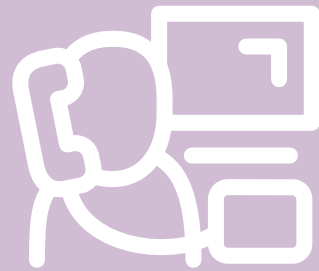


PortaSwitch



New Features Guide

59

Maintenance
Release



Documentation

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Please address your comments and suggestions to: Sales Department,
PortaOne, Inc. Suite #408, 2963 Glen Drive, Coquitlam BC V3B 2P7
Canada.

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Preface

PortaSwitch® Maintenance Release 59 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/.

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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Service Wallets with a Lifetime

One popular business model is to offer service provisioning for a certain period of time. This way, service providers encourage customers to make frequent top-ups so they can keep using the service.

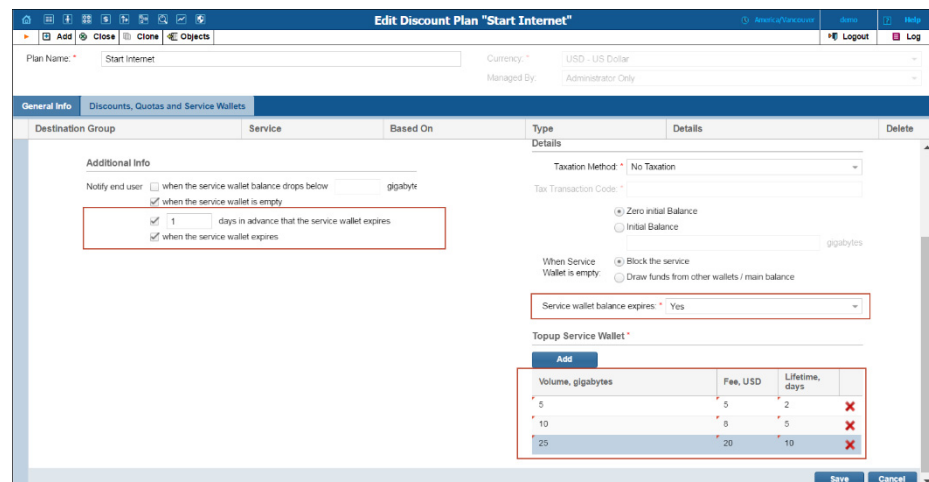
Now with PortaBilling®, you can introduce this business strategy by using service wallets that have a lifetime. Each top-up extends a service wallet's lifetime. Once a user makes a top-up, they can use the service for the period defined (i.e. the lifetime), after which it expires. Thus, the more a user tops up, the longer they can use the service. Note that service wallets that have an initial balance defined do not have an initial expiration date (i.e. the initial balance can be used unrestrictedly). The service wallet obtains its lifetime from its top-up).

If a user tops up a service wallet before it expires and there is an unused quota / balance, it is added to the top-up quota / balance. The service wallet lifetime, however, is not added: if the top-up lifetime is for less time than the current one, the service wallet lifetime is not extended.

Consider the following example:

You are the Internet service provider and offer the following top-up options with your Start Internet service wallet:

- 5 Gb for \$5 and a lifetime of 2 days
- 10 Gb for \$8 and a lifetime of 5 days
- 25 Gb for \$20 and a lifetime of 10 days



John Doe has signed up for the Start Internet product and makes a \$5 top up. He sees that he has a 5 Gb Internet quota that is available for 2 days. During the day, he uses 4 Gb, so he needs to make another top up to continue surfing the Internet. He makes an \$8 top up and now he has an

Internet quota of 11Gb (by adding the unused 1 Gb from the previous top up plus the new top up for 10 Gb) which is available for 5 days. If John Doe does not make another top up in 5 days, he will receive a notification about his quota expiration.

Note that if you grant a user some Internet quota (e.g. either as a promotion or compensation for quality issues), it will not affect the service wallet lifetime. Thus, if you provide John Doe with 1 Gb extra, his increased 12 Gb quota will still expire in 5 days.

By offering service wallets with different lifetimes, service providers can introduce marketing campaigns that facilitate service provisioning and boost sales.

Real-Time Notification about Volume Discount Plan Usage

It is essential for each ITSP to control service usage by their customers. When a customer exhausts their service wallet, exceeds their quota or switches to another discount, they must be immediately notified.

With this release, real-time notification for volume discount plan usage has been introduced. As soon as the OCS detects that the amount of the allocated quota or service wallet balance has crossed the defined threshold, it sends a notification to the customer either by email or SMS. Of course, user notification must be enabled for the volume discount plan.

In future releases, customers will be notified in real-time when they approach the volume discount plan threshold.

Thus, real-time notification gives MVNOs advanced control over their customers' service usage and facilitates both customer management and service provisioning.

Integration with Qualution

Qualution is the OSS (Operation Support System) used by some North American MVNOs to manage service provisioning on the MVNE side (e.g. they may use it for SIM card management and the like). It operates as middleware between PortaBilling® and the mobile network.

PortaBilling® is integrated with Qualution via API and performs real-time management of users' volume discount plan usage. As soon as an

MVNO subscriber exceeds their allocated quota, PortaBilling® sends a notification to Qualution via the API.

If several volume discount plans apply to the same service and destination group, PortaBilling® will send notification to Qualution only after the last one is used up (e.g. if a user has a quota of 100 domestic SMS and another quota for 50 domestic SMS, the notification will be sent immediately after the user sends 150 SMS).

