Gamma SIP Trunks API

API Documentation

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Contents

Revision Control

Revision	Author	Change	Date
0.1	L. Cann, D. Haasz, E. Moody, G. Wilks	New document outlining the Gamma SIP Trunks API	27/10/2014
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1.3	L. Cann, D. Haasz, E. Moody, G. Wilks	Added URL of home resource on live environment	08/05/2015
1.4	L. Cann, D. Haasz, E. Moody, G. Wilks	Added 'from' and 'to' link relation types	04/06/2016
1.5	L. Cann, D. Haasz, E. Moody, G. Wilks	Added ddi, privacy and terminator media types, relation types and resources	11/06/2016

Related Documents

Related Document	Author	Last Version
Security Credentials	Gamma SIP Trunks Development Team	1.0

Scope

The purpose of this document is to provide an overview of the Gamma SIP Trunks API.

It includes:

- An overview of the inline documentation (API Schemas);
- A summary of how the API is designed;
- Details of what is needed to start development with the Gamma SIP Trunks API, including security requirements and Web Service environments;
- Support for common issues, as well as details of whom to contact for support;
- A list of supported services and operations currently available via the API.

Feedback

We welcome feedback: if you have any comments or suggestions about this documentation, please e-mail them to api-documentation@gamma.co.uk, with the subject heading "Gamma SIP Trunks API Documentation Feedback". Please include the following information with your feedback:

- The name of the publication, the document number and the version number;
- The page number if applicable.

API Overview

This section describes the design principles of the API, how to view the inline documentation, and how to browse through the API resources.

Design Overview

The aim of the Gamma SIP Trunks API is to allow client applications to submit web service requests for the automated provisioning of endpoints on Gamma's SIP network, for viewing Gamma SIP Trunks Services, and for completion of in-life changes to the resulting endpoint builds.

The API conforms to the REST architectural style. The main consequences of this are:

- Abstraction of information about resources from details of their physical representation, location, protocol and so on;
- Use of standard HTTP methods for all operations;
- Use of contextual links in response messages to support dynamic discovery of resources at run-time (as opposed to a pre-published set of resource URIs);
- Support for multiple media types.

The resources available via the API, and the HTTP methods used to submit requests to these resources, are listed in the API Supported Services section of this document. The URIs of the various resources do not form part of the API, with the exception of the URI for the Gamma SIP Trunks Home Resource (URL of test environment: https://ws-test.gammaoperations.com/sip/ws URL of live environment: https://ws.gammaoperations.com/sip/ws), which acts as the entry point when connecting to Gamma SIP Trunk systems.

It is expected that any client application interfacing with the API will discover dynamically the resources that are available to it in any given context. This process of resource discovery will take the form of the inspection of links included in responses to a client request. These links will in each case contain the following information:

- A link relation type (rel), which defines the semantics of the link (see Link Relation Types below);
- The URI (href) of the linked resource;
- A description (title) of the linked resource; and
- A media type (posttype) which the linked resource will accept in the body of a POST request.

The link relation types are specified later in this section and it is expected that the client application will use these to decide which link to follow.

Media Types

The base media type used by the application is XML. However, each API response may have one of the following vendor-specific media types:

- **application/vnd.gamma.ipdc.home+xml** - The media type of the home resource;
- **application/vnd.gamma.ipdc.list.service+xml** - This media type contains a list of representations of Gamma SIP Trunks services;
- **application/vnd.gamma.ipdc.service+xml** - This media type contains a representation of a single Gamma SIP Trunks service;
- **application/vnd.gamma.ipdc.list.change+xml** - This media type contains a list of representations of changes to Gamma SIP Trunks services;
- **application/vnd.gamma.ipdc.change+xml** - This media type contains a representation of a change to a Gamma SIP Trunks service;
- **application/vnd.gamma.ipdc.ddi.range.request+xml** - This media type contains a request for new DDIs in specified ranges;
- **application/vnd.gamma.ipdc.list.ddi.range+xml** - This media type contains a list of DDI ranges, and their constituent DDIs;
- **application/vnd.gamma.ipdc.request.response+xml** - This media type contains a response to a request for a change to a Gamma SIP Trunks service;
- **application/vnd.gamma.ipdc.util+xml** - This media type contains responses of the various utility resources such as Get CPE Types and Get Area Codes;
- **application/vnd.gamma.ipdc.order+xml** - This media type contains a request for provisioning new Gamma SIP Trunks Services;
- **application/vnd.gamma.ipdc.service.cease+xml** - This media type contains a request for ceasing a Gamma SIP Trunks Service;
- **application/vnd.gamma.ipdc.endpoint+xml** - This media type contains the details for a Gamma SIP Trunks Endpoint and is also used to apply updates to an Endpoint;
- **application/vnd.gamma.ipdc.divert+xml** - This media type contains the details for diverts applied to a Gamma SIP Trunks Service and is also used to activate/deactivate further diverts;
- **application/vnd.gamma.ipdc.customer.contact.request+xml** - This media type contains a request for updating customer contact details;
- **application/vnd.gamma.ipdc.fraud+xml** - This media type contains the details of the fraud management being applied to a Gamma SIP Trunks Service and is also used to apply updates to fraud management;
- **application/vnd.gamma.ipdc.network.cli+xml** - This media type contains the details of the current network cli of the Gamma SIP Trunks Service and is also used to apply changes to the network cli;
- **application/vnd.gamma.ipdc.codec+xml** - This media type contains the codec configuration for a Gamma SIP Trunks Service and is also used to change the configuration;
- **application/vnd.gamma.ipdc.clirules+xml** - This media type contains the current CLI rules in force on the Endpoint and is also used to change the rules being applied;
- **application/vnd.gamma.ipdc.barring+xml** - This media type contains the current call barring being applied to a Gamma SIP Trunks Service and is also used to edit the call bars;
- **application/vnd.gamma.ipdc.cli.flex+xml** - This media type contains the current cli flexibility setting for a Gamma SIP Trunks Service and is also used to update cli flexibility;
- **application/vdnd.gamma.ipdc.privacy+xml** - This media type contains the current privacy settings for a Gamma SIP Trunks Service and is also used to update privacy settings.

The media type of all HTTP responses can be found in the Content-Type header of the response.

In all the vendor-specific media types, a link will be represented by a 'link' element that will always possess a 'href' and a 'rel' attribute, and may also possess 'title' and 'posttype' attributes. A 'link'

element will always be a child element of a 'links' element, which will be a child element of an element representing the link's context.

Therefore, it is possible, following a search request, for example, that a response may contain multiple 'links' elements, each with its own context.

Link Relation Types

Link relation types are defined in RFC 5988, section 5. This standard says:

"In the simplest case, a link relation type identifies the semantics of a link. […] Link relation types can also be used to indicate that the target resource has particular attributes, or exhibits particular behaviours."

Link relations do not in any event refer to locations where resources can be found.

In this API link relation types are denoted by the 'rel' attribute of 'link' elements.

- **self -** "An identifier for the link's context" [RFC 5988], i.e. a link to a canonical representation of the resource represented by the link's context;
- **describedby -** "Refers to a resource providing information about the link's context" [RFC 5988], used in this API to link to the XML schema of the link's context;
- **next -** "Refers to the next resource in a ordered series of resources" [RFC 5988], used, for example to link to the subsequent entry in a change history;
- **previous** - "Refers to the previous resource in an ordered series of resources" [RFC 5988], used, for example, to link to the previous entry in a change history;
- **uk.co.gamma.home** - A link to the home resource, which acts as the entry point for the API;
- **uk.co.gamma.schema** - A link to a resource providing XML schemas for specified media types;
- **uk.co.gamma.search.service** - A link to a resource that will search for Gamma SIP Trunks Services;
- **uk.co.gamma.service** - A link to a resource that embodies, can create, or otherwise relates to a single Gamma SIP Trunks Service relevant to the link's context and when posted to can be used to provision new Gamma SIP Trunks Services;
- **uk.co.gamma.search.change** - A link to a resource that will search for changes to Gamma SIP Trunks Services;
- **uk.co.gamma.history** - A link to a resource embodying the history of the link's context, the change history of a Gamma SIP Trunks Service, for example;
- **uk.co.gamma.terminator** - A link to a resource that will cease the Gamma SIP Trunks Service;
- **uk.co.gamma.cpe** - A link to a resource relating to customer equipment associated with the link's context;
- **uk.co.gamma.ddi** - A link to a resource relating to the network cli associated with the link's context;
- **uk.co.gamma.ddi.range** - A link to a resource that embodies, can create, or otherwise relates to ranges of telephone numbers associated with the link's context;
- **uk.co.gamma.ddi.range.availability** - A link to a resource that will determine the availability of ranges of telephone numbers;
- **uk.co.gamma.codec -** A link to a resource that embodies a Gamma SIP Trunks codec configuration associated with the link's context or view/search possible codec configurations;
- **uk.co.gamma.business.nature** - A link to a resource relating to the nature of business associated with the link's context;

- **uk.co.gamma.divert** - A link to a resource that embodies the call diverts associated with the link's context;
- **uk.co.gamma.customer** - A link to a resource that embodies the Customer Contact Details associated with the link's context;
- **uk.co.gamma.cliflexibility** - A link to a resource that embodies the CLI flexibility status associated with the link's context;
- **uk.co.gamma.fraud** - A link to a resource that embodies the fraud management associated with the link's context;
- **uk.co.gamma.barring** - A link to a resource that embodies the call barring associated with the link's context;
- **uk.co.gamma.clirules** - A link to a resource that embodies the CLI rules associated with the link's context;
- **uk.co.gamma.privacy** - A kink to a resource that embodies the Privacy settings associated with the link's context;
- **uk.co.gamma.access** - A link to a resource that embodies the access technology associated with the link's context.
- **uk.co.gamma.change.from** - A link to a resource that represents the prior state of a resource.
- **uk.co.gamma.change.to** - A link to a resource that represents the new state of a resource.

URI Templates

In some circumstances, the 'href' attribute of a 'link' element will not be an accessible URL, but a URI template, which can be distinguished from an accessible URL by the presence of curly brackets ("{ "). URI templates are specified in RFC 6570.

URI templates can be converted to accessible URLs by substituting values for variables in the URI template. Appendix A of RFC 6570 describes an algorithm for performing this substitution. Various free and open-source implementations of the URI Template specification are available.

The following variables may be used in URI templates supplied by the API:

- **clientid** - a channel partner account id;
- **serviceid** - the identifier of a Gamma SIP Trunks service;
- **pagesize** - the maximum number of results to be returned by a single request;
- **pageindex** - the ordinal number of a given set of results of **pagesize** within the sequence of possible such sets of results;
- **ddi** - a telephone number;
- **sbc** - the name of a session border controller on the Gamma network;
- **endpoint** - the name of a SIP endpoint associated with a Gamma SIP Trunks service;
- **ipaddress** - an ip address;
- **areacode** - an area code;
- **from** - the start of a date range, in the format: "yyyyMMddhhmmss";
- **to** - the end of a date range, in the format: "yyyyMMddhhmmss";
- **quantity** - an integer quantity;
- **consecutive** - a boolean value ("true" or "false");
- **type** - the name of a type of entity;
- **from** - the start of a date range, in the format: "yyyyMMddhhmmss";
- **to** - the end of a date range, in the format: "yyyyMMddhhmmss";
- **enduser** - the name of an end user company;

- **status** - the status of a service;
- **primary** - the primary codec of a codec profile;
- **secondary** - the secondary codec of a codec profile;
- **packetisation** - the packetisation (in milliseconds) of a codec profile;
- **t38** - a boolean value ("true" or "false") denoting whether the codec profile supports T.38 fax calls;
- **cpe** - a PBX name.

XML Schemas

XML schemas supplied by the API may contain 'annotation' elements. These may have a child 'documentation' element, containing human-readable information, either as text or html.

The 'documentation' element may have a 'source' attribute, containing a URL where further information may be found.

API Provisioning

This section describes what is needed to start development with the Gamma SIP Trunks API.

Security Requirements

The API requires two HTTP headers to be added to each request. The first header should be:

Authorization: Basic <base64 username:password>

where "<base64 username:password>" is constructed by concatenating the username and password provided in the related "Security Credentials" document with an intervening colon and encoded under base 64. So, for example, a username and password of "username" and "password" will become "username:password", which is "dXNlcm5hbWU6cGFzc3dvcmQ=" encoded under base 64.

The second header should be:

Clientid: <client_id_value>

where <client_id_value> is one of the following:

- A client id specified in the "Security Credentials";
- a comma-separated list of client ids; or
- "all" (a token that is equivalent to supplying the ids of all clients to which the API user has access).

The purpose of this header is to enable the client application to restrict the set of clients to which its own users will have access, thus avoiding the need for multiple API users with access to different sets of clients. A 'client' in this context is to be understood as denoting a Gamma billing account.

Please contact your Business Development Manager if you are missing any of the credentials mentioned above.

Web Services Environment

For the purposes of developing client applications, a test environment is available. The Home resource of this environment is at https://ws-test.gammaoperations.com/sip/ws.

Versioning

The API accepts an HTTP header called 'Sip-WS-Version', which, if supplied, must be a positive integer. If this header is not supplied, a value of 1 is assumed. This header should be used by client applications to ensure that they are not broken by changes to the API.

API Support

This section describes how to resolve some common HTTP problems and whom to contact for support.

Solutions to Common Support Problems

"I am getting an HTTP 401 response saying that I need to be authenticated"

Ensure that you are passing in valid username/password details under Base 64 and that you have access to all clients whose ids are being supplied in the HTTP clientid Header. The most common reasons for an HTTP 401 response are that an incorrect username and password combination is being supplied or that a client id is being supplied for which the user does not have security permissions.

"I am getting an HTTP 404 Not Found Error"

The HTTP 404 response may have been sent for one of two reasons:

1. The resource URL may be incorrectly formed or you may have used a URI template instead of constructing a URL by substituting parameters. Ensure that you have extracted the correct URL from the previous response.
2. The API server may be down for maintenance or in the process of being updated. For any known outage periods, Gamma will advertise these planned outages in advance.

Whom to Contact

If support is required, then please send an e-mail to sip-api-devsupport@gamma.co.uk with a subject heading "Gamma SIP Trunks API Support Query <username>" where "<username>" is the username being used as part of the security credentials. Please include the following information as part of your support query:

- A brief description of the problem that has occurred;
- The name of the operation or service that was being used at the time when the problem occurred (if applicable);
- What you have done yourself to try to resolve the problem.

API Provided Resources

All resources can be reached by following links from the Home resource. The currently available resources are as follows:

- Home Resource - The entry point of the API (HTTP GET);
- Media Type Schema Provider - Provides an XML schema for a specified media type API (HTTP GET);
- SIP Trunk Service Search - Resource to search through Gamma SIP Trunks Services (HTTP GET);
- SIP Trunk Service - Resource to view the details of a specific Gamma SIP Trunks Service (HTTP GET);
- DDI Ranges - The DDI ranges allocated to a specific Gamma SIP Trunks Service (HTTP GET, HTTP POST);
- SIP Trunk Service Change Search - Resource to search through the change history of Gamma SIP Trunks Services (HTTP GET);
- New Gamma SIP Trunks Order - Resource to provision new Gamma SIP Trunks Orders (HTTP POST);
- Cease Gamma SIP Trunks Service - Resource to cease a Gamma SIP Trunks Service (HTTP POST);
- SIP Trunks Service Change - An update to a Gamma SIP Trunks Service (HTTP GET);
- Get CPE Types - A list of Gamma SIP Trunks Supported customer premises equipment (HTTP GET);
- Get Area Codes - A list of area codes that are supported by Gamma SIP Trunks (HTTP GET);
- Get Nature of Business - A list of possible business types (HTTP GET);
- Search Codec Profiles - Resource to search/view possible codec configurations (HTTP GET);
- DDI Availability Checker - Resource to check the availability of a given number of DDIs for a particular area code (HTTP GET);
- CLI Flexibility - Resource to enable/disable CLI Flexibility for a Gamma SIP Trunks Service (HTTP POST, HTTP GET);
- Customer Contact Details - The customer contact details associated with a Gamma SIP Trunks Service (HTTP GET, HTTP POST);
- Endpoint - The details of an endpoint associated with a Gamma SIP Trunks Service (HTTP POST);
- Diverts - The call diverts that are applied to numbers on a Gamma SIP Trunks Service (HTTP GET, HTTP POST);
- Fraud - The fraud management currently setup on the Gamma SIP Trunks Service (HTTP POST, HTTP DELETE);
- Barring - The call barring that is applied to a Gamma SIP Trunks Service (HTTP POST);
- Codec - The codec configuration for a Gamma SIP Trunks Service (HTTP POST);
- CLI Rules - The incoming CLI and incoming DDI rules currently setup on a Gamma SIP Trunks Service (HTTP POST);
- Privacy - The privacy settings applied to a Gamma SIP Trunks Service (HTTP GET, HTTP POST);
- Network CLI - The current network cli for a Gamma SIP Trunks Service (HTTP GET, HTTP POST).