



## System Administrators Manual

**DRAFT**  
Version # 2.0

For astbill version 0.9.0.16  
30 March 2006


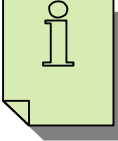



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[More Topics to be added here:](#)

## Legend:

		Tip or Idea
		Information
		Caution: be careful of what your are doing
		Work in progress or under construction
		STOP: Don't do it

## Introduction:

AstBill is not only a web-based, user friendly billing interface for Asterisk and VOIP. It is also a Asterisk configuration and GUI management tool and a standardized implementation of Asterisk using REALTIME and static configuration as you please.

AstBill is open source software licensed under the GPL, and is maintained and developed by a community of users and developers. AstBill is free to [download](#) and use. If you like what AstBill can do for you, please work with us to expand and refine AstBill to suit your needs.

## Astbill Features:

Here are some of the features of **AstBill**:

### **User-friendly End User Web interface gives access to a range of functionality:**

- Personal Contact Directory with Categories
- View SIP, IAX and Virtual Accounts
- Virtual Accounts You can forward your calls to any extension you want
- Time based forwarding and Billing for Asterisk and VOIP
- Credit Control on outgoing calls
- Show Balance, Expenditure, Payments and number of Calls on each account
- Set warning balance for email when low credit on account
- View Numbers Dialed and add them to the Contact Directory
- View Numbers Dialed by Names from the Contact Directory
- Dynamic International Rate Table (Each customer can have his own price list using Brands)
- Rate Table in Currency of choice
- Call Data Records including cost of each call and time based billing
- Call Data Records in his Currency of choice
- Switchboard (Displays live status of users phones and ongoing calls)
- Allows one click calling from GUI and direct to phone
- Call Parking sends calls to parking and then redirects to phone
- Allows transfers of calls
- Edit your Account setup
- Asterisk Billing and Management
- Edit voicemail setup including email and pin
- Create Time Based Dialing and billing. You to forward your calls based on time and day.
- Each user can have unlimited of SIP, IAX and Virtual Accounts
- Each user can have unlimited Prepaid Card Accounts linked to his userid
- Specify your hardware and change the viewable name of your accounts
- Temporary disable SIP, IAX or Virtual Account
- Manage your Incoming Public Numbers including Time based forwarding

### **User-friendly Administrator Web interface gives access to a range of functionality:**

- Show Balance, Expenditure, Payments and number of Calls on each account
- Call Data Records including cost and Sales on each call
- Branding Module. Allows you to create Brands in any Currency
- For each Brand define Currency, Billing Increment, mark-up and connection charges
- Flexible Dynamic International Rate Table for Each Brand in any Currency
- Server Status (Displays live status of users phones and ongoing calls)
- Show Peers. List of the last clients (SIP and IAX2) that have connected to the Asterisk server.
- Audit Trail. Show IP, Port and UserAgent for each call
- Manage your Incoming Public Numbers including Time based forwarding
- Manage Trunks. You can use unlimited ZAP, IAX and SIP trunks.
- Time Based Trunk Dialing. Each trunk can have his own time based dialplan
- Temporary disable trunks
- Trunks can be rated after cost. Allow for cost based Dialing
- Define maximum concurrent outgoing calls on each trunk
- If lowest cost trunk is fully used (busy) the system will choose the next available trunk.
- Define unlimited outgoing routes and link them to your trunks

- Store cost of your outgoing route for each trunk for efficient cost control
- All outgoing routes are stored independent on the client price list
- Define customer price lists for each Brand and Currency
- Billing Routing and Management software for Asterisk and VOIP
- Advanced customer management and portal management
- Integrated E-commerce module and web shop is available under GPL
- Define list of VOIP hardware commonly used
- Full Hardware Inventory. Store mac address and serial numbers of client hardware
- View and Store Customers payments
- Asterisk Billing and Management
- Manage Pre Paid and Post Paid customers. Full Credit control by User Account
- View important Server logs from web interface
- Define maximum concurrent calls on each Customer Account

AstBill includes the functionality needed by most small- to medium-sized businesses (SMB). It is also very efficient as a platform for small VOIP providers. AstBill is used by several small businesses and is the platform for <http://astatelecom.com> the new European Asterisk call termination service currently in beta.

