
Parallels

Integrating Application with Parallels Automation by APS

Developer's Guide

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CHAPTER 1

Overview

The document contains description and guidelines for integration of 3rd party SaaS applications with the Parallels Automation cloud platform. The integration is based on [Application Packaging Standard \(APS\)](#) technology, with the implementation details described below.

CHAPTER 2

Integrating Application via APS

An application may be integrated with Parallels Automation (PA) in several different ways. An application represents a resource which may be combined with other resources in a pack and can be offered as single product or as a bundle of products or services. Parallels Automation uses APS technology for application delivery. It's done in two models:

- Internally hosted applications – application files and user's data are located inside of Customer's space. APS package contains application files and provisioning logic. Depending on the space, there are two alternatives:
 - Shared hosting applications – being deployed in a web space,
 - VPS hosting applications – being deployed in [Parallels Virtuozzo Containers](#).
- Externally hosted applications – application files and user's data are located outside of Customer's space, at dedicated multi-tenant application server/cluster. APS package contains provisioning logic only. The multitenant server may be located either in Internet or inside of PA infrastructure, but is not managed by PA.

When selecting the means of application delivery in APS, it's necessary to consider the overall sales model and the necessary supporting technologies. For example, Java-based applications cannot be deployed in a web space and require a dedicated container. In this case application should be packaged as internally hosted VPS one or, if the application supports multi-tenancy, as externally hosted one. [APS Questionnaire](#) may be used to decide about right packaging method.

CHAPTER 3

Declaring Application Objects

From APS point of view, an application can consist from main component and additional ones. Main component is responsible for base functionality of application, additional ones may contain some extra features. These additional components can be provided by PA separately and can be accounted and purchased by customers as application options.

Services

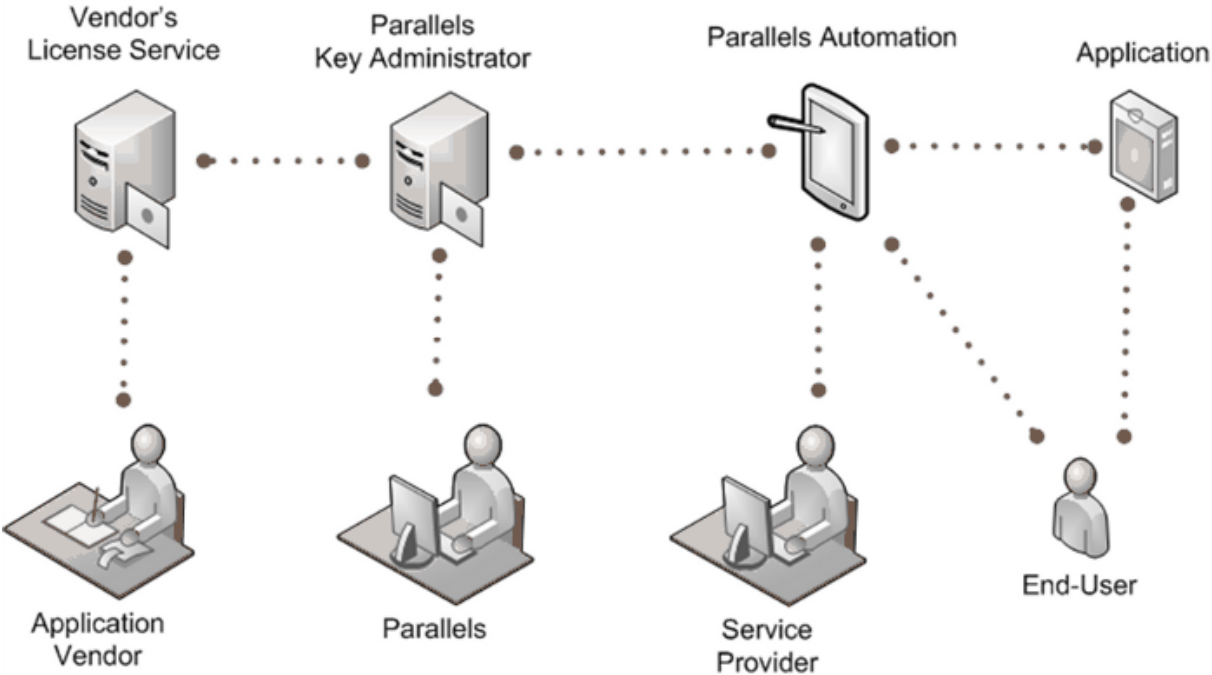
Each application component is represented by a “service” metadata object of APS. APS services represent a hierarchy which reflects logical structure of application. For example, let's consider a multi-tenant externally hosted application. The top-level application service represents a tenant. A user of the application, who is created inside of the tenant is declared as second-level service. Additionally applications may declare a number of user features (third-level services), which may be available to a user of application. More specifically, a mail application may define its components as: mail organization at top-level, user's mailbox and mail lists at second-level and protection for mailbox at third level of service hierarchy. For more details see [APS Format 1.2: Application Packaging Guide](#).

Resources

APS defines metrics for resources which are consumed by the application, such as disk space usage, number of processed requests or number of filtered emails. As direct result, customers of PA may be charged for usage of these application resources. When a customer buys an additional amount of a resource, PA will notify application, if it's declared by APS. For more information see “Resources” in [APS Specification 1.2](#).

License Keys

APS allows an application to declare license key, which will be installed in instances of the application by PA. In this case the application vendor must provide APS-compliant license service. PA automates all operations of license key delivery process, starting from issuing key at vendor's side and finishing with actual provisioning of the key into application instance of customer (see diagram below). License keys with different application features may be offered to customers in PA store. Key upgrade and downgrade procedures are also automated. For more details see [APS Format 1.2: Licensing Aspect specification](#).



CHAPTER 4

Control Panel of Customer

Application Online Store

From the customer's point of view, PA provides a web store with the provider's product offering and a control panel to manage subscriptions with applications and services which have been purchased through the store. An APS application may be presented in the store as a single product or as a part of a bundle with other products. Application product may include a different number of application components (APS services) as well as a set of allowed features (APS licenses) and consumption limits for internal resources (APS resources). All these components and limits can be purchased as a whole or as different parts, and by different prices as well. Considering the example with the mail application discussed above, a customer will be able to purchase one mail application with 10 mailboxes and 2 mail lists initially, where 4 mailboxes will have anti-spam/anti-virus protection and 6 won't have. At a later time, the customer will be able to buy additional mailboxes/mail lists as their need grows.

Application Management

PA provides a unified interface for all types of applications whether external or shared. This means that such applications are displayed and managed by customers in the same way. Once an application is paid and installed, a customer can add and remove application users, other services or switch to a different edition if such have been purchased and made available to the customer. All used and unused resources and services are displayed in the Control Panel.

Application resources and services defined in an APS package are represented in PA as resources of various types. A resource in terms of PA is the minimum sellable unit. By selling a resource you may sell an application as a whole or as a limited combination of services offered as an edition. This said, a resource in terms of APS are different from a resource in PA in a way that the former one defines a particular component of the application, while a Resource Type may be parameterized with usage limits, rates, etc. This way PA makes it unnecessary to define pricing, resource limits or any billing specifics in the APS package. Once a Package is successfully imported in PA, it automatically becomes a sales item and can be provided to customers based on the terms defined in the service plan.

Based on the number of licenses sold by the provider the fees become payable to the software vendor. PA supports two methods of license delivery and reporting:

- **Manual:** Licenses are issued by ISV and supplied to the Provider in bulk. The delivery method is agreed between the vendor and a provider and is beyond the scope of PA. This method is the fastest way to sell cloud services drawback of this option is that it works only with external applications.

- **Automated:** Licenses are issued through Parallels Key Administrator, which is integrated with PA. This option requires integration with the Key Administrator on the vendor end.

CHAPTER 5

Control Panel of Provider

Deployment of an APS application in PA by a service provider consists of two parts: preparation of hosting environment for application instances and definition of application feature sets for sale. The first part is mostly related to satisfying the technical requirements of the application. The second part is about selection of models, in which the provider wants to offer application and its components/resources to customers. The second scenario will be explored in more detail.

Application Configuration

Using PA, the provider can define configurations of application features, which will be available to customers. This is done by setting up several parameters in the application:

- APS global settings – parameters which are common for all application instances,
- Hidden settings of APS services – parameters of application components which may be purchased by customer as an option.

After definition of component parameters, provider may combine application components in multiple offers with different prices for different application features.

Considering example with the mail application discussed above, the provider may sell a single APS application as two offers: simple email and business email. Simple email will contain mailboxes without “task manager” features, while business email users will include it. Availability of the task manager will be triggered by hidden settings of the mailbox (APS service), which will be predefined by provider per offer. Customers will be able to buy simple email first, then they can choose to buy an upgrade to business email and to switch existing mailbox to new feature set – effectively it will mean reconfiguration of existing mailbox (APS service) with a different set of values in hidden settings.

It's important to note in the example above, that when buying an upgrade, the customer buys additional mailboxes, increasing total number of owned mailboxes. If it's necessary to keep the total number of mailboxes constant during such upgrade, APS metadata of the application must be different: “task manager” feature must be triggered by application child-component “task manager” (APS service) instead of hidden setting of mailbox. Thus, it's important to consider in advance, how each application feature will be sold: either as setting of application component or as its child-component.

Application Management

The provider can manage by availability of application upgrade for customers. Upgrade of application itself cannot be sold – if it's enabled it's available for all customers, but the upgrade of license keys can. Provider can change multiple application instances at once. It's done by update of a parameter (APS global setting) in application configuration, which, in turn, reconfigures all application instances bound to it.

CHAPTER 6

Control Panel of Reseller

The reseller in PA has an account, like the provider's one, but without management permissions for hosting resources. Reseller has ability to combine applications and their components/resources, which are pre-defined by provider, into different bundles and to assign different prices to them. Reseller cannot redefine application settings or feature sets.

Parallels Automation allows Reseller to hide application identity through its own brand. It's done by customization of a URL and branding parameters of externally hosted applications. Declaration of branding support may be included in APS metadata of application. To be branded, an APS global setting must belong to setting group of class "branding". To get a URL branded, the application must declare global setting for URL, having class "access_point", within the group.

CHAPTER 7

Data Embedding in Application

Parallels Automation may embed some objects, which are managed from customer's control panel, into APS applications. List of such objects includes:

- Users of customer's account (service users)
- Mailboxes of users (Linux mail hosting)
- Domains of customer
- Details of customer's account
- Trial flag of customer's subscription

Service Users

Customers in PA may have additional users with personal control panels and personal applications which they are allowed to use. These users can be created in the application of customers automatically, if it declares correspondent component (APS service with id="account"). PA performs it by filling APS service settings, which have standard APS classes, see [Settings Semantics](#). Besides standard classes, PA defines custom ones and propagates additional information about a user with them. See the appendix for more details. All users' information is synchronized between control panel and application automatically.

Mailboxes

If customer's user has a mailbox, an application may require access to it. To do it, application must declare correspondent requirement in APS metadata, see [Mail Aspect](#) for more information.

Domains

Applications may use and modify customer's domain in PA. For example, being installed on a domain, externally hosted applications may create additional DNS records, pointing to an external multi-tenant server, in the domain and propagate the domain into a correspondent tenant of the application, see [DNS Zone](#) for details. Shared and VPS hosting applications can get domain name by [URL Mapping](#) declaration. For externally hosted applications containing no URL mapping, PA defines the setting with a special class, see [Service Settings, Data Types](#) for details.

Environment

Parallels Automation may propagate information about a customer's environment, such as login, password or language, into the application. It's done through standard classes of settings. See [Service Settings, Settings Semantics](#). In addition, PA can deliver information about customer's time zone into application. It's done by setting in APS metadata with special class "tz".

Trial Subscription

PA can deliver services and applications under a trial subscription. For example, you may let users evaluate your application for one month. When the evaluation period is expired, the application will be reconfigured automatically.

To enable trial subscription for your application, you will have to add necessary settings to the application metadata (see PA-specific APS Classes) and edit the configuration script to process the trial option. Parallels Automation will automatically synchronize the application trial setting with the application.

CHAPTER 8

Next Steps

- Read [APS Format 1.2: Application Packaging Guide](#), look at examples and package your application in APS
- Consult with [Application Packaging Standard \(APS\) Format Specification v1.2](#) about specific details
- Test your application with APS-compliant control panels as described in [APS Package Certification Guide](#).
- Publish your application in [APS Catalog](#) (contact APS team to get access)
- Ask any questions to [APS Support](#).

APPENDIX A

PA-specific APS Classes

Parallels Automation supports all standard classes from

Application Packaging Standard (APS) Format Specification v1.2. The list below contains non-standard classes of settings and their groups which are specific for APS Controller implementation in Parallels Automation. Being directed by these classes, PA fills correspondent settings by appropriate data automatically.

Class	APS Metadata Object	Description
display-name	Setting	Display name of a Service User
given-name	Setting	First part of display name of service user
family-name	Setting	Second part of display name of service user
organization-name	Setting	Name of customer's organization
domain-name	Setting	Domain of application
access_point	Setting	URL for entry points building. The setting value may be overridden by branded URL of application
subscription_trial	Setting	Trial subscription flag (true or false).
subscription_id	Setting	Unique subscription ID.
tz	Setting	Time zone of customer in format of Olson database. http://en.wikipedia.org/wiki/Tz_database
email-on-application-domain	Setting	Email account. The username part is defined by the user, and the domain part is displayed as a dropdown box and initialized with domains associated with the application. select domain of the email from drop-down list of all domains associated with the application.
branding	Setting Group	Group of setting, which values may be customized in application brand.
instance-list	Setting Group	Group of setting, which values are displayed in list of service instances

PPP/PSBP-specific Classes

For applications requiring a license in Parallels Plesk Panel (PPP) and Small Business Panel (PSBP), license requirements defined in APP-META.xml should include type attribute in the following format: “urn:pla:<product-alias>:<license-version>”.

- 1 <product-alias> must be an alphanumeric string allowing dashes. Example: “parallels-plesk-panel”.
- 2 <license-version> must be a three-digit version in a dotted format, where second and third digits are optional. Examples: “9.12.6” or “9.12” or “9”.

Here is an example where this data needs to go in the full package metadata

:

```
<application ...>
  ...
  <service ...>
    ...
    <requirements ...>
      ...
      <l:license type="urn:pla:company-product:1" ...>
      ...
    </license>
    ...
  </requirements>
  ...
</service>
...
</application>
```