Orchestra One™ Call Authentication Service Score Guide

Introduction

SecureLogix has implemented the Orchestra One™ Call Authentication Service (O1) as an integrated suite of individual call verification methods. One or more of these methods will be applied to each call. The number and type of methods applied to a call depends on the Strategy parameter specified.

SecureLogix uses publicly available information sources, third-party information sources, real-time carrier network data, and SIP header analysis to implement each of the verification methods. The following sections provide an overview of these verification methods. The SecureLogix Orchestra One Service is implemented in a highly extensible framework that readily supports the addition of new verification methods.

Scoring Methodology

The Orchestra One Service integrates a number of verification methods that individually test attributes of a call in real time. Each method focuses on a different aspect of the source number and other call session attributes. Once the results of the verification methods are retrieved, an aggregate score is computed that will fall between -5 and +5. The principal consideration in the development of the Orchestra One scoring methodology was to implement an approach that would provide value to a variety of organizations that each may use the score in different ways to achieve different objectives.

A key concept in the Orchestra One approach is the concept of a neutral score. Each REST call begins with the assumption that since nothing is known about the call, then the starting score is "0," meaning that no analysis of the source phone number has been performed yet. As each of the verification methods is applied, positive results will increase the score and negative results will reduce the score. If the analysis does not result in either a positive or negative result, the score is set to "+1."

Some results are considered definitive and can drive the score to one extreme or the other. For example, if the source number for a call is not a valid phone number (000-000-0000, for example), the score is set to the lowest value of "-5" and no further verification methods are performed. Conversely, if the carrier can verify that their subscriber has an active call to a DN that matches the information in the REST request, then the resulting score is "+5," while if SHAKEN/STIR provides Attestation A in the SIP invite, then the resulting score is "+4."

Other verification methods provide individual scores that are weighted and then combined to generate the final score that will fall between -5 and +5.

This scoring methodology gives Orchestra One customers the flexibility to implement call handling or other responses that meet their specific business needs. Even within an organization, the responses to a score may vary based on the sensitivity of the destination within that organization.

Since this is an evolving DevOps-based solution, some scores are reserved for future tools/analysis and current scores are continually being evaluated and updated as more analysis, customer feedback, and data is collected.

Orchestra One™ Scoring Matrix	
5	Verified by the Carrier APIs
4	SHAKEN/STIR Attestation A
3	Verified by SIP header analysis
2	Reserved for use by future tools and/or analysis
1	Source analyzed. No anomalies detected; no positive information found
0	Toll Free source, or Request Timeout
-1	International Source*
-2	A number that resolves as VoIP from a VoIP service**, Blocked or No CLID, or Source < 10 digits
-3	Wireless Number ported in the last 24 hours
-4	Unverified by Carrier APIs
-4	Negative SIP header analysis
-5	Invalid or unassigned phone number
Color Key	**Included in Standard Authentication (Level I)** / **Included in Standard Authentication (Level II)** / **Included in Advance Authentication (Level III)**
***A significant amount of fraud comes from International sources**	****A significant amount of spoofing, fraud & scams come from VoIP services**

Source Phone Number Verification

The SecureLogix® Orchestra One Call Authentication service offers 3 levels of Authentication: Standard Level I, Standard Level II, and Advanced Level III.

As part of the Standard verification, the source phone number is first evaluated to determine if it is a valid number in the North American Numbering Plan. Valid phone numbers are then queried against Local Number Portability (LNP) data resources to determine if the number has been assigned to a carrier or service provider. Calls where the source number is either invalid or not assigned are spoofed and will therefore result a score of -5.

The LNP query also provides Orchestra One with the carrier and line type of the source number, which are used in other verification methods.

SIP Invite Analysis

The Orchestra One Service will analyze the elements of the SIP invite for attributes that may indicate whether the source is authentic or has been spoofed.

SecureLogix has conducted extensive research into the variable elements in the SIP invite and has determined that the Origination Line Information (OLI) is the most useful in determining validity or potential spoofing of a source phone number.

Orchestra One compares the OLI provided by the originating carrier and compares it to the line type determined by the LNP query. If the two attributes match, the score is +3; if they do not match. the score is -4.

Carrier and Service Provider Call Verification

Carriers are in a unique position to determine if a subscriber is on their network and has placed a call to a specific Destination Number (DN). SecureLogix has partnered with the AT&T, Verizon, and T-Mobile carriers to verify inbound calls to an organization.

