Billing with Mizu VoIP Server

About

The mizu voip server has a flexible built-in prepaid/postpaid billing engine, capable to handle millions of CDR records/day. The configuration can be done with the MizuManage (MManage) client application

Features

- Prepaid end-users
- Postpaid end-users
- Resellers
- Calling Cards
- Recharge cards (PINs, vouchers)
- Residential VoIP
- Call-shops
- Callback
- PC to Phone
- Phone to Phone
- IVR billing
- Recharge account through IVR
- Recharge account with recharge cards
- Recharge account via web
- Recharge account via credit card and e-payment
- Authentication, authorization, accounting (AAA) and real time VOIP billing
- LCR (Least cost routing based on pricing setup)
- BRS (best route selection based on LCR and quality)
- Multiple currencies support
- Automatic online currency conversion
- Credit card processing
- Most of the bigger payment gateways are supported with the possibility to add new and PayPal
- Highly configurable rating environment
- Flexible Rate Definition (peak/off-peak/flat/custom, enduser/provider/reseller/sales, etc)
- Automatic and Real Time billing (CDR records already includes the prices)
- Sales and reseller accounts
- Account expiry
- Multiple calls on one account
- Account for new phone number
- Prepaid and Postpaid platforms (billing and recharge)
- Prepaid card application with SIP proxy servers and B2BUAs
- Directions (traffic sender,prefix,gateway,sim packet) and time based billing
- Account detail
- Alerting procedures on low account balance
- Billing for terminators (costs control)
- Profit reports
- Recurring payments
- PIN generator
- Multiple Authentication Methods
- Traffic Volume Monitoring
- Load Balance & Redundancy
- Provider Reconciliation
- Traffic Quality Control

- ➢ Local Call Detection
- ➢ Caller ID Authentication
- ➢ Customer management system.
- ➢ Recharge/payment online
- ➢ DID Support
- ➢ Billing steps (Billing Increment)
- ➢ Minimum amount
- ➢ Free amount
- ➢ Call Credit Limit Control
- ➢ Peak & off-peak rates
- ➢ Currency and VAT can be set for every packet. Time zone can be changed.
- ➢ Expiry of rates
- ➢ Rate-sheet Simulator
- ➢ Multiple Provider and gateway supported
- ➢ Reporting and price comparisons
- ➢ Wide pricing capabilities
- ➢ Unlimited reseller chain with parent/child relationships
- ➢ Traffic Report
- ➢ Profit & loss report
- ➢ Techprefix support
- ➢ Search criteria for reporting
- ➢ Export reports to various file formats like csv or html
- ➢ Invoices, Payments, Balance
- ➢ Commercial & Technical Reports
- ➢ Invoice generation in different formats, PDF generation, email scheduler and invoice printing
- ➢ Report Portability
- ➢ Manage hidden charges
- ➢ Advanced Management of Class 4/5 services
- ➢ Authorization by IP, Name, ANI
- ➢ Complete call rating & accounting services for complex rating schemes
- ➢ Calls rerating
- ➢ Unlimited Rate Tables
- ➢ Data Import/Export
- ➢ Full traffic, statistic and monetary report
- ➢ Multithreading and multiprocessor
- ➢ Accounting database partitioning
- ➢ Support millions of subscribers in high throughput and low latency
- ➢ A..Z table assigned per tariff
- ➢ Call split to intervals and rounding
- ➢ Time of day rating
- ➢ Batch management
- ➢ Import Rate sheet
- ➢ Defined thresholds for alerts
- ➢ Email reports
- ➢ Custom call history reports
- ➢ Exporting CDRS to lots of other formats
- ➢ Carrier Grade Reliability
- ➢ Real-time monitoring and alerts

Quick setup

All billing related configuration can be done using the MizuManage remote management application. Some billing options are also available using the web interface (especially the tariffs for the resellers).

A quick intro can be found in the [tutorial](#) "Billing" chapter.

Global settings

In the configuration wizard (Config menu -> Configuration wizard) you can setup some basic billing options like your global currency setting and automatic online currency conversion (if you are using multiple currencies). These settings are also available from the "Configuration" form which can be selected from the tree view on the left side of the application below the "Other" item

Pricing setting

Open the price setup form. On the left group you can leave the "default" group. On the middle group you will have to add your packets. "Packets" means the billing options and the condition when this will be applied (if you leave everything unfilled in the "Traffic direction" setting then it will be applied for all traffic. On the right side you will have to add the prices per direction manually or load from a CSV file. The simplest CSV file format must have two column. First column with prefixes and second column with the prices (You can convert any excel sheet to this format then save it as "CSV")

The most important packet types are the "enduser costs". This is what your users and traffic senders will have to pay. You will need one or more additional packet if you are using IVR with the "CallLeg" option set accordingly.

You can also add "provider cost" packets. This is useful to be able to monitorize "profit" and if you need LCR routing.

The other packet types are optional

User settings

From the "Users and devices" form below the "Access" section click on the "Load" button (eventually after a proper filtering), select a user record, and then switch to the billing tab. The most important setting here is the user currency, prepaid/postpaid option and the credit for prepaid users. You should avoid setting the "Billing packet" explicitly for each user separately. Instead of this, you should set the proper "traffic direction" settings for the pricing packets.

The "billed user" setting should be used only for "Sub-endusers". One enduser can have multiple sub-endusers, and for each calls the parent enduser account would be billed (this is useful for company accounts with multiple extensions or for callcenters)

It is important to realize that with the mizu server you don't set pricing per user, but you define a pricing packet which can be applied to one or more users*. A price packet can be also assigned directly to an user entry if your prefer this kind if logic (select a user and click on the "Billing" link which will switch to the "Billing" tab), however the preferred way is to work with the "Price setup" form instead to define billing packets which then can be assigned to one or more users and allows also other conditions (for example you can define a separate packet per tech prefix or a single packet for a group of users, or just one packet for all users (if you don't set any filter for the packet in the "Applied for" section).*

Reports

The price(s) for each calls are stored in the CDR records which can be viewed on the "CDR Records" form if you select the "All fields" options. For statistics you can use the "Advanced statistics" form and tick the "EC", "PC", "PF", etc checkboxes (you will see their meaning in hints if you hold your mouse over this controls). Payment related reports can be viewed below the "Billing" section using the "Reports" form. Direct reports from the database are also possible with custom queries.

Other options

For more billing options please read the rest of this guide and the Admin Guide.

The following topics are discussed: advanced price setup, LCR/BRS routing, e-payments, currencies, postpaid billing, reseller billing, ivr/calling card billing and callshop billing and others.

General description

Billings on the Mizu voip server are done in background tasks. Even on high usage, the load of the billing threads will not affect the call quality (media routing).

All billing related tasks can be done from MManage and the web interface also has billing related features especially for resellers.

