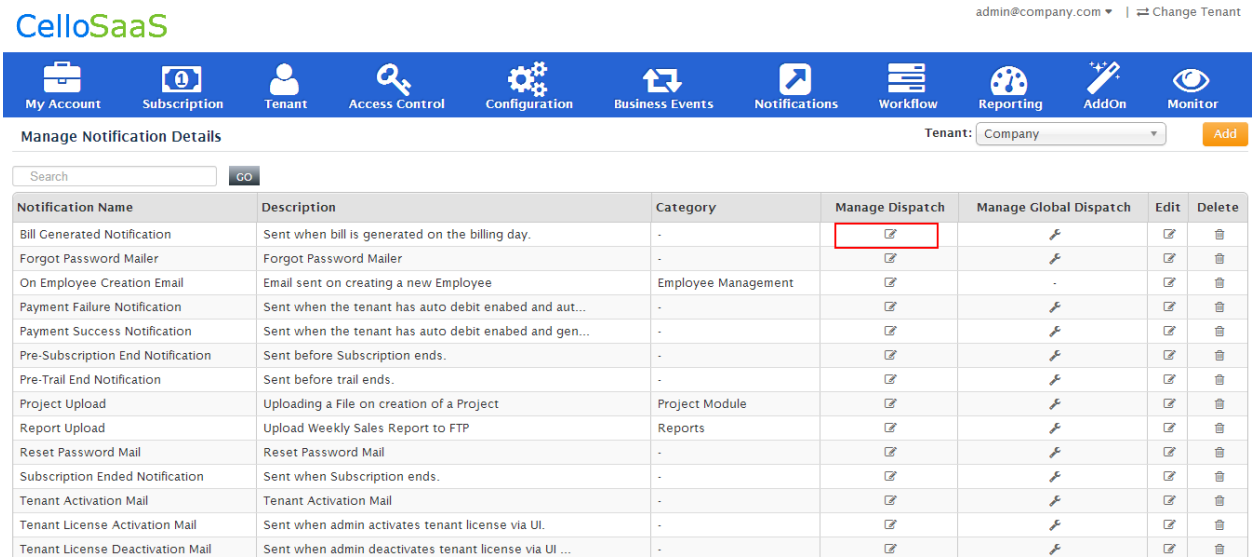


4.9 Customize Notification Content

Each of this notification has content template attached to it.

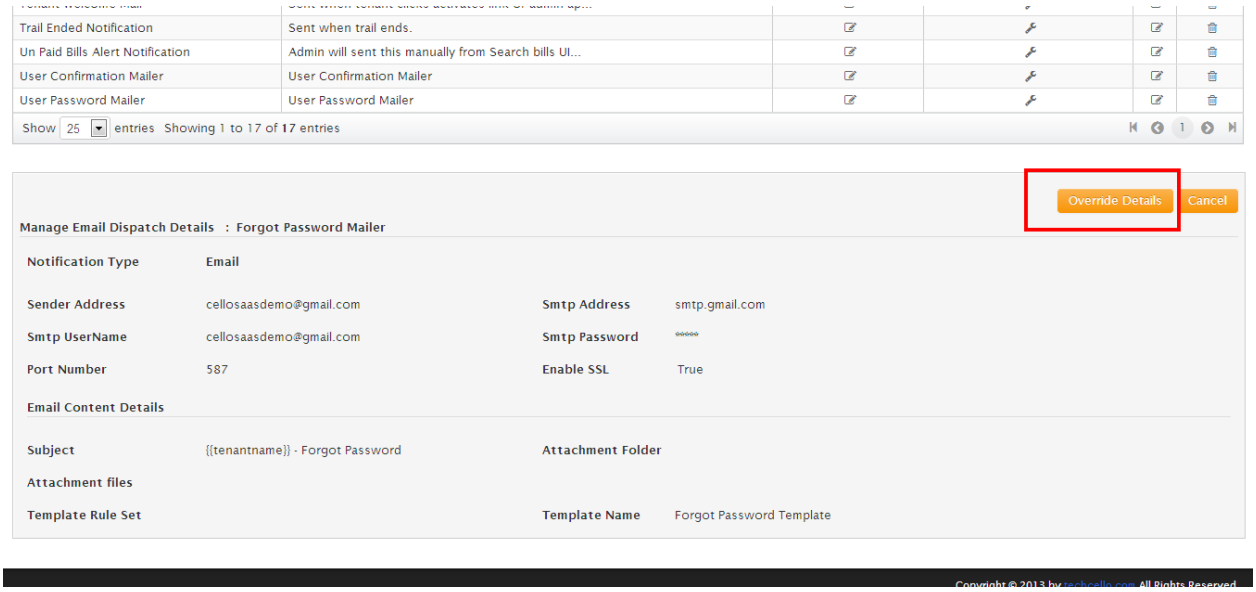
Step 1:

In order to customize the content click on ***Manage Dispatch*** icon.



Step 2:

Click on Override Details button (Refer the below screen)



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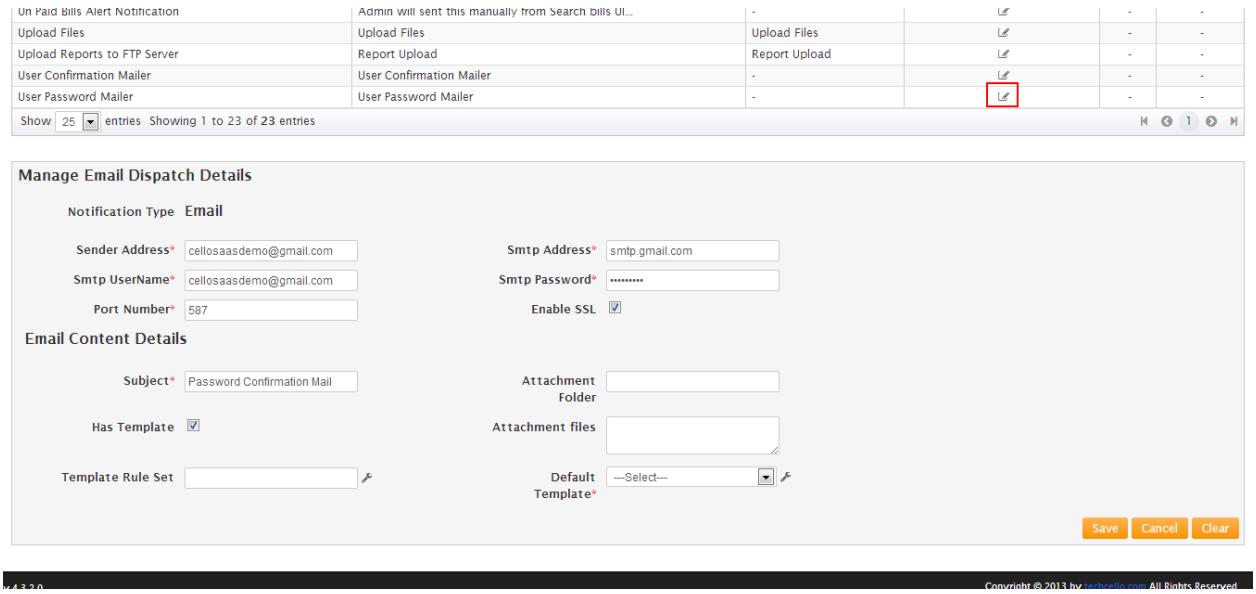


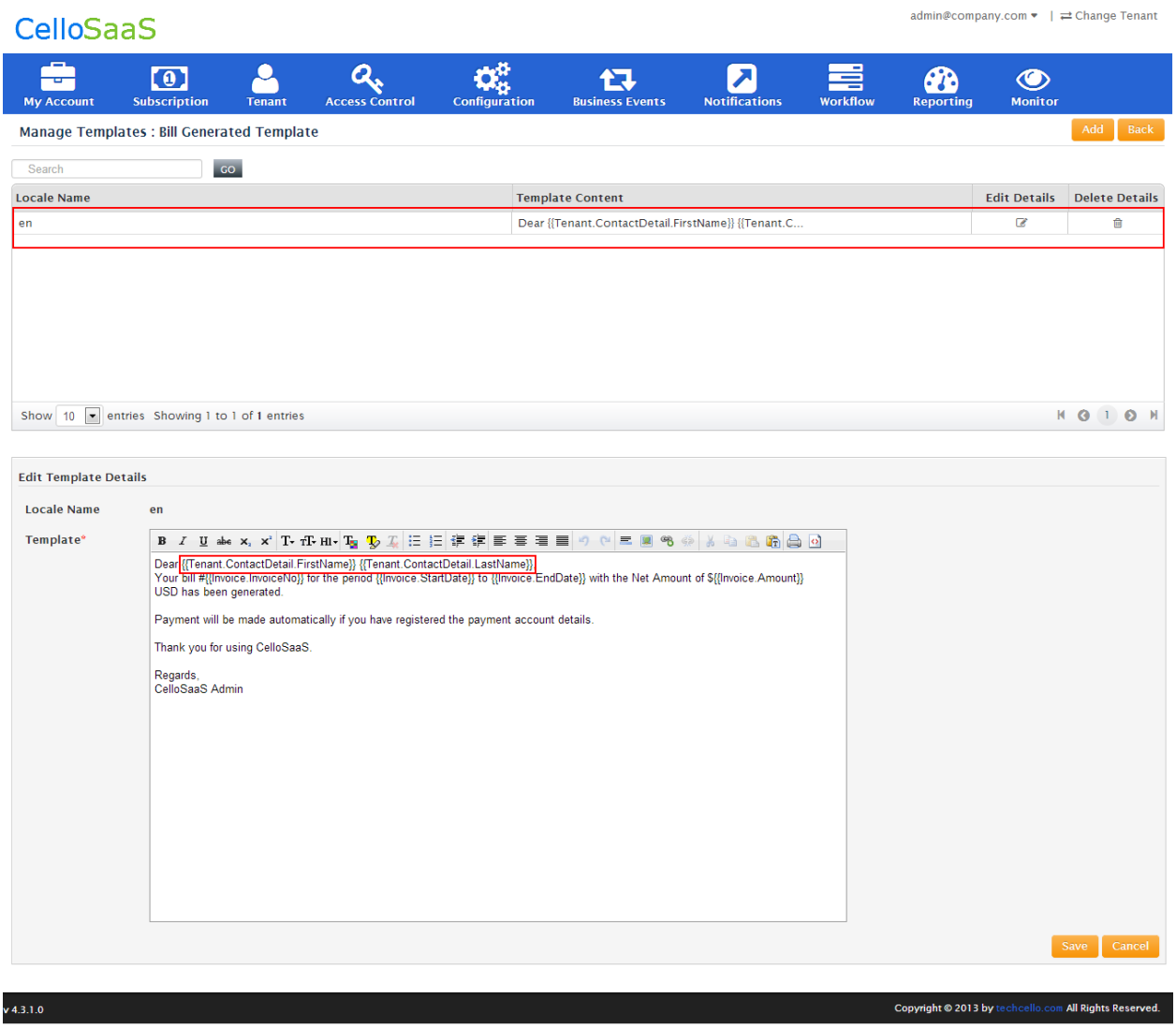
Step 3:

Click on Save to store the customization. You can repeat the process for all the other notifications that you would like to update with your own SMTP details.

In order to update the content of a given notification template, click the icon next to Default Template in the above screenshot to open up the Notification Content Manager (Refer the below screen).

Benefits of Notification Content Manager

1. Support multiple Locales
2. Support for Dynamic Place Holders (Entity/XML)
3. Tenant specific Customizable content
4. Support for HTML



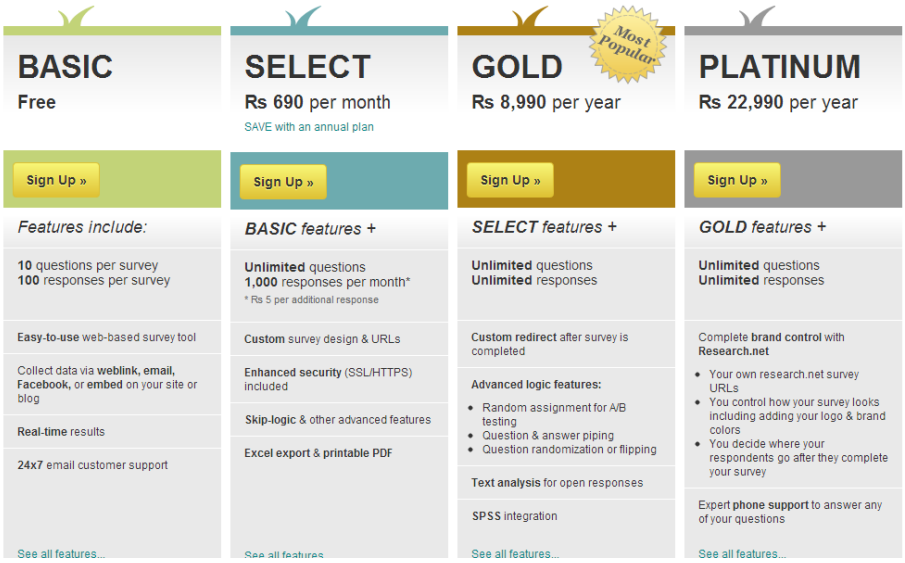
4.10 Open Packages for Self-Registration

Self-Registration is an open Portal for end customers preferring to register/on-board themselves in Self Service Mode. Self-Registration acts like a Product Catalogue allowing Users to select a particular Subscription from the listed catalogue and register themselves.

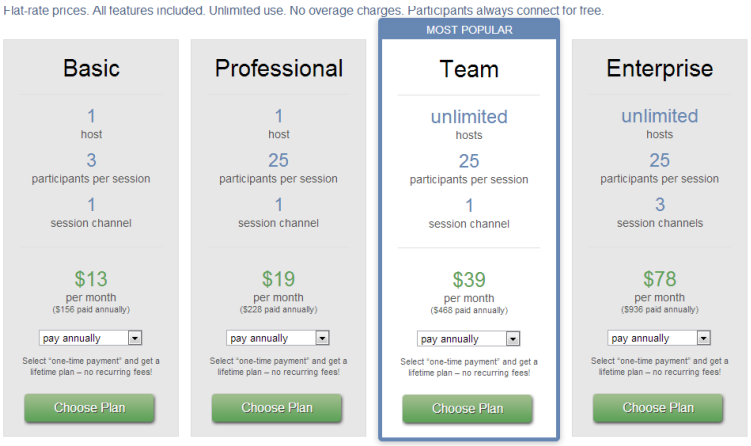
Using Cello's self Service Portal, a Product Administrator can selectively choose the package to be available in the Self Service Portal. The Business application can contain any number of Subscription plans, but the Application Administrator has the control to mark selected packages for self-registration purpose. When marked for Self registration, the selective packages alone are displayed in the self-registration process. End customers will be able to subscribe to these subscriptions plans and use the modules and features of these plans.

Refer to the examples displayed below:

Example 1



Example 2

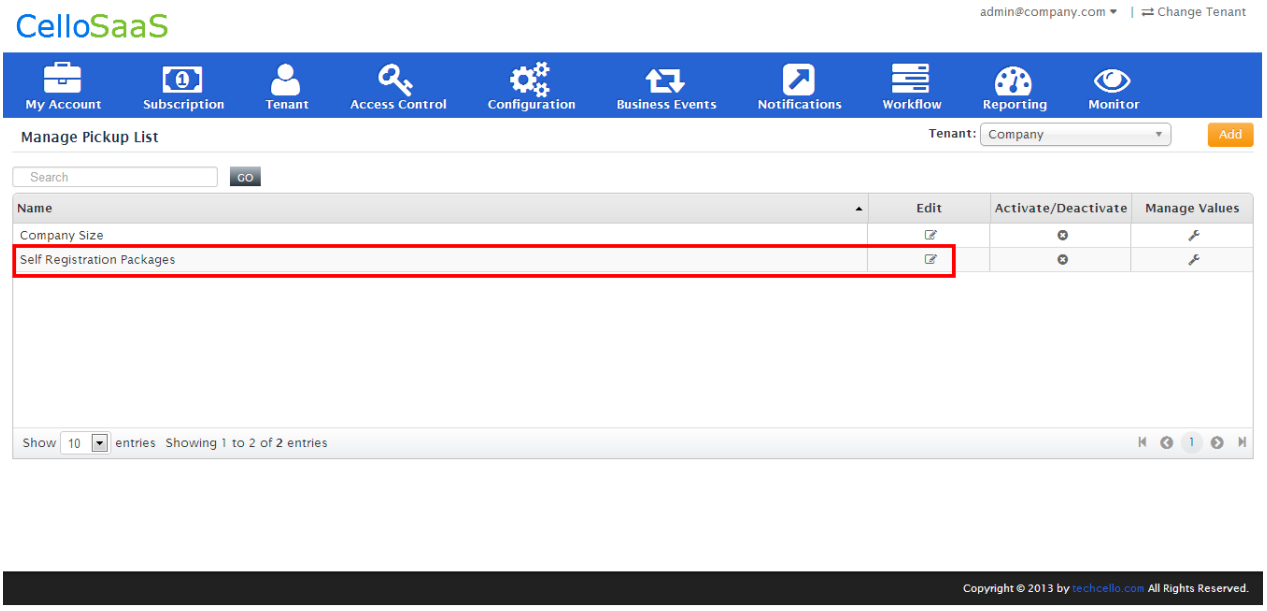


4.11 Configure Ultimate and Standard packages for self-registration

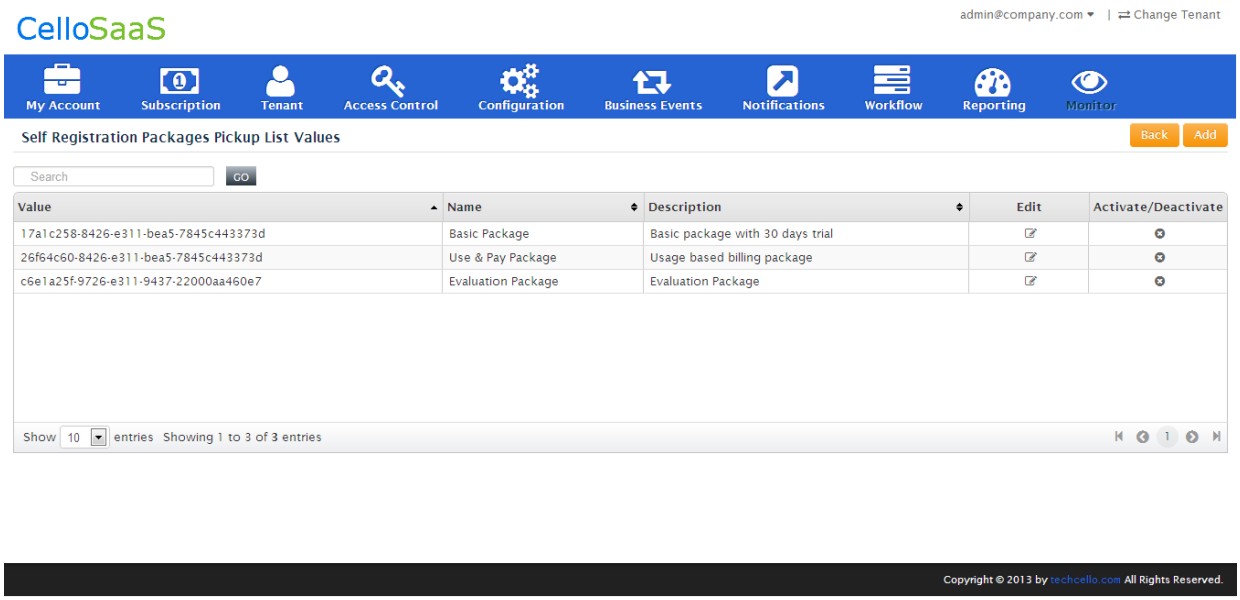
The product owner can mark selective or all packages to be subscribed in the Self Registration model. To display the Ultimate and Standard edition for the Self Registration mode, navigate to Admin >> Configuration >> Manage Pickup Lists

"Self-Registration Packages" is a pickup list which is specially meant for exposing the selective packages for Self Registration portal, so in order to add/remove package, click on manage values icon against the "**Self Registration Packages**"

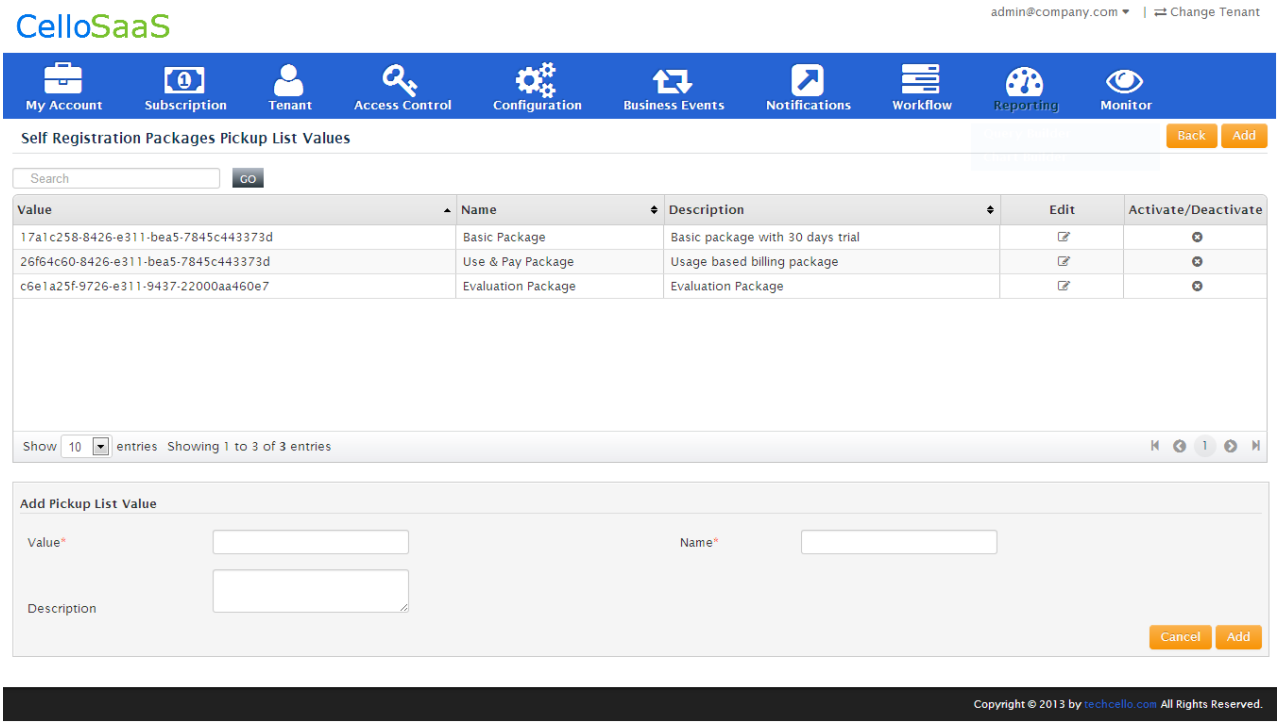
Do not create a separate custom pickup list to expose the packages for Self Registration portal