Thereby MVNOs achieve online control over their customers' service usage even if they operate without real-time user authorization.

Tracing Unwelcome Calls

In Canada and other countries, there is a legal requirement for CLECs (Competitive Local Exchange Carriers) to provide their subscribers with the Call Trace service.

(<http://www.crtc.gc.ca/eng/archive/2006/dt2006-52.htm#s10>)

The Call Trace service permits end users to request a trace for threatening, harassing or obscene phone calls in the event that they want to initiate an official investigation. Beginning with this release, PortaSwitch® fully supports this functionality.

To initiate a call trace, an end user hangs up to end the call. Then they dial the Call Trace IVR access number and follow the voice-recorded instructions. The Call Trace IVR application marks the last incoming call attempt received by the end user as “traced.”

NOTE: Only the last incoming call attempt can be traced. That is why it is important to dial the Call Trace IVR application immediately after a harassing call.

The SIP log for the traced call is then copied to a dedicated part of the database where it is stored for a preconfigured period of time. Upon request, an administrator retrieves this SIP log and provides it to law enforcement officials.

The screenshot shows a web-based configuration interface for an IVR application named 'Call tracing'. The interface includes a header with navigation icons, a title bar, and a toolbar with buttons for Save, Save & Close, Close, and Reset to Default. The main content area displays the application details and settings.

Option	Value
Trace Without Confirmation	<input checked="" type="checkbox"/>
Traceable Calls Lifetime, days	30

For example, end user John Doe receives a call from an anonymous caller. The caller says obscene things and makes threats to him. John Doe hangs up and immediately dials the Call Trace IVR access number. Depending on the Call Trace IVR configuration settings, John either is asked to press 1 to trace the call or immediately hears a recorded message informing him whether or not the trace was successful. Once John Doe has a successful call trace, he can contact a law enforcement agency and ask them to investigate the case.

An administrator uses the logs-extractor.pl utility to retrieve a SIP log for the traced call. They specify the account ID the call was addressed to and the billing environment ID to which the account belongs. To help narrow the search, the administrator can also indicate the time period during which the harassment call was received. The details of the trace are only revealed to law enforcement officials.

PortaSwitch® can trace the last incoming call regardless of whether or not it was answered. Therefore, even if the caller hangs up before the end user picks up the phone, a call trace is still possible. The steps necessary for initiating a call trace are the same as for when a call is answered.

Service providers can offer the Call Trace service free of charge or assign a charge to it – either on a subscription basis or on a per call trace request. To do this, an administrator needs to configure a price for the UMTRACE destination in the customer tariff.

Edit	Destination *	Country	Description	Interval, seconds *		Price, USD/minute *		Effective From YYYY-MM-DD HH:MM:SS	Delete
				First	Next	First	Next		
	1	CANADA		1		0.05		2016-11-07 05:51:26	
	UMTRACE	Not Applicable	To charge end users for call trace requests	1		0.5		2016-11-07 05:50:19	
	VOICEONNETRX	Not Applicable	Calls within the same IP Centrex	1		0		2016-06-27 00:05:34	

With Call Trace functionality, service providers can help their customers identify a harassing caller and provide a law enforcement agency with evidence against the harassing caller.

Integration with Telebreeze IPTV Platform

With this release, the list of supported IPTV platforms has been increased to include the Telebreeze platform (<https://telebreeze.com/>). The interoperation between PortaBilling® and Telebreeze enables you to:

- Define various channel packages in Telebreeze and bundle them into products for your customers. As soon as you create an account in PortaBilling® and assign a product that includes the IPTV service, the customer is created in Telebreeze and a corresponding channel package activated for them.
- Configure a variety of channel packages and manage customer service configurations using add-on products.
- Charge recurring fees to customers for IPTV channel packages via subscriptions.
- Manage customer information and service availability using the PortaBilling® web interface. Any changes in customer information are provisioned to Telebreeze. Customer services remain available as long as there are sufficient funds to cover them or their product configuration includes the IPTV service. If a customer is terminated in PortaBilling®, their record in Telebreeze is also deleted.

Integration with yet another IPTV platform expands your IPTV provisioning capabilities and enables you to provide full-scale triple-play services to customers.

DID Exchange among Service Providers

To grow the DID provisioning network, you can now grant access to your DID inventory to other ITSPs – DID buyers – via the API, and allow them to provision DID numbers from you on-demand. This enables you to become a global DID supplier and introduces wholesale DID trade.

This is how it works:

On-demand DID provisioning for DID buyers is done via the DID provisioning interface, using the API. You configure the DIDPool server – client communication on the Configuration server, and then define the access to your DID inventory using the credentials of your DID provisioning customer. This customer will accumulate charges for all DID numbers provisioned from your system, therefore they must have the DID pricing batch assigned.

Your DID buyers consequently define you as their external DID vendor and thereby configure on-demand DID provisioning in their systems. Thus, your PortaSwitch® operates as the DIDPool server while their systems function as DIDPool clients.

Of course, the routing among your systems must also be configured.

As before, the DID management itself is done within the DID inventory. When your DID buyer's customer provisions a number from the DID pool, the following occurs:

- The DID number in the DIDPool server system is assigned to your DID provisioning customer and acquires In Use status within the DID inventory.
- The DID number appears in the DIDPool client system as being assigned to that customer.