# Astbill Requirements:

## **Hardware:**

The min requirements are: Any PC or PC compatible with a min of PII 300Mhz processing power with 128MB Ram and 2-4GB Hdd, Floppy & CDROM.

The recommended specifications are: Any PC or PC Compatible with P4 2000Mhz+, 1GB Ram and 10Gb+ HDD, Floppy & CDROM.

## **Software:**

Linux O/S, Knoppix, Dsl, Debian, Centos etc ..

[PHP](#) - The recommended php version is 5.0.4

[Asterisk](#) - Version 1.2.x (Most of AstBill is also working on Asterisk 1.0.9 but the 1.2x is needed for the new REALTIME features)

[MySQL](#) - Version 5.15 Astbill is using Views and Stored Procedures, which is only in 5 and up)

[Apache](#) - Version 2.0.54 (It should run fine with Apache Version 1.x but it's only been tested on 2.x)

[Drupal](#)- Version 4.6.3 (Drupal is GPL software that allows an individual or a community of users to easily publish, manage and organize a great variety of content on a website.)

## **LiveCD:**

The LiveCD is a self contained fully installed and configured installation of astbill + php + apache + mysql. All you need to do is boot the server from the Cdrom and you have a working server.

The minimum ram required for the astbill cd is 256 mb ram.

Use it mainly for demo purposes as you will not be able to save any of your changes to the system.

You can also install this livedcd onto your hard drive and then work of the hard drive. It will install all programs and dependencies for you. Any changes that you do then are permanent and are saved onto your hard drive.

For more details on the operating system setup and its instructions, please refer to [www.damnsmalllinux.org](http://www.damnsmalllinux.org) or the knoppix website.

## **Installation Instructions:**

Please refer to the up-to-date `install.txt` for more information on how to setup your astbill solution.

First of all, make sure you have all the requirements set up properly. If you are having problems please take a look at the Further Advice section.



## Windows Specific:

Astbill will only work on a windows operating system if used as a remote astbill solution. You still need to run the asterisk server on other Linux servers.

Apache 2.x or IIS 5.1 or Higher  
PHP 5.0.4  
Mysql 5.0.18  
Drupal

Or you can download the latest version of Xampp from [www.apachefriends.org](http://www.apachefriends.org) . Xampp has apache, php, mysql & phpmyadmin all integrated into one simple install.

Follow the instructions in the drupal install.txt file for windows. Once you have a working website using drupal. Then create the astbill databases in mysql using the supplied mysql database files.

Then edit the settings.php file in drupal to change to astbill database and add the prefix "pbx\_"

*Note: When running on windows + iis, you need to enable the gd2.dll in php.ini and set the email server details as well.*

## Support

Don't forget that this is free software under development! Chances are good there's a crucial step that hasn't made it into the documentation. If you have any problems feel free to contact us on the forum <http://astbill.com/forum/3>

Please provide enough information to work with, and preferably be aware of what you're doing! And keep track of major changes to the software, including performance improvements and security patches.

The best way to get support is by using the forums. This allows other users to learn from your request.

<http://astbill.com/forum/3>

Andreas Mikkelsen - adoroar [Guess What?] astartelecom.com  
Are Casilla - areast [Guess What?] astartelecom.com  
anil - anil [Guess What?] astbill.com

# Configuration:

## ***System Setup:***



Before you start using astbill, you should first customize it to suit your needs. By default astbill uses UK defaults. To change the defaults to suit your setup, you need to do the following:

You first need a blank database without any of the demo user accounts or any of the other data. Or you can use the existing one supplied by astbill. Then use phpmyadmin to empty the tables.

You need to use phpmyadmin program to maintain the data in your tables:

The order of customisation your astbill solution is as follows:

- 1) Edit the table astsystem and see if the defaults suit you.
- 2) Add or Edit the astcurrency table for creating new currencies and editing old ones.
- 3) Edit/Add brands in the astbrands table.
- 4) Edit/Add prices in the astprices table for your brand
- 5) Edit astusers table and change the users table Ex: country & currency. or alter table structure to set your defaults.
- 6) Create trunks (asttrunk table)
- 7) Edit/create routes in astroutes for the above trunks

Remember all new accounts created automatically by astbill defaults to IAX only, you need to manually change them to SIP if you need a sip connection and belong to the default brand.