1. Click on Manage Values

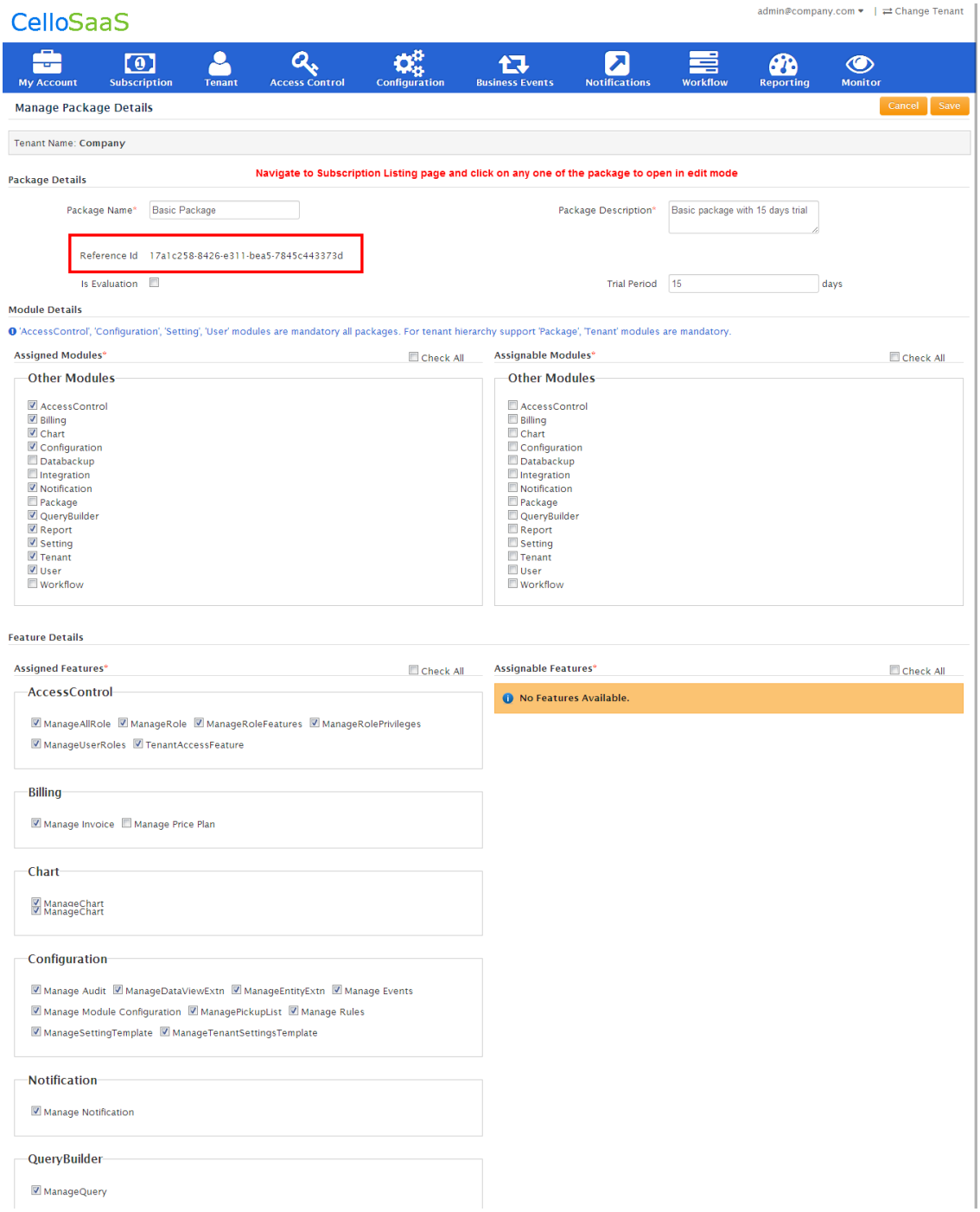


2. Click on Add to add more subscriptions



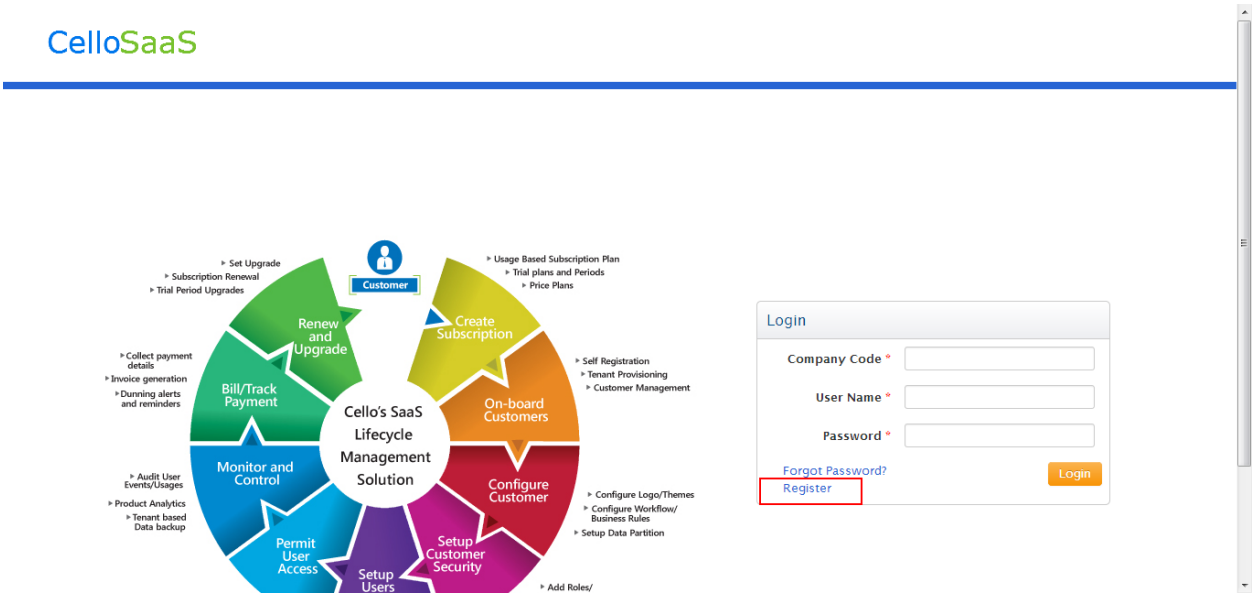
3. Add the following details

- ***Package ID*** in ***Value*** Field (You can get the package ID from the package you created as shown in the below screenshot)
- Name of the ***Package*** and its ***Description*** and click Save

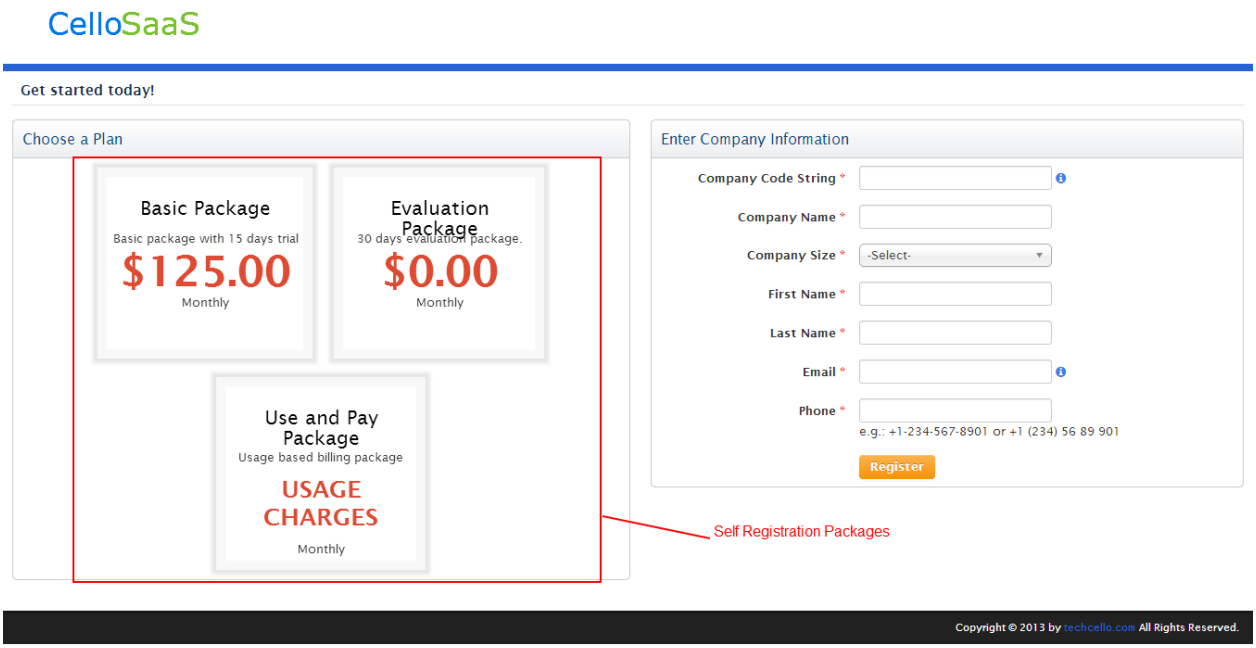


Navigate to Self-Registration Page

To see the self-registration packages in action, Logout from the system, and click on **Register** hyperlink (Refer below screenshot)



Refer the below screenshot for the Self Registration page. This page is completely customizable and configurable. You can change the look and feel, append fields etc.



5 Tenant Registration Process

Tenant Registration refers to on boarding new Tenants into the application. CelloSaaS facilitates on-boarding Tenants in 2 ways:

- Self- Registration
- Using Admin Dashboard

5.1 On-board Tenants using Self Registration

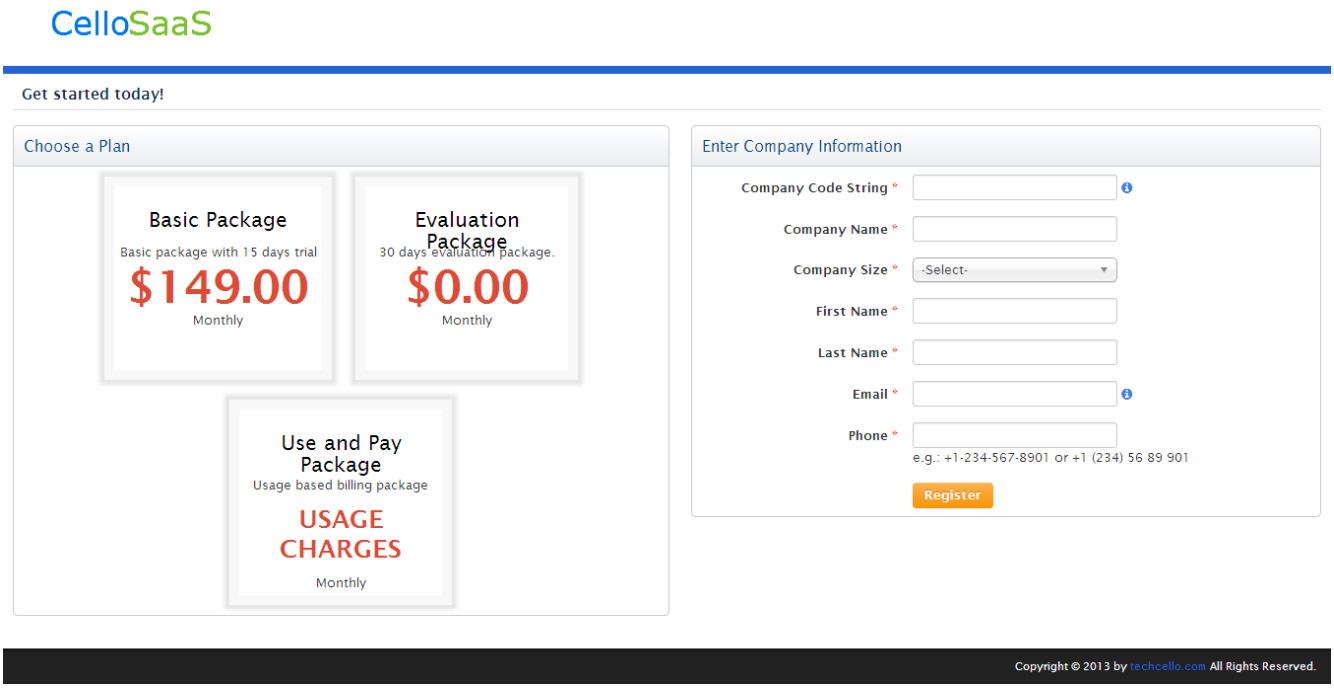
Similarly Onboarding new customer without using the Admin User Interface can be done using the Service Portal provided out of the box along with Administration portal.

Now let's create the second Tenant using Self Registration Portal.

Step 1: Navigate to the Login screen and click on the Registration link.

Step 2: Create a tenant named "**DallasInc**" and fill in all the required details about the customer and subscribe to **"Ultimate Edition"**

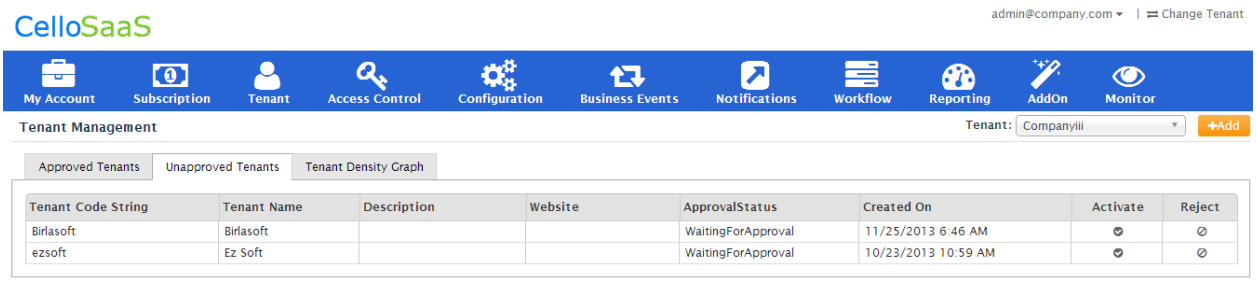
While creating a tenant using Self Registration portal, the first available pricing plan for the chosen subscription would be allocated to the Tenant.



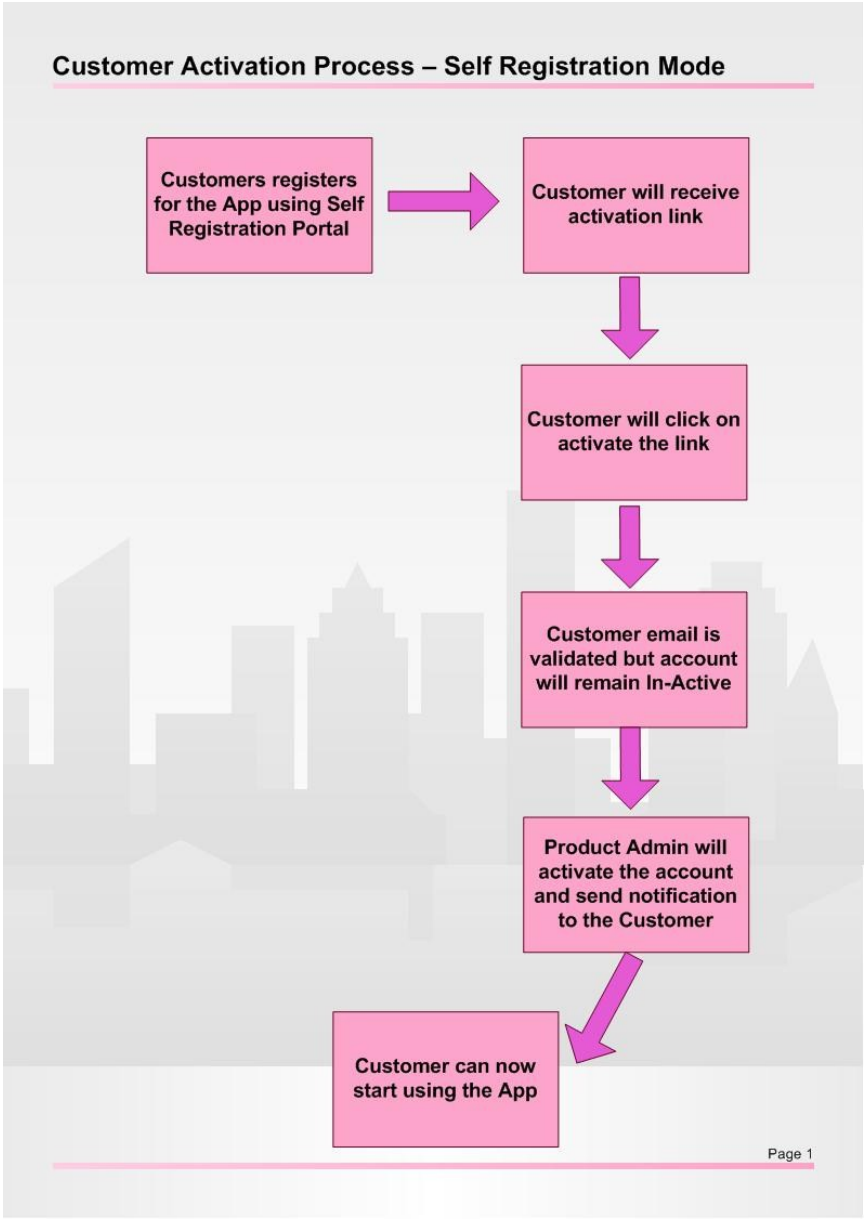
Note: Tenants registered via Self Registration portal, the tenant will be put on Inactive Status by default, and the product owner must activate the tenant by navigating through the Manage Tenant page.

1.Navigate to Tenant and click on Manage Tenant Details

2.Choose approved Tenants and click on activate



Activation Flow

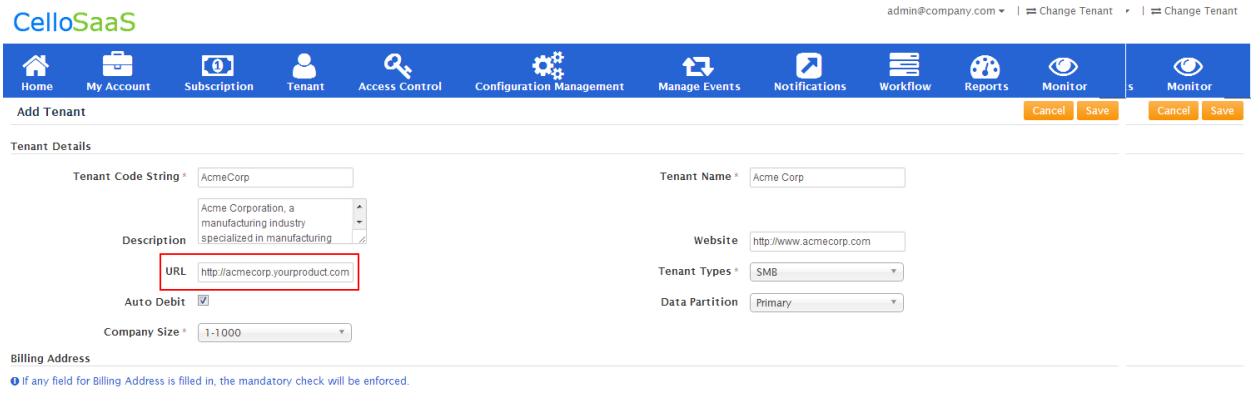


5.2 Add Tenant

This is a standard way of on boarding new tenants in CelloSaaS where the administrator of the product fill the details of the tenants and provide appropriate software package and pass on the credentials to the tenant and allow him to use the Software.

Product admin should provide the necessary details such as Tenant, contact, address, administration, package details. Product admin should select any one of the package for tenant, based on their need.

- A Tenant can only hold only one package at a time.
- Optionally, a separate subdomain can be allocated for each tenant upon creating a new tenant via new Tenant creation page (Refer below Screenshot).



The "**AcmeCorp"** customer can now access your application using http://acmecorp.yourproduct.com, so when the customer login, the authentication screen will look like below

While provisioning Tenant, the administrator can set the number of users that can be created by the tenant. If number of users is set null, then tenant can have unlimited number of users. If the user count is set, then tenant cannot create users beyond the set limit.

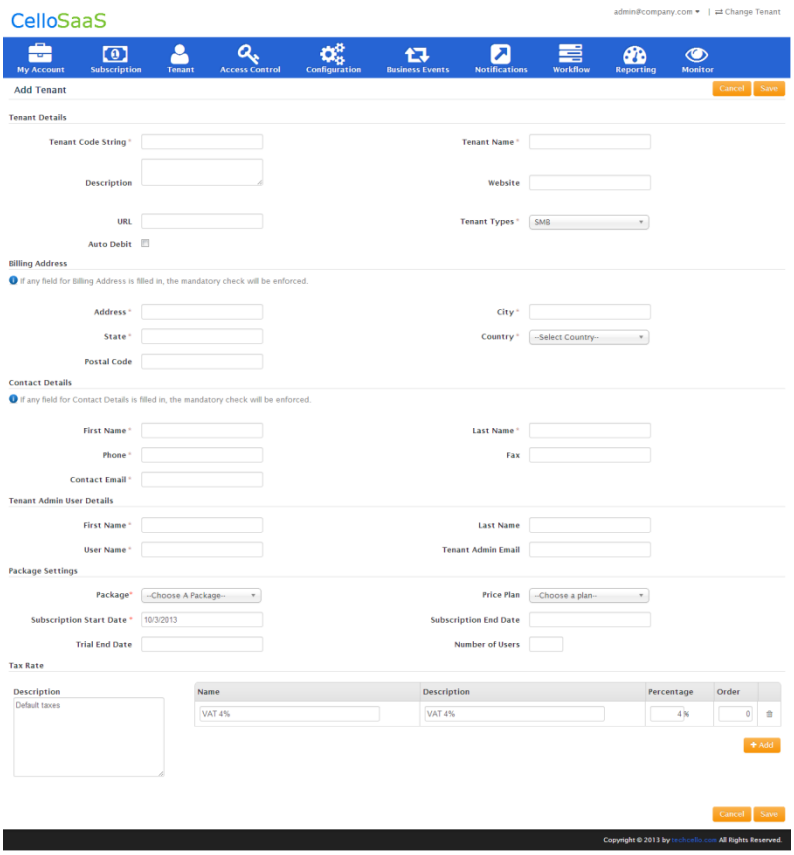
Example: If the Product administrator set a user limit of say 10 users for AcmeCorp, the **AcmeCorp** customer will only be allowed to create up to 10 users under their account.

For this Tour, Lets create one Tenant using Admin Dashboard and another Tenant using Self Registration Portal.

Note: Create the Tenant using Admin Dashboard

Step 1: Navigate to Tenant>> Manage Tenant >> Add

Step 2: Create a Tenant named "**AcmeCorp**" and fill in all the required details about the customer and subscribe to **"Standard Edition"** and **"Standard Pricing Plan -1"**



Add Tenant Screen

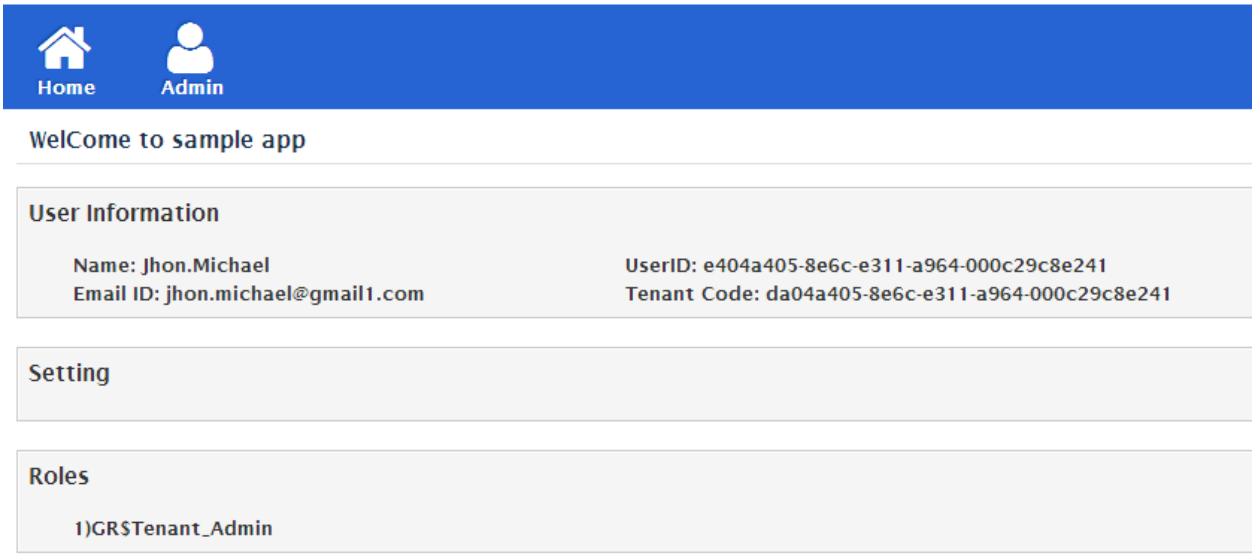
Once the tenant is created successfully, the **Tenant Admin role** will be assigned to Tenant instantly.

6 Step 2: Tenant Process

6.1 Login as "AcmeCorp" - the Tenant 1

- Enter Company Code, Username and Password to login as "**AcmeCorp**" tenant.
- Now you are logging in as the Tenant Administrator of "AcmeCorp" Tenant using http://acmecorp.yourproduct.com. Once you logged in, you can see all the menus and Features provisioned in "Ultimate Package".

User identity



As soon you login as the Tenant Admin, you will be redirected to home page where it displays the following Details, they are

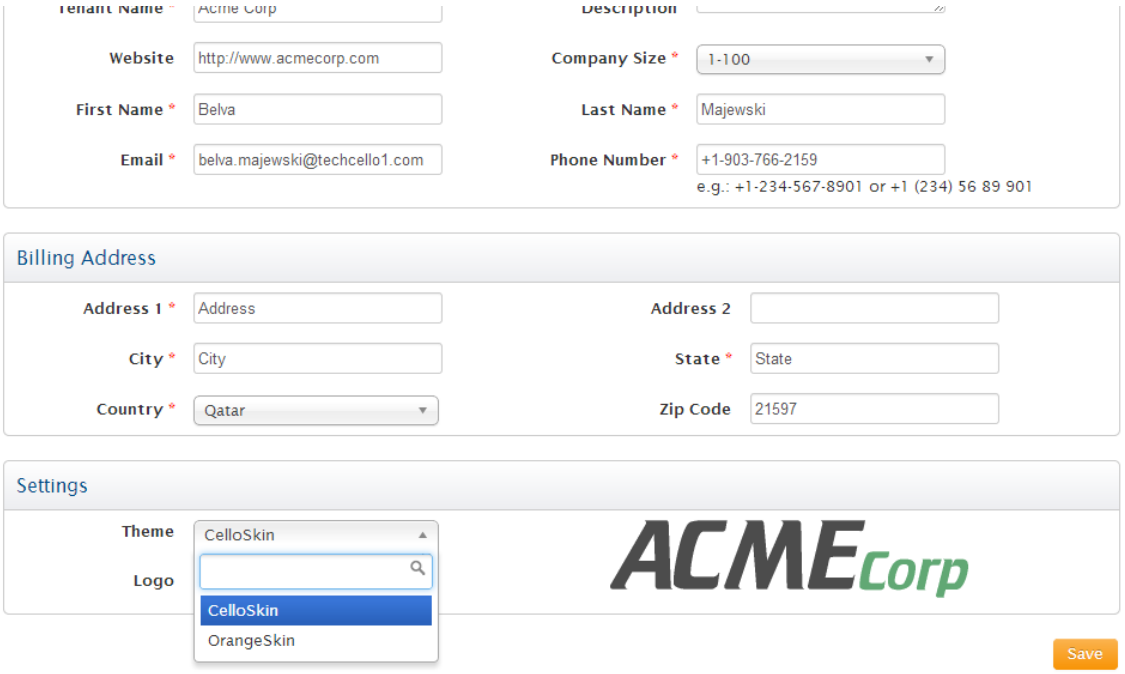
- User Information
  - Name of the User
  - UserID
  - EmailID
  - Tenant Code
- Settings (If Any)
- Roles – The Logged in User mapped with (In this Case – Tenant Admin Role)

6.2 White Labelling

White Labelling refers to customizing the Logo and Themes as per Tenant requirement.

The Themes dropdown in the Account Settings page will list out all the Themes available in the Application ***App_Themes*** Folder. In order to add Additional Themes developers are requested to design their own Themes and load it in ***App_Themes*** Folder.

Navigate to My Account >> Account Settings



TRY

For this Live Tour, Try to setup "***CelloSkin***" for Acme Corp and "***OrangeSkin***" for Dallas Inc., along with configuring Themes, try setting up different Logos for "AcmeCorp" and "**DallasInc**"

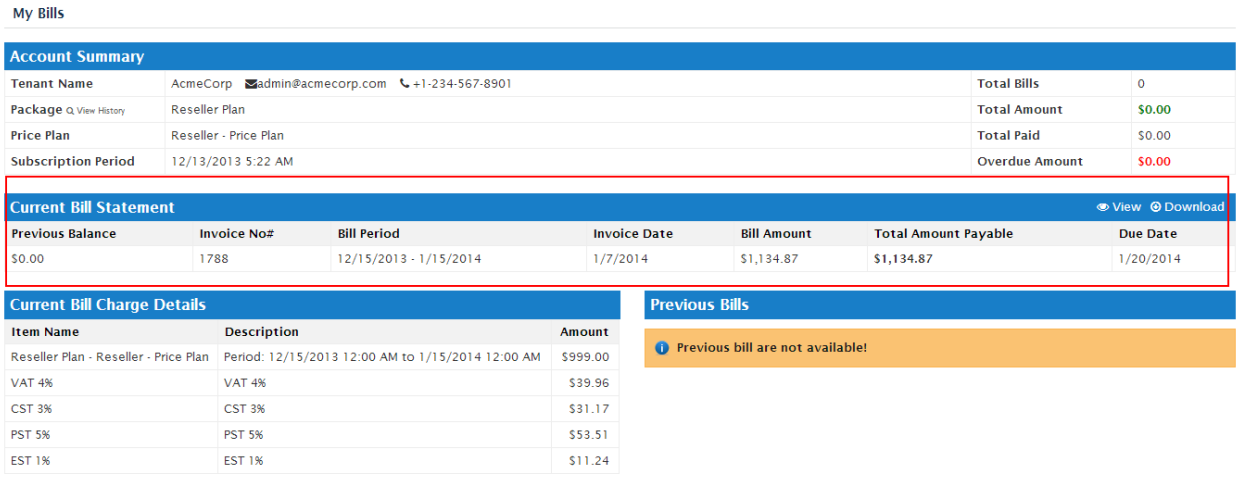
6.3 Current Bills

Current Bills refers to the Active Bills/invoices yet to be paid by the respective Tenant for the current month (Vary based on the Billing Frequency opted).

Navigate to Admin >> My Account >> My Bills

My Bills page will display the following Details

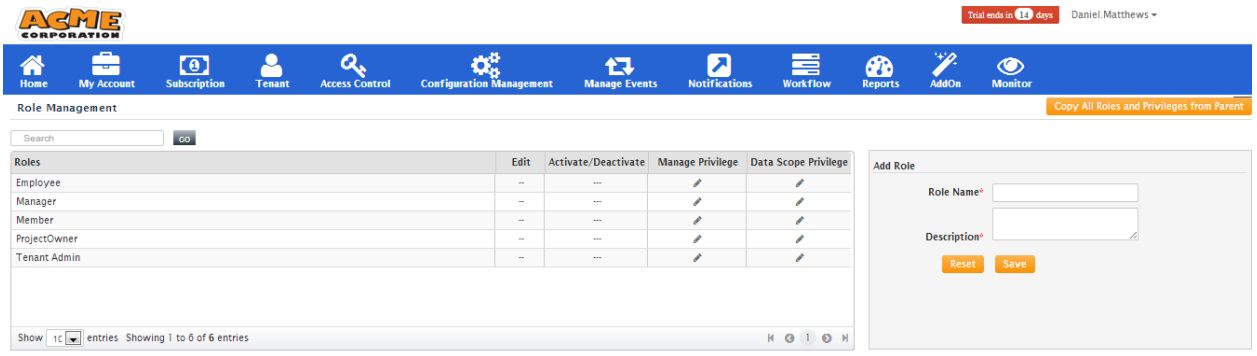
- Account Summary
- Current Bill Statement
- Current Bill Charge Details (Break Up)
- Previous Bills
- Bill Reports
- Usage Statistics



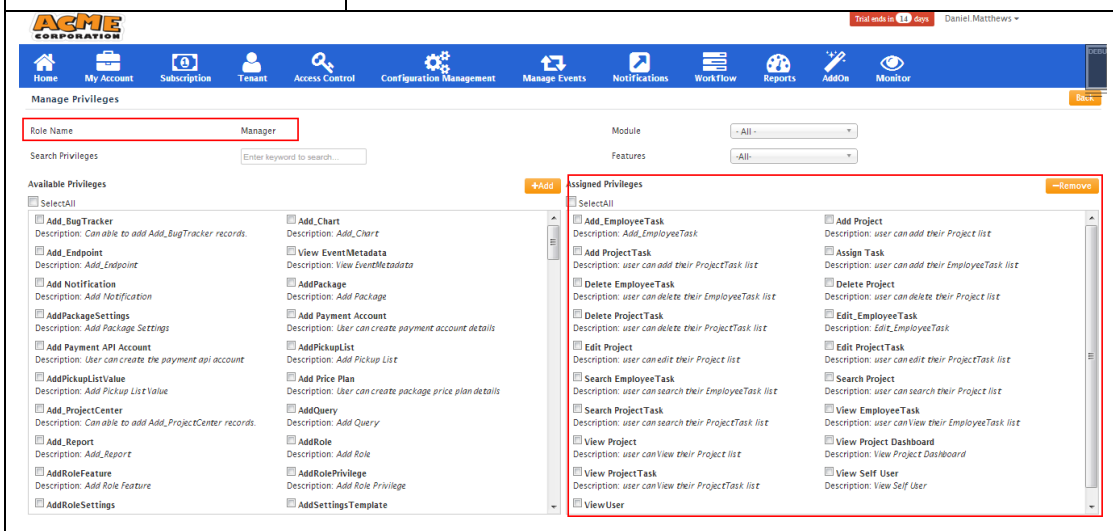
6.4 *Create tenant specific Roles*

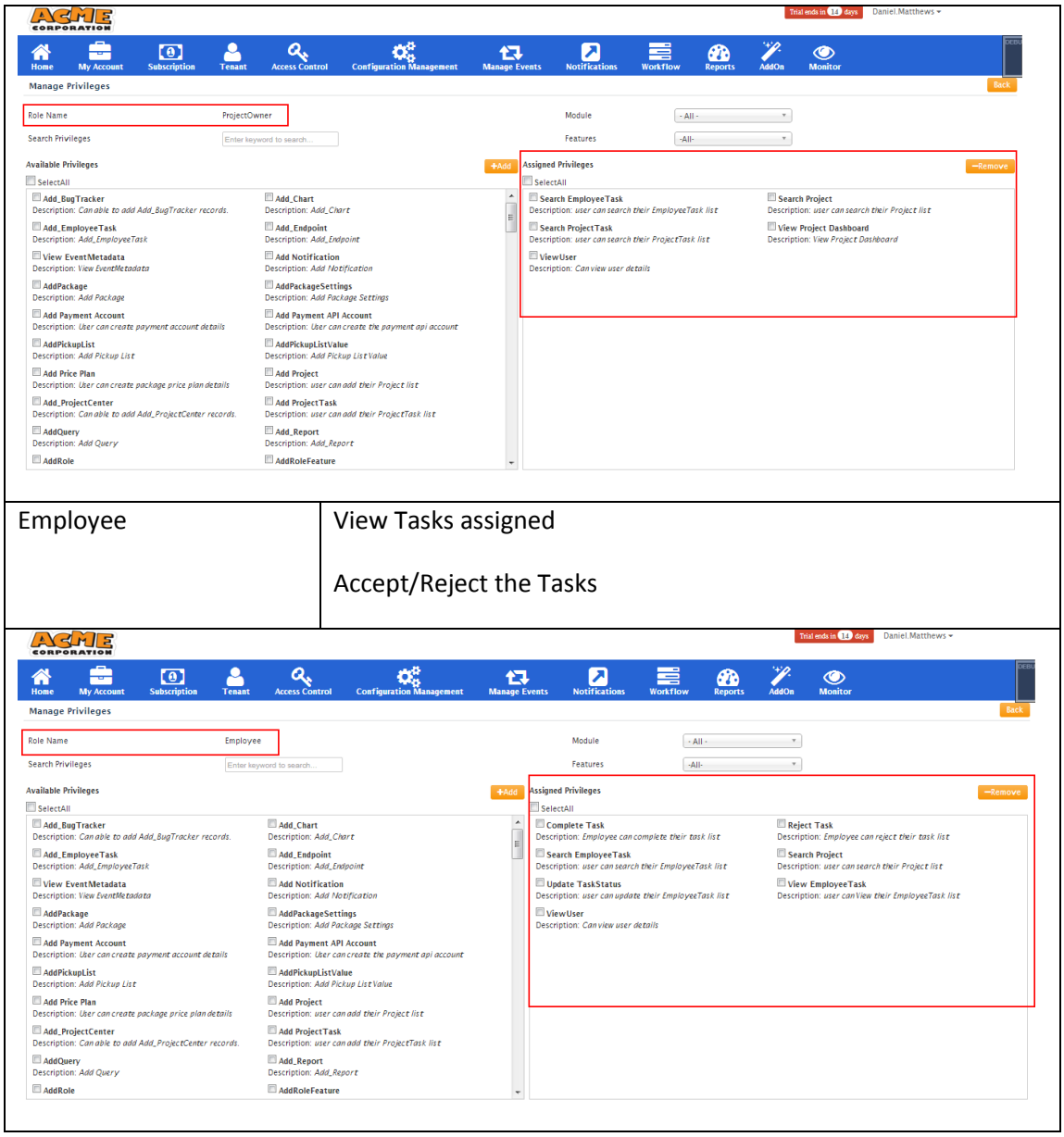
When a new Tenant gets created, a user with Tenant Administrator Role also gets created by default. This Administrator has been given with privileges to manage the entire application (Depends on the Subscription purchased by the Tenant), this admin user can then go ahead and create additional Roles and Users thereafter.

- Navigate to Admin >> Access Control >> Manage Roles >> Add



-
- For this Live Tour, The product administrator has already created 3 Global Roles namely “Project Manager”, “Project Owner” & “Employee”.
- The Privileges granted to these Roles are Listed below

Project Manager	View/Create/Update Delete Projects View/Create/Update Delete Tasks Assign Task to Employee View Project Dashboard
	
Project Owner	View Projects/Tasks assigned View Project Dashboard



Employee	View Tasks assigned Accept/Reject the Tasks

- When the new Tenant (AcmeCorp) was created, these Global Roles was automatically copied into the Acme Corp Tenant, hence Tenant Administrator need not create these Roles again, but the Tenant Administrator can Grant/Revoke the Access to these Roles any point of Time.

Local Roles are Roles which are created by the tenants and not Roles which come from the Application by default.

Properties of Role Management Screen

- Role Name and Description are mandatory inputs
- Role Name should be unique within tenant and should not be a Global Role Name

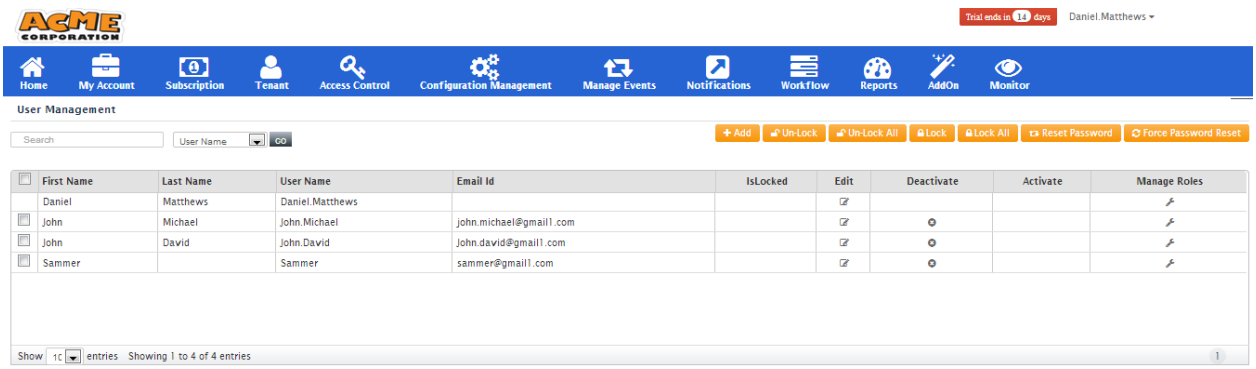
- Role Name should not contain special characters except _ and -
- Role Id is auto generated
- On checking the “Is Global ” property will make the Role Global

- For this tour, just navigate to the Roles Page and make sure all the three Global Roles are in Place for “**AcmeCorp”** and relevant Privileges are granted.
- Create a Local Role (Roles which are created by the Respective Tenant Admin) named **“Project Lead”** and Grant Privileges to reject the tasks (The privileges are View EmployeeTask- To Allow the user to view the Employee Task, Search EmployeeTask - To Allow the user to search the Employee Task, Search Project - To Allow the user to view the Project Details, Search ProjectTask - To Allow the user to view the Project Task, View User- To Allow the user to view the User details, Update Task - To Allow the user to update the task status)
- Revoke the “Reject Task” Privilege from the “Employee Role”, so that employee doesn’t get the option to reject a task by himself.

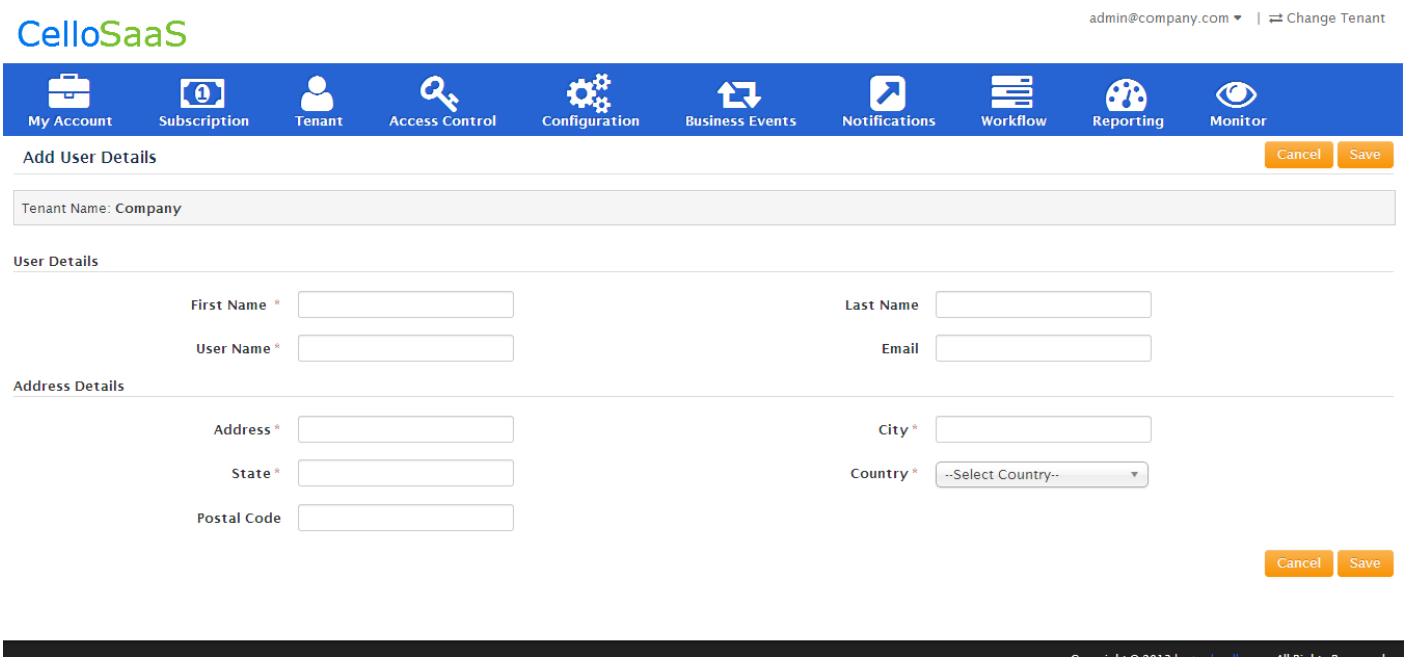
6.5 *Create Users and assign Roles*

The next logical step after creating Role is creating Users. To Create Users, Navigate to Admin >> Access Control >> Manage Users >> Add

Any user with access to User Management related Privilege is allowed to Create/Edit/Delete user in the application.



User Management



Add User

- Fill in the mandatory details and Click **Submit** to create a new user.
- Enter required details about the user and click on **Submit** to create a new user.

- First Name, User Name, Address, City, State, Country are Mandatory.
- Email id is unique

6.6 User Activation Process

When a new user is created via Admin Dashboard, the respective user will receive an email along with an activation link (If and only the email ID was provided while creating the user), if the email id was not provided, a common password i.e. "**company#123"** will be assigned to the user (configurable).

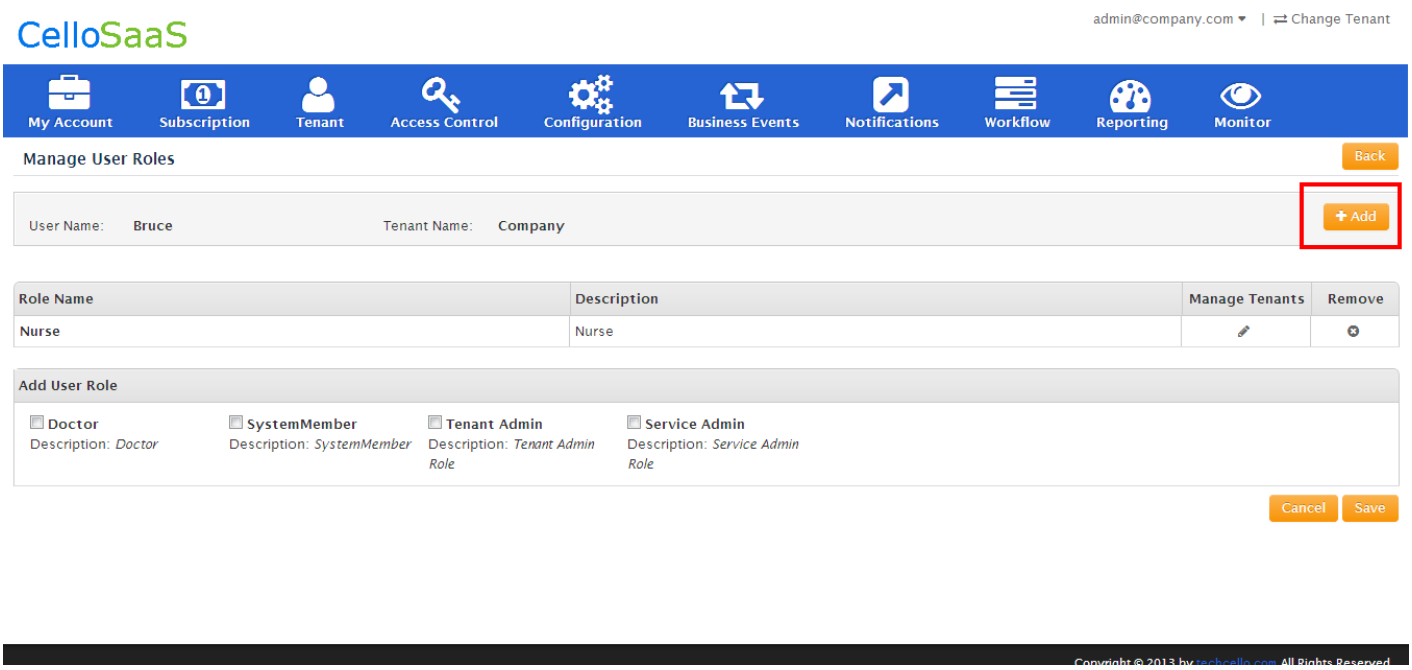
In Case of valid email id given during the User creation Process, an activation email will be sent to the respective email; the user has to activate the account by clicking on the email link received.

The activation mail content can be configured by going to Admin >> Notifications>> Content Template >> and refer to "Password Mailer Template".

6.7 Assigning Roles

Assigning roles to user is the final activity, once the roles and users are created.

- Navigate to Access Control →Select the user →Click on Manage Roles



- Check the roles of the user to be mapped and click Save.

The user can be mapped with more than 1 role at a time.

Include Try image here

- Create 3 Users namely “Sam”, “Daniel”, “Mary” and Assign them to the Global Roles namely “Project Manager”, “Project Owner” & “Employee”.
- Create 4th user named “Vincent” and assign the local Role i.e. **“Project Co-Ordinator”** Role

6.8 Configure Pickup List

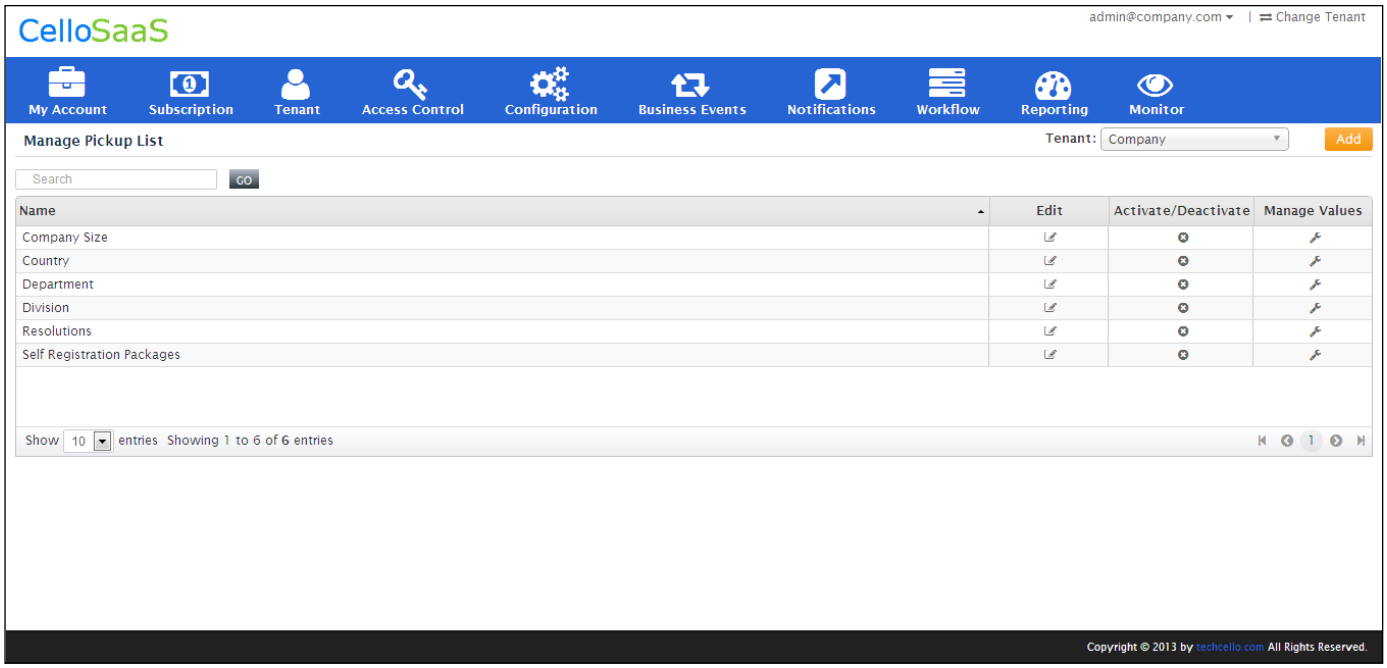
Pickup List is one of the features related to managing Master Data in the Application. Using Pickup list Tenant Administrators can manage Key Pair Values/ Dictionary values simply and effectively. These data can then be used as the master data for Loading Dropdowns or populating other datasets.

6.9 Add Pick up List

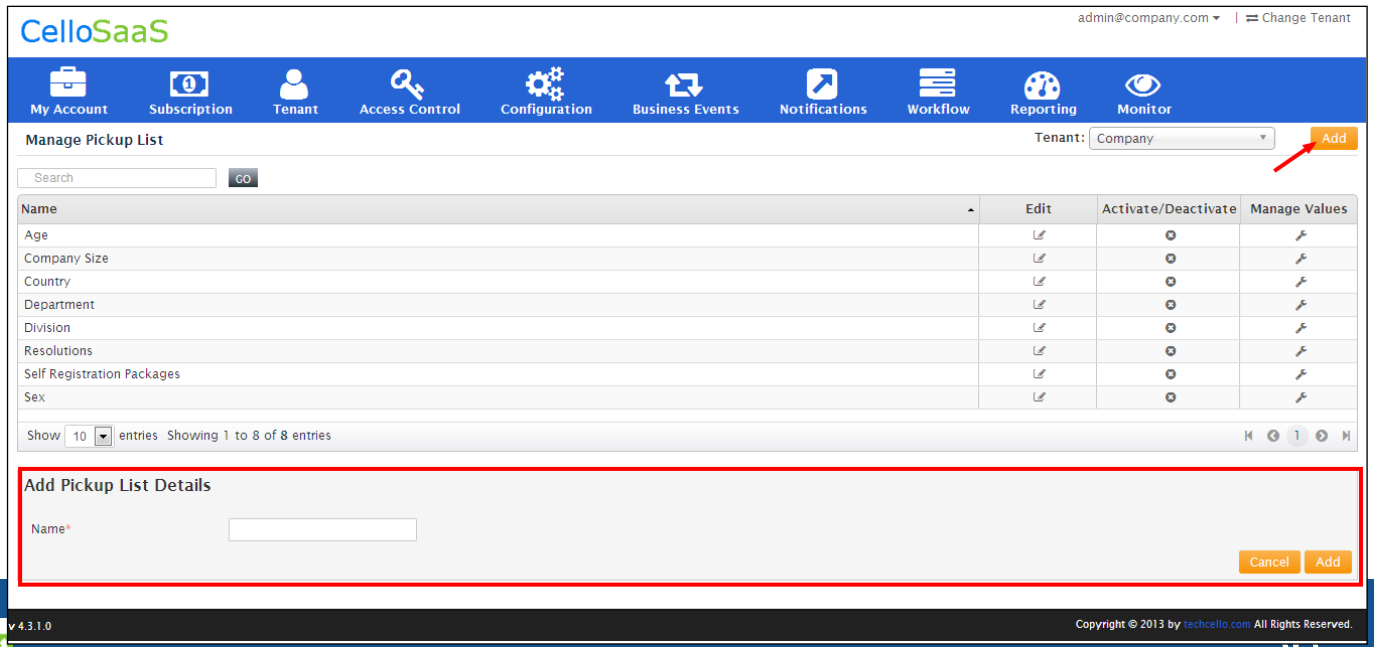
Pickup list Feature is provided out of the box with no code level configuration or changes required.

- Navigate to Configurations→ Manage Pickup Lists

- Click on Add link to add a new Pick List as shown in the below Screenshot



The name of the Pick List will be displayed in the label of the pickup list. Once the pickup list is created using the above form, then you can add their key-pair values by clicking on the Manage Values icon. After entering the Key-Pairs for the pickup list, specify whether the values are displayed in alphabetical order.



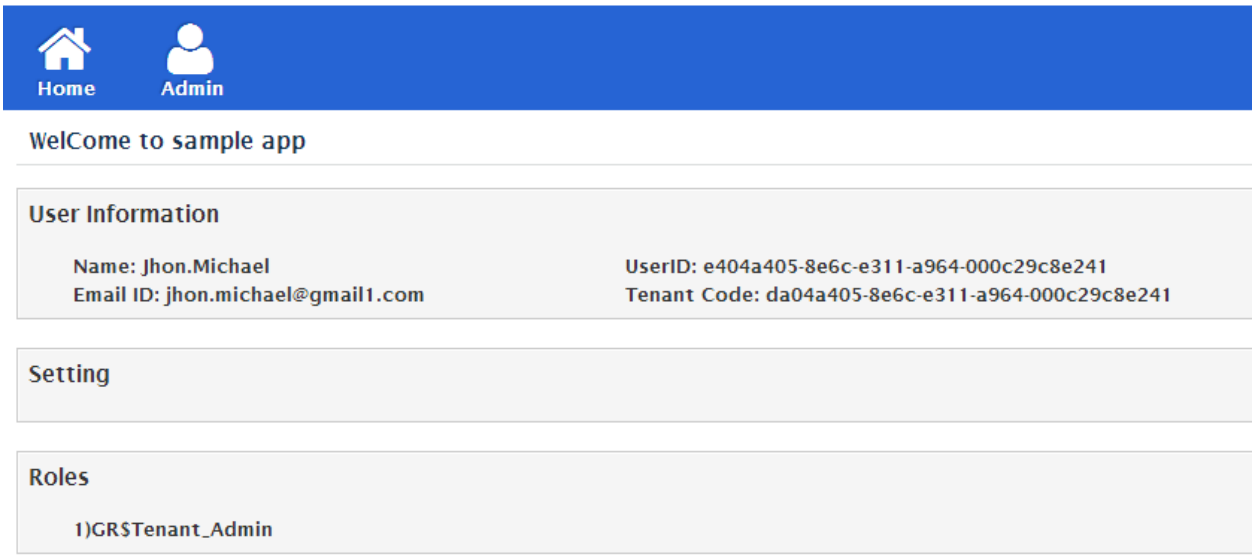
You can edit pickup lists even when the fields are in production. Beware of the potential implications of this action. Make sure to provide a unique name for each pickup list to uniquely identify them later. Avoid specifying a global pickup list name.

7 Step 3: Tenant Functions

7.1 Login as user with role - Project Manager

When you login as "**Project Manager-Sam**", you can see the below menu (Refer below Screenshot). If you could just recall, The "Project Manager" has Access to the following functions, they are

- View/Create/Update Delete Projects
- View/Create/Update Delete Tasks
- Assign Task to Employee
- View Project Dashboard



Based on the given access, the "**Project Manager**" can see "Project Dashboard", "**Project**", **"Task" m**enu on the top.

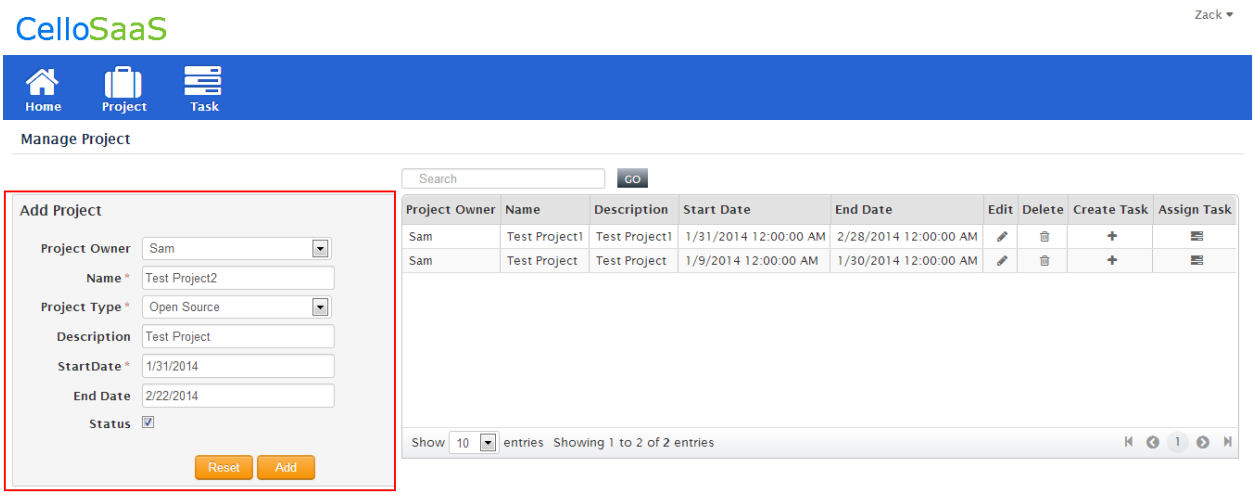
Displaying and hiding of these menu is completely based on Security setup configured in the security configuration (combination of Design & Runtime Configuration), Cello's 360° Security framework takes care of the following aspects, they are

1. Avoiding tenants from features and modules which they haven't subscribed to
2. Applying page level security
3. Applying functional security

4. Applying data level security
5. Applying business level security
6. Applying service level security

7.2 How to Create a Project

To create a project, login as “Sam” the Project Manager Role and navigate to Project Page.

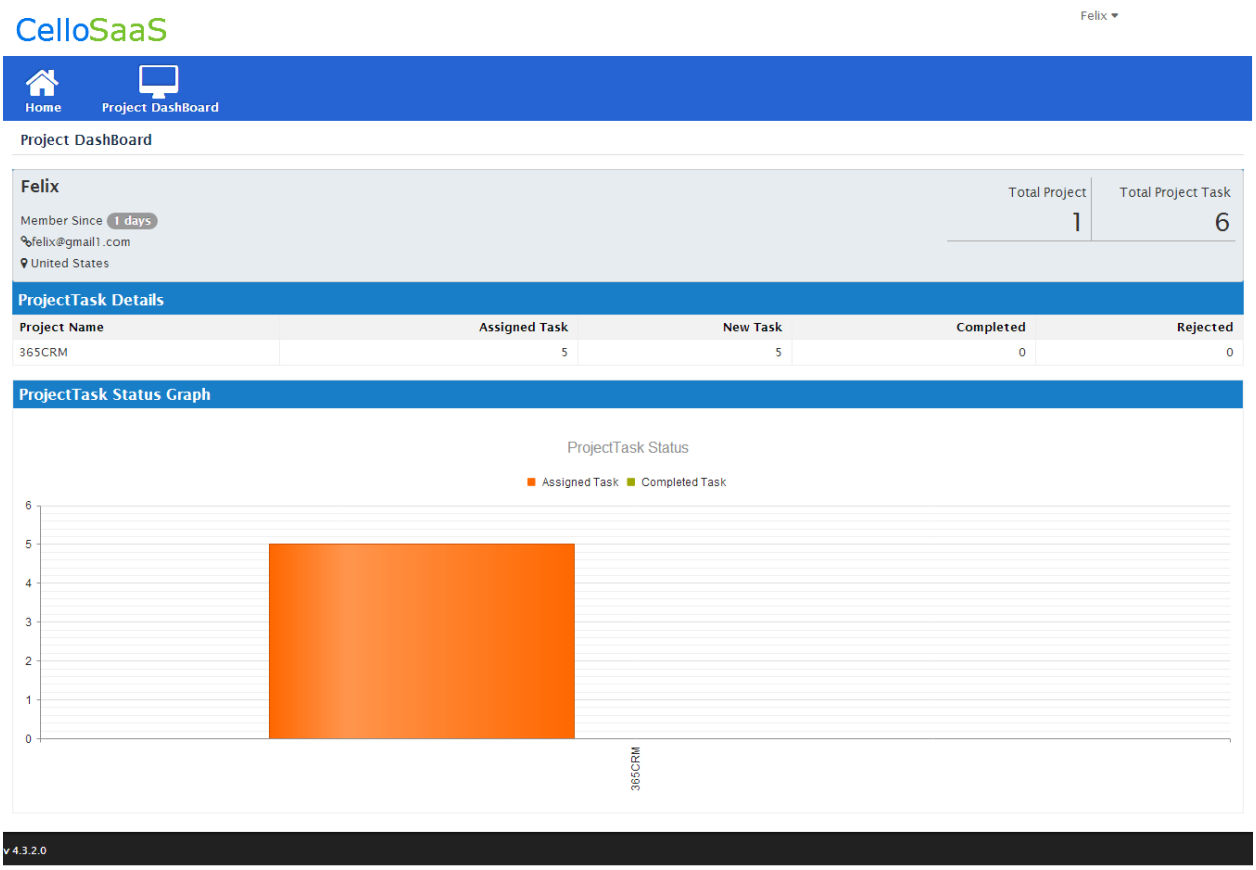


- Create a Project1 by assigning to a **“Project Owner1” – “Dave”**
- Create a Project2 by assigning to a **“Project Owner2” – “Barry”**

Refer this section on how to create projects using Project Page

7.3 Login as Project Owner

Project owner Role has been granted to access the Project Dashboard menu only, so his menu will look something like below.



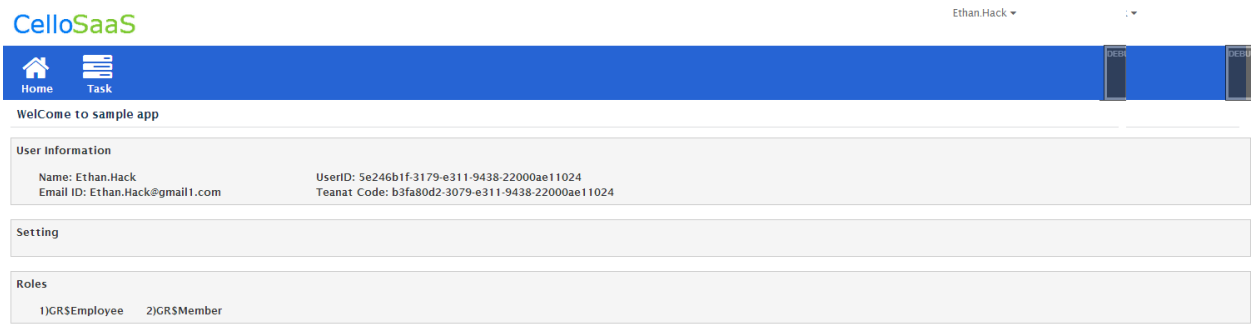
- Project Owner is assigned with the privileges to just view the projects which are assigned to him

7.4 Login as "Project Co-Ordinator"

Login as the Project Co-Ordinator and navigate to the Task page and reject anyone of the task.

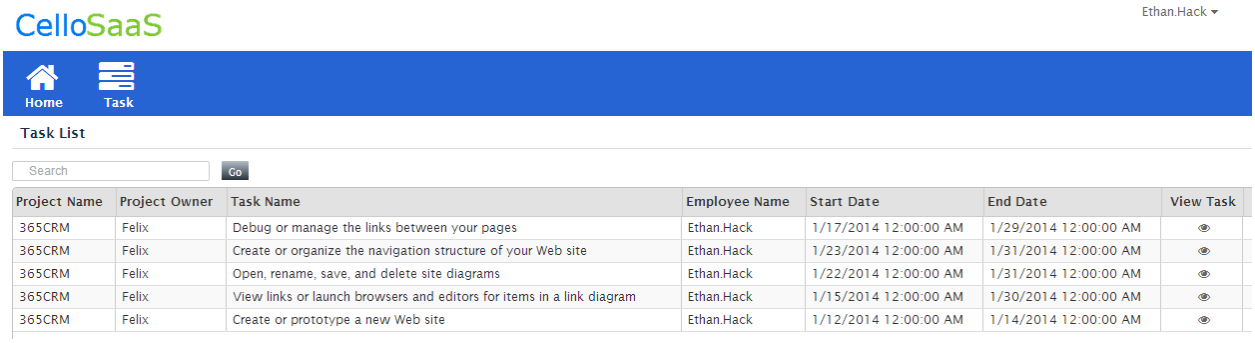
7.5 Login as user with role – Employee

Employee has been granted to access and view only the Task page and accept or reject the tasks, so his menu will look something like below.



Employee HomePage

Navigate to Task page to see the tasks assigned to the Employee Role



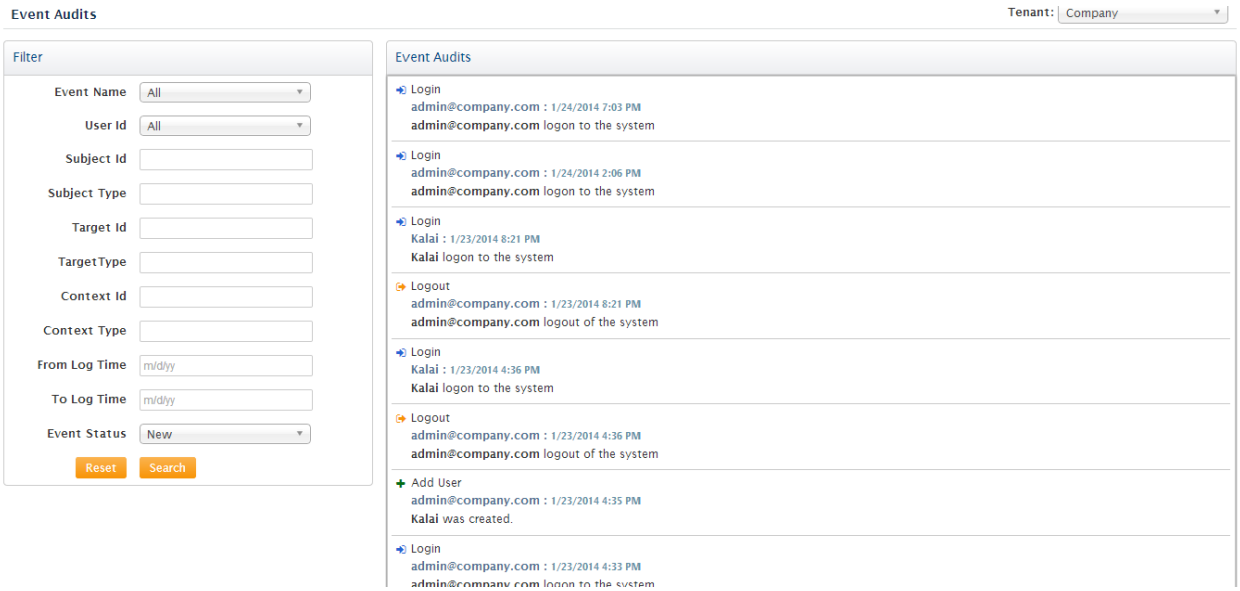
Employee Task List

7.6 Auto Event Raise

CelloSaaS offers Eventing System which helps Developers and Business Users to Register and Raise events using the Admin Dashboard. For the purpose of this LiveTour, there are multiple events related to this Project Management App is registered in the Event System, such as

- Project_Created (Raised when a project gets created in the system)
- Project_Updated (Raised when a project gets updated in the system)
- Project_Deleted (Raised when a project gets deleted in the system)
- ProjectTask_Created (Raised when a task gets created in the system)
- ProjectTask_Updated (Raised when a task gets updated in the system)
- ProjectTask_Deleted (Raised when a task gets deleted in the system)
- Task_Assigned (Raised when a task gets assigned to an employee in the system)
- Task_Status (Raised when a task status gets changed in the system)

To witness these event log, login as the Tenant Administrator and navigate to Monitor >> Event Audit



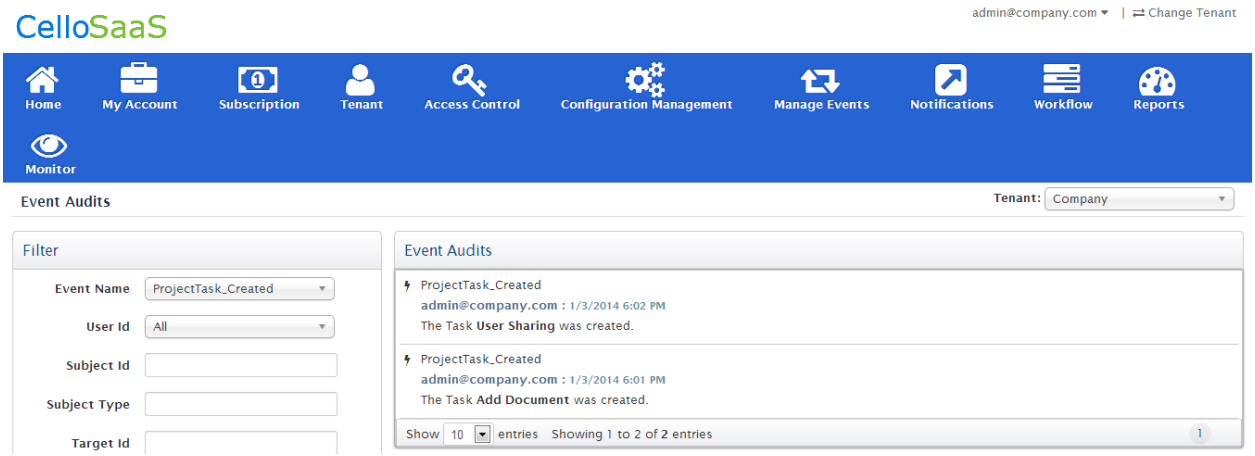
Event Audit

Manage Events

7.7 Event Execution on new Project creation

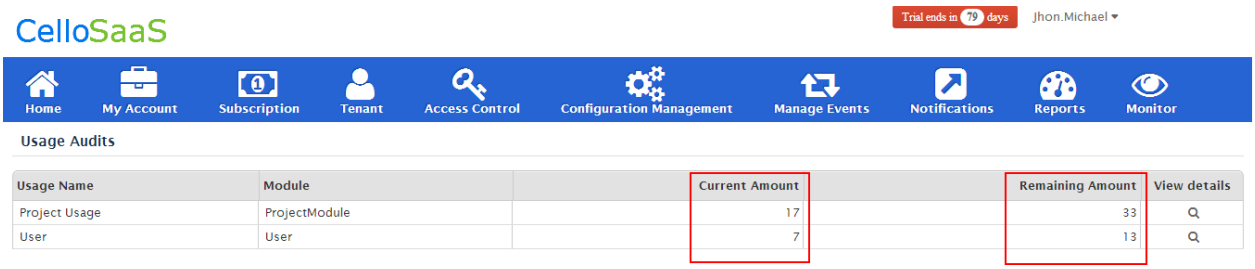
When a new project is added using the Project Page, the registered event will be raised by the Eventing System of Cello automatically, to notice the same using the Event Logger Page

Navigate to Admin >> Monitor >> Events



7.8 Usage Log

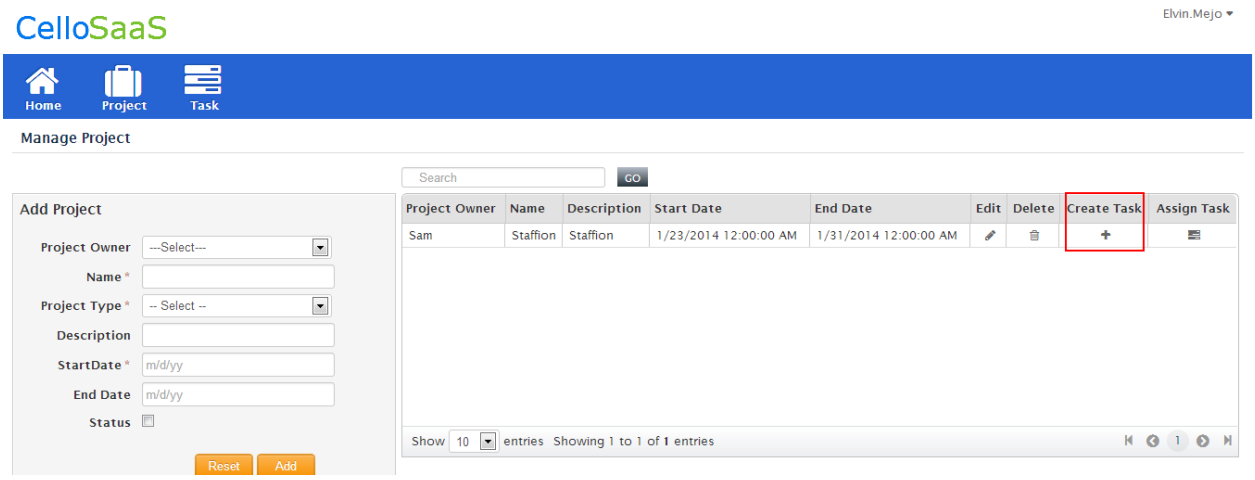
Cello meters the actual consumption of functionalities by each tenant against the threshold by the product Administrator. On creating the projects, the consumption will be incremented or decremented according to the billing type (Prepaid/Post-paid), once the tenant exhaust or reach the set threshold, the particular functionality will be blocked for the user. To view the usage log, Login as **"Tenant Administrator"** and navigate to Monitor >> Usage



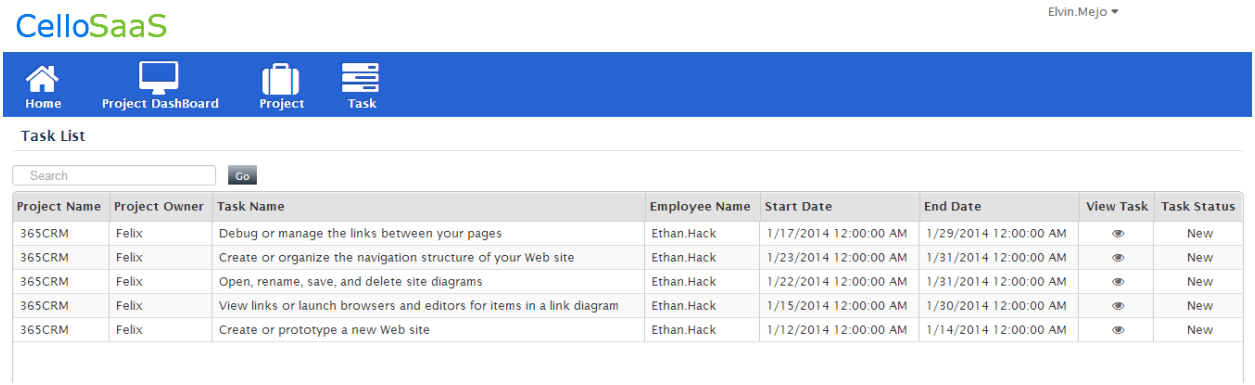
7.9 Add Tasks

Tasks are individual job allocated to each member in the team, in this Live Tour, once the projects are added and assigned to the Project Owner Role, the tasks must be created and assigned to the users who are under employee role.

To Create a Task, Login as Project Manager, navigate to Project >> Click on Create Task against a Project.



Once the task is assigned to an employee, it will start appearing on the particular employee Task List Page, To Witness, login as an "**Employee"** and navigate to Task Page.



Task List Page

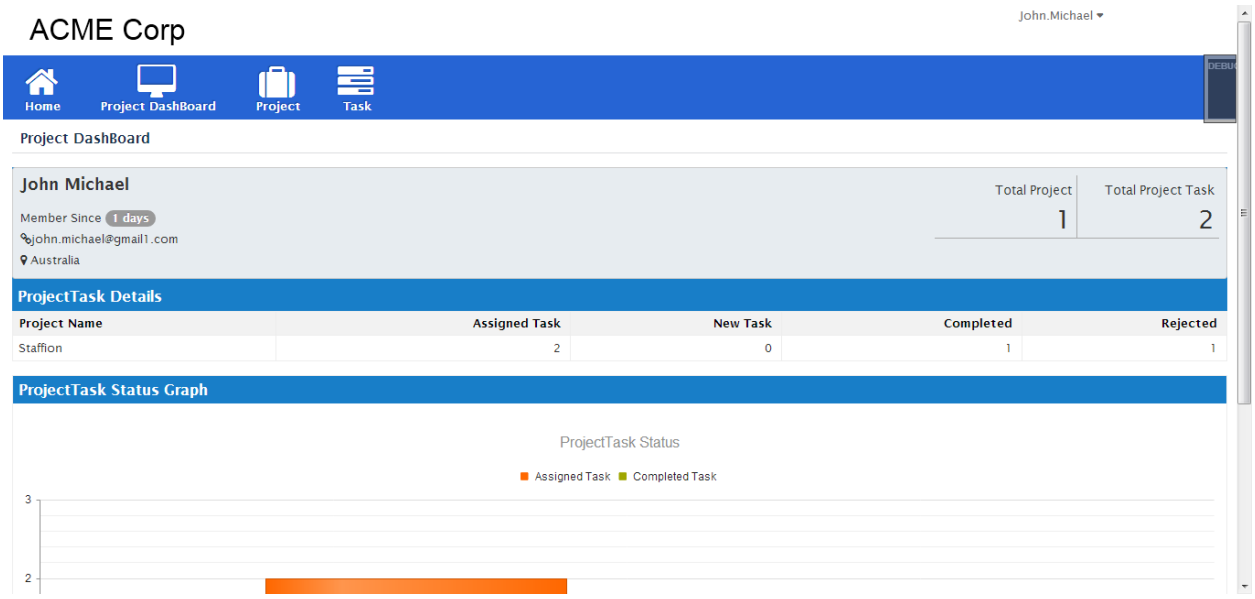
7.10 Subscription Level Security

Cello handles security in all the layers of the application i.e.

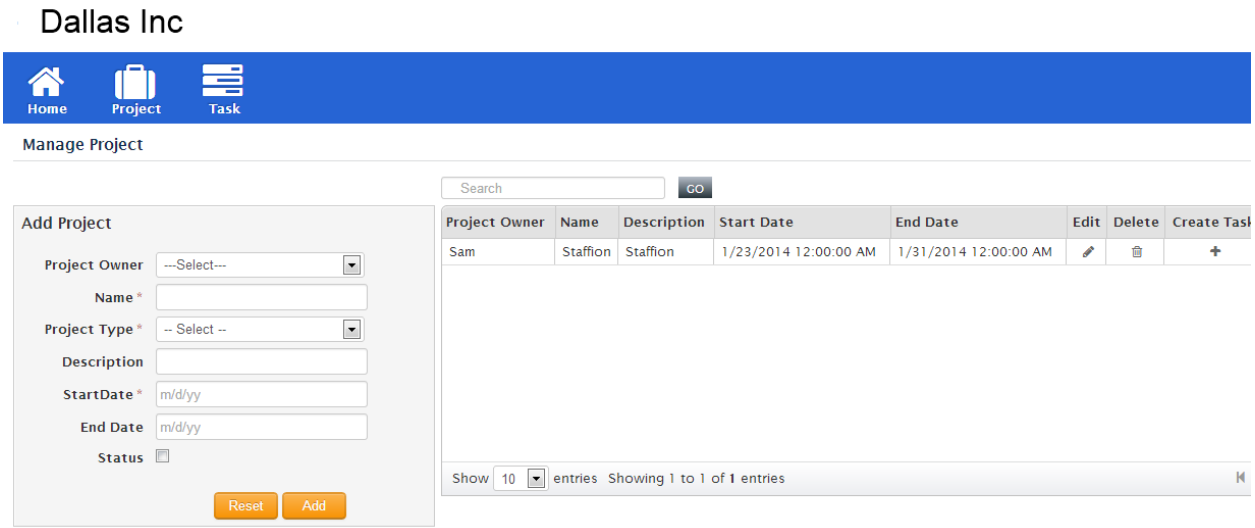
- ✓ Presentation Layer
- ✓ Business Layer
- ✓ Database Layer
- ✓ Service Layer
- ✓ Subscription Layer etc.

We can better understand the subscription layer security by looking at the menus you receive when you login as two different Tenants, i.e. as **AcmeCorp** who holds the "**Ultimate Edition**" which contains all the features of the application on the other hand **DallasInc** who have subscribed to "**Standard Edition**" which doesn't contain Project Dashboard Feature enabled, so when **AcmeCorp** Tenant login, they will be able to see all the menus, whereas when **DallasInc** login, they will not see "Project Dashboard" menu.

7.11 Menu of AcmeCorp



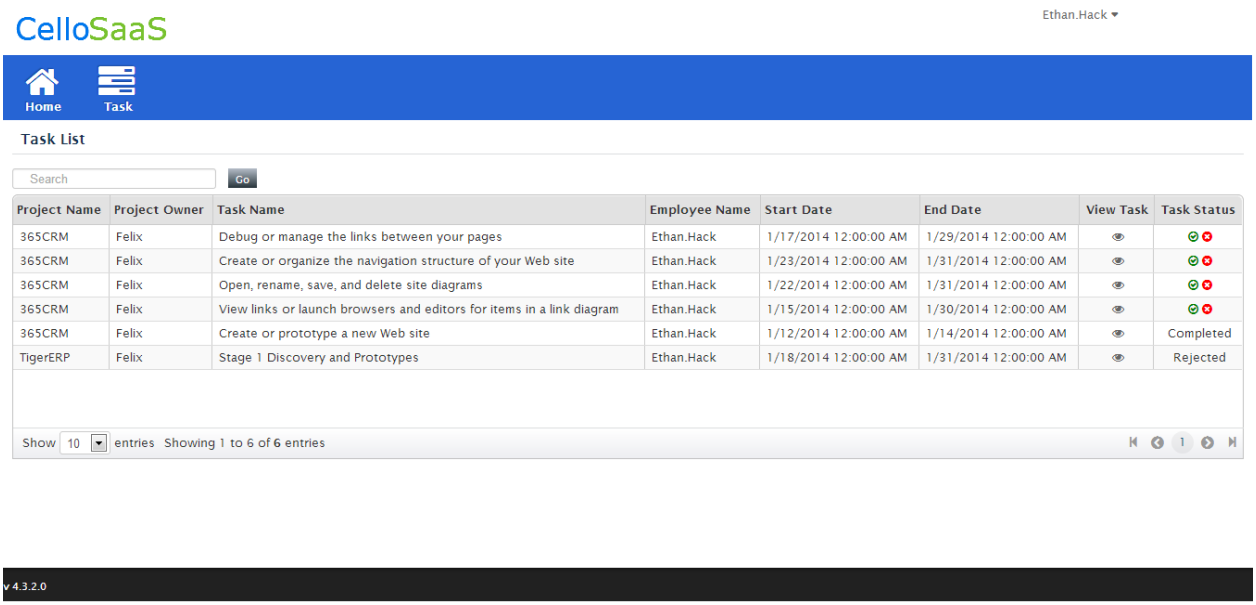
7.12 Menu of DallasInc



7.13 Page or (Controller/Action) Level Security

Cello authenticates every user against each controller/action methods in the application. As an additional security measure, cello allows you to verify whether the user has been granted to access certain controllers/methods or pages in the application.

To observe, Login as an “employee” role and try to access the task page.



7.14 What is Pickup List and how it is used

Pickup list is a feature of Cello which simplifies the management of master data. Using this feature, the Product Administrator and Tenant Administrator can create master data using the screens provided by Cello.

Benefits of Pickup List

1. Reduce the overhead of Developers

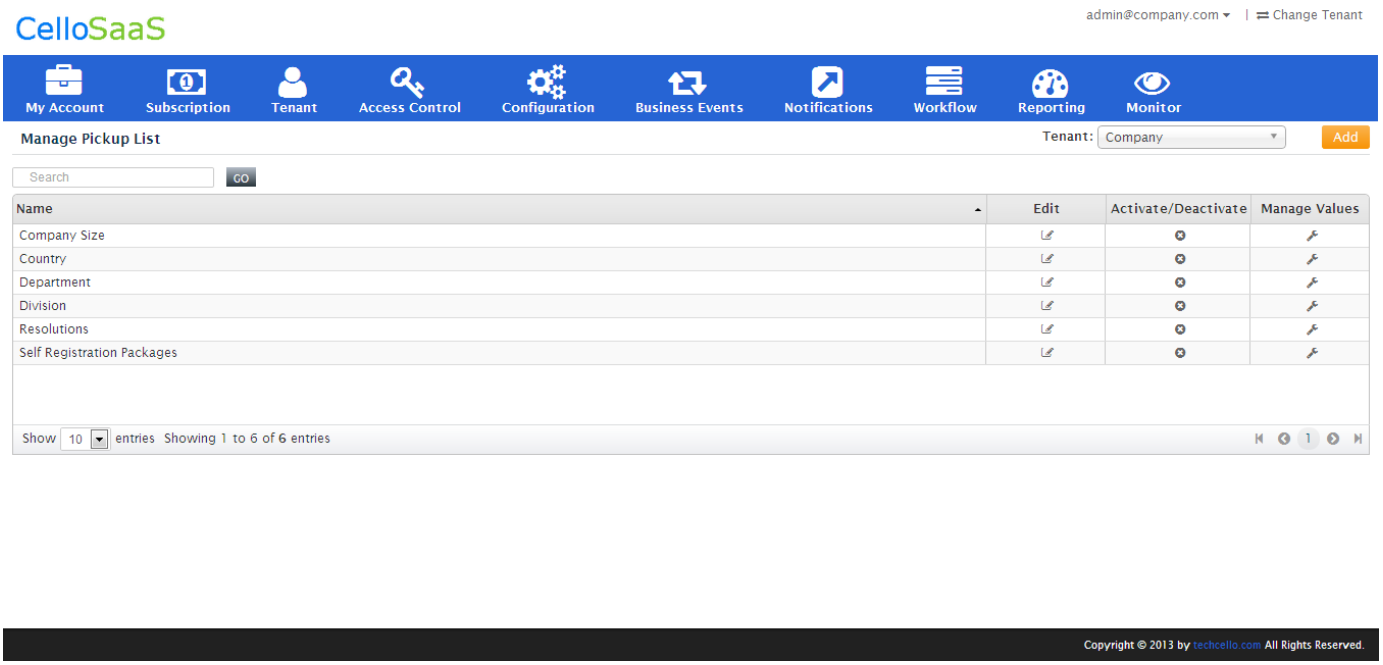
2. Create/Manage Pick up List in Run Time

3. Highly Configurable

4. Map Pick up list to Custom Fields

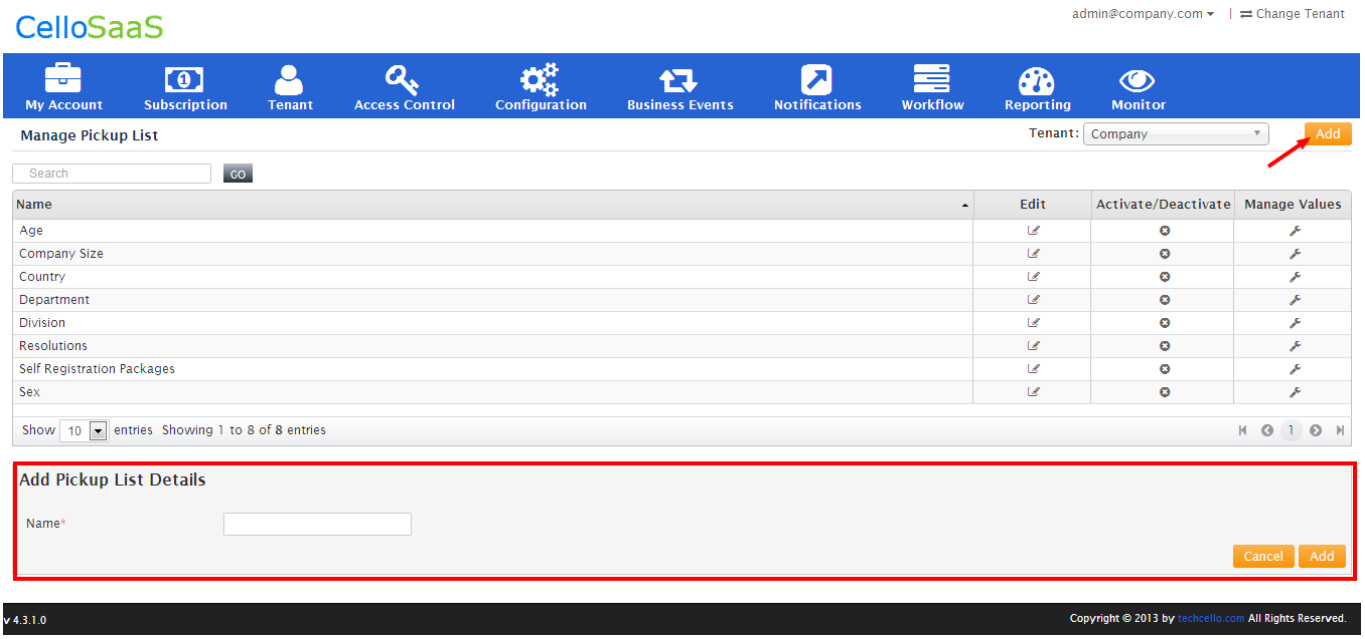
Pickup list Feature is provided out of the box and there is no code level configuration or changes required.

Navigate to Configurations→ Manage Pickup Lists



Manage Pickup List Screen

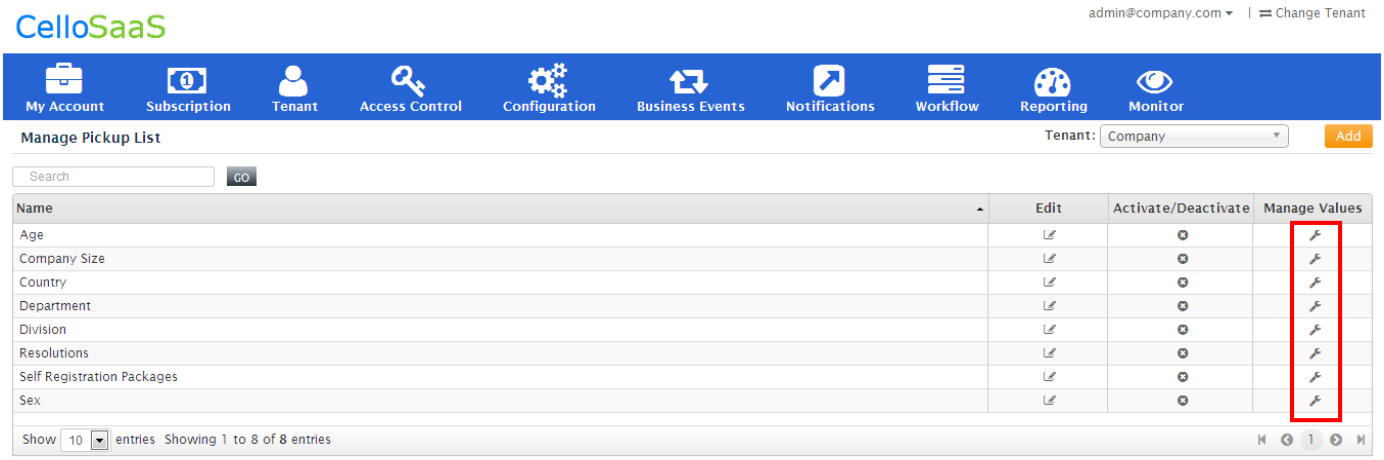
- Click on Add link to add a new Pick List as shown in the below Screenshot

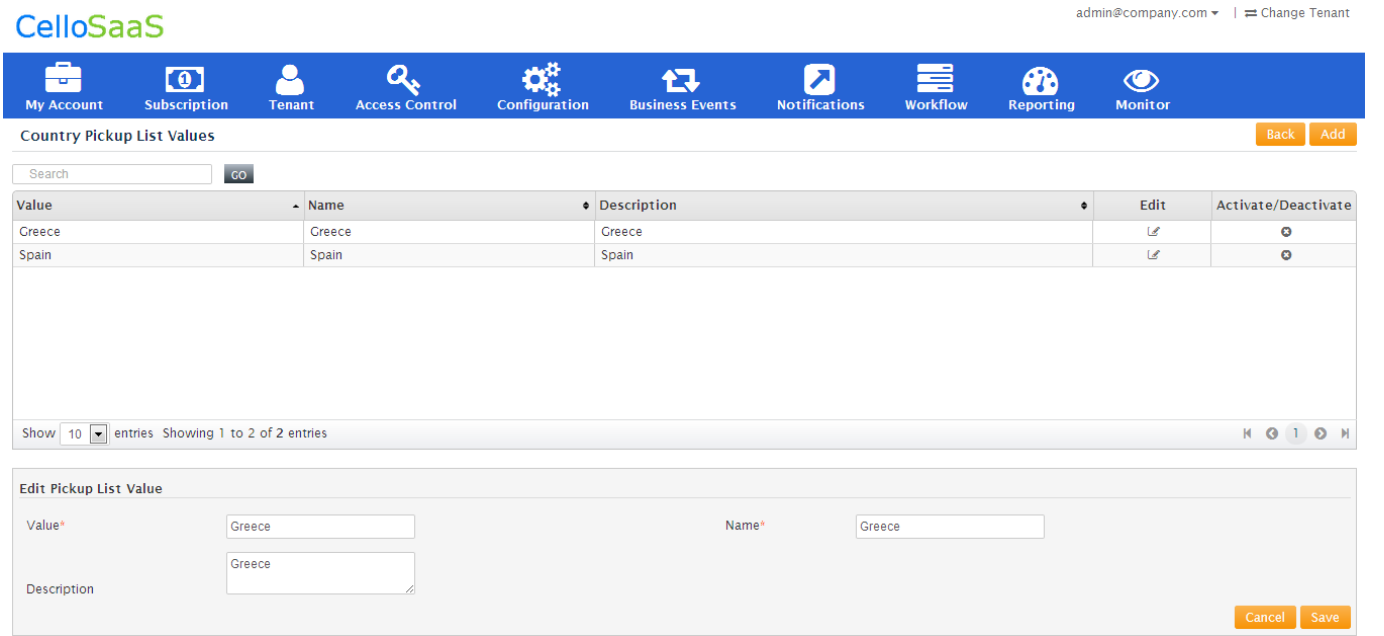


The name of the Pick List will be displayed in the label of the pickup list. You can change the values without affecting the label value. After entering the Key-Pairs for the pickup list, specify whether the values are displayed in alphabetical order.

You can edit pickup lists when the field is in production. Be aware of the potential implications of this action. Make sure to provide a unique pickup list name. Avoid specifying a global pickup list name.

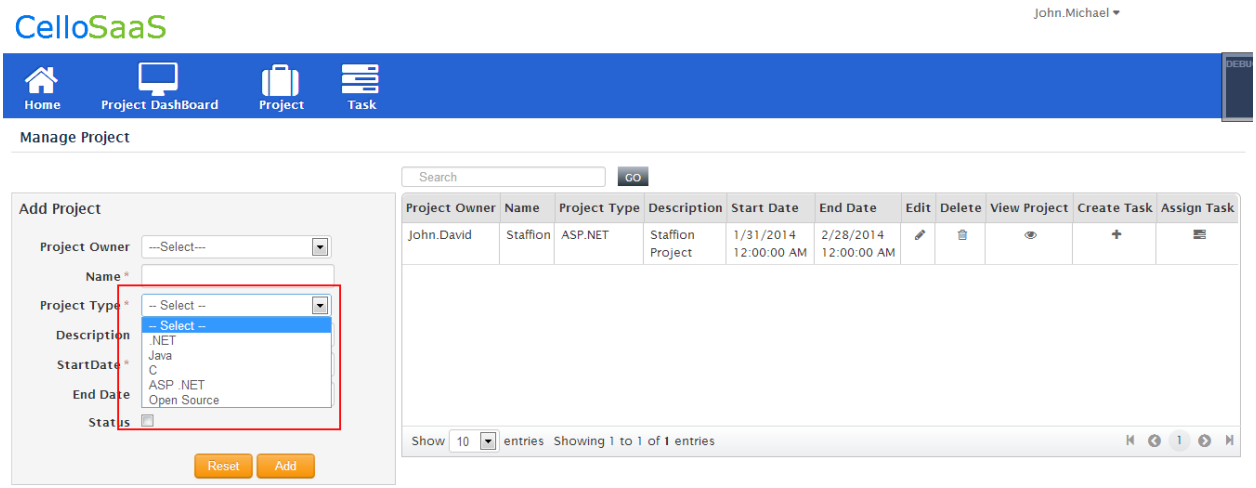
7.15 Manage Pick List Values



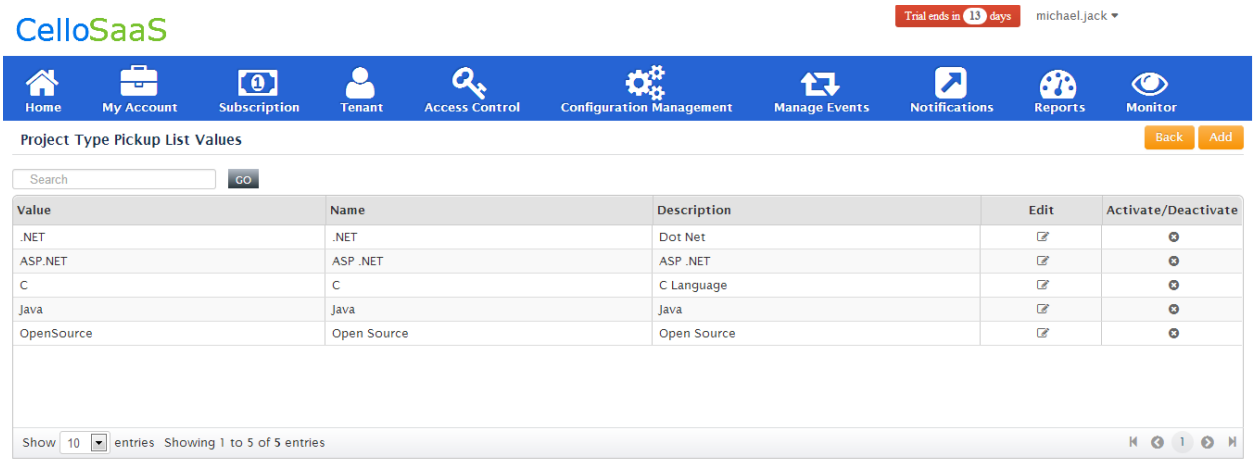


7.16 How Pickup list is used in LiveTour App

With reference to the Pickup list explained above, to showcase the usability of Pickup List, this live tour uses pickup list in the Create Project Form(Refer the below Screenshot), to see it in action, Login as Project Manager and navigate to Project Page.



To change the values of this pickup list, login as the Tenant Administrator, and navigate to Configuration Management >> Manage Pickup List >> Click on Manage Values and manage the values that gets displayed in the Pickup list.



TRY

1. Try adding some more values to the existing Pick up list collection of Project type. In order to try, login as project manager and navigate to create project page to look at the new value added

The pickup list changes that are done by respective tenant is only preserved at each tenant level and it doesn't affect any other tenants data.

7.17 How Notifications are sent

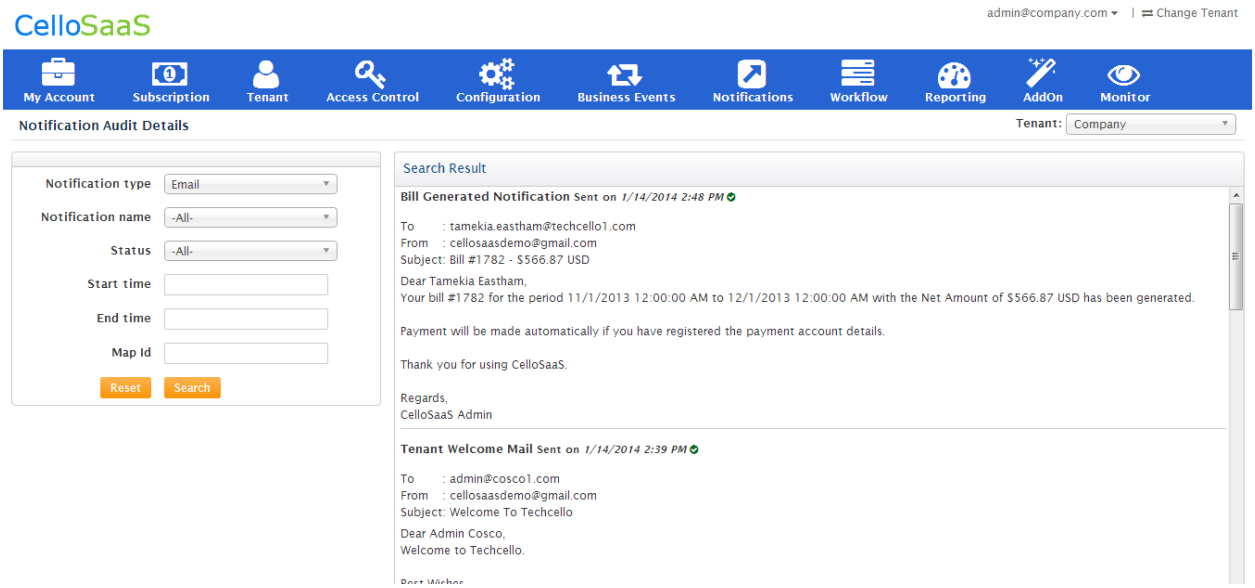
CelloSaaS's Notification has three components in it namely

1. Notification Engine
2. Notification Service
3. Notification Content Templates

In order to send notification, the first step is to Configure Notification details, refer here. Once the notification is configured, you can call the below service to send notification from the system.

For this live Tour, there are two emails triggered in two different places, they are

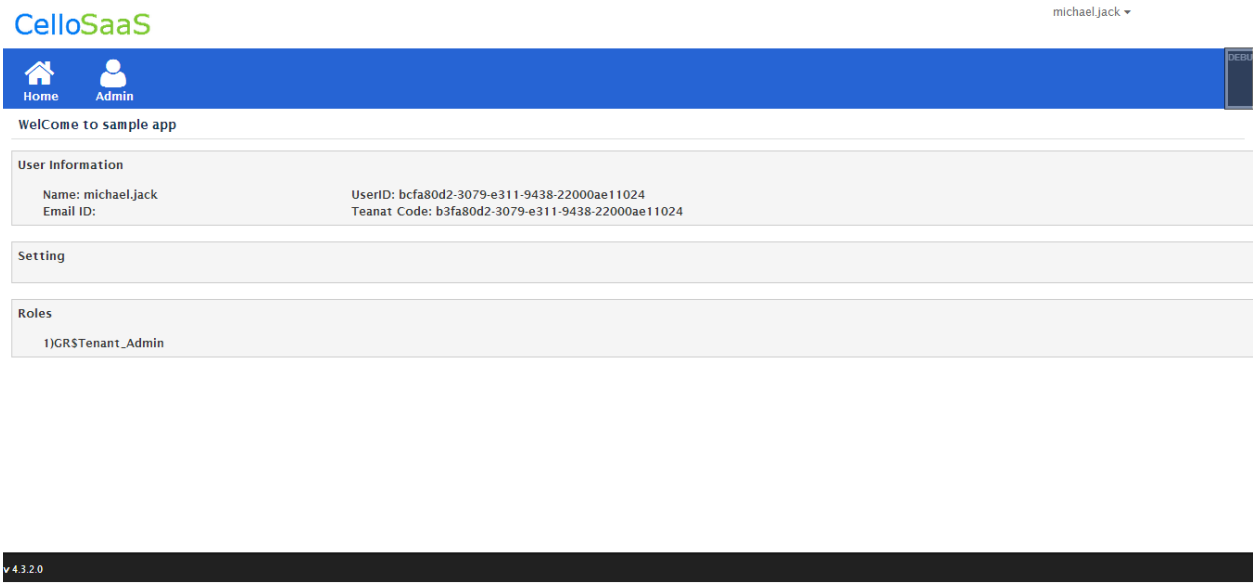
1. While assigning a task to an employee
2. While an employee accept or rejects a particular task an email will be sent back to the respective project manager. To confirm whether an email is sent for any above of the above activity navigate to Notification Log page under monitor menu(Refer below Screenshot)



7.18 Login as Tenant Admin

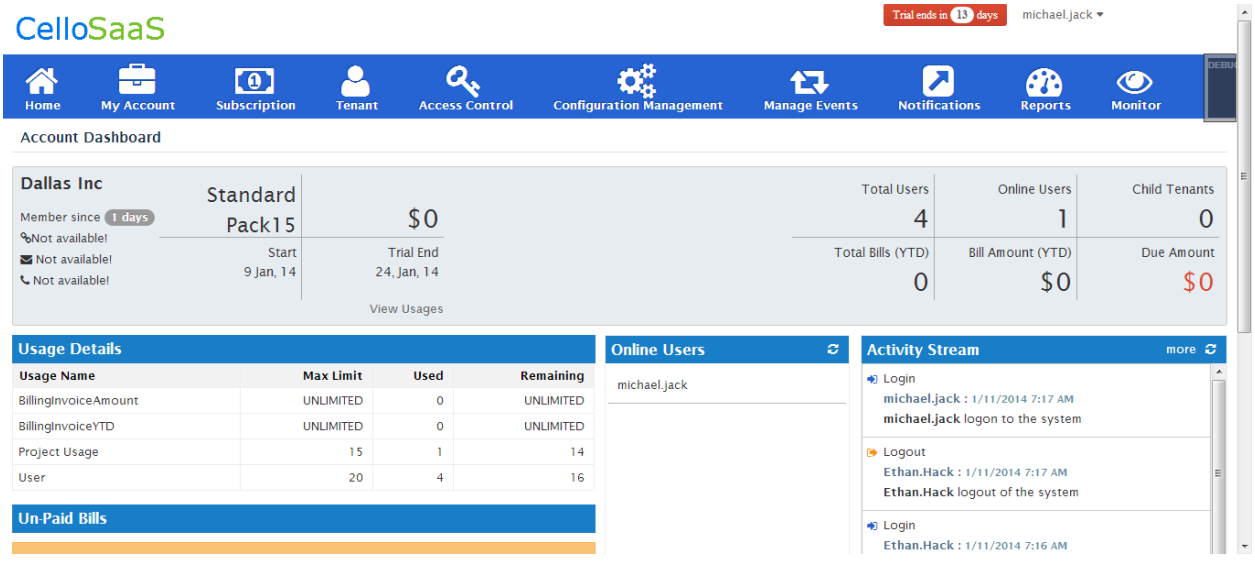
Tenant Administrator is a special role assigned to a user to manage the entire tenant administrational tasks.

When you login as Tenant Administrator, you can see the below



Welcome Screen

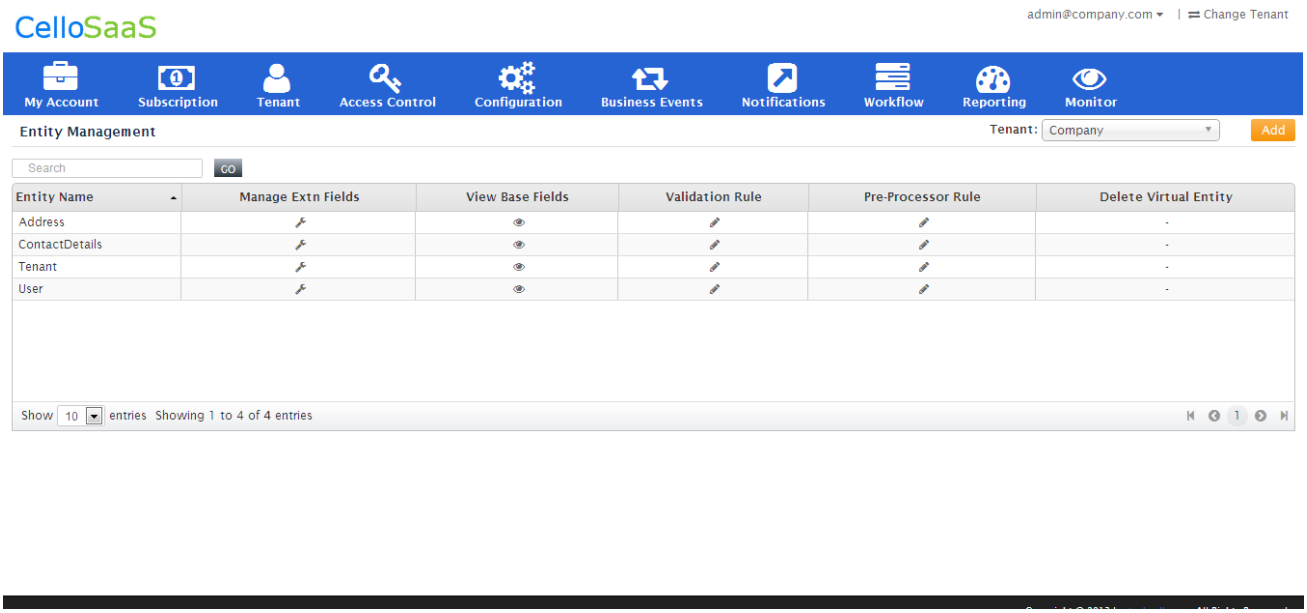
Click on Admin to navigate to the admin section



7.19 Adding Custom Fields

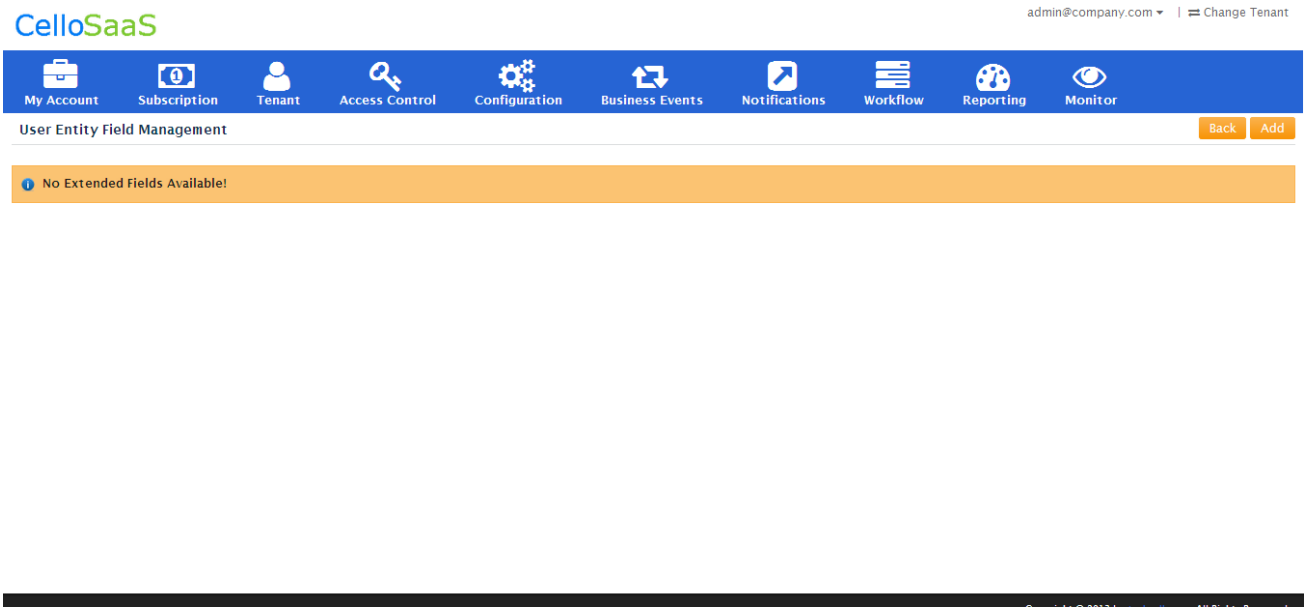
Custom fields feature gives the ability to the individual tenants to extend the physical and virtual entities by adding custom fields on the fly.

To configure custom fields for an entity, navigate to Admin>> Configuration>> Manage Entities



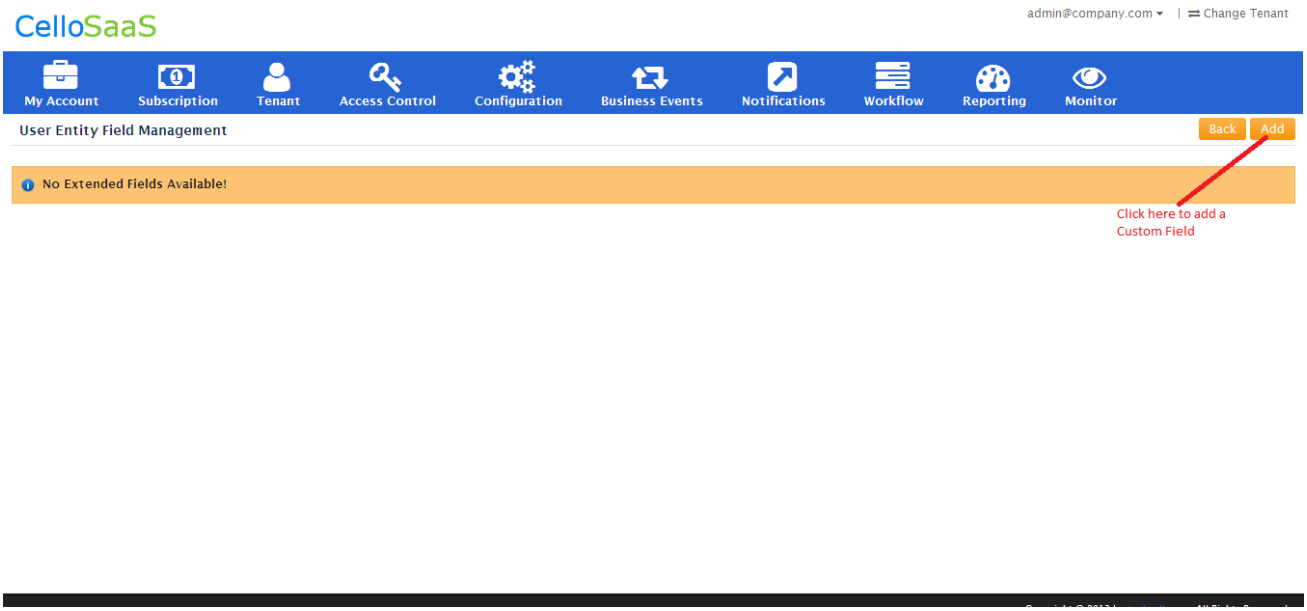
Entity Management

- Click on Manage Entities against the Entity to which the custom field has to be added.
- The following figure shows that a selected entity does not have any extension or custom fields

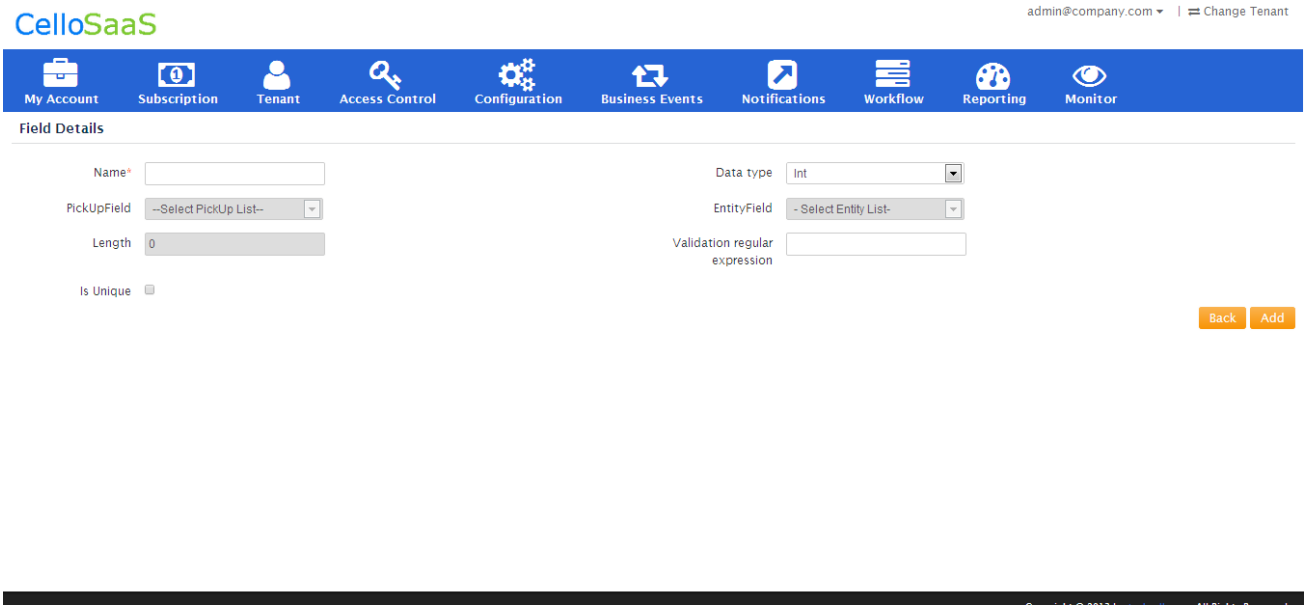


User Entity Fields Management

- The following figure shows how to add the extension field to an entity listed.



Custom Fields List



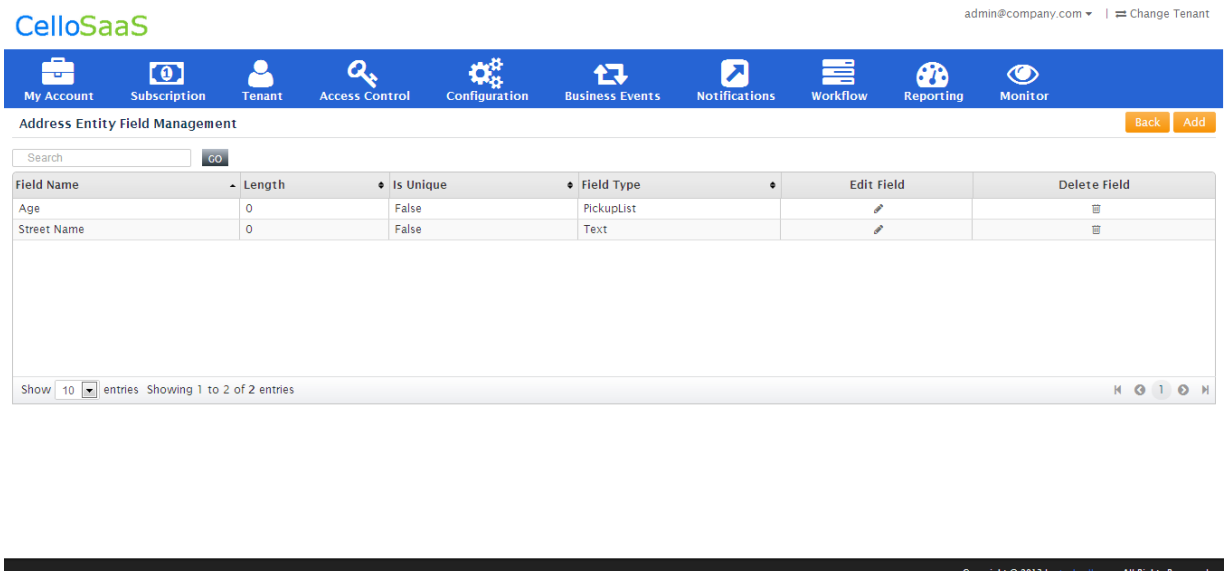
Add Custom Fields

- The above figure shows the properties or the metadata that will be captured from the user for each of the extension field.

- The name of the extension field will be unique for an entity.
- The extension fields support the following datatypes
  - Integer
  - Date
  - PickUpfield [Pickup lists that are global and specific to that tenant are listed here]
  - Varchar
  - Float
  - Boolean

- The ***length*** property can be used to restrict the length of the input for the case of varchar fields
- The Validation ***regular expression*** is used to validate the user input when the extension field value is to be saved in the database.
- The ***IsUnique*** property is to indicate that this extension field will take only unique values.

- The following figure shows the newly added Extended Fields for an Entity



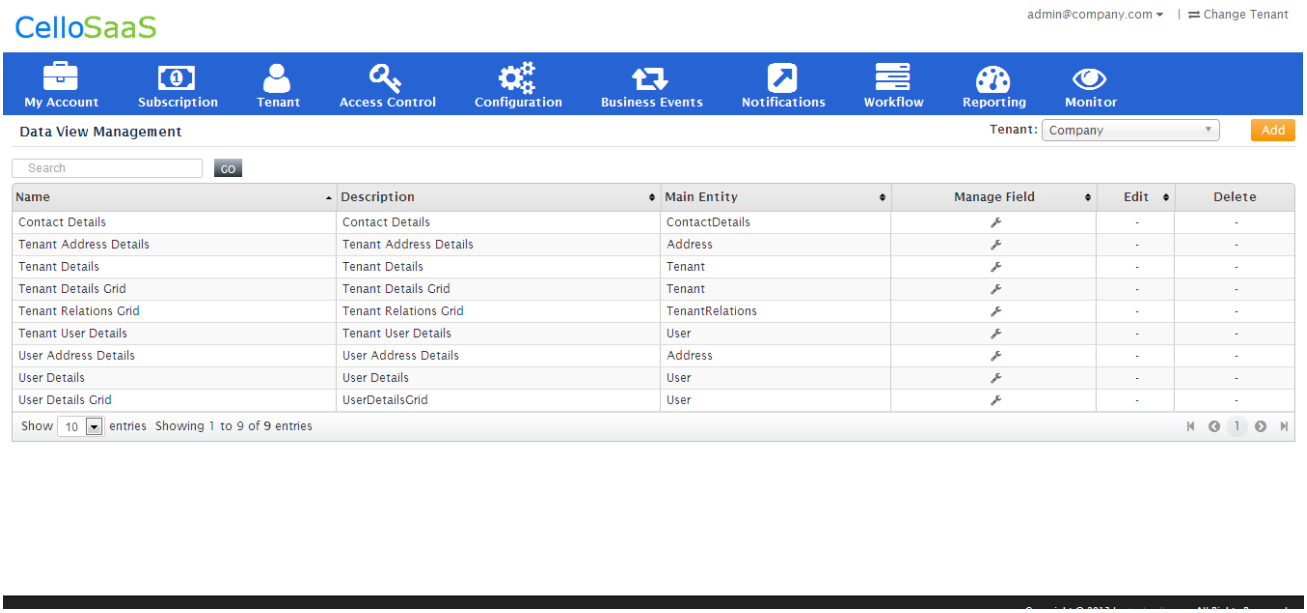
User Entity Fields Management

2. After an extended field is added to an entity, it has to be included in any of the data views so that it becomes visible to the User via any View element I.E. a Grid or the Form control. This mapping procedure is illustrated below,

- Data views are logical containers for representing the views that may be associated with an entity feature. Data views are used to group the collection of fields that are rendered to the UI during the runtime.

- Once a Field is included in an Entity, it has to be included in any of the form. To include a custom field into the data views, follow the below procedures.

Navigate to the Data view Management Admin → Configuration → Manage Data view

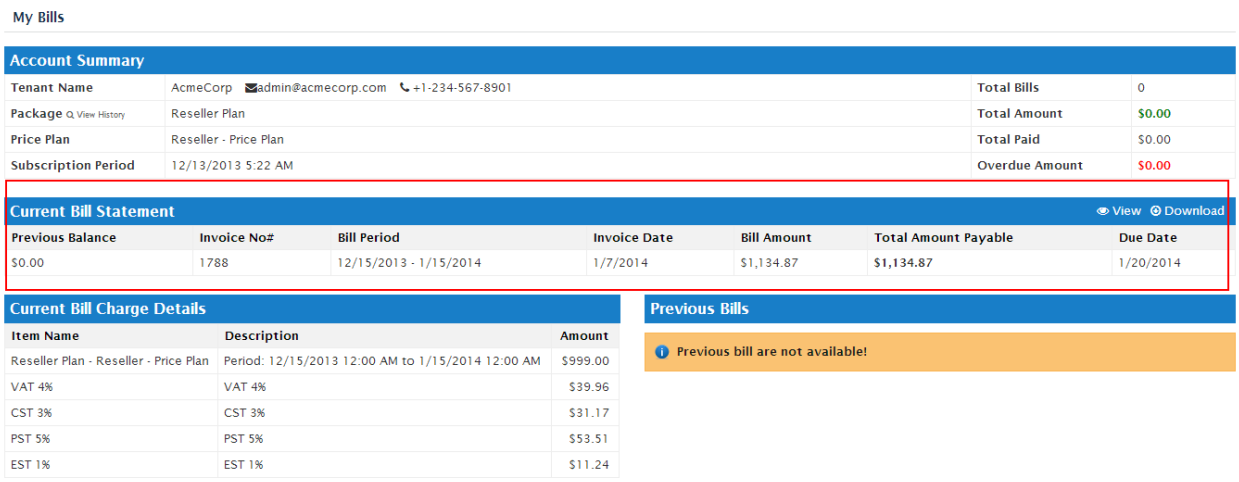


Dataview Management

- Dataview Management Lists out all the configured/Registered data views in the application
- Look for the respective entity and the dataview, to which the extended field needs to be included.
- Click on the Manage Fields against the respective Dataview and the entity to incorporate the new field into the Dataview.
- On clicking on the manage field icon against the Entity, all the basic fields along with the Custom fields added will be displayed, Refer the below screenshot.

7.20 How to administer Billing

Billing dashboard provides billing related information in one place, please refer the billing information by navigating through Admin >> My Account >> My Bills

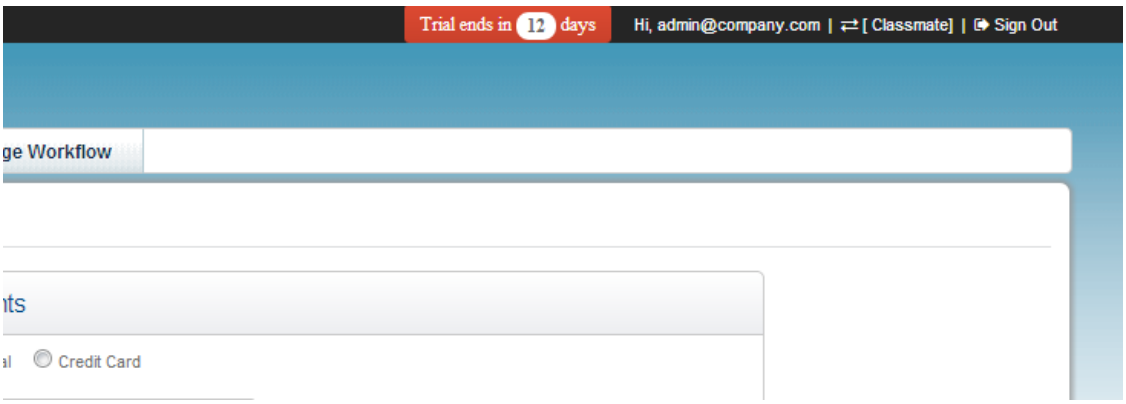


7.21 How to Upgrade/Downgrade

Tenant administrators can upgrade/downgrade to other subscription plans at any point of time. Below are the procedures shown to upgrade and downgrade the subscription.

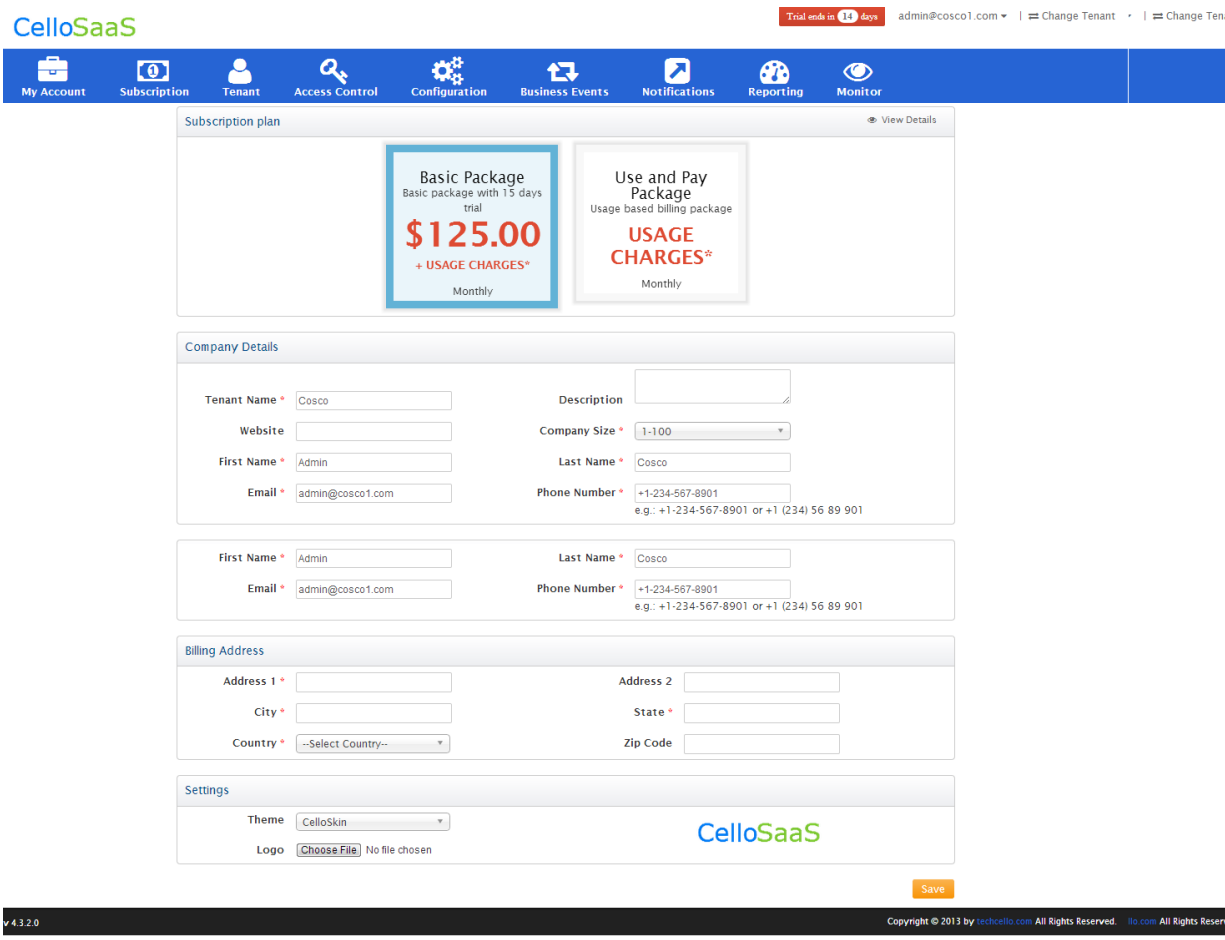
7.22 Self-Upgrade/Downgrade Subscription plan

Customers who are currently using Evaluation Packages will receive a Call-To-Action message in the top bar with the number of Evaluation Days left. Towards the end of the Trial period, the customer will receive an email notification as the evaluation period is over and links to upgrade with enterprise plan.



During or after the evaluation period, Customers can click on the Call-To-Action alert message and self-upgrade by themselves without any assistance from the product administrator.

Customers can also upgrade/downgrade their current plan by navigating to My Account → Upgrade/Downgrade Subscription.



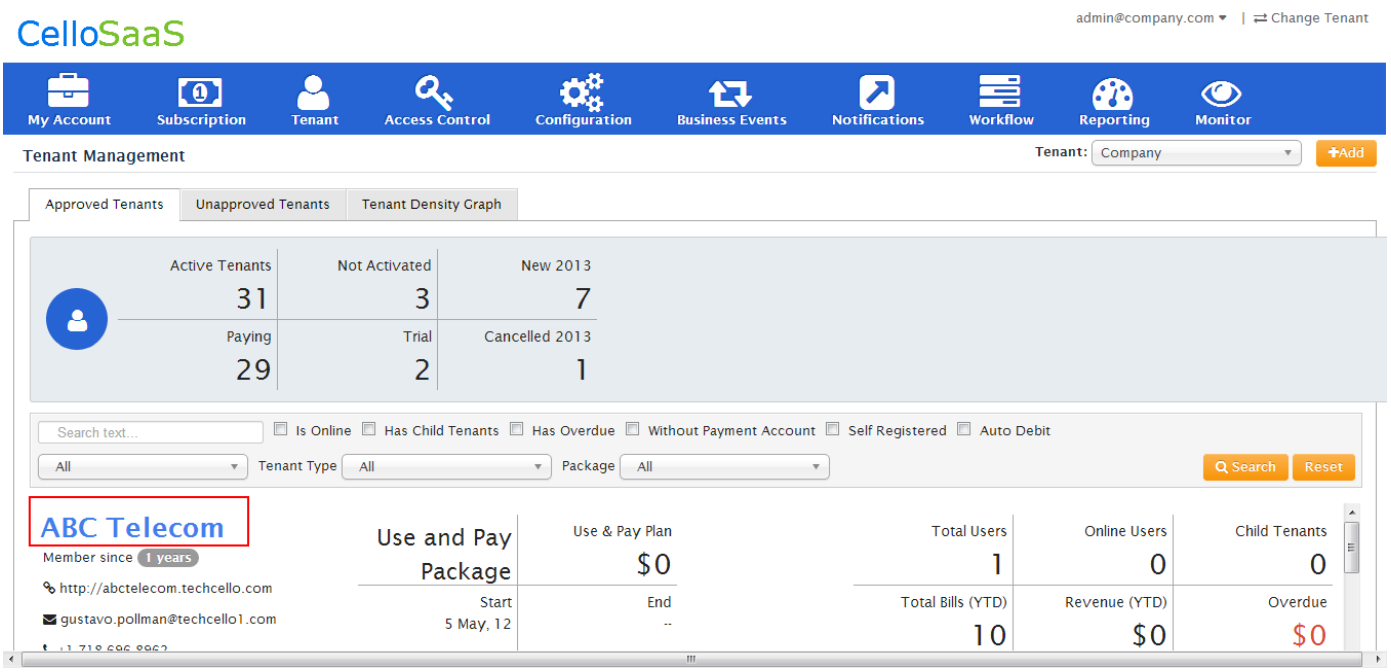
TRY

- Login as “AcmeCorp” who holds Ultimate Package and downgrade to “Standard Package” and see what happens
- Login as “DallasIn” who holds Standard Package and Upgrade to “Ultimate Package” and see what happens

7.23 Upgrade/Downgrade Subscription plan of Tenant by Prod Admin

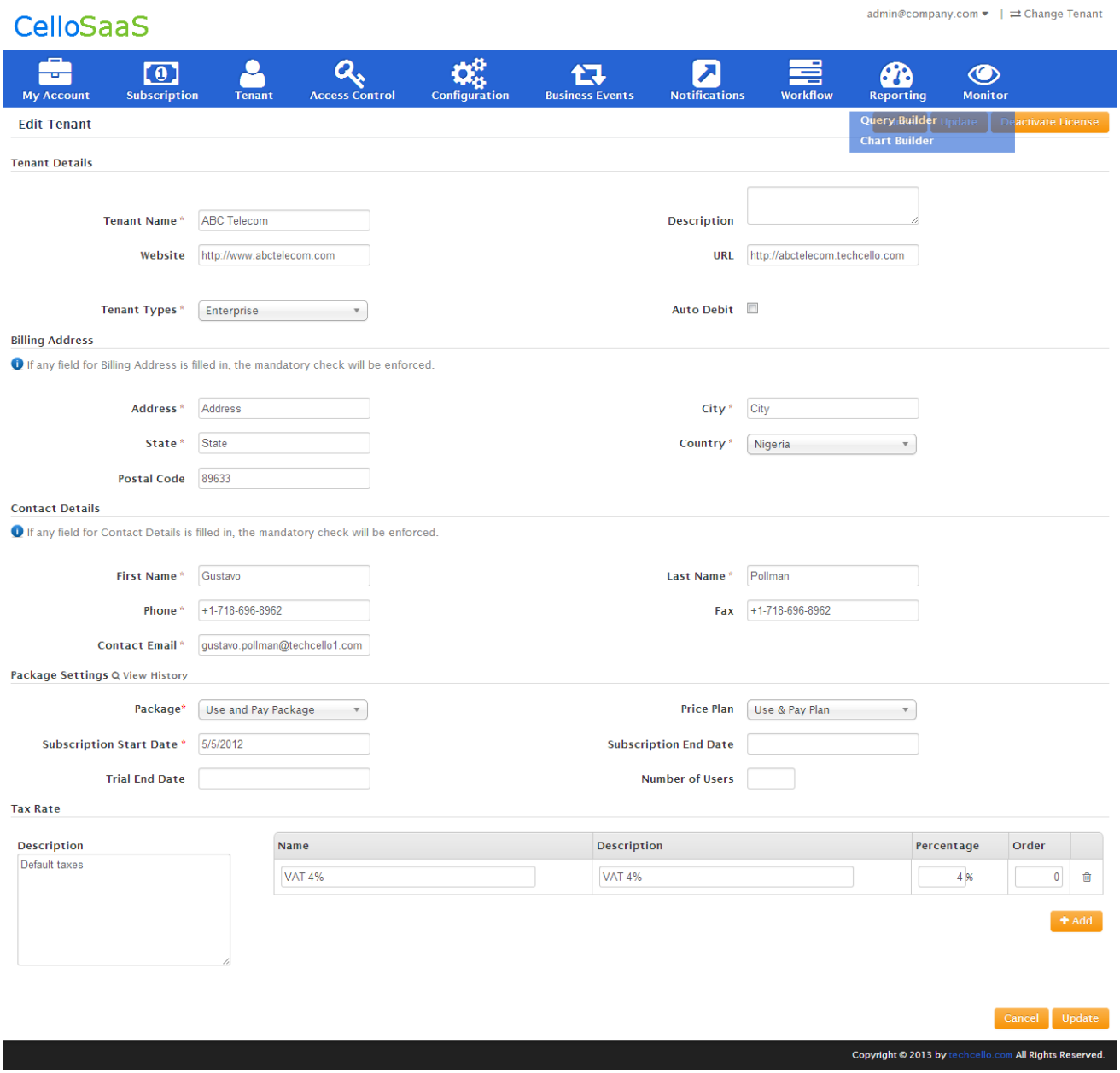
Product administrator can change the subscription plans of the Tenant using Tenant Management Module.

- To change the Subscription Login as Product Administrator → Tenant→ Manage Tenants [Refer below Screenshot]



Tenant Management

Click on the Tenant Name, this opens the Tenant details in the edit mode [Refer below Screen]

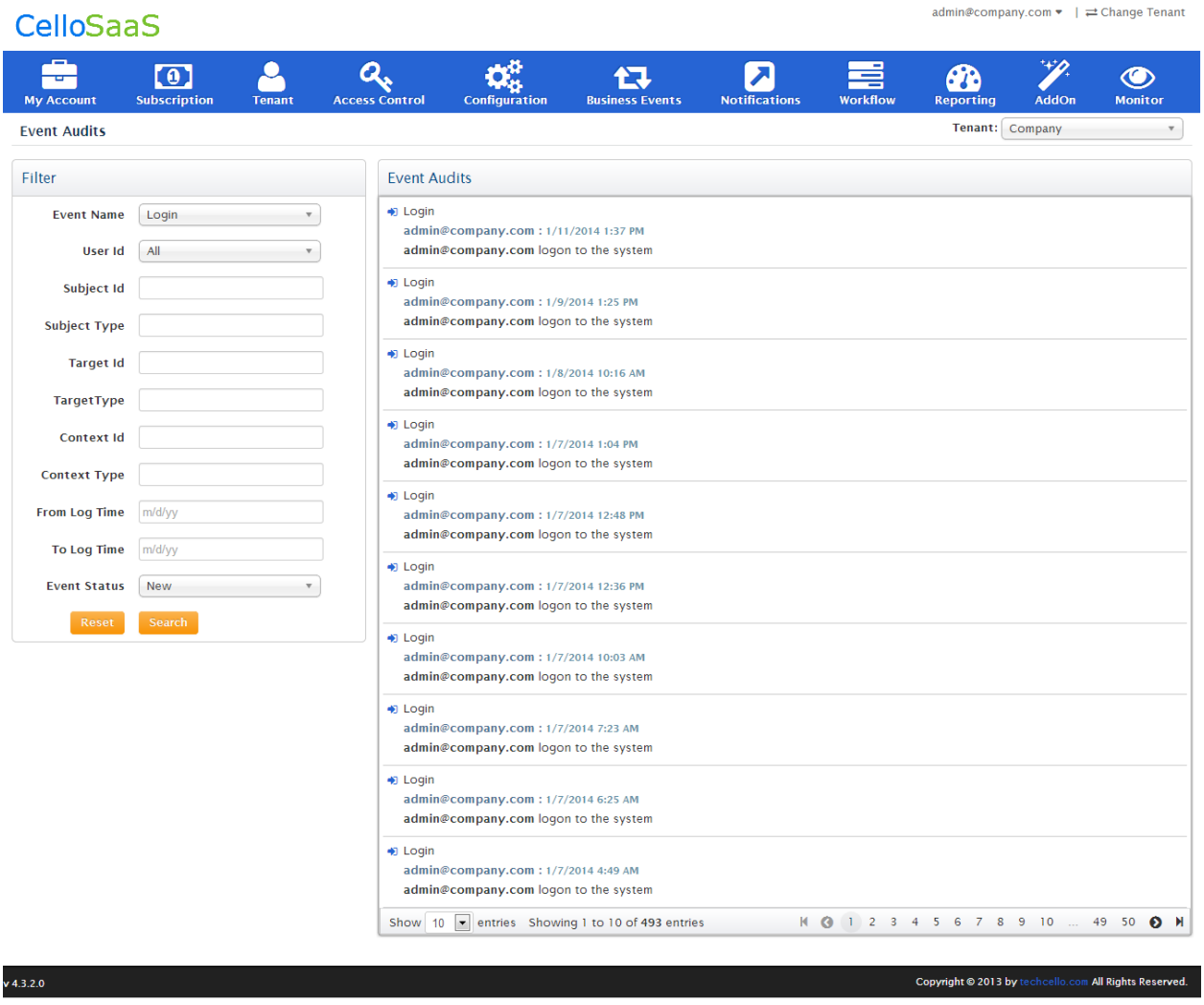


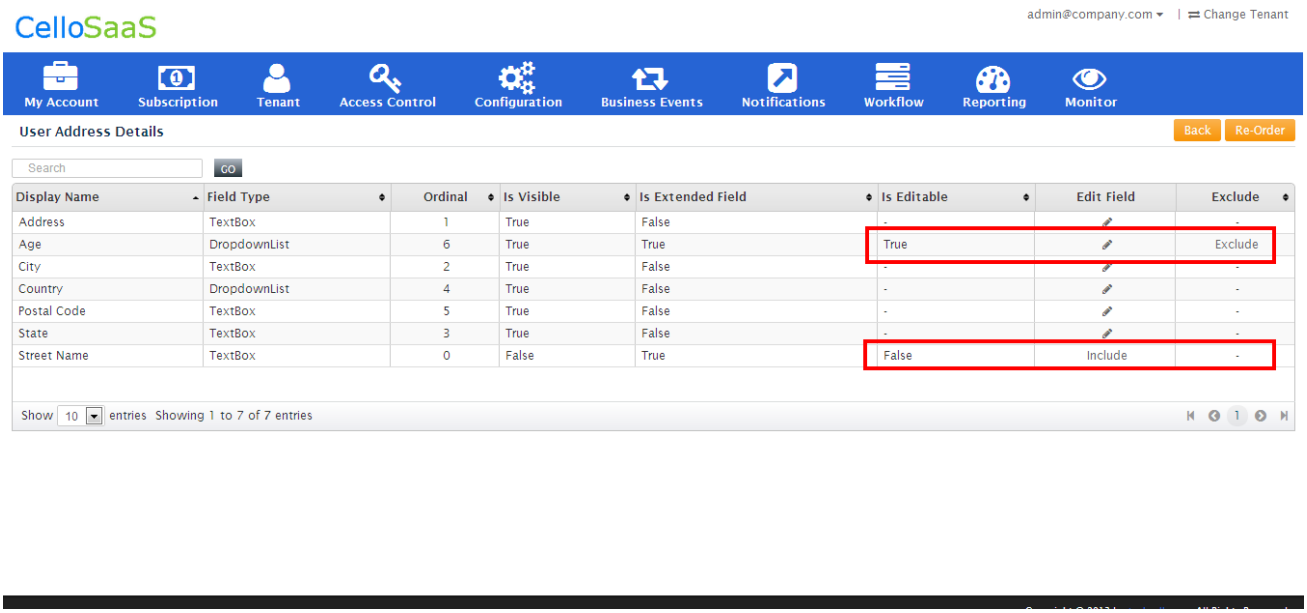
Edit Tenant Details

- Select the desired package and a plan
- Click on Save

7.24 View Login Audits

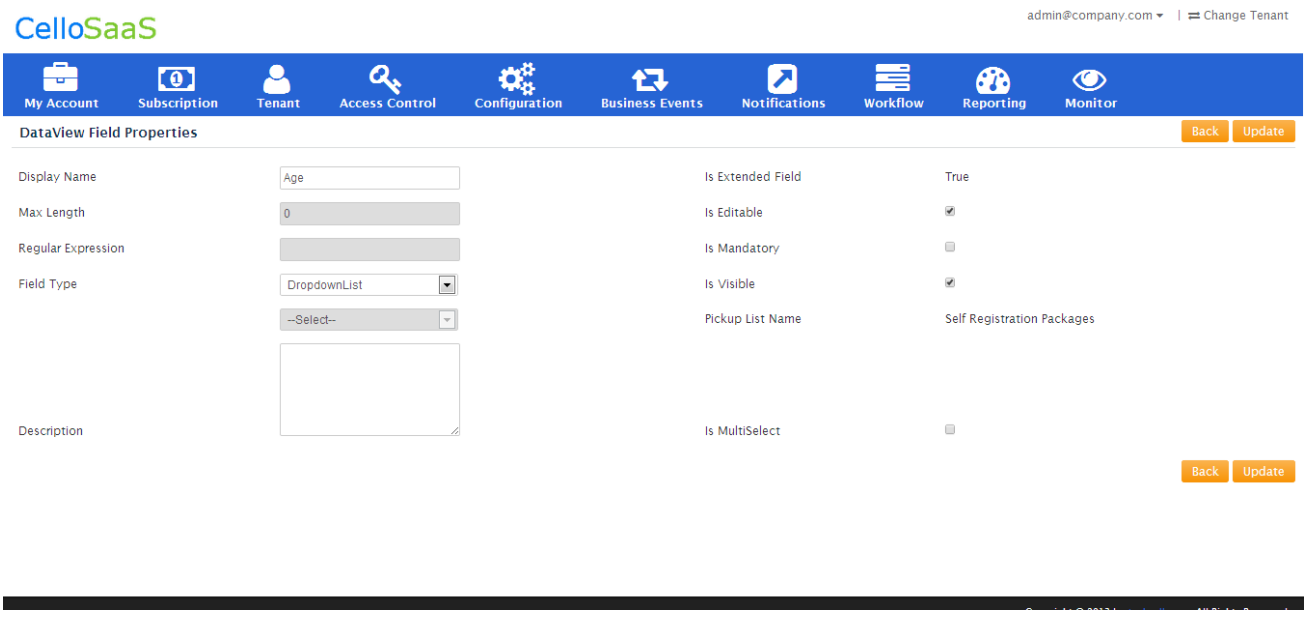
Authentication methods are completely wrapped in Event system, i.e. all the user logins and logout functions are audited. To view the Authentication logs, login as Tenant Administrator and navigate to Monitor >> Event Audits >> Filter by Login Event name.





Custom Fields Management

- Clicking on include will display the below screenshot.



Custom Fields Properties

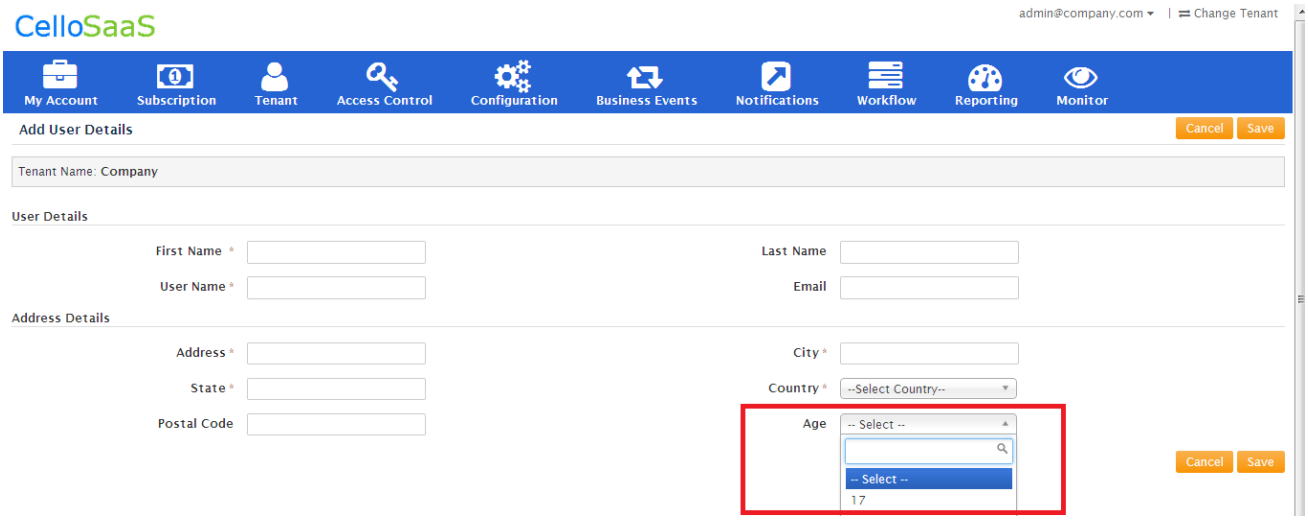
- The above figure illustrates the properties that can be set for the extended fields with respect to the dataview in which it will be included. These properties take ***more precedence*** than that of the entity field properties managed for each of the extended field.

- ***Max length*** property restricts the maximum length of the value that the user can provide for this extension field.
- ***Regular Expression*** property is used to input the regular expression to validate the data for the entity.
- ***Is Editable*** makes this fields as an editable field in this dataview
- The ***IsMandatory*** property marks that this field should be provided a value prior to save
- The ***IsVisible*** property set the visibility of the field in this dataview.

- Once these property values are updated, the field is added on to the Respective Form.

There is no change required in the code level for the Grid or the form control with respect to the extension fields. All the metadata mapping and rendering is taken care by Cello during the runtime based on the tenant identifier provided if the CelloGrid and CelloForms are used.

- The following figure shows the extended field rendered as part of the form along with that of the entity's base fields.



Custom Field in a Dataview

- Similarly, the extension field can also be included in the grid view.
- The same steps followed for incorporating the fields into the Form has to be repeated for Grid-Dataview.

7.25 Add a custom field in project

Login as the Tenant Administrator and follow the above procedure and try to add a custom field for the Add Project Form.