MManage forms related to billing are under the "Billing" section in the tree view listed on the left side of the application. Additionally there are a few billing option per user which can be set if you open the "Users and devices" form under the "Access" section. Then select a user (usually endusers) and switch to the billing tab. The most important settings here are whether the user is a prepaid or a postpaid user and in case of prepaid users the credit field is relevant.

Under the "Billing" section, the "Price setup" form is the most important one. Here you will have to specify you tariffs (named "packets" in MManage).

The Mizu server can calculate a few price for all CDR record. These prices are calculated after each calls and are stored directly in the CDR record.

There are two important packet type:

-end-user costs: payment from users for the operator -> costenduser field in CDR records

-provider costs: operator costs for traffic termination -> costprovider field in CDR records

The difference of these 2 cost is your brut profit, although there are some exceptions on this if you are using reseller accounts (discussed later)

Pricing for users can be assigned by pricing rules (price setup -> traffic direction) or explicitly assigning a packet to one user. The first method is always the preferred method offering more flexibility and easier maintenance.

The Billing module conforms to the Hungarian laws. (this is especially important if you need to create invoices for postpaid account that conforms for local laws).

CDR records

After every call (and SMS, etc), the prices of the call is calculated and a new CDR is stored in the database tb_cdrs table (and in tb_cdrresellers when the reseller option is used).

CDR records can be filtered, analiyzed, exported and lots of vital statistics are based on this records.

CDR records will contain the following fields:

Id: database identifier. Auto increment

Datum: the date-time when the CDR were inserted into the database (call end time)

Callstartdate: call start time (first INVITE sent or received)

Callenddate: first disconnect code or CANCEL/BYE received or sent

Connectdate: first 200 OK received or ACK for 200 OK sent

Connecttime: time elapsed until call fail or call pickup (routing+ringing time)

Workenddate: used for callcenters and represents the time when the operator have finished to work with the current client (CRM updates, etc)

Realduration: speech length

Discparty: disconnect origination. 1=called or gsm, 2=caller or h323, 3=router (server)

Discreason: disconnect reason code. Explanations in tb_reasoncodes

Callerid: caller database id from tb_users

Callerip: the origination ip

Callernumber: caller phone number (or sip username)

Calledid: called database id from tb_users

Simid: called simid (if any)

Calledline: Engine (phone line) or the called proxy authorization id (from tb_proxyauth)

Calledip: the ip address of the called party

OrigCalledNumber: received called party number (not modified)

Callednumber: techprefix and the normalized called number. *If the server will block the call too early, than you may have the "origcallednumber" here and normalization)*

DialedNumber (calleddialed): the forwarded called number *(sometimes only the "callednumber" will be insterted here)*

Rtpsent: rtp packets from caller to called. 0 if no rtp routing. At least 1 if routed. If remains 1, then routing has failed
        In case of sip this means rtp packets received from the called and sent to caller successfully

Rtprec: rtp packets from called to caller. 0 if no rtp routing. At least 1 if routed. If remains 1, then routing has failed
        In case of sip this means rtp packets received from the caller and sent to called successfully

Rtplost: lost rtp packets

Rtpcodec: voice codec name

Rtpname: used for gateways

Rtpframes: rtp payload framed in one udp packet

Signalin: audio signal strength into the playback device

Signalout: audio signal strength received from the audio recorder device

Jittertime: used when jitter time is reported by gateways or softphones

Tpercek: deprecated

Costprovider: call cost to the provider (ex. Tmobile)

Costenduser: cost for the caller in global currency (ex: a sipuser or traffic sender)

Costenduseru: cost for the caller in user currency

Costsales: sales commission if any

Costcompany: price for the reseller company

Costadditional (costother): used for reseller prices (in the main cdr)

Recfileid: if we have recorded the voice, then after this field we can found the recorded file

Mark (marker): for special CDR records: EMAIL (e-mail), SMS (sms), FAX (fax calls), FAIL (failowered), RER (rerouted), FWD (forwarded), (transferred), CONF (conference), PRED (predictive) and to signal other important call types

Opworktime: used in callcenters to store the actual operator worktime

Opwaittime: used in callcenters to specify how much time the operator have been waiting for the current cal

Billingstep: loaded from price settings (endusercost packet)

Unitprice: loaded from price settings (endusercost packet)

Billingentry: loaded from price settings (endusercost packet)

Origduration: all original duration (because the "realduration" field can be modified on IVR 2 leg billings or when hidden charges are a

Resellerid: top reseller id in tb_cdrs. Actual reseller id in tb_cdrresellers.

Accessnumber: set when the call have been made trough a specified IVR access number

Origcallerid: used when the caller id have been modified during the call. For example the caller can be a "traffic sender" but after ANI authorization there is an enduser inpersonalisation

Alegduration: used for 2 leg calls (first calleg with ivr)

Blegduration: used for 2 leg calls (seconf calleg from ivr after callforward)

Comment: with details about the call setup and disconnect. Can contain a shortened message exchange log.

Dirid: direction name after the called number prefix

Isupoli: ISUP-OLI code (in some countries a billing increment should be applied on some oli codes)

Users and devices

To setup the billing related settings for users, open the "Users and devices" form, search and select a user record, then switch to the billing tab. The following options are available:

Billing packet: you can assign a billing packet directly for the user however this is not recommended only in special cases. (Instead of this, you should set the proper "traffic direction" settings for the pricing packets)

Billed user: used for sub-enduser accounts. One enduser can have multiple sub-endusers, and for each calls the parent enduser account would be billed (this is useful for company accounts with multiple extensions or for callcenters). In this case you might also set the "parent" user to be the same as the "billed user" setting.

Billing address: you can store a billing address separated by the "address" setting. This separate settings might have different reasons. For example you might allow the "Address" field to be editable by the users itself (from a web interface for example) but not the billing address.

Commission: used for sales to define their commission percent from the enduser price

Reduction: sales user can give to enduser some percent (subtracted from their commission)

LateFee: applicable when the user is late paying the invoice cost

PacketID: billing for users, traffic senders

BillingDay: usually 1 (the first day in every month)

PaymentMode: Check (0), Bank Transfer (1), Cash (2), Else (3)

Maxmonthlycredit: max allowed credit/month even if the user is postpaid (in ft not in filler)

Maxmonthlycreditend: max Maxmonthlycredit (because we increase Maxmonthlycredit by maxmonthlycreditinc every month if the user was active)

Maxmonthlycreditinc: determines how much money we add to Maxmonthlycredit every month

ContractNumber: contract for end-users

Contact Status:
> 0-Unknown
> 1-Not applicable
> 2-In Progress
> 3-Active
> 4-Terminated
> Contract comment: any usefully comment for sales here

Qualification: the importance for the user. From 0 to 10. for example if the user has big priority, then we route its calls to better routes

Credit: the credit for the prepaid account. You should not modify this field directly but use the "add credit" or "modify" button. Otherwise the transaction will not be logged in the payments/invoices tables.

