GSP Application Requirement Guideline

During the demos and discussion with many GSPs, we found there is a lot of confusion on GSP application (Application which exposes GST System API to ASPs) essential features. GSP application play a major role in exposing GST System functionalities to ASPs, so we are releasing requirement guidelines for GSP Application.

Essential Features Required in GSP Application:

1. GSP Application should have capability to expose GST System API urls through its public url. GST System URLs should not be exposed to ASP application.

For example: GST System API Url:

<https://devapi.gstsystem.co.in/taxpayerapi/0.3/return>

GSP URL:

<https://gsp1.com/taxpayerapi/0.3/return>

1. GSP Application should have capability to authenticate every incoming request. It is very essential feature. GSP application can choose any authentication method authtoken based, some secret key exchange based, clientid/client secret along with IP whitelisting and authtoken etc.
2. GSP application should have a capability to provide a unique identity to its ASP and ideally this id should be used as one of the factor for authentication.

For Example:

It could be a unique ASP ID, along with some other credentials

1. Above capability require an elaborate module to register ASPs and then assigning them a unique id and further monitoring and providing them various reports on performance etc.
2. GST System is providing every ASP an unique clientid and client secret. This is for GSP application and GST System. This unique clientid and secret should not be exposed to ASP. GSP application should have capability to map every ASP call and then transform/add ASP clientid and secret in the headers of each request. GSP can revoke any ASP access from GST System based on this.
3. GST System API provides a token in response, when a “return get API” response is a large JSON. Such large payloads are then delivered using a file mechanism. There is an API called getFileDetails, which takes this token and provide urls of the file to be downloaded. Below is a sample output of that

{

"urls":

[

                {

                "ul":"/returns/02082017/R1/returns\_02082017\_R1\_27GSPMH3381G1ZI\_b2b\_99ff567f089b466188f46b9dbc801630\_0.tar.gz?md5=7RUX0Siq7tPVyRFILVSX7Q&expires=1501675724",

                "ic":50,

                "hash":"b67533275596d8d31ed147e2f7f7d839003864924b02b286bb53bf80bc857b6a"

                },

                {"ul":"/returns/02082017/R1/returns\_02082017\_R1\_27GSPMH3381G1ZI\_b2b\_99ff567f089b466188f46b9dbc801630\_1.tar.gz?md5=agmXy49H3wueMrv-pxZIGg&expires=1501675724",

                "ic":2,

                "hash":"1e392ace3bca184e41a3b3b2faa4ce7b2b18e87ef22c8660f747c229701ff3ff"

                }

],"ek":"zXUQ1jPiMTk3XBjoar6eDO0+8nqXJtLLqzZkGSPO5WY=","fc":2}

In this case complete url of the files are not returned, only a portion. GSP are supposed to add a special domain name for downloading this file like <https://sbfiles.xxx.com> (production url has been provided to GSP already). Now the questions is, how ASP will send request for such cases. Below are the probable solutions:

* GSP provide a separate url for such requests like:
* <https://gsp>\_url/downloadfile/ returns/02082017/R1/returns\_02082017\_R1\_27GSPMH3381G1ZI\_b2b\_99ff567f089b466188f46b9dbc801630\_1.tar.gz

and GSP can in turn transform it to as below and sent request to GST System

<https://sbfiles.xx.com/> returns/02082017/R1/returns\_02082017\_R1\_27GSPMH3381G1ZI\_b2b\_99ff567f089b466188f46b9dbc801630\_1.tar.gz

* GSP identify the pattern and forward the request:
* <https://gsp>\_url / returns/02082017/R1/returns\_02082017\_R1\_27GSPMH3381G1ZI\_b2b\_99ff567f089b466188f46b9dbc801630\_1.tar.gz

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Above are illustrative examples but GSP are free to devise their own mechanism to handle it.

ASP will get a tar.gz file after calling above url. They can verify the hash (sha256) of downloaded data with the hash sent in the response. Please note that hash is of encrypted data, which one will get after unzipping the tar.gz file. Encryption key is also available as part of response payload. Please remember for security reasons above urls remain valid for some predefined time only and currently it is 10 minutes.

In case any application is not able to download the file within in specified time, they can again call the getFile API and get new urls.

1. Logging capabilities are core to this application. We have already started getting issues of ASP through GSP and most of the time we have seen that GSP is forwarding the mail of ASP, which contains lot of other details. Most of the time GSPs are not able to provide exact payload, which they are sending to GST System with header. For GSP application, it is essentials to have on demand log searching and extracting feature. This feature is very important.
2. GSP application should be exposing all API on https.
3. GSP Application should have a sandbox to test. It is essential that all ASP first test their application through this Sandbox, otherwise migration to the production will be an issue. We have noticed that many of the GSPs are giving GST sandbox credentials as it is and all ASP are testing directly on GST System Sandbox and when they are migrating to production they face issue as in between process of GSP never get tested and it creates issue in production. GSP application Sandbox should point to GST System Sandbox.
4. GSP application should also provide an onboarding guide having all the details about sandbox and procedure for technical onboarding.
5. GSP application should provide a url mapping for large file download as in this case, url of the downloaded file should be prefixed with a certain domain name provided by GST System. This will allow large file download.
6. Validation of Requests being sent to GST System – the GSP is expected to validate all the requests passing through them, irrespective of originating source of the request, for correctness in terms of various sanity validations. GSP should validate that ASP requests being sent to GST system should have valid headers. Though the GSP may not persist information like auth tokens, but they only allow valid request. For example, the header parameters like *txn*, *ip-usr*, *auth-token*, *username*, *state-cd* are not *NULL*.
7. Invoking Refresh Token or retry of OTP – ***this should be communicated to the ASP as well***
   1. Refresh token – Refresh token needs to be invoked before expiry of the present session, else it will result into authentication failure. Observation has been that refresh is commonly being invoked 3 to 5 mins before session expiry. It is recommended that refresh is done at least 30 minutes before expiry. This will also allow scope to retry in case GST service does not respond on time.
   2. Retry of OTP – It is recommended that there should be 5 minutes gap between retries of OTP API. An OTP is valid in system for 10 minute OTP, hence retry should not be allowed before 5 minutes.

Process Related Guideline:

1. GSP should ensure that all ASP first do end to end testing with GST System Sandbox using GSP Application sandbox. No ASP should be moved to production without testing.
2. We came to know that some ASP applications are getting deployed at various customers’ sites and these customers are approaching GSP as an ASP. Such cases, where there is a large customer base of such application then GSP should ask for one ASP client id and secret from GST System and internally map all such customer to same ASP client id/secret. In such scenario every client of such application will be uniquely identified by GSP application but in GST System there will be only one id of this application.
3. Every GSP should have a helpdesk to handhold ASPs as they will have different kind of onboarding issues and they will require handholding initially. GSP Helpdesk should contact GST System Helpdesk. There should be no direct communication from ASP to GST System on issues. This will help in streamlining the help process.