Nexo IPPBX
CDR & CALL RECORDING
API GUIDE

Version 1.1.0.30

Nexo VoIP Technology

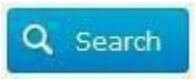
Table of Contents

1 The Content and API of CDR

1.1 CDR REPORT

CDR (Call Detail Record) is a data record generated by the PBX that contains attributes specific to a single instance of phone call handled by the PBX. It has several data fields to provide detailed description for the call, such as phone number of the calling party, phone number of the receiving party, start time, call duration…

CDR Filter

On the IPPBX, the CDR can be accessed under web GUI→**Reports→CDR Report**. Users could filter the call report by specifying the date range and criteria, depending on how the users would like to include the logs to the report. Click on 

button to start the search.

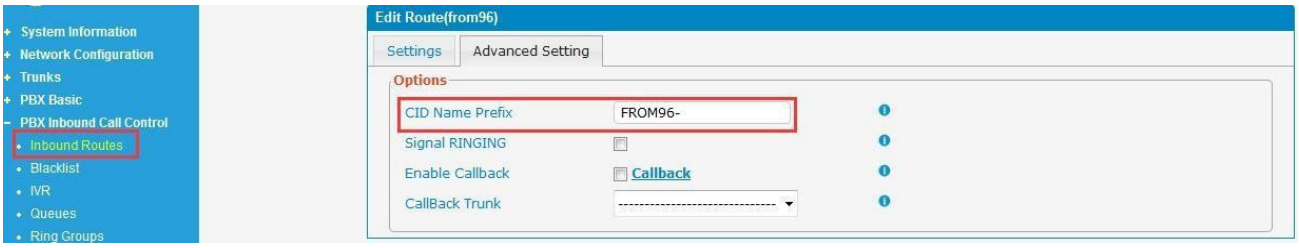
Figure 1: CDR Filter

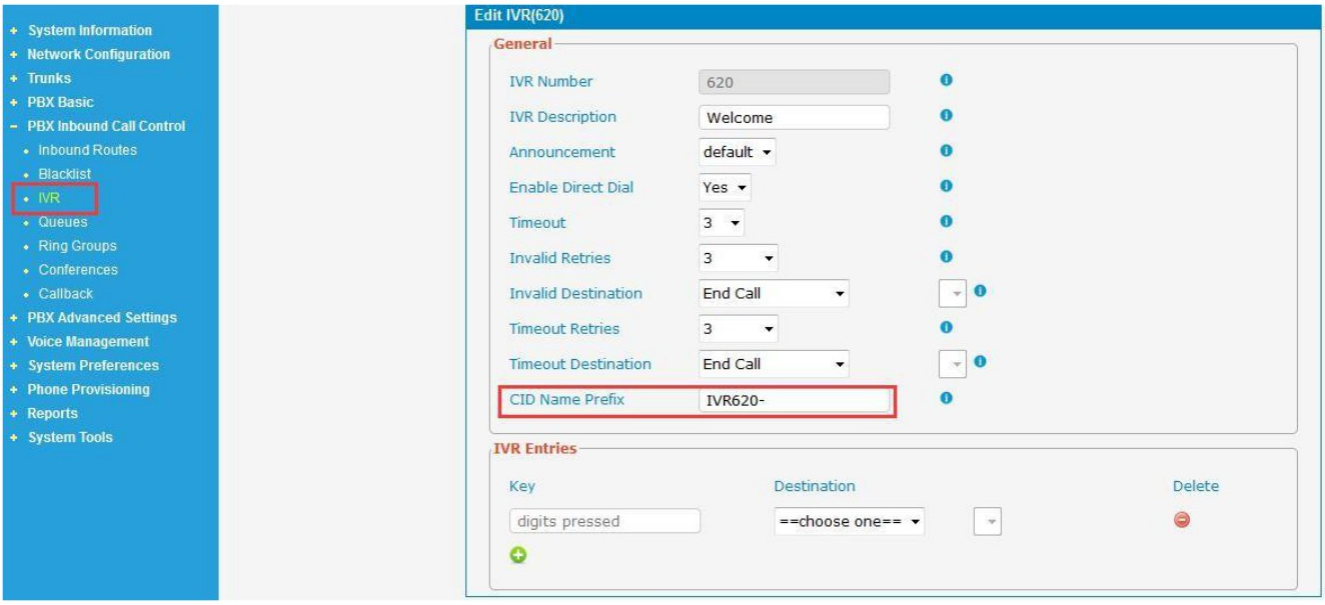
Table 1: CDR Filter Criteria

Start Date	Specify the start time to filter the CDR report. Click on the calendar icon on the right and the calendar will show for users to select the exact date and time.
End Date	Specify the end time to filter the CDR report. Click on the calendar icon on the right and the calendar will show for users to select the exact date and time.
Source	Enter the caller number to filter the CDR report. CDR with the matching caller number will be filtered out.

Destination	Enter the callee number to filter the CDR report. CDR with the matching callee number will be filtered out.
Call Direction	Groups the following: **Inbound**: Inbound calls are calls originated from a non-internal source (like a VoIP trunk) and sent to an internal extension. **Outbound**: Outbound calls are calls sent to a non-internal source (like a VoIP trunk) from an internal extension. **Internal**: Internal calls are calls from one internal extension to another extension, which are not sent over a trunk. **CallBack**: Callback is when the caller dials a callee that is set to call back. When the callee is busy, the caller will hear the prompt tone and hang up. When the callee is free, the system will ring the callee first, and then ring the caller after the callee is connected. After the caller is connected, the two parties will talk.
Status	Filter with the call status, the available statuses are the following: Answered No Answer Busy Failed
Minimum Duration	Enter the Minimum Duration number to filter the CDR report.All the records whose Duration and Billing Duration are below the Minimum Duration value will not be displayed
Maximum Duration	Enter the Maximum Duration number to filter the CDR report.All the records whose Duration and Billing Duration are above the Maximum Duration value will not be displayed
CID Prefix	The value of the 'CID Name Prefix' option in the web GUI **PBX Inbound Call Control->Inbound Routes**.The format is like **prefix value-**,which must ended by symbol **-** when create a new inbound route.When used in the CDR filter, the symbol - cannot be used.
In_Route	Inbound route name used in the call,whose value is the same as CID Prefix.
IVR	The value of the 'CID Name Prefix' option in the web GUI **PBX Inbound Call Control->IVR**.The format is like **ivr value-**,which must ended by symbol **-** when create a new IVR.When used in the CDR filter, the symbol **-** cannot be used.

The call report will display as the following figure shows.





Date	Source	Destination	CID Prefix	In_Route	IVR	Src. Trunk	Account Code	Dst. Trunk	Call Direction	Status	Duration	Billing Duration
2021-04-22 19:17:52	205	569						96	Outbound	ANSWERED	8s	8s
2021-04-22 19:15:14	502	620(204)	FROM96	FROM96	IVR620	96			Inbound	ANSWERED	13s	5s
2021-04-22 19:14:50	205	204							Internal	ANSWERED	5s	4s

Figure 2: Call Report

When you make a call,you can see

CDR Report Data Fields

The CDR report has the following data fields:

Date

Format: *2021-03-24 01:07:11*

Source

Example format:
202

Destination

Example format:
*102 *97*

s
620(102)

CID Prefix

Any string, avoid using special characters.

In_Route

Any string, avoid using special characters.

IVR

Any string, avoid using special characters.

Src.Trunk

Any string, avoid using special characters.

Account Code

Example format:
Test/Grandstream

Dst.Trunk

Example:
Any string, avoid using special characters.

Call Direction

Inbound
Outbound
CallBack
Internal

Status

No answer, Busy, Answered, or Failed.

Duration

Format:
6s

Billing Duration

Format:
6s

CDR Report Operations

Users could perform the following operations on the CDR report.

Delete the records

Click on "Delete the records" button to remove the call report information filtered out.

Download the records

Click on “Download the records” to export the records filtered out to a .csv file.

1.2 CDR CSV FILE

The downloaded CDR .csv file has different format from the web UI CDR. Here are some descriptions.

Date	Source	DestinatiCID Prefi	In_Route	IVR	Src. Trur	Account	CDst. Trur	Call Dire	Status	Duration	Billing	IUniqueID	Recording Filename
2021/5/7 0:49	506	620(202)			96			CallBack	ANSWERED	10	2	1620377388	20210507/20210507-004956-1620377396-CallBack-96-506-620(202).wav
2021/5/7 0:49	506	620			96			CallBack	ANSWERED	11	1	1620377355	
2021/5/7 0:46	202	506					96	Outbound	ANSWERED	5	2	1620377174	20210507/20210507-004616-1620377176-Outbound-96-202-506.wav
2021/5/7 0:42	202	205						Internal	ANSWERED	5	3	1620376943	
2021/5/7 0:37	202	9506					96	Outbound	ANSWERED	10	10	1620376625	20210507/20210507-003705-1620376625-Outbound-96-202-9506.wav
2021/5/7 0:36	506	620(202) FROM96	FROM96	IVR620	96			Inbound	ANSWERED	11	3	1620376580	20210507/20210507-003628-1620376588-Inbound-96-506-620(202).wav

Figure 4: Downloaded CDR File Sample

Date

"Date":Time when call ended.
Format:
2021/3/24 1:12:45

Source, Destination

"Source": the caller ID.
"Destination": the callee ID.