## ***System Defaults:***

## Database Structure:

Astbill version 0.9.0.16 has a total of 109 tables & views. Tables with the prefix pbx\_ belong to the drupal cms application.

All astbill Tables start with ASTxxxxx and all astbill Views start with ASVxxxx

The tables contain the actual data, where as the views show the data from the tables.

### *astsystem:*



serverid (*)	name (*)	value (*)	comment (*)	viewstatus (*)
DEF	accountstart	7	This is the first digit of the automatically created account number. Automatically created account number must be numeric	E
DEF	accountlength	5	This is the length of the automatically created account number	E
DEF	firstaccount	72000	If there is no account defined in the 7 range. This will be the first account created	E
DEF	TopUpURL	/topup/	The URL used to topup AstBill VOIP Software	E
DEF	LOGMessages	2000	This is the numbers of chars visible from the Asterisk Messages Log File	E
DEF	AccountDropDown	1	If 1 We will use a Drop Down box to show Accountcode in Payment screen and other Screens. If 0 a text entry box will be used.	E
DEF	GlobalDialPrefix		It is common to Add 00 as Global Dial Prefix. This allows users to dial international numbers without 00 or 011 prefix	N
DEF	MaxMinute	60	This is the maximum allowed minutes for a call. If your call last longer than this you will be disconnected by the System.	E
DEF	AstBill-DB-Updated	2006-02-14	This is the date of the last Database patch applied to your system	D
DEF	AstBill-Version	AstBill-0.9.0.14	The Official Version number of your AstBill Installation	D
DEF	AstBill-GUI-Updated	2005-12-08 08:20:44	The last date your Web GUI have been updated	D
DEF	Log-Path	/home/astbill/logs/	This is the Path to log files created by agi-bin scripts	E
DEF	def-voicemail-pin-length	4	The Voicemail PIN/Password Length to use when creating new accounts	E
DEF	def-password-length	6	The Password Length to use when creating new accounts	E

Accountstart: This field specifies the FIRST DIGIT of all the user accounts. This impacts on the LOCAL Numbers. By Default it is "7". You may choose any starting digit. If you

change this digit here, be sure to change the value in the field "pattern" in the astroute table for the local trunk.

Accountlength: The default value is 5, which means that your account numbers will consists of a five digit number. By changing the length here, you need to update the field "patternlen" in the astroute table for the local trunk.

Firstaccount: The value in this field is used to create the very first account. This is used in a fresh install with a blank database. If you have any existing accounts starting in this range, then the system will continue on with the last created account.

TopUpUrl: This value specifies the URL Node where TopUp's to an account can be done.

LogMessages: Useful on a very busy system. Shows the number of characters from the asterisk message log file as defined here.


CountryPrefix: Set this value to the country code of your choice. The Default value here will be used when creating any new user.

AccountDropDown: This setting enables how the accountcode is filled in the payments screen. If it set to 1, then astbill shows a dropdown list of the accounts to choose from. If set to 0, then astbill will show a text box to fill the accountcode in manually.

Recommended is to use 1, as this will enable correct accountcodes to be selected.

GlobalDialPrefix: It is common to Add 00 as Global Dial Prefix. This allows users to dial international numbers without 00 or 011 prefix. So if you enter 00 or 011 in this value, your users need not dial this prefix. Astbill will use this prefix.

MaxMinute: This is the maximum allowed minutes for a call. If your call last longer than this you will be disconnected by the System. The default value is 60 minutes. The average recommended setting is 30 minutes.

	Don't change your system setup once you have started using astbill. This will break the astbill solution. So plan ahead and set your defaults accordingly.
---	--

## **Astcurrency:**

currency (*)	ratetabledesc (*)	currencysymbol (*)	currencysymbol 2 (*)	centsymbol (*)	currencyrate
GBP	UK Pence	£	£	p	1.0000
USD	US Cents	\$	\$	c	0.0000
NOK	NOK ore	NOK	NOK	ore	0.0000
SEK	SEK ore	SEK	SEK	ore	0.0000
EUR	Euro Cents	€	€	c	0.0000
AUD	AUD Cents	\$	\$	c	0.0000

Define your currencies in this table. This will be used in the Brands table to create your astbrands and in the astusers table

Currency: Input the short currency code

CurrencySymbol: The symbol for this currency

Currencysymbol 2: The second currency symbol

Centsymbol: the symbol to show cents

Currencyrate: the currency rate for this currency. This is currently not active.