Postpaid: if the user will prepaid or postpaid

Currency: each user can have its own (different) currency. Rate conversions are applied automatically based on "currency conversion" rules. If this field is not set, the global currency will be used.

Include VAT: specify VAT values if this is required for the user in your country.

Invoice operations: these are useful for postpaid accounts

Sales commissions

The sales cost will be calculated to the CDR record "costsales" field. So you can build any statistics based on this value.

Every user can have the "Added By" field filled, which will point to the sales person where the user belongs.

You can define the sales commission explicitly in the "Price setup" form (Type must be set to "Sales cost")

If no such price is defined, than the sales commission will be loaded from the actual sales user setting.

The defined commission percent will be calculated for the profit **or** for the enduserprice. This behavior can be set by the "salescomissionfromprofit" global config.

Sales can give up for the users some reduction which will be subtracted from their cost. This can be configured with the "reduction" value for the individual endusers.

Automatic prepaid credit expiry

You can set prepaid credit by the "Add with elapse" button to elapse automatically.

The following configurations are defined:

Creditunit: How much credit means 1 day

Maxcreditelapsedays: max number of days when the credit will elapse

Accelapsedays: the number of days from creditelapsedt when the account will expire

Tb_users. Creditelapsedt: date-time when the credit will be expired

Tb_users.Accelapsedt: date-time when the account will be expired

Price setup

You can setup your tariffs in the MManage application using the "Price setup" form under the "Billing" section. These are the most important settings regarding your billing.

Billing Groups

On the left side column you can split your packets to several category (groups). This is not recommended if you will have less than 10 packets because the packet prioritization will not be seen as clearly in this way. This means that if you don't have too much packets, then you can left only one category on the left side. By default you will have a billing group named "default". If you need to add lot's of billing packets, then you can group them based on their type for example. (One group with enduser costs, another group with provider costs). Any other grouping is also possible after your business logic. This grouping has only display purposes. It is not used anywhere in the billing process. The packet priorities are not separated per group!

The Billing button is a shortcut to the billing form (does not make the billing automatically)

Billing packets

On the middle column you will define the packet properties and the circumstances when the packet is applied.

Packet properties:

Name: you can add any name that is logical for you. For example "billing for customers from Dallas"

Type: the type of the packet

-<u>end-user costs</u>: this is the most important packet , because this is what your customers have to pay. Will map to the costenduser field in CDR records.

-<u>provider costs</u>: operator costs for traffic termination -> costprovider field in CDR records. This field is optional, but there are two big advantage if you will it properly: you can have "profit" statistics, and you can use LCR/BRS routing based on these prices.

-<u>sales costs</u>: (optional) maps to costsales in cdr record. if you have sales persons than you can add their revenue here. This can be a fix cost or a percent from the enduser prices. (see the percent field on the right column)

-<u>company profit</u>: (optional) the "profit" of your company can be calculated automatically based on provider and enduser pricing and also taking account on reseller margins and sales discounts. However if this calculation is not suitable for you, you can setup a "company profit" packet explicitly using this type

-<u>other costs</u>: (optional) this type can be used for anything other of your needs.

Is Public:

Price lists market public is published (favorized) on the website as "top reseller price" and as the tariffs for the endusers. These tariffs can also be showed on third party application, websites and in client applications ("tariff" link from the softphone)

Service type:

Whether the pricelist is applied for voice, sms, … or all services.

Reseller

Each reseller can create its own tariff list(s) from a web interface. For each reseller this field will be set accordingly. Usually assigned automatically when reseller creates their own pricing on the webportal.

Billing step:

Billing increment (rounding) in seconds. Common values are 1, 30 or 60 (1 minute)

Min amount:

Minimum amount to be billed.

Free amount:

First X second is free (rarely used)

A leg grace:

used for IVR billing. If the user will spend too much time using the IVR you might apply some charges

Free after:

If the conversation should be free after X seconds. (rarely used)

Currency:

The currency of the price list. The system will convert automatically to user currency when needed based on "currency conversion" rules.

Convert to CURRENCY:

Where CURRENCY is your global currency setting. This means that the billing report will be shown using your global currency. This is useful for example if you receive a pricelist in HUF from a Hungarian provider, but you don't wish to see HUF pricing in your system. In this case the price values will be converted to your currency in all reports.

VAT included:

If the price list is brut values (not net)

Convert to NET values:

If the pricelist is in brut values, you can choose to leave it as is in the pricing, or always convert to net values. if you have defined the pricelist with included VAT, you should check this option, otherwise you overcomplicate the billing process. Thus the VAT value will be subtracted from the price, and you will have NET values in CDR records (try to use net values whenever possible). If you need to generate invoice, make sure that all your prices are set without VAT (net) or you have checked the "Convert to NET value" checkbox.

VAT values:

VAT tax percent

Applied for:

Here you will define in what circumstances (call routing direction) this packet will be applied.

If you leave all values unchanged (null or empty) here, then it will be applied to all traffic.

Otherwise you can assign different pricing to different directions. Take care of the packet priority order. This is the order in which the packets are checked for a match. The server will load the first matching packets.

There is another method to assign pricing for a user explicitly. This can be done from users and devices -> billing tab if you set the "Billing packet" fields. This method should be used only for exceptions.

The following fields are defined for traffic direction:

Caller group:
if the caller user belongs to the group selected
Caller:
Will check the caller user
Caller prefix:
Caller number prefix (A number filtering)
Access number:
If the call is made trough this specified access number
Via IVR:
Deprecated (use the "CallLeg" option)
CallLeg:
-all calls: packet applied for all calls
-ivr calls: packet is applied only for ivr calls
-non ivr calls: packet is applied only for non ivr calls
-a-leg only: packet applied for IVR a-leg calls only
-b-leg only: packet applied for IVR b-leg calls only
Called group:
if the called user belongs to the group selected
Called:
Will check the called user
SIM packet:
Used only with GSM gateway to select the SIM packet
Tech prefix:
Called number (B number) technical prefix
Valid since – Valid until:
The validity date time interval of this packet

Clone:
You can easily create new price lists based on existing one, cloning them as is or applying a price increase (value or percent)
For example when you receive your pricelist from a carrier, then the enduser prices can be created by applying a profit margin for the provider prices. Then you might fine-tune some directions manually.

Pricelist
In the left column you will have the price list that belongs to a packet. This can be a long list of prices to all worldwide direction (by country-provider prefix).
Show top:
By default will show only the first 10 record. Select all to see all record.
Import from file:

Used to import price lists from CSV (comma separated) file.

The CSV file must contain the following fields (separated by comma):

-prefix: E164 phone number prefix including country code without international escape code (IEC: +,00,011 depending on your country)

-price: flat price in the currency selected for the packet

-peak price: optional field if you have separate peak and off-peak prices

-off-peak price: optional field if you have separate peak and off-peak prices

You might receive pricing from your peer in Excel sheet. Open it in excel, delete the unneeded columns and rearrange to this format (first column with prefixes, second column with prices) then save as CSV.

Importing price files may take some time, depending from your database and network connection speed.

Grid:

Will display your price lists

Percent:

Instead of using an explicit value, you can define the pricing expressed in percent. This can be useful for sales commissions (sales costs)

Called prefix:

The called number prefix.

The billing engine will always load the best match (longest)

The prefix should be or should begin with the country code and NOT with IEC (escape code like +,00,011)

Set to '*' to be applied to all directions.

Minute price

Price for the current direction in the selected currency (not cents)

Native price:

If the selected currency is not the same as your "global currency" setting, then a conversion will be done to your global currency to speed up later pricing calculations (assuming that most of the pricing calculations will be done in currency set as "global currency"). This conversion is refreshed nightly. If the billing engine will have to use a third currency (not the packet currency and not the global currency), then it will convert it in real time. For example you might have your global currency in EUR, you might use pricelists in USD but the user might have pricing in GBP.

Time definitions:

Used to select the date-time interval when this price is applied. (For example you might have different peak and off-peak pricing to the same direction)

Diff between enduserprice and providerprice means that price will be calculated by extracting the provider cost from the enduser cost for an already existing cdr record. Cannot be used for real-time (prepaid) price calculations. Usually used when calculating "profit" values.

To setup a special **holiday billing** use the "Time Definitions" select the "Holiday" entry. Set the priority higher in the Directions settings. Holidays can be entered using the "Holidays" form under the "Others" section

To treat weekend as weekdays (in case if you are doing peak/off-peak weekday/weekend billing) set up a new entry in the holidays form and don't set as holiday (uncheck the checkbox)

Price lists form

On the **List** tab you can list all prices for a packet (by using the "Packet" list box) or to a direction (by entering a direction name or a prefix to the filter box)

On the **Least Cost** tab you can compare the prices from different service providers.

The Reference Packet usually is the price for your end-users.

Only peak (max) prices are compared for every direction.

On the **Directory Check** tab, lookups from the directory table are possible (directory name – prefix match).

Billing form

Used mostly for postpaid billing.

The server automatically calculates the price field for every incoming CDR record, based on price settings.

The following prices are calculated:

-enduser cost: used for invoicing for costumers
-provider cost: cost that needs to be payed for service operators
-sales cost: sales commission. If not defined in price setup, then will be loaded from users settings ("comission") if any
-company cost: usually used for profit calculations
-other cost: for any other purpose

Billing can be done from
1. the "Users and Devices" form, Billing tab, by clicking on the "**Generate &Invoice or Report**" button (billing for the actual user)
2. set up required directions and click on the "**Billing" form** (in this manner, billing reports can be generated for more users)

The billing process will always take in consideration the selected date interval.

Billing form:
1. On the **Customized Billing** tab after selecting the required date-time interval and direction, the prices are calculated after predefined parameters (price/minute, billingstep). So you can do simple calculations using this form.
2. The **CDR Prices** tab will load the "enduser cost" and "provider cost" directly from cdr records (already calculated after real-time price settings)
3. **Generating Reports and Invoices** tab
Used for billing and reporting.
Fields explanations:
Provider: you must select the invoice emmitent here. By clicking on the "…" button, you can customize the company invoicing details.
Delete old invoices: if checked, than will clear the invoice files directory before saving the new ones.
Include inactive users: uncheck this checkbox, if you don't want to generate reports (invoices) for inactive users (inactive for the selected period)
Include child users: for example you can select a Reseller as direction source, and all "child" users will be included in billing (where the parent id will point to that reseller)
Include CDR records: include call detail records in appendix
Language: language of the invoice
Grouping: you can select any grouping options to be generated as appendix for the report
Price values: select the price field from the CDR record after which the billing are done.
Reporting: you can automatically save the generated reports or invoices to file, or open it one by one (you can decide what to do for every report -save, print or just preview)
Format: file format (text, pdf) or printing
Real Invoice: if you would like only a quick report for the selected user(s), you can do it by setting this option to "Don't generate real invoices". If you choose to generate real invoices, than it will take special processing for it (required for bookkeeping)
If you have selected a reseller, you should choose the "For Resellers" option. In this manner a real invoice only for the reseller company is generated. (A report will be generated for all child endusers, but those report are skipped from the bookkeeping)
Invoice Comment: any comment here. This will not be shown on the report
Money Precision: how many floating point digit would you like in money fields.
Completion date: defaults to the end of filling period if not modified
Method of payment: can be specified here, or loaded from user setting.

By clicking on the "&Generate report for the selected directions" button, you can generate the actual invoice(s)
4. **Invoices and Payments**
The invoice records for the selected user(s) are in this form. You can watch the debt for every user by checking the topmost record debt value.
By right clicking on a invoice record a menu will appear. From
5. You can change the price settings whenever you want, but don't forget to **Rebill** your CDR records after the new settings. All CDR prices will be recalculated for the selected time interval and direction. Users and simcards credits will NOT be modified by rebilling!
6. **Individual invoice**

On this tab you can create invoices manually (not automatically generated from cdr records)

Note: prior to generate pdf report you should configure the installed print to pdf driver to save automatically in the specified directory. The default pdf printer can be configured in the MManage menu on the Settings-> Options from. The "pdfcreator" driver is included in the MManage install package.
For printing jobs, the default configured printer will be used.

The **automatic prepaid credit expirity** can be configured with the following settings:

~~Creditunit: how many credit means 1 day~~

Creditelapseunit**:** prepaid credits will be elapsed automatically after this period is elapsed. Creditelapseunit means the credit amount for 1 day. For example if you set it to 40 and the user will buy 5000 ft credit, than it will elapse after 4 month

Maxcreditelapsedays: max number of days when the credit will elapse

Accelapsedays: the number of days from creditelapsedt when the account will expire (account number will be suffixed with _elps ans set to temporarydisabled)

tb_users. Creditelapsedt: date-time when the credit will be expired

tb_users.Accelapsedt: date-time when the account will be expired

You can set prepaid credit by the "Add with elapse" button to elapse automatically.

Monthly payments can be set for users by completing the tb_fees table. Can be accessed from the Users Form -> Billing tab.
The following fields are defined:

Userid: the user where the payment belongs

Datum: record insertion date

Name: the title of the payment

Value: net price

Usable: can be calculated in minute price (1 if yes, default is 0)

Ival:

-1: one time

0: monthly as soon as possible

Other: interval in days

Lastbilled: last time when the it was invoiced

Description: any comment here

Using multiple currency

You can set currency in 3 places:

1. -native currency in the global configuration "currency"
   This will be the default currency for all internal operations
2. -currency for pricelist packet
   When you receive pricelist in other currency, with this setting you can easily convert it to your native currency
3. -currency for the individual users
   Useful when you need to send invoices in different currency format.