The charges for DID provisioning and usage are calculated in both the DIDPool server and DIDPool client systems as follows:

- The DID provisioning customer in the DIDPool server system is charged according to the DID pricing batch assigned to them.
- The customer in the DIDPool client system is charged for DID number usage according to the markup defined in their DID pricing batch.
- If a DID number is no longer required, it is released from the customer and returned back to your DID pool.

Consider the following example:

The service provider, EasyCall, owns a pool of 10 million DID numbers. SmartNet is another service provider who exchanges voice traffic with EasyCall. SmartNet wants to introduce residential VoIP services to their system and thus requires DID numbers.

EasyCall allows SmartNet to provision DIDs from them via their customer DID Distribution. To do this, EasyCall configures the DIDPool server and provides SmartNet with DID Distribution's credentials.

SmartNet sets up DID provisioning in their system and provisions DID Distribution as the external DID provider. Now they can allocate DID numbers from EasyCall like they can from any other external provider.

Thus, the ability to distribute DID numbers to other service providers and charge for their usage extends your clientele and provides vast opportunities for wholesale DID trade.

Distributing DID Numbers Across Billing Environments

If you provide hosting services to your customers (i.e. a customer operates in a separate billing environment), you can distribute the pool of DIDs across your own billing environments and allow customers to provision them on-demand. When a call is made to the DID number, PortaSwitch® detects the billing environment where it is provisioned to the account, and delivers the call to the callee.

PortaSIP® Forwarding server

Billing environment detection is performed by the PortaSIP® Forwarding server. This is a high-level inter-cluster proxy that presents a single point of entry to your network and performs the following functions:

- accepts all incoming call requests;
- matches the destination number from a call request against DID numbers from the DID number database;
- finds the billing environment that the matched DID number belongs to; and
- redirects the call request to the respective PortaSIP for further processing.

Since the PortaSIP® Forwarding server only mediates initial call initiation requests, incoming call traffic processing of up to 1000 CPS is ensured. For high-availability, the PortaSIP® Forwarding server can be scaled up into the PortaSIP® Forwarding cluster.

Deployment recommendation:

For normal operation, it is recommended that PortaSIP® Forwarding server be deployed on a separate physical server located at a separate site. For testing purposes, however, you can deploy it on one of your SIP servers within the existing site. In either type of deployment, assign the virtual IP address to the PortaSIP® Forwarding server as the visible point of entry to your network.

Number Porting

The Neustar number porting interface has been adjusted to properly process number porting requests for DID numbers distributed across billing environments. Thus, when PortaBilling® receives a port out request for a number from Neustar, it looks for the billing environment that the account with the requested number belongs to and routes the request there. If the account ID is the DID number from the shared DID pool, PortaBilling® terminates that account and releases the DID number back to the pool. This DID number can later be re-used for another account via a port-in request from Neustar.

DID distribution across billing environments enables you to evenly distribute system load, thereby facilitating your hosting services.

Bandwidth Utilization for IP Centrex Solution

A key factor in the deployment of an IP Centrex solution is the bandwidth available for office premises. If it is insufficient (for example, an office building has a limited bandwidth of 2 Mbps and the number of established sessions requires 2.1 Mbps), there is a severe degradation of sound quality.

An IP Centrex environment configured in PortaBilling® can include one or more customer sites. A customer site defines a group of phone lines that are managed as a single entity and usually placed in a separate office building. Calls made within the customer site are often routed across a LAN (Local Area Network) and therefore do not require additional bandwidth allocation.

For more efficient bandwidth usage, administrators can now exclude calls that are made within the customer site from the bandwidth consumption calculation.

To do this, an administrator enables the **Limit Simultaneous Calls** service feature and defines a per-site bandwidth limit for a desired customer site. As a result, only external calls are scrutinized during bandwidth consumption calculation.

The screenshot shows the 'Customer Sites of *EasyCall Ltd.*' interface. On the left, a 'Sites List' table shows 'Head Office' and 'Office building A'. The 'Site Info' panel for 'Head Office' is open. The 'Limit Simultaneous Calls' feature is enabled (Yes). The 'Count' section is configured for 'All calls' and allows for limiting forwarded, incoming, and outgoing calls. The 'Max bandwidth' is set to 2 Mbps, which is highlighted with a red box. Other fields include 'Codec connectivity profile' (Unknown), 'Max incoming bandwidth', and 'Max outgoing bandwidth'.

For example, there is an IP Centrex environment with two customer offices (sites): in Cape Town and Johannesburg. The customer site in Johannesburg has a limited bandwidth of 1 Mbps. An administrator enables the **Limit Simultaneous Calls** service feature and sets the **Max bandwidth** value to 1 Mbps for this customer site.

1. A user from the Johannesburg office receives an external call. The system checks if there is bandwidth available for this call. The system detects that there are 9 established external calls that consume 0.9 Mbps of bandwidth. The system allows this call because there is enough bandwidth available.
2. Another user from the Johannesburg office makes an external call. The system checks if there is bandwidth available for this call. Now there are 10 established external calls that consume 1 Mbps of bandwidth. The system denies this call because all available bandwidth is used up.
3. Users from the Johannesburg office can call each other as much as they need, since these calls do not consume bandwidth. This limitation applies to external calls only.