Ratetabledesc: This field describes the currency

## ***Astcountrycode:***

This table holds the country codes and the name of the country.

db_prefix	pbx_ The db prefix by default is pbx_ This is usefull when running multiple sites from one database installation.
countrycode	The numeric code for the country
country	Country Name
usstate	The state name. Applies to US only
idd	The idd number for the country. Ex: the prefix code 00 before the international Tel number

## Astplans:


Define your plans in this table.

name (*)	currency (*)	language (*)	publishednum (*)	did (*)	markup	billincrement	connectcharge	status
Star	GBP				50.00	1	1.00	1
Hiper	GBP				50.00	6	1.00	1
default	GBP				0.00	30	1.00	1

name	The name of plan
currency	The currency this plan will use
language	
publishednum	
did	
markup	Amount in decimal amount
billincrement	In seconds (time)
connectcharge	Amount In decimal amount
status	0= inactive, 1=active

You need to have at least one plan. The default plan can be customized for your needs.

From the above example you can see that the default plan is the most expensive on terms of the billincrement flag and it becomes smaller as the markup increases.

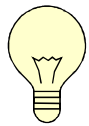
	Remember to keep your default plan the most expensive one. The other plans can be setup based on cost, quality & importance.
---	--



## ***Astpricelist:***

You need to define your pricelists. You need at least one pricelist for each route.

id	A numeric identifier, needs to be unique
countrycode	The country code
pattern	The pattern to match a dial string
ccn	
name	Destination name
weight	0
connectcharge	Connect Charge for this call in decimal format
includedseconds	List and included seconds in the above connect change
minimumprice	The minimum price in decimal amounts
price	The price
brand	The plan to which this price line belongs to
txtcomment	



Remember: Pricelist are the prices that you charge your customer.

## **Astrunk:**

Define your trunks, which will be used by your Routes.

tid	The trunk id, auto generated by the system.
name	Name of the trunk, should be a unique name
tech	The technology used for this trunk. Local, Zap, Iax2 etc.
path	Only used if you want to use trunks created in your static files, sip.conf etc. if so then add "@" to the beginning of the trunk name used in your static configuration.
static	R=realtime
isdefault	1=yes default, 0=NO not default
serverid	Not Used currently
comment	Comments about this trunk
vat	If you want to add VAT to the Vendors prices before we calculate our cost. This field will make astcdr.ourcost include VAT. This is useful if you are not able to get your VAT back from your Vendors:
vat 2	If you don't want astcdr.ourcost to include the VAT but want to store the rate for use in reports. Update the vendors VAT rate. This rate is not used during calculations of astcdr.ourcost:
usagecount	This field is updated by astbill when calls occur, do not change this. Leave at 0
maxusage	Enter the maximum number of calls via this trunk. Default is 9999
trunkcost	The cost of the trunk in relation to the other trunks in your astbill. The lower trunks are used first.
accountcode	The accountcode to which this trunk belongs, leave blank
username	Username
currency	USD
tenantid	The tenanted number, default is 0
addprefix	The prefix you want to send to your service provider. Some providers require this.
removeprefix	The prefix that needs to be removed from your dialed number, useful if your service provider expects you to send a proper E164 formatted number. So you drop off the prefix like 00 & etc
registerstring	This is the register string you enter to register with your service provider
usstyleprefix	0

## **Astroute:**

id	A unique route id generated by astbill
pattern	The pattern you want to use this route for.
patternlen	The length of the pattern. Only useful for fixed length routes. Ex: your local users etc. otherwise leave at 0
costplan	0
connectcharge	The connect charge
includedseconds	The included seconds in the connect charge
billincrement	Billing time in seconds
minimumcost	The minimum cost
cost	The cost for this trunk
trunk	The trunk to use
timestamp	25/10/2005
countrycode	The country code
routename	The route name



Remember: Astroute are your cost prices that are charged to you by your provider.