The price in the cdr record will be set based on the "currencyconversion" global configuration value which has the following possibilities: 1=native currency, 2=pricelist currency, 3=user currency if match, 4=user currency

The most easy and simply way is to set the same currency in all places.
Otherwise you must refresh time to time your currency converter table.

Currency converter
Defines the conversion between your native currency and other currencies used in price settings. You should update this conversion prices as many times as possible.

Currency precizion

You can control the money precizion display by the **tb_currency_precizion** table accessibile from Billing -> "Money Precizion"

      Id: database auto increment primary key

      Currency: name of the actual currency (for example: HUF, USD, EUR)

      Precizion: number of fractional digits on the invoices

      Final Precizion: the precizion of the "Total Payment" display

      Final Rounding: rounding in the "Total Payment" (example: 1 or 5 ft)

      Separator: usually '.' or ','

How the different currencies are handled?

Real-time price calculation in CDR records and the credit calculations for prepaid users are always done in the global currency (can be set up in configuration->currency)

However, you are able to set up your price settings in any currency. Automatic conversion is done when the given currency is not the same as the "global currency". The conversion is done by predefined rates. You can set these rates in the "Currency convert" form in the MManage.

Currency conversions: if the pricelist is not in the native currency format (set by the "currency" global config option), than the server can convert to it automatically based on tb_currencies. You can change the conversion rates from MManage -> Billing -> Currency converter or the prices can be updated automatically from online services (configurable by the "onlinecurrencyconversion" global config option)

In the global configuration, a global currency can be defined by the "currency" setting. For example 'EUR', and there is the possibility to convert other currencies (used for pricelists, simpackets, users) to this "native" currency. For prices defined in "Price List" form, there is a possibility to convert all input prices in "native" currency by checking the "Convert to XXX" checkbox. In this manner for example you can import a pricelist in other currency and that will be converted automatically in native currency when calculating CDR prices.

The conversions are done based on the settings in the "Currency Converter" form. You should update the conversion rates here as frequently as possible.

If you wish, you can leave the original value intact, so you can make your billing in other currencies than the native.

For every simpacket you can also define the currency, which will affect the simcard credit calculation (automatic simcredit requests and recharges for prepaid simcards). Simcredits can be converted in the native currency format if the "convertsimcreditcurrency" configuration option is set to true. So you can have simcards in different countries, but all simcredits will be shown in the native currency.

For endusers and traffic senders you can also define different currency format in the Users and Devices form, Billing tab. The currency format defined here will be taken in consideration by the billing process.

How is VAT handled?

You should try to use prices without VAT included all owner in the system (for pricelist and for simcards)

VAT included pricelists can be easily converted to net values by checking the "Convert to NET value" checkbox in the "Price List". You should enter the VAT percent in the "VAT Value" editbox for proper calculations.

For simcards you can setup the VAT value in the Packet options ("VAT" editbox). If you set the "convertsimcredittonovat" global configuration options to true, than sim credits will be automatically converted to net values. For example after an automatic credit request, the credit value in the received messages (SMS) will be automatically converted to net values.

You should set up the appropriate VAT values for users too, which will be taken in consideration during the billing process.

Pin codes

Recharge codes used if you have prepaid cards printed.

You can generate random prepaid codes here.

Prepaid account can be charged over the website or by ivr:

Website operation:

-user authentication (tb_users.username and password)
-check if pincard is valid (tb_prepaidcodes)
-increase credit for the user (tb_users.credit)
<u>IVR operation:</u>
-automatic user authentication based on sip registration or require entering the phone number to be charged
-require pin code
-check if pincard is valid (tb_prepaidcodes)
-increase credit for the user (tb_users.credit)
-goodbye message

Reports

Payment report statistics available under the "Billing" section. This reports are mostly based on the tb_invoices database table which is used to track all payments and credit modifications.

Advanced statistics

The "Advanced statistics" form available under the "Monitoring" section can be used to build cost based statistics:
The billing related values are the followings:
-EC: enduser costs
-PC: provider costs
-SC: sales costs
-CC: company costs
-EP: estimated enduser price/minute
-PP: estimated provider price/minute
-PF: profit value (This require your billing module to be properly configured including provider prices)
-PR: profit margin in percent
-PFE: profit from enduser (useful if you are using reseller or sales accounts)
-PFR: profit from top reseller (useful if you are using reseller accounts)
-HM: hidden minutes

IVR billing

IVR billing can be more complicated than the billing for usual calls because here we have **2 leg calls**.
-a-leg: means the call to the ivr access number
-b-leg: means the call forwarded from IVR
Even multiple b-leg calls are possible (depending on your IVR scrip if you allow a new call after the current one is finished)
These call legs can be billed using separate pricing although usually the a-leg calls is free for the users (except some special numbers like toll free access, when you have to set some costs also for IVR access)

CDR records:

These calls can be merged to one single CDR, or the a-leg call and the b-leg call(s) can be stored in separate CDR records. This decision can also affect your billing in some circumstances.
The following options are available:
CDR's generated based on "**ivrbilling**" global and user setting: 0: one CDR including the forwarded call, 1: load duration only from forwarded call, 2: generate 2 CDR records (A leg + B leg), 3=both merged,4=merged with short a-leg,5=only b-leg billing if call is connected

> ➢ ivrbilling is 0: (server side) 1 CDR will be generated with total client call duration. The billing will be done after the final called user (the IVR access number when the call was not forwarded. Otherwise the final destination number)
> ➢ ivrbilling is 1: (client side) 1 cdr will be generated. The call duration will be set after B-leg call duration and billed accordingly

- ➢ ivrbilling is 2: (both) 2 cdr will be generated (when there was call forwarding action). The 2 cdr record can be billed separately after different billing tables
- ➢ ivrbilling is 3: (both merged) 1 cdr will be generated, but the enduserprice can be loaded from different billing tables (2-leg merged)
- ➢ ivrbilling is 4: (both merged with short a-leg) 1 cdr will be generated, but the enduserprice can be loaded from different billing tables (2-leg merged). The A leg duration is shortened (only the time spent with IVR until the call forward action)
- ➢ ivrbilling is 5: (server side if connected –mostly the same like ivrbilling 0) 1 CDR will be generated. If the call was not connected then all duration will be billed (you can setup different billing for these calls by marking the entry as "is ivr call" and set the "called" to the access number. If the call is connected, then the B-leg will be billed (possibly after a different billing packet)

Avoid using one CDR record if you allow multiple b-leg calls from your IVR scripts.

Pricing setup:

For IVR calls you might apply the same pricing packet as for usual calls or set the "CallLeg" property accordingly.

To specify a different pricing for one access number, set the "Access number" properly for the billing packet. Otherwise the pricing will be applied for all access number.

Common scenarios:

Calls connected to the IVR without or with failed b-leg call

For this you might have to create a packet and set the "Call-leg" property to "a-leg calls only". Add one price entry with prefix set to * and price set to 0 (or other price if users have to pay also for IVR access)

Calls with successful b-leg call(s)

In this case one or more CDR can be generated depending on the "ivrbilling" global configuration option.