Note that PortaBilling® does not exclude the following from bandwidth consumption calculations:

- Calls within a customer site that require an RTP proxy.
- Calls within a customer site for which call recording is enabled.
- Calls to IVR applications.
- Calls among customer sites.

This allows service providers to use the available bandwidth to maximum effect while deploying IP Centrex solutions for their customers.

IP Centrex Solution with Flexible Internal / External Call Control

It is important for IP Centrex users to have the capacity to make as many internal calls to colleagues as necessary. And at the same time, service providers need to have the ability to limit the number of external calls from an IP Centrex environment, for example, to meet specific licensing or billing needs.

In response to these demands, PortaBilling® introduces an IP Centrex solution that allows an unlimited number of internal calls (i.e. calls within an IP Centrex environment) and restricts the number of external calls.

To implement this scenario an administrator uses the **Limit Simultaneous Calls** functionality. For a desired IP Centrex environment, the administrator enables the **Limit Simultaneous Calls** option and chooses the **Count: Off-centrex calls only** option. Then they define a maximum number of permitted simultaneous calls.

The screenshot shows the 'Edit Customer 'Easy Call'' interface. The 'Voice Calls' section is expanded, and the 'Limit Simultaneous Calls' section is highlighted. The 'Limit Simultaneous Calls' dropdown is set to 'Yes'. The 'Count' is set to 'Off-centre calls only' and 'and allow no more than' is set to '5'. The 'out of 5 simultaneous calls' text is highlighted with a red box. The 'Codec connectivity profile' is set to 'Ethernet'. The 'Max bandwidth', 'Max incoming bandwidth', and 'Max outgoing bandwidth' fields are empty.

Once this specified number of simultaneous calls is established and an end user attempts to place another call, that call is rejected. This limitation applies to external calls only. IP Centrex users can call each other as much as they need.

This allows service providers to deliver an IP Centrex solution that permits an unlimited number of calls within an IP Centrex environment while restricting the number of external calls.

Storing Call Recordings in MP3

Beginning with this release, users can record and store their phone conversations in **.mp3** format. This is a widely-used format for compressing a media flow into a small-sized file.

With **.mp3** file qualities, call recordings can be played by nearly all types of devices, such as PCs, Macs, Androids, iPhones, Smart TVs, etc. And thanks to their small file size, they occupy less disk space.

When the call recording feature is activated, conversations are recorded in the **.wav** format by default. To record and store conversations in **.mp3**, the administrator selects the **.mp3** format from the **RecordingFormat** list on the Configuration server.

Using the **.mp3** format for call recording enables ITSPs to minimize the required storage space on their servers, therefore extending provisioning possibilities. Moreover, storing call records in **.mp3** saves downloading time for end users and broadens the range of devices they can use.

Vouchers with PIN Encryption

Vouchers are considered to be financial data since they are used for balance top-ups and therefore require additional protection. With this new release, vouchers with PIN encryption have been introduced to prevent service abuse and fraud.

Vouchers with encrypted PINs are composites. That is, they consist of visible voucher IDs and auto-generated passwords that are stored in encrypted form in the database.

Making balance top-ups using vouchers with encrypted PINs is done the same way as when using ordinary vouchers. When a voucher PIN is entered (either via the web self-care interface or the IVR application), the system decrypts the password, validates the voucher PIN and modifies the balance.

When vouchers are generated, their passwords are visible on the web interface by default. If you need to restrict some users' access to voucher passwords (e.g. helpdesk or admin, etc.), create a new access level for those users and define the permissions:

```
Read / Deny / Account / h323_password;  
Update / Deny / Account / h323_password
```

To use vouchers that have PIN encryption, enable the following options on the Configuration server:

- Security.EncryptPasswords;
- AdvancedFeatures.UseCompoundVoucherID and
- Specify the password length in the AdvancedFeatures.CompoundVoucherPasswordLength field.



Note that previously generated vouchers cannot be used because their IDs do not contain encrypted passwords. To enable their usage, set *Yes* for the **AllowVouchersWithoutPassword** option on the Configuration server.

This enhancement enables service providers to introduce full voucher management within PortaBilling®, which additionally ensures business data security and complies with general system security demands.

Integration with Huawei BRAS CX600 Router

PortaBilling® is now integrated with the Huawei BRAS CX600 Router used by service providers to provide broadband Internet access.

The Huawei BRAS CX600 Router is deployed at the edge of the service provider network and acts as an aggregation point through which end users connect to the broadband Internet. It communicates with PortaBilling® via the RADIUS protocol to authorize end users and manage their Internet sessions.

Once an end user starts an Internet session, the Huawei BRAS CX600 Router performs the session authorization in PortaBilling® to verify that the end user has sufficient balance and is allowed to use the service. PortaBilling® also provides information to the Huawei BRAS CX600 Router about bandwidth speed (for example, 1 Mbps or 10 Mbps) allocated to a particular end user.

When the Internet session is established, the Huawei BRAS CX600 Router periodically provides session usage information to PortaBilling®, i.e. sends interim (also called keep-alive) accounting requests with information about the current volume of transferred data. When an end user's balance is not sufficient to use the service, PortaBilling® sends the Huawei BRAS CX600 Router a POD (Packet of Disconnect) request. The Huawei BRAS CX600 Router then switches the session to a hotlined state – i.e. redirects the end user to the service provider's portal.

PortaBilling® acts as an OCS (Online Charging System) performing such functions as authentication, authorization and accounting of end users' sessions.

