

The Basics of Caller ID



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Series: VoIP Engineering Articles

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1. Introduction

One of the more common requests a business will have when they set up their phone system at a new site, is to ensure that the Caller ID name for their outgoing calls is set properly to reflect the name of the company.

Having the proper name displayed when you make an outbound call to a client or customer is crucial, as without the name showing properly you run the risk of having the call rejected out of hand. We are all familiar with the reason for this rejection: How many of us will answer an incoming call when we don't know who it is? Not many of us – not after years of robocalls and other abuses.

This article will review Caller ID basics and explain what goes on when you ask your provider to update the Caller ID name for a phone number you use when making outgoing calls. We hope it helps clarify things for the reader that might have otherwise remained unexplained.

2. Caller ID – The Basics

Here in the United States, Caller ID consist of two primary components:

- ⇒ **CLID** – The actual phone number associated with the call.
- ⇒ **CNAM** – The 15 character textual name for the call.

The two together make up what you typically hope to see on your phone when a call comes in: A phone number and the name of the calling party.

2.1 – The CLID (Caller ID Number)

The CLID is **set by the caller**, which has traditionally made it easy to “spoof” the caller ID of another party and claim that you are calling as them. This method is used often when forwarding calls from one phone to another, such as when you tell your phone to forward incoming calls to your cell phone. However, this same flexibility is at the heart of the method used by scammers, robocallers, and other bad actors to hide their true identity.

We note here that recent efforts with STIR/SHAKEN are focused on verifying that when you call someone, the CLID you use is valid and authentic. This system update is just starting to roll out now – with the FCC mandating deadlines for required compliance.

We give a quick review of STIR/SHAKEN as it relates to this discussion at the end of this article. In addition, a quick google search of STIR/SHAKEN will yield plenty of resources to explore this topic further, if you wish to know more.

2.2 – The CNAM (Caller ID Name)

The CNAM for a phone number is **not set by the caller**. Instead, the phone provider receiving the call will look up the CNAM value in its database to retrieve the CNAM to display. This CNAM database can be different depending on which provider you use – and this lack of a single database leads to problems when you seek to update the CNAM value. We discuss in detail the issues this causes when you want to update the CNAM value in the next section.

The CNAM value is a text value of up to 15 characters. Only alphabetic, numeric, and space characters are allowed. Apostrophes, hash tags, commas, and periods are not allowed.

The CNAM is provided with the characters always in UPPERCASE. Thus, you need not bother with capitalizing your company name – it will be ignored.

3. Challenges Updating Your Caller ID Name (CNAM)

When you make a change to the CNAM value for a given phone number (CLID), there are two challenges you will face and should be aware of:

1. Updates are not instantaneous. The loose-knit system of CNAM databases used in the U.S. can take days to completely update.
2. Many mobile phone providers have added their own Caller ID name service and will limit the display of the CNAM value unless the mobile customer subscribes to the premium version of the product.

3.1 – Waiting for Updates to Propagate

As mentioned, there is no single database you turn to when you want to update the CNAM value associated with one of your phone numbers. Instead, you use your local provider to update the CNAM value they store in their local database. This will change the name for you and anyone that uses your provider, but it takes much longer for the change to make its way out in the world and eventually be incorporated into all the various sources for CNAM data.

Generally, expect it to take anywhere from 24-72 hours for a change to your CNAM value to be reflected with all the major U.S. providers. It is not uncommon during this time-period for one major player (such as Verizon) to show the old value while other major carriers (for example, AT&T) have picked up the new revision.

For this reason, when you have a report of your caller ID name being incorrect, it is always a good idea to include the phone number of the person who reported the issue along with the name of the carrier they use. Knowing this can help the phone administrator know whom to contact to resolve the rare propagation issue.

3.2 – Caller ID Mobile Challenges

There has been a major shift in recent years in the mobile market with regard to Caller ID. Providers such as SPRINT and Verizon often pre-load the phone with a custom Caller ID solution. It is not uncommon for a cell phone to show only the phone number unless the subscriber has purchased the premium Caller ID product. This is important to remember when you receive reports that your company name is not showing up for a given customer. Are they using a cell phone that has this

kind of setup? If so – the answer lies not in resolving an issue with the CNAM update, but instead with the individual subscriber “unlocking” the Caller ID feature.

The other issue this can cause is when the customer is using a custom Caller ID system that may not directly use CNAM values at all. If the source of the name lookup being performed is not a traditional CNAM database, but instead is a proprietary database created by a third party, there is little to be done to ensure that your phone number’s Caller ID CNAM will show up properly. Fortunately, most solutions of this nature do incorporate CNAM values, but if you find a few customers are reporting strange caller ID values, this can be one possibility to consider.

Finally, remember that many cell phones will use the customer’s Contacts name if present, so if they stored a contact for your phone number under the name “Some Painting Company”, you may be out of luck getting your incoming calls to properly say your actual CNAM value (for example, “ABC PAINTING INC”).

4. Call Authentication – STIR/SHAKEN Impact

The FCC has been working diligently to provide a solution to the rampant Robocalling that has plagued the United States – especially in the last decade. At the heart of this solution lies a set of protocols called STIR, and a set of compliance rules for that protocol called SHAKEN. Together, the system is referred to simply with the James Bond evoking: STIR/SHAKEN.

For the purposes of this article, we will just note the basics of this solution. It ensures that all phone calls have a secure digital ID that can be used to trace a phone call back to the provider that originated it. The lack of such a source in the past has made cracking down on Robocall abusers nearly impossible.

Starting in June of this year (2021), the FCC is requiring all major carriers to implement STIR/SHAKEN, and in so doing is laying the groundwork to be able to trace Robocalls to their source. This can then be used to force the provider to cut off any customers that may be abusing the system with Robocalls. It also makes the entire system more accountable.

This should result in a future where Robocalls begin to come under control. As providers large and small are forced to implement STIR/SHAKEN or use a carrier that does, the confidence of a given phone call being legitimate will greatly increase.

4.1 – Challenges with STIR/SHAKEN

There are still issues that need to be worked out – mostly around the legitimate cases where a caller may wish to set the Caller ID to a number that they do not own. The primary case for this is when one sets the phone to forward calls to your cell phone, or similar situation. In this case, you want the phone call that arrives at your cell to still show the caller ID of the calling party. To do this, the forwarding call needs to be originated by your phone provider with the caller ID number from the incoming call. It is rare that this number will also be owned by the phone provider you use. This makes it impossible to sign the call with the same level of trust that is possible when the number is known and registered with the provider.

There are solutions being worked on for this issue, and for centralizing the tracking of ownership of numbers in general. This second approach would be very helpful in cleaning up the current CNAM deficiencies – providing a true centralized authority for the owner of a number and what they want the associated CNAM to be. It is not yet clear, at the time of this writing, which solutions to these problems will win out in the end – if any.

In the worst case, we will start with a lot of Robocalls still showing up in the phone network, but as the bad actors are identified and now are able to be traced back to their originating provider, the expectation is that these rogue calls will dramatically decrease as actions are taken to cut off the abusers.

There are a lot of source for information on STIR/SHAKEN. I provide the official FCC link below, along with a great collection of articles and tutorials put together by Bandwidth.com – a major phone provider in the U.S.

- <https://www.fcc.gov/call-authentication>
- <https://www.bandwidth.com/regulations/stir-shaken>