Usually 2 pricing packet should be applied. One for a-leg call where you usually set the price to 0, and another one for b-leg call (which can be your default end-user cost pricing)

Residential users

For residential users you might or might not charge the ivr access. For this purpose you might use the "ivrbilling" option set to 0 or 5 (only 1 CDR record will be generated in this case!)

Toll-free numbers

For toll-free access usually you have to increase your prices with a fixed amount. In these cases you need to bill also the a-leg calls.

To bill the a-leg call, setup a separate packet and set the "call leg" option to "a-leg calls" then set the toll free access number as the "called" user.

For the b-leg call, you can clone one of your existing packet with a fixed amount increase and set its "call leg" property to "all ivr calls" or "b-leg calls"

For other ivr options use the campaign settings or the global configuration options (open the "Configuration" form under the "Other" section and search for "ivr")

Call shops

Callshop are represented by normal enduser accounts and the assigned "cabins" are treated as sub-users.

Since the parent user is billed for all sub-user calls, this will make it ideal for callshop usage.

Callshop owners can login to the web interface to add new cabins (if allowed) and to monitor the usage of the cabins.

Resellers

Resellers can be added in the server by selecting the user type as "reseller" and assign a unique username and password.

This username and password combinations can then be used from the web interface to access the reseller account functionalities.

Reseller can create their own tariffs, endusers and sub-resellers (unlimited level)

If the "resellerbilling" global config option is set, than reseller cdr records are stored in the tb_cdrresellers and billed accordingly.
To define a "base tariff" for the reseller the "Is Public" option is used from the "Price Settings" form (usually applied to an "enduser cost" packet.)
This will be the prices that will have to be paid by resellers to the service owner.
Reseller can create their base tariff (by setting the "resellerid" in tb_billentries) usually from a webportal. Multiple packets are allowed and packets can be assigned to other users or resellers directly from web (in the same way like on the "Users and Devices" form -> "Billing" tab -> Billing packet setting.
Resellers usually will create their own price lists by cloning an existing list or their base tariff list.

Top reseller statistics can be viewed on the "Advanced statistics" form by checking the "OC" and the "PR"/"PFR" fields.

Key points:
-set the "resellerbilling" global config option to true!
-unlimited reseller child/parent relationship can be created (limited by the "maxresellers" global config options)
-this relationship can be analyzed using the "Ownerships" form,
-make sure that you have a public reseller price listing
-reseller will be able to create their own prices on the website
-reseller can create a "base tariff" and other tariffs assigned to individual users
-individual reseller prices are stored in tb_billsources with their "resellerid"
-if reseller has not tariffs, than the billing will be done after usual enduserprices
-top reseller id is stored in tb_cdrs.resellerid and the "othercost" field will contain the payment from the reseller (loaded from public reseller price)
-individual reseller cdr records are stored in the tb_cdrresellers
-check reseller statistics on the "Advanced Statistics" form

The following reseller related fields are stored in the first cdr (in tb_cdrs. This can be queried using the MizuManage):
 -the caller enduser name
 -reseller field set to topreseller
 -pricing after parent reseller
Then each reseller will have its own CDR record stored in tb_cdrresellers (each reseller will have access rights only for their CDR records from the web interface)

if reseller has no credit, the billing will be done after the provider prices (usually generating profit loss for the reseller)
set parent for top reseller accounts to an owner account

Usually the reseller **prices are assigned** on the web interface by the parent resellers, however this can be done also using the MizuManage client.

 •
For the top reseller prices there are no special things to do. Just create an endusercost entry and set it to be public
(this will be shown as "provider pricing" when the top resellers will login on the web interface)
 •
To setup a pricing cost for a reseller using the MizuManage client, follow these steps:
-open the "price setup" form
-create a new packet with any name
-set this packet with lower priority than the others
-add the prices on the right side (or import from a file)
-open the "users and devices" form, and select the reseller
-select the newly created packet on the billing tab as the billing packet.
 •
To setup a pricing for a reseller that will be applied for its users (child) using the MizuManage client, follow these steps:
-open the "price setup" form

-create a new packet and set it's resellerid to the reseller you wish.

-set this packet with lower priority than the others

-add the prices on the right side (or import from a file)

-you might assign this packet for some child from the "users and devices" form, billing tab, using the billing packet entry. (make sure that all users are direct child of this reseller)

-if the packet is not assigned to any child, than it will act as a "base tariff" (all child without a price list set directly will be billed with this pricelist)

Payments

There are various built-in prepaid and postpaid payment method implemented:

 ➢ payment by credit cards or PayPal via payment gateways (epayment)
 ➢ payment using recharge codes (PIN/voucher)
 ➢ payment from third party applications (that can use the http and the database interface to upgrade the credit and bookkeeping)

Payments are tracked in the tb_invoices table and can be queried later for statistics and reports (Billing -> Reports form)

All **credit changes** for prepaid users should be logged in this user. Never modify the credit directly. Use the "Modify" button from Users and device -> Billing page if direct modification is required.

Invoices for postpaid user can be generated from the Billing -> Invoices

Chargecards can be generated from Billing -> Pincodes

CallingCards:

There is a special user type called "callingcards" but any usual user can act as a calling card.

Users can access the system via Web or IVR typing a pin code. The pin code will represent the "pincode" column from the user table or the username+password combination for enduser or only the username field for calling cards.

PayPal: direct or indirect handling of PayPal payments are supported on request.

Your users are allowed to use **e-payment** and to pay directly with their **credit card**. Most of the available merchant gateways are supported.

Credit Card and eCheck processing support for every major Internet Payment Gateway using secure data communications using up to 128-bit SSL encryption and Digital Certificates.

The Credit Card validity checks decrease expenses that result from attempting to authorize invalid credit cards.

