

# PortaSwitch



## New Features Guide

**58**

Maintenance  
Release



Documentation

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**PortaSwitch® New Features Guide, October 2016**  
**Maintenance Release 58**  
**V1.58.08**

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## Preface

PortaSwitch® Maintenance Release 58 is the next leap-forward release, consistent with our “fast releases, precisely on time” ideology.

### Where to get the latest version of this guide

The hard copy of this guide is updated upon major releases only and does not always contain the latest material on enhancements introduced between major releases. The online copy of this guide is always up-to-date and integrates the latest changes to the product. You can access the latest copy of this guide at [www.portaone.com/support/documentation/](http://www.portaone.com/support/documentation/).

## Conventions

This publication uses the following conventions:

- Commands and keywords are given in **boldface**.
- Terminal sessions, console screens, or system file names are displayed in `fixed width font`.



**Exclamation mark** draws your attention to important actions that must be taken for proper configuration.

**NOTE:** Notes contain additional information to supplement or accentuate important points in the text.



**Timesaver** means that you can save time by performing the action described here.



**Archivist** explains how the feature worked in previous releases.



**Gear** points out that this feature must be enabled on the Configuration server.

**Tips** provide information that might help you solve a problem.

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## API for Computer Telephony Integration Services

Using CTI (Computer-telephony integration) technology, users can control and monitor calls from external applications (e.g. CRM, web-based console, etc.) as if managing them from an attendant console. For example, a user can start a call from a CRM computer application and check the list of active calls for a certain group of users, etc.

With this release, the PortaSwitch® API includes a range of new methods for integrating your applications with PortaSwitch® and performing remote call control.

These methods enable a user to originate, answer, terminate a call, retrieve a list of currently established calls and subscribe to notifications about call state changes for certain customers and accounts. Together with already existing API methods (e.g. for retrieving customer information), these help build a full-grown CTI solution.

To make call control more like a real-time service, support for the remote procedure call (JSON-RPC) and WebSocket protocols has been introduced. An external application establishes a WebSocket connection to the web server and then exchanges requests and responses with it via the API.

**NOTE:** File upload / download is not yet supported.

### Configuration

By default, only administrators and reseller users have access to the call control service.

To provide access to call control service for your customers and their accounts, create a new access level for them and then define the permissions:

```
Update / Allow / Call_control / *  
Read / Allow / Call_control / *
```

CTI technology is very attractive for call centers and business offices as it significantly increases productivity. Having the ability to implement CTI with a new PortaSwitch API and suggest it as a part of a bundled solution for potential clients grants a service provider the profile of a serious player in the market.

## Support of End Points on IPv6 Networks

With this release, PortaSwitch® can correctly process calls that come to and from end points that are registered on IPv6 networks (e.g. from a user calling from an Apple mobile application). This enables you to provide services to users connected to either the IPv6 or IPv4 networks and permit them to communicate with each other, as well.

Since IPv6 hosts are not directly reachable by the IPv4 network and vice versa, technologies such as DNS64 / NAT64 are used for interactions between networks.

This is how it works:

When a IPv6-only user agent tries to reach a IPv4-only resource by their hostname, a DNS64 server creates a synthetic IPv6 address for the destination resource that the IPv6-only user agent is capable of addressing. NAT64 then translates this synthetic IPv6 address into an IPv4 address.

However, for SIP calls between IPv6-only and IPv4-only devices, not only the host address of the SIP server needs translation. A SIP message might contain IP addresses in various headers and therefore for the call to be correctly handled, they may also need to be translated.

Imagine that an end user's softphone is connected to the IPv6 network. He calls a friend whose IP phone is connected to the IPv4 network and is registered with PortaSIP® as a SIP server. PortaSIP® operates within the IPv4 network. Let's look at how to handle this call flow:

The softphone sends an INVITE request. The DNS64 / NAT64 communication routes this INVITE outside the IPv6 network to PortaSIP®. PortaSIP® analyzes the INVITE content and detects that the request comes from an IPv6 network. It then modifies all the necessary headers of the SIP message, adding information as needed to ensure the correct processing of SIP dialog and media streaming messages that follow.

This PortaSwitch® feature helps service providers keep up with the ongoing slow but steady Internet transition to the IPv6 network. It also gives application developers an opportunity to use PortaSIP®'s capabilities with their applications and publish them, too, on the biggest application markets.

# Unified Tax Calculation Using Taxation Plug-Ins

Starting with this release, PortaBilling® calculates all taxes uniformly by using taxation plug-ins. When you configure a **Fixed VAT rate** and **Custom taxation** plug-ins for a customer class, you are instructing PortaBilling® how to calculate and apply taxes to your customers: as either included or excluded in the rates.

The screenshot shows the 'Edit Customer Class' interface for 'Easy Call Ltd.'. The 'Taxation' tab is active, and the 'Taxes included into rates/fees' option is selected as 'Yes'. Other options include 'Assess taxes' (At the end of billing period for prepaid and postpaid customers) and 'Exempt From Tax'. The VAT percentage is set to 20%.

When taxes are included in your rates, PortaBilling® back-calculates them at the end of the billing period from the total amounts in the customer xDRs and they are clearly presented on the invoices. This works for both prepaid and postpaid customers, thereby unifying their tax calculations.

For backward compatibility, the **Tax Included in the Rate** option is preserved for existing customers' taxes. However, for proper tax processing, it is recommended that taxes be calculated and included in the rates using the **Custom taxation** or **Fixed VAT rate** taxation plug-ins.

## Unified invoice templates

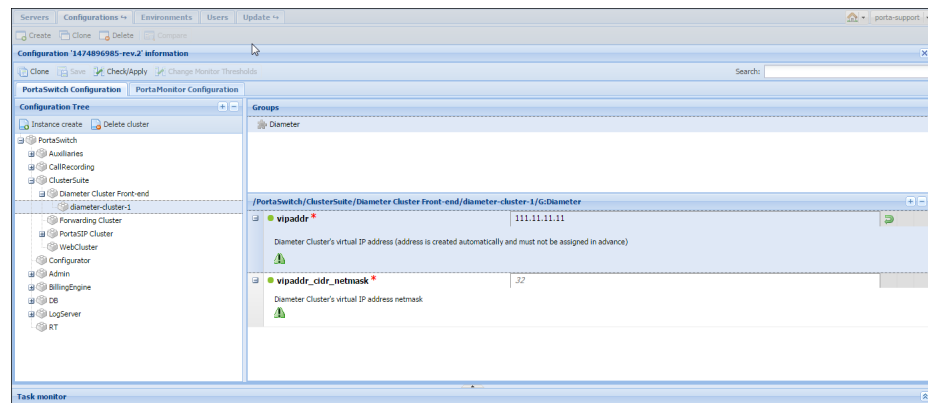
Since taxes are configured by customer classes, it is no longer necessary to define the taxation method for an invoice template. As a result, invoice templates are unified and apply to all taxation plug-ins. Previously configured invoice templates are preserved for backward compatibility for information purposes and are available as read-only.

This introduction of unified invoice templates makes invoicing configurations transparent and simplifies customer management.

## A Single Entry Point for a Diameter Cluster

The Diameter server acts as an entry point in the communication between PortaBilling® and 3G, 4G, LTE and IMS networks. To optimize PortaBilling®'s configuration as an online charging system for these networks, the PortaSwitch® Diameter cluster now offers an entry point for every site via a single virtual IP address.

Only this virtual IP address must be specified on a SAE-GW. Thus, if there are issues with the server (e.g. equipment error) that currently processes Diameter requests, the IP address is switched to another server within the cluster. Thereby uninterrupted operation is ensured.



This approach of there being only one single IP address per cluster provides an opportunity to add new servers to the cluster without needing to reconfigure the SAE-GW.

This enhancement significantly facilitates system support.