## ***Astdialplan:***

did	1
accountcode	72001,
conditions	Offline
action	Voicemail
mon	Yes
tue	Yes
wed	Yes
thu	Yes
fri	Yes
sat	Yes
sun	Yes
start time hr	0
start time min	0
end time hr	23
end time min	59

## ***Astextensions:***

id	context (*)	exten (*)	priority	app (*)	appdata (*)
1	mycontext	_574555XXXX	1	Wait	2
2	mycontext	_574555XXXX	2	SayNumber	102
3	mycontext	2815551212	1	Playback	pbx-invalid
5	cytel	8322008630	1	Dial	SIP/3044,30
7	cytel	80	1	Voicemailmain	@cytel
8	cytel	_832.	1	Dial	SIP/\${EXTEN}@66.88.74.85 30
9	cytel	_9X.	1	Dial	IAX2/devasterisk:asterisk@asterisk-alpha/\${EXTEN}@cytel-internal
10	cytel	3013	1	Dial	SIP/3013 30
11	cytel	_3XXX	1	Dial	IAX2/devasterisk:asterisk@asterisk-alpha/\${EXTEN}@cytel-internal

## ***Astreseller:***

rid	40000
company	Default Reseller
contactname	AstBill Manager
address 1	
address 2	
zip	
city	
state	
country	
phone	
phone 2	
fax	
status	1
date created	02/11/2005
timestamp	03/11/2005

## ***Asttennants:***

tid	30000
company	Default Tenant
contactname	
address 1	
address 2	
zip	
city	
state	
country	
phone	
phone 2	
fax	
status	0
date created	00/00/0000
timestamp	04/10/2005
resellerid	40000

## ***Astuser:***

uid	0
tid	Default Tenant
brand	default
Country Prefix	United Kingdom
currency	GBP, Pound Sterling
creditlimit	0.00
callbackto	72000
lastaccount	72021
comment	default
timestamp	07/11/2005



## ***Astaccounts:***

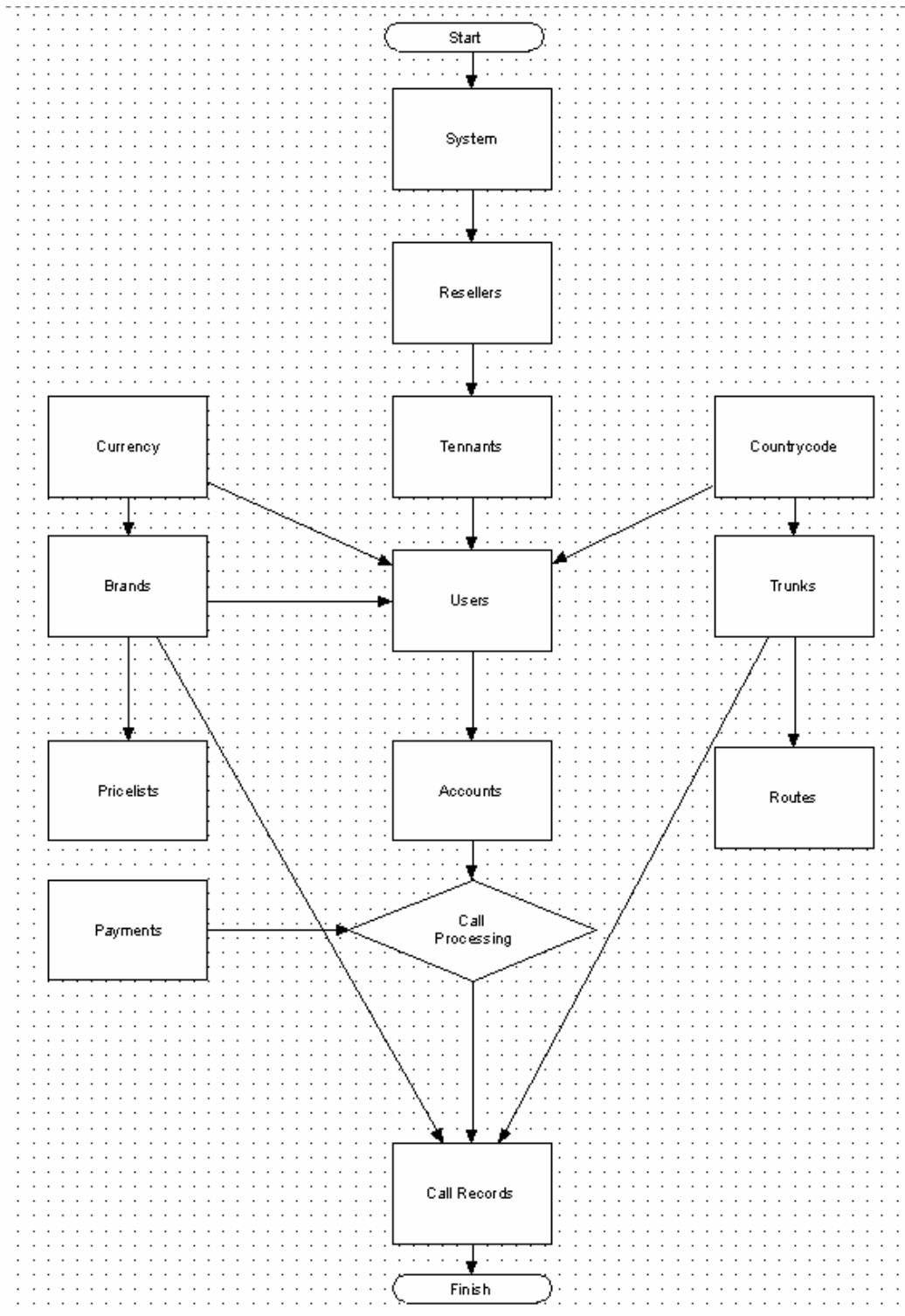
db_prefix	pbx_
accountcode	72001
uid	1, anil
tech	SIP
accountname	
callerid	
forwardto	
allow	
amaflags	
auth	
callgroup	
cancallforward	yes
canreinvite	no
dbsecret	
defaultip	
deny	
disallow	
dtmfmode	rfc2833
fromdomain	
fromuser	
authuser	
username	
host	dynamic
inkeys	
insecure	
secret	90233
md5secret	
context	default
language	us
mailbox	
mailboxpin	
mailboxemail	
pager	
stamp	