When the "Destination" shows "820(102)","620(102)" or "920(102)" this means the caller is dialed to Queue, IVR or Ring Group.

Because in web GUI→**PBX Basic→General Preferences,**the number range of queue, IVR and ring group is set by default (see the below figure).

Figure 5: Setting in PBX Basic->General Preferences

Src.Trunk, Dst.Trunk

When the "Src.Trunk" or "Dst.Trunk" shows "pstn2" this means the analog trunk of FXO.The "2" means port 2.

When the "Src.Trunk" or "Dst.Trunk" shows "GSM3" this means the analog trunk of GSM.The "3" means port 3.

1.3 CDR API – ACCESS Call Detail

Records CDR API URL Format

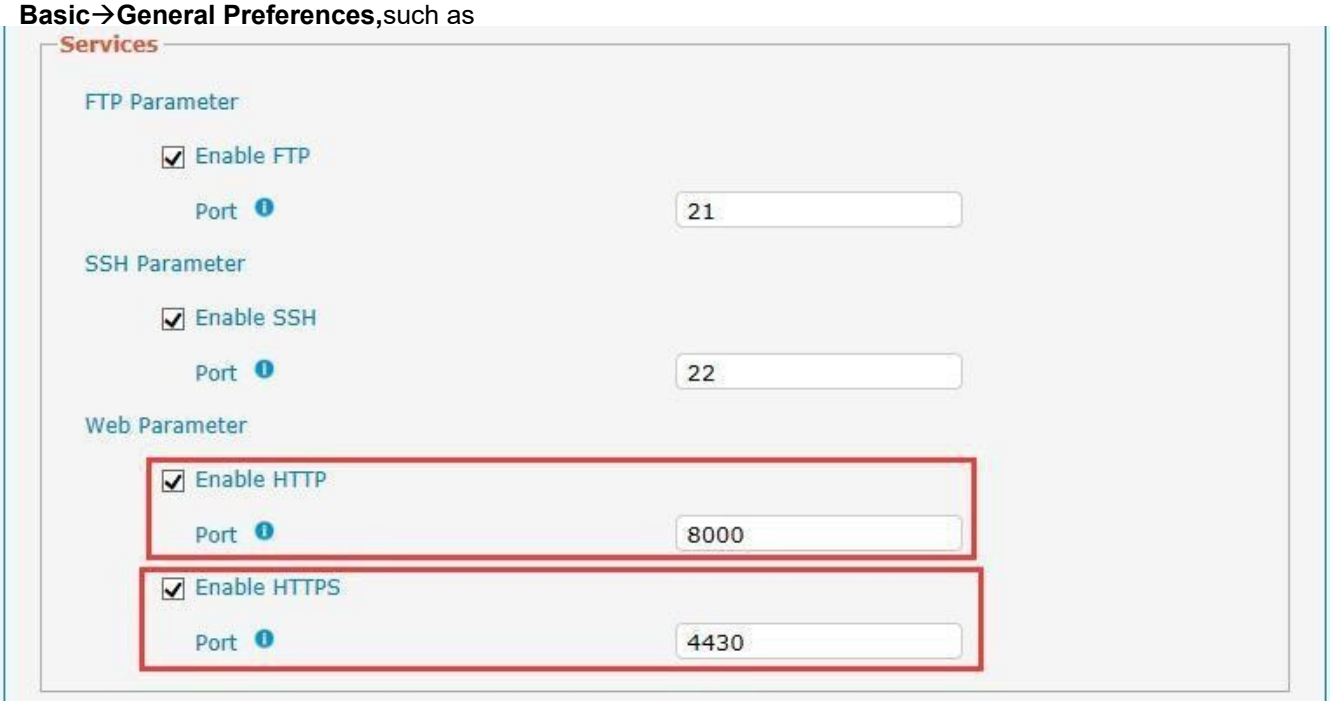
The format of the default HTTP/HTTPS request for the CDR API is shown as below. This is used to request the CDR data matching given parameters as set by the third party application.

http://[IPPBX IP]/cgi/webserve/[CGI Number]?&[option1]=[value]&[option2]=[value]&...

or

https://[IPPBX IP]/cgi/webserve/[CGI Number]?&[option1]=[value]&[option2]=[value]&...

The default http port of IPPBX IP is 80,default https port is 443,you can change it in the web GUI→**PBX Basic→General Preferences,**such as



Then ,the API will be

http://[IPPBX IP:8000]/cgi/webserve/[CGI Number]?&[option1]=[value]&[option2]=[value]&...

or

https://[IPPBX IP:4430]/cgi/webserve/[CGI Number]?&[option1]=[value]&[option2]=[value]&...

CDR API URL Parameters

The options included in the above request URI control the record matching and output format. Parameters can appear in the URI in any order. Multiple values given for caller or callee will be concatenated.

We have opened four API interfaces, which are used for logging in the system, querying CDR records, downloading CDR records and deleting CDR records.

The following table shows the parameter list used in the CDR API.

<1> Login The System

CGI Number :8404.

Request Method:POST.

Table 3: Login System API URL Parameters

UserName	admin	Account of login user.
Password	21232f297a57a5a743894a0e4a801fc3	Password of login user.The actual password is admin, and we have performed 32-bit md5 encryption on it.

<2> Querying CDR

CGI Number :9006.

Request Method:POST.

Table 4: Querying CDR API URL Parameters

startdate **enddate**	Date in the following formats: 2021-04-07 00:00 YYYY-MM-DD HH:MM	Filters based on the start (call start time) value. Calls which start within this period (inclusive of boundaries) will match, regardless of the call answer or end time. An empty value for either field will be interpreted as range with no minimum or maximum respectively. When the values of startdate and enddate are both empty, the default value is the current date.
src **dst**	Range of queue, ring group, IVR, conferences,paging group,extensions or other number.	Filters based on src or dst value, matching any extension contained in the parameter input string.
disposition	ANSWERED/BUSY/FAILD/NO ANSWER/All	Filters based on the extension's response status value, and match any records contained in the parameter input string.
userfield	Interval/Outbound/Inbound/CallBack/All	Filters based on the call type value and match any records contained in the parameter input string.
minbillsec **maxbillsec**	Number (duration in seconds)	Filters based on the billsec value, the duration between call answer and call end.

cidname	String	The value of the 'CID Name Prefix' option in the web GUI **PBX Inbound Call Control->Inbound Routes**.The format is like **prefix value-**,which must ended by symbol **-** when create a new inbound route.When used in the CDR filter, the symbol **-** cannot be used.
in_route	String	Inbound route name used in the call,whose value is the same as cidname.
IVR	String	The value of the 'CID Name Prefix' option in the web GUI **PBX Inbound Call Control->IVR**.The format is like **ivr value-**,which must ended by symbol **-** when create a new IVR.When used in the CDR filter, the symbol **-** cannot be used.
port	-1	Port means specifically the port number of the GSM module, -1 or 0 means that can query all call records.

<3> Download CDR

CGI Number :9005.

Request Method:GET.

Table 5: Download CDR API URL Parameters

startdate **enddate**	Date in the following formats: 2021-04-07 00:00 YYYY-MM-DD HH:MM	Filters based on the start (call start time) value. Calls which start within this period (inclusive of boundaries) will match, regardless of the call answer or end time. An empty value for either field will be interpreted as range with no minimum or maximum respectively. When the values of startdate and enddate are both empty, the default value is the current date.
src **dst**	Range of queue, ring group, IVR, conferences,paging group,extensions or other number.	Filters based on src or dst value, matching any extension contained in the parameter input string.
disposition	ANSWERED/BUSY/FAILD/NO ANSWER/All	Filters based on the extension's response status value, and match any records contained in the parameter input string.
userfield	Interval/Outbound/Inbound/Call Back/All	Filters based on the call type value and match any records contained in the parameter input string.

minbillsec **maxbillsec**	Number (duration in seconds)	Filters based on the billsec value, the duration between call answer and call end.
cidname	String	The value of the 'CID Name Prefix' option in the web GUI **PBX Inbound Call Control->Inbound Routes**.The format is like **prefix value-**,which must ended by symbol **-** when create a new inbound route.When used in the CDR filter, the symbol **-** cannot be used.
in_route	String	Inbound route name used in the call,whose value is the same as cidname.
IVR	String	The value of the 'CID Name Prefix' option in the web GUI **PBX Inbound Call Control->IVR**.The format is like **ivr value-**,which must ended by symbol **-** when create a new IVR.When used in the CDR filter, the symbol **-** cannot be used.

<4> Delete CDR

CGI Number :9004.

Request Method:POST.

