

# Assessment Center API

User Manual detailing features and functionality

Version 1.1

# Assessment Center API

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## General Information

### *What is the Assessment Center API?*

The Assessment Center API (AC\_API) allows your data collection software (or other applicable software) systems to communicate and share information with Assessment Center. API stands for Application Programming Interface and specifies how software systems should communicate with one another.

The AC\_API was developed by IT experts at Northwestern University to enable software systems to communicate with Assessment Center and thereby utilize the public content housed within it, i.e. PROMIS and NeuroQOL computer adaptive testing (CATs). CAT allow instruments to be administered with sophisticated item selection and scoring algorithm.

### *Why would I want to use the AC\_API?*

The AC\_API delivers PROMIS and NeuroQOL CAT instruments to users interested in including them in their data collection (see Figure 1 below). The AC\_API is most useful to users who wish to utilize CAT but do not have the capability to administer it in their own data collection software. The AC\_API enables the fast addition of existing PROMIS and NeuroQOL instruments into an existing data collection software system. It is an existing product which has been developed and tested by data collection, IRT-scoring experts. Updates and new instruments will be made available as they become available via sponsoring initiative (PROMIS, NeuroQOL currently, NIH Toolbox in the future).

### *Is the AC\_API a custom solution?*

It is actually just the opposite. Northwestern University developed the AC\_API so that existing survey systems could add CATs and short forms quickly and with minimal internal development effort.

### *Who is allowed to use the AC\_API?*

There is no usage restrictions related to the AC\_API. There is a monetary cost involved in using the AC\_API and each user must ensure the system with which the AC\_API will interface is capable of receiving content from Assessment Center, administering an assessment and storing data.

### *Is there a cost associated with using the AC\_API?*

Yes, access to the AC\_API will require payment. The cost is currently an annual license fee. It is necessary to contact Center administrators at [help@assessmentcenter.net](mailto:help@assessmentcenter.net) for more information, details.

### *What Assessment Center features are not available in the AC\_API?*

The AC\_API uses Assessment Center to deliver content to external systems. However, it is not a feature within Assessment Center and therefore does not contain functionality available in Assessment Center other than the ability to administer and score CAT instruments.

### *What should I do if I am having problems with AC\_API?*

This User Manual is the main help feature for the AC\_API. You may also refer to Assessment Center's homepage and Help section for additional documentation. Center administrators may be contacted at [help@assessmentcenter.net](mailto:help@assessmentcenter.net) for additional assistance and information.

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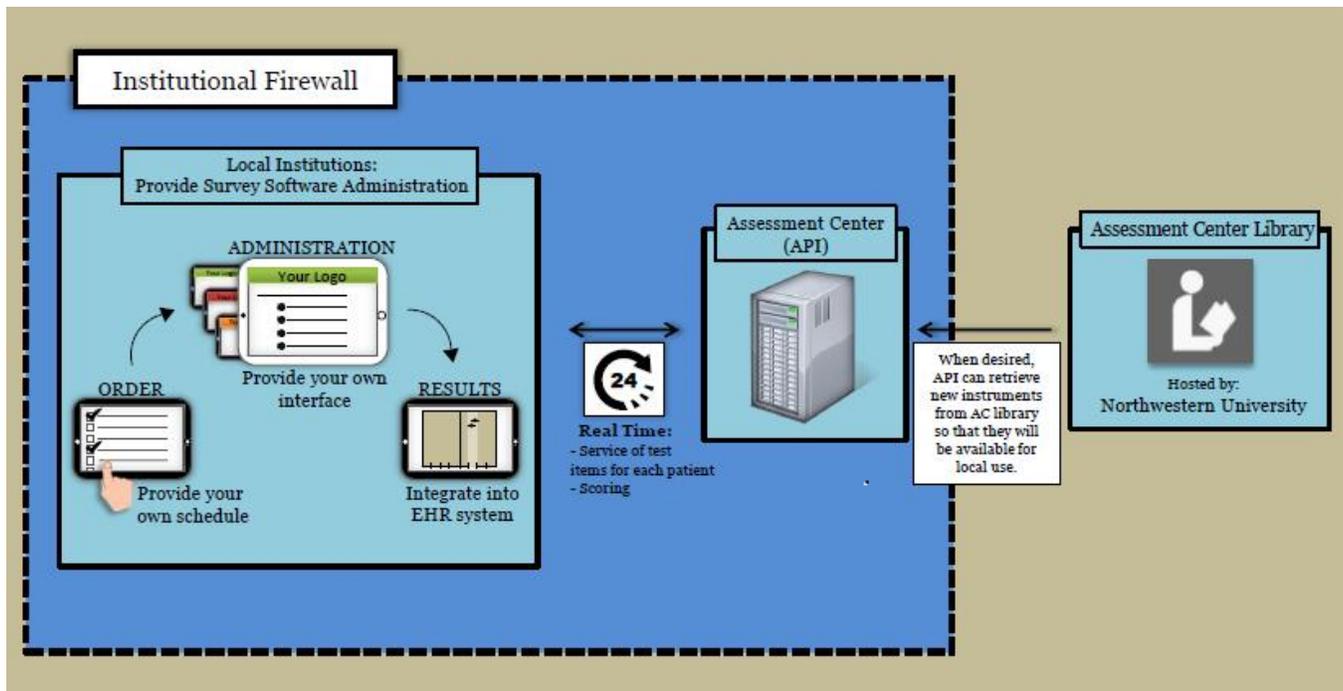


Figure 1: AC\_API Integration

## Installation

### *How do I install the AC\_API?*

There are a couple of steps required prior to the installation of the AC\_API. First, interested parties should try out the AC\_API the Northwestern sandbox, i.e. an isolated environment on the Northwestern system specifically set up for testing the AC\_API. More information on how to use the sandbox is located in the Development section of this manual. Next, an agreement of use and purchase has to be agreed upon, finalized, and signed off on. To begin the installation process, users must procure a server to which the AC\_API will communicate. Then they will be granted access to the AC\_API. Users complete an online registration form. Once that is complete, installation documentation will be sent and users will begin to download the software. The AC\_API is downloaded via a secure web-based file sharing site. Finally, user will need to program a connection with their software so that the AC\_API can complete its communication protocol and information/data can be shared between the systems.

### *Are there any technical requirements for AC\_API installation?*

The AC\_API is built upon Microsoft technology (i.e. SQL server, Microsoft web server IIS). The supported software requirements are:

- IIS 7.0 and above
- MS SQL server 2008R2 and above

The application is deployed as a RESTful web service, for detailed installation and configuration instructions see the ReadMe file included with the AC\_API download.

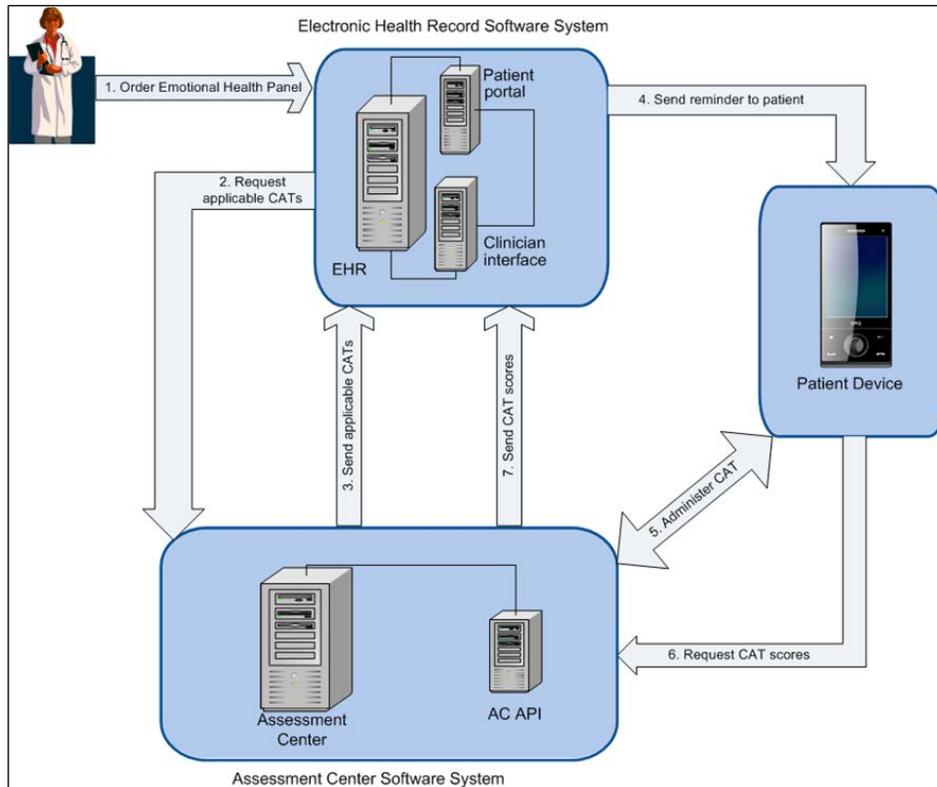
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## What are the recommended AC\_API Server Specifications?

Required server specifications depend upon performance needs and data collection plans. If needed, the MSS consulting team can help determine specifications based off of previous data collected in your system.

## Case Study

Figure 1 below provides a visual example of how the API may be implemented in a clinical setting. The case



study depicts the interaction flow of an Electronic Health Record (EHR) system and the AC\_API.

First, the EHR system must be configured to accept Patient-Reported Outcomes (PROs) assessment panels, e.g. emotional health panel, which entail administering applicable PRO CATs to patients. In this example, a clinician orders an emotional health panel from within the EHR's clinician portal. Once this order is received, the EHR sends Assessment Center a request to administer applicable CATs via the AC\_API. The EHR also sends a reminder to the patient's device to alert them an assessment is due. The AC\_API then administers CATs

on the patient's device. Once the assessment is complete the AC\_API sends CAT scores back to the EHR where they will be stored and reported.

## Content

CATs and other content publically available via Assessment Center are periodically updated, modified, etc. Therefore users of the AC\_API need to occasionally update their version to ensure it remains current. When new content becomes public in Assessment Center, an email will be sent to all AC\_API users with instructions to how to download the content and update their AC\_API version.

## Development

### How does the AC\_API get implemented in an existing data collection system?

An existing data collection system can be defined here as a software product that presents instruments & items to participants, collects a response and stores that response.

In order to integrate the AC\_API, the following steps are required:

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1. The team implementing the AC\_API needs to become familiar with the AC\_API functionality. This can be done by registering and using the resources in the Northwestern sandbox, [https://www.assessmentcenter.net/ac\\_api](https://www.assessmentcenter.net/ac_api).
  - a. In brief, the AC\_API covers the following functionality:
    - i. Lists available instruments that can be selected for administration
    - ii. Registers an assessment
    - iii. Starts the assessment (first item)
    - iv. Responds to assessment item selection in sequence and retrieves next item
    - v. Retrieves scores of assessment
2. The team implementing the AC\_API needs to evaluate how to program the AC\_API integration in their relevant data collection system. In order to successfully integrate with the AC\_API, the data collection system needs to include the following functionality:
  - a. Management of participants and participant registration
  - b. Presentation of instruments for selection (optional)
  - c. Registration of assessment
  - d. Presentation of each item to the participant
  - e. Registration of the participant response sent back to AC\_API
  - f. Saving final scores to the database
3. The team implementing the AC\_API then needs to program and test the integration.

Programming the integration is a task that must be performed by the owners of the existing data collection software. If a UI (user interface) is not already in place, one will need to be designed and developed with the following requirements:

1. Participant to be guided to scheduled assessment(s). Remote access should be accommodated by enabling access to the data collection system via the Internet.
2. Participant initiates the assessment
3. Instrument items are presented for participant response one per screen
4. Response from participant is sent to the AC\_API, next item to be retrieved from the AC\_API and presented via the data collection system
5. Detection of end of assessment and UI to guide to conclusion screen
6. Storage of intermediate results and final results along with scoring

In addition to these tasks, the same team needs to program, following the specific requirements of the project, how to address:

1. Participant stopping the assessment prior to completion
2. Participant restarting the assessment later
3. Expiration of assessments that were stopped and not restarted
4. Rules for going to back to previous items
5. Rules regarding changing responses
6. Rules regarding skipping items

In brief, the existing data collection system needs to include programming for the UI and rules regarding data persistence and participant data.