The current list of supported payment gateways include:

3DSI EC-Linx	www.3dsi.com
ACH Payments	www.ach-payments.com
Authorize.Net	www.authorize.net
Bank Of America	www.bankofamerica.com
BeanStream	www.beanstream.com
Chase Merchant Services	www.chase.com
Concord EFSNET	www.concordefsnet.com
CyberCash	www.cybercash.net
Cyber Source	www.cybersource.com
DPI Link	www.dpicorp.com
ECHOnline	www.echo-inc.com
ECX QuickCommerce	www.ecx.com
eProcessing	www.eProcessingNetwork.com
eWay	www.eway.com.au
Fast Transact	www.fasttransact.com
FirstData / Cardservice Int.	www.firstdata.com
goEmerchant	www.goemerchant.com
GoRealTime (Full-pass)	www.gorealtime.com

Innovative Gateway	www.innovativegateway.com
Intellipay ExpertLink	www.intellipay.com
Iongate	www.iongate.com
iTransact RediCharge HTML	www.itransact.com
LinkPoint	www.linkpoint.com
Merchant Anywhere	www.merchantanywhere.com
Merchant Partners	www.merchantpartners.com
Moneris	www.moneris.com
MPCS Weblink	www.merchantcommerce.net
NetBilling	www.netbilling.com
Network Merchants	www.networkmerchants.com
NexCommerce	www.thompsonmerchant.com
NOVA's My Virtual Merchant	www.myvirtualmerchant.com
NOVA's Viaklix	www.viaklix.com
OGONE	www.ogone.be
Optimal Payments	www.optimalpayments.com
PayFlow Link	www.paypal.com
PayFlow Pro	www.paypal.com
PayFuse - First National MS	www.firstnationalmerchants.com
Paygea	www.paygea.com
PayJunction Trinity	www.payjunction.com
Paymentech - Orbital	www.paymentech.com
Payment Express	www.paymentexpress.com
Payments Gateway	www.paymentsgateway.com
Payready Link	www.payready.net
PayStream	www.paystream.com.au
Planet Payment	www.planetpayment.com
Plug 'n Pay	www.plugnpay.com
PRIGate	www.paymentresource.com
Protx	www.protx.com
PSIGate	www.psigate.com
RTWare WebLink	www.rtware.net
SECPay	www.secpay.com
SecurePay	www.securepay.com
SkipJack	www.skipjack.com
Sterling	www.sterlingpayment.com
SurePay / YourPay	www.surepay.com
TransFirst eLink	www.transfirst.com
TrustCommerce	www.trustcommerce.com
USA ePay	www.usaepay.com
uSight	gateway.usight.com
Verifi	www.verifi.com
Verisign PayFlow Pro	www.verisign.com
WorldPay Select Junior Invisible	www.worldpay.com
YourPay	www.yourpay.com
and more ...	

Search for epayment in the global settings for the configuration details.

To enable the E-Payment module follow these steps:
-1. Install the epayment module: EPaymentIntegrator (request from support if you haven't received)
-2. Register the e-payment module
-3. Set the epayment_xxxx settings properly in the global configuration

E-Payments can be initiated from softphone, web portal or the module can be accessed by any external application using the console or the database API.

Global configuration

These options can be set from the "Configuration" form below the "Other" section and will affect all users:

Creditelapseunit: prepaid credits will be elapsed automatically after this period is elapsed. Creditelapseunit means the credit amount for 1 day. For example if you set it to 40 and the user will buy 5000 ft credit, than it will elapse after 4 month
Currency: the currency type is loaded from the "currency" global configuration or from the billed user currency setting. The price setup currency settings also can affect the currency settings.
currencyconversion: 1=native currency, 2=pricelist currency, 3=user currency if match, 4=user currency
onlinecurrencyconversion: 0=no,1=daily,2=weelly,3=monthly, 4=yearly
updatecurrency: whether to automatically set the user currency based on country, language or ip address. 0=no,1=when missing,2=always when missing,3=overwrite,4=always overwrite
Language: the invoice language can be controlled from the invoice form.
PDF Printer and delay: set this on MManage -> Menu-> Options
Time format: if to separe duration values to day/hour/min/sec or display only in seconds. (MManage -> Menu-> Options)
Money precision, rounding and separator are stored in the tb_currency_precizion table, accessible from the Billing form.
creditcurrencyprecision: currency precision (floating point digits) for enduser prices and credit decrease. Default is 14 (max). Can be overwritten by billing package creditcurrencyprecision setting
currencyprecision: used when converting numbers to currency for the IVR
playcreditprecision: currency precision for IVR balance playback. -1 by default which means it will be set automatically based on your currency
playcostprecision: currency precision for IVR call cost playback (this is usually equal or less then playcreditprecision)
currencyprecision: (on webportal section) means the money precision to be display on the web interface
MINSPEACHLENONROUTE: the minimum calculated max speech length when the call will be routed
Hasbilling/can_billing: set to false if billing is not needed for your server (this might save some cpu time)
Freenumlen: free number (shorter number than this value). Default is 4. Set to 0 to disable
Billshortnumlength: max number length to be treated as special "short number". Default is 8. Set to 0 to disable.
shortnumbill_type: how to bill shortnumbers (more details below)
Blocknotbilledcalls: there might be some directions where you don't have a valid pricing set. In this case you can choose to block all these calls if you set this option to "true". Otherwise these can be billed using the "defaultenduserprice" and "defaultproviderprice" global config options.
Notbilledcallerr: whether to generate errors for calls without proper enduser pricing: 0=default (error with 2 priority),1=error,2=critical
Peaktimebegin-peaktimeend: set the hour intervals if peak/off-peak time based billing are used (this might simplify your billing entries instead to use exact date-time interval values)
Weekendispeak: whether to treat weekends as peak time
Autoholiday: holiday routing and billing treated as Sunday (default is true)
Resellerbilling: must be set to 1 if you use resellers. Otherwise reseller billing will not work. Set to 0 if reseller accounts are not used to save cpu time. (this can be set by config wizard with the "resellers" checkbox)
Ivrbilling: used for IVR billing (one or multiple cdr. Read more in the "IVR billing" section)

internal_endusercost- internal_providercost: whether to bill internal calls between local users (default values are 0)

maxpriceperminute: will alarm if providerprice is bigger

smsprice: a fixed price for SMS messages (otherwise use price setup)

creditcheckforpostp: if to check credit for postpaid accounts (can be used to enforce max limitations)

creditcheckforts: if to check credit for traffic senders

creditelapseunit: prepaid credits will be elapsed automatically after this period is elapsed. Creditelapseunit means the credit amount for 1 day. For example if you set it to 40 and the user will buy 5000 ft credit, than it will elapse after 4 month

Maxcreditelapsedays: max number of days when the credit will elapse

Accelapsedays: the number of days from creditelapsedt when the account will expire (account number will be suffixed with _elps ans set to temporarydisabled)

Mincreditonroute: minimum user credit (if less, than calls are rejected)

Maxusercreditonroute: max user credit to check (if user has more credit, max call length limitation are not checked which will save cpu)

ivrtimeout: max IVR session length without b-leg call

ivrtimeout2: max IVR session length if there was a bleg call

freeivraccess: whether to allow ivr access for unauthorized peers: 0=no (default),1=callback,2=ivr,3=ivr+callback

freeaccessnumber: free access number (default is empty)

freeaccessuserid: free access number impersonalization

MINUSERCREDITONROUTE: deprecated. Use the Mincreditonroute setting.

MINSPEACHLENONROUTE: minimum speech length to allow the calls (default is 60 sec)

Sendusercredit: if to send the credit, balance and rating in sip messages (can be used by client applications to display the balance): 0=no,1=credit,2=credit + rating,3=always

Sendusercreditto: send credit info to user agents: 0=no,1=mizu clients only,2=mizu only,3=all devices

Short number and internal billing

You can set the short number billing mode by the "shortnumbill_type" config value. When set to 0, all short numbers are billed with the price set in "internal_providercost" and "internal_endusercost". When set to 1 (default),, then the "999" prefix is inserted before the called numbers, and you have to create billing entries for these numbers.

Numbers are treated as "short" if its length doesn't exceed the value set by the "billshortnumlength" global config option.

Calls between endusers are billed with the "internal_providercost" and "internal_endusercost" values (defaults to 0).

All called numbers are considered short numbers where the length is lower than the value set for "Billshortnumlength" global config option (default is 8). Called numbers with length less than "Freenumlen" will be allowed always (treated as free numbers).

Technical background

This section will describe some key technical aspects.

The billing process

When a call arrives to the system, the server first will lookup the caller user and will normalize the called number (remove garbage characters, remove IEC code (+,00,011,etc) and/or after your custom rules. Then if the caller is a prepaid user a maximum call duration will be calculated and applied for the session.

After each call one ore more CDR record is generated.

Every cdr record are handled by the billing module. Prices are determined by the v_getprice stored parameter and other system settings.

v_getprice parameters:

@type tinyint: type of the billing. 1=enduser cost, 2= provider cost, 3=sales cost, 4 = company profit, 5 = other cost

@callednorm varchar(26): normalized callednumber. example: 36301111111 (B number)

@callerid int: database id of the caller user

@callernum varchar(26): caller number (A number)

@techprefix varchar(4): 3 digit tech prefix if exists
@calledid int: database id of the called user
@calledpacket int: simpacket if exists
@timetype1 tinyint: time period
@timetype2 tinyint: time period
@timetype3 tinyint: time period
@timetype4 tinyint: time period
@currday smallint: weekday number (Monday is 1)
@currhour smallint: call midtime hour
@currmin smallint: call midtime minute
@parentid int = 1: database id for the parent of the caller user

timetypes are considered when you doesn't set a concrete start-end period in the price list, and you choose from a predefined pattern (peak, off-peak, weekend, weekday, holiday, evening, night). the following timetypes are defined:
0: Disabled
1: Start-End Time
2: Peak
3: Off-peak
4: Weekday
5: Weekend
6: Off-peak and weekend
7: Evening
8: Night
9: Holiday
10: All times
11: Other Times (Rest)
example: v_getprice '1','36301234567',6555,'003615555555','150',666,-1,4,2,99,99,4,11,41,500

The v_getprice stored procedure will **return** the following fields:
tb_billentries.currency,tb_billingtimes.isdiff,tb_billingtimes.origprice,tb_billingtimes.price, tb_billentries.billingstep,
tb_billentries.minammount,tb_billentries.freeammount,tb_billentries.freeafter,tb_billentries.vatincluded, tb_billentries.vatvalue,
tb_billentries.converttonative,tb_billentries.converttovat

According to returned billing settings, the price is calculated accordingly.

If there are no price defined, than default price are loaded. (if set)
If there are no **sales** price defined, than will be loaded from user setting (commission)
For **enduser** prices, the discounts and user reductions are applied if set so. Then the user **credit** is updated.
If there are any **error** with the billing process, than the default prices are applied if exists.

Billing verification:
List the required CDR records with "Show minute price option"
You can find the billing logs if you search for the called number in the server logs.
Copy the required v_getprice log in the direct query form.
Check if the returned values are as expected.

Invoice and payment storage
Invoices and payments are stored in **tb_invoices** in the database. *So the invoices can be searched, recreated and storno invoice can be built based on existing invoices.*
The last invoice number are loaded from database before every new invoice and incremented. Thus the invoice number increment is guaranteed the by database engine transactional behavior.

The following fields are defined:

ID: auto increment database primary key

Type:
- 0=All or Recreate (technical)
- 1=Report
- 2=Proform
- 3=Advance
- 4=Invoice
- 5= CreditNote
- 6=Storno
- 7=Correction
- 8=Payment (technical: payment received)

Copynum: printed copies

CompanyID: emmitent company ID (tb_billsources)

UserID: costumer ID from tb_users (if any)

User_name: costumer name or company name

User_address: costumer address

User_regnum: costumer registration number

User_euregnum: costumer eu registration number

User_bank: consumer bankdetails (cont and address)

Payment_type: mode of the payment (Ex: bank-transfer)

Datum: record date-time

Invoicenum: the number of the invoice

~~Invoiceid: deprecated~~

Invoicefrom: billing period begin time

Invoiceuntill: billing period endtime

Invoicegenerated: invoice print time (optional)

Invoicesent: invoice sent time (optional)

Completitiondate: completition date

Duedate: payment due date

Language: invoice language

Vat: VAT percent

VatValue: sum of VAT

InvoicePrice_Net: final net price

InvoicePrice: final price

PaymentReceived: date-time of the payment

Debt: sum of all debt

Pending: all sum before due date

Comment: invoice comment

InvoiceImage: saved ivoice file

tb_invoice_entries:

Id: auto increment database primary key

Invoiceid: foreign key to tb_invoices

datum: record insert date

description: product description with code

fromdate: billing period if applied

todate: billing period if applied

Ammount: amount

AmmountName: name of the amount (minute)

AmmountPrice: unit price (net)

The emmitent (company) settings are stored in the tb_**providers** table. Only one company entry can be stored. *Once the company details are inserted to the database, the company name cannot be changed anymore.*

Notes

Call forward billing: 2 cdr record will be generated. A->B and B->C

Call forward from IVR: one cdr will be generated. Wither we charge the call to the IVR or only bill the forwarded call can be controlled by "resetdurationonfwd"

Call transfer by SIP signaling: the second call is completely different from the first call. Billing goes normally (2 calls)

Call transfer with dtmf (*5*): only one call leg is billed

Conference with dtmf (*1*): separate cdr will be generated for all call legs

Conference by sip: technically separate calls. Will be billed normally (2 cdr)

IVR billing are done after the "ivrbilling" global config option.

Checklist

- o   Make sure that your global currency setting is set correctly.
- o   If you have users using different currency, then set the currency per user from "users and devices" form -> "billing" tab
- o   You must have at least one enduser cost type packet that can be applied for all (the rest of) calls (no filters for the packet)
- o   Make sure you cover all destinations (prefixes) in your pricelist(s). Otherwise use the * for all other or the "defaultenduserprice" global config value will be applied.
- o   If you provide web interface for your endusers or reseller, then make sure to mark the appropriate packets as "public". This price listing will be displayed for the users.
- o   Set the "resellerbilling" global config option to true if you are using reseller accounts or leave it "false" if not. This can also be set using the configuration wizard
- o   If you are using the IVR make sure to select your preferred billing method (ivrbilling config option)
- o   If you are using the IVR, make sure that you have separate enduser cost pricing for calls trough the IVR (use the "CallLeg" option)

For more details use the Admin Guide or contact our support.