M2M / IoT FOR CSP

PortaSwitch

New Features Guide

75
MAINTENANCE
RELEASE

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Preface

PortaSwitch® Maintenance Release 75 is the next long-life release which is mainly focused on improved system stability. It is supported with bug fixes, contains minor improvements and offers other software support for an extended period of time, thereby enabling customers to better plan the evolution of their PortaSwitch® systems.

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`.

The **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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Transfer calls in the IMS network via the call control API

Few MNOs support the ability to transfer calls within IMS networks. In addition, standard phone models don't have transfer options. Therefore, mobile users can only forward their incoming calls to predefined numbers.

As an MVNO, you can now enable your mobile subscribers to transfer calls to desired destinations from their mobile phones or external applications via the call control API. For example, if Bob has an international call with Tom but must leave for a meeting, he can transfer Tom to Carol to continue the conversation for him.

To make this happen, these conditions must be met:
- Your MNO must have a 4G network and support VoLTE;
- You integrate PortaSIP® as a TAS (Telephony Application Server) in the IMS core; and
- You build / extend your external application (e.g. a mobile dialing app, a CRM switchboard, etc.) to communicate with PortaSwitch® via the API.

By doing this, you add VoIP features to your mobile service portfolio and improve the calling experience for your business customers.

Your mobile subscribers can transfer calls blindly or without answering them at all. The transfer target can be an on-net destination (e.g. a Mobile Centrex extension) or some external number: fixed, mobile, international, etc. The transferred call goes through the IMS core via the ISC interface.

The example below illustrates how call transfer works.

Let's say Alice and John are your mobile subscribers. Peter is subscribed to another mobile carrier. Since all calls take place within the LTE network, all communication is accomplished via the CSCF.
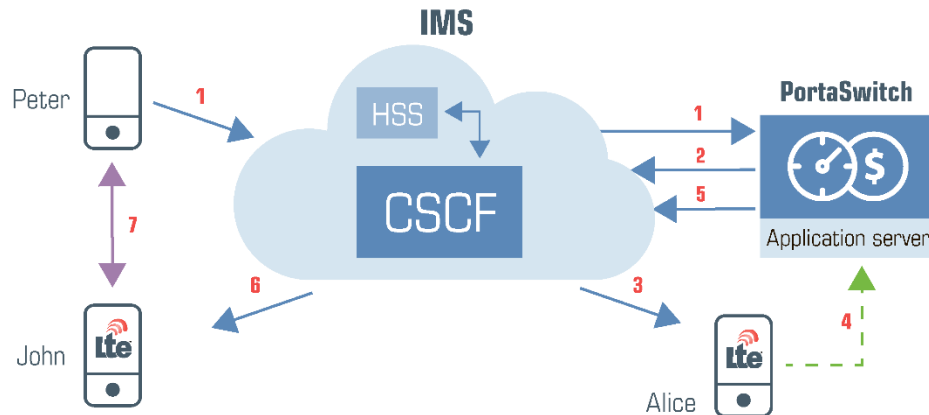
- Peter calls Alice. (**1**)
- PortaSIP® successfully processes the terminating triggering call to Alice and routes it to the IMS. (**2**)
- The IMS delivers the call to Alice so she and Peter can talk. (**3**)
- After a while, Alice transfers the call to John by pressing the Transfer button from her switchboard app.
- The app sends the API request to PortaSwitch® to perform a call transfer to John's phone number.(**4**)
- PortaSIP® verifies that Alice is permitted to make a call transfer in PortaBilling®, disconnects Alice's previous call and initiates her new outgoing call to John.
- PortaSIP® sends the call to the IMS (**5**) which delivers it to John's phone. (**6**)
- John answers, and he and Peter start to talk. (**7**)
- When the call ends, the accounting information is sent to PortaBilling® to produce charges for Alice: for the incoming call from Peter plus for the transferred call to John. John is charged for the incoming call from Peter.