Table 6: Delete CDR API URL Parameters

startdate **enddate**	Date in the following formats: 2021-04-07 00:00 YYYY-MM-DD HH:MM	Filters based on the start (call start time) value. Calls which start within this period (inclusive of boundaries) will match, regardless of the call answer or end time. An empty value for either field will be interpreted as range with no minimum or maximum respectively. When the values of startdate and enddate are both empty, the default value is the current date.
src **dst**	Range of queue, ring group, IVR, conferences,paging group,extensions or other number.	Filters based on src or dst value, matching any extension contained in the parameter input string.
disposition	ANSWERED/BUSY/FAILD/NO ANSWER/All	Filters based on the extension's response status value, and match any records contained in the parameter select string.
userfield	Interval/Outbound/Inbound/Call Back/All	Filters based on the call type value and match any records contained in the parameter select string.
minbillsec **maxbillsec**	Number (duration in seconds)	Filters based on the billsec value, the duration between call answer and call end.
cidname	String	The value of the 'CID Name Prefix' option in the web GUI **PBX Inbound Call Control->Inbound Routes**.The format is like **prefix value-**,which must ended by symbol **-** when create a new inbound route.When used in the CDR filter, the symbol **-** cannot be used.
in_route	String	Inbound route name used in the call,whose value is the same as cidname.
IVR	String	The value of the 'CID Name Prefix' option in the web GUI **PBX Inbound Call Control->IVR**.The format is like **ivr value-**,which must ended by symbol **-** when createa new IVR.When used in the CDR filter, the symbol **-** cannot be used.
Port	-1	Port means specifically the port number of the GSM module, -1 or 0 means that can query all call records.

Example Queries

The following illustrates the query format to complete some of the requests. Before making a query, you must log in to the system before you can request data.

- **Example 1**:Log in to the system, the account is admin, the password is 21232f297a57a5a743894a0e4a801fc3 (admin ,which encrypted with 32-bit md5).

  http://192.168.6.42/cgi/webserve/8404?&UserName=admin&Password=21232f297a57a5a743894a0e4a801fc3

  or https://192.168.6.42/cgi/webserve/8404?

  &UserName=admin&Password=21232f297a57a5a743894a0e4a801fc3

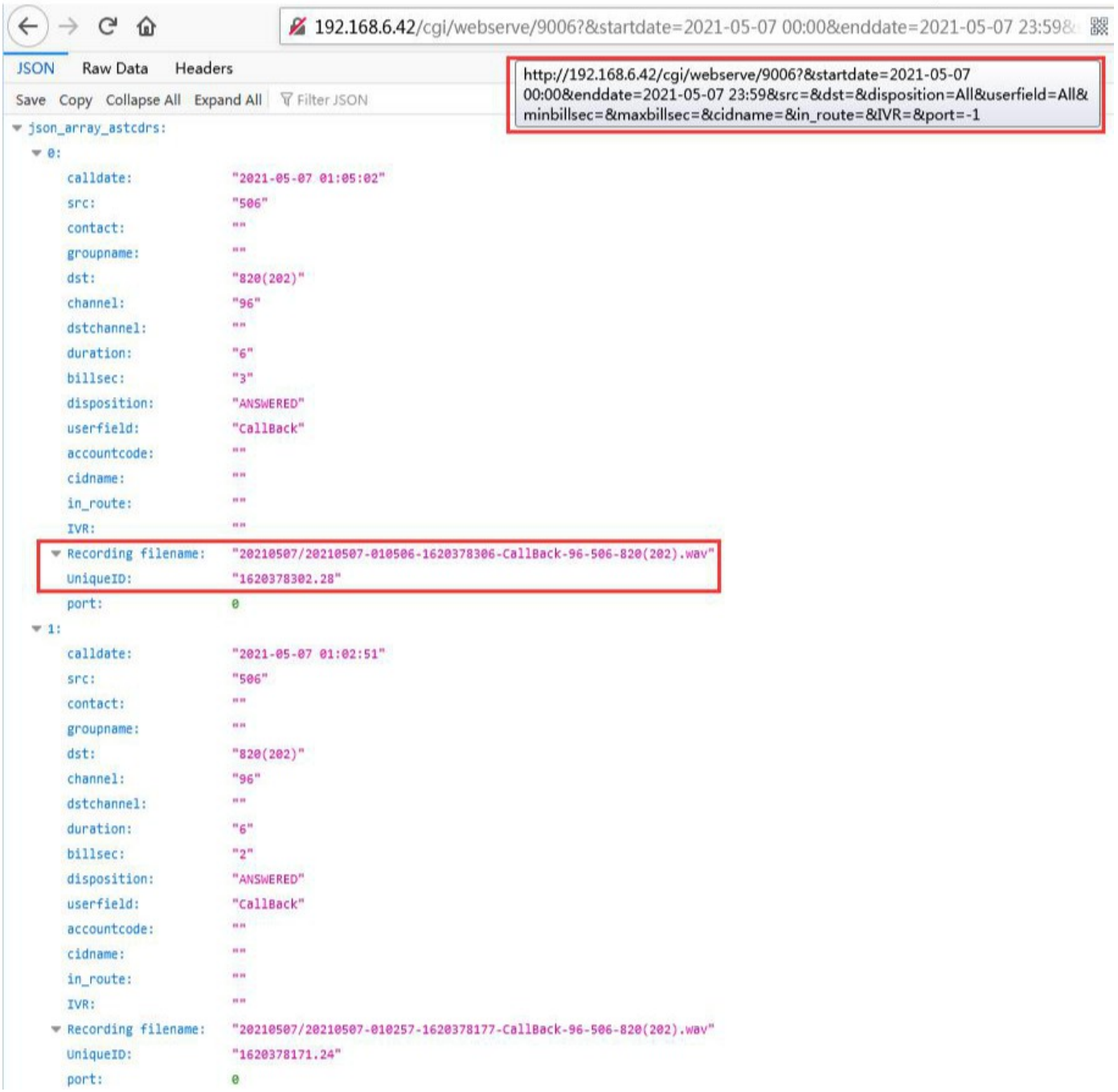
  Enter the api on the browser, you can see the following results.

- **Example 2:**Request all CDR records that between 2021-05-07 00:00 and 2021-05-07 23:59.

  http://192.168.6.42/cgi/webserve/9006?&startdate=2021-05-07 00:00&enddate=2021-05-07 23:59&src=&dst=&disposition=All&userfield=All&minbillsec=&maxbillsec=&cidname=&in_route=&IVR=&port=-1

  or https://192.168.6.42/cgi/webserve/9006?&startdate=2021-05-07 00:00&enddate=2021-05-07 23:59&src=&dst=&disposition=All&userfield=All&minbillsec=&maxbillsec=&cidname=&in_route=&IV R=&port=-1

  Enter the api on the browser, you can see the following results.



- **Example 3:** Download all CDR records that between 2021-05-07 00:00 and 2021-05-07 23:59.

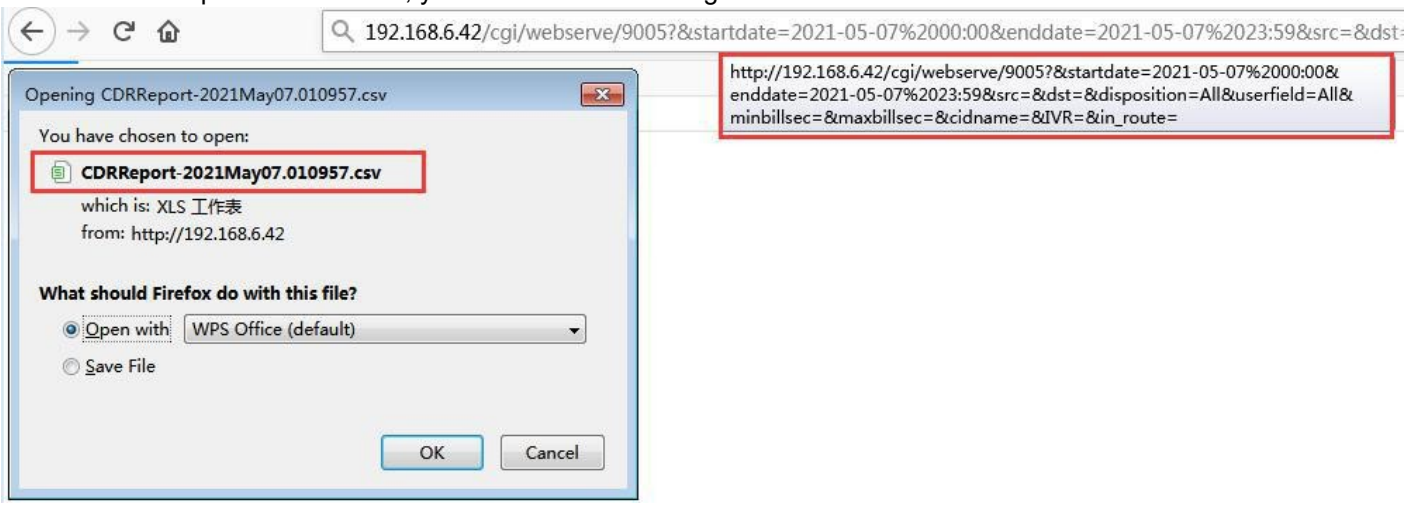
  http://192.168.6.42/cgi/webserve/9005?&startdate=2021-05-07 00:00&enddate=2021-05-07

  23:59&src=&dst=&disposition=All&userfield=All&minbillsec=&maxbillsec=&cidname=&IVR=&in_rout e=

  or

  https://192.168.6.42/cgi/webserve/9005?&startdate=2021-05-07 00:00&enddate=2021-05-07 23:59&src=&dst=&disposition=All&userfield=All&minbillsec=&maxbillsec=&cidname=&IVR=&in_rout e=

Enter the api on the browser, you can see the following results.