## Balance Control for Customers Billed Externally

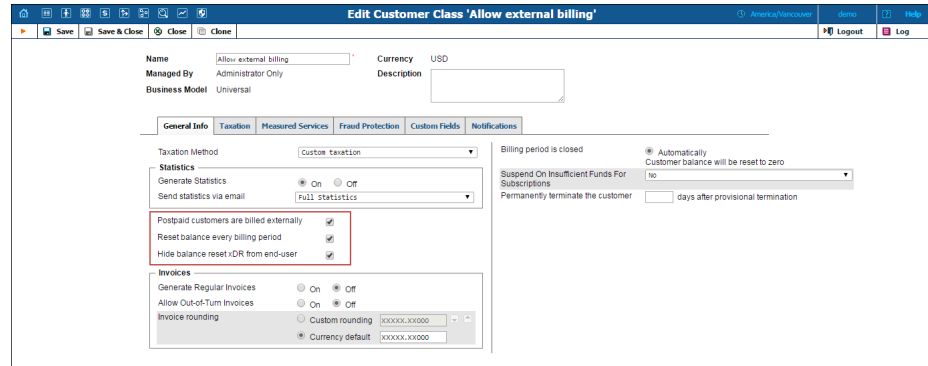
Beginning with this release, service providers can maintain an actual balance for customers billed via external systems (i.e. when invoices are issued and processed via an external system).

This allows service providers to protect customers from fraud and unauthorized expenses by utilizing the credit limit tool. This tool restricts the amount of money that a customer can spend on services per billing period and suspends customer services when the credit limit is reached.

The administrator configures the following options for a customer class:



- **Postpaid customers are billed externally** – This marks customers assigned with this customer class as being billed via an external system.
- **Reset balance every billing period** – This resets the customer balance to zero by applying the manual credit transaction at the end of the billing period.
- **Hide balance reset xDR from end-user** – This defines whether or not to hide the reset balance transaction on the customer self-care interface.

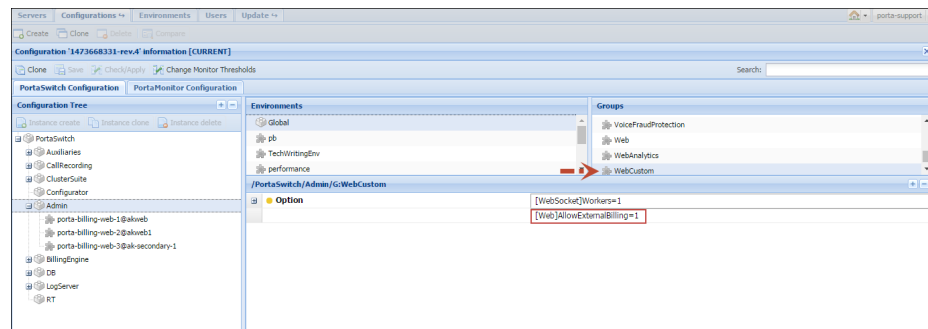


The administrator assigns this customer class to customers who are billed via an external system. At the end of the billing period, their balance is automatically reset to zero.

**NOTE:** An automatic balance reset is only available for postpaid customers.



To enable this functionality, the administrator adds the `[Web]AllowExternalBilling=1` option for the **WebCustom** group on the Configuration server.



This allows service providers to use the credit limit tool for those of their customers who are billed via external systems, thereby protecting them from fraud and / or unauthorized expenses.

## Waiving the Subscription Fee when no Service Was Provided

With this release, service providers can choose whether to apply subscription charges for periods when their customers do not have access to services.

For example, customer John Doe is provided Internet service on a subscription-based model. The service provider decides not to charge John Doe for those periods when he does not have access to the service.

An administrator enables the **Waive the charges for the days when no service was provided** option for John Doe's subscription.

The screenshot shows the 'Add Subscription Plan' form. The 'Subscription Charges Applied' section has three radio buttons: 'At the end of the billing period' (selected), 'In advance', and 'Progressively'. A checkbox labeled 'Waive the charges for the days when no service was provided' is checked. Below this, there are fields for 'Can be applied more than once', 'Round Charged Amount', and 'Description'. The 'Description' field contains the text: 'To charge residential customers for Internet access.'

On September 15<sup>th</sup>, John Doe reaches his credit limit and therefore cannot use the services until he tops up his balance. But due to financial problems, John Doe tops up his balance on October 1<sup>st</sup>, so subscription charges for the period of September 15<sup>th</sup> – September 30<sup>th</sup> are not applied.

With the **Waive the charges for the days when no service was provided** option selected, subscription charges are withheld for the periods when:

- A customer is suspended because of an overdue invoice.
- A customer or an individual account has reached the credit limit.
- A customer or an individual account has no available funds.
- A customer or an individual account is administratively blocked.
- An account is expired.

This approach increases overall customer satisfaction and encourages customers to continue using your services.

