

# TLD-OPS Overview

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SECIR Working Group  
<http://ccnso.icann.org/workinggroups/secir.htm>

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## Summary

The TLD-OPS mailing list is the version 1 implementation of the SECIR Contact Repository. The purpose of the list is to enable ccTLD operators to easily and quickly contact each other, thus allowing them to better handle incidents that require a coordinated response of ccTLDs at the global level. Examples of these incidents include targeted attacks on or malfunctions of registration systems, the DNS, or the Internet at large.

The TLD-OPS list meets the key requirements for the Contact Repository, which are: globally accessible, easy to use, available to ccTLDs at no costs, and possibility to interface with similar systems at Regional Organizations. The list server runs “on neutral ground” at DNS-OARC, as approved by the community during the ccNSO Members Day at ICANN51 in LA. The server uses mailman, which is a widely used mailing list software that is for instance being used for many of the ccNSO lists.

We emphasize that the TLD-OPS list’s primary purpose is to act as a Contact Repository. While it may also be used to exchange actual incident information, we recommend minimizing the use of the list in that way as it is unencrypted. We expect that a secure messaging service will be part of version 2 of the SECIR system.

This document starts with an introduction of the SECIR terminology (Section 1) and an overview of the TLD-OPS mailing list (Section 2). Next, it describes how to use the list (Section 3), how to subscribe to it (Section 4 and Section 5), how to modify a subscription (Section 6), and how we will bootstrap list membership (Section 7). Appendix A provides an overview of the SECIR email messages.

This document is an output of the ccNSO working group “Secure Email Communication for ccTLD Incident Response” (SECIR) [1] and combines three of the four SECIR deliverables: an operational mailing list (deliverable D1), a procedure for subscribing and unsubscribing ccTLD operators to and from the list (deliverable D2), and an instruction manual for ccTLD operators and for the list administrator (deliverable D3).

## Document History

Version	Date	Author	Changes
V0.1	Jan 19, 2015	Cristian Hesselman	First initial draft
V0.2	Jan 22, 2015	Cristian Hesselman Jacques Latour Gabi Schitteck	Processed Jacques' and Gabi's feedback, added overview pictures (figure 1 and 2), updated Appendix A with example messages.
V0.3	Jan 25, 2015	Cristian Hesselman Gabi Schitteck	Added Validator-initiated subscription procedure, added Figure 4 (mailman screenshot), various edits for further clarification
V0.4	Jan 26, 2015	Cristian Hesselman Erwin Lansing Gabi Schitteck	Update of Figure 1 (membership reminded through SECIR-specific script) and various edits
V0.5	Jan 31, 2015	Cristian Hesselman Gabi Schitteck	Added examples of Contact Request messages in Appendix A, various minor edits
V1.0	Jan 31, 2015	Cristian Hesselman Jacques Latour Erwin Lansing Frederico Neves Abibu Ntahigiye Geng-Da Tsai Gabi Schitteck	Document approved by WG as V1.0
V1.1	Feb 13, 2015	Cristian Hesselman	Updates after ICANN52 WG meeting: at most three SSCs per ccTLD on the list (was two), added short explanation of process when new SSCs only provide partial contact info, improved instructions in TLD-OPS messages on how to use/subscribe to the list.

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## 1 Terminology

### Security and Stability Contact

A Security and Stability Contact (SSC) is a person who is responsible for the overall security and stability of a ccTLD, in particular for the ccTLD's authoritative name servers and its registration system. Every ccTLD should have at least two SSCs, one primary and one secondary. An SSC may be responsible for multiple ccTLDs.

To limit the workload of the SECIR Validator, we currently allow at most three SSCs per ccTLD to subscribe to the TLD-OPS list. We might however raise this threshold in future versions of the SECIR Contact Repository.

### SECIR Validator

The SECIR Validator is a person, group of persons, or organization that authenticates SSCs. To accomplish this, the Validator contacts the ccTLD's admin contact in the IANA database and checks if the SSC is indeed responsible for that ccTLD's security and stability.

For now, the SECIR Validator for TLD-OPS mailing list is the ccNSO Secretariat. We believe the ccNSO Secretariat is a suitable entity because the ccTLD community trusts them and because they already manage a number of mailing lists in their day-to-day business.

### IANA Admin Contact

The IANA Admin Contact is the person in the IANA database who is the administrative contact for a particular ccTLD. The SECIR Validator uses the IANA Admin Contact as a "trust anchor" to obtain the identity and contact information of the SSCs of a ccTLD. Future versions of the SECIR Contact Repository might use other forms of authentication such as public/private key authentication, but this is beyond the scope of this document.

### SECIR Administrator

The SECIR Administrator is a person, group of persons, or organization that administers the TLD-OPS mailing list. This for instance includes adding and removing SSCs to and from the list based on the authentication decisions that the SECIR Validator makes.

For now, the SECIR Administrator for TLD-OPS mailing list is the ccNSO Secretariat. As the SECIR system matures into an OPS-Trust-based system, the WG foresees that the ccTLD's IANA Admin Contact or an appointed contact might become the SECIR Administrator for a particular ccTLD.

### **SECIR Hosting Provider**

The SECIR Hosting Provider is the organization that hosts the TLD-OPS mailing list. It provides network connectivity, server hardware, operating systems, and possibly virtualization platform.

The SECIR Hosting Provider for TLD-OPS mailing list is DNS-OARC. This was approved by the ccNSO community at ICANN51 in Los Angeles.

## 2 TLD-OPS Mailing List

The TLD-OPS mailing list is the version 1 implementation of the SECIR Contact Repository. Its purpose is to enable SSCs to easily and quickly contact each other, thus allowing them to better handle incidents that require a coordinated response of ccTLDs at the global level. Examples of these incidents include targeted attacks on or malfunctions of registration systems, the DNS, or the Internet at large [2]. An example of a recent incident that required coordination between ccTLDs was the attack on .fr (France) on Sep 4, 2014 [3], which .nl (Netherlands) assisted to resolve.