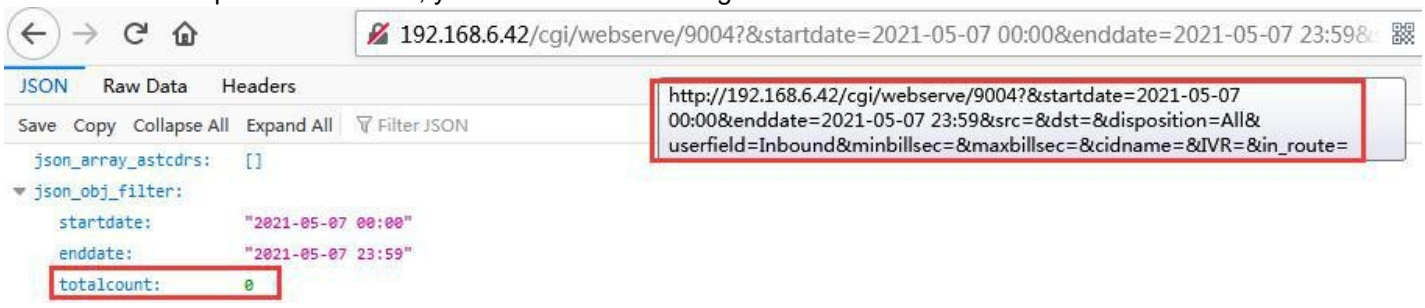
- **Example 4**: Delete all records between 2021-05-07 00:00 and 2021-05-07 23:59.

  http://192.168.6.42/cgi/webserve/9004?&startdate=2021-05-07 00:00&enddate=2021-05-07 23:59&src=&dst=&disposition=All&userfield=All&minbillsec=&maxbillsec=&cidname=&IVR=&in_rout e=

  or

  https://192.168.6.42/cgi/webserve/9004?&startdate=2021-05-07 00:00&enddate=2021-05-07 23:59&src=&dst=&disposition=All&userfield=All&minbillsec=&maxbillsec=&cidname=&IVR=&in_rout e=

Enter the api on the browser, you can see the following results.



⚠ Note:

The value of the parameter must be the data that already exists in the CDR Report, otherwise no records will be returned.

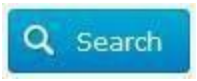
2 The Content and API of CALL RECORDING

2.1 CALL RECORDING

The automatic recording function is set in the monitor system to use usb or windows SMB to save the recording files generated during the call.

CALL RECORDING Filter

On the IPPBX, the call recording file can be accessed under web GUI→**Reports→Call Recording** after logged in to the user admin. Users could filter the call report by specifying the date range and criteria,

depending on how the users would like to include the logs to the report. Click on 

button to start the search.

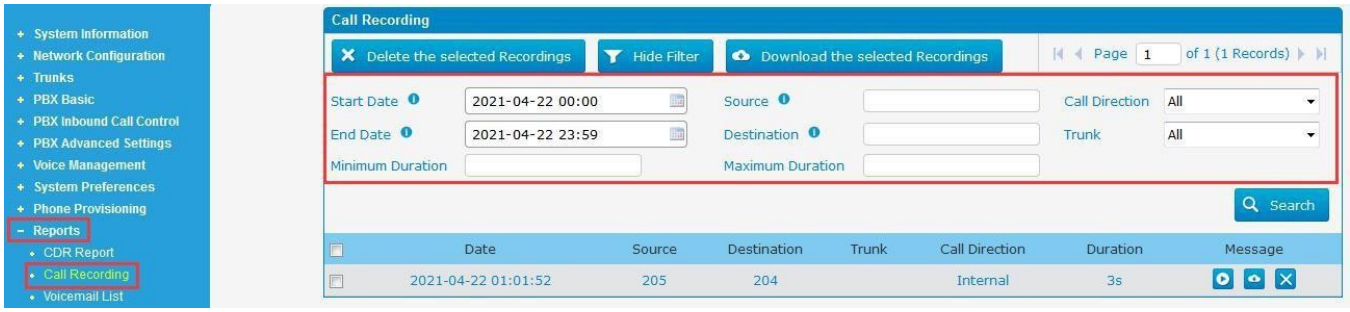


Figure 1: CALL RECORDING Filter

Table 1: CALL RECORDING Filter Criteria

Start Date	Specify the start time to filter the Call Recording. Click on the calendar icon on the right and the calendar will show for users to select the exact date and time.
End Date	Specify the end time to filter the Call Recording. Click on the calendar icon on the right and the calendar will show for users to select the exact date and time.
Source	Enter the caller number to filter the Call Recording. CDR with the matching caller number will be filtered out.

Destination	Enter the callee number to filter the Call Recording. CDR with the matching callee number will be filtered out.
Call Direction	Groups the following: **Inbound**: Inbound calls are calls originated from a non-internal source (like a VoIP trunk) and sent to an internal extension. **Outbound**: Outbound calls are calls sent to a non-internal source (like a VoIP trunk) from an internal extension. **Internal**: Internal calls are calls from one internal extension to another extension, which are not sent over a trunk. **CallBack**: Callback is when the caller dials a callee that is set to call back. When the callee is busy, the caller will hear the prompt tone and hang up. When the callee is free, the system will ring the callee first, and then ring the caller after the callee is connected. After the caller is connected, the two parties will talk. .
Trunk	Select an existing trunk and filter out all records related to this trunk.
Minimum Duration	Enter the Minimum Duration number to filter the Call Recording.All the records whose Duration and Billing Duration are below the Minimum Duration value will not be displayed
Maximum Duration	Enter the Maximum Duration number to filter the Call Recording.All the records whose Duration and Billing Duration are above the Maximum Duration value will not be displayed

The Call Recording will display as the following figure shows.

Date	Source	Destination	Trunk	Call Direction	Duration	Message
2021-03-25 23:59:01	202	156	42	Outbound	4s	
2021-03-25 22:55:16	202	177	42	Outbound	5s	
2021-03-25 22:17:14	102	620(202)	42	Inbound	1s	
2021-03-25 18:42:07	102	620(202)	42	Inbound	1s	
2021-03-25 18:40:56	102	620(202)	42	Inbound	3s	
2021-03-25 01:11:53	102	620(202)	42	CallBack	7s	
2021-03-24 23:22:27	102	620(202)	42	CallBack	4s	
2021-03-24 23:18:57	102	620(202)	42	Inbound	6s	
2021-03-24 23:18:27	202	204		Internal	3s	
2021-03-24 23:17:16	202	100	42	Outbound	5s	

Figure 2: Call Recording

CALL RECORDING Data Fields

The Call Recording has the following data fields:

Date

Format: *2021-03-24 01:07:11*

Source

Example format:
202

Destination

Example format:
*102 *97*

s
620(102)

Trunk

Example:
44

Call Direction

Format:
Inbound
Outbound
CallBack
Internal

Duration

Format:
6s

CALL RECORDING Operations

Users could perform the following operations on the Call Recording.

Delete the recordings

Click on "Delete the selected Recordings" button to remove the call record information filtered out.

Download the recordings

Click on “Download the selected Recordings” to export the records filtered out to a .tar file containing some .wav file.

2.2 CALL RECORDING FILE

The downloaded call recording file is a .tar compressed package, after decompression, you can see the .wav recording file of each call record in it.

