



Financial Data Aggregation:

Guidelines on Sophtron API

October 2018

Sophtron API



Sophtron exposes simple API methods for developers to retrieve accounts information and transaction information.

Before calling Sophtron API, please read the following instructions carefully:

1. Sophtron API accepts and returns [JSON](#) data. This requires the request header to include content-type: application/json, as shown below:

```
Content-type: application/json
```

2. Sophtron API endpoint is <https://api.sophtron.com/api/>
3. All communication with Sophtron API is over [TLS](#) and encrypted with [SHA256](#)
4. Any request to Sophtron API must be authenticated and authorized. There are two types of authentication:

1. Bearer authentication: This authentication method requires including an "Authorization" header in the request, as shown below. To learn more about how to generate the Authorization header, refer to code snippet at <https://sophtron.com/Docs#docs-authentication> or sample source code at [Github](#).

```
Authorization: FIApiAUTH:11a3e6ad-0b7a-42ce-b177-55856b772bc9:q3yS777fnxXoQBwOzx5hl62x/HdBITfwZ2UNxlopoKM=:getinstitutionbyname
```

2. OAuth2 authentication: This authentication method requires developer's user to log into her Sophtron account before granting request access to the Sophtron account's data and redirecting to developer's application. To learn more about OAuth authentication, refer to code snippet at <https://sophtron.com/Docs#docs-authentication> or sample source code at [Github](#).
5. An example of request to Sophtron API that retrieves institutions with "Bank of America" in the name is as following:

```
POST https://api.sophtron.com/api/Institution/GetInstitutionByName HTTP/1.1
Content-type: application/json
Authorization: FIApiAUTH:11a3e6ad-0b7a-42ce-b177-55856b772bc9:q3yS777fnxXoQBwOzx5hl62x/HdBITfwZ2UNxlopoKM=:getinstitutionbyname

{
  InstitutionName: "Bank of America",
  Extensive: true
}
```



Sophtron API

Sophtron exposes simple API methods for developers to retrieve accounts information and transaction information.

The following are the steps to retrieve account information using Sophtron API.

- Create a UserInstitution (loign) object using [api/UserInstitution/CreateUserInstitution](#). Note: this method automatically creates a UserInstitution object and returns its Guid type ID. Meanwhile the method triggers a job to get financial accounts under the generated UserInstitution. A Guid type JobID will also be returned alongside the UserInstitutionID. Use the JobID to track job's status and monitor MFA questions.

Sophtron API Specification

Api/UserInstitution/CreateUserInstitution

Request		
Guid	UserID	ID of developer account. Look for it under developer profile.
Guid	InstitutionID	ID of institution. Look for it by calling api/Institution/GetInstitutionByName method.
String	UserName	UserName for login.
String	Password	Password for login.
String	PIN	PIN for login (Optional)
String	CompanyID	CompanyID for business login (Optional)
Response		
Guid	UserInstitutionID	ID of UserInstitution just created.
Guid	JobID	ID of job triggered to retrieve accounts under the UserInstitution.

Sample Request Body:

```
{
  "UserID": "82f4dfb1-f83f-46b2-aa7e-6db8e21a8efd",
  "InstitutionID": "35383341-1a1b-4dfc-b30e-1beb7bbd900d",
  "UserName": "Bob1234",
  "Password": "Password5678!",
  "PIN": "7654", (optional)
  "CompanyID": "BobCorp1" (optional)
}
```



Sophtron API

[Sophtron API Specification](#)

- With JobID returned by previous method, call [Api/Job/GetJobInformationByID](#) method periodically to check if the job is completed. If there is MFA question in returned job's information, follow the API spec to update the job with MFA answers. Repeat the process until the job's "SuccessFlag" returns true or false. "LastStep" and "LastStatus" return where the job is currently at and its status.

- Note: the response data list to the right only include fields to be "read", i.e. fields read from the institution's web page informing user which information to respond to. The list does not include fields to be "written", i.e. fields for user to provide MFA answers to. Please refer to [Api/Job/GetJobInformationByID](#) spec for the complete response data.

Api/Job/GetJobInformationByID

Request		
Guid	JobID	ID of job returned from InsertWorkInQueue method.
Response		
Bool	SuccessFlag	True if job completes successfully.
String	SecurityQuestion	SecurityQuestion field contains one or more security questions asked by the institution. E.g. "[what is your favorite color?', 'what is your favorite fruit?']"
String	TokenMethod	If the institution requests to send a security token for authentication and the user has registered different delivery methods to receive such token, the "TokenMethod" field will not be empty. E.g. "[Email me at s*****@gmail.com", "Send verification code by voice call to ***-***-3800"]'
String	TokenSentFlag	Once the institution sends out a security token via the delivery method chosen by the user, the "TokenSentFlag" field in the job will change to "True".
String	TokenRead	If the institution calls the user and asks user to read the security token shown on the screen for authentication, the "TokenRead" field will show the security token shown on the webpage screen. E.g. "123456".
String	CaptchaImage	If the institution requests user to read a captcha image, the captcha image is stored as a Base64 string in "CaptchaImage" field.
String	LastStep	If a job ends without success, the "LastStep" field shows at which step the job fails, e.g. "LogInPanel" means the job fails at the login step.
String	LastStatus	If a job ends without success, the "LastStatus" field indicates what status the job ends at, e.g. "Timeout" means the job times out at the last step.

Sophtron API



- Use `api/Job/UpdateJobSecurityAnswer` method to update the job with security answers if "SecurityQuestion" field is not empty.

[Sophtron API Specification](#)

Api/Job/UpdateJobSecurityAnswer

Request		
Guid	JobID	ID of the job.
String	SecurityAnswer	Answers to one or more security questions posted by the institution for authentication. E.g. when the SecurityQuestion field in the Job is as following: "['what is your favorite color?', 'what is your favorite fruit?']" The SecurityAnswer string can be given as following: "['blue', 'apple']"
Response		
Int	<u>TransmitStatusEnums</u>	0 for success, -1 for failure.

Sample Request Body:

```
E.g. "SecurityQuestion" shows
"[\"what is your favorite color\", \"what is your least favorite color\"]",
update job with answers:
{
  "JobID": "e67b47d2-06a8-46ee-9fba-ec576873bbce",
  "SecurityAnswer": "[\"red\", \"blue\"]"
}
```

Note that even if there is only one question, answer needs to be a stringified array.

```
E.g. "SecurityQuestion" shows
"[\"what is your favorite animal\"]",
update job with answer:
{
  "JobID": "e67b47d2-06a8-46ee-9fba-ec576873bbce",
  "SecurityAnswer": "[\"cat\"]"
}
```

Sophtron API



- If "TokenMethods" field is not empty, use [api/Job/UpdateJobTokenInput](#) method to select which delivery method to choose.

[Sophtron API Specification](#)

Api/Job/UpdateJobTokenInput

Request

Guid	JobID	ID of the job.
String	TokenChoice	E.g. "TokenMethod" field can be as following: ["Email me at s*****@gmail.com", "Send verification code by voice call to ***-***-3800"]. Set TokenChoice to: "Email me at s*****@gmail.com" Note: only one delivery method can be chosen, TokenChoice string must equal one of the method's string listed in the "TokenMethod" field.

Response

Int	TransmitStat usEnums	0 for success, -1 for failure.
-----	-------------------------	--------------------------------

- Sample Request Body:

E.g. when "TokenMethod" shows ["call xxx-xxx-1234", "text xxx-xxxx-1234"], choose a token delivery method:

```
{  
  "JobID": "e67b47d2-06a8-46ee-9fba-ec576873bbce",  
  "TokenChoice": "call xxx-xxx-1234"  
}
```

Sophtron API



- If "TokenSentFlag" field is True, use [api/Job/UpdateJobTokenInput](#) method to enter the security token received by the user.

Api/Job/UpdateJobTokenInput

Request

Guid	JobID	ID of the job.
String	TokenInput	Once the institution sends out a security token via the delivery method chosen by the user, the "TokenSentFlag" field in the job will change to "True". Use this method to update the job with user's received security token, e.g. Set TokenInput to "123456"

Response

Int	TransmitStatusEnums	0 for success, -1 for failure.
-----	---------------------	--------------------------------

- Sample Request Body:

```
When "TokenSentFlag" field is true, enter received token "56789":  
{  
  "JobID": "e67b47d2-06a8-46ee-9fba-ec576873bbce",  
  "TokenInput": "56789"  
}
```

- If instead of receiving a security token through text message or email, the "TokenRead" field is not empty, it means the institution will call to verify a token user sees on the screen. User will receive a phone call, during which she will type or read the token read from "TokenRead" field. Once the phone call completes, user is asked to click "Verify Phone" to proceed. Use [api/Job/UpdateJobTokenInput](#) method to click "Verify Phone" on user's behalf and complete login process.

Api/Job/UpdateJobTokenInput

Request

Guid	JobID	ID of the job.
Bool	VerifyPhoneFlag	If the institution calls the user and asks user to read or type the security token shown on the screen for authentication, the "TokenRead" field in the job will show the security token shown on the webpage screen. E.g. "TokenRead" field can be as following: "123456". Once user reads or types the security token over the phone, she will be reminded to click the "Verify Phone" button on the screen to proceed with login. Use this method to update the "VerifyPhoneFlag" field in the job to "True" to click the "Verify Phone" button and proceed with login process. Note: "VerifyPhoneFlag" is of boolean type and only accepts "True" as the input value.

Response

Int	TransmitStatusEnum	0 for success, -1 for failure.
-----	--------------------	--------------------------------

- Sample Request Body:

When receiving a call from the bank, read out the token shown in "TokenRead" field and update "VerifyPhoneFlag" field to true:

```
{
  "JobID": "e67b47d2-06a8-46ee-9fba-ec576873bbce",
  "VerifyPhoneFlag": true
}
```


Sophtron API



- If “CaptchalImage” field is not empty, use [api/Job/UpdateJobCaptchalInput](#) method to enter the text read from the captcha image by the user.

Api/Job/UpdateJobCaptchalInput

Request

Guid	JobID	ID of the job.
String	CaptchalInput	Text read from the captcha image posted by the institution for authentication. E.g. when the captcha image contains image of texts or numbers that look like "AB1234", the CaptchalInput string can be given as following: "AB1234"

Response

Int	TransmitStat usEnums	0 for success, -1 for failure.
-----	-------------------------	--------------------------------

- Sample Request Body:

```
If the text shown in the Captcha image is “CAGT”, update CaptchalInput to “CAGT”:  
{  
  "JobID": "e67b47d2-06a8-46ee-9fba-ec576873bbce",  
  "CaptchalInput": "CAGT"  
}
```

Sophtron API



- After the job succeeds, use the [api/UserInstitution/GetUserInstitutionAccounts](#) method to get all the accounts under the UserInstitution (login). Note the UserInstitutionID is the ID returned by the first method call. This method will return a list of accounts retrieved by the previous job.

[Sophtron API Specification](#)

Api/UserInstitution/GetUserInstitutionAccounts

Request		
Guid	UserInstitutionID	ID of UserInstitution returned from CreateUserInstitutionWOJob method.
Response		
Guid	AccountID	ID of the UserInstitutionAccount.
String	AccountName	Account name, e.g. "Primary Checking".
String	AccountNumber	Account number, e.g. "xxxx1234".
String	AccountType	Account type, e.g. "Checking", "Savings".
Decimal	Balance	Account balance.
Decimal	AvailableBalance	Account's available balance (Optional).
Datetime	DueDate	If the account is a billing account or credit card account, the payment due date.
String	LastUpdated	Last time the account was updated.
String	Account's status.	Account status is by default "Tracked". Choose "Untracked" to stop tracking the account.

Sophtron API



- The following are the steps to retrieve transaction information using Sophtron API:

- Use the ID of the `UserInstitutionAccount` retrieved from previous steps to refresh the account and download transactions under the account. Call `api/UserInstitutionAccount/RefreshUserInstitutionAccount` method to refresh the account. A Guid type JobID will be returned by this method. Use the JobID to track job's status and monitor MFA questions.

- Follow the same steps as getting accounts to monitor job's status and update job with MFA answers. Repeat the process until the job succeeds.
- Note no dates are needed in the request since Sophtron attempts to download all transactions available under the account.

[Sophtron API Specification](#)

Api/UserInstitutionAccount/RefreshUserInstitutionAccount

Request

Guid	AccountID	ID of the UserInstitutionAccount returned by querying Api/UserInstitution/GetUserInstitutionAccounts
------	-----------	--

Response

Guid	JobID	ID of Job to track.
------	-------	---------------------

Sophtron API



- After the job succeeds, use the [Api/Transaction/GetTransactionsByTransactionDate](#) method to retrieve a list of transactions downloaded from the previous job.

[Sophtron API Specification](#)

Api/Transaction/GetTransactionsByTransactionDate

Request		
Guid	AccountID	ID of UserInstitutionAccount returned from CreateUserInstitutionWOJob method.
DateTime	StartDate	Transactions retrieved must not be earlier than this start date. Date format, e.g. "2018/10/01"
DateTime	EndDate	Transactions retrieved must not be later than this end date. Date format, e.g. "2018/10/31"
Response		
Guid	TransactionID	ID of the transaction
String	Status	Status such as "Pending", "Posted" (Optional).
String	Type	Type such as "DEBIT", "CREDIT" (Optional).
Decimal	Amount	Transaction's amount
String	Currency	Transaction's currency symbol such as "\$" (Optional)
DateTime	Date	Transaction's date
DateTime	TransactionDate	Transaction's transaction date
DateTime	PostDate	Transaction's posted date.
String	Description	Transaction's description
String	Merchant	Transaction's merchant information (Optional)
String	Category	Transaction's category (Optional)
String	CheckNum	Transaction's check number (Optional)
String	Memo	Transaction's memo (Optional)
String	CheckImage	If transaction's a check, CheckImage includes the download link to check image file. (Optional)