The TLD-OPS list address is [tld-ops@lists.dns-oarc.net](mailto:tld-ops@lists.dns-oarc.net). The list was set up in 2004 for incident response reasons, but has mostly been dormant since. The list server uses mailman [4], which is a widely used mailing list software that is for instance being used for the ccNSO mailing lists. The TLD-OPS mailman server runs at DNS-OARC and they also manage the server.

The TLD-OPS list works with personal contact information of SSCs (e.g., [firstname.lastname@example.nl](mailto:firstname.lastname@example.nl)) and not with role-based accounts (e.g., [ssc1@example.nl](mailto:ssc1@example.nl)). The reason is that we believe personal contact information contributes towards further increasing trust in the ccTLD community because people start recognizing each others names. The downside is that it requires more updating, for instance when a ccTLD appoints a new SSC.

The TLD-OPS mailing list does not yet provide support for the Secure Messaging Service, which is the other SECIR service (see SECIR Final Report, to appear). The SECIR WG expects the messaging service to be part of the version 2 implementation, which will be based on OPS-Trust [6].

### 3 TLD-OPS Usage

Figure 1 shows the typical uses of the TLD-OPS list. The users of the list are SSCs (Section 3.1) and the TLD-OPS mailman server (Section 3.2).

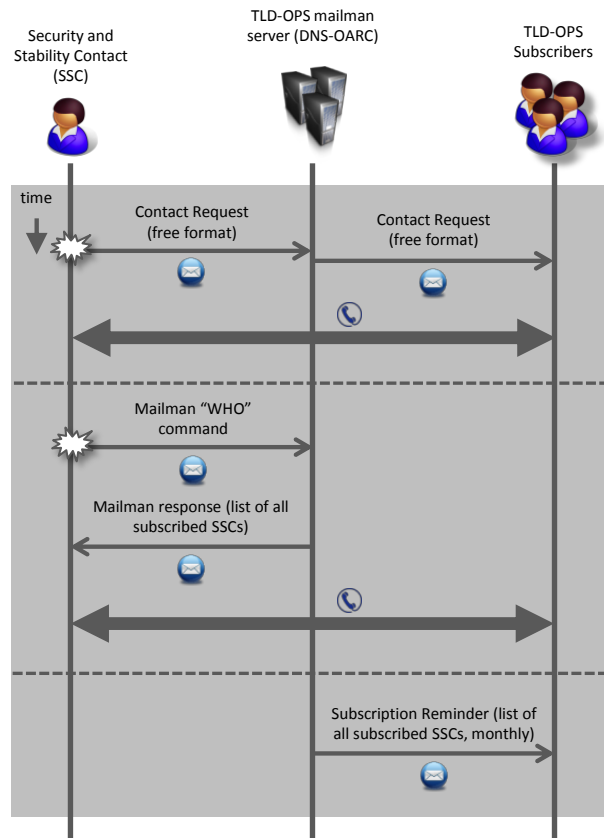


Figure 1. TLD-OPS usage.

#### 3.1 SSCs

An SSC typically uses the TLD-OPS list by sending a "Contact Request" email on the list, for instance "I'm the SSC of ccTLD A and I would like to get the contact information of ccTLD B's SSC". The SSCs can then contact each other "out-of-band" to share the actual information on a particular incident, for instance by phone or through instant messaging. The Contact Request is a free-format message (see Section A.8 for an example).

An SSC may also get the contact information of other SSCs by sending a "who" email to the list's request address ([tld-ops-request@lists.dns-oarc.net](mailto:tld-ops-request@lists.dns-oarc.net)). Such an email has a message body of the form 'who <SSCPassword>', without the quotes, <SSCPassword> replaced by the SSC's list password, and an empty subject line. In response, the mailman server will send back an email that contains the contact information of all the SSCs subscribed to the list, again enabling the requesting SSC to contact other SSCs out-of-band. The format of an SSC's contact information is:

“email address (<FirstName> <Last Name>, <Mobile Phone>, <ccTLD>)”

Examples:

jacques.latour@cira.ca (Jacques Latour, .ca, +1-613-291-1619)

cristian.hesselman@sidn.nl (Cristian Hesselman, .nl, +31 6 25 07 87 33)

An SSC may also use the TLD-OPS list to actually exchange incident information (i.e., as the SECIR Messaging Service). We do however recommend minimizing the use of the list in this way as it is unencrypted. We expect that version 2 of the SECIR services will support secure SECIR messaging sessions through the facilities built into the OPS-Trust platform.

### 3.2 Mailman Server

The mailman server automatically sends a “Subscription Reminder” on the list on the first day of every month. This email contains the email addresses of all subscribed SSCs and serves two purposes: (1) to remind SSCs of the existence of the TLD-OPS list (keep it “top of mind”) and (2) to enable SSCs to store the update email locally for future reference, for instance for offline situations.

A cronjob on the mailman server automatically invokes a SECIR-specific mailman script to send out the Subscription Reminder.

Appendix A.7 shows an example of a Subscription Reminder message.



## 4 Validator-initiated Subscription

Figure 2 shows the light-weight procedure that the SECIR WG developed to subscribe SSCs to the TLD-OPS list in an authenticated way (see sections 4.1 through 4.5). The SECIR Validator initiates the procedure for a particular ccTLD. We also distinguish an SSC-initiated subscription procedure (see Section 5).

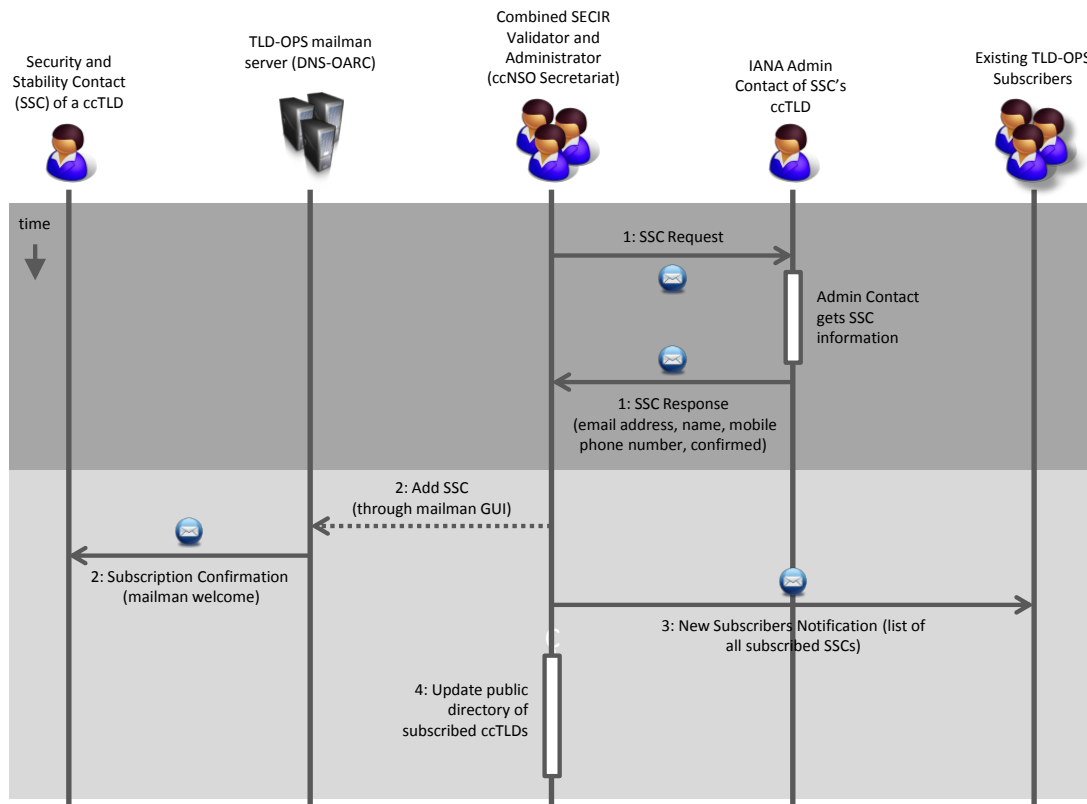


Figure 2. Validator-initiated subscription procedure.

### 4.1 Step 1: Request SSCs

The SECIR Validator initiates the subscription procedure for a particular ccTLD by sending an “SSC Request” email to the ccTLD’s Admin Contact. The purpose of the request is to ask the Admin Contact for the contact information of its ccTLD’s SSCs. The email also indicates that the ccTLD’s subscription to the TLD-OPS list will be published on the ccNSO website (see Step 5).

The IANA Admin Contact sends back an “SSC Response” email to the SECIR Validator with the contact details of its SSCs (email, name, mobile phone number, and ccTLD) and a confirmation that they are the people responsible for the ccTLD’s security and stability. The email address in the Admin Contact’s response must be identical to the one listed in the IANA database under “Administrative contact”.

Appendix A.1 and Appendix A.2 show an example of an SSC Request and an SSC Response email, respectively.

#### **4.2 Step 2: Subscribe SSCs**

The SECIR Administrator adds the SSCs to the TLD-OPS list through the mailman user interface. As a result, the newly subscribed SSCs receive a Subscription Confirmation, which is an email from the mailman server that they have been added to the TLD-OPS list and that they may now use it (mailman “welcome” message).

Appendix A.3 shows an example of a Subscription Confirmation email.

#### **4.3 Step 3: Notify Other SSCs**

The SECIR Validator sends a New Subscribers Notification email on the list signaling that the new SSC has joined the list. The notification email also includes the email addresses of all other subscribed SSCs, so that SSCs may store the email locally on their device for future reference, for instance in offline situations.

The Validator will post a New Subscribers Notification digest at the end of every week to manage the Validator’s workload.

Appendix A.4 shows an example of a New Subscribers Notification email.

#### **4.4 Step 5: Update Public Directory**

The SECIR Validator adds the ccTLD of the new SSCs to a public directory of ccTLDs who are subscribed to the TLD-OPS list. This enables everyone in the ccTLD community to check which ccTLDs are on the TLD-OPS list, including ccTLDs who are not ccNSO members. We believe this is a transparent approach that potentially also creates an incentive for ccTLDs to join the TLD-OPS list.

The public directory is part of the “ccNSO Resources page” on the ccNSO website [5]. It only contains the names of the ccTLDs that are members of the TLD-OPS list and does not contain information about SSCs.

#### **4.5 Subscription Failure**

If the IANA Admin Contact does not respond within 5 working days in Step 1, the SECIR Validator sends out a reminder and allows the Admin Contact to respond for another 5 working days. If the Admin Contact has not responded after these 10 working days, the SECIR Validator considers the subscription procedure to have failed.

Observe that the SECIR Validator does not fallback to the Tech Contact in the IANA database. This simplifies the procedure for the Validator, which is important for the procedure’s scalability.

The SECIR Validator will also not be able to subscribe an SSC if the contact information that the IANA Admin Contact provides for that SSC is incomplete or if the email address is a role-based one rather than a personal one.

## 5 SSC-initiated Subscription

Figure 3 shows the procedure for SSCs who initiate the subscription procedure themselves. The SSC-initiated procedure differs from the validator-initiated procedure in that (1) Step 1 is different (see Section 5.1 and Section 5.2) and (2) because it handles authentication failures differently (see Section 5.3). The procedure is also different because it applies to one SSC, while the Validator-initiated procedure may involve one or more SSCs. Everything else is the same as in the validator-initiated procedure.

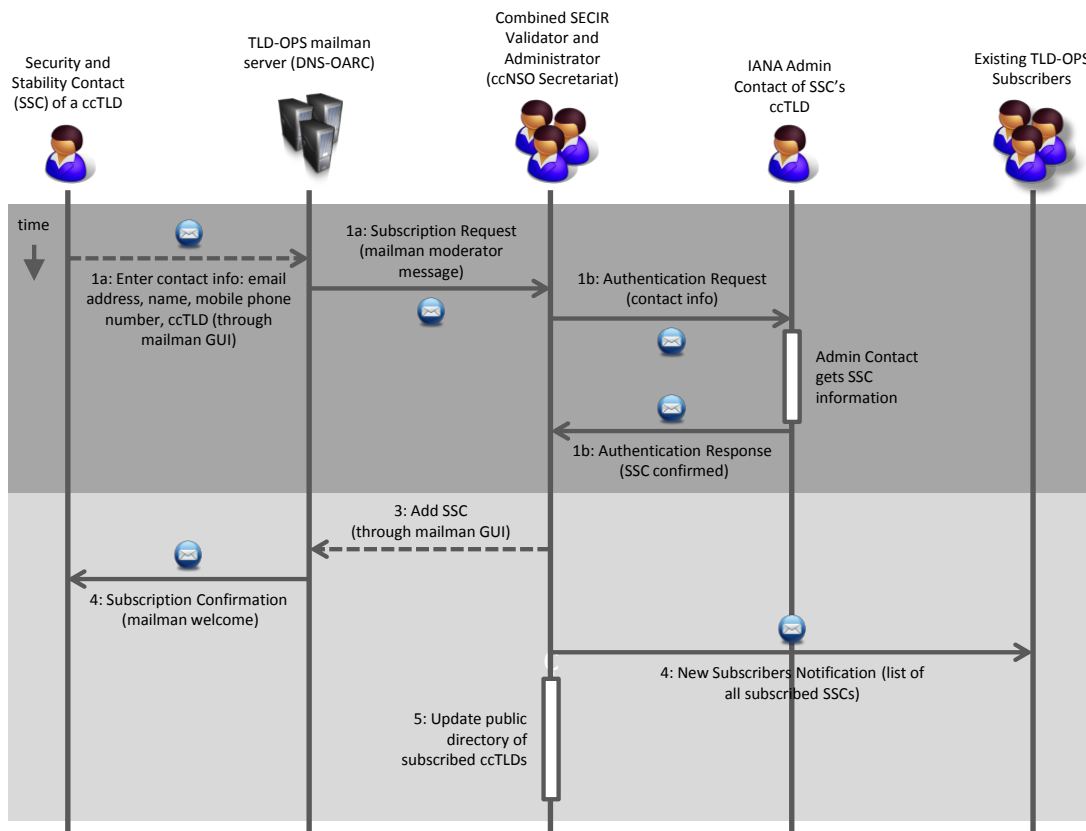


Figure 3. SSC-initiated subscription procedure.

### 5.1 Step 1A: SSC Requests Subscription

An SSC-initiated subscription procedure starts with an SSC of a ccTLD requesting to be subscribed to the TLD-OPS list through the list’s administrative interface at:

<https://lists.dns-oarc.net/mailman/listinfo/tld-ops>

SSCs must explicitly include their email address, mobile phone number, and ccTLD, as shown in Figure 4. For the TLD-OPS list, this is *required* information (the “optional” in the field “Your name” is a default mailman setting).

tld-ops Info Page

https://lists.dns-oarc.net/mailman/listinfo/tld-ops

### Subscribing to tld-ops

Subscribe to tld-ops by filling out the following form. You will be sent email requesting confirmation, to prevent others from gratuitously subscribing you. Once confirmation is received, your request will be held for approval by the list moderator. You will be notified of the moderator's decision by email. This is also a private list, which means that the list of members is not available to non-members.

Your email address: john.doe@example.nl SSC's email address

Your name (optional): John Doe (+31 6 12 34 56 78, .nl) SSC's name, mobile phone number, and ccTLD. REQUIRED for the TLD-OPS list.

You may enter a privacy password below. This provides only mild security, but should prevent others from messing with your subscription. **Do not use a valuable password** as it will occasionally be emailed back to you in cleartext.

If you choose not to enter a password, one will be automatically generated for you, and it will be sent to you once you've confirmed your subscription. You can always request a mail-back of your password when you edit your personal options. Once a month, your password will be emailed to you as a reminder.

Pick a password: ●●●●●● SSC's list password

Reenter password to confirm: ●●●●●●

Which language do you prefer to display your messages? English (USA)

Would you like to receive list mail batched in a daily digest?  No  Yes

Subscribe

Figure 4. TLD-OPS subscription screen (mailman).

## 5.2 Step 1B: Authentication

In response to the subscription request, the SECIR Validator sends an “Authentication Request” email to the ccTLD’s IANA Admin Contact, asking the admin to authenticate that the SSC is indeed responsible for the ccTLD’s security and stability. The email contains the contact information the SSC provided and indicates that the ccTLD’s subscription to the TLD-OPS list will be published on the ccNSO website (see Step 5, Section 4.4).

The IANA Admin Contact sends back an “Authentication Response” email to the SECIR Validator confirming that the SSC is responsible for the ccTLD’s security and stability. The email address confirming the SSC must be identical to the one listed in the IANA database under “Administrative contact”.

Appendix A.5 and Appendix A.6 show an example of an Authentication Request and an Authentication Response email, respectively.

After Step 1B, the subscription procedure proceeds with Step 2 of the Validator-initiated procedure (see Section 4.2).

## 5.3 Subscription Failure

If the admin contact does not respond to an Authentication Request within 10 working days (cf. Section 4.5), the SECIR Validator considers the subscription procedure to have failed and reports this back to the SSC who would like to join the list so he can flag this within his ccTLD.

## **6 Subscription Modifications**

A ccTLD's Admin Contact needs to send changes to its subscribed SSCs to the Validator. Alternatively, an SSC may update its subscription details through the TLD-OPS options page (<https://lists.dns-oarc.net/mailman/options/tld-ops/>), which the Validator will first check with the ccTLD's Admin Contact before effectuating them.

## 7 Bootstrapping

To get the SSCs of all ccTLDs on the list, we use the validator-initiated subscription procedure. The reason is that it puts the Validator in control, thus enabling it to better manage its workload.

The SECIR Validator subscribes SSCs to the TLD-OPS list in batches. The Validator first invites two test batches to evaluate the subsection procedure (Section 7.1), which the SECIR WG will use to update the subscription procedure where needed. Next, the Validator will start inviting the rest of the community (Section 7.2).

### 7.1 Test Batches

The first test batch consists of the ccTLDs involved in the SECIR WG (.br, .ca, .dk, .nl, .tw, and .tz). The WG members will ask at least on these ccTLDs to use the SSC-initiated procedure (see Section 5).

The second batch consists of five ccTLDs, with one ccTLD per region: .co, .jp, .uk, .us, and .za. The SECIR Validator will contact their contacts at these registries to invite their SSCs to join the list and report experiences back to the Validator.

During this initial round of subscriptions, the members of the SECIR WG will be a subscriber of the TLD-OPS list as well, even though not all of them are SSCs. This is because the WG would like to monitor how the procedure works from a subscriber perspective. The Validator will remove the WG members from the list when they start inviting SSCs other than those in the test batches (see Section 7.2).

### 7.2 Regular Batches

After subscribing the two test batches (see Section 7.1), the Validator initiates the subscription procedure for the other ccTLDs, using batches of 10 ccTLDs per week. This will involve ccTLDs who are ccNSO members as well as non-members.

The advantage of this approach is that it enables the Validator to manage its workload and that every ccTLD (including non-ccNSO members) will be explicitly invited to join.

## References

1. SECIR Homepage, <http://ccnso.icann.org/workinggroups/secir.htm>
2. Final Report ccNSO Contact Repository Implementation Working Group, June 2014, <http://ccnso.icann.org/node/45566>
3. Sandoche Balakrichenan, "Disturbance in the DNS", Tech Day, ICANN 51, Los Angeles, USA, Oct 2014, <http://la51.icann.org/en/schedule/mon-tech/presentation-dafa888-dos-attack-13oct14-en.pdf>
4. Mailman homepage, <http://www.gnu.org/software/mailman/>
5. ccNSO Resources Page, <http://ccnso.icann.org/resources>
6. OPS Trust homepage, <https://portal.ops-trust.net/>



## A Appendix: TLD-OPS Messages

Table 1 shows an overview of the types of email messages we defined for the TLD-OPS list. This appendix provides an example for each.

**Table 1. TLD-OPS message types.**

Type	Phase	Scheme	Composer
SSC Request	S	VI	Validator
SSC Response	S	VI	Admin Contact
Subscription Confirmation	S	VI, SI	Mailman (welcome message)
New Subscribers Notification	S	VI, SI	Validator
Authentication Request	S	SI	Validator
Authentication Response	S	SI	Admin Contact
Subscription Reminder	U	-	SECIR-specific mailman script
Contact Request	U	-	SSC (message on the list or mailman 'who' message)
S = Subscription, U = Usage VI = Validator-Initiated, SI = SSC-Initiated			

### A.1 SSC Request

An SSC Request is an email that the Validator sends to the IANA Admin Contact to request the contact information of a ccTLD's SSCs. The message is part of the validator-initiated subscription procedure.

<b>From:</b> ccNSO Secretariat
<b>To:</b> IANA Admin Contact
<b>Cc:</b>
<b>Subject:</b> Invitation to join the TLD-OPS mailing list
Dear IANA Admin Contact,
We are sending you this email to invite your ccTLD to join the TLD-OPS mailing list.
The purpose of the TLD-OPS list is to enable ccTLD operators to easily and quickly contact each other, thus allowing them to better handle incidents that require a coordinated response of ccTLDs at the global level. Examples of these incidents include targeted attacks on or malfunctions of registration systems, the DNS, or the Internet at large.
The TLD-OPS list is only accessible to people who are responsible for the overall security and stability of a ccTLD and who have been authenticated as such by their IANA Admin Contact. More details about the admission procedure are available at <a href="http://ccnso.icann.org/resources/tld-ops-secure-communication.htm">http://ccnso.icann.org/resources/tld-ops-secure-communication.htm</a>
To subscribe your ccTLD to the TLD-OPS list, we kindly ask you to reply to this email within 5 working days and use the template below to send us the contact information of the people who are responsible

for your ccTLD's overall security and stability. Note that we currently admit at most three people per ccTLD to the TLD-OPS list.

Please make sure that your reply to this message comes from the email address you have registered in the IANA database for your ccTLD's Administrative Contact.

The TLD-OPS list is an initiative of the ccNSO (country code Name Supporting Organization). It is however open to all ccTLDs and we therefore also encourage non-ccNSO members to sign up.

The TLD-OPS list is being maintained by the ccNSO Secretariat. The list server runs at DNS-OARC. More information is available at <http://ccnso.icann.org/resources/tld-ops-secure-communication.htm>.

Best regards,

ccNSO Secretariat

\*\*\* RESPONSE TEMPLATE \*\*\*

Contact Person #1 (primary):

Name: <FirstName1> <LastName1>

Email address: <EmailAddress1>

Mobile phone number: +<country code> <number>

Contact Person #2 (secondary):

Name: <FirstName2> <LastName2>

Email address: <EmailAddress2>

Mobile phone number: +<country code> <number>

Contact Person #3:

Name: <FirstName3> <LastName3>

Email address: <EmailAddress3>

Mobile phone number: +<country code> <number>

I hereby confirm that the above persons are responsible for the overall security and stability of my ccTLD.

## A.2 SSC Response

An SSC Response is an email that the IANA Admin Contact sends in response to an SSC Request. The message is part of the validator-initiated subscription procedure.

From: IANA Admin Contact
To: ccNSO Secretariat
Cc:
Subject: RE: Invitation to join the TLD-OPS mailing list
Contact Person #1 (primary): Name: Jacques Latour Email address: jacques.latour@cira.ca Mobile phone number: +1-613-291-1619
Contact Person #2 (secondary): Name: John Doe Email address: john.doe@cira.ca Mobile phone number: +1-000-000-0000

Contact Person #3:  
 Name: Homer Simpson  
 Email address: homer.simpson@cira.ca  
 Mobile phone number: +1-000-000-000

I hereby confirm that the above persons are responsible for the overall security and stability of my ccTLD.

### A.3 Subscription Confirmation (Mailman Welcome Message)

The Subscription Confirmation is an email that the TLD-OPS mailman server sends to the new SSC. The message maps onto the standard mailman “welcome” message.

From: tld-ops-request@dns-oarc.net <tld-ops-request@dns-oarc.net>  
 To: New SSC  
 Cc:  
 Subject: Welcome to the TLD-OPS mailing list!

Dear Security and Stability Contact,

Welcome to the TLD-OPS mailing list!

The purpose of the TLD-OPS list is to enable ccTLD operators to easily and quickly contact each other, thus allowing them to better handle incidents that require a coordinated response of ccTLDs at the global level. Examples of these incidents include targeted attacks on or malfunctions of registration systems, the DNS, or the Internet at large.

When you receive this message, it means that your IANA Admin Contact authenticated you as the person responsible for the security and stability of your ccTLD. All other subscribers of the TLD-OPS list went through the same procedure. More details about the admission procedure are available at <http://ccnso.icann.org/resources/tld-ops-secure-communication.htm>.

We emphasize that the TLD-OPS list’s primary purpose is to act as a Contact Repository. While the list may also be used to exchange actual incident information, we recommend minimizing the use of the list in that way as it is unencrypted. We expect that a secure messaging service will be part of a future toolset.

We will add your ccTLD to the public directory of ccTLDs that subscribed to the TLD-OPS list. The directory only contains the names of ccTLDs and does not contain information about people on the list. The public directory is at <http://ccnso.icann.org/resources/tld-ops-secure-communication.htm>

The TLD-OPS list is an initiative of the ccNSO (country code Name Supporting Organization). It is however open to all ccTLDs and we therefore also encourage non-ccNSO members to sign up.

The TLD-OPS list and is being maintained by the ccNSO Secretariat. The list server runs at DNS-OARC.

Best regards,

ccNSO Secretariat

**\*\*\* TLD-OPS USAGE: POSTING \*\*\***

To post to the TLD-OPS list, send your message to:

`tld-ops@lists.dns-oarc.net`

Use TLD-OPS list to get the contact information of your peers and then contact them "out-of-band", for instance by phone or instant message. While you may also use the list to exchange incident information, we recommend minimizing the use of the list in that way as it is unencrypted.

**\*\*\* TLD-OPS USAGE: WHO COMMAND \*\*\***

To obtain the full list of TLD-OPS subscribers on demand, send a 'who' message to:

`tld-ops-request@lists.dns-oarc.net`

with a message body of the form 'who <YourPassword>', without the quotes and <YourPassword> replaced by your list password. Make sure to leave the subject line empty. The mailman server will respond with an email that contains the contact information of all list members.

**\*\*\* TLD TLD-OPS USAGE: SUBSCRIPTION REMINDERS \*\*\***

The ccNSO Secretariat will remind you of your subscription to TLD-OPS once every month through an automated message. This reminder includes the full list of TLD-OPS subscribers, with their names, email addresses, phone numbers, and their ccTLD.

We highly recommend storing this email on one of your devices so that you may also contact your peer security and stability contacts in offline situations.

**\*\*\* MANAGING YOUR TLD-OPS SUBSCRIPTION \*\*\***

If you want to obtain your password, unsubscribe, or change your subscription options (e.g., switch to or from digest mode, change your password, etc.), visit your subscription page at:

<https://lists.dns-oarc.net/mailman/options/tld-ops/>

You can also make such adjustments via email by sending a message to:

`tld-ops-request@lists.dns-oarc.net`

with the word 'help' in the subject or body (don't include the quotes), and you will get back a message with instructions.

You must know your password to change your options (including changing the password, itself) or to unsubscribe without confirmation. You can get it from the TLD-OPS options page, which is at <https://lists.dns-oarc.net/mailman/options/tld-ops/>

General information about the mailing list is at:

<https://lists.dns-oarc.net/mailman/listinfo/tld-ops>

\*\*\* APPROVAL OF CHANGE REQUESTS \*\*\*

Note that all change requests need to be approved by your IANA Admin Contact to ensure the trusted nature of the TLD-OPS mailing list.

\*\*\* Mailman SSL Error \*\*\*

If you get this error when connecting to <https://lists.dns-oarc.net>

"This server could not prove that it is lists.dns-oarc.net; its security certificate is from www.as112.net"

then send an email to [admin@dns-oarc.net](mailto:admin@dns-oarc.net).

#### A.4 New Subscribers Notification

The New Subscribers Notification is an email that the SECIR Validator sends to existing subscribers of the TLD-OPS list to notify them of the newly subscribed SSC and to send them the most up-to-date list of subscribers.

From: SECIR Validator
To: TLD-OPS List < <a href="mailto:tld-ops@dns-oarc.net">tld-ops@dns-oarc.net</a> >
Cc:
Subject: [tld-ops] New subscribers notification

Dear Security and Stability Contact,

This is a notification that one or more new subscribers joined the TLD-OPS mailing list.

This email includes the full list of TLD-OPS subscribers (see below), with their names, email addresses, phone numbers, and their ccTLD. We highly recommend storing this email on one of your devices so that you may also contact your peer security and stability contacts in offline situations.

Note that all of the new members have been authenticated by their ccTLD's IANA Admin Contact, as per the subscription procedure for the TLD-OPS list. More details about the admission procedure are available at <http://ccnso.icann.org/resources/tld-ops-secure-communication.htm>.

Best regards,

ccNSO Secretariat

\*\*\* FULL LIST OF TLD-OPS MEMBERS \*\*\*

[jacques.latour@cira.ca](mailto:jacques.latour@cira.ca) (Jacques Latour, .ca, +1-613-291-1619)  
[cristian.hesselman@sidn.nl](mailto:cristian.hesselman@sidn.nl) (Cristian Hesselman, .nl, +31 6 25 07 87 33)  
 ...

\*\*\* TLD-OPS USAGE: POSTING \*\*\*

To post to the TLD-OPS list, send your message to:

[tld-ops@lists.dns-oarc.net](mailto:tld-ops@lists.dns-oarc.net)

Use TLD-OPS list to obtain the contact information of your peers and then contact them "out-of-band", for instance by phone or instant message. While you may also use the list to exchange incident information, we recommend minimizing the use of the list in that way as it is unencrypted.

\*\*\* TLD-OPS USAGE: WHO COMMAND \*\*\*

To obtain the full list of TLD-OPS subscribers on demand, send a 'who' message to:

`tld-ops-request@lists.dns-oarc.net`

with a message body of the form 'who <YourPassword>', without the quotes and <YourPassword> replaced by your list password. Make sure to leave the subject line empty. The mailman server will respond with an email that contains the contact information of all list members.

\*\*\* TLD TLD-OPS USAGE: SUBSCRIPTION REMINDERS \*\*\*

The ccNSO Secretariat will remind you of your subscription to TLD-OPS once every month through an automated message. This reminder includes the full list of TLD-OPS subscribers, with their names, email addresses, phone numbers, and their cTLD.

We highly recommend storing this email on one of your devices so that you may also contact your peer security and stability contacts in offline situations.

\*\*\* MANAGING YOUR TLD-OPS SUBSCRIPTION \*\*\*

If you want to obtain your password, unsubscribe, or change your subscription options (e.g., switch to or from digest mode, change your password, etc.), visit your subscription page at:

`https://lists.dns-oarc.net/mailman/options/tld-ops/`

You can also make such adjustments via email by sending a message to:

`tld-ops-request@lists.dns-oarc.net`

with the word 'help' in the subject or body (don't include the quotes), and you will get back a message with instructions.

You must know your password to change your options (including changing the password, itself) or to unsubscribe without confirmation. You can obtain it from the TLD-OPS options page at `https://lists.dns-oarc.net/mailman/options/tld-ops/`

General information about the mailing list is at:

`https://lists.dns-oarc.net/mailman/listinfo/tld-ops`

\*\*\* APPROVAL OF CHANGE REQUESTS \*\*\*

Note that all change requests need to be approved by your IANA Admin Contact to ensure the trusted nature of the TLD-OPS mailing list.

\*\*\* Mailman SSL Error \*\*\*

If you get this error when connecting to <https://lists.dns-oarc.net>

"This server could not prove that it is lists.dns-oarc.net; its security certificate is from www.as112.net"

then send an email to [admin@dns-oarc.net](mailto:admin@dns-oarc.net).

### A.5 Authentication Request

The Authentication Request is an email that the SECIR Validator sends to the IANA Admin Contact of the ccTLD for whose security and stability the new SSC claims to be responsible. It is part of the SSC-initiated subscription procedure.

From: SECIR Validator (ccNSO Secretariat)
To: IANA Admin Contact
Cc:
Subject: TLD-OPS Authentication Request

Dear IANA Admin Contact,

The person below has indicated to be responsible for the overall security and stability of your ccTLD. We kindly ask you to confirm or deny this assertion by replying to this email. A simple "confirm" or "deny" in the message body will suffice.

The reason you are receiving this validation request is that the aforementioned person requested to join the TLD-OPS mailing list, which is only accessible to the security and stability contacts of ccTLDs. The purpose of the TLD-OPS list is to enable ccTLD operators to easily and quickly contact each other, thus allowing them to better handle incidents that require a coordinated response of ccTLDs at the global level. Examples of these incidents include targeted attacks on or malfunctions of registration systems, the DNS, or the Internet at large.

Please make sure that your reply to this message comes from the email address you have registered in the IANA database for your ccTLD's Administrative Contact.

The TLD-OPS list is an initiative of the ccNSO (country code Name Supporting Organization). It is however open to all ccTLDs and we therefore also encourage non-ccNSO members to sign up.

The TLD-OPS list and is being maintained by the ccNSO Secretariat. The list server runs at DNS-OARC. More information is available at <http://ccnso.icann.org/resources/tld-ops-secure-communication.htm>.

Best regards,

ccNSO Secretariat

=== Requestor Information ===

Name: Cristian Hesselman

Email address: cristian.hesselman@sidn.nl  
 Mobile phone number: +31 6 25 07 87 33  
 Claims to be responsible for the security and stability of: .nl

## A.6 Authentication Response

An Authentication Response is an email that the IANA Admin Contact sends back to the SECIR Validator to confirm or deny that the SSC who wants to join the TLD-OPS list is responsible for the ccTLD's security and stability. The message is part of the SSC-initiated subscription procedure.

From: ccTLD's admin contact in IANA database
To: SECIR Validator (ccNSO Secretariat)
Cc:
Subject: RE: TLD-OPS Authentication Request

confirm

=== Original Message ===

From: SECIR Validator (ccNSO Secretariat)  
 To: IANA Admin Contact  
 Cc:  
 Subject: TLD-OPS Authentication Request

Dear IANA Admin Contact,

The person below has indicated to be responsible for the overall security and stability of your ccTLD. We kindly ask you to confirm or deny this assertion by replying to this email. A simple "confirm" or "deny" in the message body will suffice.

The reason you are receiving this validation request is that the aforementioned person requested to join the TLD-OPS mailing list, which is only accessible to the security and stability contacts of ccTLDs. The purpose of the TLD-OPS list is to enable ccTLD operators to easily and quickly contact each other, thus allowing them to better handle incidents that require a coordinated response of ccTLDs at the global level. Examples of these incidents include targeted attacks on or malfunctions of registration systems, the DNS, or the Internet at large.

The TLD-OPS list is an initiative of the ccNSO (country code Name Supporting Organization) and is being maintained by the ccNSO Secretariat. The list server runs at DNS-OARC. More information is available at <http://ccnso.icann.org/resources/tld-ops-secure-communication.htm>.

Best regards,

ccNSO Secretariat

=== Requestor Information ===

Name: Cristian Hesselman  
 Email address: cristian.hesselman@sidn.nl  
 Mobile phone number: +31 6 25 07 87 33



Claims to be responsible for the security and stability of: .nl
---

## A.7 Subscription Reminder

A Subscription Reminder is an email that the mailman server sends to all subscribers of the TLD-OPS list once every month. A cronjob on the mailman server automatically invokes a SECIR-specific mailman script to transmit the message.

We disabled mailman's monthly membership reminder to minimize the number of messages that TLD-OPS subscribers receive. This means that subscribers will need to visit the TLD-OPS options page (<https://lists.dns-oarc.net/mailman/options/tld-ops/>) to reobtain their password as they will not get it through a mailman reminder message (button "password reminder").

From: SECIR Administrator (ccNSO Secretariat)
To: TLD-OPS List <tld-ops@dns-oarc.net>
Cc:
Subject: [tld-ops] TLD-OPS memberships reminder

Dear Security and Stability Contact,

This is a reminder, sent out once a month, about your TLD-OPS mailing list membership.

This email includes the full list of TLD-OPS subscribers (see below), with their names, email addresses, phone numbers, and their ccTLD. We highly recommend storing this email on one of your devices so that you may also contact your peer security and stability contacts in offline situations.

We also added instructions on how to obtain the list of subscribers on demand through a mailman command and how to use change your membership to the list of or unsubscribe from it.

The TLD-OPS list is an initiative of the ccNSO (country code Name Supporting Organization) and is being maintained by the ccNSO Secretariat. The list server runs at DNS-OARC. More information is available at <http://ccns0.icann.org/resources/tld-ops-secure-communication.htm>.

Best regards,

ccNSO Secretariat

\*\*\* FULL LIST OF TLD-OPS MEMBERS \*\*\*

jacques.latour@cira.ca (Jacques Latour, .ca, +1-613-291-1619)  
 cristian.hesselman@sidn.nl (Cristian Hesselman, .nl, +31 6 25 07 87 33)  
 ...

\*\*\* TLD-OPS USAGE: POSTING \*\*\*

To post to the TLD-OPS list, send your message to:

tld-ops@lists.dns-oarc.net

Use TLD-OPS list to get the contact information of your peers and then

contact them "out-of-band", for instance by phone or instant message. While you may also use the list to exchange incident information, we recommend minimizing the use of the list in that way as it is unencrypted.

\*\*\* TLD-OPS USAGE: WHO COMMAND \*\*\*

To obtain the full list of TLD-OPS subscribers on demand, send a 'who' message to:

`tld-ops-request@lists.dns-oarc.net`

with a message body of the form 'who <YourPassword>', without the quotes and <YourPassword> replaced by your list password. Make sure to leave the subject line empty. The mailman server will respond with an email that contains the contact information of all list members.

\*\*\* TLD TLD-OPS USAGE: SUBSCRIPTION REMINDERS \*\*\*

The ccNSO Secretariat will remind you of your subscription to TLD-OPS once every month through an automated message. This reminder includes the full list of TLD-OPS subscribers, with their names, email addresses, phone numbers, and their cTLD.

We highly recommend storing this email on one of your devices so that you may also contact your peer security and stability contacts in offline situations.

\*\*\* MANAGING YOUR TLD-OPS SUBSCRIPTION \*\*\*

If you want to obtain your password, unsubscribe, or change your subscription options (e.g., switch to or from digest mode, change your password, etc.), visit your subscription page at:

<https://lists.dns-oarc.net/mailman/options/tld-ops/>

You can also make such adjustments via email by sending a message to:

`tld-ops-request@lists.dns-oarc.net`

with the word 'help' in the subject or body (don't include the quotes), and you will get back a message with instructions.

You must know your password to change your options (including changing the password, itself) or to unsubscribe without confirmation. You can get it from the TLD-OPS options page, which is at <https://lists.dns-oarc.net/mailman/options/tld-ops/>

General information about the mailing list is at:

<https://lists.dns-oarc.net/mailman/listinfo/tld-ops>

\*\*\* APPROVAL OF CHANGE REQUESTS \*\*\*

Note that all change requests need to be approved by your IANA Admin Contact to ensure the trusted nature of the TLD-OPS mailing list.

\*\*\* Mailman SSL Error \*\*\*

If you get this error when connecting to `https://lists.dns-oarc.net`

"This server could not prove that it is `lists.dns-oarc.net`; its security certificate is from `www.as112.net`"

then send an email to `admin@dns-oarc.net`.

### A.8 Contact Request (list message)

A Contact Request is a free-format email that an SSC sends to the TLD-OPS list. Its purpose is to exchange contact information.

From: SSC
To: TLD-OPS List <tld-ops@dns-oarc.net>
Cc:
Subject: Contact Request

Dear all,

I'm the SSC of <ccTLD A> and I would like to get the contact information of the person responsible for <ccTLD B's> security and stability.

Thanks!

<Name>

Security and Stability Contact of <ccTLD A>

### A.9 Contact Request (mailman who command)

A Contact Request can also take the form of a mailman who command. The mailman server does not send this message onto the list, but instead returns an email with the full list of subscribers.

From: SSC
To: <a href="mailto:tld-ops-request@dns-oarc.net">tld-ops-request@dns-oarc.net</a>
Cc:
Subject:

who <YourPassword>

From: <a href="mailto:tld-ops-owner@dns-oarc.net">tld-ops-owner@dns-oarc.net</a>
To: SSC
Cc:
Subject: The results of your email commands

The results of your email command are provided below. Attached is your original message.

- Results:

Ignoring non-text/plain MIME parts

Non-digest (regular) members:

...

jacques.latour@cira.ca (Jacques Latour, .ca +1 613 291 1619)

cristian.hesselman@sidn.nl (Cristian Hesselman, .nl +31 6 25 07

87 33)

...

- Unprocessed:

Manager SIDN Labs

SIDN | Meander 501 | 6825 MD | Postbus 5022 | 6802 EA | ARNHEM

M +31 (0)6 25 07 87 33 | T +31 (0)26 352 55 00 | F +31 (0)26 352 55

05

cristian.hesselman@sidn.nl<mailto:cristian.hesselman@sidn.nl> |  
www.sidn.nl<http://www.sidn.nl/>

- Done.