The same flow occurs if Alice decides not to answer the call from Peter but to transfer it to John instead. In this case, the switchboard app informs Alice about the incoming call and offers to instantly transfer it.

With this functionality, you extend the feature set in your Mobile Centrex solution so that your business customers can directly transfer calls from

their mobile phones as if from IP phones. This increases your competitiveness in the market.

Integration with NetNumber Titan HSS

PortaBilling® is now integrated with NetNumber Titan HSS. This is the centralized subscriber database for LTE service provisioning that stores:

- subscriber information (phone number (MSISDN), SIM card IMSI), and
- profile information (Regular upload / download limits for Internet access, APN (Access Point Name) ID, Roaming profile ID).

Wireless operators can now provision subscriber data in NetNumber Titan HSS. This enables them to provide their subscribers with the LTE service.

To make this happen, an administrator configures the following:

- in NetNumber Titan HSS – defines the APN(s) and Roaming profile(s);
- in PortaBilling® – specifies the preconfigured APN ID(s) and Roaming profile ID(s) for the Internet access policy;
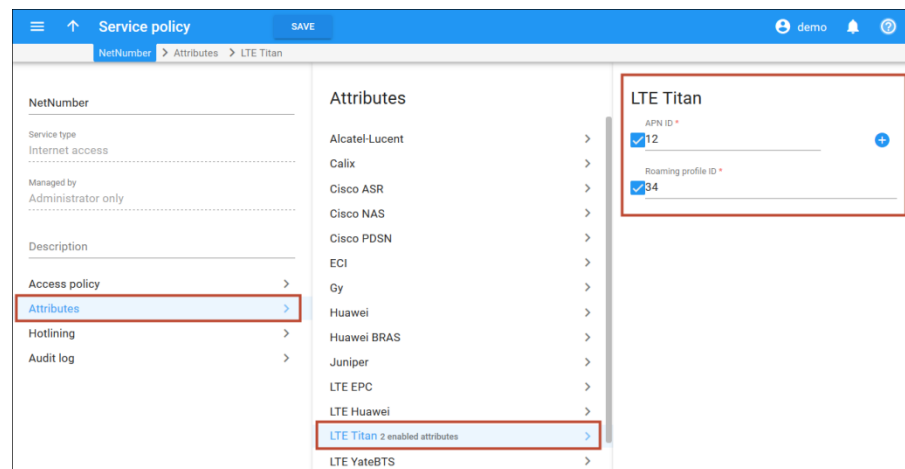
- defines upload / download limits for Internet access;
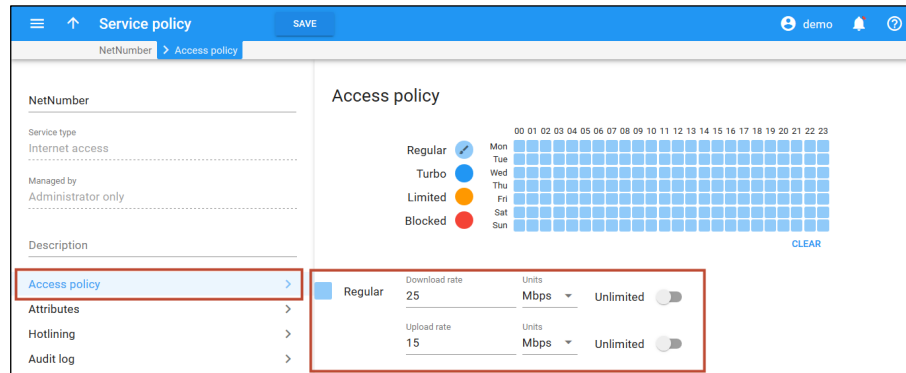
- enables the **Mobile Network Provisioning** service for the LTE product and adds the Internet access policy and assigns it to an account with an associated SIM card.

PortaBilling® provisions the NetNumber Titan HSS via the External System Provisioning Framework (ESPF). When an administrator makes changes for an account in PortaBilling® (e.g. blocks or changes a product / Internet access policy, etc.), PortaBilling® immediately synchronizes the updated data to the NetNumber Titan HSS.