This integration extends the variety of equipment that service providers can use for broadband Internet service provisioning. Service providers who have already chosen the Huawei BRAS CX600 Router and are looking for a flexible and reliable billing system, can explore the advantages of choosing PortaBilling®.

Integration with Adax EPC

PortaBilling® is integrated with Adax EPC, which enables ISPs to provide Internet Access services to their customers within LTE networks.

In terms of integration with Adax EPC, PortaBilling® operates as the online charging system (OCS), communicating with the Packet Data Network Gateway (P-GW) using the Diameter (Gy) protocol for real-time user authorization and rating.

When a user establishes an Internet session, P-GW sends an authorization request to PortaBilling®. During the session, P-GW sends recurring interim credit control requests that report on the volume of traffic already

consumed. Based on that information, PortaBilling® verifies that the user can use the service further. If the user is out of funds, they cannot access paid Internet content (e.g. YouTube.)

Adax EPC supports rating groups and AVPs such as Validity-Time and Volume-Quota-Threshold. This enables ISPs to introduce different business models and ensure correct charging for all of them.

Integration with Adax EPC increases the number of LTE solutions available for MNOs to use with PortaBilling® for providing full-scale Internet services to their mobile customers.

Enhanced SIP Logs

Beginning with this release, SIP logs for callbacks and calls that are diverted to voicemail are extended with information about:

- Internal communications between the PortaSIP® components that participate in call processing (e.g. the mail filtering daemon and callback triggers), and the billing engine, including API requests.
- The processed email message types (e.g. voicemail messages).
- Actions applied to email messages.
- Processed callback types.
- Callback service parameters.

All log information for such call scenarios is consolidated in one place and can be viewed on the SIP Log Viewer page. This greatly simplifies the troubleshooting process for these call scenarios and facilitates problem resolution.

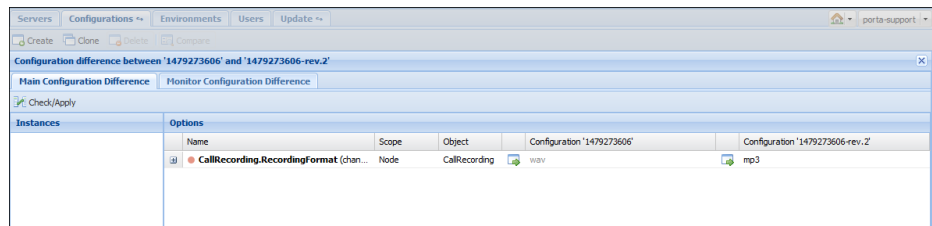
Auto-provisioning for AudioCodes 400HD Series IP Phones

The list of IP phones that are auto-provisioned by PortaSwitch® has been extended to include the following phones:

- AudioCodes 405HD
- AudioCodes 420HD
- AudioCodes 430HD
- AudioCodes 440HD

Other Features and Enhancements

- **Comparing changes before applying a new configuration** – With this release, before applying a new configuration, the administrator now sees all changes between the current and intended configurations. After verifying these changes, the administrator checks and applies this configuration by clicking the **Check/Apply** button.



This enhancement helps to avoid possible errors in the configuration process.

- **Service wallet top-ups using payment processors with external authorization** – Now customers can top up their service wallets by using payment processors that have external authorization such as PayPal, Moneybookers and PayArena.

NOTE: The PayNearMe external payment processor does not support service wallet top-up transactions and therefore cannot be used for service wallet top-ups.

When a customer initiates a top-up from their self-care interface, they are redirected to the payment processor portal to provide their credit card information and confirm payment. Upon payment processing, the customer is redirected back to the self-care interface where they can view the updated service wallet's balance.

The increasing number of supported payment processors for service wallet top-ups improves the customers' payment experience with PortaBilling®.

- **Proxying Diameter requests for geo-redundant installations** – In geo-redundant installations, the Diameter cluster virtual IP address for every site is provisioned to the SAE GW. This provides high-availability for the online charging system (PortaBilling®) and ensures uninterrupted service provisioning.

To optimize PortaBilling® performance and provide a unified operational interface to the SAE-GW, the Diameter cluster on the

secondary site now operates as a proxy. That is, if the main site is up and running but unavailable for the SAE-GW for some reason (e.g. connectivity issues with the carrier's network), the secondary site receives the Diameter request and proxies it to the main site for processing. Likewise, it proxies the Diameter response received from the primary site back to the SAE-GW. If the main site is down, only then will the secondary site process Diameter requests.

This enhancement simplifies site management for the whole installation.

- **Extended call control API** – The call control API includes new methods that allow the API user to either put a call on hold or transfer it to another remote party. This extended range of API methods enables service providers to complement their IP Centrex service with sophisticated CTI.
- **xDR download enhancement** – To generate a file containing a large number (thousands) of xDRs to be downloaded is time consuming and requires a user to stay connected to the self-care interface until generation is complete. Therefore, the xDR download procedure has been improved with this release.

By default, the generation and download of a file with customer xDRs starts immediately. In the case that a customer has more than 10,000 xDRs within their billing period to download, it is scheduled as a separate task and performed in the background. As soon as the file with xDRs is created, the customer receives an email with the link for file download.

This enhancement speeds up the xDR download process and at the same time prevents system overload.

- **Manage messaging service in the AudioCodes provisioning server** – With PortaBilling® API you can now effectively manage messaging service availability for accounts provisioned in AudioCodes. When an account's service wallet is empty, a corresponding request is sent to the AudioCodes CMMS and the messaging service is suspended. Likewise, it is resumed upon topping up the service wallet.

To do this, the account's service wallet must have notification about its exhaustion enabled and be the last in the list of applicable service wallets (i.e. assigned with the lowest priority).

This enhancement ensures service provisioning only within the allocated quota / balance and prevents revenue leakage.

- **Support of xDRs received from Qualution for xDR mediation** – In MVNO network deployments, Qualution OSS operates as middleware between PortaBilling® and the mobile carrier's network. Beginning with this release, CDRs obtained from Qualution can be easily uploaded to PortaBilling® using the xDR Mediation utility to generate customer charges and produce invoices.

This enhancement widens the pool of the potential business partners and enlarges the service provider's opportunities for how to organize their network infrastructure.

- **Porter enhancements** – As of this release, you can transfer the following data using Porter functionality:
 - Call queues as part of customer configuration;
 - Fraud traffic profiles as part of customer configuration and threshold history;
 - Custom prompts for IP Centrex extensions and huntgroups;
 - Customers preserving their credit limit history and payment transaction history;
 - Customers with modified billing periods;
 - Customer .pdf file invoices;
 - Accounts with auto-payments configured.

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

- **Improved display of totals for invoices under review** – If a customer has unallocated payments, PortaBilling® now takes them into consideration when preparing the customer's invoice for the administrator's review. That is, the administrator now sees the outstanding invoice balance as a period total minus unallocated payments.

As before, unallocated payments are not applied to an invoice until this invoice is approved by an administrator. Once the invoice is approved and generated, PortaBilling® applies the unallocated payments to it, changing its status to Paid or Partially Paid.

This enhanced presentation of invoices under review gives the administrator a clearer idea of a customer's receivables.

- **Taxation information management for resellers that have a default ACL** – Now resellers that have a default access level can manage their taxation information via the API the same way that they do it on the web interface. For resellers with custom access levels, it is recommended that you recheck permissions for the Customers.tax_info object.
- **Enhanced scripts for customer data import** – To move a large pool of customers from a legacy platform to PortaBilling® or from a previous release to a new one, PortaBilling® provides a set of scripts for customer and account data import to the administrator.

With this release, the administrator can import customer and account data so that upon import:

- Accounts are created in the target system with add-on products assigned to them.
- Customers and accounts are created with volume discount counters adjusted, based on the amount of discount already consumed.

NOTE: Volume discount plans and add-on products must be pre-configured in the target system.

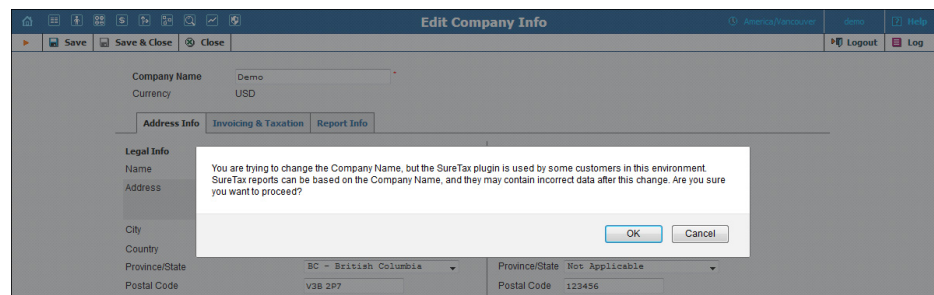
- A manual credit is applied to a customer balance if their credit account has available funds in the source system.
- Customers are created with monthly anniversary billing periods preserved.

In other words, both customers and accounts are imported with balance and service usage preserved.

- **Notification for custom field removal on the Edit Customer Class page** – Now if an administrator or a reseller removes a custom field for a selected customer class, they receive a notification. The notification states that the customer class will no longer support this custom field and that all data associated with it will be permanently deleted. This enhancement saves the administrator from taking hasty actions.
- **Tracking registration attempts by User ID** – When a registration request comes to PortaSIP®, a SIP device tries to register a specific phone number that will receive calls in the future. This phone number serves as a registration User ID. Now, you can filter SIP device registration attempts by phone number on the **SIP Log Viewer** page. This enhancement significantly

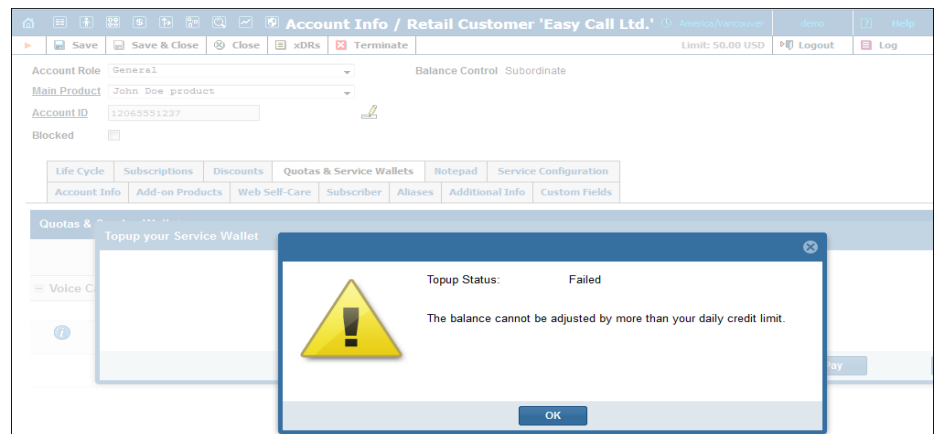
facilitates the troubleshooting process and reduces the time it takes to isolate and fix an issue.

- **Company name change when calculating taxes via SureTax** – Since SureTax taxation reports can be based on the company name, its change may result in inappropriate data processing by SureTax. Therefore, if the service provider's or a reseller's company name changes, they must notify SureTax about it. Then, when the administrator changes the company name in PortaBilling®, they additionally receive a corresponding notification about the possible impact.



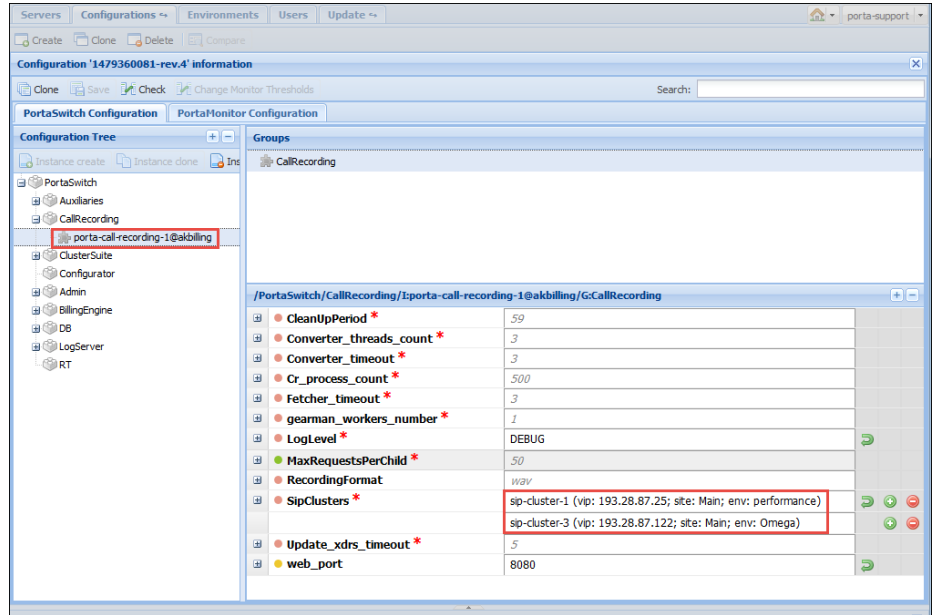
This enhancement saves administrators from rash actions and improves their overall experience with PortaBilling®.

- **Limiting service wallet credit top-ups for PortaBilling® users** – Now, every service wallet's credit top-up influences PortaBilling® user's daily credit / refund limit. Therefore, they can top up their customers' service wallets if the required top-up amount does not exceed their daily credit limit.



This enhancement helps PortaSwitch® owners prevent excessive use of funds by their employees.

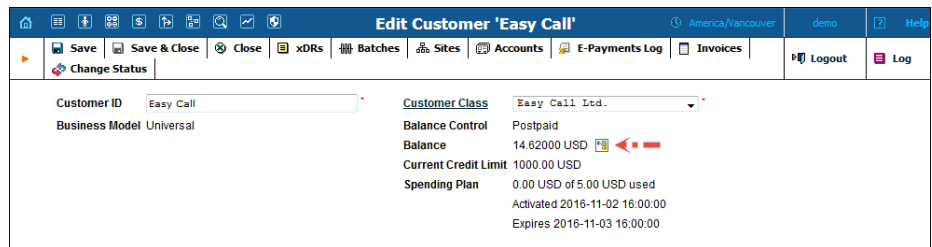
- **Improved validation for Call Recording service feature** – Now, an administrator can configure the Call recording functionality on the web interface only if it is configured for a particular billing environment on the Configuration server.



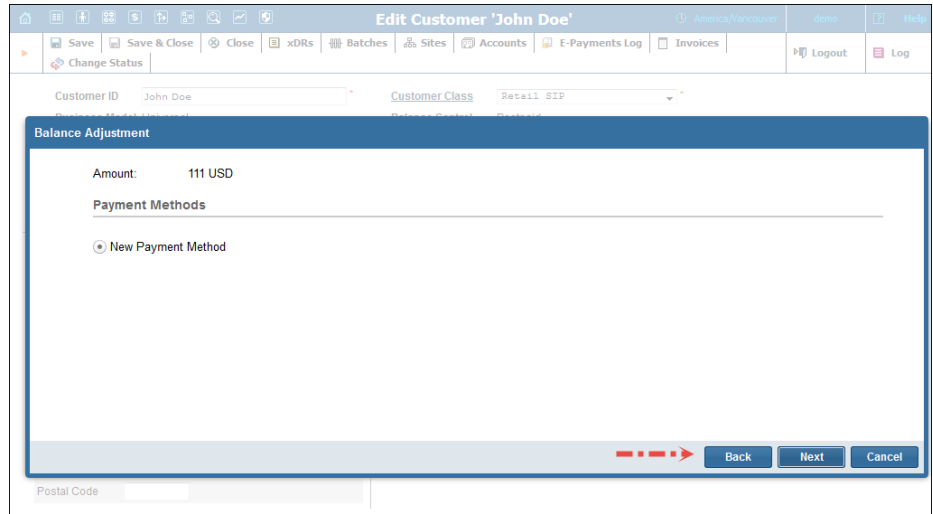
This prevents misconfiguration and ensures proper service provisioning.