## Support of Payarena Payment Processor

PortaBilling® is now integrated with Payarena, the payment system in Nigeria. This allows Nigerian service providers to offer their customers extensive possibilities for payment operations plus manage their e-commerce payments in PortaBilling®.

The payment flow is similar to that of other external payment processors. When a customer initiates a payment from their self-care interface, they are redirected to the Payarena portal to provide their credit card information and confirm the payment. Upon payment processing the customer is redirected back to the self-care interface where they see their payment status and newly modified balance.

Integration with Payarena enables ITSPs to launch e-payments processing almost immediately while ensuring their security, since all credit card information is stored and handled by Payarena.

## Customized Auto-provisioning of the AudioCodes Mobile Application

Using the AudioCodes mobile application, service providers can offer their customers a wide range of services: voice and video calls, SMSs, Internet access, etc. With this release, service providers can fine-tune the application's configuration for individual customers who belong to different business models and then automatically provision it to them.

AudioCodes profiles determine which services to deliver to which customers within the applications. Each profile comprises a set of services and application settings defined for a particular customer. Customers who share the same business model or have similar profiles are also identified within the AudioCodes' CMMS by either the service provider's or reseller's company domain name. These can be used for statistics purposes.

By configuring additional parameters in PortaBilling® such as domain and profile name and then passing them to the CMMS in the provisioning request, service providers gain advanced control over services available for a customer within the mobile application.

Consider the following example:

You provide services to your customers under your domain name *mycompany.com*.

John Doe is one of your residential customers whose service bundle includes domestic calls and SMSs. EasyCall Ltd. is one of your IP Centrex customers whose service bundle includes voice and video calls and conferencing services.

You want to auto-provision the customized AudioCodes mobile application to both of them. To do this, configure two different AudioCodes profiles: “Residential” and “Business.” In PortaBilling®, assign them to John Doe and EasyCall Ltd., respectively, as custom fields. Then, after PortaBilling® provisions the CMMS, the customers’ applications are provisioned with specific settings that improve their usage experience.

To customize the AudioCodes mobile application auto-provisioning, do the following:

- Configure the custom fields *profileName* and *domain*
- Assign them to the requisite customer class
- Specify the custom fields’ values for a particular customer on the **Edit Customer** page.

This enhanced auto-provisioning functionality facilitates service provisioning for different types of customers and improves overall experience with the product.

## Other Features and Enhancements

- **New version of the Oracle Grid Infrastructure** – Beginning with this release, the Oracle Real Application Cluster (RAC) servers are deployed using Oracle Grid Infrastructure version 12c.

Oracle Grid Infrastructure is part of the Oracle Real Application Clusters (RAC) software suite. Oracle Grid Infrastructure allows independent servers to be clustered so that they cooperate as a single system. If a clustered server fails, the Oracle database continues to run on the remaining servers.

The usage of Oracle Grid Infrastructure version 12c solves an incompatibility issue with Oracle Enterprise Linux version 7.2, allowing the use of Oracle Enterprise Linux version 7.2 for Oracle RAC servers.

**NOTE:** Oracle Database version 11g (a product for database development and administration) is still used for Oracle RAC servers’ deployment. Support for Oracle Database version 12c is planned for subsequent releases.

- **New version of MySQL database** – Starting with this release, the MySQL database has been upgraded to the latest 5.7 version. Besides enhancing stability, this version includes the following modifications:
  - The online DDL (Data Definition Language) enhancements improve many DDL operations that formerly required a table copy, blocked DML operations on the table, or both. This results in a decrease in service downtime during software upgrades.
  - MySQL now includes the SYS Schema, a set of objects that help database administrators and developers interpret data collected by the Performance Schema. This assists them in performing typical tuning and diagnosis of use cases.
  - The MySQL Optimizer accuracy improvements lead to better execution plans which then ensure better query performance.

For more detailed information about MySQL, refer to the [MySQL web site](#).

- **New language support** – The PortaSIP® Media server now fully supports the Dutch language for IVR applications.
- **Updated Spanish version of PortaBilling®** – The Spanish versions of the PortaBilling® administrator web interface and self-care portals now include all of the latest functionalities and changes. This facilitates PortaBilling® operations for Spanish-speaking service providers and their customers and improves their overall experience.
- **Applying unallocated payments to out-of-turn invoices** – Now if a customer has unallocated payments – payments made in advance – they are automatically applied to pay off the customer’s out-of-turn invoices (in a similar way as for regular invoices).