attach	yes
saycid	yes
hidefromdir	no
nat	yes
qualify	yes
emailvoicemail	1
mask	
musiconhold	
nottransfer	
permit	
pickupgroup	
regexten	
restrictcid	
restrictid	
rtpholdtimeout	
rtptimeout	
type	friend
comment	
serverid	
active	1
hardwareid	1
usagecount	0
creditlimit	0.00
lowbalance	5.00
lowbalanceemail	0
date created	07/11/2005
timestamp	07/11/2005
ipaddr	
regseconds	0
port	
reg changed	00/00/0000
cccardvalue	0.0000
ccfirstused	00/00/0000
cclastused	00/00/0000
ccexpiredate	00/00/0000
ccexpiredays	0
ccbathno	
ccserialno	
startingcredit	0.0000

## ***Astpayment:***

paid	1
accountcode	72001,
paytype	Credit Card
comment	test pmt
paidamount	10.00
paiddatetime	08/11/2005
date created	08/11/2005
timestamp	08/11/2005

## Astbill Flow Chart:



## **Astbill Mysql Procedures:**

astCreateAcc

This is called by astCreateAccount and allocates the first available unused accountcode to the new user created. This also creates the users in the atbill database if it does not exist as compared against the drupal users table.

astCreateAccount

This procedure is run when a new account is created and checks to see if there a any unused accounts for user 0. if less than 5 then it creates additional accounts for each technology.

RateAddcdr

RateCost

RateGetTrunk

RateStarDead

TrunkDialPlan

astTestBilling

RateSale

RateReserveCredit

## **FAQ:**



### ***What is the default system currency?***

None. There is no default system currency used at the moment.

### ***How is the currency rates used?***

This is not used Yet. Will be used to automatically calculate price lists in different currencies.

### ***In what currency is the user payments received in?***

Same currency as the currency assigned to the account using the brand code of the user. We have to put that on the payment screen.

### ***In what currency does the system calculate the costs and the user balances?***

Same currency as the currency assigned to the account using the brand code of the user

### ***what is the purpose for the virtual account?***

What is it used for?

#### **Virtual Account = Forward calls to any Extension**

Virtual Account = You can forward your calls to any extension you want.

You can also forward the call to many extensions by entering the numbers you want to forward to separated by &

(Example: 9000&8000)

You don't put SIP or IAX in front of the number as AstBill is keeping track of the protocol used.

Personally I work in different locations during the week and I have my number a Virtual Account. This allows me to put in my Real SIP or IAX number for forwarding at any time.