Web Interface Changes

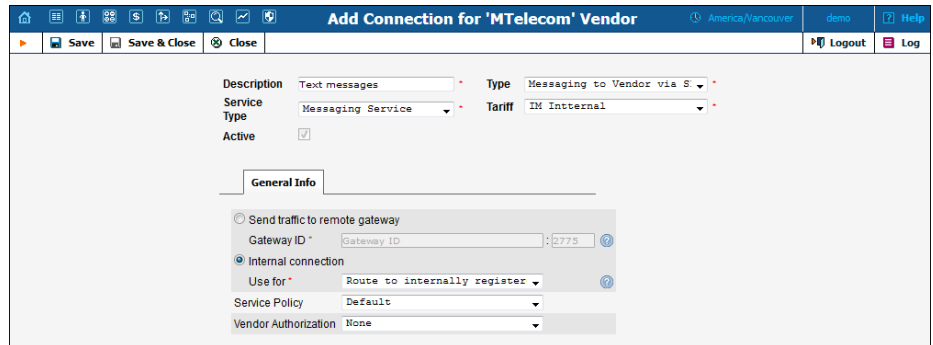
- **New icon for the Balance Adjustment wizard** – With this release, the **Balance Adjustment** wizard is launched by clicking the **Balance Adjustment** icon.



- **Return to the previous step for the Balance Adjustment Wizard** – If you have chosen an incorrect payment method or entered incorrect data, now you can easily correct it simply by clicking the **Back** button in the **Balance Adjustment** wizard. This enhancement simplifies the adjustment process and saves administrative time.



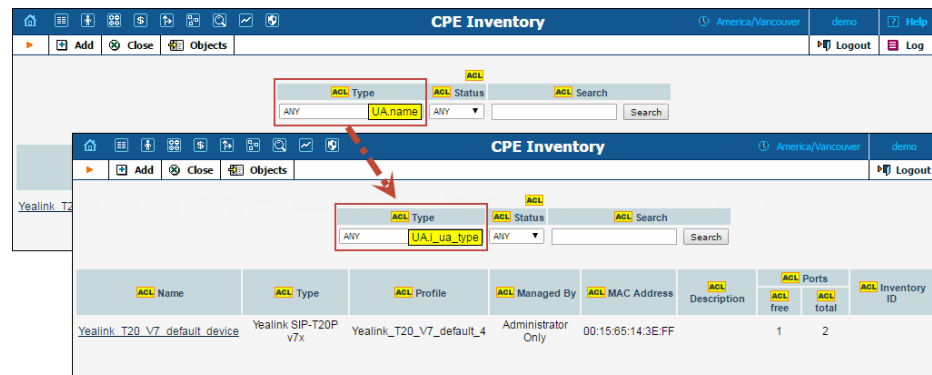
- Simplified connection configuration for Messaging Service** – When configuring on-net messaging, you can explicitly specify that you want to create an internal connection by selecting the corresponding option. To do this, select **Route to internally registered SIP accounts** option from the list.



This enhancement permits an administrator to more easily and quickly create connections than ever before.

Important Upgrade Notes

- The **ACL attribute for the Type search criterion on the CPE Inventory page has been renamed** – Note that the **UA.name** ACL attribute for the **Type** search criterion on the **CPE Inventory** page has been renamed **UA.i_ua_type**. The **Type** search criterion allows IP devices stored in the CPE inventory to be filtered by type.



To grant / deny access to this search criterion, an administrator now needs to specify its ACL attribute as **UA.i_ua_type**.

If you use the **UA.name** ACL attribute to grant / deny access to the **Type** search criterion on the **CPE Inventory** page, check that it has been changed to **UA.i_ua_type** before a software upgrade.

- **Subscription refunds for debit accounts** – With this release, refunds for subscriptions have been unified for all customer accounts. Thus, if a customer is not provided the service due to suspension or provisional termination (e.g. for non-paid invoices), service usage for their debit accounts is restricted as well. If the administrator waives the fees for the unavailable service within a debit account's subscriptions, a refund will be received as soon as services are restored. After a subscription refund is issued, it is applied to the account's balance.

If a customer or an account are permanently terminated in PortaBilling®, a subscription refund is issued for them in any case.

- **Unified output file storage for MySQL 5.7** – The newest version of the MySQL database (5.7) requires a single location for output file storage. Therefore, if you are using third-party reporting systems or perform custom queries to the database to select data as an output file, you must store these files under the `/porta_var/tmp` directory.

This unified data storage location ensures system security and simplifies data management.

- **Improved validation for custom translation rules** – Custom translation rules are defined in PortaBilling® using Perl basic regular expressions. Previously, for advanced flexibility (e.g. to perform sophisticated number translation), it was possible only for root users to write Perl code in the translation rules. Such rules,

however, are considered unsafe and could adversely affect the system if executed with malicious purpose. Therefore, the translation rules that contain executable Perl code are no longer used in PortaBilling® after the software upgrade.

If you have such unsafe translation rules configured and need to keep using them in your system, enable the `AllowUnsafeRules` option on the Configuration server to resume the previous behavior. Otherwise, re-write them without Perl code.

This increases system security and prevents service abuse.