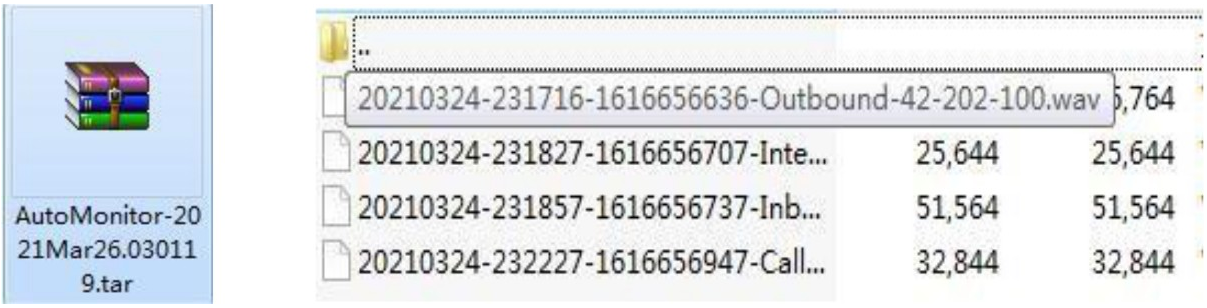


Figure 4: Downloaded Call Recording File Sample

2.3 CALL RECORDING API – ACCESS Call Recording

CALL RECORDING API URL Format

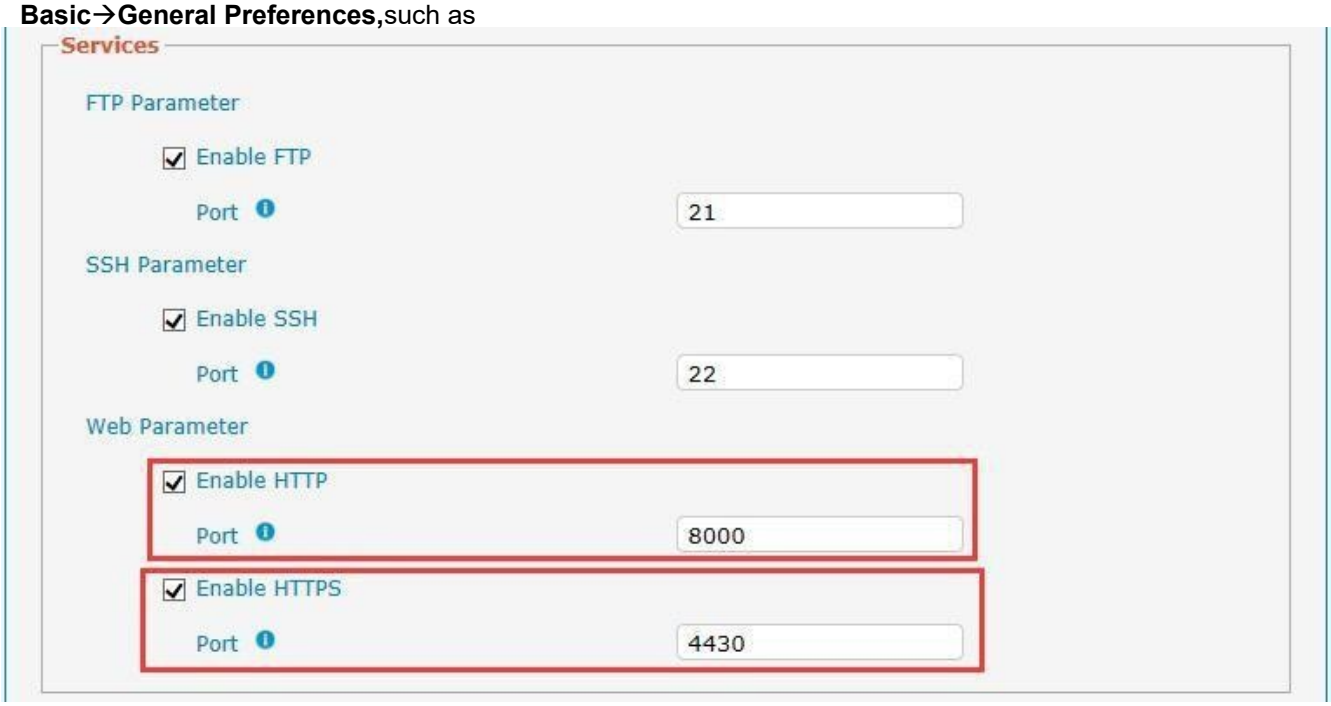
The format of the default HTTP/HTTPS request for the CALL RECORDING API is shown as below. This is used to request the CALL RECORDING data matching given parameters as set by the third party application.

http://[IPPBX IP]/cgi/webserve/[CGI Number]?&[option1]=[value]&[option2]=[value]&...

or

https://[IPPBX IP]/cgi/webserve/[CGI Number]?&[option1]=[value]&[option2]=[value]&...

The default http port of IPPBX IP is 80,default https port is 443,you can change it in the web GUI→**PBX Basic→General Preferences,**such as



Then ,the API will be

http://[IPPBX IP:8000]/cgi/webserve/[CGI Number]?&[option1]=[value]&[option2]=[value]&...

or

https://[IPPBX IP:4430]/cgi/webserve/[CGI Number]?&[option1]=[value]&[option2]=[value]&...

CALL RECORDING API URL Parameters

The options included in the above request URI control the record matching and output format. Parameters can appear in the URI in any order. Multiple values given for caller or callee will be concatenated.

We have opened four API interfaces, which are used for logging in the system, querying CALL RECORDING records, downloading CALL RECORDING records and deleting CALL RECORDING records.

The following table shows the parameter list used in the CALL RECORDING API.

<1> Login The System

CGI Number :8404.

Request Method:POST.

Table 3: Login System API URL Parameters

UserName	monitor	Account of login user.
Password	08b5411f848a2581a41672a759c87380	Password of login user.The actual password is monitor, and we have performed 32-bit md5 encryption on it.

<2> Querying CALL RECORDING

CGI Number :20053.

Request Method:POST.

Table 4: Querying CALL RECORDING API URL Parameters

startdate **enddate**	Date in the following formats: 2021-04-07 00:00 YYYY-MM-DD HH:MM	Filters based on the start (call start time) value. Calls which start within this period (inclusive of boundaries) will match, regardless of the call answer or end time. An empty value for either field will be interpreted as range with no minimum or maximum respectively. When the values of startdate and enddate are both empty, the default value is the current date.
src **dst**	Range of queue, ring group, IVR, conferences,paging group,extensions or other number.	Filters based on src or dst value, matching any extension contained in the parameter input string.
trunk	Trunk Name	Filter based on trunk value
calltype	Interval/Outbound/Inbound/Call Back/Conference/All	Filter based on call type value.
minduration		

maxduration	Number (duration in seconds)	Filters based on the billsec value, the duration between call answer and call end.

<3> Download CALL RECORDING

CGI Number :20036.

Request Method:GET.

Table 5: Download CALL RECORDING API URL Parameters

wavefiles	Wavefiles in the following formats: 20210328/20210328-182446-1616984686-Outbound-42-202-155.wav;20210328/20210328-181933-1616984373-Internal-202-204.wav	The parameter value is the path of the file to be downloaded. Different files are connected by semicolons, which can be found by querying API 20053.

<4> Delete CALL RECORDING

CGI Number :20054.

Request Method:POST.

Table 6: Delete CALL RECORDING API URL Parameters

wavefiles	Wavefiles in the following formats: 20210328/20210328-182446-1616984686-Outbound-42-202-155.wav;20210328/20210328-181933-1616984373-Internal-202-204.wav	The parameter value is the path of the file to be deleted. Different files are connected by semicolons, which can be found by querying API 20053.

Example Queries

The following illustrates the query format to complete some of the requests. Before making a query, you must log in to the system before you can request data.

- **Example 1**: Log in to the system, the account is monitor, the password is 08b5411f848a2581a41672a759c87380 (monitor ,which encrypted with 32-bitmd5).

  http://192.168.6.42/cgi/webserve/8404?&UserName=monitor&Password=08b5411f848a2581a41672a759c87380 or

  https://192.168.6.42/cgi/webserve/8404?&UserName=monitor&Password=08b5411f848a2581a41672a759c87380

  Enter the api on the browser, you can see the following results.

Note:You can also use the Call Recording API to log in to the user admin.

- **Example 2:**Request all CALL RECORDING records that between 2021-03-28 00:00 and 2021-04-14 23:59.

  http://192.168.6.42/cgi/webserve/20053?&startdate=2021-03-28 00:00&enddate=2021-04-14 23:59&src=&dst=&trunk=All&calltype=All&minduration=&maxduration=

  or

  https://192.168.6.42/cgi/webserve/20053?&startdate=2021-03-28 00:00&enddate=2021-04-14 23:59&src=&dst=&trunk=All&calltype=All&minduration=&maxduration=

  Enter the api on the browser, you can see the following results.

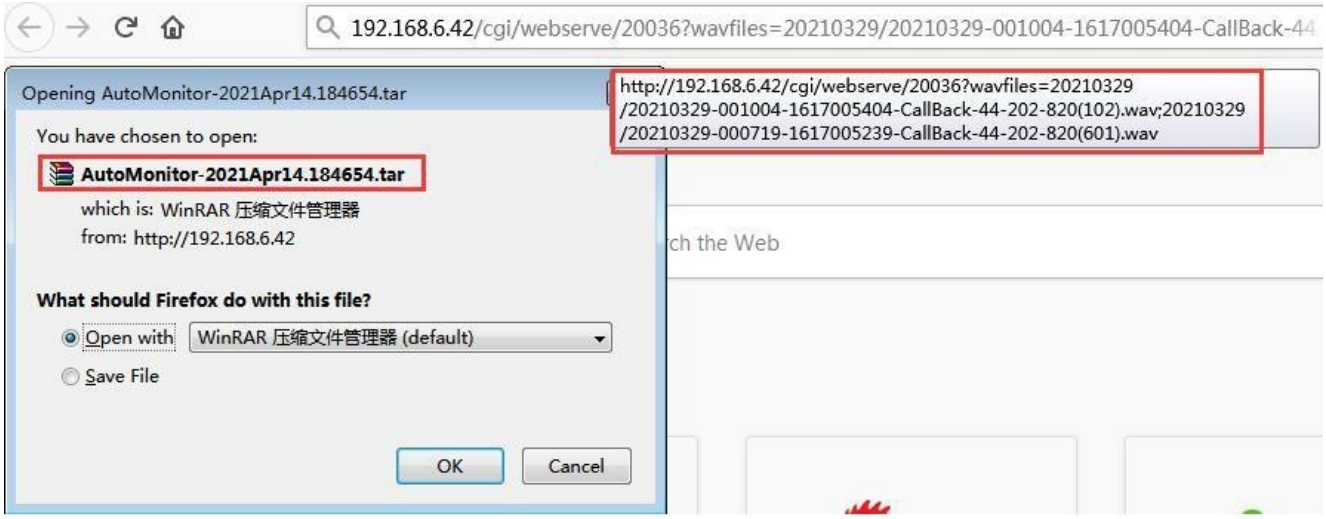
- **Example 3:** Download all CALL RECORDING records of the specified path, the path can be queried through API 20053 .

  http://192.168.6.42/cgi/webserve/20036?wavfiles=20210407/20210407-190729-1617851249-Inbound-96-506-620(1 05).wav;20210407/20210407-190653-1617851213-Outbound-96-105-513.wav

  or

  https://192.168.6.42/cgi/webserve/20036?wavfiles=20210407/20210407-190729-1617851249-Inbound-96-506-620(105).wav;20210407/20210407-190653-1617851213-Outbound-96-105-513.wav

Enter the api on the browser, you can see the following results.



- **Example 4**: Delete all CALL RECORDING records of the specified path, the path can be queried through API 20053.

  http://192.168.6.42/cgi/webserve/20054?wavfiles=20210329/20210329-001004-1617005404-CallBack-44-202-820(102).wav;20210329/20210329-000719-1617005239-CallBack-44-202-820(601).wav

  or

  https://192.168.6.42/cgi/webserve/20054?wavfiles=20210329/20210329-001004-1617005404-CallBack-44-202-820(102).wav;20210329/20210329-000719-1617005239-CallBack-44-202-820(601).wav

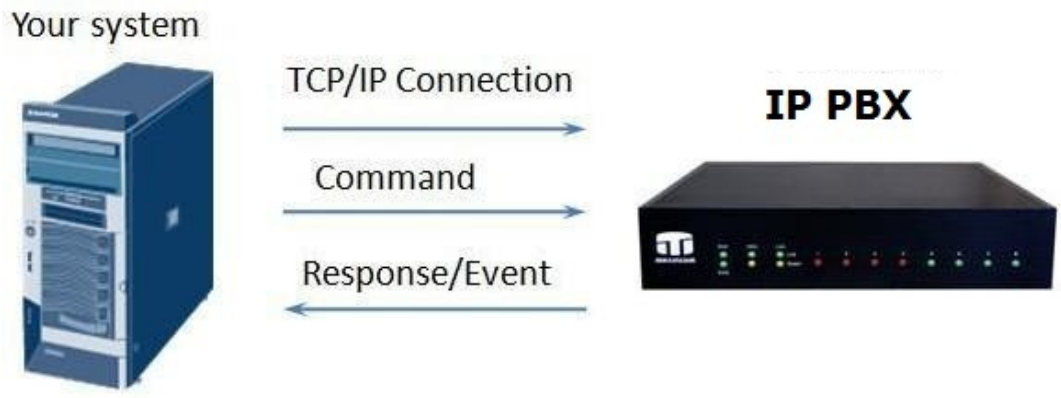
  Enter the api on the browser, you can see the following results.

Note:

The value of the parameter must be the data that already exists in the Call Recording, otherwise no records will be returned.

3 AMI EVENT OF CDR & CALL RECORDING

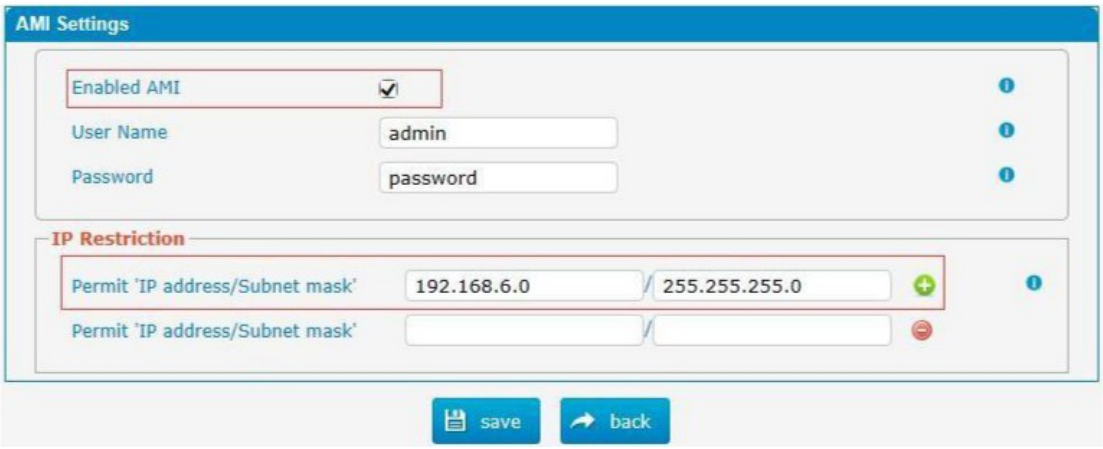
Nexo IP PBX is an IPPBX based on asterisk, the asterisk manager interface (AMI) is supported also, which allows developer to connect to IPPBX via TCP/IP connection. The default port is 5038(TCP), you can connect using any terminal like putty or your own software. When the connection is established, you can send commands and read the response or events to realize the feature you want.



Protocol's specification:

1. Before execute any command, a connection should be established and get accessed
2. The terminal can send any command and receive any response any time when the connection is established well.
3. The commands sent by terminal should starts with 'Action', the package sent back from server will starts with 'Response' or 'Event'. Response package means the response for the commands it received. Event package means the events happens in server side, it will be broadcasted automatically to any terminal connected via AMI.
4. The sequence of the commands sent by terminal makes no difference; you can arrange them as your wish.
5. CR/LF is used to divide the packages line by line, two CR/LF means to end this command and it will be sent to server side.

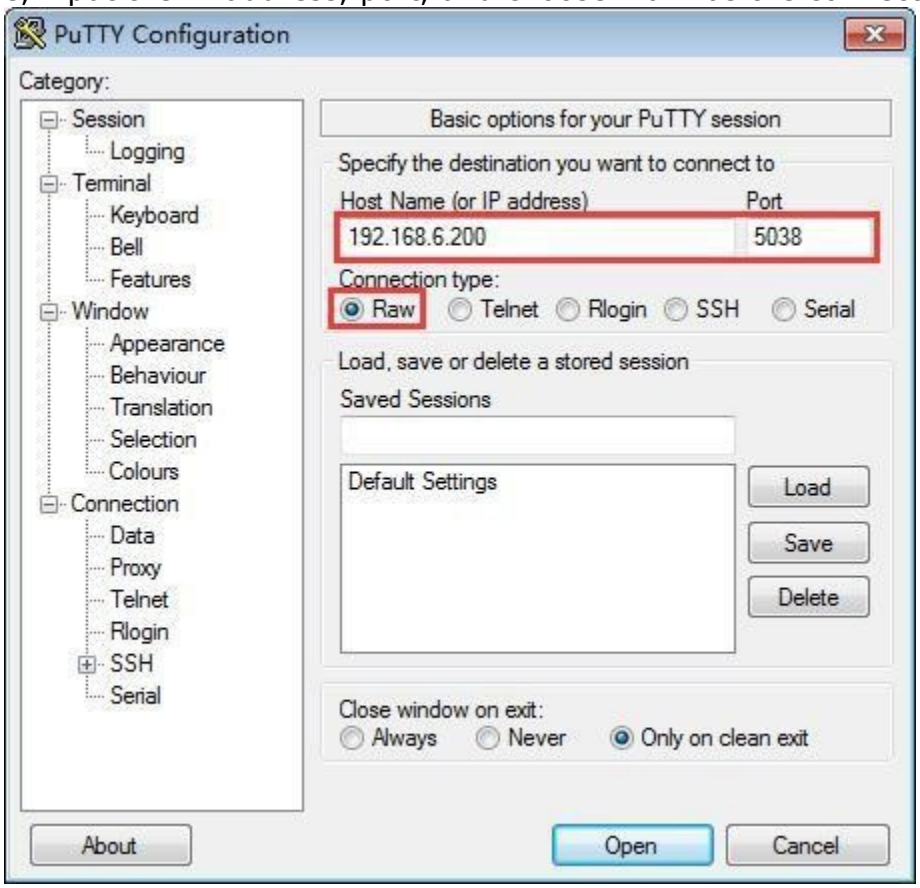
Note: before login via AMI, please login IP PBX's web interface to enable AMI first, you can get the page in 'System Tools→AMI Settings'. You can also design the exact permitted IP range to access AMI.



In this example, the user name is 'admin', password is 'password'.

3.1 How to login IP PBX's AMI

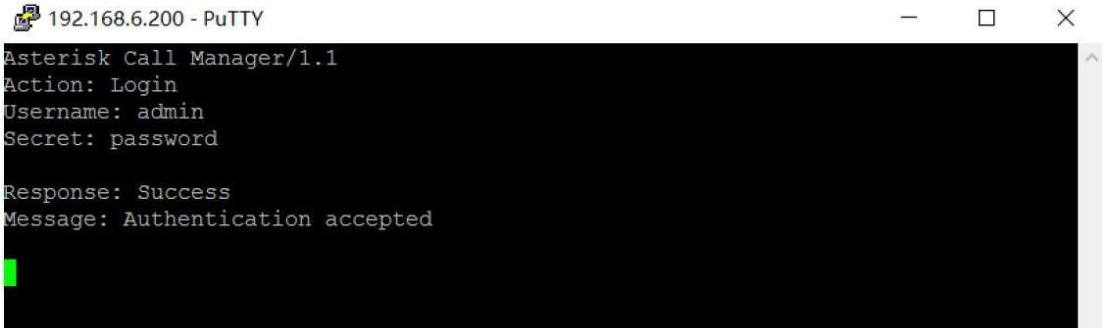
Any connection package sent to IP PBX's AMI port (5038), there will be a response displayed there, the content is 'Asterisk Call Manager/1.1'.
In this example, IPPBX's IP address is 192.168.6.200, the terminal software is putty.exe. Open putty.exe, input the IP address, port, and choose 'Raw' as the connection type.



Click 'Open' to get the login page.

Then you can login using command, here are the details.
Action: Login
Username: admin
Secret: password

Then press enter key twice to get accessed



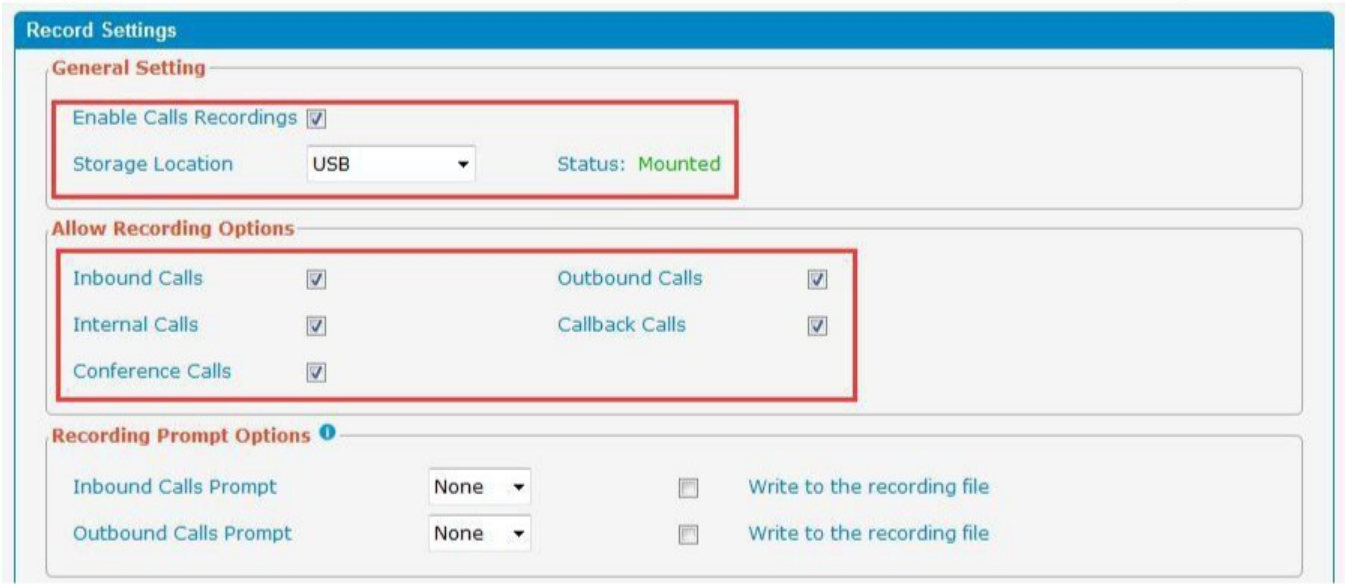
The server send the response message:
Resopnse: Success
Message: Authentication accepted

Note:
1. Username and Password means the user name and password in AMI settings page.
2. After authenticated successfully, you will see many events packages sent from server(IPPBX) side,you can ignore thoese if not needed.

3.2 AMI Event of CDR

After starting a call, there are many messages sent back from IPPBX for the whole events and response message. Among them, the Event: NewChannel means the call is being established, while Event:Cdr means the call is ended. The Recording File Name field is added to the AMI event Cdr, which indicates the name of the recording file generated at the end of the call after the recording function is enabled . If recording is not enabled, then the value of Recording File Name is empty.

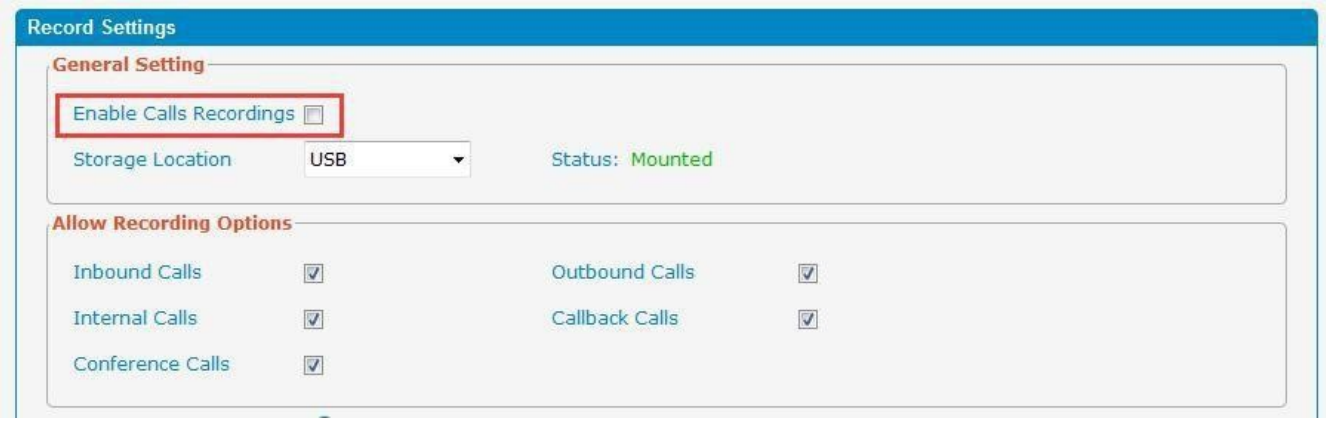
The interface for setting whether to enable recording is in **General Preferences->Recording Settings** in the user monitor login interface, as follows:



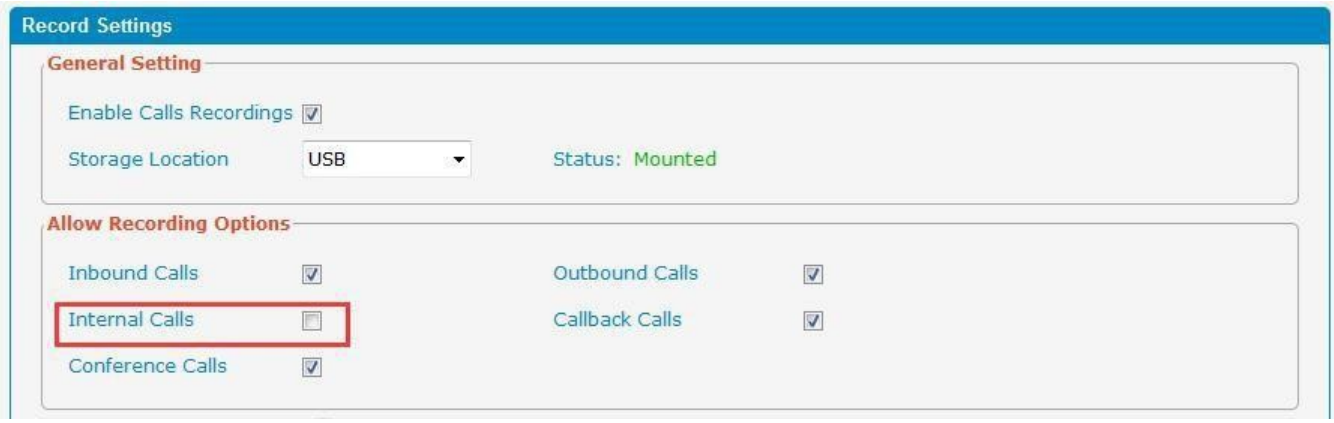
AMI Cdr after enabling the recording function:

```
Event: Cdr
Privilege: cdr,all
AccountCode:
Source: 205
Destination: 204
DestinationContext: from-ext-205
CallerID: "205" <205>
Channel: SIP/205-00000000
DestinationChannel: SIP/204-00000001
LastApplication: Dial
LastData: SIP/204,30,TtKkWwXx
StartTime: 2021-04-22 01:01:50
AnswerTime: 2021-04-22 01:01:52
EndTime: 2021-04-22 01:01:55
Duration: 5
BillableSeconds: 3
Disposition: ANSWERED
AMAFlags: DOCUMENTATION
UniqueID: 1619082110.0
UserField:
Recording File Name: /media/usbStorage/monitor/20210422/20210422-010152-1619082112-Internal-205-204
```

Ways not to enable recording:



Or uncheck the corresponding call type, such as :

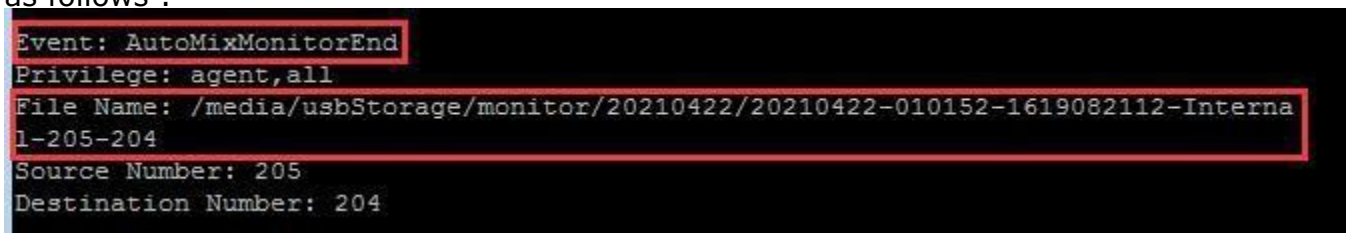


AMI Cdr after disabled the recording function:

```
Event: Cdr
Privilege: cdr,all
AccountCode:
Source: 205
Destination: 204
DestinationContext: from-ext-205
CallerID: "205" <205>
Channel: SIP/205-00000002
DestinationChannel: SIP/204-00000003
LastApplication: Dial
LastData: SIP/204,30,TtKkWwXx
StartTime: 2021-04-22 01:09:10
AnswerTime: 2021-04-22 01:09:13
EndTime: 2021-04-22 01:09:16
Duration: 6
BillableSeconds: 3
Disposition: ANSWERED
AMAFlags: DOCUMENTATION
UniqueID: 1619082550.2
UserField:
Recording File Name:
```

3.3 AMI Event of Call Recording

Enable the recording function, after the call is over, you can see the AMI events as follows :

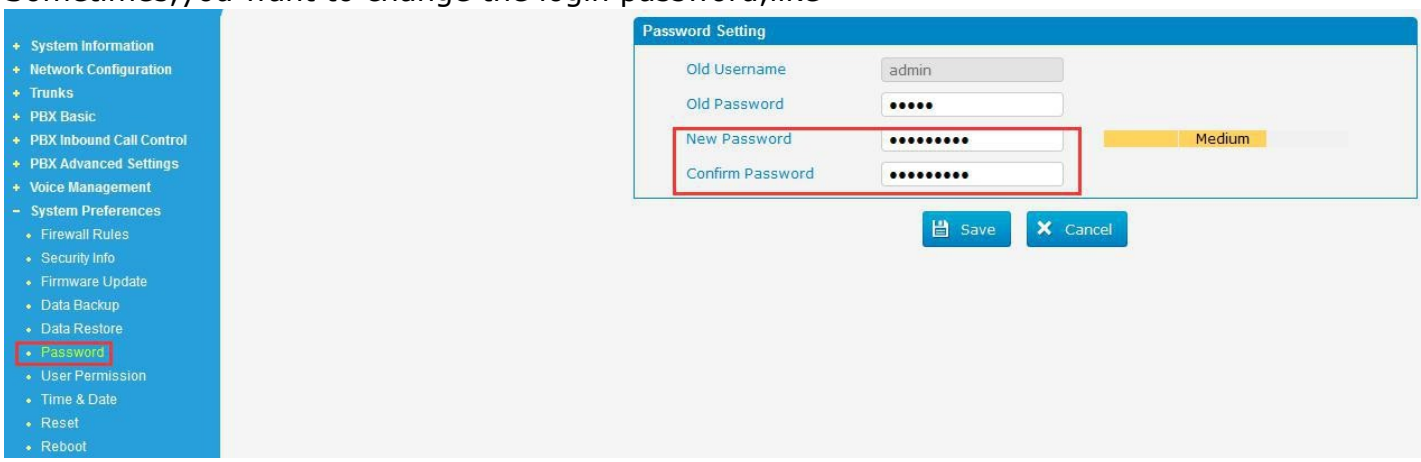


The value of File Name in Event: AutoMixMonitorEnd is the same as the Recording File Name in Event: Cdr.If recording is not enabled, the AMI event above will not appear.

4 SUPPLEMENTARY DESCRIPTION

4.1 How to get the encrypted login password

Sometimes,you want to change the login password,like



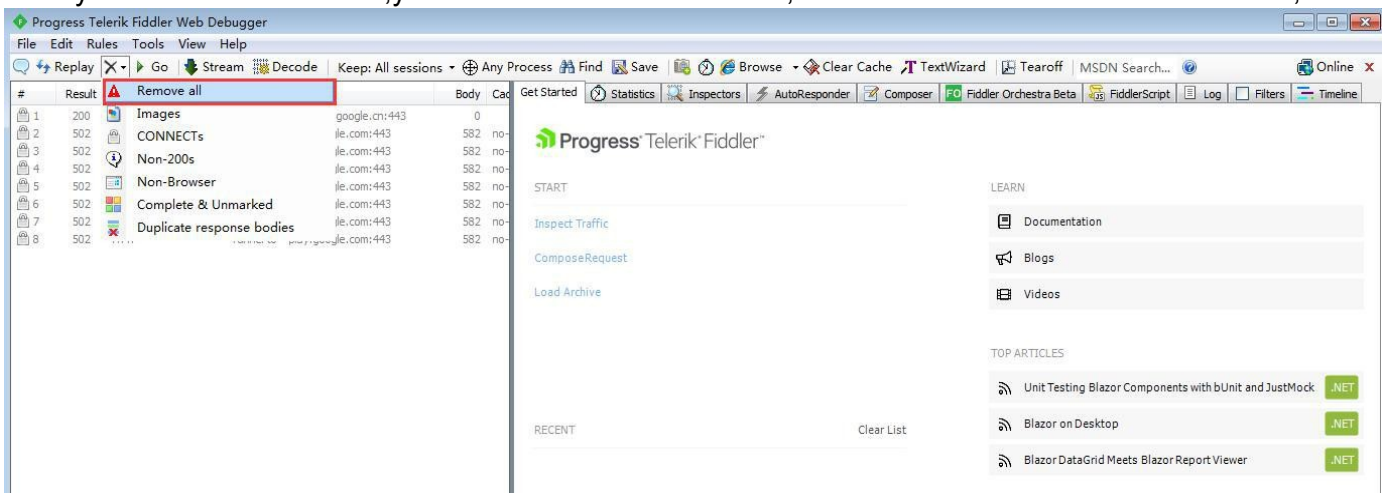
After change your password,how can we get the new encrypted login password to use in the API 8404?

First you need to install a software-Fiddler.Fiddler is an http protocol debugging proxy tool, it can record and check all the http communication between your computer and the Internet.

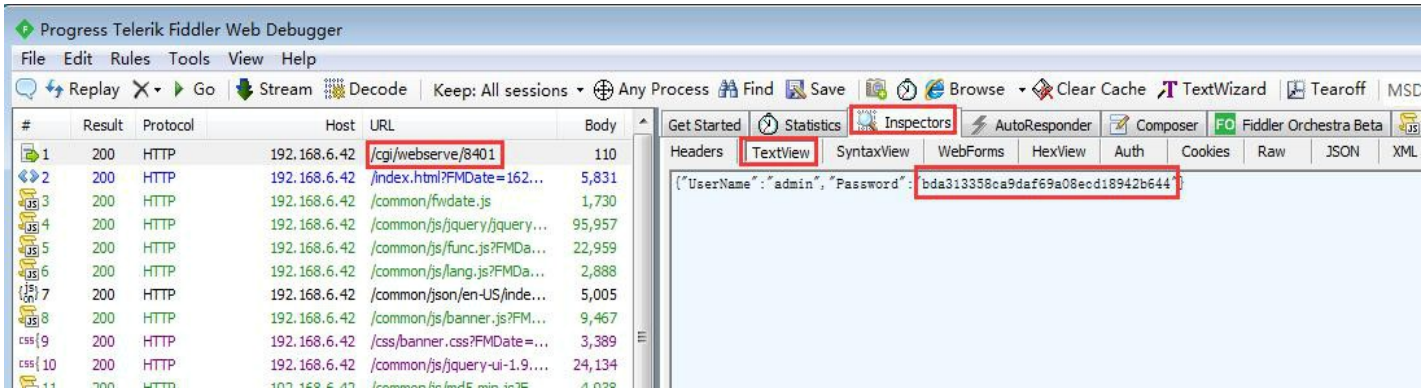
Where to download:
https://www.telerik.com/download/fiddler

After you installed the Fiddler,you can see 

.Then,click it and clear irrelevant records first,like



After that,you can login the IPPBX,then you can see



From above figure,the cgi number 8401 is the request of IPPBX login.We can see the Password bda313358ca9daf69a08ecd18942b644(new test password: max123456),which is encrypted by 32-bit md5.So,we can use this password in API 8404 to login IPPBX.Such as: