



# OSP Toolkit

## Protocol Extensions

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1 July 2004

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## Introduction

This document describes protocol extensions included release 3.1.2 of the Open Settlement Protocol (OSP) Toolkit. That Toolkit, available under license from TransNexus, contains an implementation of the standard settlement protocol endorsed by the European Telecommunications Standards Institute (ETSI) and the International Multimedia Teleconferencing Consortium's Voice over IP (VoIP) Forum. The protocol extensions described in this document are both optional and fully compatible with the standard.

The OSP Toolkit contains fourteen separate documents, including this one. The documents are:

- *Introduction*
- *H.323 Implementation Guide*
- *SIP Implementation Guide*
- *How to Build and Test the OSP Toolkit*
- *Error code List*
- *Programming Interface*
- *Cisco Interoperability Example*
- *Device Enrollment*
- *Internal Architecture*
- *Porting Guide*
- *SIP – OSP Interoperability Test Cases*
- *H.323 – OSP Interoperability Test Cases*
- *Protocol Extensions*
- *ETSI Technical Specification TS 101 321*

The *OSP Toolkit Introduction* includes a “Document Roadmap” section that summarizes the various documents and their application. The protocol extensions within the Toolkit fall into three functional areas—call routing preferences, usage reporting, and audit control. The first three sections of this document correspond to those areas. The final section of this document shows complete, example messages that illustrate the use of the protocol extensions.

## Call Routing Preference Extensions

The Toolkit includes support for two additional elements in an `AuthorisationRequest` and `AuthorisationResponse` component. Those elements allow the client to convey additional identification information, and an authorization server to convey additional call routing preference information to the client.

### AuthorizationRequest Modified Definition

```
<!ELEMENT AuthorisationRequest ( Timestamp, CallId*,
SourceInfo,
    SourceAlternate*, DestinationInfo, DestinationAlternate*,
    Service, MaximumDestinations, transnexus.com:CustomerId?,
    transnexus.com:DeviceId? ) >
<!ATTLIST AuthorisationRequest componentId #REQUIRED >
```

The `AuthorisationRequest` component may optionally include the two elements `transnexus.com:CustomerId`, and `transnexus.com:DeviceId`, each of which is discussed below.

### AuthorizationResponse Modified Definition

```
<!ELEMENT AuthorisationResponse ( Timestamp, Status,
    TransactionId, Destination*, transnexus.com:DelayLimit?,
    transnexus.com:DelayPreference?, transnexus.com:Audit? )
>
<!ATTLIST AuthorisationResponse componentId #REQUIRED >
```

As indicated above, the `AuthorisationResponse` component includes three additional elements, all of which are optional. Each of the elements is assigned to the `transnexus.com` namespace. The `DelayLimit` and `DelayPreference` elements are described below. The `Audit` element is discussed in the “Audit Control” section of this document, beginning on page 13.

### `transnexus.com:CustomerId`

```
<!ELEMENT transnexus.com:CustomerId (#PCDATA) >
<!ATTLIST transnexus.com:CustomerId critical (True | False)
    #FIXED "False" >
```

The `transnexus.com:CustomerId` element conveys an assigned customer identifier, represented as a decimal number without punctuation.

### **transnexus.com:DeviceId**

```
<!ELEMENT transnexus.com:DeviceId (#PCDATA) >
<!ATTLIST transnexus.com:DeviceId critical (True | False)
#FIXED "False" >
```

The `transnexus.com:DeviceId` element conveys an assigned device identifier, represented as a decimal number without punctuation.

### **transnexus.com:DelayLimit**

```
<!ELEMENT transnexus.com:DelayLimit (#PCDATA) >
<!ATTLIST transnexus.com:DelayLimit critical (True | False)
#FIXED "False" >
```

Through the `transnexus.com:DelayLimit` element, an OSP authorization server indicates a limit for round trip delay between the peer communicating network elements. The value for this element indicates round trip delay in milliseconds, and is expressed as an integer, decimal number with no punctuation. The `critical` attribute is required for this element, and its value shall always be "False".

When configured to support the TransNexus protocol extensions, the Toolkit library will process and act upon this element. It does so by immediately and simultaneously sending 64-byte datagrams to the UDP echo service (port 7) of all destinations identified within the response. Destinations that do not reply within the delay limit are discarded before delivery to the application.

### **transnexus.com:DelayPreference**

```
<!ELEMENT transnexus.com:DelayPreference (#PCDATA) >
<!ATTLIST transnexus.com:DelayPreference critical (True |
False)
#FIXED "False" >
```

The `transnexus.com:DelayPreference` element allows an authorization server to indicate that the destinations listed in the `AuthorisationResponse` should be sorted by round trip delay. The data for this element shall be either `True` or `False`. The `critical` attribute is required for this element, and its value shall always be "False".

When configured to support the TransNexus protocol extensions, the Toolkit library will process and act upon this element. If its value is `False`, the element is ignored. If its value is `True`, the library will immediately and simultaneously send 64-byte datagrams to the UDP echo service (port 7) of all destinations identified in the response. It will then present those destinations to the application in order of increasing round trip delay.

## Usage Report Extensions

The Toolkit includes support for two additional elements in the `UsageIndication` component. Those elements allow for more advanced detail reporting, including statistical information and call failure reasons.

### UsageIndication Modified Definition

```
<!ELEMENT UsageIndication ( Timestamp, Role, TransactionId,
  CallId, SourceInfo, SourceAlternate*, DestinationInfo,
  DestinationAlternate*, UsageDetail*,
  transnexus.com:CustomerId?, transnexus.com:DeviceId?,
  transnexus.com:FailureReason?, transnexus.com:Statistics*
) >
<!ATTLIST UsageIndication componentId #REQUIRED >
```

As the above XML definition indicates, these extensions add four new elements to the `UsageIndication`. All are optional, and both reside in the `transnexus.com` namespace.

#### **transnexus.com:CustomerId**

```
<!ELEMENT transnexus.com:CustomerId (#PCDATA) >
<!ATTLIST transnexus.com:CustomerId critical (True | False)
  #FIXED "False" >
```

The `transnexus.com:CustomerId` element conveys an assigned customer identifier, represented as a decimal number without punctuation.

#### **transnexus.com:DeviceId**

```
<!ELEMENT transnexus.com:DeviceId (#PCDATA) >
<!ATTLIST transnexus.com:DeviceId critical (True | False)
  #FIXED "False" >
```

The `transnexus.com:DeviceId` element conveys an assigned device identifier, represented as a decimal number without punctuation.

#### **transnexus.com:FailureReason**

```
<!ELEMENT transnexus.com:FailureReason (#PCDATA) >
<!ATTLIST transnexus.com:FailureReason critical (True |
```

```
False)
#FIXED "False" >
```

The `transnexus.com:FailureReason` element allows clients to report unsuccessful as well as successful calls. The body of this element consists of a four-digit decimal value which can take the following OSP version 2.1.1 TCCode values:

<u>V2 TCCode</u>	<u>ISDN Reason</u>
0001	unallocated (unassigned) number
0002	no route to specified transit network
0003	no route to destination
0004	send special information tone
0005	misdialed trunk prefix
0006	channel unacceptable
0007	call awarded and being delivered in an established channel
0008	preemption
0009	preemption - circuit reserved for re-use
0016	normal call clearing
0017	user busy
0018	no user responding
0019	no answer from user (user alerted)
0020	subscriber absent
0021	call rejected
0022	number changed
0026	non-selected user clearing
0027	destination out of order
0028	invalid number format (address incomplete)
0029	facility rejected
0030	response to STATUS ENQUIRY
0031	normal, unspecified
0032	no circuit/channel unavailable
0038	network out of order
0039	permanent frame mode connection out of service
0040	permanent frame mode connection operational
0041	temporary failure
0042	switching equipment congestion
0043	access information discarded
0044	requested circuit/channel not available
0046	precedence call blocked
0047	resource unavailable, unspecified
0049	quality of service unavailable
0050	requested facility not subscribed
0053	outgoing calls barred within CUG
0055	incoming calls barred with CUG
0057	bearer capability not authorized
0058	bearer capability not presently available
0062	inconsistency in designated outgoing access information and subscriber class
0063	service or option not available, unspecified
0065	bearer capability not implemented
0066	channel type not implemented
0069	requested facility not implemented
0070	only restricted digital information bearer capability is available
0079	service or option not implemented, unspecified

0081	invalid call reference value
0082	identified channel does not exist
0083	a suspended call exists, but this call identity does not
0084	call identity in use
0085	no call suspended
0086	call having the requested call identity has been cleared
0087	user not member of CUG
0088	incompatible destination
0090	non-existent CUG
0091	invalid transit network selection
0095	invalid message, unspecified
0096	mandatory information element is missing
0097	message type non-existent or not implemented
0098	message not compatible with call state or message type non-existent or not implemented
0099	information element/parameter non-existent or not implemented
0100	invalid information element contents
0101	message not compatible with call state
0102	recovery on timer expiry
0103	parameter non-existent or not implemented, passed on
0110	message with unrecognized parameter, discarded
0111	protocol error, unspecified
0127	interworking, unspecified.

When configured to support the TransNexus protocol extensions, the Toolkit library will report failure reasons in the usage indications it generates. These constants are defined in the ospfail.h file as well as convenience constants OSPC\_FAIL\_NONE (0) and OSPC\_FAIL\_GENERAL (999). The caller may use one of the predefined constants, or any integer between 0 and 999.

Use cases for these codes:

\* For reporting Destination Usage Indications

- (1) OSPPTTransactionRecordFailure
- (2) OSPPTTransactionReportUsage.
- (3) OSPPTTransactionDelete

\* For reporting Source Usage Indications

- (1) When calling OSPPTTransactionGetNextDestination - pass the failure reason for the previous call attempt
- (2) For the last call attempt - call OSPPTTransactionRecordFailure
- (3) OSPPTTransactionReportUsage.
- (4) OSPPTTransactionDelete

### **transnexus.com:Statistics**

```
<!ELEMENT transnexus.com:Statistics (  
transnexus.com:LossSent?,  
    transnexus.com:LossReceived?,  
transnexus.com:OneWayDelay?,
```

```
transnexus.com:RoundTripDelay? ) >
<!ATTLIST transnexus.com:Statistics critical (True | False)
#FIXED "False" >
```

The `transnexus.com:Statistics` element collects network performance statistics for the call. It may include packet loss statistics (in either direction) and delay statistics (one-way or round trip.) The entire element is non-critical, and may thus be safely ignored by systems that do not support it.

### **transnexus.com:LossSent**

```
<!ELEMENT transnexus.com:LossSent (
  transnexus.com:Packets, transnexus.com:Fraction ) >
<!ATTLIST transnexus.com:LossSent critical (True | False)
#FIXED "False" >
```

The `transnexus.com:LossSent` element contains packet loss information for datagrams transmitted by the reporting system that were not received by its peer, as reported in the peer's RTCP sender and receiver reports. It includes the two sub-elements indicated above and described in the following subsections.

### **transnexus.com:Packets**

```
<!ELEMENT transnexus.com:Packets (#PCDATA) >
<!ATTLIST transnexus.com:Packets critical (True | False)
#FIXED "False" >
```

The `transnexus.com:Packets` element contains a count of the total number of packets. The value is formatted as a decimal number without punctuation.

### **transnexus.com:Fraction**

```
<!ELEMENT transnexus.com:Fraction (#PCDATA) >
<!ATTLIST transnexus.com:Fraction critical (True | False)
#FIXED "False" >
```

The `transnexus.com:Fraction` element contains a value for a fraction of packets, expressed as an integer number from 0 (no packets) to 255 (all packets), and it is formatted as a decimal number without punctuation.

### transnexus.com:LossReceived

```
<!ELEMENT transnexus.com:LossReceived (
  transnexus.com:Packets, transnexus.com:Fraction ) >
<!ATTLIST transnexus.com:LossReceived critical (True | False)
  #FIXED "False" >
```

The `transnexus.com:LossReceived` element contains packet loss information for datagrams that should have been received by the reporting system receive but were not, as reported in the system's RTCP sender and receiver reports. It includes the two sub-elements indicated above and described in the previous subsections.

### transnexus.com:OneWayDelay

```
<!ELEMENT transnexus.com:OneWayDelay (
  transnexus.com:Minimum, transnexus.com:Mean,
  transnexus.com:Variance, transnexus.com:Samples ) >
<!ATTLIST transnexus.com:OneWayDelay critical (True | False)
  #FIXED "False" >
```

The `transnexus.com:OneWayDelay` element reports measurements of one way delay **to** the reporting system **from** its peer, as measured during the communication. It is suggested that the measurement be made by comparing the network time protocol (NTP) timestamp included in RTCP messages sent by the peer with the local NTP time. The element consists of the following four sub-elements.

### transnexus.com:Minimum

```
<!ELEMENT transnexus.com:Minimum (#PCDATA) >
<!ATTLIST transnexus.com:Minimum critical (True | False)
  #FIXED "False" >
```

The `transnexus.com:Minimum` element reports the minimum measured value, expressed in milliseconds. It is formatted as an integer decimal number without punctuation.

### transnexus.com:Mean

```
<!ELEMENT transnexus.com:Mean (#PCDATA) >
<!ATTLIST transnexus.com:Mean critical (True | False)
  #FIXED "False" >
```

The `transnexus.com:Mean` element reports the statistical mean of all measured values. It is expressed in milliseconds, and it is formatted as an integer decimal number without punctuation.

#### `transnexus.com:Variance`

```
<!ELEMENT transnexus.com:Variance (#PCDATA) >
<!ATTLIST transnexus.com:Variance critical (True | False)
          #FIXED "False" >
```

The `transnexus.com:Variance` element reports the statistical variance of all measured values. It is expressed in squared milliseconds, and it is formatted as an integer decimal number without punctuation.

#### `transnexus.com:Samples`

```
<!ELEMENT transnexus.com:Samples (#PCDATA) >
<!ATTLIST transnexus.com:Samples critical (True | False)
          #FIXED "False" >
```

The `transnexus.com:Samples` element reports the number of samples measured by the reporting system. It is formatted as a decimal number without punctuation.

#### `transnexus.com:RoundTripDelay`

```
<!ELEMENT transnexus.com:RoundTripDelay (
  transnexus.com:Minimum,
  transnexus.com:Mean,
  transnexus.com:Variance,
  transnexus.com:Samples ) >
<!ATTLIST transnexus.com:RoundTripDelay critical (True |
False)
          #FIXED "False" >
```

The `transnexus.com:RoundTripDelay` element reports measurements of round trip delay between the reporting system and its peer, as measured during the communication. Such measurements may be made, for example, by H.245 round trip delay exchanges during the call. The element consists of the four sub-elements described above.

## Audit Control Extensions

TransNexus extensions for audit control allow an OSP server to control the auditing functionality available in an OSP client. Through these extensions, a server can request that the client begin auditing of messages, and it can direct the client to cease auditing.

The extensions can also tell a client where to send audit data, and they can specify a time limit for collection of audit data.

The `transnexus.com:Audit` element can appear in any component returned by an OSP server. The resulting modification to the `AuthorisationResponse` is indicated in the definition on page 6. The updated `UsageConfirmation` component, and the individual sub-elements of the `transnexus.com:Audit` element, are described below.

### UsageConfirmation Modified Definition

```
<!ELEMENT UsageConfirmation ( Timestamp, Status,  
    transnexus.com:Audit? ) >  
<!ATTLIST UsageConfirmation componentId ID #REQUIRED >
```

As the above definition indicates, the `UsageConfirmation` simply includes an optional `transnexus.com:Audit` element.

### transnexus.com:Audit

```
<!ELEMENT transnexus.com:Audit (transnexus.com:AuditState?,  
    transnexus.com:AuditURL?, transnexus.com:AuditTime?,  
    transnexus.com:AuditMaxMessages? ) >  
<!ATTLIST transnexus.com:Audit critical (True | False)  
    #FIXED "False" >
```

The `transnexus.com:Audit` element contains up to four sub-elements.

### transnexus.com:AuditState

```
<!ELEMENT transnexus.com:AuditState (#PCDATA) >  
<!ATTLIST transnexus.com:AuditState critical (True | False)  
    #FIXED "False" >
```

The `transnexus.com:AuditState` element directs the OSP client to set the state of its auditing functionality. If a server response does not include this element, then the client should not change its current audit state. The body of this element consists of a single decimal number with one of the following values.

- |    |                                |
|----|--------------------------------|
| 11 | activate audit data collection |
| 12 | report audit data immediately  |
| 13 | cease audit data collection    |

### **transnexus.com:AuditURL**

```
<!ELEMENT transnexus.com:AuditURL (#PCDATA) >
<!ATTLIST transnexus.com:AuditURL critical (True | False)
#FIXED "False" >
```

The `transnexus.com:AuditURL` element directs the OSP client to send audit data to the URL indicated in the body of the element. If this element is not present, then the OSP client should send audit data to the pre-configured or default URL. (Absent any configuration or default, the client should send to its regular OSP service point addresses.)

### **transnexus.com:AuditTime**

```
<!ELEMENT transnexus.com:AuditTime (#PCDATA) >
<!ATTLIST transnexus.com:AuditTime critical (True | False)
#FIXED "False" >
```

The `transnexus.com:AuditTime` element determines how long audit data should be collected. The body of this element is the number of seconds of collection required by the server, expressed as a decimal value. Once this amount of time has elapsed, the client should cease collection of audit data and report the data it has gathered to the audit URL. If not present, the client may use a default or pre-configured time limit, or it may collect audit data indefinitely until explicitly directed otherwise by a server, or it may wait until the maximum number of messages have been collected.

### **transnexus.com:AuditMaxMessages**

```
<!ELEMENT transnexus.com:AuditMaxMessages (#PCDATA) >
<!ATTLIST transnexus.com:AuditMaxMessages critical (True |
False)
#FIXED "False" >
```

The `transnexus.com:AuditMaxMessages` element identifies the maximum number of OSP messages that the client should collect as audit data. The body of this element is expressed as a decimal value without punctuation. Once this limit has been reached (provided the time limit, if specified, has not been reached previously), the client should cease collection of audit data and report the data it has gathered to the audit URL. If not present, the client may use a default or pre-configured message limit, or it may collect audit data indefinitely until explicitly directed otherwise by a server, or it may wait until the audit collection time limit has elapsed.

## Example Messages

The following sections include example AuthorisationResponse, UsageIndication, and UsageConfirmation messages that illustrate the use of the protocol extensions.

### AuthorisationResponse Example

The following message shows an example authorization response. In the response, the server directs the client to ensure that round trip delay to the destination is less than 500 milliseconds, and that the client is to prefer those destinations which have the lowest round trip delay.

```
HTTP/1.0 200 OK
content-type: multipart/signed;
  protocol="application/pkcs7-signature";
  micalg=shal;
  boundary=bar
content-length: 2343

--bar
Content-Type: text/plain
Content-Length: 2022

<?xml version=1.0?>
<Message messageId="123454321" random="12345678">
  <AuthorisationResponse componentId="9876567890">
    <Timestamp>
      1998-04-24T17:03:01Z
    </Timestamp>
    <Status>
      <Code>
        200
      </Code>
      <Description>
        success
      </Description>
    </Status>
    <TransactionId>
      67890987
    </TransactionId>
    <Destination>
      <DestinationSignalAddress>
        [172.16.1.2]:112
      </DestinationSignalAddress>
      <Token encoding="base64">

YT64VQpfyF467GhIGfHfYT6jH77n8HHGghyHhHUujhJh756t

HGTrfvbnjn8HHGTrfvhJhjH776tbB9HG4VQbnj7567GhIGfH
6ghyHhHUujpFyF47GhIGfHfYT64VQbnj
      </Token>
```

```

    <ValidAfter>
      1998-04-24T17:01:01Z
    </ValidAfter>
    <ValidUntil>
      1998-04-24T17:11:01Z
    </ValidUntil>
    <CallId encoding="base64">
      rfvbnjn8HHGTrfvhJhjH776tbB
    </CallId>
    <UsageDetail>
      <Service/>
      <Amount>
        44640
      </Amount>
      <Interval>
        60
      </Interval>
      <Unit>
        s
      </Unit>
    </UsageDetail>
  </Destination>
  <Destination>
    <DestinationSignalAddress>
      [10.0.1.2]:112
    </DestinationSignalAddress>
    <Token encoding="base64">
      F467GhIGfHfYT6jH77n8HHGghyHhHUujhJh756tYT64Vqpfy
      8HHGTrfvhJhjH776tbB9HG4VQbnj756HGTrfvbnjn7GhIGfH
      ujpfyF47GhIGfHfYT64VQbnj6ghyHhHU
    </Token>
    <ValidAfter>
      1998-04-24T17:01:02Z
    </ValidAfter>
    <ValidUntil>
      1998-04-24T17:11:02Z
    </ValidUntil>
    <CallId encoding="base64">>
      rfvbnjn8HHGTrfvhJhjH776tbB
    </CallId>
    <UsageDetail>
      <Service/>
      <Amount>
        44640
      </Amount>
      <Interval>
        60
      </Interval>
      <Unit>
        s
      </Unit>
    </UsageDetail>
  </Destination>

```

```

    <transnexus.com:DelayLimit critical="False">
      500
    </transnexus.com:DelayLimit>
    <transnexus.com:DelayPreference critical="False">
      True
    </transnexus.com:DelayPreference>
  </AuthorisationResponse>
</Message>

--bar
Content-Type: application/pkcs7-signature
Content-Length: 191

GhyHhHUujhJhj77n8HHGTrfvbnj756tbB9HG4VQpfyF467GhIGfHfYT64Vqp
fyF
467GhIGfHfYT6jH77n8HHGghyHhHUujhJh756tbB9HGTrfvbnjn8HHGTrfvhJ
hjH
776tbB9HG4VQbnj7567GhIGfHfYT6ghyHhHUujpfyF47GhIGfHfYT64VQbnj7
56

--bar--

```

### UsageIndication Example

The following message shows example usage indications. In the message, the reporting system first indicates a call failure because the remote system had insufficient external resources; it then indicates a successful call with detailed statistics.

```

POST scripts/settlements HTTP/1.0
content-type: multipart/signed;
  protocol="application/pkcs7-signature";
  micalg=shal;
  boundary=bar
content-length: 4301

--bar
Content-Type: text/plain
Content-Length: 3980

<?xml version=1.0?>
<Message messageId="123454321">
  <UsageIndication componentId="13579990"
random="12345678">
    <Timestamp>
      1998-04-24T22:03:00Z
    </Timestamp>
    <Role>
      source
    </Role>
    <TransactionId>
      67890987
    </TransactionId>
  </UsageIndication>
</Message>

```

```
<CallId encoding="base64">
  fYT6jH77n8HHGghyHhHUujhJh756tbB9HGTrf9
</CallId>
<SourceInfo type="e164">
  81458811202
</SourceInfo>
<DestinationInfo type="e164">
  4766841360
</DestinationInfo>
<DestinationAlternate type="transport">
  [172.16.1.2]:112
</DestinationAlternate>
<transnexus.com:CustomerId critical="False">
  12345678
</transnexus.com:CustomerId>
<transnexus.com:DeviceId critical="False">
  98765432
</transnexus.com:DeviceId>
<transnexus.com:FailureReason critical="False">
  422
</transnexus.com:FailureReason>
</UsageIndication>
<UsageIndication componentId="13579991">
  <Timestamp>
    1998-04-24T22:04:00Z
  </Timestamp>
  <Role>
    source
  </Role>
  <TransactionId>
    67890987
  </TransactionId>
  <CallId encoding="base64">
    fYT6jH77n8HHGghyHhHUujhJh756tbB9HGTrf9
  </CallId>
  <SourceInfo type="e164">
    81458811202
  </SourceInfo>
  <DestinationInfo type="e164">
    4766841360
  </DestinationInfo>
  <DestinationAlternate type="transport">
    [10.0.1.2]:112
  </DestinationAlternate>
  <UsageDetail>
    <Service/>
    <Amount>
      10
    </Amount>
    <Interval>
      60
    </Interval>
    <Unit>
      s
    </Unit>
  </UsageDetail>
</UsageIndication>
</UsageIndication>
```

```
</UsageDetail>
<transnexus.com:CustomerId critical="False">
  12345678
</transnexus.com:CustomerId>
<transnexus.com:DeviceId critical="False">
  98765432
</transnexus.com:DeviceId>
<transnexus.com:Statistics critical="False">
  <transnexus.com:LossSent>
    <transnexus.com:Packets>
      123
    </transnexus.com:Packets>
    <transnexus.com:Fraction>
      9
    </transnexus.com:Fraction>
  </transnexus.com:LossSent>
  <transnexus.com:LossReceived>
    <transnexus.com:Packets>
      221
    </transnexus.com:Packets>
    <transnexus.com:Fraction>
      11
    </transnexus.com:Fraction>
  </transnexus.com:LossReceived>
  <transnexus.com:OneWayDelay>
    <transnexus.com:Minimum>
      48
    </transnexus.com:Minimum>
    <transnexus.com:Mean>
      125
    </transnexus.com:Mean>
    <transnexus.com:Variance>
      40
    </transnexus.com:Variance>
    <transnexus.com:Samples>
      1160
    </transnexus.com:Samples>
  </transnexus.com:OneWayDelay>
  <transnexus.com:RoundTripDelay>
    <transnexus.com:Minimum>
      120
    </transnexus.com:Minimum>
    <transnexus.com:Mean>
      308
    </transnexus.com:Mean>
    <transnexus.com:Variance>
      45
    </transnexus.com:Variance>
    <transnexus.com:Samples>
      15
    </transnexus.com:Samples>
  </transnexus.com:RoundTripDelay>
</transnexus.com:Statistics>
</UsageIndication>
</Message>
```

```
--bar
Content-Type: application/pkcs7-signature
Content-Length: 191

GhyHhHUujhJhjh77n8HHGTrfvbnj756tbB9HG4VQpfyF467GhIGfHfYT64Vqp
fyF
467GhIGfHfYT6jh77n8HHGghyHhHUujhJh756tbB9HGTrfvbnjn8HHGTrfvhJ
hjH
776tbB9HG4VQbnj7567GhIGfHfYT6ghyHhHUujpfyF47GhIGfHfYT64VQbnj7
56

--bar--
```

### UsageConfirmation Example

The following message shows an example usage confirmation that directs the client to begin collecting audit data. The client is further directed to collect data for a period of 5 minutes (300 seconds) or for 25 messages, whichever comes first, and then forward the collected data (using a POST method) to the URL <https://audit.transnexus.com>.

```
HTTP/1.0 200 OK
content-type: multipart/signed;
  protocol="application/pkcs7-signature";
  micalg=sha1;
  boundary=bar
content-length: 724

--bar
Content-Type: text/plain
Content-Length: 404

<?xml version=1.0?>
<Message messageId="123454321" random="12345678">
  <UsageConfirmation componentId="13579990">
    <Timestamp>
      1998-04-24T22:44:00Z
    </Timestamp>
    <Status>
      <Code>
        201
      </Code>
      <Description>
        new usage information created
      </Description>
    </Status>
    <transnexus.com:Audit critical="False">
      <transnexus.com:AuditState critical="False">
        11
      </transnexus.com:AuditState>
      <transnexus.com:AuditURL critical="False">
        https://audit.transnexus.com
      </transnexus.com:AuditURL>
    </transnexus.com:Audit>
  </UsageConfirmation>
</Message>
```

```
</transnexus.com:AuditURL>
<transnexus.com:AuditTime>
  300
</transnexus.com:AuditTime>
<transnexus.com:AuditMaxMessages>
  25
</transnexus.com:AuditMaxMessages>
</transnexus.com:Audit>
</UsageConfirmation>
</Message>

--bar
Content-Type: application/pkcs7-signature
Content-Length: 191

GhyHhHUujhJhjH77n8HHGTrfvbnj756tbB9HG4VQpfyF467GhIGfHfYT64Vqp
fyF
467GhIGfHfYT6jh77n8HHGghyHhHUujhJh756tbB9HGTrfvbnjn8HHGTrfvhJ
hjH
776tbB9HG4VQbnj7567GhIGfHfYT6ghyHhHUujpfyF47GhIGfHfYT64VQbnj7
56

--bar--
```