It is like a number that is not bound to a location. If you put a SIP phone on your desk it is still on your desk when you are gone. When you are not there your phone is still there.

Very soon the virtual accounts will also be able to transfer calls to Mobile phones and other external numbers.

I normally put my Virtual Number in my Caller ID for each SIP phone I am using like this.

Are

If my Virtual Number is 70999. This will make anybody to call me back on 70999 and I can have the same number in any location without having to reprogram any SIP or IAX phone.

## ***how to round dialed seconds***

if someone made a call for 42 seconds  
how to round it to 50?

seems that astbill rounds call to 30 sec.  
how to change this?

AstBill can round anything :-)

It is in the Mysql Table astbrand.billincrement  
You can edit it in the web interface using  
AstBill Admin / Settings  
Brand  
Edit

There you have the Billing Increment: field. If you put 10 there AstBill will round up to 50 seconds. This is a Brand Dependent parameter.

## ***Drupal User Control***

I have a problem creating drupal users:

When I create a user which is only an "authenticated user" the menus that he sees are:

Contact directory  
my account  
log out

When I create a user (similar to astbilladmin): "authenticated user, Admin, Adoroar"

the menus that he sees are:

Contact directory  
create content  
my account  
AstBill Admin  
Incoming Friends  
Call Data Record  
Create Account  
Hardware  
Server Status  
Tenants  
administer  
log out

I am not sure which menus the authenticated user should see, but clearly he should see more menus.

What am I missing?

### **Access Control**

Click on administer / Access Control

I can see now that many of the modules don't have access for the Admin Role. You just need to enable the Modules you want admin users to have access to. I think All the modules are a good start. The AstBill Modules are the ones starting with ast.

By Drupal Design user number 1 (astbilladmin) have access to all installed modules and functions. He is like a Super Admin.

### ***What is the difference between the payments menu and the submenu credit?***

When we put an entry in the payments menu shouldn't it in an automatic way update the credits of a specific account?

Payments are for prepaid  
Credit is for example: post paid limit.

I like to think of it as the credit limit set for the postpaid user's accountcode.

### ***Changing the name of the AstBill database***

I was doing and install today where I had to use a different name on the AstBill Database in MySQL.

It was not a problem but a few things to remember so I created a Wiki Entry.

[http://wiki.astbill.com/wiki/Change\\_database](http://wiki.astbill.com/wiki/Change_database)



There are 4 files to edit if you want to change the name of the AstBill Database.

```
/home/astbill/astbill.conf
/etc/asterisk/res_mysql.conf
/etc/asterisk/extconfig.conf
sites/default/settings.php
```

We are changing the name from astbill to voipbilling

```
astbill.conf
dbhost = localhost
dbname = voipbilling
dbuser = astbilluser
dbpass = astbill419
```

```
res_mysql.conf
[general]
dbhost = localhost
dbname = voipbilling
dbuser = astbilluser
dbpass = astbill419
dbport = 3306
; For Debian
dbsock = /var/run/mysqld/mysqld.sock
; For Asterisk @ Home
; dbsock = /var/lib/mysql/mysql.sock
```

```
extconfig.conf
;example => odbc,asterisk,altable
iaxusers => mysql,voipbilling,asv_iax
iaxpeers => mysql,voipbilling,asv_iax
```

```
sipusers => mysql,voipbilling,asv_sip
sippeers => mysql,voipbilling,asv_sip
voicemail => mysql,voipbilling,asv_voicemail
;extensions => odbc,asterisk
;queues => odbc,asterisk
;queue_members => odbc,asterisk
```

settings.php

Make sure the \$db\_url line matches the database defined in the previous steps:

```
$db_url = "mysql://username:password@localhost/database";
where 'username', 'password', 'localhost' and 'database' are the
username, password, host and database name for your set up.
```

The correct example for this guide is :

```
$db_url = 'mysql://astbilluser:astbill419@localhost/voipbilling';
```

## **Dial Features:**

700 Call Parking (then Dial 701 to 720 to set position)

\*\*1 Blind Transfer

\*1 One Touch Record

\*\*2 Attended Transfer

198 VoicemailMain

199 Voicemail for your Extension

500 Date & Time

501 Monkeys

502 Echo Test

503 It is free playback