This feature extends the list of LTE equipment that wireless operators can use for organizing their network infrastructure.

Templates for customer class / user notification management

With this release, an administrator can manage notifications for several customer classes by using notification templates. A notification template contains a default set of notification messages. The administrator can edit notification messages by changing their subjects or the text within a notification template. For example, to add the "Company name" variable to the "Credit limit exceeded" notification.

The administrator can assign the same notification template to several customer classes. The changes in the notification template are applied to all of these customer classes. Then the administrator selects which email / SMS notifications to send, individually, for each customer class.

For example, let's say you provide an IP Centrex service to large and small business customers that have different payment collection policies. Accordingly, you divide them into two customer classes. The notification

messages are the same for both customer classes. To enable the notifications, your administrator creates one notification template and assigns it to each customer class. To edit the notification messages, the administrator changes the assigned template instead of changing the notification messages, individually, for each customer class.
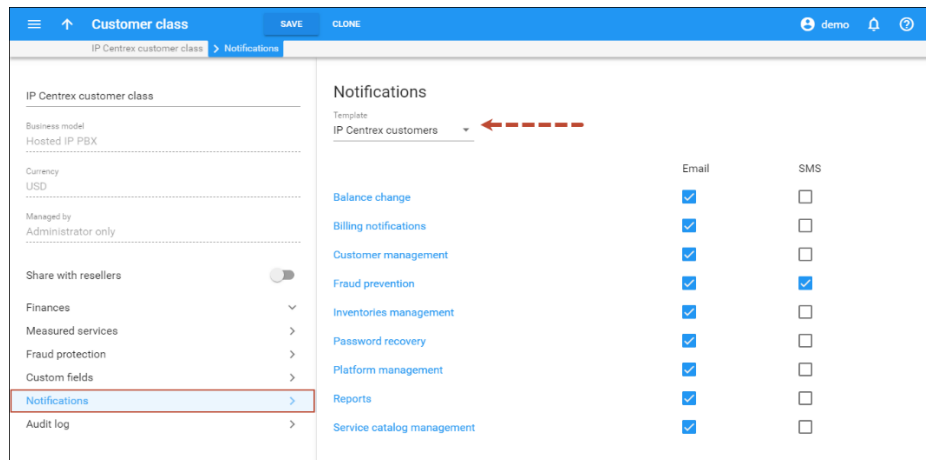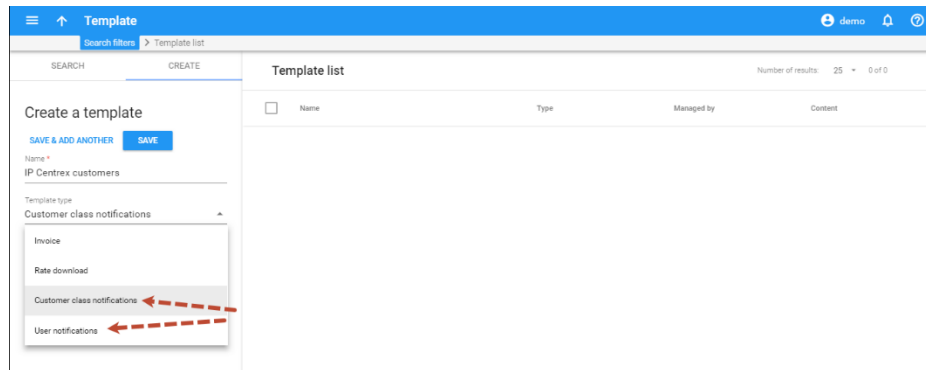
User notification templates enable the administrator to customize notification messages and select which notifications to send, individually, per user within the environment.

During a software upgrade, notifications are automatically organized into notification templates and assigned to corresponding customer classes / users. When a reseller creates a customer class on the old web interface, the system automatically generates a notification template on the new web interface and assigns it to the corresponding customer class.

The use of notification templates optimizes customer management and therefore reduces the administrative load.

Other features and enhancements

- **Use extension name and number for voicemail notifications** – Now when an IP Centrex user receives a notification about a new voice message, they sees the caller's extension name and number. The user can immediately respond to the message without having to match the phone number with its owner. This vastly improves the user experience.

  For PortaSIP® to use the extension's information in the notification, enable the **mailbox_use_ext_id_as_sender** option on the Configuration server web interface.
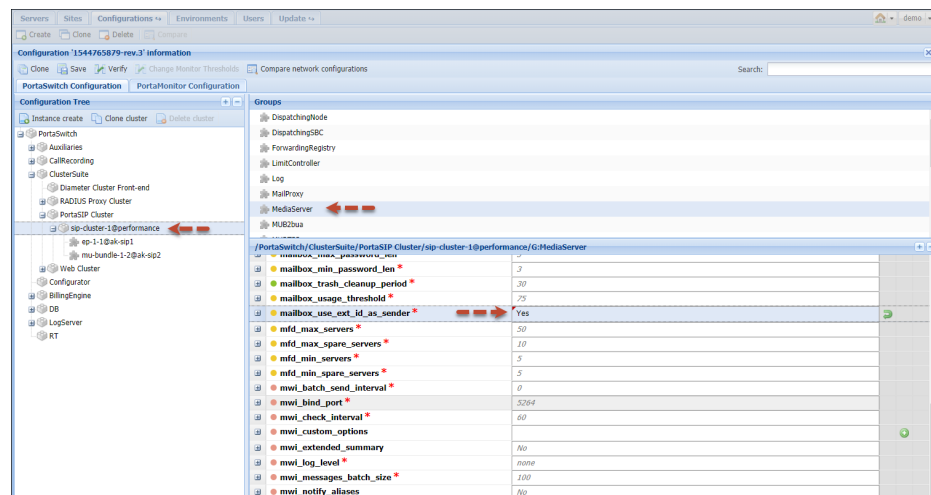
 If the extension information is undefined, the notification contains the caller's phone number.

- **Support for local number portability for calls via Diameter Ro** – Number portability enables users to preserve their phone numbers when they switch from their current service provider to another one. With this release, PortaBilling® supports the processing of calls to ported numbers via Diameter Ro. When a customer dials a number that belonged to T-Mobile but has since then been ported to Vodafone, the call must go to the Vodafone network. PortaBilling® receives the call processing request and checks whether the destination number has been ported in the LNP (Local Number Portability) database. If there is a match in the LNP, PortaBilling® charges both the customer and the vendor according to Vodafone's rates.

  To process calls to ported numbers, the service provider must:

o Import the LNP database to PortaBilling® and maintain it; and

o Add all the required rates to the customer tariffs for calls to go through.

This enhancement enables MVNOs to provide number porting services to subscribers and be sure that such calls are charged for correctly.

- **Protection from DoS attacks for DSBC** – DoS (Denial-of-Service) protection functionality now monitors traffic that arrives both to the dispatching SBC (DSBC) and PortaSIP® cluster dispatching node. The configuration options (e.g. the maximum number of REGISTER, INVITE, OPTIONS packets) are the same and can be defined in a single place – via the Configuration server web interface. So, when an administrator specifies the limits for packets to be accepted from a specific IP address, they apply to both the DSBC and PortaSIP® cluster dispatching node. DoS protection functionality is enabled by default.
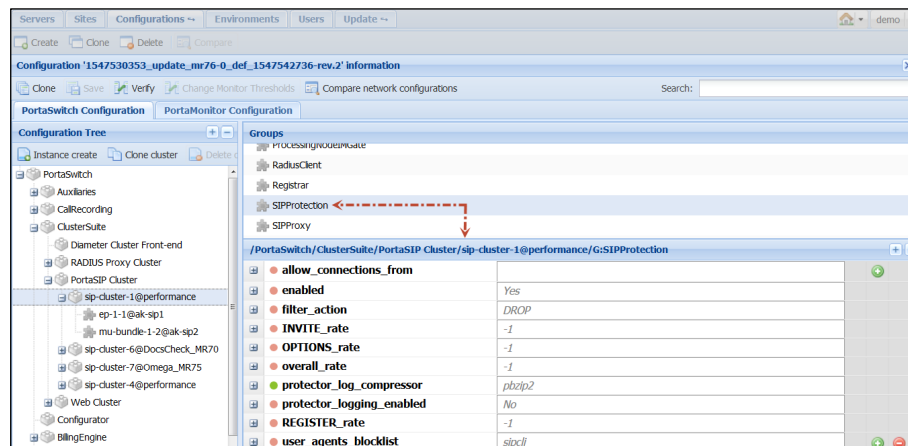
This enhancement increases your network security.

- **Reprocess only rejected xDRs upon import** – After xDR import the rejected xDRs are grouped according to the error type (e.g. account charge error, parsing error) within a collection. Now, an administrator can reprocess only these rejected xDRs instead of the whole collection.

The administrator selects the xDRs within the group and launches the reprocessing.

This enhancement improves xDR collection management.

Web interface changes

- **Spanish version of PortaBilling®** – The administrator web interface is now available in Spanish. This increases service providers' user experience with PortaBilling®.

Important upgrade notes

- **Define base currency during environment creation** – With this release, when you create a new billing environment, you define your base currency and email on the Configuration server.
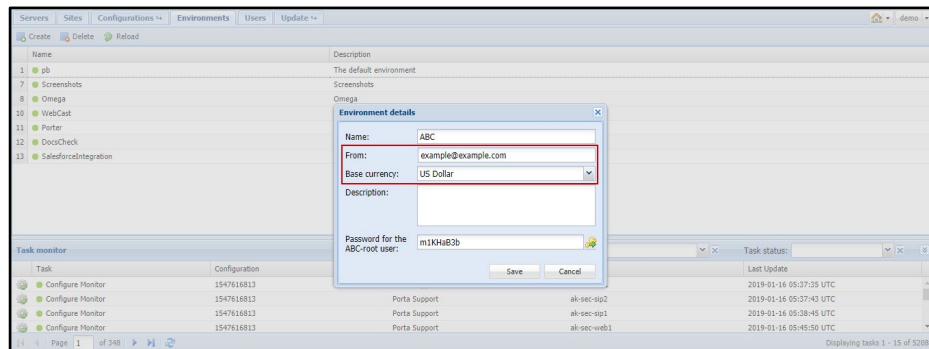
You define the base currency only once and cannot change it once you save the environment. The default base currency is US dollars.

This reduces the administrative load for troubleshooting issues where there are missing mandatory parameters for the environment's normal operation.

- **Separation of ESPF handlers** – The External Systems Provisioning Framework (ESPF) handlers are now separated. New handlers operate independently to send subscriber data to HSS / PCRF.

Obsolete handler	New handlers
EPC	• Kleos::HSS • Kleos::PCRF
LTE	• Huawei::HSS • Huawei::PCRF
Protei	• Protei::HLR • Protei::PCRF
ZTEEPC	• ZXUN::HSS • ZXUN::SPR

This reduces the number of configurations your administrator must deal with. So now, to provision data to Protei PCRF, there is no need to assign SIM cards to your subscribers' account.

For instance, let's say you deploy the Fiber to the Home (FTTH) network to provide your subscribers with Internet access services. Your network includes the Protei PCRF server to control speed limits. To provision subscriber data to PCRF, an administrator enables the Protei::PCRF handler, enables the Mobile Network Provisioning service for the product, adds the Internet access policy and then assigns it to an account.

Upon a software upgrade, obsolete handlers become disabled but remain in the system for backward compatibility. New handlers are automatically enabled when an obsolete handler is configured to do so beforehand.

If you use custom patches for handlers, make sure they are adjusted to operate with new handlers.