

A	Achenbach
S	System of
E	Empirically
B	Based
A	Assessment

**ASEBA**<sup>®</sup>   
Achenbach System of Empirically Based Assessment

## The ASEBA iForms Service



**Description for IT Administrators, Software Engineers and  
iForms Account Administrator**

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## Overview

ASEBA™ introduces the **iForms Service**, a powerful application designed for researchers and service providers. iForms integrates Internet administration and scoring of the Child Behavior Checklist for Ages 6-18, the Teacher Report Form, and the Youth Self-Report into your data collection system.

iForms offers you automated delivery of output so you can, for example, insert a profile into an electronic medical record or add scored data to a research database. iForms is available in a variety of languages, including American English and Latin-American Spanish\*. **iForms allows you to extend ASEBA form administration, scoring, and output delivery functions into your web-site or data collection application.**

Technically, iForms is a collection of custom web services. These services can be integrated into web and desktop applications. In layperson's terms, iForms can best be described as a set of tools that you can use to seamlessly incorporate the administration of ASEBA rating forms as part of your web-site data collection application.

The ASEBA iForms Service includes **online access to training videos** and **an example application** illustrating how to incorporate the Service in your data collection stream. You can adapt the source code from the example application to fit within your data collection system. You simply add the references in your project to the iForms Service, and using as little as four (4!) lines of code copied from our example application, you can start collecting ASEBA rating forms directly within your data collection system. The automated delivery of output can be added with another four (4!) lines of code.

Because you programmatically embed the iForms Service in your data collection system, you can add the ASEBA rating forms to the list of psychological forms collected in your application. Since you are already collecting other data (ID number, gender, age, etc.) that are needed to administer and score ASEBA rating forms, iForms allows you to re-use this existing information.

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\* