

Deploying SaaS Apps

The information here focuses specifically on how to use Apprenda to deploy and access Applications with Multitenancy or Billing, which are the primary deployment models for SaaS (Software-as-a-Service) Applications. This includes the following:

- background on how multitenant application deployment works on Apprenda
- how users can subscribe to and access applications with Multitenancy and Billing
- how to use Pricebooks to develop a monetization strategy
- Apprenda's Billing and Invoicing system
- a guide to using the Account Portal, which can be used to either configure the Account Portal for end users or can be distributed to customers for self-provisioning

For more general information on application deployment, maintenance and patching, please see the [Deploying Your Applications](#) section of our documentation.

How the Apprenda Platform Deploys SaaS Apps

The way in which Apprenda deploys applications onto the servers that make up your infrastructure is rather complex, but permits many applications offered by multiple development teams to co-exist on the same set of servers in a safe and reliable fashion. In addition to all this, the platform offers a variety of options for multi-tenant deployments. In Apprenda this means that an application that is intended to work for a single organizational unit can actually be deployed in such a manner so that it can be used by many organizations, or *tenants* in industry parlance. Furthermore the platform can deploy the components that make up an application so that they are shared by the same tenant.

Note: This section builds upon the the material in [How the Apprenda Platform Deploys Your Application](#). It is important to understand how Apprenda deploys applications without multi-tenancy before learning about how the platform deploys applications using multi-tenancy.

Key Differences in the Deployment Process

The deployment process is generally the same for multi-tenant applications as it is for non multi-tenant ones, but web applications and databases are provisioned and deployed differently depending on if and how the development team wants them to be shared between multiple tenants (e.g. should all tenants share the same database?).

Before we dive into the specifics, we formally introduce the sharing features and terminology.

Web applications and databases are deployed in either an Isolated or Commingled fashion as explained below:

- *Isolated*: Each tenant has their own distinct web application or database
- *Commingled*: All tenants share the same deployed web application or database

Note that WCF services are always deployed in a commingled manner by the platform.

Scaling and High Availability

As you already know, Apprenda is capable of scaling application components, and this is still the case with multi-tenant

applications. When Apprenda deploys your application's components in a multi-tenant fashion, it is cognizant of the fact that multiple servers may need to host the same application component (in a shared or isolated manner) to multiple servers to handle scale. Thus, the notion of *partitions* and *shards* are introduced:

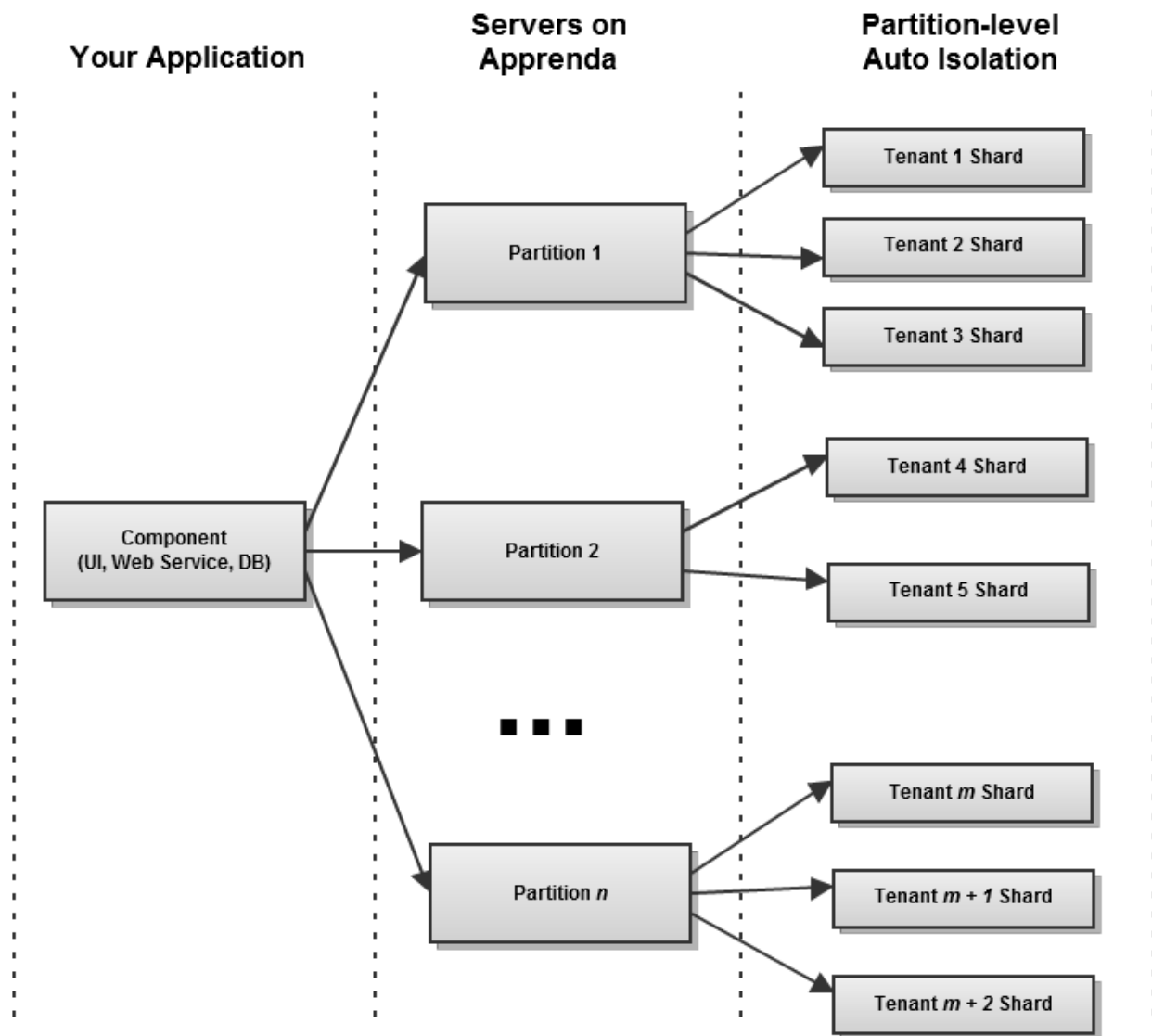
- *Partition*: Any one instance of any of your application's components (e.g. a single database)
- *Shard*: A tenant's individual isolation unit

The relationship between shards and partitions varies depending on the sharing level:

- *Commingled*: Many tenants are located on the same partition
- *Isolated*: One tenant is located on a single partition (a 1-1 mapping)

When sharing is enabled for an application component, there can still be multiple partitions. This allows the platform to handle scale and reliability concerns. Each component handles this aspect slightly differently, so see the specific topic for each tier for additional information.

The following diagram illustrates the relationship between partitions and shards for a commingled deployment:



Remember that Apprenda ensures each tenant's functional experience is isolated from other tenants. This is accomplished both through actual transformations of the physical partition as well as runtime instrumentation. For example, a single database may end up hosting data for multiple tenants, but database queries that your application executes are guaranteed to only return data for the tenant making the database call, giving the tenant a notion of isolated behavior.

Here are some items of note regarding shards and partitions:

- Partitions from different applications can co-exist on the same server.
- Multiple partitions of the same application component can co-exist on the same server.
- Each tier (web or database) has its own rules regarding sharing and impacts on partition and shard creation.
- Sharing is configurable on a per-application basis in the Developer Portal (if permitted by your Apprenda Platform administrator).

For WCF Services, all instances are shared by all tenants of the application. There is no deployment mechanic that is different for this application component on the platform than a non-multi tenant application. For the varying deployment options available to databases and web applications, refer to the appropriate tier below.

Web Application Tier

You've already learned [how Apprenda deploys web applications](#), but with a multi-tenant deployment there are additional considerations to be aware of.

Website Multi-tenancy

Like services and databases, websites should be designed as though one and only one tenant is using the web application at any particular time (as though it were deployed on-the-premises). Apprenda will deploy your websites in a multi-tenant fashion at deployment time as specified by one of the available sharing models:

1. **Commingled:** One website serves the web requests of multiple tenants. Many tenants share the same memory and process.
2. **Isolated:** There is one website per tenant providing memory isolation per tenant (many tenants still share the same process, however¹).

Recall the notion of partitions and shards which are necessary constructs for the platform to scale your web applications to multiple servers. For the purposes of websites, they take on the following meaning:

- **Partition:** Each process that hosts your web application is a *partition*.
- **Shard:** Each website that belongs to the tenant is a *shard*.

Regardless of the sharing model chosen, many tenants share the same process. Therefore each partition corresponds to the process. Only one process for the same application version will run on the same server, guaranteeing only one partition per server for that application version.

Shards only apply to the Isolated sharing model. Web requests for each tenant are directed to the specific website created on one of the partitions. In the commingled model, web requests are directed to any available partition.

Application URLs

For commingled websites, this is no different than traditional applications (refer to [how Apprenda deploys web applications](#) for additional information).

This section shows how the URLs used to access the user interface of your application are constructed for Isolated website deployment. Apprenda bases your application's URL on your application's *alias*. This alias, coupled with the *application version alias*, *tenant alias* and *Apprenda Root URI*, is used to direct all incoming requests to your Apprenda Application.

Apprenda supports two patterns for accessing your web application:

- Subdomain: `http[s]://$ApplicationAlias[--$versionAlias]-$tenantAlias.$ApprendaRootUri`
- Path: `http[s]://apps.$ApprendaRootUri/$ApplicationAlias[--$versionAlias]-$tenantAlias`

The pattern must be selected prior to deployment of the application by the development group that publishes the application. In the patterns above, items in square brackets denote optional items. In the case of `http[s]` this denotes an SSL connection. Apprenda will automatically redirect non-SSL traffic to SSL if SSL connections are enforced by the platform administrator. In the case of the `[--$versionAlias]` traffic will route to the Published version of the application if the specific version is not defined in the URL. Note that this moniker permits multiple versions of an application to be in the Sandbox stage at the same time.

Suppose a tenant whose alias is *fabrikam* wishes to access Version 2 of an Apprenda application called *Northwind*, which was deployed to an Apprenda instance available at *contosoftware.com*; they would use the following URLs:

- Subdomain: <http://northwind-v2-fabrikam.contosoftware.com>
- Path: <http://apps.contosoftware.com/northwind--v2/fabrikam>

If and only if Version 2 is in the Published stage, they could access Version 2 of the application with the following URLs:

- Subdomain: <http://northwind-fabrikam.contosoftware.com>

- Path: <http://apps.contosoftware.com/northwind/fabrikam>

Friendly URLs

For convenience, it is not necessary to specify the tenant alias. This yields more convenient URL names. For example, a development team can circulate the same URL to all tenants. For example, Fabrikam or any other tenant can access the application using the following URLs:

- Subdomain: <http://northwind.contosoftware.com>

- Path: <http://apps.contosoftware.com/northwind>

When the tenant visits the friendly URL, Apprenda uses session information for the logged in user to transfer the request to the correct website.

Custom URLs

For Applications deployed with the Subdomain pattern (Custom URLs are not available for applications deployed with the Path pattern), Apprenda can configure your application to respond at the URL of your choice (configured in the [Developer Portal](#)). When a Custom URL is specified, the appropriate bindings are configured on the websites so that they resolve the URL. No other intervention is needed, although the network administrator must point this URL to your Apprenda instance.

For example, assume that Contoso wishes to make the Northwind application available online at northwindonline.com. When configuring the Application, their developer group would select the Subdomain pattern for UI deployment, and would specify the

custom URL as "northwindonline.com"; the URL used to access the application would then be:

<http://northwindonline.com>

Deployment Mechanics

For commingled websites, this is no different than traditional applications (refer to [how Apprenda deploys web applications](#) for additional information).

For isolated websites, whenever a new tenant subscribes to the application, the following workflow is followed:

1. Apprenda chooses a Frontend Server
2. Apprenda creates the partition if necessary
3. Apprenda creates the shard for the newly subscribed tenant
4. The load manager is configured

How Apprenda Chooses a Frontend Server

Unless the frontend server was explicitly chosen by the platform administrator, the rule for choosing a front end server varies depending on whether or not throttling by resource policies are enabled and establish a limit for the web application.

No or Unlimited Resource Policy: If no partition already exists, then a random frontend server is selected. Otherwise, a partition is randomly selected such that the *deployment threshold* is not exceeded. The deployment threshold represents the maximum number of tenants that can belong to any given partition. If the deployment threshold would be exceeded on all partitions, a new partition is created on a front end server that does not yet have a partition on it, or if none is available a random partition is selected and thus becomes overloaded (if the overloaded threshold is not reached).

Limited Resource Policy: When the platform administrator has enabled throttling by resource policy, the policy assigned to that web application is taken into account. In this case, the platform calculates for each frontend server the number of *slots* available on each server. The number of CPU slots is calculated by taking the server's total of CPU (CPU speed x Number of Cores), multiplying it by the allocation factor, subtracting the allocated CPU (based on the resource policies in effect for previously deployed web applications), and dividing the amount into the CPU required by the web application's assigned resource policy. The same calculation is used to calculate the number of memory slots. If the resource policy is unlimited, no calculation is conducted.

If no slots of either memory or CPU are available on any given server, it is removed from the list of potential deployment targets. If no servers are able to deploy the web site, no deployment will occur and an appropriate error will be logged.

Of the remaining potential deployment targets, one is chosen depending on the Distribution strategy chosen by the platform administrator:

- *Balanced by CPU:* The server with the most CPU slots available is chosen for deployment
- *Balanced by Memory:* The server with the most memory slots available is chosen for deployment
- *Compressed by CPU:* The server with the fewest CPU slots available is chosen for deployment
- *Compressed by Memory:* The server with the fewest memory slots available is chosen for deployment

How Apprenda Creates the Partition

Note: This step only occurs if no partition exists yet on the frontend server that was just selected.

Once a server has been selected to host the web application, Apprenda will:

1. Create a new folder on the server to store the user interface binaries of the application, located by default at `C:\ApprendaPlatform\SiteData\applicationAlias\versionAlias\root`
2. Copy the binaries (previously uploaded or patched) to the new folder that was just created.
3. Copy bootstrap assemblies from the Apprenda Repository into the `bin` folder of the site, so that the necessary dependencies for your application to run on Apprenda are available. If your site has Silverlight XAP files, special DLR-based versions of the bootstrap assemblies are placed inside of your Silverlight application.
4. Modify `Web.config` and other configuration files -- including those in compressed Silverlight XAP files -- to:
 - Re-configure all WCF clients to address their services via Apprenda's router (for those that are hosted on Apprenda).

- Invoke Apprenda's ASP.NET authentication gateway and configurable login screen at the front of the HTTP pipeline.
 - Apply token replacements and conditional configuration directives as required.
5. Record and catalog information regarding the partition as required for tracking and management by the platform.
 6. Create the application pool for the partition.

How Apprenda Creates the Shard

Whether a new partition was created or not, the binaries for the web application and the necessary application pool already exist at this point. Now, Apprenda's *User Interface Manager* will dynamically configure IIS on the machine.

A new web application is created in IIS, either at the root level or beneath the built-in `apps.$ApprendaRootUri` web application depending on the URL format specified for the given application.

If the application uses a subdomain, a binding is added so that it can respond to incoming traffic at the site's URL. Path-based applications need no binding, and Apprenda will set the name of the application to the appropriate name so the site is resolveable to incoming traffic.

Note that all traffic comes inbound to the site on Port 8080 by default. The load manager will listen to traffic on Port 80 and 443 and redirect traffic to the appropriate site. This permits a server to host both the load manager and actual websites. Load manager configuration is discussed below.

The new web application is linked to the application pool for the partition.

How Apprenda Configures the Load Manager

This is no different than traditional applications (refer to [how Apprenda deploys web applications](#) for additional information).

How Apprenda Handles Web Farms

This is no different than traditional applications (refer to [how Apprenda deploys web applications](#) for additional information).

¹ Isolated process support may become available in a future version of the platform.

WCF Service Tier

Apprenda's own architecture is centralized around WCF services. As one could expect, Apprenda provides plenty of capability in the management and deployment of these services on the grid.

All servers that take part in your Apprenda instance are capable of hosting WCF services. By default, however, WCF service deployments will not occur on servers hosting databases or web applications unless no other server is available. This preserves a separation of concerns for the servers on your grid, which is helpful on a production or production-like environment where servers have different hardware and software profiles.

Web Service Multi-tenancy

In a traditional on-premises deployment, a WCF web service would be deployed and serve the needs of a single tenant. In Apprenda, it is possible that a web service will be shared by multiple tenants.

There are two multi-tenancy options for specifying how your WCF services are deployed onto the grid:

- **Fully Shared:** All calls for a service, regardless of which underlying tenant originated the call, are handled by any instance of the service on the grid.
- **Isolated:** All calls for a service are directed to an specific instance, depending on which tenant makes the call.

Note: Apprenda currently supports the *Fully Shared* multi-tenancy model. Support for future tenancy models will be added in a future version of Apprenda. Please contact your Apprenda account manager for additional information.

As with other multi-tenancy options in the grid, the setting by which your application's service will be deployed is configurable on a per-application basis.

It is required that the developer create fully stateless services. Besides permitting deployment using the fully shared model, this is important because Apprenda may, as a part of its normal operation, direct service calls to a new service instance. One example of this is how Apprenda's recoverability mechanics work: if a server with an instance of the service goes offline, Apprenda will deploy a new instance to another machine automatically, as opposed to denying a service call.

Apprenda takes into account the need to scale your application's services to multiple web servers. Therefore, Apprenda has introduced the notion of shards and partitions:

- **Partition:** Each instance of a WCF service is a *partition*. Multiple partitions can be on the same server for this tier. Where documentation in the grid refers to an instance of a service, it also means the partition.
- **Shard:** Each service instance reserved for a specific tenant is a *shard*.

In the *fully shared* multi-tenancy model, shards do not apply. Apprenda's routing system will by default route service calls to all partitions equally and randomly regardless of the underlying tenant that makes the service call.

In the *isolated* multi-tenancy model, each instance of the service will respond to the requests made by a single tenant. Apprenda's routing system will route all of the tenant's service calls to the appropriate instance.

Partition Creation and Tear Down

New partitions, or service instances, are created when any of the following actions occur:

- A service call is made and no instance of the service exists on the grid.
- A service call is made and no existing instance responds to the service request.
- An application is promoted to *Test* or *Production* if the grid is configured to automatically deploy services upon promotion.
- The Apprenda instance owner invokes the creation of a new instance via the Apprenda Operations Center.
- The provider invokes the creation of a new instance via the Provider Portal (if permitted by the instance owner).

Partitions are removed from the grid when any of the following actions occur:

- When the instance is idle (has not responded to any service calls) for the configured amount of time (unless the service is configured as non-volatile).

- Faulty application code causes a crash.

How Apprenda Deploys the Service

When a new instance of the service is created, the following workflow is executed:

1. SMART Manager generates a list of available servers, along with the server's role (database or web tier).
2. SMART Manager chooses one of the servers randomly. By default, database and web application servers are not chosen for deployment.
3. SMART Manager asks the Service Container running on the chosen server to initiate the deployment of a new service.
4. The Service Container generates a random GUID that will be known as the *service instance ID*
5. Apprenda creates a local folder at `C:\Apprenda\Container\LaunchPads\${serviceInstanceId}` (chosen from the root of `C:\` to reduce the directory length from Windows' folder path length)
6. The Service Container will copy the binaries consisting of that service from the Apprenda Repository to the local folder. However, existing Apprenda and Apprenda DLL's are not copied.
7. The Service Container copies the Service Bootstrap and its dependencies (including the Apprenda Live API) from the repository into the local folder. This results in the executable `Apprenda.SMART.ServiceBootstrap.exe`, which will host the service, being created.
8. The Service Bootstrap executable is configured appropriately, using your service's application configuration file as a base. This results in the file `Apprenda.SMART.ServiceBootstrap.exe.config` being generated. Among other things, the service is configured to work with the grid, and any conditional configuration sections and tokens are changed to their appropriate "live" values.
9. The executable is launched in a separate process by the Service Container. The Apprenda service account configured during installation is used to launch the process.
10. The Service Container registers with SMART Manager that the new service instance is available.

Now that the service is running, it becomes available to fulfill requests. How Apprenda configures the service and actually directs service calls to the new instance is covered in further detail in the next section.

Apprenda Service Routing

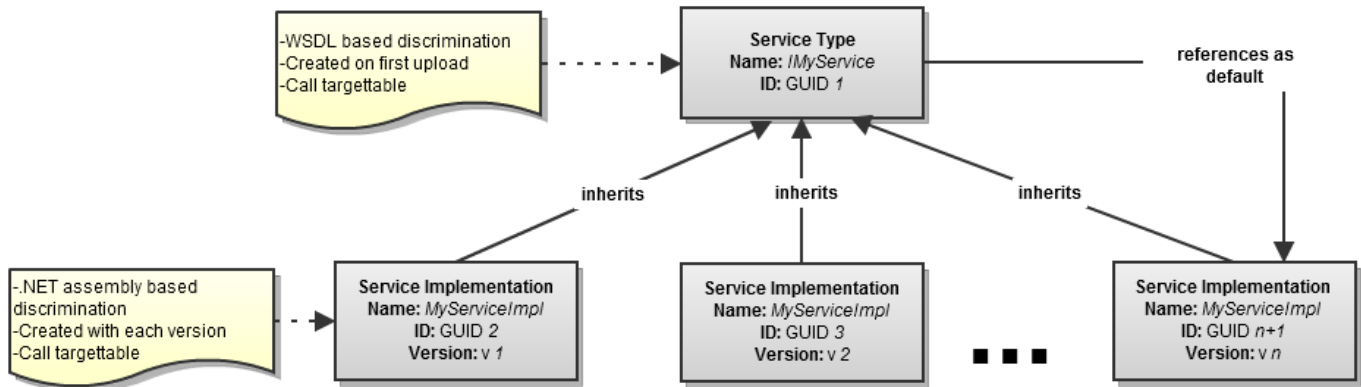
Apprenda maintains a sophisticated meta-typing system to help route service calls on the grid. This provides the following benefits:

- Multiple versions of your service can be deployed on the same grid instance.
- Services can be accessed via well-known names from outside of the grid via the Remote API or a Silverlight client.
- Clients accessing the service from within the grid are configured to use Apprenda's Router as an intermediary, removing location awareness and providing service call completion guarantees.

Upon promotion of your service to *Test* and *Production*, Apprenda catalogs details about your web service. Specifically, Apprenda maintains an inheritance tree for versioning your web services and to provide other system components with a way to logically reference your web services. For each web service, Apprenda creates *Service Types* representing the abstract WSDL proposed by your web service's WCF ServiceContract. As you evolve your application and service through Apprenda's versioning system, Apprenda creates a new *Service Implementation* that is a concrete representation of the *Service Type*.

The identifiers are guaranteed to be unique, which allows Apprenda to perform targeted, version based routing and gives a uniquely identifiable logical system to target web service calls. Because of this, Apprenda can ensure that clients can be guaranteed that some instance of the web service will satisfy a request without knowing the physical location of any instances. When you see Apprenda references (in documentation, portals, etc.) to *meta-data*, it is typically referring to artifacts of this "typing system".

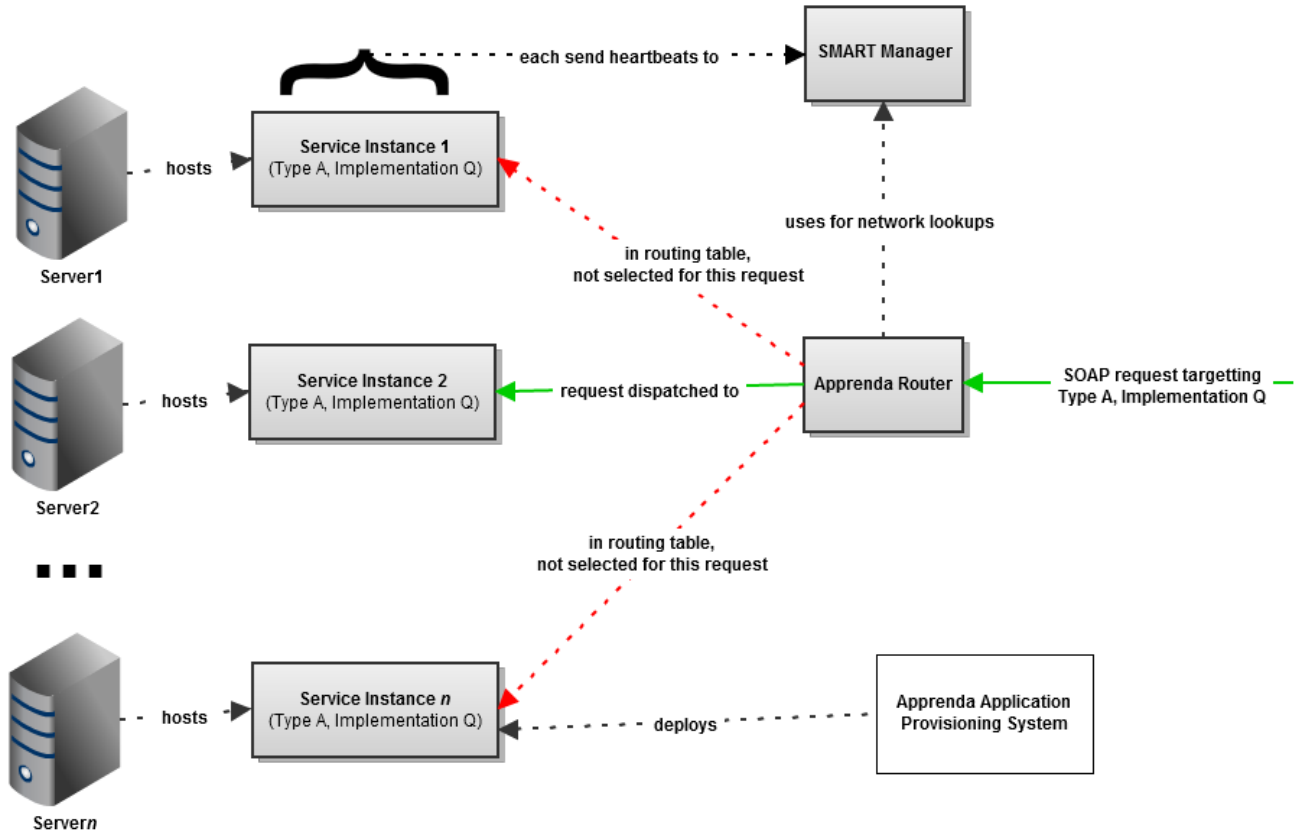
The following illustration shows the relationship between service types and service implementations as multiple versions of the service are created as the application evolves:



Each Service Implementation is linked directly to the WCF binaries that resulted in its creation. In fact, Apprenda treats the Service Implementation as a synonym for the WCF service itself. Understanding this hierarchy is critical to understanding web service request dispatching in Apprenda. The meta-data defined at this stage defines a logical representation that Apprenda uses to target arbitrary web service instances deployed on the grid. How this targeting and routing works is covered below.

Service Addressing

Apprenda will configure all clients to point to the local Router upon deployment, which runs on all Apprenda servers. The following illustration indicates at a high level how service calls are routed on the grid.



Being a generic web service intermediary, the Router, upon receipt of the request, needs to determine what service the request is targeting. This is done via Apprenda's service meta-data. The Apprenda Router accepts logical service targets and, from a pool of available physical targets, translates those logical service targets to single specific physical targets.

All service calls in Apprenda are logically addressed through the Apprenda Router. The Apprenda Router accepts SOAP messages via well-known URL patterns that inform the Router of the logical service target. The URI pattern is of the following specific format:

```
<scheme>://localhost[:port]/[listenPath/]<i|t>,<r|s>( <metaGUID> )
```

Each Apprenda Router starts a number of listeners waiting on requests matching this pattern, all adhering to the protocol will have a specific understanding of the URL parts after the 'listenPath.' The first component, <i|t> specifies the type of logical target, 'i' for a 'Service Implementation' or 't' for a 'Service Type.' The next component, '<r|s>', instructs the Router that the call style is either 'r' for 'request/reply,' meaning that the client expects a reply message or 's' for a one-way 'simplex' style call. The last parenthesized component, the '<metaGUID>,' specifies the unique ID of the logical 'Service Type' or 'Service Implementation' target (as defined via the first '<i,t>'. To help solidify an understanding of this pattern, consider the following example:

```
net.pipe://localhost/services/soap12/pipe/i,r(36b08605-e79c-46c4-ab9f-bc113ccb0a93)
```

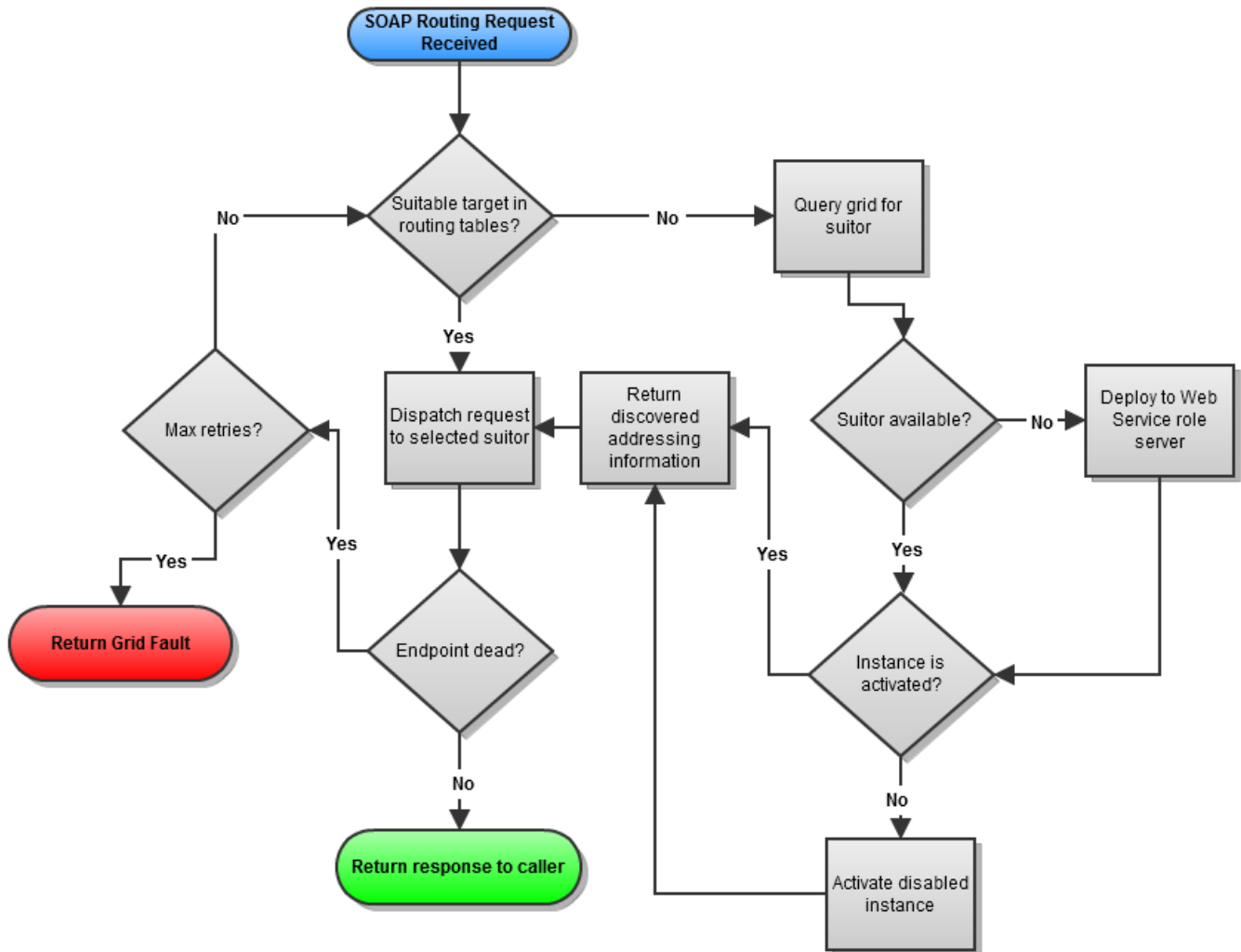
This URL is targeting an Apprenda Router's SOAP 1.2 named pipe listening port via the 'listenPath' 'services/soap12/pipe.' The client targeting this URL is expecting that the request will be handled by a service instance of the specific 'Service Implementation' (because of the 'i') identified by the ID '36b08605-e79c-46c4-ab9f-bc113ccb0a93.' Furthermore, because of the 'r', the client is expecting that the request will generate a SOAP reply that the Apprenda Router is returned.

Targeting a 'Service Type' versus a 'Service Implementation' has implications. A 'Service Implementation' is a meta-data leaf; no more specific logical representation exists. This means that a caller targeting a 'Service Implementation' can expect that a specific physical instance of the 'Service Implementation' will behaviorally manifest itself in a well expected fashion since 'Service Implementation' maps 1-to-1 to a WCF class in a .NET assembly that defines very specific logic behind a WSDL contract. Targeting a 'Service Type' is not as concrete since it simply acts as a WSDL abstraction that may have many specific implementations. A request targeting a 'Service Type' is instead a request where selection of a more specific representation is left up to Apprenda. Every 'Service Type' keeps track of the 'Service Implementation' belonging to the newest version of the application owning the 'Service Type' as the default implementation. When the Router receives a request targeting a logical 'Service Type,' it will re-target the default 'Service Implementation' of that 'Service Type.' Having multiple 'Service Implementations' is important for allowing 'Production' and 'Test' deployments for different versions of the same application to co-habit the same Apprenda instance. By having multiple 'Service Implementations', Apprenda can logically target different physical instances of different versions.

Service Routing and Availability

Circling back following the path of a web service request originating from your client, the Router parses the targeted URL for the previously described pattern, identifies the logical target, and checks its in memory routing tables for target. If the Apprenda Router has no address information for a physical instance matching the logical target specified, it immediately queries the grid for a suitable web service that is a representation of the logical criteria. If no web service instance exists, the Router enters a "holding pattern," keeping the SOAP message in its in-memory pipeline and dispatches a dynamic deployment request to the service grid for an instance matching the targeted logical type. Once the Apprenda Router is notified that an instance matching the targeted logical type has come online, it will flush the held message and add the new location information of the instance to its cache for future use.

The following illustration summarizes the workflow just described:



Besides offering an explanation of how service instances are located and automatically deployed to the grid, it exemplifies one of Apprenda's high availability mechanisms. Not explicitly mentioned in the workflow description above is that Apprenda will detect and attempt to re-start non-responsive services and will make multiple attempts to deploy services, all while holding your original service request noticeable to the client in the form of a delay in getting the response.

Architectural Considerations

While these considerations are not necessarily linked to your application, it can be useful to know how Apprenda architecturally provides routing.

Apprenda's architecture is based on decentralized peer based routing. Rather than providing a single, centralized "be all" service bus and SOAP router, Apprenda runs local routing services on each individual server node. Client proxies, when under Apprenda's management, are dynamically re-routed to target logical targets rather than physical targets. All service requests are, through inter-process communication, pushed to the local Router service. The Router service then takes over dispatching as described earlier, targeting a well known service. This architecture provides a number of key advantages:

1. A better topological profile tightly aligning dispatch activity with client activity. Localized demands where certain

- “greedy” clients may be generating significant load only overload local services, and will not flood and starve a centralized shared Routing service. This allows for a better distribution of routing throughput based on point of origin. The Apprenda Router was built with the notion that it will typically share machine resources with its clients, so it was written to provide high throughput while minimizing its own requirements as much as possible.
2. A higher level of overall resiliency when under duress. Decentralized architectures prove to be more resilient when taxed and can provide more consistent aggregate guarantees. Systems with centralized routers tend to bottleneck under high load, requiring significant scale-up and/or clustering.
 3. Lack of a risky central point of failure. Any failures can prove disastrous in a centralized routing system since the centralized dispatch services tend to be a “weakest link.” Instead, Apprenda can ensure that failures are isolated to only certain parts of the network (affecting only local clients).

While there is seemingly a substantial overhead in adding this intermediary, care has been taken to optimize this process. Our performance testing shows that this is marginal after the first service request, and is minimal compared to the time to contact the target service itself.

Database Tier

Recall that Apprenda deploys and manages your databases on any server that has the *Storage* role (that is, hosts *SQL Server* and Apprenda’s *Storage Manager Service*). Database deployment and management is a complicated task that accounts for the sharing options available to your database. The remainder of this sub-section describes the various sharing options before illustrating the deployment mechanics.

Database Multi-tenancy

For Apprenda applications, databases are designed as though one and only one tenant were to use it, which corresponds to the way on-premise software databases are designed. Apprenda will then convert your database model (written as though it was for one tenant) and change it so that the data for multiple tenants can be stored and accessed from your application’s WCF Services or Web Application.

There are two different options for how Apprenda applies multi-tenancy to your databases, with varying implications on the server’s resources:

1. **Commingled:** Data for multiple customers, unbeknownst to your application, is stored in and retrieved from a single database despite the lack of this ability in your original database definition. Apprenda modifies the entire physical structure of your database to inject shared, multi-tenant ownership of rows while guaranteeing the full structure expectations of all callers (i.e., callers will be executing queries as if they were communicating for a specific tenant, despite working with a database that has mixed data from multiple customers). This model allows for high overall compression and scale on a limited number of database servers.
2. **Isolated:** Data for each customer is stored in an individual database. Apprenda provides the infrastructure for keying into the correct database and selecting data from that database depending on the tenant of the user that is initiating queries against the data model.

An application’s *data deployment model* can be configured in the [Developer Portal](#) prior to publishing the application on Apprenda.

Apprenda is cognizant of the need to scale and relocate data among multiple servers in the platform instance. Thus, Apprenda introduces the notion of partitions and shards. How these apply to databases is defined below:

- **Partition:** Each instance of a database is a *partition*.
- **Shard:** The rows of data that belong to the tenant is a *shard*.

When the deployment model is commingled, a partition can have multiple shards. When the deployment model is isolated, each partition has one and only one shard.

Shared Data

The platform supports a unique type of partition called a *shared data partition*. Tables can be defined as shared tables in the application's deployment manifest, uploaded with the application's runtime binaries. There will be one and only one shared data partition per application. Shared data manipulations affect all tenants for the application. Even though the shared data resides on its own partition, the application developer can query this data as though it were any other application data. Apprenda's deployment process ensures that this is possible, and how this is done is covered in further detail later on.

Deployment Mechanics

Deployment mechanics vary depending on the sharing model chosen for the database. Refer to the appropriate sub-section for additional details.

Deployment of a database is triggered whenever an application is promoted to the *Sandbox* or *Published* stages. To summarize, the following steps occur as a part of this process:

1.Apprenda chooses a Storage server.

2.Apprenda provisions the database partition (if necessary) and inserts initial data.

3.Apprenda establishes connection information.

Though the steps are the same, the deployment process is quite different depending on the deployment model that is chosen.

Isolated Deployment

Recall that for an isolated deployment, each and every tenant who purchases the application will have their data stored in a database independent of other tenants. The procedure outlined here happens each and every time a new tenant has purchased the application.

Upon purchase of the application, a random server having the storage role is chosen. This server will host a newly created database on this server. The tenant has a unique GUID, as does each version of an application. These two GUIDs form the name of the database as follows:

```

${versionID}__${tenantID}

```

Once this database is created, the *application provisioning* script is executed to create the views, stored procedures, tables, and other artifacts. Then, the *tenant provisioning* script is executed against the database if provided to insert initial data.

The *provider database* is created if it does not already exist. There is exactly one provider database per application regardless of the number of tenants. This is a special database created in order to permit the querying of data belonging to multiple organizations along with data that is shared between multiple tenants at the same time. Its name is as follows:

```
${versionID}__PROVIDER
```

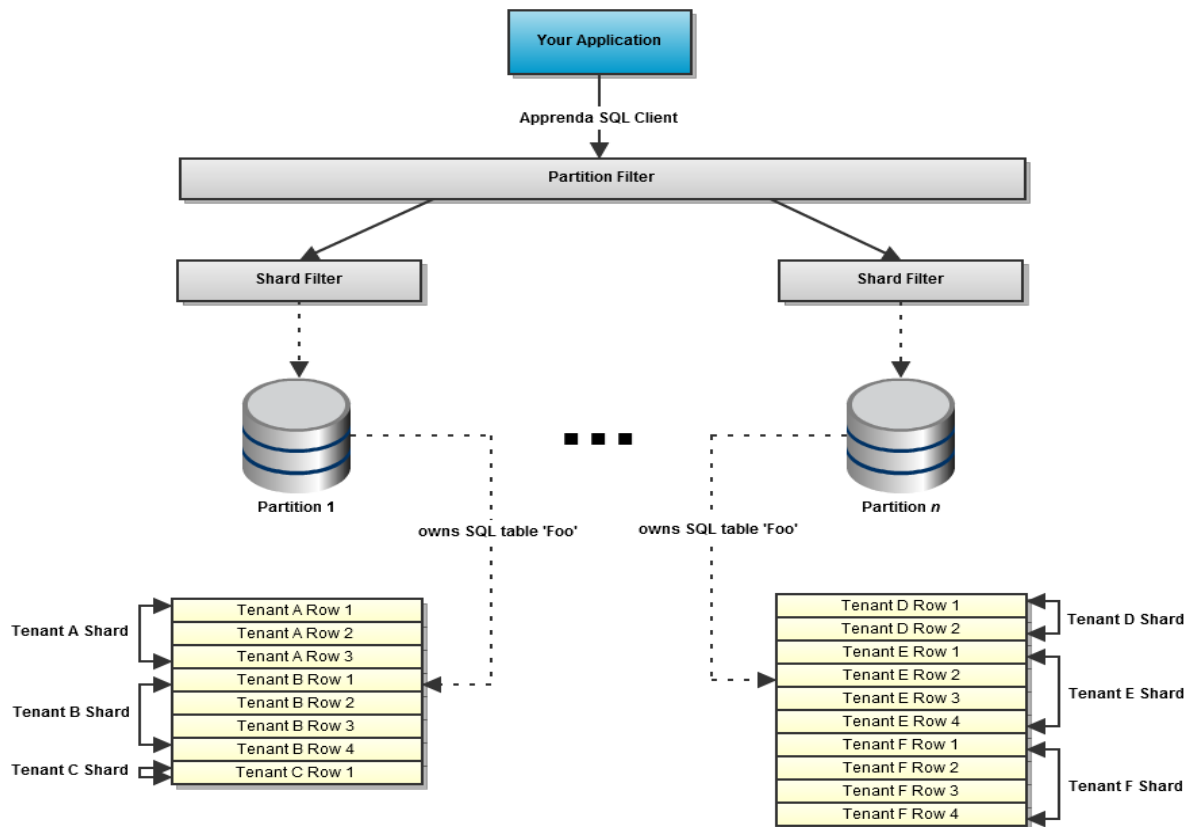
Now that the application's database is available, Apprenda then creates a database login for each of the databases. These logins will be used only for your application's database and only by your application, and the credentials are encrypted and stored in the *SaaSGrid Core* database. They'll have the following pattern:

```
tenant-${tenantID}
provider-${tenantID}
```

Now that the database name and login information are set, all of the necessary information needed by the platform to construct a connection string to the database is in place. The connection string used by the WCF services and web applications that accompany your application can be accessed via Apprenda's API, or the connections can be dynamically configured by the platform via configuration when those items are deployed. See the developer topic called [Working with Data](#) for more information on how to work with database connections in other application components.

Commingled Deployment

For the *commingled* model, multiple tenants' data will be placed in the same database. Recall that each database is a partition, and each shard corresponds to the tenant's logical data. This means there are multiple shards in the same database. Before learning about the deployment mechanics, review the following illustration that shows how commingled data is represented in Apprenda:



In this model, partition, or database, creation is a separate operation from the tenant's shard creation.

Databases are created when:

- The application is promoted to the *Sandbox* or *Published* stage
- The development team elects to create an additional partition to distribute data among multiple servers

Upon database creation due to one of the reasons above, a random server having the storage role is chosen. This server will host a newly created database on this server. Each version of an application has a unique GUIID, and this is used to form the name of the database as follows:

`${versionID}`

Once this database is created, a special *application provisioning* script is executed to create the views, stored procedures, tables, and other artifacts. Apprenda produces a set of transformations on the originally uploaded script that add row level ownership constructs into the table structure, allowing data from multiple customers to be mixed in single database instances. Specifically, tenant ownership columns are introduced to tables, primary keys are augmented, foreign keys are re-bound, indexes are optimized, row level security is injected through dynamic role creation, and appropriate configuration is introduced to provide tenant-specific yet indirect access to the underlying data. Apprenda focuses on providing optimized multi-tenant access. For example, indexes are modified to allow for quick disk seeking to shard data, and query plans are optimized around new indexing constructs.

The *provider database* is created if it does not already exist. There is exactly one provider database per application

regardless of the number of tenants. This is a special database created in order to permit the querying of data belonging to multiple organizations along with data that is shared among multiple tenants at the same time. Its name is as follows:

```
${versionID}__PROVIDER
```

When a new tenant purchases the application, a few steps are taken to prepare the database for their entries.

First, Apprenda creates a database login for each of the databases. These logins will be used only for your application's database and only by your application; they will also be used only for this tenant, keyed by their tenant ID. The credentials are encrypted and stored in the *SaaSGrid Core* database. They'll have the following pattern:

```
tenant-${tenantID}
provider-${tenantID}
```

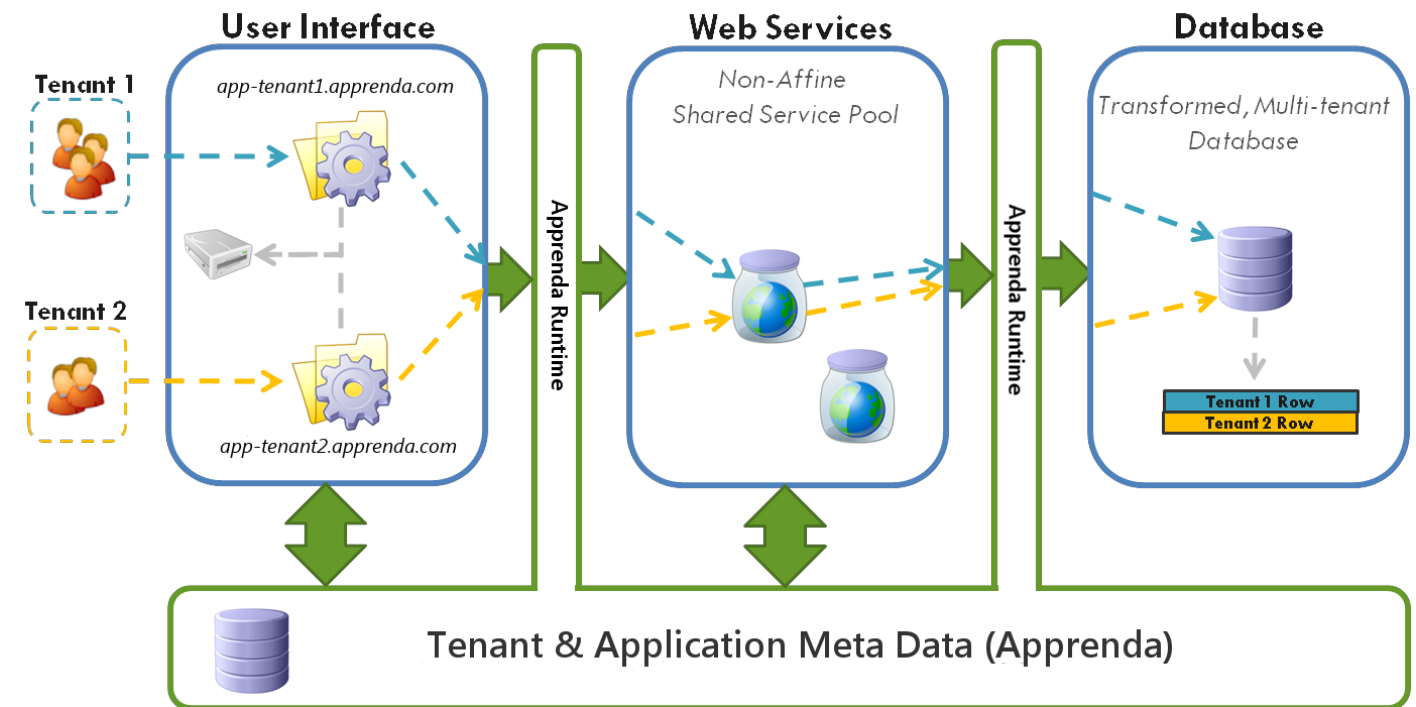
The logins are the basis for the row security introduced when the database was provisioned, and they ensure that only the data corresponding to the tenant is returned to the caller. Now that the database and login information are set, all of the necessary information needed by the platform to construct a connection string to the database is in place. The connection string used by the WCF services and web applications that accompany your application can be accessed via Apprenda's API, or the connections can be dynamically configured by the platform via configuration when those items are deployed. See the developer topic called [Working with Data](#) for more information on how to work with database connections in other application components.

Then, the *tenant provisioning* script is executed against the database if provided to insert initial data.

Sample Three-Tier Multitenant App Use Case

Let's assume that for this discussion we've deployed an application named 'app' to an Apprenda cloud with root URL 'apprenda.com' and have instructed Apprenda to use a commingled database for the data model. We have selected

Multitenancy as the highest Application service, and have chosen the Isolated <http://app-tenant.rooturl> UI deployment model. When 'Tenant 1' (an End User) makes a request to the application they will do so via the explicit, fully qualified production URL of '<http://app-tenant1.apprenda.com>'.



When Apprenda's HTTP load manager receives the request, it directs the HTTP payload to the appropriate IIS server (partition) that is registered as the owner of the web site for that tenant (shard). The website receives the request, establishes an in-memory context to isolate and identify 'Tenant 1.' An ASPX code-behind makes a call to your web service, which is intercepted and dispatched by the Apprenda router to a specific physical instance of your web service. The physical instance of the web service receives the request along with identity information for the tenant. The service performs some work, which includes selecting and inserting data into a database. Using standard ADO.NET, the web service makes a call to a SQL database, which is dynamically selected based on whether it contains data for 'Tenant 1.' The SQL request reaches the SQL server, which passes through Apprenda's shard filtering. The shard filtering keys into 'Tenant 1's' rows, excluding row data from other data and performs the requested queries. The tiers unwind their stacks and return the result of the application to the user's browser.

Your Monetization Strategy

As the purpose of SaaS Applications in general is to offer access to Applications for a set price, the Apprenda platform offers a number of options for **monetizing** your Applications.

Should you wish, you can monetize your Applications at the company level (i.e., handle invoicing and Billing outside of Apprenda on an Account basis), and then configure your Application settings according to other needs. This means that you can use Apprenda to deploy your Application with whatever Application Services (none, Authentication, Authorization or Multitenancy) you and your customers require, and then handle Billing separately.

Should you wish to take advantage of Apprenda's native Billing system, processes such as pricing, invoicing, and merchant account setup can be configured for Applications deployed with Billing. This section discusses how you can use Apprenda's pricing system, which work through entities called **Pricebooks**, to monetize your Application at the subscription level.

Pricebook Definitions for Applications with Billing

Pricebooks are Developer-defined collections of plans that determine how an Application will be sold to End Users. Pricebooks by default are **unpublished** and ultimately must be **published** before the product can be promoted to the Sandbox/Published stages and ultimately purchased.

You must have a Pricebook published for an Application before you can promote it to the Sandbox stage. While you may publish a new Pricebook at any time, Customers who have purchased from an existing Pricebook will continue to be charged according to the Pricebook from which they purchased, and will only be able to purchase additional subscriptions from that Pricebook.

Types of Subscriptions

While Features are essential in building pricing plans, the **subscription** is the unit of sale for all User-based plans. A **subscription** is a contract that authorizes a customer to access an Application product for a set period of time in return for an agreed-upon price. A **User-based subscription** to an Application is therefore required for an individual to access an Application, and User-based subscription pricing must be taken into account when developing your monetization strategy.

User-based subscription pricing is required and must be defined in a Pricebook before it can be published. Account-wide pricing is optional and can be omitted from your Pricebook.

Even though User-based subscriptions are required, Apprenda's Pricebook system is designed to offer you much flexibility in monetizing your products. Pricing models for User-based subscriptions can be based on a number of different billing units (days, months, years, etc.), and you have the option of offering User-based subscriptions under Trial plans and Free plans.

If desired, a **Account-wide pricing** definition can be created in addition to User-based subscription pricing. This controls access to Features for all Users of the Application product for a Tenant's Company Account. When a Tenant makes their first subscription purchase of that product, they will be prompted to purchase a plan from the Account-wide pricing definition if this is defined.

If a product utilizes Account-wide pricing, a Account-wide subscription must be purchased for each Company Account that purchases the product. If a Customer has more than one End User Account, they must purchase a separate Account-wide subscription for each Account that subscribes to a product with Account-wide pricing.

To clarify the difference, consider the following two scenarios:

- **Scenario A:** I would like to permit every user to create 25 tasks
- **Scenario B:** I would like to permit all users to collectively create 25 tasks

Scenario A would be defined inside of the User-based subscription pricing definition, and Scenario B would be defined inside of the Account-wide subscription pricing definition.

Should you choose, you could base your monetization strategy around Account-wide pricing, which would allow you to create pricing plans and Feature bundles designed to meet the needs of an entire company and then offer individual User-based subscriptions for free.

Plans & Pricemodels

Plans are groupings of Application Features that are offered according to designated pricing models. Each plan can have multiple Pricemodels and can include, exclude or make optional a variety of Features and non-Application Components such as 24/7 support, service guarantees or forum access.

You have several pricing options to choose from for configuring Pricemodels for your Plans:

Trial Plans offer a free trial of your product for a limited time.

Free Plans have no base subscription cost and no billing unit or renewal period.

Periodic Plans have a base subscription cost based on one more billing units and renew at the end of their billing cycle.

Perpetual Plans have a base subscription cost and no billing unit or renewal period.

Features & Component Charges

Because **Features** are the basis for the configuration of plans, they are also the building blocks of your Application monetization strategy. Therefore, it is important to understand the different types of Features and how they work (see: Defining Features).

Features also necessitate clear communication between developers and those responsible for implementing a monetization strategy. Features are often linked to your Application's code and are specified in the Application Definition section of the Developer Portal. Each Feature that is added in the Definition can be thought of as a “token” whose name must be agreed upon by both the product developer and whoever defines product pricing:

- The Feature name is referenced by developers in the code, which when constructed will ask the Apprenda API if the user has a subscription that permits usage of the Feature.
- The Feature name is referenced in the Pricebook in conjunction with a **Component**, which defines the pricing of the Application.

Please note that no specific values are set at the time of Feature definition. The Features simply list what could be included and charged for later on – not how many and how much. The Blocks, Limits, and Boundaries themselves are defined later in the Pricebook when Features are configured and monetized as Components.

When putting a Pricebook together, Components can either be Included with the base Pricemodel for a Plan or added as Optional or Required for an additional fee:



Included



Optional



Required

Optional and Required charges can also be created as One-Time charges, which are billed only once, or Recurring charges, which are billed whenever a subscription's billing unit is up and the subscription renews.

Please note that Perpetual subscriptions and Free subscriptions do not have a renewal period. In these types of

Plans, Optional and Required charges will only be assessed once regardless of whether you configure them as One-Time or Recurring charges. Also, keep in mind that exhaustable features, such as Block features, are replenished when a subscription renews. Because Perpetual and Free subscriptions have no renewal period, you may wish to offer additional blocks as an optional component that can be purchased as needed when creating Plans with these types of Pricemodels, or may wish to consider offering a Periodic Plan with a \$0 charge.

Configuring a Pricebook for a New Application

From the Version 1 Overview page for your Application, click on the **Pricebook** icon in the upper right-hand menu. This will take you to the Pricebooks page for that version of the Application.

For the initial version of an Application, Apprenda automatically creates one blank Pricebook and names it **Standard**; this Pricebook initially appears in the Pricebook List on the right side of the page.

You can use the icons to the right of the Pricebook description to copy, edit, or delete this Pricebook. You can copy a Pricebook at any time, but it is especially useful to copy a populated Pricebook that you wish to use as the basis of a new Pricebook. You can also use the New Pricebook box on the lower left side of the page to create a blank Pricebook.

Please note: you cannot delete a Pricebook once it has been published, even if it is later replaced with another Pricebook. This is to preserve the integrity of any subscriptions purchased from the retired Pricebook.

To begin the process of building a Pricebook, click on the name of the Pricebook you would like to configure (if you have not made any changes, the Standard Pricebook automatically created by Apprenda will be your only option). This will take you to an overview page for that Pricebook:

Standard Pricebook

- Appearance**

This section contains settings that allow for the customization of how the pricebook is displayed to your end users. You can modify both the name and description that is displayed in your offering to the public as well as the style that is used.

[▶ View/Edit Appearance Settings](#)
- Pricing**

This section allows you to define all the monetization components of your application, both how much you want to charge for your applications as well as the different plans available to your end users.

Define how much to charge end users to use various features of your application.

[▶ User-based Subscription Pricing](#) ✘ Incomplete: Not Provided (Required Item)

[▶ Account-wide Subscription Pricing](#)
- Transaction Settings**

This section allows you to define all the transaction settings.

Transaction Currency: \$ - United States Dollar (USD)
Merchant Account: No merchant account has been selected.

[Edit transaction settings](#)
- Publication**

This section allows you to preview and publish your pricebook once you are ready to start selling it. Designate this pricebook as the one used for new application purchases.

★ Incomplete This pricebook cannot be published until all pricing definitions are complete.

[▶ Preview this Pricebook](#)

To view or edit how your Pricebook appears to your customers, click on the **View/Edit Appearance Settings** link. This will take you to the Pricebook Appearance page, which will allow you to make changes to the Public Name

and Description of your Application if you would like them to appear differently in the Pricebook than they do in the Developer Portal. From this page you can also customize the appearance of your Pricebook by providing a URL to a Custom Style Sheet in the appropriate field.

To assign a Merchant Account to your Pricebook, click on the **Edit Transaction** settings link, which will allow you to make and save the desired change. Please note: you will only need to assign a Merchant Account if your Application accepts automatic payment methods and you assign 0+ costs to your Application's subscription Plans.

In the **Publication** section of the Pricebook overview page, you can use the **Preview this Pricebook** link at any time to see how your Pricebook will appear to your customers. Once you have completed all required pricing definitions, a **Publish this Pricebook** option will appear in this section.

The Pricing section of the Pricebook overview page lists all of your pricing definition options.

To set a User-based Subscription Pricing definition:

Click on the corresponding link, which will take you to the User-based Subscription Pricing Definition page. First, you will need to create a plan:

1. In the **Create a Plan Now** box, input a name for your plan in the appropriate field.
2. Use the **Description** field to input a description of the plan that will appear in the Pricebook.
3. Although it is not required that you do so, you can base your plan on an Edition by selecting one from the pull-down menu.
4. **To create a Free plan or Trial plan**, check the appropriate box.
5. If you would like to **limit the number of subscriptions** that a customer can purchase to this Plan, check the appropriate box and enter the desired limit.
6. Click the **Create Plan** button.

Your plan will now appear in a Pricing matrix that will allow you to create pricing models as well as add and monetize Features and non-Application components. You also can add additional plans.

To add a new plan to your User-based Subscription Pricing Definitions, click on the **Add Plan** button that appears in the top row to the right of your existing plans.

To delete or copy an existing plan, mouse over its name in the top row of the pricing matrix. **To delete the plan**, click on the red box containing the white "X" that will appear to the right of the plan name. **To make a copy of an existing plan**, click on the duplicate icon that will appear to the right of the deletion icon.

To edit the name of an existing plan, click on its name in the top row of the pricing matrix. This will open editable fields that will allow you to make and save your desired changes.

To add a pricing model to a plan, click on the corresponding **Add Price Model** button. This will generate an editable field that will allow you to determine the price and billing unit for this pricing model. Because a plan can have different pricing models for different billing units, you can repeat this action:

User-based Pricing Definition

⚠ User-based pricing is not complete.
Correct the items highlighted in red below.

	Basic	Add Plan
	<i>No pricing models defined.</i>	
	Add Price Model	

Uncategorized Components
Components shown with no classification.

Add Component

Add Section

Footnotes:

Add Footnote...

Add Price Model ✕

Periodic Pricing
 Perpetual Pricing

Charge | every

Save Cancel

To add a Feature or non-Application component, click on the **Add Component** button. This will generate an editable field that will allow you to create a display name for the component. **To configure this component as a Feature**, select the corresponding Feature from the pull-down menu. Otherwise, you can add and monetize a component that is not linked to a Feature.

Once you have added your desired components and plans, you can define which components will be included in which plans. To do this, right-click on the intersection of the desired plan and component. This will generate an editable **Inclusion Options** field that will allow you to mark the component as **Not Included, Included, Required for an Additional Charge** or **Optional for an Additional Charge** for that plan.

For Required and Optional charges, you can also select the **One-Time Charge** box to implement one-time pricing for the component. To implement a recurring charge, simply leave the box blank:

	Basic User	Deluxe User	Perpetual	Add Plan
	\$10.00 every month 	\$20.00 every month 	\$300.00 	
Uncategorized Components <small>Components shown with no classification.</small>	Basic User	Deluxe User	Perpetual	
Add and Subtract	 Included	 Included	 Included	
Multiply and Divide	 Optional	 Included	 Included	
E-mail Support			 Included	
			Perpetual	
Footnotes: Add Footnote... Return to Pricebook Home Page				

Inclusion Options ✕

Basic User - Multiply and Divide

Not Included
 Included
 Optional for an Additional Charge
 Required Additional Charge

Price Models: \$10.00 every month ▾

\$10.00 every month

Additional Charge: One Time Only

Label:

Block Size:

Footnote: --- No Footnote --- ▾

Save Cancel

If you have created more than one pricing model for a plan, you must configure Inclusion Options separately for each pricing model, as additional charges will vary for pricing models based on different billing units.

The Inclusion Options field also requires you to set **Quantities** for Features that are **Blocks, Boundaries** or **Limiters** . This also must be done separately for each pricing model in a plan, which requires you to set different Feature Quantities for pricing models based on different billing units.

You may also use the Footnote function on this page to include additional information about the component.

To set Account-wide Subscription Pricing, click on the corresponding link in the Pricebook overview page, which will take you to the **Account-wide Pricing Definition** page. The procedures for creating Account-wide Pricing plans are the same as those detailed above for User-based Subscription Pricing.

As you add plans, pricing models and components to your Pricebook, Apprenda will alert you to incomplete sections (e.g., if you do not configure Inclusion Options for all pricing models in a plan) by highlighting these sections with a red border and showing a message at the top of the page. You must resolve all incomplete sections in a Pricebook before you can publish it.

Once you have configured your Pricebook, you can preview how it will appear to your customers by returning to the overview page for the Pricebook and clicking on the Preview this Pricebook link. If your pricing definitions are complete, you can publish your Pricebook by clicking on the Publish this Pricebook link that will appear in this section.

Please note that only limited changes are permitted to a published Pricebook. Changes that affect prices and display only are generally permitted, and these changes are reflected immediately on your company website (see below: [Featuring Your Pricebook on Your Company's URL](#)). Apprenda limits changes you can make to a published Pricebook in order to preserve the integrity of subscriptions that have already been sold.

Publishing Updated Pricebooks

Publishing an Updated Pricebook for an Existing Application Version

To permit you to **introduce fundamentally different pricing options for an Application**, it is possible to have multiple Pricebooks for an Application version, although only one can be published at any given time. A new pricing scheme with different appearance, plans, and inclusion options can be created from your Application's Pricebooks page by either making a copy of an existing Pricebook (and then making your desired changes), or starting from scratch by creating a new Pricebook. Once you have achieved your desired Pricebook, simply publish the new Pricebook, which will automatically unpublish the existing Pricebook. This makes it easy to introduce a new plan that was not foreseen when the original Pricebook was published, or to publish "sale" pricing for a temporary period of time. Please note: it is always possible to re-publish Pricebooks that were previously published, as they remain catalogued in the Pricebooks list even after they are replaced as the active Pricebook.

The impact of publishing a new Pricebook on monetization is that the Pricebook that was previously displayed in your Company website is changed to the newly published Pricebook, and all new subscriptions to the Application will reflect this pricing.

While you may publish a new Pricebook at any time, customers who have purchased from an existing Pricebook will continue to be charged according to the Pricebook from which they purchased, and will only be able to purchase additional subscriptions from that Pricebook.

Updating Pricebooks for a New Version of an Application

Should you create a new version of an Application, all Pricebooks from the earlier version will be initially copied to the new version. This gives you the option of using the Pricebooks from the currently Published Application version as a starting point in configuring Pricebooks for your new version. Should you choose, you can also create new Pricebooks for this version. The impact of publishing a new Pricebook on monetization is that the Pricebook that was previously displayed in your corporate website is changed to the Pricebook that is published in the new version once it is Published, and all new subscriptions to the Application will reflect this pricing.

Customers with existing subscriptions, however, are tied to the Pricebook from which they initially purchased their subscriptions. Should you make changes to an existing Pricebook in a new version, your existing customers will see their subscriptions migrated to the new Application version and the appropriate Pricebook once you Publish the new version of your Application.

Pricing changes made to existing plans will take effect if the new version is Published; however, existing customers will have certain pricing and components grandfathered in depending on the types of pricing and component changes made in the new plan. The chart below explains what will happen if Components in an earlier version of an Application are altered in a later Application version:

Initial Component	Component Status After Migration
-------------------	----------------------------------

Status	Changed to Optional One-Time Charge	Change to Required One-Time Charge	Changed to Optional Recurring Charge	Changed to Required Recurring Charge	Changed to Included at No Charge	Changed to Not Available
Optional One-Time Charge	Grandfather	Grandfather	Grandfather	Grandfather	Grandfather	Not Added
Required One-Time Charge	Grandfather	Grandfather	Grandfather	Grandfather	Grandfather	Not Added
Optional Recurring Charge	Not Added	Billed	Billed	Billed	Added	Not Added
Required Recurring Charge	Not Added	Billed	Billed	Billed	Added	Not Added
Included at No Charge	Not Added	Billed	Not Added	Billed	Added	Not Added
Not Available	Not Added	Billed	Not Added	Billed	Added	Not Added

Component Migration Key

Added: The Component is added to the migrated subscription at no charge.

Billed: Customers will be charged on next billing cycle according to the new Component cost.

Grandfather: Components that are grandfathered in will be available in the new subscription for no charge.

Not Added: Component is not included in the migrated subscription and there is no charge.

Featuring a Pricebook on Your Company URL

To give customers a way to purchase your Application, it is necessary to put your Pricebook on the Intranet or Internet.

1. Navigate to the **Pricebooks** page for the current version of your product.
2. Copy the URL in the **Selling Instructions** section of the page.
3. Add this URL as a link from where you would like offer your Application. If you are not authorized to make changes to your company’s website, contact your corporate website manager to complete this step.

The link will direct prospective customers to a "storefront" page where they can view your Application offerings and prices. The URL will always link to the active Pricebook for your Application, which is the published Pricebook for the version of a product that is currently Published. Should you publish a new Pricebook for the Published version, or publish a new version, the link will not need to be updated as it will automatically link to whatever Pricebook is active.

Should prospective customers choose to make a purchase, they will be prompted to log in to their Account Portal to complete the purchasing process. If they do not have a current End User Account on your Apprenda platform, they will be prompted to create one, which will give them access to their own Account Portal environment so they can manage the subscriptions they have purchased.

Billing

This section of our documentation is relevant only to Applications that have been deployed with Billing.

The [Merchant Accounts](#) of our documentation is relevant only if you have deployed an Application with Billing, have added a monetary cost greater than 0 to your application subscription plans, and have elected to accept automatic payment methods.

The [Viewing and Managing Invoices](#) section includes information on invoices that is relevant to all Billing applications.

Managing Your Merchant Accounts

This section of our documentation is relevant only if you have deployed an Application with Billing, have added a monetary cost greater than 0 to your application subscription plans, and have elected to accept automatic payment methods.

Applications that use only Multitenancy, that have Free or \$0 subscription plans and components, or only accept manual payment methods do not require that you configure a Merchant Account.

A **Merchant Account** is an account with a billing provider where money collected by Apprenda on your behalf is deposited. Each product currently for sale that accepts automatic payments (e.g., credit cards) must be assigned to a Merchant Account.

Please note that Apprenda only serves as an intermediary for billing account information. You will need to create an account with one of Apprenda's supported billing providers before you can add a Merchant Account to your Provider Portal. At present, Apprenda supports the following billing providers:

- Merchante e-Solutions: <http://www.merchante-solutions.com/>
- Chase Payment Tech: <http://www.chasepaymentech.com/>
- BrainTree: <http://www.braintreepaymentsolutions.com/>

To add a new Merchant Account that you have created with one of the above billing providers:

1. Navigate to your **Billing** page, which can be accessed through the menu bar at the top of the page.
2. Click on the **Merchant Accounts** icon in the upper right corner, which will take you to your Merchant Accounts page.
3. Click on the **Create Account** button in the green **New Account** box on the right side of the page. This will open a new Merchant Account Details box, which will let you input information from your **Merchant Account** provider.
4. Select the types of Payment Methods you wish to accept for this Merchant Account by checking the appropriate boxes; not all Merchant Account Providers will accept all types of Payment Methods.
5. Select the currency you wish to associate with the Merchant Account.
6. When you have entered all the information required for that type of Merchant Account specified, click on **Save** button.

Merchant Account Details

Nickname: *
This name will be used elsewhere on the site when referencing this merchant account.

Billing Provider: *
Choose who will process payments on your behalf.

Chase Paymentech
 Merchant e-Solutions
 BrainTree

Supported Currency: *

Payment Sources *
Choose which payment types are enabled for this merchant account.

MasterCard
 Visa
 American Express
 Discover
 ACH

Merchant ID: *
This is the merchant ID that the billing provider assigned to you.

Applications:
Applications whose pricebook use this merchant account for billing.

Note: A pricebook can only be linked to one merchant account at a time, and published applications must always be assigned to a pricebook.

To edit an existing Merchant Account, from the Merchant Account page, click on the Edit button for the Merchant Account you wish to edit. This will generate editable fields that will let you make the desired changes. Some changes, such as the currency associated with a Merchant Account, cannot be changed.

Please note that an application that is Published (and is set to accept automatic payment methods) must always be linked to a Merchant Account if there are any monetary costs associated with the Application's subscriptions. Consequently, to delete a Merchant Account, you must first reassign applications linked to it to another Merchant Account. This can be done through the Pricebook pages associated for each Product. Once you have reassigned your products to another Merchant Account, you can then return to the Merchant Account page and click on the Delete button for the Merchant Account you wish to delete.

Viewing and Managing Invoices

Apprenda generates invoices for all subscription purchases. When a customer purchases more than one subscription at a time, an invoice is generated for each Subscription Group, meaning that a single purchase action may generate more than one invoice. For instance, if a customer purchases two subscriptions to a “basic” plan based on a monthly billing unit, 3 subscriptions to a “basic” plan based on a yearly billing unit, and 4 subscriptions to a “deluxe” plan based on a monthly billing unit, an invoice will be generated for each group.

You can view a list of all invoices payable to your Company through the **Billing** page of the Developer Portal by clicking on the **Invoices** icon. This will take you to your **Invoices** page. To the right you will see all invoices payable listed in chronological order. The buttons at the top of the Invoices list allow you to choose to view **Unpaid invoices** only, **Paid invoices** only, or all invoices. You can click on the **Invoice Number** of an individual invoice you would like to view.

Dashboard : Billing : Invoices : Invoice No. 7F185980-5AAC

Invoice No. 7F185980-5AAC

Overview | Merchant Accounts | Invoices

Invoice Help

An invoice typically represents a charge made to their account for the usage of an application you sell.

The amount breakdown breaks down the total into specific charges, typically groups of subscriptions.

The current status of the invoice is listed at the top, but the modification history shows any change to the status of the invoice along with a timestamp and description.

Invoice No. 7F185980-5AAC

Date: 12/7/2011 3:42:49 PM
Application: Super Calculator
Organization: Getting Medieval, Inc.
Developer: Superior Software, Inc.

Invoice No.: 7F185980-5AAC
Total Amount: \$60.00
Current Status: Unpaid

Line Items:

Line No.	Description	Amount
1	3 Subscriptions	\$60.00
Total		(Pending Payment) \$60.00

Payment History:

Date	Description	Status Changed To
12/7/2011 3:42:49 PM	Initial Creation.	Unpaid
12/7/2011 3:42:50 PM	Payment on Credit Card ***** 1881 was DENIED (Transaction Id: 10068, Reason: Transaction denied because the credit card was expired.)	Error

Each invoice lists relevant Date, Application and Billing information, and a line item description of all charges. At the bottom you will see a **Payment History** table that details the Initial Creation of the invoice followed by a record of all attempts made to pay it. This includes successful attempts at payment as well as those that encountered an error and could not be processed. When a customer completes a purchase, Apprenda automatically creates an invoice for that purchase and marks it as Unpaid.

If a purchase has been successfully completed using an automatic payment method such as a credit card, Apprenda will automatically mark all related invoices as “paid” and the payment transaction will be listed in the Payment History. In this case, the customer would automatically have access to newly purchased subscriptions.

If a purchase has been made using the manual payment option, the payment status of all related invoices will remain Unpaid until you manually update the payment status upon receipt of payment. In this case, all related subscriptions are listed as **Suspended**—meaning that the customer would not have access to the application through them—until you manually set them to **Active**.

To mark an unpaid invoice as Paid:

1. Click on the **Mark as Paid** button. This will generate a **Confirm Invoice Payment** box:

Confirm Invoice Payment

Invoice No.: 7F185980-5AAC

Invoice Date: 12/7/2011 3:42:49 PM

Payment Date: 12/7/2011 3:46:41 PM

Total Amount: \$60.00

Description: *

Note: This information is recorded in the payment history and is visible by the customer.

Mark Invoice as Paid

Cancel

Activate Subscriptions

2. Enter a description of the payment transaction in the **Description** field. You must enter text in this field in order to complete this process.
3. To activate subscriptions associated with the invoice, check the **Activate Subscriptions** box. Should you wish to keep associated subscriptions in the **Suspended state**, you can skip this step.
4. Click on the **Mark Invoice as Paid** button.

How End Users Access SaaS Applications

In order to better assist your end users, it is important to know the different ways that they can access their subscribed SaaS applications.

The Account Portal

In order to access SaaS applications with Multitenancy or Billing, your end users require an End User Account that allows them to access the Account Portal. Whether you prefer to manage user, subscription, and billing information for your end users or would rather they self-provision and self-manage, these actions are done through the Account Portal.

For your convenience, we've included an [Account Portal Guide](#) that outlines the processes for user, subscription, and billing management through the Account Portal. While we provide links to this guide in the Account Portal itself, you also have the option of generating a pdf from the [Using the Account Portal](#) page that includes the entire guide.

Application Access

Your end users can always access subscribed Applications through the Applications page of their Account Portal by clicking on the Launch icon to the right of the desired Application.

In addition, an end user can visit the URL shown in this window directly instead of first entering the Account Portal to access the Application. Users who access an Application by this method will be prompted to enter their Apprenda Username and Password before they can access the Application, and will only be granted access if they have been assigned a subscription to that Application.

Making applications Accessible By Means of a Custom URL

With certain UI deployment models* you can provide your end users with a Custom URL controlled by your organization that has been configured to access your application. Once the URL has been created, you must perform the following steps to configure your application to be available through the URL (please note that these steps must be completed before the application is published):

1. Ask your organization's domain administrator to contact the owner of your Apprenda platform administrator to obtain the appropriate DNS information.
2. Have your domain administrator configure your Custom URL to map to the host name by means of the DNS information given to you by your Apprenda platform administrator.
3. In the Developer Portal, navigate to the **Application Settings** page for the application you wish to make available through the URL.
4. Enter your Custom URL in the **Specify Application URL** field in the **Application URL** box on the Application Settings page. Once you click on the **Save Changes** button, Apprenda will honor requests from your Custom URL to link to the application URL hosted on your Apprenda instance.

End users who access their Applications by means of a Custom URL controlled by your Organization will be prompted to enter their Apprenda login username and password before they are granted access to their subscribed applications.

If you have configured the Custom URL controlled by your company using a custom stylesheet, you can customize the look of the Login page that will appear when your end users access their Applications through this method.

For more information on creating a custom stylesheet, download the **Custom Login Style Guide** available as a .zip file in the appropriate section of the Application Settings page.

Once you have created and customized your stylesheet and uploaded the resulting .css file to your Company-controlled URL, you must specify the stylesheet URL in the **Custom Login Stylesheet** field in the Login

Stylesheet section of the Application Settings page.

*Custom URLs can be configured for the following UI Deployment Models only:

- <http://app-tenant.rooturl>
- <http://app.rooturl>

Using the Account Portal

The Apprenda Account Portal allows your Organization to add individual users to your account, manage software Application subscriptions and payments, control who in your Organization has access to subscribed Applications, and modify the methods by which subscribed Applications can be accessed. You can also set permissions for various Application functions, and even assign Account Portal administration functions to additional members of your Organization.

This guide is designed to introduce you to the administrative features of the Account Portal and to provide you with the information necessary to help your Organization’s members access the software Applications they need. Screenshots based on a standard Apprenda visual design have been supplied for your convenience; however, the appearance of your account Portal may differ slightly based on customizations made by your Application provider.

Manage Your Account Profile

Initial Account Set-Up

Before your Organization could complete its initial Application subscription purchase, the individual making the purchase was prompted to enter information about your Organization and create a User login. This process created an End User Account for your Organization, as well as a User Account for the individual who made the purchase. This individual, through the User Account he or she created, was also established as your Organization’s Account Administrator.

When an End User Account is created, it generates a unique Account Portal environment specific to the Organization, Company, or subgroup within a Company that subscribes to any of the Application products offered by an affiliated Application provider.

Once an End User Account has been established, its correlating Account Portal can be used to assign access to subscribed Applications to a number of different individuals within the Company by creating a User Account for each individual. Each User Account is assigned its own Login Username and password by which individuals can access the Account Portal and all Applications to which they have been assigned subscriptions.

Securables are specific functions of an Application that can be access-restricted. Application providers designate which functions can be access-restricted; Account Administrators must designate which Users have access to these functions.

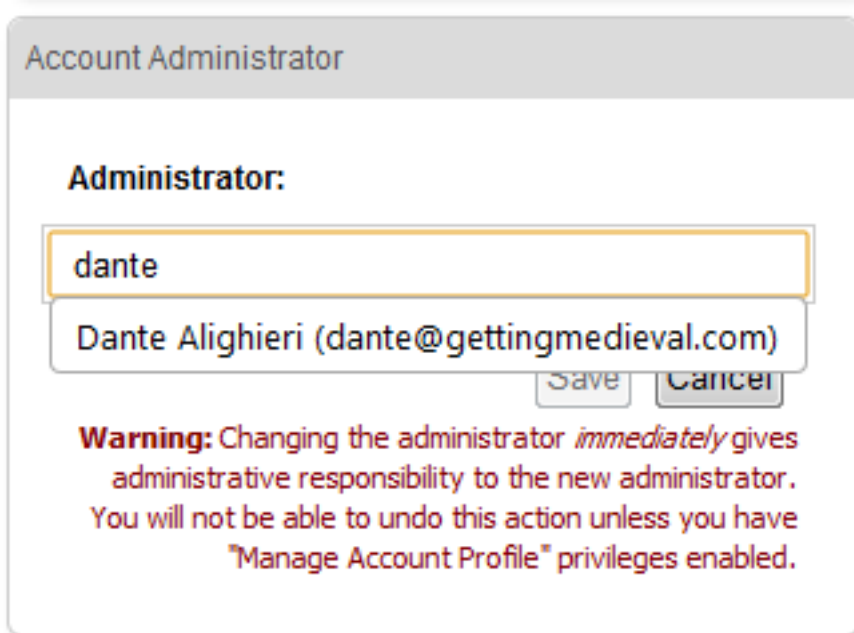
Similar to the root user in Unix-style operating systems or the Administrator in Windows operating systems, the User

Account designated as the Account Administrator automatically has access to all Securables of the Account Portal as well as to all Securables of the Company’s subscribed Applications. The designation of Account Administrator is initially attached to the User Account that is set up in conjunction with the establishment of an End User Account; however, an Account Administrator can choose to transfer the designation of Account Administrator to another User Account affiliated with the Organization’s End User Account (See below: Changing Your Account Administrator).

Change Your Account Administrator

Once you have added other Users affiliated with your Account (see: User Creation and Management), you may choose to transfer the designation of Account Administrator to one of them.

1. From your **Account Profile** page, look to the **Account Administrator** box on the lower left side of the screen.
2. Click on the **Change Administrator** button.
3. In the type-ahead search field that appears, hit (Ctrl + space) to see all of the Users associated with your Account. You may then select a new Account Administrator by clicking on one of the Users that appears in the generated list.



To **search for a particular User** , type part of the User’s name or email address in the field, which will return all Users that meet your search criteria.

You may then select a new Account Administrator by clicking on one of the User Accounts that appears in the generated list.

Once you have selected the User you would like to designate as Account Administrator, click the **Save** button.

Please note: Changing the Account Administrator is a Securable. This means that only the Account Administrator or a User assigned to a Role that is given permission to change the Account Administrator can perform this function. Once you designate another User as the Account Administrator, you will not be able to undo this action, nor will you be able to access any of the Account Portal administrative features unless you have been specifically assigned to a Role in which such permissions are explicitly given (see below: Managing User Access to Tenant Portal Administrative

Functions).

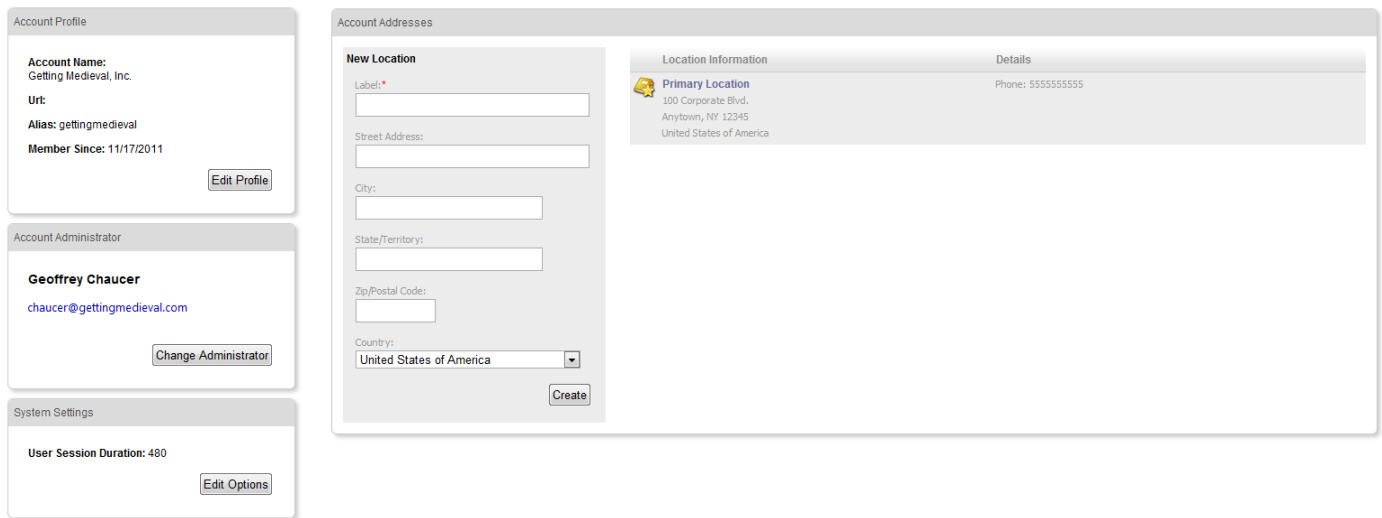
As a security measure, the User designated as account Administrator always has full access to all administrative features of the Account Portal, and the Account Portal is set up so that your account must have a designated Account Administrator. By making it impossible to limit or turn off the administrative access of the Account Administrator, and by requiring that a account always have an Account Administrator, the Account Portal ensures that there is always a User with the capabilities to access administrative features.

Update Your Profile

In order to view or change information about your Account, select the **Account Profile** option from the menu bar at the top of the screen. This will take you to your **Account Profile page**:

Getting Medieval, Inc.

Account Profile Identity Federation



The screenshot shows the 'Account Profile' page for 'Getting Medieval, Inc.'. It features four main sections:

- Account Profile:** Displays 'Account Name: Getting Medieval, Inc.', 'Url:', 'Alias: gettingmedieval', and 'Member Since: 11/17/2011'. An 'Edit Profile' button is at the bottom right.
- Account Administrator:** Shows 'Geoffrey Chaucer' with email 'chaucer@gettingmedieval.com' and a 'Change Administrator' button.
- System Settings:** Shows 'User Session Duration: 480' and an 'Edit Options' button.
- Account Addresses:** A large section with a 'New Location' form (Label, Street Address, City, State/Territory, Zip/Postal Code, Country) and a 'Create' button. To the right, 'Location Information' shows a 'Primary Location' with details like '100 Corporate Blvd., Anytown, NY 12345, United States of America' and a phone number.

To update your Organization’s name or add an affiliated URL , click on the **Edit Profile** button in the **Account Profile** box on the upper left side of your screen. This will generate an editable information field that will allow you to make and save the desired changes to your Account Name. Please note, however, that the **Account Alias** inputted during the initial creation of your Account Account is permanent and cannot be changed.

From this page you can control the **User Session Duration**, which determines how long Users who have logged in can remain inactive before the system automatically logs them out. To change this setting, click on the **Edit Options** button in the **System Settings** box on the lower left side of the screen. This will open an editable information field that will allow you to make your desired changes.

Your Application provider will be able to access information from your Account Portal, including the identity and contact information for your Account Administrator, the contact information listed for Users, and information listed under your Account Profile.

To add an address affiliated with your Account, look to the **Account Addresses** box on the lower right side of the page. To add a new address, fill in the fields under the **New Location** header on the left side of the box and click on the Create button.

To **update information** already affiliated with your Account, click on the appropriate address label under **Location Information**. This will take you to a profile page specifically for that address.

To update information for the address you have selected, click the **Edit Profile** button in the **Profile** box on the left side of the screen, which will generate editable information fields that will allow you to make and save the desired changes. To add any additional contact information specific to that location, such as a phone number or email address, fill in the desired information in the **Add location details** field on the right side of the **Location Details** box; select the appropriate details label from the corresponding pull-down menu, and then click the **Add** button.

Create and Manage Users

Once an Account has been established, access to its correlating Account Portal and related applications is done by individual Users. This section of the Account Portal Guide covers the following:

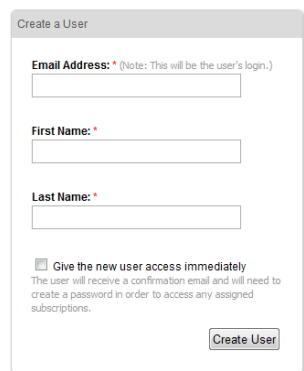
- **Creating and Deleting Users:** use Apprenda's native User creation system to create or delete a Platform User
- **Modifying User Login Access:** change login access for a Platform User
- **Updating User Profiles:** add or update User contact information
- **Using Identity Federation:** an alternative to Apprenda's User creation process that allows you to grant Apprenda access to Users through pre-existing login IDs and passwords

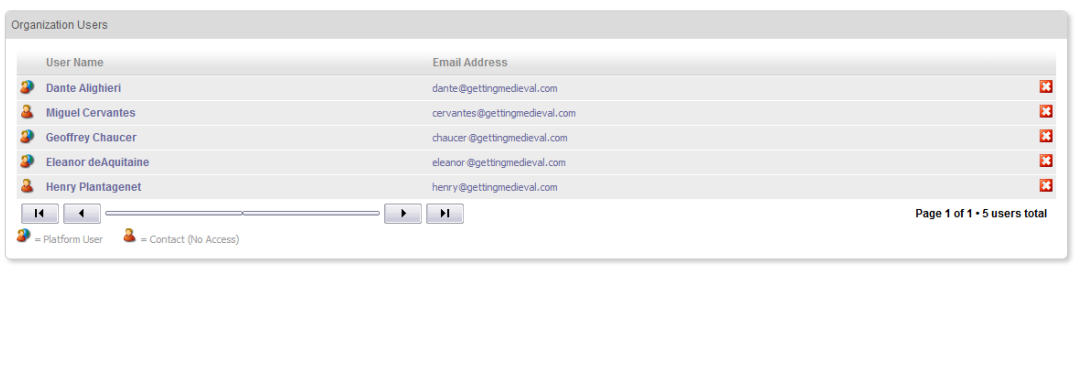
Creating and Removing Users

Creating a User Account

Select the **Users** option from the menu bar at the top of the screen. This will take you to your **Users page**:

Users





User Name	Email Address
Dante Alighieri	dante@gettingmedieval.com
Miguel Cervantes	cervantes@gettingmedieval.com
Geoffrey Chaucer	chaucer@gettingmedieval.com
Eleanor deAquitaine	eleanor@gettingmedieval.com
Henry Plantagenet	henry@gettingmedieval.com

A list of your Organization's current Users will appear in the table to the right. Each User is marked by a symbol representing one of the two the two types of individuals that you can incorporate into your Portal:

- **Platform Users** can access the Account Portal and subscribed Applications by means of an individual User account.

- **Contacts** do not have a Platform account, but their names and contact information appear in your User list.

To create a new Platform User or Contact, complete the fields on the left side of the page:

1. Enter a current email address for the individual you would like to add as a User. This address will become the individual's Username, and will serve as the method of contact by which your newly added User will be prompted with instructions for setting up a login password.
2. Enter the User's First and Last names.
3. Whether or not you check the **Give the new user access immediately** box will determine whether your User is created as a Platform User or a Contact. Check the box to create a Platform User. Leave it blank to create a Contact.
4. Click on the **Create User** button.

Newly created Platform Users and Contacts both will be added to your Organization's list of Users. In addition, Platform Users will be emailed instructions on how to set up passwords; upon completion, they will immediately be able to log in to the Account Portal and access any subscribed Applications assigned to them (see below: Subscription Management).

A note on security: Apprenda encrypts User passwords stored on its system. During the login authentication process, the password a User types in is first encrypted and then compared to the encrypted password stored on the system. This means that Apprenda does not store or have access to unencrypted passwords. Users who misplace their passwords must request to have their password reset. Just as in the initial password set-up for newly added Users, a request to reset a password will trigger the system to contact the User by email with instructions for specifying a new password.

Deleting User Accounts

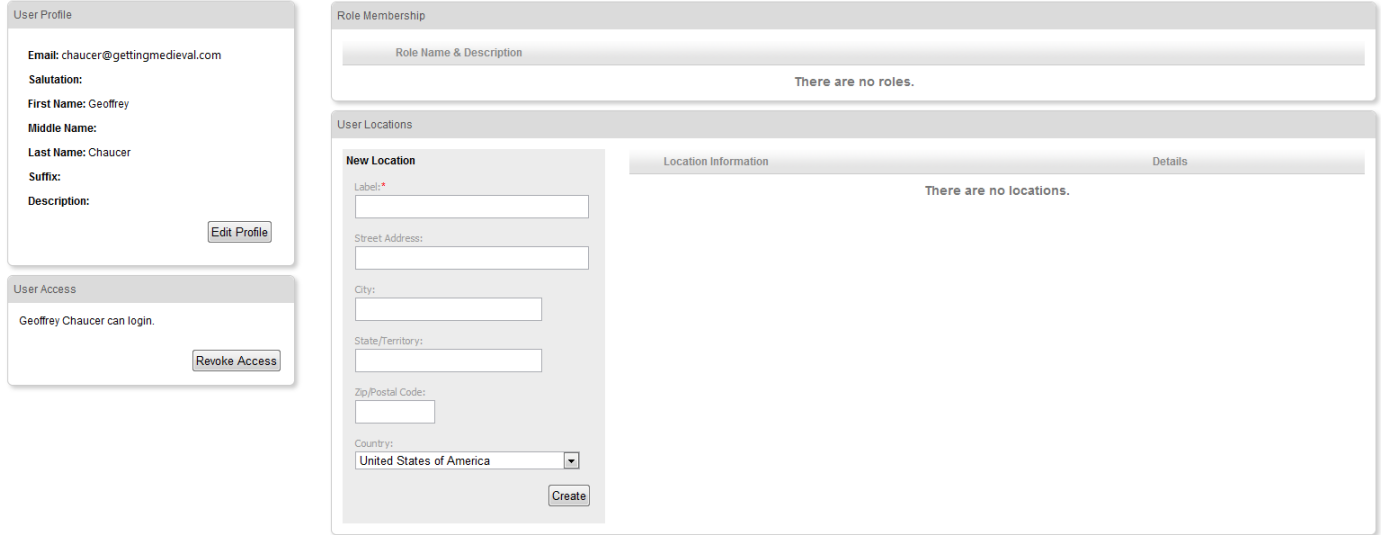
To delete a User and their contact information from the system permanently, return to the Users page by clicking on the Users link from the menu bar at the top of your screen. Locate the User you wish to delete in the list of your Organization's current Users. Click on the red box containing the white "X" to the right of the User that you wish to delete. Click "Yes" on the confirmation prompt to complete the process.

Modifying User Access & Updating User Profiles

Modifying User Access

From your **Users** page, look at the list of your Organization's Users on the right side of the screen. Click on the name of the Platform User or Contact for whom you would like to modify login access or update information. This will take you to your selected **User Profile**:

Geoffrey Chaucer Profile & Addresses



The screenshot shows a user profile page for Geoffrey Chaucer. It is divided into several sections:

- User Profile:** Contains fields for Email (chaucer@gettingmedieval.com), Salutation, First Name (Geoffrey), Middle Name, Last Name (Chaucer), Suffix, and Description. An **Edit Profile** button is located at the bottom right of this section.
- User Access:** A box indicating that Geoffrey Chaucer can login, with a **Revoke Access** button at the bottom right.
- Role Membership:** A table with the header "Role Name & Description" and a message "There are no roles." below it.
- User Locations:** A section with a "New Location" form on the left and a "Location Information" table on the right. The table contains the message "There are no locations." and a "Details" link. The "New Location" form includes fields for Label, Street Address, City, State/Territory, Zip/Postal Code, and Country (set to "United States of America"). A **Create** button is at the bottom of the form.

If the selected User is a Platform User, you can **revoke login access**—thereby turning the User into a Contact with no access to the Account Portal or subscribed Applications—by clicking on the **Revoke Access** button in the User Access box on the lower left side of the screen. Once a Platform User is denied access (and becomes a Contact), that User immediately loses access to the system and all subscriptions assigned to them become unassigned.

If the selected User is a Contact (or a former Platform User for whom you have revoked access), you can **grant login access**—thereby turning the User into a Platform User who can access the Account Portal and subscribed Applications—by clicking on the **Grant Access** button in the User Access box on the lower left side of the screen. Once a User is granted login access, the system sends the User emailed instructions on how to set up passwords for their User Account; upon completion, they will immediately be able to log in to the Account Portal and access any subscribed Applications assigned to them.

A note on login access and subscriptions: as noted above, once a Platform User is denied access (and becomes a Contact), that User immediately loses access to the system, and all subscriptions assigned to them become unassigned. Just as with a newly created Platform User, granting access to a Contact who was formerly a Platform User will prompt the system to send the newly reinstated User a password set-up email. Although the system will have retained the User’s contact information, the User will have to set up a new password, and you will have to reassign any and all Application subscriptions the User will need.

Updating User Profiles

From your **Users** page, look at the list of your Organization’s Users on the right side of the screen. Click on the name of the User for whom you would like to modify login access or update information. This will take you to your selected User’s Profile.

To **update a User’s name**, click on the **Edit Profile** button in the **User Profile** box on the upper left side of your screen. This will generate an editable information field that will allow you to make and save your desired changes.

To **add a physical location** affiliated with the User, look to the **User Locations** box on the lower right side of the page. To add a new address, fill in the fields under the **New Location** header on the left side of the box and click on the **Create** button.

To **update a physical location** affiliated with a User, click on the appropriate location label under **Location Information**. This will take you to a profile page specifically for that location:

rejustify">To update information for the address you have selected, click the **Edit Profile** button in the **Profile** box on the left side of the screen, which will generate editable information fields that will allow you to make and save the desired changes. To add additional contact information, such as a phone number or email address, specific to that location, fill in the desired information in the **Add location details** field on the right side of the **Location Details** box; select the appropriate details label from the corresponding pull-down menu, and then click on **Add**.

Please note that the **addresses** section of a User Profile allows you to list personal contact information for a specific User, but it does not provide a link to your Organization addresses or contact information that appears in the Account Profile.

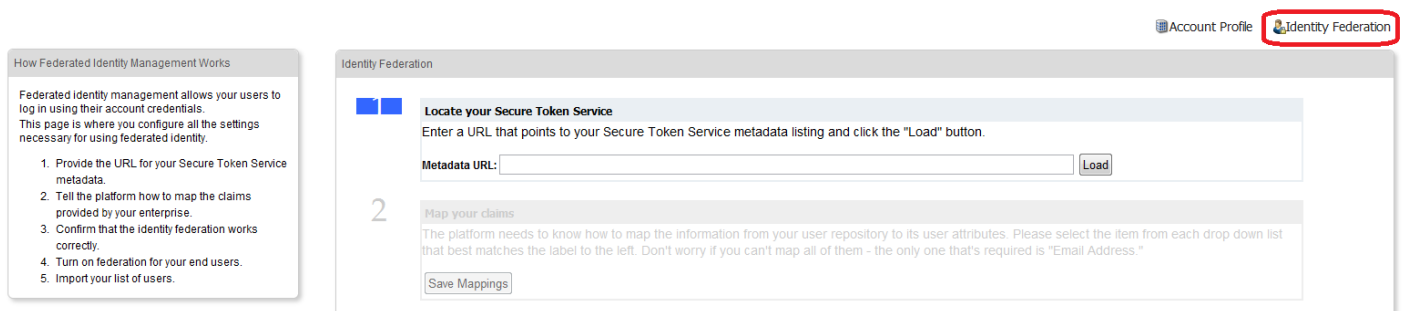
Using Identity Federation

Setting up Identity Federation and Adding Users

As an alternative to creating Platform Users that are authenticated through Apprenda by means of a unique Platform password, some Organizations may wish to make use of Apprenda’s Identity Federation capabilities. In order to use Identity Federation, the feature must be enabled by the administrator of your Apprenda instance. Also, your Organization must first set up a relationship with a Secure Token Service (STS), a third-party entity that serves as a database by which your Organization’s members can use a single login ID and password to access other spaces that required login authentication (such as Apprenda).

If your Apprenda Platform Administrator has enabled Identity Federation, you will see an **Identity Federation** link in the upper right side of your **Account Profile** page.

To set up Identity Federation, click on the Identity Federation link, which will take you to the Identity Federation set-up page:



As per the directions on the set-up page, you will need to perform the following steps:

1. Provide the URL to your STS metadata listing, and click **Load**. If the data loads correctly, you will be provided with a URL that you must give to your STS administrator so that the appropriate trust relationship can be established. An **Edit** button will also appear, which will allow you to alter this information (if, for instance, your STS changes)

Identity Federation

1 **Locate your Secure Token Service**

Enter a URL that points to your Secure Token Service metadata listing and click the "Load" button.

Metadata URL: <https://saasgrid.sts/contoso/FederationMetadata/2007-06/FederationMetadata.xml>

You may need to configure your Secure Token Service to trust the platform.

Please provide this URL to the administrator of your Secure Token Service to set up the trust relationship.

<https://identity.saasgrid.modelo/FederationMetadata/2007-06/FederationMetadata.xml>

2. Based on the information provided in Step 1, the claims list on the right side under Step 2 will be populated with information such as name and email address. You can use the pulldown menus to decide what information from your STS will link to the corresponding Apprenda label to the left. Please note that you must map an email address to the Apprenda Email Address label, as this is the information Apprenda uses to link each Platform User Account to the appropriate STS User.

2 **Map your claims**

The platform needs to know how to map the information from your user repository to its user attributes. Please select the item from each drop down list that best matches the label to the left. Don't worry if you can't map all of them - the only one that's required is "Email Address."

Email Address :	<input type="text" value="Email address"/>
Display Name :	<input type="text" value="Name"/>
First Name :	<input type="text"/>
Middle Name :	<input type="text"/>
Last Name :	<input type="text"/>
Name Prefix :	<input type="text"/>
Name Suffix :	<input type="text"/>
User Description :	<input type="text"/>

3 **Test your settings**

Now that you've configured all your settings, the next step is to confirm everything is working. Because of how Web browsers work, you'll need to open a new browser session. The best way to proceed is by using an entirely different browser for this test. If you can't do that, then open a "private" session by following the steps outlined in your browser's help file. Once that new browser is open, paste in the URL listed below. If you can see your information, then your setup is correct and you can proceed to step 4.

http://apps.saasgrid.modelo/account/pages/tenant/federatedidentity/federationtest.aspx?userName=wif%40apprenda.com&__home__realm=http://saasgrid.sts/contoso

4 **Enable identity federation**

Once you've tested your setup by viewing the Identity Federation Test page, it's time to turn on the federation so your users can log in. Click the "Enable" button to start using identity federation.

3. Test your settings by pasting the link in Step 3 in either a "private" browser session or a different browser altogether. If your test is not successful, contact your STS administrator. If your test is successful, you will be prompted to login with STS credentials, after which you will see a page such as this:

Congratulations your Identity Federation settings appear to be complete. The claims you have provided to SaaSGrid can be seen below.

Claim	Value
Platform User Account	Pete.A.Bourne@contoso.com
Email Address	Pete.A.Bourne@contoso.com
Display Name	pete.bourne

4. Click on the **Enable Identity Federation** button.

5. All that is left now is to upload the User names and email addresses that you would like to import from your STS. To do this, simply create and upload a .csv file (a specially formatted plain text file) that contains User information as follows:

```

1 Pete.A.Bourne@contoso.com, Peter, Bourne
2 Judy.K.Sattler@contoso.com, Judy, Sattler
3 Tina.T.Lee@contoso.com, Tina, Lee
4 Steven.E.Lightfoot@contoso.com, Steven, Lightfoot
5 Rita.J.Rose@contoso.com, Rita, Rose

```

Once you have successfully uploaded your Users, they will appear in list of Platform Users in the Users section of the Account Portal. Although Platform Users created through the Account Portal receive emails with a link that allows them to set up a password, Users added through Identity Federation will not receive such an email, as they should already have a login ID and password associated with your STS. To access the Account Portal, these Users should navigate to [http://apps.\[yourApprendainstance\]/account](http://apps.[yourApprendainstance]/account) Once there, they will be asked to enter their email address, which will direct them to the login page for your STS. After entering their login information, they will be redirected to the Account Portal.

Adding Additional Users

After the initial Identity Federation set-up, you can add additional Users (for instance, new employees who have been added to your STS) by returning to the Identity Federation page and repeating Step 5 with a .csv file containing their information. You also may add Users manually via the Users page. As long as the email addresses involved match up with those of Users set up through your STS, your newly added Users will be able to access the Account Portal by the same means outlined above.

Should the need arise, you can also create Platform User accounts for members of your Organization who do not have a login ID and password for your STS. To do this, simply create a new Platform User. Although the new User will not automatically receive a password set-up email when Identity Federation is enabled, they can use the **Forgot Your Password?** link found on the login page for your Apprenda instance to establish a password.

Troubleshooting and Disabling Identity Federation

You may disable Identity Federation at any time by returning to the Identity Federation page and clicking on the **Disable Identity Federation** button in the section for **Step 4**. At this point Users who access the Account Portal

through their STS information will no longer be able to log in. They can, however, establish Apprenda passwords for their User Accounts by clicking on the [Forgot Your Password?](#) link found on the login page for your Apprenda instance to establish a password.

When Identity Federation is enabled, Users who have both an Apprenda password and an STS identity can access the Account Portal through either method. The User who initially set up Identity Federation, for instance, had to establish a Platform User Account and password in order to login and set up Identity Federation.

Should something go awry with your STS mappings, a User with the appropriate Account Portal Securable permissions (such as the Account Administrator) can always login with their Apprenda login and password and then either disable Identity Federation or adjust Identity Federation settings as needed.

Managing Subscriptions

This section of the Account Portal Guide covers the topics listed below. Please note that some of these functions (such as purchasing and amending subscriptions) may become temporarily unavailable if your Application is undergoing necessary [Application Maintenance](#) conducted by your Application provider.

Types of Subscriptions

A subscription is a contract that authorizes access an Application for a set period of time in return for an agreed upon price. In Apprenda there are two basic types of subscriptions:

1. A **User Subscription** is required for an Apprenda User to access a subscribed Application. You must create a User Subscription to an Application for each individual User who needs to access the Application and assign it to their User account.

While it is possible for more than one member of your Organization to access a single User account (and thus share a subscription), only one instance of a single User account can access either the Account Portal and/or a subscribed Application at the same time. For persons requiring exclusive access to an Application, a separate User account and assigned User Subscription would be required.

Your Application provider may offer a number of User Subscription plans that offer different options for pricing and features, and span different billing or renewal units (daily, monthly, yearly, etc.). Some may offer limited trial plans; others may offer free plans for User Subscriptions, but charge at the Account level for access to certain Application features.

Once you have purchased one or more User Subscriptions, you may purchase more as needed either through your Application provider's website or the corresponding [Add More Subscriptions](#) icon in the Applications page of the Account Portal.

2. An **Account Subscription** is required for some, but not all, Applications in order to access certain Application features. Whether or not an Account Subscription is needed is determined by your Application provider.

If an Account Subscription is required for an Application, you will be offered the option to purchase one during the initial purchase process for the Application. If a Application provider does not utilize Account Subscriptions, you will not have the option to purchase one.

Your Account can have only one Account Subscription for each subscribed Application; if an Account Subscription has already been purchased for an Application, you will not be able to purchase additional Account Subscriptions for that

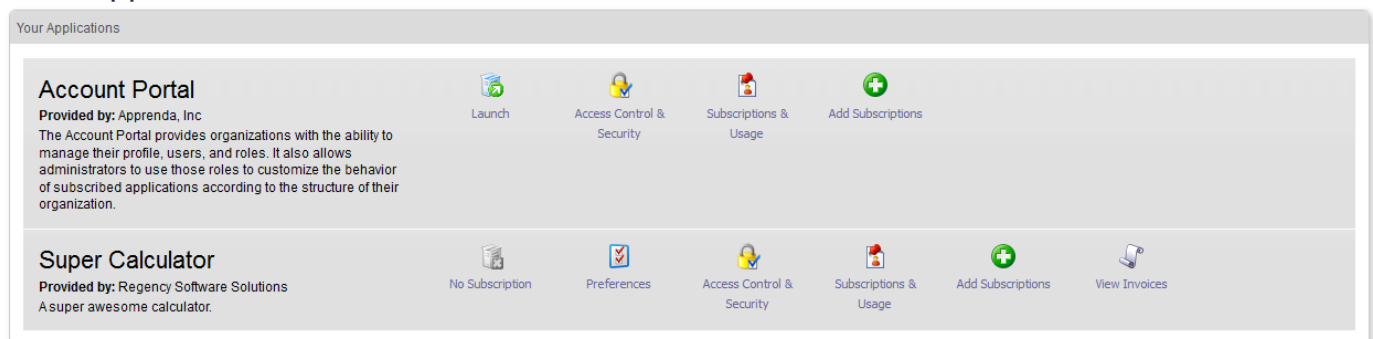
Application. You can, however, choose to amend current Account Subscription (see below: Amending Subscriptions).

Accessing Subscription Information

From the **Applications** page you will find links that allow you to launch your subscribed Applications, as well as access subscription information and controls:

Account Portal Home : Your Applications

Your Applications



The screenshot shows a user interface titled "Your Applications". It contains two application cards. The first card is for "Account Portal", provided by Apprenda, Inc. It includes a description and four action links: "Launch", "Access Control & Security", "Subscriptions & Usage", and "Add Subscriptions". The second card is for "Super Calculator", provided by Regency Software Solutions. It includes a description and six action links: "No Subscription", "Preferences", "Access Control & Security", "Subscriptions & Usage", "Add Subscriptions", and "View Invoices".

To view subscription information for subscriptions that you already have, click on the **Subscriptions and Usage** link for that Application. This will take you to the **Subscriptions & Usage** page for that Application, where you can see how many and what types of subscriptions you have for the Application. For instance, this is what a Subscriptions & Usage page might look for the Application Super Calculator, which has an Account and User-based Subscriptions:

Account Portal Home : Your Applications : Super Calculator Subscriptions & Usage

Super Calculator Subscriptions & Usage

Subscriptions & Usage Overview

This section allows you to view and modify information about any of the subscriptions to this application.

This includes, but is not limited to:

- Looking up usage information
- Assigning users to subscriptions
- Renewing and cancelling subscriptions

To make it easier to locate subscriptions, we automatically group similar subscriptions together based on factors including when the subscriptions were purchased, which plan was chosen, and which optional features were chosen.

Cancel Subscriptions

If you want to cancel **ALL** your subscriptions click the button.
Please be aware this action cannot be undone.

Your Account Subscription for Super Calculator

Account Features \$1000.00

The features indicated here are shared across all users who have access to Super Calculator

Your User Subscription Groups for Super Calculator

Group Name	Plan	# Allocated	# Vacancies	# Total	Total Cost
Basic User	Basic User	0	10	10	\$200.00 every month
Deluxe User	Deluxe User	0	10	10	\$200.00 every month
Perpetual	Perpetual	0	5	5	No recurring charges.

Why are these grouped?
We automatically group your user subscriptions by similar characteristics & features. All subscriptions in a single group will give users the same functionality within the application.

Please note: while all Applications will have User-based Subscriptions, not all Applications will have an Account Subscription.

Note that you can only have one Account, but can have more than one type of User-based Subscription. In the case of the Super Calculator example above, the Application provider has established at least three different pricing plans for the Application, and the Organization represented in the Account Portal has purchased multiple subscriptions to all three. Subscriptions to each plan above are organized into their own Subscription Group.

A **Subscription Group** is a collection of individual User Subscriptions that are all part of the same Plan, have the same optional features, and share the same billing unit. If any of these differ among subscriptions, they will not be sorted into the same Subscription Group. For instance, if you purchase a new subscription that has the same Plan and optional features as an existing Subscription Group, but is charged by a different billing unit (e.g., monthly instead of yearly), the new subscription will not be added to that existing Subscription Group.

To view information for a Subscription Group, click on its name to navigate to its **Subscription Group Profile**.

To **change the Group Name** for a particular Subscription Group, click on the **Change Group Name** button on the upper left of the **Group Profile** box. This will generate an editable information field that will allow you to make and save the desired changes to your Group Name.

To **view Individual Subscriptions** in a Subscription Group, from the **Subscription Group Profile** click on either the **Subscriptions** icon listed on the top right menu, or the **View Subscriptions** option under the Subscription Breakdown section in the upper right portion of the Group Profile box. This will take you to a page that lists each individual subscription in this Group. Click on the individual subscription you would like to view, which will take you to the Subscription Profile page for your chosen subscription.

To **create a custom label for an individual User Subscription**, click on the Edit Profile button in Subscription Profile box. This will generate an editable information field that will allow you to create and save your custom label.

Purchasing, Renewing, and Cancelling Subscriptions

Purchasing Subscriptions

Unless you have reached a pre-set limit determined by your Application provider, you may purchase as many additional User Subscriptions as your organization needs. As your Account can have only one Account Subscription for each Application, you cannot purchase additional Account Subscriptions if you already have one. To make changes to your Account Subscription, see below: Amending Account Subscriptions.

As with your initial subscription creation, additional subscriptions can be added from your Provider's website; you can also make such purchases through the Account Portal:

Return to your **Applications** page by selecting the Applications option from the menu bar at the top of the screen. Click on the corresponding **Add Subscriptions** icon to the right of the name of your selected Application. This will take you to an **Manage Subscriptions** page for that Application:

Account Portal Home : Your Applications : Manage

Manage Subscriptions for Super Calculator

Super Calculator

Application:
Super Calculator

From:

Regency Software Solutions

123 Anywhere St.

Anytown, NY 12345

United States of America

Current Offering

Super Calculator

User Access Plans

	Basic User \$10.00 every month	Deluxe User \$20.00 every month	Perpetual \$300.00
Add & Subtract	✔	✔	✔
Multiply & Divide	\$ <input type="checkbox"/> \$5.00	✔	✔
Square Root	\$ <input type="checkbox"/> \$5.00	✔	✔
Email Support	\$ 5 Emails \$5.00 x <input type="text"/> One-time	✔ 5 Emails	✔ 500 Emails
Quantity <small>Please enter the number of subscriptions.</small>	x <input type="text"/>	x <input type="text"/>	x <input type="text"/>

User Subscriptions should always be available to add; if an Account Subscription is available for the Application, options to add these will also appear on this page.

In the **Current Offering** matrix to the right, you will see all the subscription plans currently available for the Application listed at the top, along with a variety of available features (if any) listed in the column to the left.

Features included under each subscription plan are indicated by a green check mark. Some plans give you the option of adding certain features separately, sometimes for an additional fee; these are indicated by a yellow dollar sign, and can be added by checking the corresponding white box. You may also see features marked by a gray dollar sign; these indicate required features and charges. Optional and required fees associated with features may be one-time

charges or recurring charges. One-time charges will be marked with the phrase “one-time charge.” If there is no indication, the charge is a recurring charge that will be assessed at the beginning of each billing period along with recurring base subscription fees.

To view pricing options for each plan based on length of subscription, check the pull-down menu under each plan name. Some Application providers offer pricing plans for different lengths of time. Others offer perpetual subscriptions, which mean that you pay a one-time fee for ongoing access to the Application. You may also see trial subscriptions or free subscriptions at the Account and User-based subscription level.

Once you have selected a pricing option and marked any additional features for the plans you would like to purchase, **indicate the number of individual subscriptions** you would like to purchase for each plan in the corresponding blank field at the bottom of the appropriate plan. You may, if you choose, select subscriptions for more than one plan. Click on the **Continue** button. This will take you to the Confirmation page, where you can complete your purchase.

User Subscriptions

3 user subscriptions from 1 plan

Plan: Deluxe User

Plan	Price
<div style="display: flex; align-items: center;"> Deluxe User </div>	\$20.00
Sub Total	\$20.00
Total	\$60.00

Purchase Total

	Today's Purchase
	\$60.00

Payment Options

This application supports the following payment methods:

- Visa - Corporate Visa - **** * 1881
- Manual
- New Credit Card
- New Bank Account

Midway down the **Confirmation** box, you will see a summary of different subscription plans you have selected along with any additional fees associated with optional or required features, the cost of each plan, and the number of individual subscriptions you have selected for each plan. Based on this information, you will also see the total price for this particular purchase.

The **types of Payment Methods** available for the Application are determined by your Application provider and noted in the **Payment Options** box. You may, for instance, have the option of paying with an ACH transaction or a major credit card, or some providers offer a “Manual” payment option that allows them to work out other payment arrangements. Still other Application providers do not charge at the subscription level, so you will not be asked to provide payment information.

To complete your purchase, select a method of payment (if needed) from the pull-down menu beneath the **Payment Options** box at the bottom of the screen, and then click the **Continue** button. If there are any Payment methods previously used and stored for the Application, you will be able to select these. You will always have the option of adding a new Payment Method for Applications that accept ACH transactions and credit cards. Should you choose to add a new Payment Method, you will be given the option of saving the Payment Method as your “default” Payment Method that is used for recurring subscription charges. For information on storing Payment Methods, setting a default Payment Method, or deleting a Payment Method, see below: [Payment Methods & Billing Management](#).

To cancel your purchase, click on the **Cancel purchase and clear your selections** link beneath the Purchase button. Otherwise, your **Checkout** page, including the subscriptions you have selected, will remain accessible through either the **Checkout** option that has now appeared in the menu bar at the top of the screen or the **Purchases** section that has now appeared on your Account Portal Dashboard. Should you log out of the Account Portal before completing or canceling your purchase, you will be able to access your Checkout page for up to 24 hours through either of these options the next time you login.

Prorated Subscription Charges

When new subscriptions are purchased, they will be billed differently depending on whether or not they fit into an existing Subscription Group.

If no Subscription Group exists for a new set of subscriptions, a new Subscription Group will be created and a new billing cycle will begin from the moment of purchase.

If a Subscription Group exists for a new set of subscriptions, the new subscriptions will be integrated into that Subscription Group and will be billed according to the existing billing cycle. This means that the recurring charges for the new subscriptions will be prorated for the remainder of the billing cycle, and then will renew in full at the beginning of the next billing cycle. One-time charges will not be prorated.

Subscription Renewals

When you purchase a subscription, by default it is set to **Auto Renew** at the end of its billing cycle. This means that a subscription will automatically renew itself for the same increment (day, month, year, etc.) that was originally purchased, and will generate a new invoice for that billing cycle. Unless you have amended a subscription (see below: [Amending Subscriptions](#)), you will be charged the same rate as in your initial purchase, less any One-time Charges that were assessed only in the initial purchase.

If you are charged for your subscriptions, regardless of what Payment Method you selected during your initial subscription purchase, subscription renewals will be charged to whatever Payment Method is selected as the “default” Payment Method for an Application.

If no default Payment Method is set for an Application, an error message will be generated and the invoice created when the subscription renews will be marked as “unpaid.” This will suspend all related subscriptions. In this case, you will need to pay the invoice in order to active the subscriptions. This can be done by navigating to the relevant invoice through either the **Payment History** option on the Subscription Profile page or the **View Invoices** option on the Applications page. The invoice will give you the option of paying with any valid Payment Methods stored for the Application or adding a new Payment Method. For information on viewing invoices, storing Payment Methods, setting a default Payment Method, or deleting a Payment Method, see below: [Payment Methods & Billing Management](#).

Once the invoice has been successfully paid, all subscriptions that had been suspended due to lack of payment will immediately become activated.

You can **turn off the Auto Renew** function for an individual User, Account or Concurrent Subscription. Should you choose to do this, the subscription will remain active until the end of the current billing cycle, at which point it will not renew and will become expired.

To turn off the Auto Renew function for a User Subscription or Concurrent Subscription:

1. From the Applications page, click on the Subscriptions and Usage icon for your chosen Application.
2. Under **Group Names** in the **Your User Subscriptions** box, click on the name of the Subscription Group that contains the subscription you would like to change.
3. Click on either the **View Subscriptions** link in the Group Profile box or the **Subscriptions** icon in the upper right hand side of the screen. This will take you to a list of individual subscriptions in that group.
4. Click on the individual subscription you would like to change. This will take you to its **Subscription Profile** page.
5. From the Subscription Profile page, click on the **Edit Profile** button in the Subscription Profile box. This will generate an editable information field:
6. Uncheck the **Auto Renew** box and click on the **Save Changes** button. The subscription will remain active through the current billing cycle. Once the current billing cycle ends, you will no longer be billed for this subscription. For User Subscriptions, any Users previously assigned to this subscription will become unassigned, and your Company will no longer have access to the Application through this particular subscription.

To turn off the Auto Renew function for an Account Subscription:

1. From the Applications page, click on the Subscriptions and Usage icon for your chosen Application.
2. Click on the **Account Features** link in the **Your Account Subscription** box. This will take you to the **Subscription Profile** page for the Account Subscription.
3. From the Subscription Profile page, click on the Edit Profile button in the Subscription Profile box. This will generate an editable information field.
4. Uncheck the **Auto Renew** box and click on the **Save Changes** button. The subscription will remain active through the current billing cycle. Once the current billing cycle ends, you will no longer be billed for this subscription. For User Subscriptions, any Users previously assigned to this subscription will become unassigned, and your Company will no longer have access to the Application through this particular subscription.

Cancelling Subscriptions

Please Note: a subscription cancellation is immediate; from the moment you cancel a subscription, you will no longer have access to an Application through that subscription. Although you will not be billed for future renewals of the subscription, you will not be refunded for any remaining time left on a subscription that you choose to cancel. Should you wish to keep the subscription active until its next renewal period, turn off the Auto Renew option under the individual Subscription Profile as illustrated in the Subscription Renewals section above.

There are two ways to cancel subscriptions:

1. You can cancel all of your Company's subscriptions to an Application. This can be done from the **Subscription & Usage** page for your selected Application (which can be accessed from your main Applications page by clicking on the Subscriptions and Usage icon) by clicking on the **Cancel All Subscriptions** button in the Cancel Subscriptions box on the lower left side of the page.
This method will cancel all User, Account and Concurrent Subscriptions for the Application.
2. You can **cancel a subscription individually**. This option allows you to cancel a specific subscription to an Application while retaining any other subscriptions you already have. You can cancel an individual subscription as follows:

You cannot cancel subscriptions to the Account Portal.

To Cancel a User-Based Subscription: Navigate to the Subscription Profile page for the subscription you wish to cancel. This can be done from Subscription & Usage page for the relevant Application by clicking on the Group Name of the Subscription Group, clicking on either the View Subscriptions link or Subscriptions icon, and then selecting the individual subscription from the list. Once at the Subscription Profile page, click on the **Actions** icon to the upper right. Click on the **Cancel Subscription** button beneath the Subscription Cancellation heading.

To Cancel an Account Subscription: Navigate to the Subscription Profile page for your Account Subscription from the Subscription & Usage page by clicking on the **Account Features** link in the **Your Account Subscription** box. Once at the Subscription Profile page, click on the Actions icon to the upper right. Click on the **Cancel Subscription** button beneath the Subscription Cancellation heading.

Amending Subscriptions

Once you have purchased subscriptions, you may choose to amend them by either purchasing additional optional features or migrating them to a different pricing plan.

Amending User Subscriptions

User Subscription amendments can be made either for an entire **Subscription Group** or for an **Individual Subscription**.

To amend a Subscription Group:

From the **Applications** page, click on the **Subscriptions & Usage** icon to the right of the Application subscription you want to change. This will take you to a Subscriptions & Usage page for that particular Application. Under **Group Names**, click on the name of the Subscription Group you would like to change. This will direct you to a **Profile** page for that Subscription Group:

Basic User Subscription Group

Group Profile Overview

All of the subscriptions in this group have the same plan and optional features. We create a group name based on the plan name by default, but you can change it to help you identify these subscriptions in the future.

The common information for all subscriptions in this group is listed on the right right hand side. To view or change an individual subscription, click on the Subscriptions link.

Group Profile

Group Name:
Basic User
[Change Group Name](#)

Common Subscription Profile:
All 10 subscriptions in this group have the same plan and included features.
Plan: Basic User

Pricing:

Base Plan Fee	\$10.00 every month
Initial Purchase Total	\$25.00
Recurring Subscription Cost	\$20.00 every Month

Total Recurring Group Cost: \$200.00 every month

Subscription Breakdown:
0 in use + 10 vacant = 10 total
[View Subscriptions](#)

Features:

- ✔ Add & Subtract
- \$ Email Support (Block of 5)
Block of 5 Emails for \$5.00 One-Time
- \$ Multiply & Divide
Enabled for \$5.00
- \$ Square Root
Enabled for \$5.00

✔ = Included in Plan \$ = Optional Feature Ⓢ = Additional Charge

[Add/Remove Features](#)

Click on the **Add/Remove Features** icon listed on the top right menu, which will take you to the Subscription Group Feature Management Page:

Basic User Group Feature Management

Add/Remove Features

How to Add/Remove subscription features:
Changes you make here will be applied to all 10 subscriptions in this group.
[Want to upgrade this subscription group to a new plan?](#)

Current Subscription Features

✔ Add & Subtract	
\$ Email Support (Block of 5) Block of 5 Emails for \$5.00 One-Time	<input type="checkbox"/> Remove
\$ Multiply & Divide Enabled for \$5.00	<input checked="" type="checkbox"/> Remove (-\$5.00)
\$ Square Root Enabled for \$5.00	<input type="checkbox"/> Remove (-\$5.00)

✔ = Included in Plan \$ = Optional Feature Ⓢ = Additional Charge

Features That Can Be Added To Subscriptions In This Group

\$ Email Support Block of 5 Emails for \$5.00 One-time	x <input type="text"/>
\$ Multiply & Divide Enable for \$5.00	<input type="checkbox"/> Enable
\$ Square Root Enable for \$5.00	<input type="checkbox"/> Enable

[Process Changes](#)

To add optional features to a Subscription Group, look at the **Features That Can Be Added to This Subscription** box on the right side of the screen, which lists all Application options (if any) available for adding to this Subscription Group. Mark the corresponding **Enable** box for features you want to add and click on the **Process Changes** button. This will take you to the **Subscription Amendments** page, where you can review the number, type, and additional subscription cost of the features you have chosen to add.

You can find the renewal date (when your current renewal cycle ends and a new one begins) for each subscription on its individual Subscription Profile page.

Click on the **Complete Changes** button to complete the process. You will be charged a pro-rated amount that covers the period from the moment you added the features until the end of the current subscription billing cycle. From that point on, you will be charged the full amount per billing cycle (see above: Prorated Subscription Charges).

Once you remove features from a Subscription Group, you will no longer have access to those features. The invoice for your next billing cycle will reflect that you have removed

these features and you will no longer be charged for them. However, you will not be refunded a prorated amount for the period in your current billing cycle after you have removed features from a subscription.

To remove subscription features from a Subscription Group, look at the Current Subscription Features box on the right side of the Subscription Group Feature Management Page, which lists all Application features included for the Subscription Group. Removable features are indicated by a small, checkable **Remove** box. Mark the corresponding box for features you want to remove and click on the **Process Changes** button. This will take you to the **Subscription Amendments** page, where you can review the number, type, and cost difference of the features you have chosen to remove. Click on the **Complete Changes** button to complete the process.

To upgrade a Subscription Group to a different Subscription Plan, look at the **Add/Remove Features** box on the right side of the Subscription Group Feature Management Page. Click on the **Want to upgrade this subscription** link.

This will take you to an **Add or Change Subscriptions** page for that Application:

Current Offering

i You are changing 10 subscriptions from your group named Basic User.

Super Calculator

	Basic User Payment Plans \$10.00 every month ▼	Deluxe User Payment Plans \$20.00 every month ▼	Perpetual Payment Plans \$300.00 ▼
Add & Subtract	✔	✔	✔
Multiply & Divide	\$ \$5.00 <input type="checkbox"/> Add	✔	✔
Square Root	\$ \$5.00 <input type="checkbox"/> Add	✔	✔
Email Support	\$ 5 Emails \$5.00 One Time <input type="checkbox"/> Add	✔ 5 Emails	✔ 500 Emails
	Apply Changes	Switch Plans	Switch Plans

Current

This page is similar to the one you encounter when purchasing subscriptions. In the **Current Offering** matrix to the right, you will see all the subscription plans currently available for the Application listed at the top, along with a variety of features available for the Application listed in the column to the left. Features included under each subscription plan are indicated by a green check mark. Some plans give you the option of adding certain features separately for an additional fee; these are indicated by a yellow dollar sign, and can be added by checking the corresponding white box.

To view pricing options for each plan based on length of subscription, check the pull-down menu under each plan name.

Once you switch a Subscription Group to a Plan that does not include features that were included in your original Plan, you will no longer have access to those features. If the new Plan costs less than the original Plan, the invoice for your next billing cycle will reflect this and you will be charged accordingly. However, you will not be refunded a prorated amount for the period in your current billing cycle after you switched a Subscription Group to a less expensive Plan.

Once you have chosen a plan, selected a pricing option and marked any additional options, click on the **Switch Plans** button. This will take you to the **Subscription Amendments** page, where you can review the number, type, and additional subscription cost of the new Plan you have selected.

Click on the **Complete Changes** button to complete the process. You will be charged a pro-rated amount that covers the period from the moment you upgraded your plan until the end of the current subscription billing cycle. From that point on, you will be charged the full amount per billing cycle.

To amend an Individual Subscription:

From the **Applications** page, click on the **Subscriptions & Usage** icon to the right of the Application subscription you want to change. This will take you to a Subscriptions & Usage page for that particular Application. Under **Group Names**, click on the name of the **Subscription Group** that contains the individual subscription you would like to change. This will direct you to a Profile page for that Subscription Group.

Click on either the **Subscriptions** icon listed on the top right menu, or the **View Subscriptions** option under the Subscription Breakdown section in the upper right portion of the **Group Profile** box. This will take you to a page that lists each individual subscription in this Group. Click on the individual subscription you would like to amend, which will take you to the Subscription Profile page for your chosen subscription.

Click on the **Add/Remove Features** icon listed on the top right menu, which will direct you to the Add/Remove Features page for your selected subscription:

From this page you can add and remove features to the individual subscription by the same methods outlined above for adding and remove features to Subscription Groups. By clicking on the **Change Plan** link in the **Add/Remove Features Overview** box on the left side of the screen, you can migrate the individual subscription to a different Plan by the same methods outlined above for migrating a Subscription Group to a different Plan.

Amending Account Subscriptions

As needed, Account Subscriptions can be amended by navigating to your Account Subscription profile and then following the same processes outlined above for amending User Subscriptions. To access your Account Subscription Profile page, from the **Applications** page click on the **Subscriptions & Usage** icon to the right of the Application subscription you want to change. This will take you to a **Subscriptions & Usage** page for that particular Application. Click on the **Account Features** link in the Your Account Subscription box, which will take you to the **Subscription Profile** page for the Account Subscription.

Your Account can have only one Account Subscription for each subscribed Application. While you cannot purchase additional Account Subscriptions if you already have one, you can amend your current subscription either to add/remove optional features or to switch to a different plan.

Assigning, Revoking and Reassigning User Subscriptions for an Application

Assigning User Subscriptions for an Application

Account and Concurrent Subscriptions cannot be assigned, as they are associated and shared among the Organization Account. User Subscriptions must be assigned to Apprenda Users in order for Users to access the Application.

To Assign User Subscriptions:

Select the Applications option from the menu bar at the top of the screen. This will take you to the Your Applications page. On the left side of the Your Applications matrix, you will see a list of all the related Applications to which your

Organization subscribes, as well as the names of their corresponding software Providers.

A note on your Account Portal as an Application: You may notice that your **Account Portal** is listed among the other Applications to which your Organization subscribes. This is because the Account Portal's functions have been configured so that you can manage them in the same way and from the same place that you manage the functions of any of your other software Applications. Because a subscription to the Account Portal is automatically created and assigned to each Apprenda User Account you create, you will not have to assign subscriptions for the Account Portal to the User Accounts you manage. Because these accounts are created and administered at no additional charge, there are no **Buy More Subscriptions** or **View Invoices** options listed for your Account Portal.

To select the software Application for which you would like to assign subscriptions, click on the corresponding **Subscriptions & Usage** icon to the right of the name of your selected Application. This will take you to a **Subscriptions & Usage** page for that particular Application.

Reminder: A **Subscription Group** is a collection of subscriptions that are all part of the same Plan, have the same optional features, and share the same billing unit (e.g., daily, monthly, yearly, etc.)

In the table to the right you will see a list of the different types of subscriptions your Organization has purchased for this Application, which have automatically been sorted into **Subscription Groups**. By sorting your subscriptions into Groups, your Account Portal allows you to more easily overview not only the **Total** number of subscriptions you have purchased, but also the number and type of subscriptions you have **Allocated**, and the number and type of subscription **Vacancies** available for you to assign to Users.

To view and manage subscriptions within a **Subscription Group**, click on the appropriate **Group Name**. This will direct you to a Profile page for that Subscription Group.

To view or assign individual subscriptions, click on either the Subscriptions icon listed on the top right menu, or the View Subscriptions option under the Subscription Breakdown section in the upper right portion of the Group Profile box. This will take you to a page that lists each individual subscription in this Group:

Account Portal Home : Your Applications : Super Calculator Subscriptions & Usage : Deluxe User : Subscriptions

Deluxe User Subscriptions

Group Profile Subscriptions Add/Remove Features

Subscriptions Overview

This page shows a list of all subscriptions in this subscription group. To view or change information for a specific subscription, click on its subscription locator. To assign users to your subscriptions, see the user assignment section below.

User Auto Assignment

Select up to 9 users to auto assign them to available subscriptions at random.

Dante Alighieri, dante@apprenda.com

Eleanor deAquitaine, eleanor@apprenda.com

Subscriptions

Subscription	Assigned To	Status	Date Created
857922F8-F709	Geoffrey Chaucer	Active	11/17/2011
EC6753F5-CE07		Active	11/17/2011
8186A5E1-6A64		Active	11/17/2011
3610F9C5-0F15		Active	11/17/2011
E19F999E-29BE		Active	11/17/2011
BBE6B4AC-F6CA		Active	11/17/2011
C9CDB456-7D51		Active	11/17/2011
925C16D9-A599		Active	11/17/2011
84F91016-9C62		Active	11/17/2011
B3CDA3E5-27DC		Active	11/17/2011

Page 1 of 1 • 10 total

In the table to the right you will see all subscriptions in that group listed individually by subscription number. The **Assigned To** column to the right of the corresponding subscription number is initially blank, indicating that the subscription is vacant and can be assigned to a User; once a User is assigned to this subscription, the User's name

will appear in this column.

This table also lists the **Status** of each subscription. Subscriptions listed as **Active** are available for immediate use. A Status listing of **Suspended** indicates the subscription's unpaid status. **Cancelled** indicates that the subscription has been permanently discontinued. You can assign Subscriptions that are listed as Suspended; however, subscriptions must be listed as Active in order for Users to access the Application.

There are two ways to assign individual subscriptions:

1. You can [automatically assign select Users to vacant subscriptions](#). This will randomly assign the Users you have selected to vacant subscriptions on your subscription list.
2. You can [assign specific Users to specific subscriptions](#). This option allows you to take into consideration characteristics of specific subscriptions, such as the number of metered features that remain.

To automatically assign select Users randomly chosen vacant subscriptions, look at the User Auto Assignment box on the bottom left of the page:

1. Click on the name of the User(s) you wish to assign from the list provided. This list contains the name of all Users who do not currently have a subscription to the Application.
2. Select one or more Users (up to the number of vacant subscriptions available) from the list.
3. Click the Auto Assign button.

To assign specific Users to specific subscriptions, click on the selected subscription from those listed under the Subscription heading of the Subscriptions box. This will direct you to a **Subscription Profile** page for the individual subscription:

Subscription 857922F8-F709

[Profile](#) [Add/Remove Features](#) [Payment History](#) [Actions](#)

Subscription Overview

This is the landing page for Subscription 857922F8-F709. The subscription's profile is displayed on the right.

This includes a view of the most sought-after information for a subscription. In addition, basic information about the subscription can be edited on this page.

Select a navigation link in the upper right to view or modify advanced information such as the subscription's features or usage. The actions page permits you to change the subscription's assignee and even cancel the subscription.

Subscription Profile

Label:
This subscription is not labeled

Status: Active **Date Created:** 11/17/2011 4:46:47 PM
Assignment: Geoffrey Chaucer **Renewal Date:** 12/17/2011 29 days from now
AutoRenew: Yes **Price Model:** \$20.00 every month

Notes:
This subscription has no notes

[Edit Profile](#)

Subscription Application Profile

Regency Software Solutions
123 Anywhere St.
Anytown, NY 12345
United States of America

Application: Super Calculator
Plan: Deluxe User

Features & Usage as of 11/17/2011 5:25:10 PM

Subscription Features (Included & Optionally Added)	Usage & Allowances
<div style="display: flex; align-items: center;"> ✔ <div> <p>Email Support (Block of 5) Block of 5 Emails</p> </div> </div>	5 of 5 (100%) remaining
<div style="display: flex; align-items: center;"> ✔ <div> <p>Square Root</p> </div> </div>	Enabled
<div style="display: flex; align-items: center;"> ✔ <div> <p>Multiply & Divide</p> </div> </div>	Enabled
<div style="display: flex; align-items: center;"> ✔ <div> <p>Add & Subtract</p> </div> </div>	Enabled

To assign a User to this subscription, click on the **Actions** icon listed on the top right menu. This will bring up the **Subscription Actions** page. If the subscription is unassigned, you will see a **Subscriptions Assignment** section in the **Subscription Actions** box.

In the type-ahead search field that appears, hit (Ctrl + space) to see the name of all Users who do not currently have a subscription to this particular Application. To select a User for this subscription, click on the User name. Then, click on the **Assign Subscription** button. Once you have completed this process, the User will have immediate access to the Application.

To search for a particular User Account, type part of the User's name or email address in the field, which will return all User Accounts that meet your search criteria and which do not already have a subscription to the Application. To select a User for this subscription, click on the User name. Then, click on the Assign Subscription button. Once you have completed this process, the User will have immediate access to the Application.

Revoking and Reassigning Individual User Subscriptions

Once you have assigned an individual subscription to a User, you have the option of revoking subscription access from that User and, if desired, reassigning it to another User.

To revoke access to an assigned subscription, navigate to the **Subscription Actions** page for the individual subscription for which you would like to revoke access. In the Subscription Actions box, you will see the name of the User who has been assigned the subscription:

Click on the **Revoke Access** link beneath the **Subscription Assignment** heading, and the subscription will no longer be assigned to that User. The subscription will immediately be available to reassign to another User.

To reassign a subscription to another User, follow the same process used to initially assign subscriptions to a User..

Managing Payment Methods

The **types of Payment Methods** available for each Application are determined by your Application provider. You may, for instance, have the option of paying with an ACH transaction or a major credit card, or some Providers offer a “Manual” payment option that allows them to work out other payment arrangements. (Still other Application providers do not charge at the subscription level, in which case Payment Methods are unnecessary.) The types of Payment Methods available are in effect for new purchases, subscription renewals, and subscription amendments.

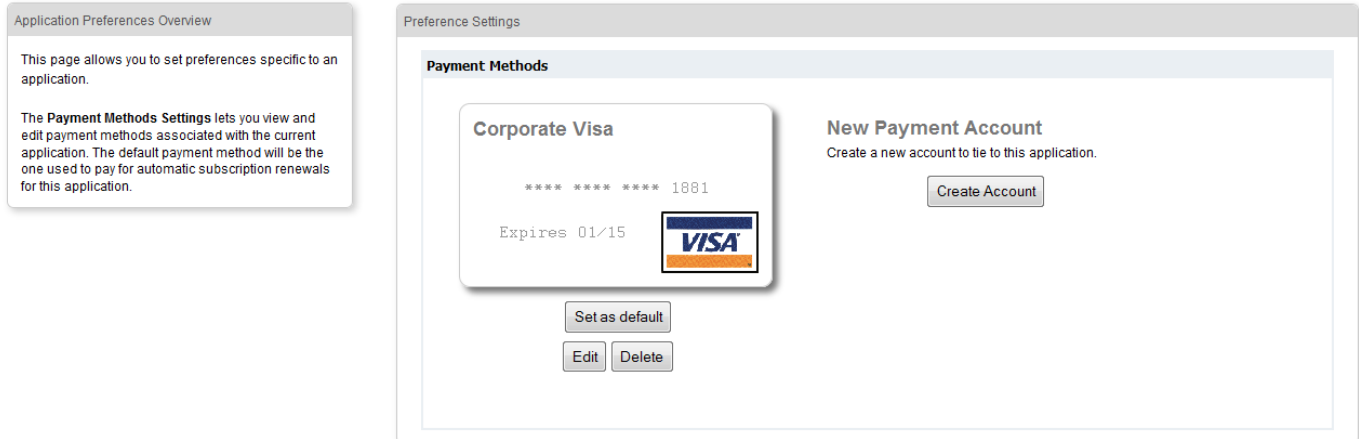
When making a new purchase or a subscription amendment, you have the choice of entering a new Payment Method or paying with one stored for that Application. Should you choose to add a new Payment Method, you will be given the option of saving the Payment Method as your “default” Payment Method that is used for recurring subscription charges. Your default Payment Method is the only Payment Method automatically processed for subscription renewals for that Application. If no default is set, you will have to pay the invoice by hand (see below: Managing Invoices).