- Add a field of type **varchar** to capture “Project Code”
- Include this field in the “Project” formview and grid view
- Once the field is added, login as project manager and navigate to the project page to see the field

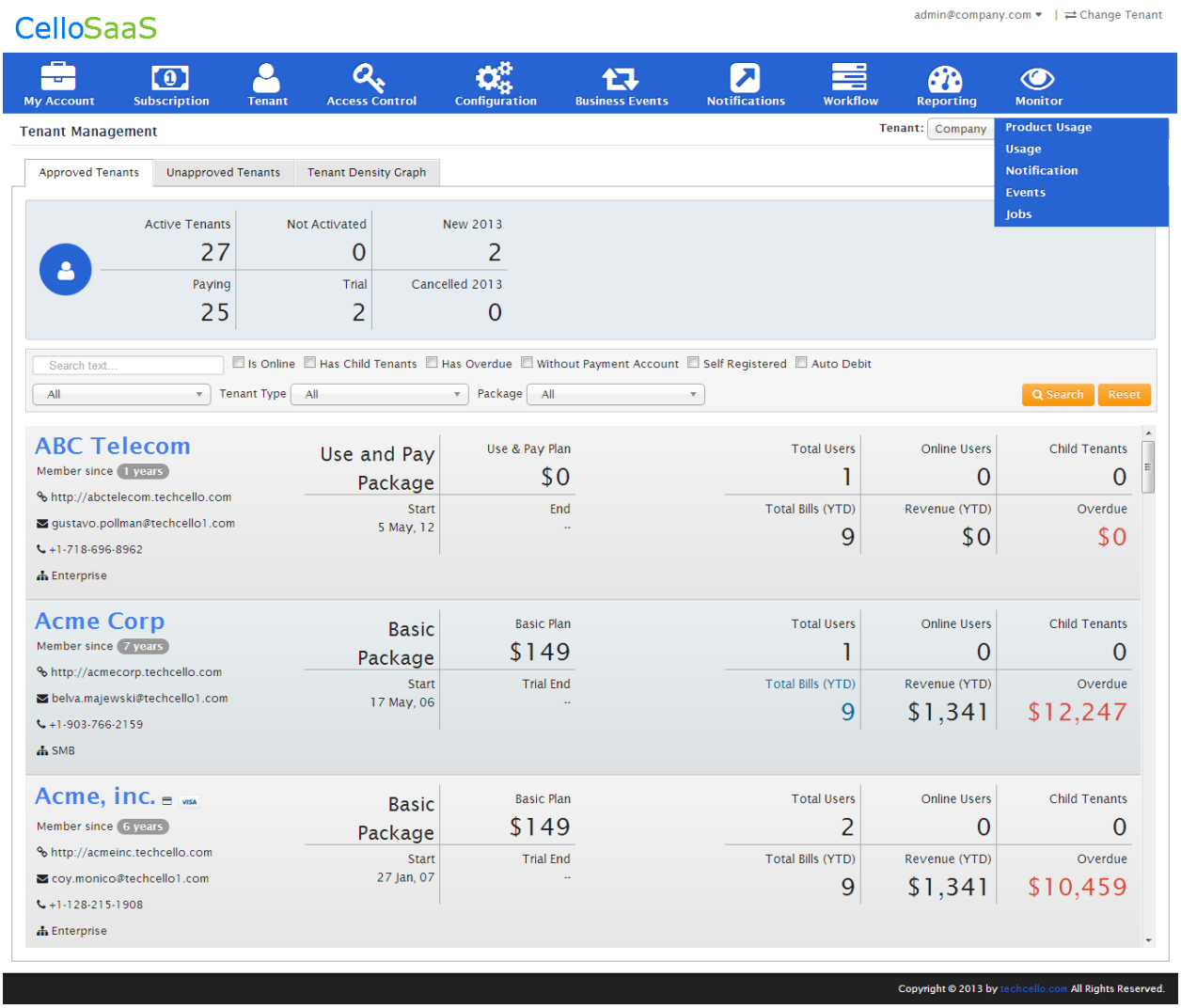
8 Step 4: Operations

8.1 Login as product admin

1. Create a new Tenant by filling up the Tenant Details form
2. Subscribe to any one of the existing Subscriptions and click on Save and create a new Tenant

8.2 Tenant Dashboard

Tenant dashboard provides an integrated view of all the tenants’ information in one place. Login as Product Administrator and navigate to Tenant>> Manage Tenant Details



8.3 Tenant Analytics Dashboard

The customer analytics data is very critical for the decision makers to decide the actions and to take necessary steps to the market product as well as understand the customer needs by ourselves.

CelloSaaS Provides Tenant Analytics feature as part of the Tenant Management module which provides detailed analysis about the status of the Tenants in the application.

With this feature, a member of a Marketing team can understand the list of customers who activated the account, but then the tenants haven't effectively used the product. This could be because of many reasons i.e. they are unable to use the product for some reason, they got stuck somewhere, or they might have other priorities to do etc, so in this situation, with the help of Tenant Analytics, the marketing team can be pro-

active in getting touch with respective account holders and follow up with them and understand the problem they are facing with the product and help them to effectively evaluate the product.

In other case, Marketing can go behind the hot trials and take the opportunity to closure.

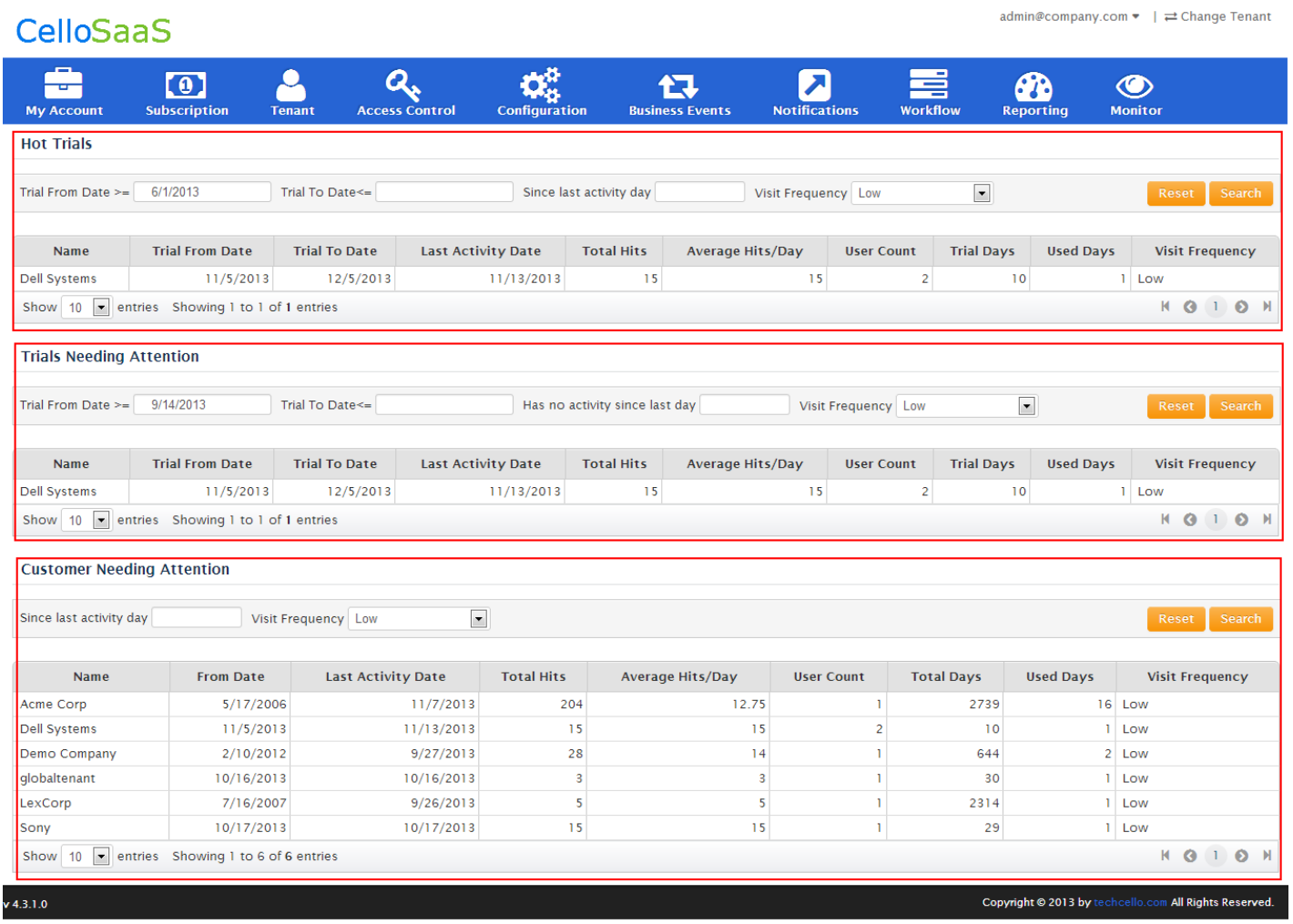
Registered Tenants are categorized into 3 types, they are

Tenant Type	**Description**
Hot Trials	*Refers to the Trial Customers who are actively using the Product*
Trials Needing Attentions	*Refers to the Trial Customers who are not using the product, and hence they need some attention in terms helping them to effectively use the product*
Customer Needing Attention	*Refers to active and paid customers who are not using the product effectively*

These information can help the management, marketing and business development team of the SaaS providers to understand the customer usage pattern, their interests etc.

The Tenant analytics feature is available by default for the Product owner.

Navigate to Admin>> Tenant>> Tenant Analytics



Tenant Analytics

8.3.1 Hot Trials

Hot Trials refers to the trial customers who are actively using the Product, you can use the filter the hot trial customers with various filters provided in the screen.

Filters

Field Title	Description
Trial From Date	The Day in which the Trial Account was started.
Trial To Date	The Day in which the Trial Account will end(ed).
Since Last Activity Day	Refers the last day since the application was used.

Visit Frequency	High : If a tenant visited the site more than 70 times, then it is considered as High visit frequency Medium : If a tenant visited the site between 40 - 70 times, then it is considered as medium visit frequency Low : Refers to If a tenant visited the site between 0 - 40 times, then it is considered as low visit frequency **Example** If Tenant A subscribed on Nov1 for a 15 Days Free Trial Package, within the 15 Days period if the tenant has logged in for about 500 times, the usage frequency will be calculated as follows 1500 Logins/ 15 Logins = 100 (Average Logins) – **High Frequency**

8.3.2 Trials Needing Attention

Trials needing attentions refers to the trial customers who are less or not actively using the product and hence they might require some special attention. Use the filters with various parameters provided in the screen.

Filters

Field Title	Description
From Date	The Day in which the Trial Account was started
To Date	The Day in which the Trial Account will end(ed).
Has no activity since last day	Refers the last day since the application was used.
Visit Frequency	High : If a tenant visited the site more than 70 times, then it is considered as High visit frequency Medium : If a tenant visited the site between 40 - 70 times, then it is considered as medium visit frequency Low : Refers to If a tenant visited the site between 0 - 40 times, then it is considered as low visit frequency **Example**

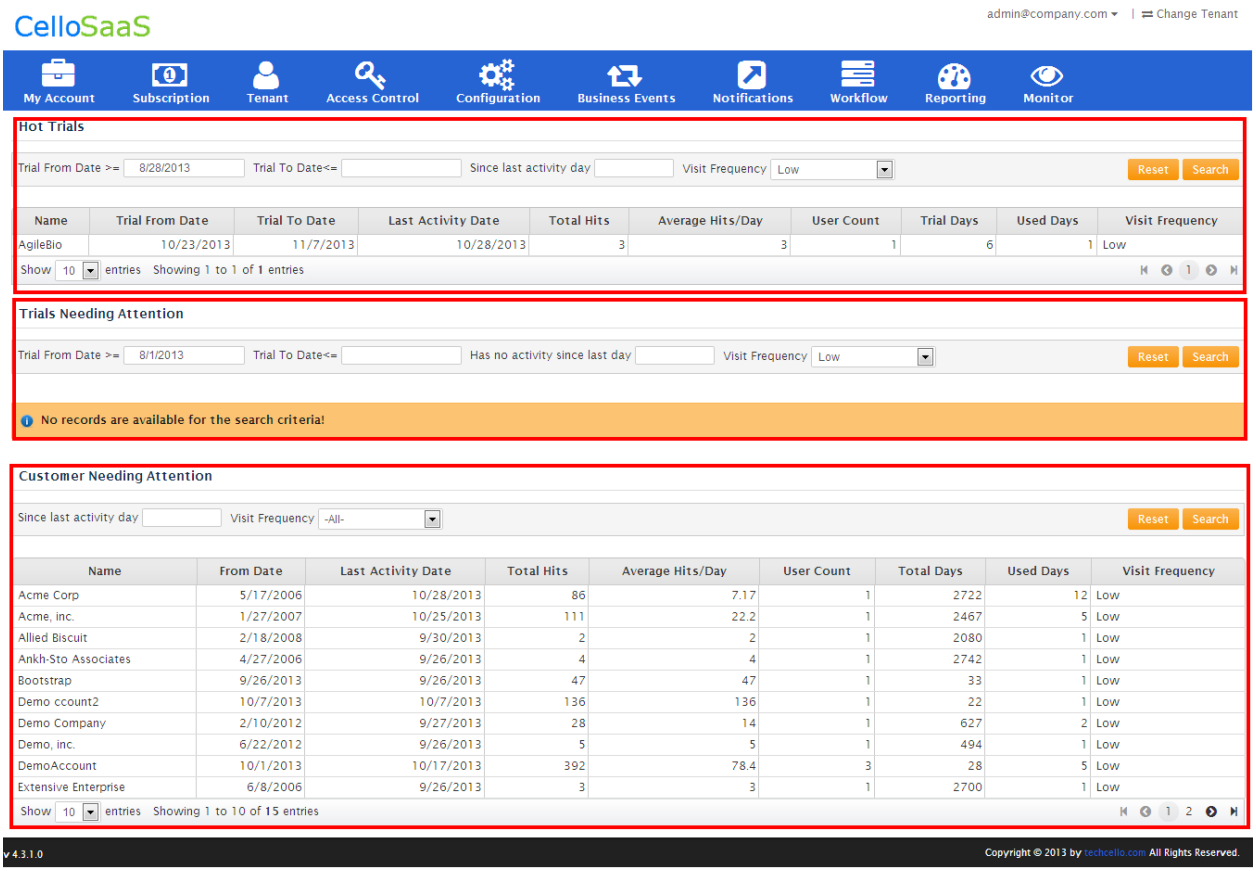
	If Tenant A subscribed on Nov1 for a 15 Days Free Trial Package, within the 15 Days period if has logged in for about 30 times, the usage frequency will be calculated as follows 30 Logins/ 15 Logins = 2 (Average Logins) – **Low Frequency**

8.3.3 Customer Needing Attention

Customer needing attentions refers to the trial customers who are less or not actively using the product and hence they might require some special attention. Use the filter with various parameters provided in the screen.

Filters

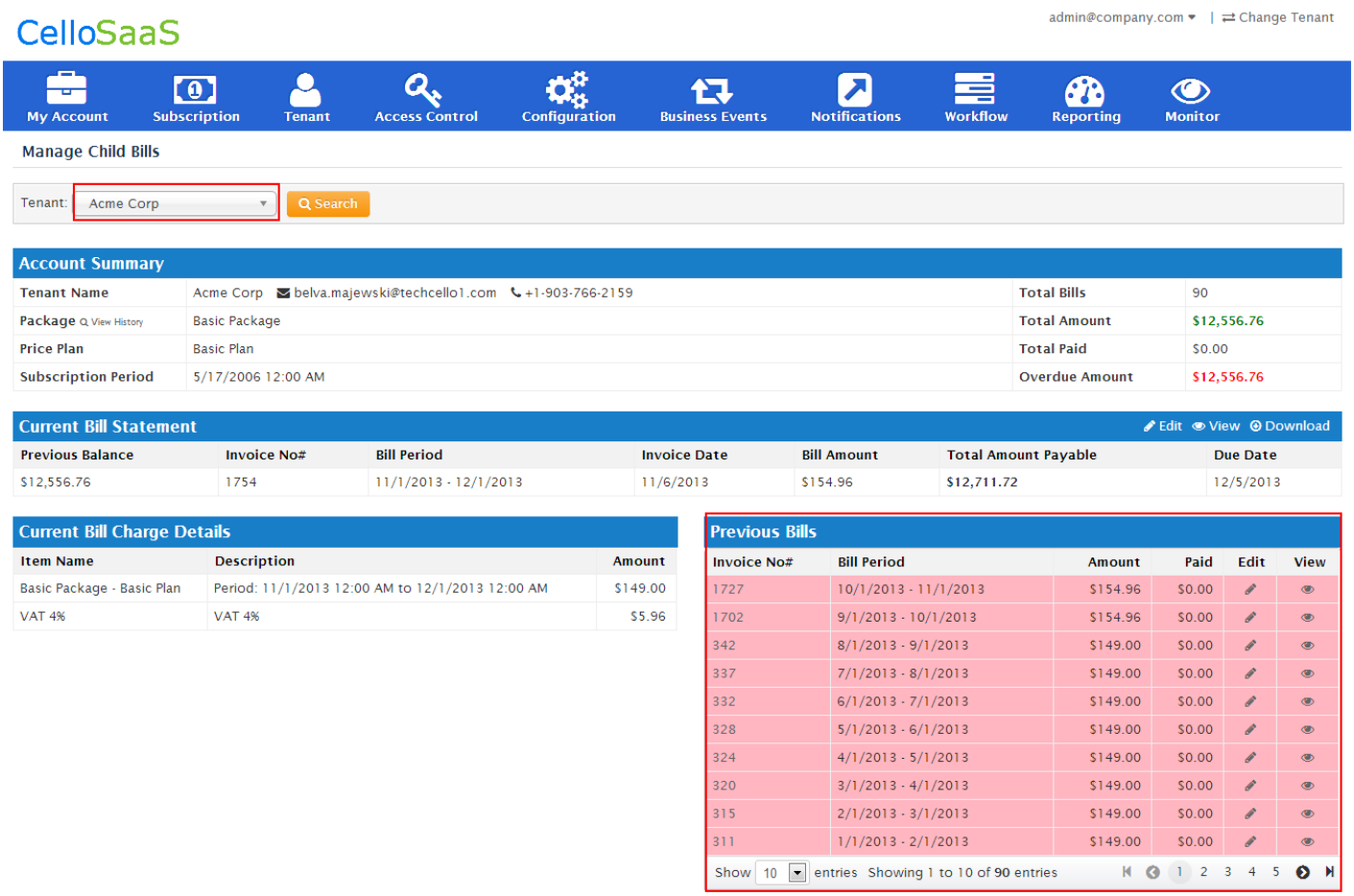
Field Title	Description
Has no activity since last day	Refers the last day since the application was used.
Visit Frequency	High : If a tenant visited the site more than 70 times, then it is considered as High visit frequency Medium : If a tenant visited the site between 40 - 70 times, then it is considered as medium visit frequency Low : Refers to If a tenant visited the site between 0 - 40 times, then it is considered as low visit frequency **Example** If a paid Tenant A who is in monthly billing cycle logs in for about 200 times, the usage frequency will be calculated as follows 300 Logins / 30 Days = 30 (Average Logins) – **Medium Frequency**



8.4 View Client Bills

Client Bills refers to collection of all tenant bills. This is available for Product Administrators and Tenants with sub Tenants under them especially in the Tenant Hierarchy Scenarios i.e. Resellers, Enterprise Tenants etc.

To View Client Bills, Navigate to Admin >> Subscription>> Client Bills

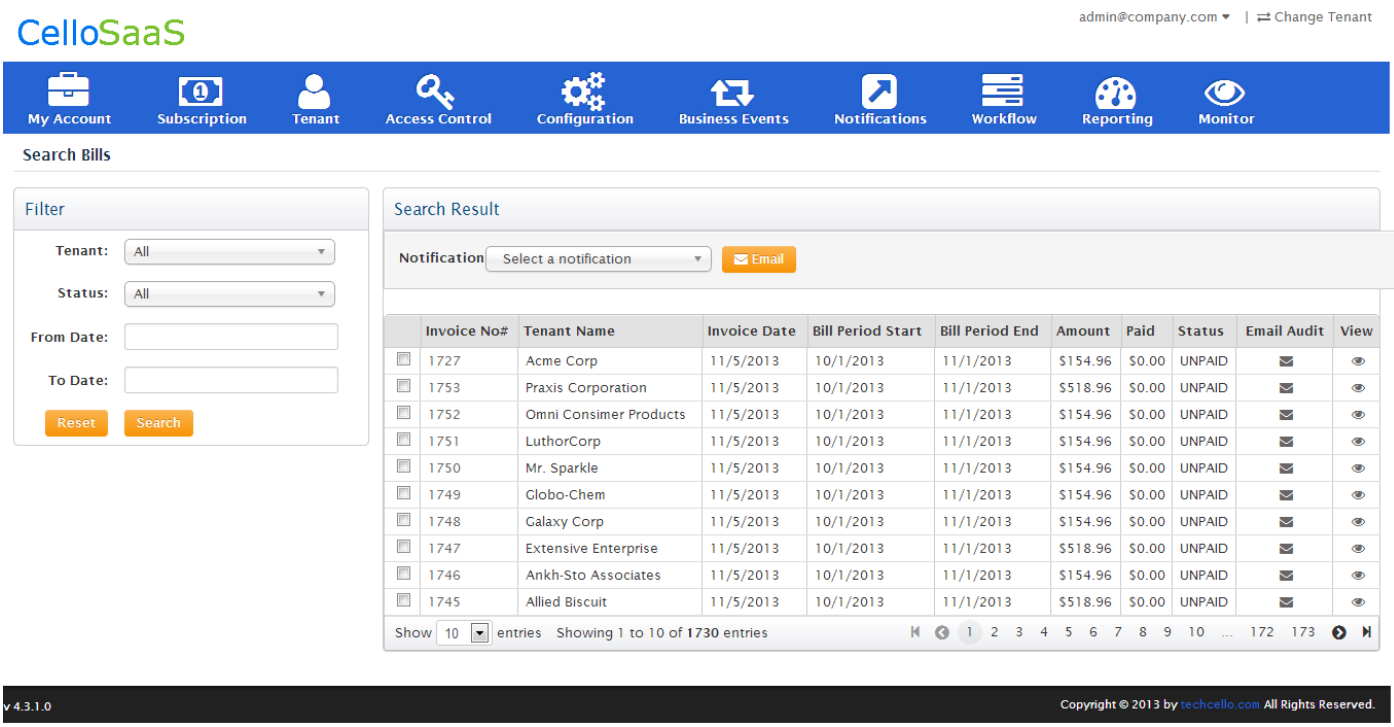


Client Bills

8.5 Invoice Search

The Product Administrator can get a unified look of all the past invoices using Search Bills page.

Login as Product Administrator and Navigate to Billing >> Search Client Bills.



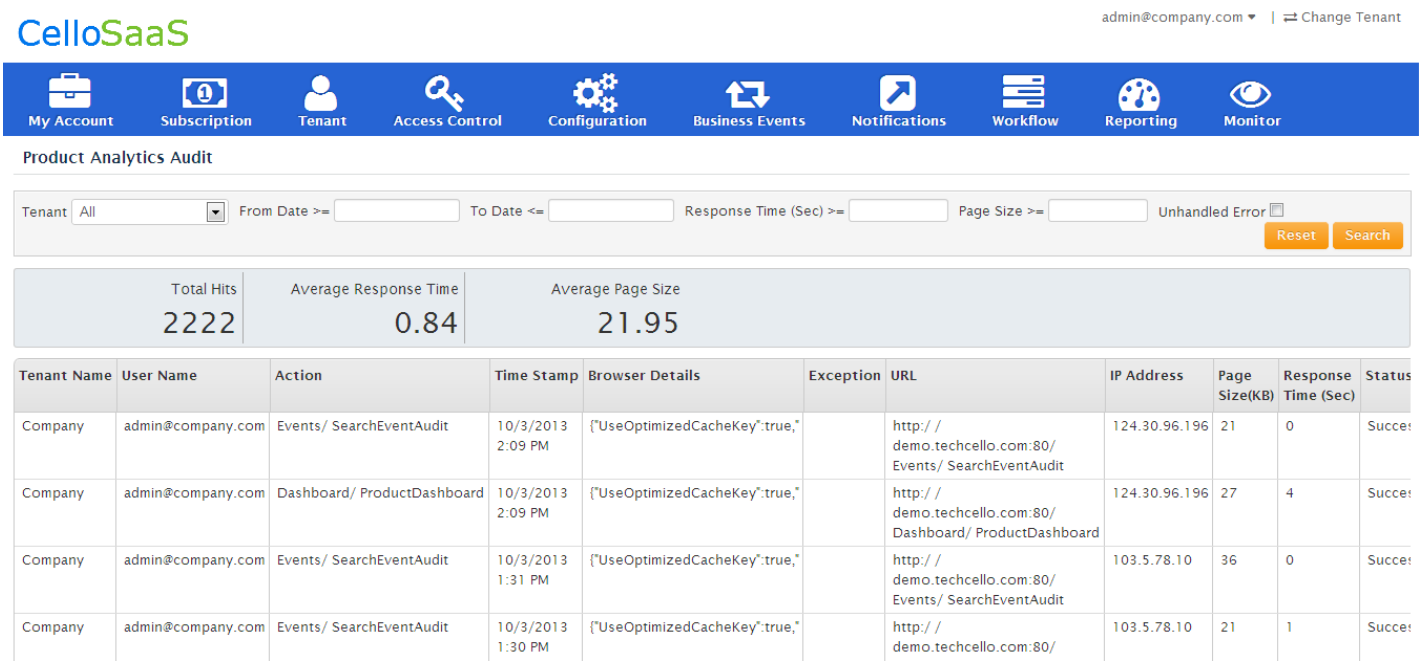
Search Client Bills

8.6 View Product Usage

Product Analytics gives the entire Usage details of the application i.e. Who accessed a page, when was it accessed, what was the response time etc, this feature can be turned **On** or **Off** at both Application and Tenant Level.

Navigate to Monitor >> Usage

8.7 Viewing Analytics Data via Dashboard



CelloSaaS Product Analytics Audit

9 Contact Information

Any problem using this guide (or) using Cello Framework. Please feel free to contact us, we will be happy to assist you in getting started with Cello.

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Phone: +1(609)503-7163