The Orchestra One Service determines the assigned carrier as part of the source number verification check. If the source number is currently assigned to a partner carrier, then that carrier is queried in real time to verify that the call is taking place.

If the carrier verifies that the actual subscriber with that phone number on their network placed the call, then a +5 score will be returned. If the carrier cannot verify the call, then the result is scored as negative, since the call is likely spoofed; this is considered along with other factors in computing the final score.

Example Scoring Use Cases

Standard Authentication Level I

Is the phone number a valid number in the North American Numbering Plan? **No**

Phone number is determined to be spoofed.

A score of **(-5)** is returned no further analysis is done.

Standard Authentication Level I

Is the phone number a valid number in the North American Numbering Plan? **Yes**

Has the phone number been allocated to a carrier? **No**

Phone number is determined to be spoofed.

A Score of **(-5)** is returned no further analysis is done.

Standard Authentication Level I

Is the phone number a valid number in the North American Numbering Plan? **Yes**
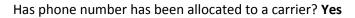
Has the phone number been allocated to a carrier? **Yes**

O1 performs SIP header analysis, SIP data in insufficient to determine attribute consistency.

A score of **(+1)** is returned.

Standard Authentication Level I

Is the phone number a valid number in the North American Numbering Plan? **Yes**

Has phone number has been allocated to a carrier? **Yes**

O1 performs SIP header analysis, attributes are consistent with a valid call.

A score of **(+3)** is returned. High confidence the phone number is authentic.

Standard Authentication Level I

Is the phone number a valid number in the North American Numbering Plan? **Yes**

Has phone number has been allocated to a carrier? **Yes**

O1 performs SIP header analysis, attributes are not consistent with a valid call.

A score of **(-4)** is returned. High confidence the phone number is spoofed.

Standard Authentication Level I

Is the phone number a valid number in the North American Numbering Plan? **No**

Is the phone number International? **Yes**

A significant amount of fraud and scams come from international sources so extra diligence should be used on these calls so a score of **(-1)** is returned

Standard Authentication Level I

Is the phone number a valid number in the North American Numbering Plan? **Yes**

Is the phone number International? **No**

Is the call from a VoIP carrier **Yes**

Is the source a VoIP source **Yes**

A significant amount of spoofing, fraud, and scams come from VoIP sources so extra diligence should be used on these calls so a score of **(-1)** is returned

Standard Authentication Level I

Is the phone number a valid number in the North American Numbering Plan? **No**

Is the phone number <10 digits? **Yes**

This is suspicious but not necessarily negative, so extra diligence should be used on these calls; a score of **(-2)** is returned

Standard Authentication Level I

Is the phone number a valid number in the North American Numbering Plan? **No**

Is the source phone number Blocked or Unavailable? **Yes**

O1 performs SIP header analysis; attributes are not consistent with a valid call.

A score of **(-2)** is returned. High confidence the phone number is spoofed.

Standard Authentication Level I

Is the phone number a valid number in the North American Numbering Plan? **No**

Is the phone number a Toll-Free number? **Yes**

SecureLogix is looking for additional tools to evaluate Toll Free numbers so currently a score of **(0)** is returned**.**

Standard Authentication Level II

Is the phone number a valid number in the North American Numbering Plan? **Yes**

Has the phone number been allocated to a carrier? **Yes**

Has the number been ported in the last 24 hours? **Yes**

A score of **(-3)** is returned.

Advanced Authentication Level III

Is the phone number a valid number in the North American Numbering Plan? **Yes**

Has the phone number has been allocated to a carrier? **Yes**

The carrier the number is allocated to determines which advanced authentication tools are used.

> If the Carrier is Verizon, O1 will use the Verizon Call Verification (VCVS) API

> If the Carrier is AT&T, O1 will use the AT&T Authentication & Verification (AAVS) API

> If the Carrier is T-Mobile, O1 will use the T-Mobile API~~If the Carrier is other, O1 can use the TRUSTID Authenticator API~~

Advanced API returns a green

A score or **(+5)** is returned no further analysis is done.

Advanced API returns a Yellow/Red

A score of **(-4)** is returned. High confidence the phone number is spoofed.

O1 performs SIP header analysis; attributes are not consistent with a valid call.

A score of (**-5**) is returned. The phone number is spoofed.

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