Please note: in some cases where your Application provider does not charge at the subscription level, this portion of the Account Portal will be disabled and you will be able to access the **Preferences** link

You can **add, delete, or set a Payment Method as your default** on the **Preferences** page for the Application. On the left side of the Your Applications matrix, you will see a list of all the related Applications to which your Company subscribes, as well as the names of their corresponding software Providers. Click on the corresponding **Preferences** icon to the right of the name of your selected Application. This will take you to a Preferences page for that particular Application. On the right side of the page you will see a Preference Settings box:

Account Portal Home : Your Applications : Application Preferences

Super Calculator Preferences



The screenshot shows the 'Preference Settings' interface for 'Super Calculator'. On the left, there is an 'Application Preferences Overview' box with two paragraphs of text. The main area is titled 'Preference Settings' and contains a 'Payment Methods' section. This section displays a 'Corporate Visa' card with a masked number ending in '1881' and an expiration date of 'Expires 01/15'. Below the card are buttons for 'Set as default', 'Edit', and 'Delete'. To the right of the card is a 'New Payment Account' section with the text 'Create a new account to tie to this application.' and a 'Create Account' button.

Any payment methods already stored for the Application will be visible in the Payment Methods box. If you have set a Payment Method as your “default” method, which is used for recurring subscriptions charges, it will be marked with a green check icon and the word Default.

Your Application provider designates which types of payment methods (i.e., specific types of credit cards, ACH, or manual payment) are accepted for each Application. You will not be able to add a payment method for an Application if it is not accepted by your Application provider, or if your provider does not charge at the subscription level.

To add a **Payment Method** for your selected Application, click on the **Create Account** link, which will allow you to enter and save Payment Information.

To delete a **Payment Method**, click on the corresponding **Delete** link.

To designate an existing **Payment Method as the default** payment method for your selected Application, click on the corresponding **Set as Default** button.

A note on security: For security reasons, SaaSGrid does not store or display complete account information for your payment methods. For this reason, you will not be able to view or update sensitive information such as complete credit card or bank account numbers; however, you always have the option to delete and re-create a payment method using your updated account information. It also may become necessary from time to time to re-add a Payment Method for an Application if your Application provider makes changes to the ways in which it processes credit card or ACH payments.

Viewing and Managing Invoices






Please note: in some cases where your Application provider does not charge at the subscription level, this portion of the Account Portal will be disabled and you will be unable to access the **View Invoices** link



An invoice is generated each time you make a new subscription purchase, amend a subscription, or a subscription's billing cycle renews (see below: Subscription Management). Invoices are generated and organized separately for each Application to which your Organization maintains a subscription.



To view all invoices for a particular Application, return to your Applications page by selecting the **Applications** option from the menu bar at the top of the screen. Click on the corresponding **View Invoices** icon to the right of the name of your selected Application. This will take you to an Invoice page for that Application:



Account Portal Home : Your Applications : Invoices for Super Calculator

Invoices for Super Calculator

Invoice Listing			
Date	Invoice Number	Current Status	Total Amount
 11/17/2011 5:31:52 PM	D1C7AA99-361B	Unpaid	\$600.00
 11/17/2011 4:46:48 PM	5C51F8A7-4B8E	Paid	\$200.00
 11/17/2011 4:46:48 PM	943469C6-4378	Paid	\$1500.00
 11/17/2011 4:46:47 PM	2A0CAD4D-673A	Paid	\$250.00
 11/17/2011 4:46:46 PM	C25C63CD-2475	Paid	\$1000.00



Page 1 of 1 • 5 total

 = Unpaid
  = Paid

A list of invoices for your selected Application will appear in the **Invoice Listing** table. Invoices are ordered by **Date** and are each assigned an **Invoice Number**. Each invoice is also marked by a symbol that corresponds to its current payment status of **Paid** or **Unpaid**.

Upon accessing this page you are automatically shown a list of your most recent invoices for the selected Application. To access older invoices not listed on this page, use the arrow buttons to scroll among other pages in your invoice list.

To view an individual invoice, click on the appropriate **Invoice Number** from your list. This will direct you to the

invoice you have selected:

Invoice No. D1C7AA99-361B

[Download as PDF](#)

Invoice Details

Date: 11/17/2011 5:31:52 PM	Invoice No.: D1C7AA99-361B
Application: Super Calculator	Total Amount: \$600.00
Customer: gettingmedieval	Current Status: Unpaid
Developer: Regency Software Solutions	

Line Items:

Line No.	Description	Amount
1	2 Subscriptions	\$600.00
View Subscription List		(Pending Payment) Total: \$600.00

Bank Account - Corporate Checkin - ***** 6789

Bank Account - Corporate Checkin - ***** 6789

Visa - Corporate Visa - ***** 1881

The selected payment method will only be used to pay for the current transaction. To enable automatic payments, you will need to set a default payment method in the Application Preferences page.

Payment History:

Date	Description	Status Changed To
11/17/2011 5:31:52 PM	Initial Creation.	Unpaid
11/17/2011 5:31:52 PM	This transaction will be processed manually, once physical payment has been received the transaction should be reconciled.	Unpaid

Use the **Download as PDF** link to generate a pdf. version of the invoice that can be saved or printed.

Each invoice lists relevant Date, Product and Billing information, and a line item description of all charges. At the bottom you will see a **Payment History** table that details the Initial Creation of the invoice followed by a record of all attempts made to pay it. This includes successful attempts at payment as well as those that encountered an error and could not be processed. For any invoice that has not been paid, you will see your available options to pay the invoice.

To pay an unpaid invoice with a stored Payment Method, select the Payment Method from the pulldown menu and click on the Pay Invoice button.

If no acceptable payment methods exist, you will need to return to the **Payment Methods** section of your Application Preferences page, where you can add a valid Payment Method. You can then return to the unpaid invoice, select the Payment Method and hit the **Pay Invoice button**.

Once the invoice has been successfully paid, all subscriptions that had been suspended due to lack of payment will immediately become activated.

Role and Security Management

Securables are specific functions of an Application that can be access-restricted. Your Application provider designates which functions of an Application can be access restricted; however, you can select which Users have or are denied access to these functions through the creation of Roles.

Roles and Securables can be used to limit or grant access to certain features in an Application; however, in order to launch and use an Application, a User will still need to be assigned a subscription for it.

Each **Role** that you create can be given access to any combination of Securables that you choose. This includes Securables for your subscribed Applications, as well as Securables that have been built into your Account Portal.

With the exception of the Company Administrator (who has access to all Securables for all Applications including the Account Portal), by default a User has no access to Securables until they are assigned to a Role that has been given Securable permissions.

Because you are completely free to customize which Securable permissions are assigned to which Roles, you can create a Role system in any way you choose. You may, for instance, create a Role and assign appropriate permissions corresponding to your group’s Organizational structure (e.g., “Manager,” “Sales Rep,” “Purchasing Officer,” etc.), or you may create Roles and assign permissions according to your own unique design (e.g., “Subscription Manager,” “Applications User,” “Limited Applications User”).

Once you have created Roles and assigned Securable permissions, you can then add individual Users to Roles as you deem appropriate.

Creating and Managing Roles

Select the **Roles** option from the menu bar at the top of the screen. This will take you to your Roles page:

Account Portal Home : Roles

Roles

Create a Role

Role Name: *

Description:

Organization Roles	
Role Name & Description	
Accountant Balances the books	<input type="button" value="X"/>
Administrative Role Can access Account Portal Administrative Functions	<input type="button" value="X"/>
Illustrator Creates images for documents	<input type="button" value="X"/>
Marketing	<input type="button" value="X"/>

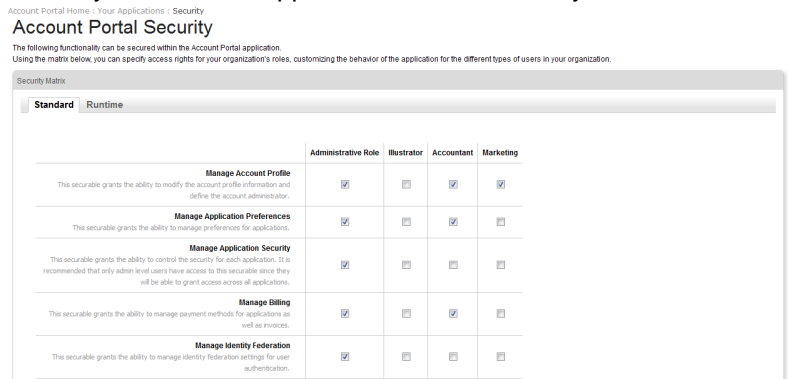
To create a new Role, complete the fields on the left side of the page:

1. Enter the name you wish to give to the Role you want to create.
2. Enter a brief description of the Role. This will appear in the list of your Organization’s Roles.
3. Click the **Create Role** button. This Role will now appear in the list of your Organization’s Roles.

To delete a Role, locate the Role you wish to delete in the list of your Organization’s current Roles that appears in the table to the right. Click on the red box containing the white “X” to the right of the Role that you wish to delete. Click “Yes” on the confirmation prompt in order to complete the process.

Assigning Securables to Roles

Return to your **Applications** page by selecting the Applications option from the menu bar at the top of the screen. Locate the Application for which you would like to assign Securable permissions, and click on the corresponding **Access Control & Security** icon to the right of the name of your selected Application. This will send you to the



In the **Security Matrix**, you will see a tab for **Standard** and **Runtime** Securables. Under each tab you will see a list of your Organization's Roles running horizontally along the top of the matrix. In the left column you will see a list of Securables for that Application. To grant a Role permission for a Securable, mark the box for that Securable underneath the corresponding Role. The Securable permission you have selected will be granted automatically to that Role.

Standard Securables will not change unless your Application Provider makes changes to your Application's code through the release of a new version of the software.

Runtime Securables are a special type of Securable built in to some—but not all—Applications. The list of Runtime Securables will change as Users access and change an Application. For instance, a version of the Application Task with enabled Runtime Securables allows certain Users to create and secure tags.

Security page for the Application Application, the Runtime Securables list in the Account Portal is updated automatically so that access to the secured tags can be restricted to certain Roles in the same way that Securable permissions for Standard Securables can be restricted.

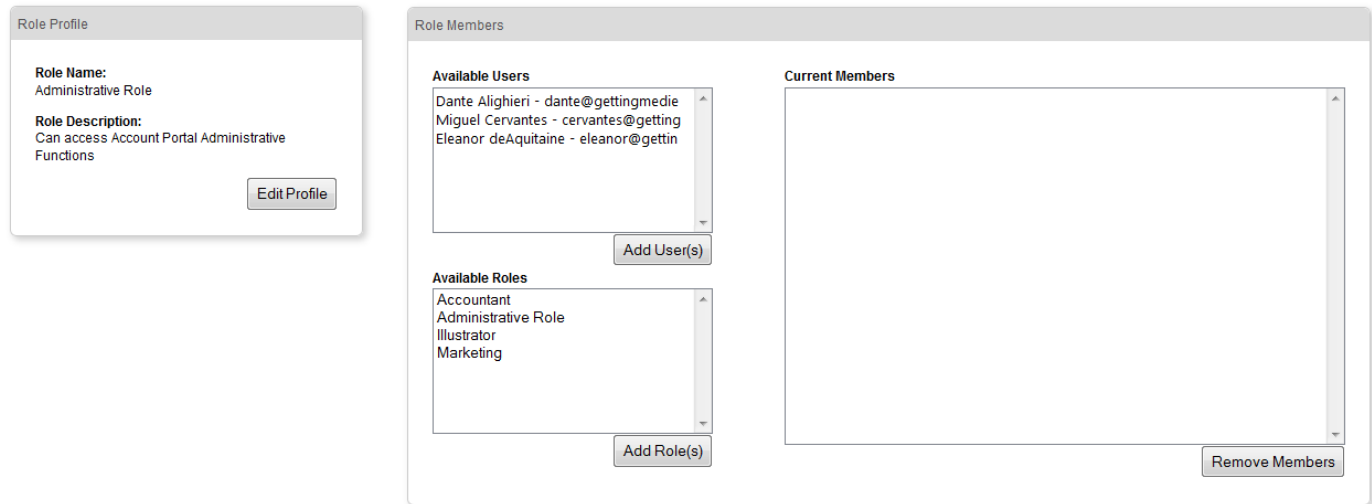
Assigning Users to Roles

Users who have not been assigned to any Role will be able to log in and view the Account Portal, and will be able to launch Applications for which they have been assigned a subscription; however, they will have no access to Securables for either the Account Portal or subscribed Applications.

From the **Roles** page, click on the name of the Role to which you would like to add Users. This will take you to the **Profile & Membership** page for that Role:

Account Portal Home : Roles : Administrative Role

Administrative Role Profile & Membership



To assign Users to the Role, select the User from the **Available Users** list, and then click on the **Add User(s)** button. The User will now appear in the **Current Members** list.

To remove a User from the Role, select the User from the **Current Members** list, and then click on the **Remove Members** button. The User will no longer appear in the Current Members list.

To make this aspect of your Account Portal more flexible, Users can be Members of more than one Role at a time, and you can even assign an entire Role to the Membership of another Role. In the case that a User is assigned to multiple Roles (or Roles assigned to other Roles), that User will be granted access to all the Securables associated with those Roles.

Account Portal Securables

Creating Administrative Users

It may prove useful to your Organization to grant Account Portal Securable permissions to select Roles so that Users other than the Account Administrator can function as Administrative Users. By default, Users have no access to Account Portal Securables until they are assigned to a Role that has been given such Securable permissions.

Tip: You can create a new Role specifically for personnel who function as Administrative Users in the Account Portal.

Please note: the Account Portal functions outlined in this manual can only be accessed by Users who have been assigned to Roles with the appropriate Account Portal Securable permissions; the only exception is the User designated as Account Administrator, who has automatic access to all Account Portal and Application Securable permissions.

To assign Account Portal Securables to a Role, navigate to your **Applications** page and click on the **Access Control & Security** icon that corresponds to the Account Portal. This will take you to the Security page for the Account Portal:

	Administrative Role	Illustrator	Accountant	Marketing
<p>Manage Account Profile</p> <p>This securable grants the ability to modify the account profile information and define the account administrator.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Manage Application Preferences</p> <p>This securable grants the ability to manage preferences for applications.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Manage Application Security</p> <p>This securable grants the ability to control the security for each application. It is recommended that only admin level users have access to this securable since they will be able to grant access across all applications.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Manage Billing</p> <p>This securable grants the ability to manage payment methods for applications as well as invoices.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Manage Identity Federation</p> <p>This securable grants the ability to manage identity federation settings for user authentication.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Manage Roles</p> <p>This securable grants the ability to add, delete and modify roles including role members.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Manage Subscriptions</p> <p>This securable grants the ability to manage the assignment and un-assignment of subscriptions.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Manage Users</p> <p>This securable grants the ability to add, delete and modify users. Additionally this securable grants the ability to modify role members.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Purchase Applications</p> <p>This securable grants the ability to purchase subscriptions for applications.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In the **Security Matrix**, you will see a list of your Organization's Roles listed along the top. In the left column you will see a list of Securables for the Account Portal. To grant a Role permission for a Securable, mark the box for that Securable underneath the corresponding Role. The Account Portal Securable permission you have selected will be automatically granted to that Role.

Non-Administrative users

Non-administrative Users are Users who are not assigned to a Role, or who are assigned to Roles with no access to Account Portal Securables.

In accordance with the needs of your Organization, you can use your Role configurations and Membership to limit Account Portal Securable permissions for a number of Users associated with your Account Account.

With the exception of the Account Administrator (who always has access to all Securables for the Account Portal and all subscribed Applications), by default Users are denied access to Securables for both the Account Portal and subscribed Applications until they are assigned to a Role that has been given Securable permissions (see above: Managing Access to Account Portal Securables). Unless you specifically assign Users to a Role with Account Portal

Securable permissions, they will function primarily as **Non-Administrative Users**.

Users who have not been assigned to any Role will be able to log in and view the Account Portal, and will be able to launch Applications for which they have been assigned a subscription; however, they will have no access to Securables for either the Account Portal or their subscribed Applications.

As Non-Administrative Users have only limited access to Account Portal functions, their view of the Account Portal is limited, although they can still use it to launch their subscribed Applications. Below is an explanation of the limited ways in which Non-Administrative Users can interact with the Account Portal, including how they can use it to launch subscribed Applications. You will also find information on how to set up alternative methods of Application access using URLs.

Account Portal Access as a Non-Administrative User

Whenever a Apprenda User is created, a subscription to the Account Portal is automatically created for and assigned to them. This means that all Users associated with your Account Account can log in to the Account Portal and access the Account Portal Dashboard; in fact, Users will automatically be directed to your Account's Account Portal Dashboard upon completing the initial password set-up process for their User Accounts. However, **Non-Administrative Users** will have only limited access to Account Portal functions.

For example, Non-Administrative Users will be able to access and see the **Account Profile** screen, but will not have the capabilities to update the Account Profile or change associated addresses. While this page will give them the name and email address for their Account Administrator, it will not allow them to change the Account Administrator.

From the **Users** page, Non-Administrative Users can view User Name and Email Address information for all Users associated with the Account Account. However, they cannot add, delete or modify Users.

From the **Applications** page, Non-Administrative Users can view all Applications associated with their Account Account by means of the Your Applications matrix. As is the case with all Users, a **Launch** icon will appear to the right of all Applications for which a Non-Administrative User has been assigned a subscription. A **No Subscription** icon will appear to the right of Applications for which the User has not been assigned a subscription.

To access a subscribed Application, all a User needs to do is click on the **Launch** icon.











Accessing Subscribed Applications

From the **Applications** page, Apprenda Users can view all Applications associated with their Organization's Account by means of the Your Applications matrix:

Account Portal Home : Your Applications

Your Applications

Your Applications

<p>Account Portal Provided by: Apprenda, Inc The Account Portal provides organizations with the ability to manage their profile, users, and roles. It also allows administrators to use those roles to customize the behavior of subscribed applications according to the structure of their organization.</p>	 Launch	 Access Control & Security	 Subscriptions & Usage	 Add Subscriptions		
<p>Super Calculator Provided by: Regency Software Solutions A super awesome calculator.</p>	 No Subscription	 Preferences	 Access Control & Security	 Subscriptions & Usage	 Add Subscriptions	 View Invoices

A **Launch** icon will appear to the right of all Applications for which a User has been assigned a subscription. A **No Subscription** icon will appear to the right of Applications for which the User has not been assigned a subscription.

To access a subscribed Application, all a User needs to do is click on the **Launch** icon.

Accessing Applications Directly

Users can always access their subscribed Applications through the Applications page of the Account Portal by clicking on the **Launch** icon to the right of the desired Application. Clicking on the Launch icon opens the Application in a new window. Users can visit the URL shown in this window directly instead of first entering the Account Portal to access the Application.

Users who access an Application by this method will be prompted to enter their Apprenda Username and password before they can access the Application, and will only be granted access if they have been assigned a subscription to that Application.

In addition to this URL, your Application **Application provider** may also provide a specific URL to access the Application. Please contact the Application provider for this URL.

Application Maintenance

On occasion your application Application provider may need to make updates or revisions to your Application. When this happens, you will be greeted with a Maintenance page when you attempt to launch your the Applications



We are sorry for the inconvenience,
your application is currently undergoing maintenance.

Please check back shortly.

Please note that during this time you will also be unable to purchase new subscriptions to the Application, and will also be prevented from amending or upgrading existing subscriptions. Your ability to perform these transactions will resume once the maintenance process is complete.

Source URL: <http://docs.apprenda.com/3-0/saas-apps>