The screenshot displays a web interface for an invoice titled "John Doe Invoice On Demand". The interface includes a navigation bar with tabs for "Invoice Type", "Fees", "Summary", "Payment", and "Invoice". The "Summary" tab is active, showing a balance due of 0.00 USD. The invoice date is 2016-09-23, and the payment terms are "Due upon receipt". The summary table shows charges of 10 USD, credits of 0 USD, and payments of 10 USD, resulting in a total of 0 USD. The interface also includes a "Close" button, a "Logout" button, and "Back", "Next", and "Cancel" buttons at the bottom.

Balance Due	0.00 USD	Invoice Date	2016-09-23
Charges:	10 USD	Payment Terms	Due upon receipt
Credits:	0 USD	<input checked="" type="radio"/> Due on 2016-09-23 (As defined by the Customer Class)	
Payments:	10 USD	<input type="radio"/> Due:	<input type="text"/>
Total:	0 USD	<input type="radio"/> Custom:	<input type="text"/>

This reduces the number of delayed payments for out-of-turn invoices and thereby speeds up cash flow.

- **Reverse top-up for service wallets** – In some cases, you may need to reverse a service wallet top-up made by your customer (e.g. the customer topped up an incorrect amount or changed their mind and wants a refund). To do this, simply reverse the top-up xDR.

To reverse the top-up xDRs for a service wallet, the service wallet balance must be equal to or higher than the top-up amount you reverse.

After the xDR reverse, the top-up amount is refunded to the customer's main balance and the service wallet counters are adjusted accordingly.

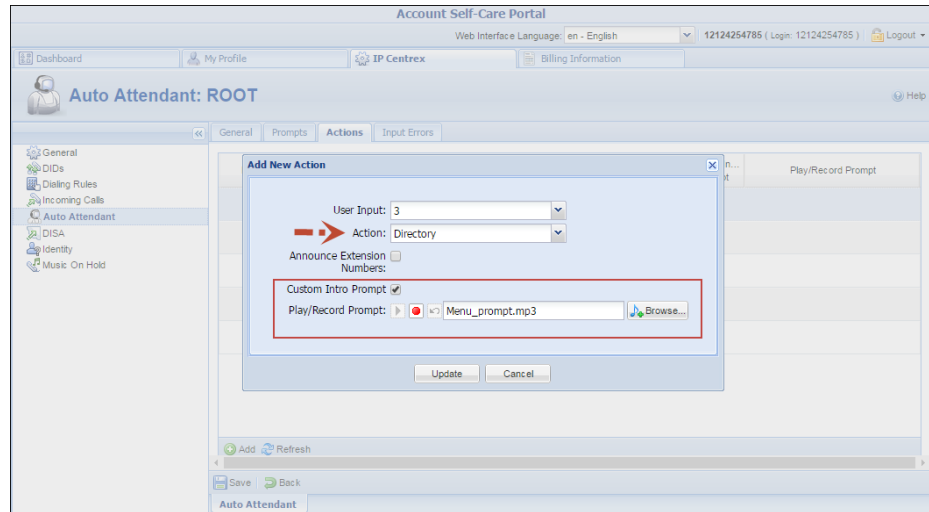
**NOTE:** If the customer topped up their service wallet by credit card, the refund is applied to the customer's main balance.

This enhancement improves customer experience and facilitates troubleshooting.

- **Custom prompt for the dial-by-name directory** – End users can now replace a default dial-by-name directory's voice prompt (which prompts a caller to enter the three first letters of the called party's surname) with a custom voice prompt.

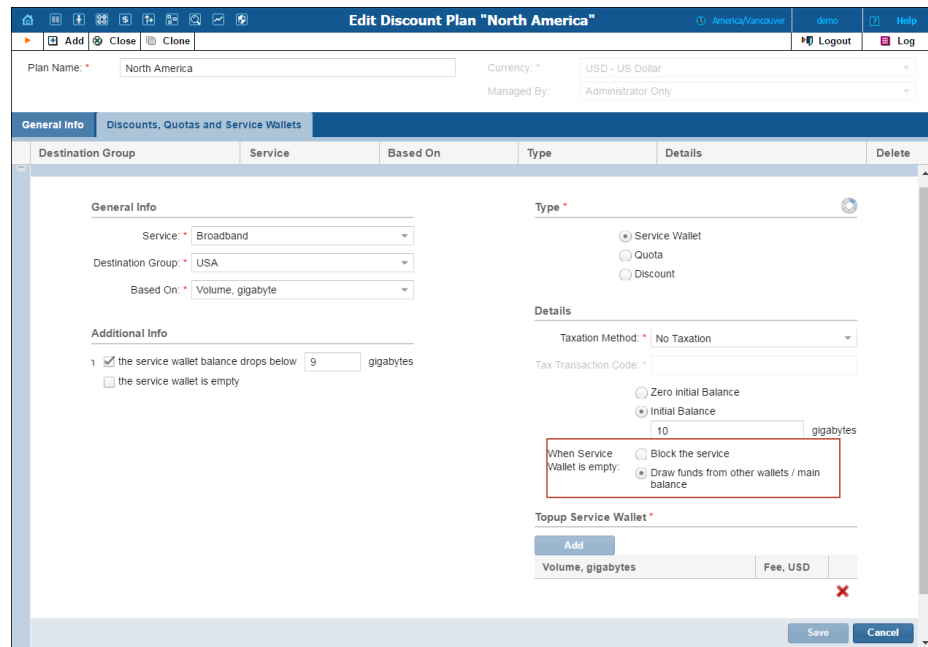
The dial-by-name directory is an auto attendant feature that allows callers to reach a specific person by dialing the first three letters of their surname instead of an extension number. Standard phone mapping is used, i.e. 2 is ABC, 3 is DEF, etc.

End users can record or upload custom prompts for the dial-by-name directory on their self-care interfaces.



This allows end users to customize the voice prompts for the dial-by-name directory exactly as they like, thereby improving their experience with auto attendant features.

- **Service restrictions for service wallets** – Now you can fine-tune service provisioning for possible situations like when a customer’s service wallet for accessing the Internet is empty. For this situation, configure the system to:
  - block service until the customer tops up their service wallet or
  - continue to provide service but draw the funds from other applicable service wallets or from the customer’s main balance.

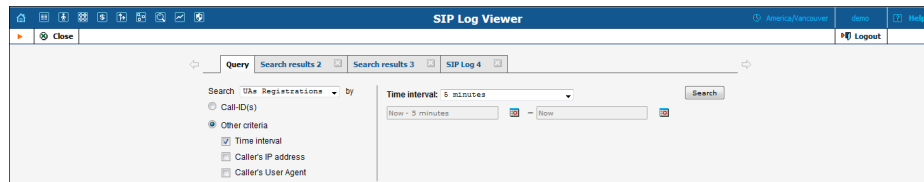


This enhancement allows you to clearly define the system’s behavior and also facilitates service provisioning.

- **Measured services charges display on invoices** – Charges for measured services are now shown as a separate group on customer invoices. Therefore, a customer can clearly differentiate among the different types of charges incurred within a billing period and view descriptions of them as well.

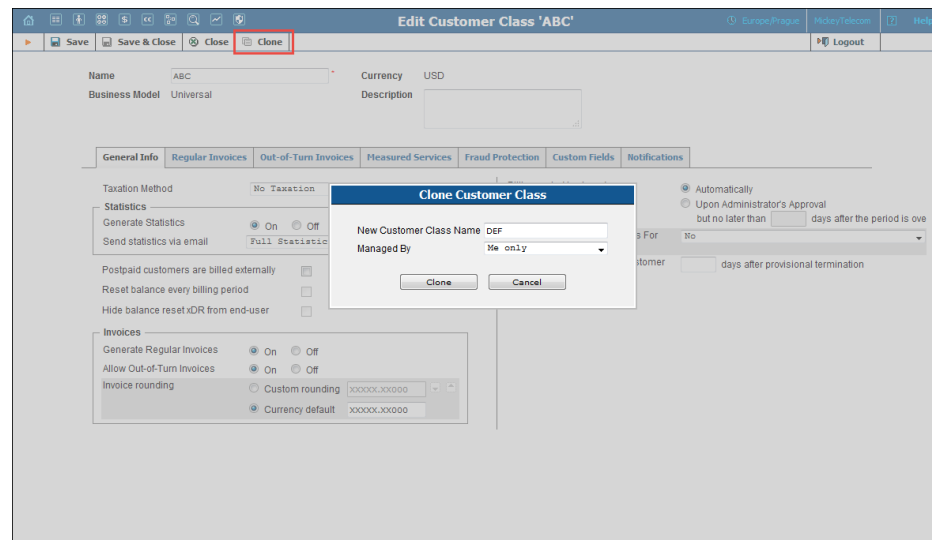
<b>Taxes</b>					
	VAT	15%	19-09-16	30-09-16	285.80
<b>TOTAL Taxes</b>					<b>285.80</b>
<b>Measured Services</b>					
	Number of active calls	ACTIVECALLS	19-09-16		1905.31
<b>TOTAL Measured Services</b>					<b>1905.31</b>

- **Tracking registration attempts** – With this release, you can browse SIP device registration attempts on the **SIP Log Viewer** page. This enhancement significantly improves the troubleshooting process and reduces the time it takes to isolate and fix an issue.



- **Cloning of Customer Class by Administrators and Resellers** – Now, instead of configuring customer classes from scratch, administrators and resellers can clone existing ones. They can also define if the cloned customer class is managed by them or their resellers.





For example:

An administrator creates customer class ABC for his MickyTelecom reseller. MickyTelecom wants to adjust the payment collection parameters for his customers, therefore on the **Edit Customer Class** page, he clicks **Clone**, enters the new customer class name, DEF, which is managed by him, adjusts the requisite parameters and then applies this customer class to his customers.

This enhancement significantly improves customer management.

- **API for SIM card management** – The PortaBilling® API has been extended and now permits administrators and resellers to manage their SIM card inventory from their applications. Thus, the following methods have been implemented:
  - *get\_card\_info* and *get\_card\_list* methods are used to receive information about a particular SIM card or a defined number of SIM cards;
  - *assign\_sim\_card* and *release\_sim\_card* methods are used to access the SIM card inventory and associate a SIM card with a particular account.
- **Upload SIM cards with 20-digit ICCIDs** – Now, MVNOs and LTE service providers are able to upload SIM cards with 20-digit ICCIDs and associate them with an end users' phone numbers. This enhancement expands the amount available for provisioning SIM cards and therefore makes their management easy.
- **Porter enhancements** – As of this release, the data transfer tool, Porter, allows you to perform the following actions:

- Transfer all entities of a defined type. Now, you can export all customers, vendors, tariffs or products that are present in the source billing environment and then import them to the target environment. Note that when exporting these customers, you also export all of their resellers, callshop resellers and distributors from the source environment.

Since the export of all entities is a resource- and time-consuming process, you will be prompted to confirm the action by manually typing the predefined

`I_really_want_to_export_all_of_these_objects` key.

- Transfer custom access levels separately or as part of the customer and / or account configuration.
- Transfer customers with auto-payments configured.
- Transfer customers and accounts preserving their volume discount plan counters, call barring rules and call screening filters.

These enhancements optimize the data transfer process and help reduce the administrative load.

## Web Interface Changes

- **Browse available add-on products within the main product configuration** – Now administrators and resellers can easily check the list of add-on products that are available for a particular main product. All they need to do is open the **Edit Product** page and find the **Available Add-Ons** tab. If necessary, they can disallow an add-on for use with this product by simply removing it from the list.

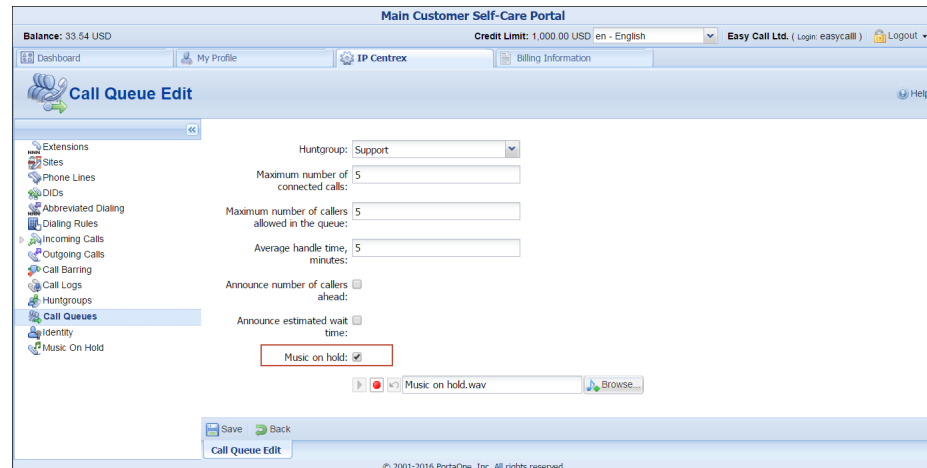
The screenshot shows the 'Edit Product' page for 'Hosted IP PBX'. The top navigation bar includes 'Save', 'Save & Close', 'Close', 'Rate Lookup', and 'Clone'. The main form contains fields for Product Name, Product Name visible to End User, Account Role, Currency, Managed By, and Product Type. Below the form is a tabbed interface with 'Available Add-Ons' selected. The table below shows the following data:

Name ↑	Precedence	Account Role	Realm	Description	Periodic Fee	Remove
Hosted IP PBX (PINLess)	Low	PINLess	ani			✖

This enhancement simplifies product management for administrators and resellers.

- **CPE auto-provisioning option has been added to Quick Forms** – Beginning with this release, you can configure CPE auto-provisioning options for account creation in Quick Forms. This enhancement simplifies customer management and saves the administrator's time.

- **Extended configuration of music on hold for call queues** – The Music on hold checkbox allows you to enable, disable or remove music on hold for call queues. Therefore, you can customize the call queue configuration depending on your business model.

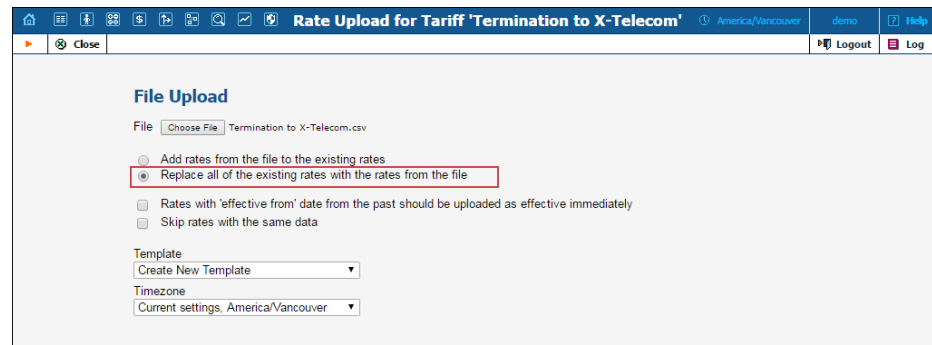


## Important Upgrade Notes

- **Individual routing plan configuration by resellers** – A reseller can now configure individual routing plans for their customers but only if the administrator has configured the list of routing plans assigned to the corresponding tariffs for their products. The reseller can then define an individual routing plan for an account and the account will be charged according to the default tariff for routing plans. The reseller can also disable the account's individual routing plan that was predefined by the administrator. However, they cannot select another routing plan if the account's product does not have a list of configured routing plans.

This enhancement unifies routing configuration logic and protects service providers from revenue leakage.

- **Replace mode operation in the Rate Upload wizard has been changed** – The replace mode is often used when service providers need to upload new rates and replace existing ones with rates from the uploaded files.



Beginning with this release, the Replace mode in the **Rate Upload** wizard operates as follows:

- It adds all the rates having new destinations from the uploaded file.
- If a rate for a certain destination is present in the tariff and the uploaded file and its **Effective From** date is past, the rate is discontinued.
- If a rate for a certain destination is present in the tariff and the uploaded file and its **Effective From** date is in the future, the tariff rate is replaced with the rate from the file. The **Effective From** date is then updated in accordance with the new rate.
- If a rate for a certain destination is present in the tariff but not in the uploaded file, the rate is discontinued.

This makes the rate upload procedure more convenient for the service providers' needs.

- **Unified invoice templates** – Since taxes are configured by customer classes, it is no longer necessary to define the taxation method for an invoice template. As a result, invoice templates are unified and apply to all taxation plug-ins. Previously configured invoice templates are preserved for backward compatibility for information purposes and are available as read-only.

This introduction of unified invoice templates makes invoicing configurations transparent and simplifies customer management.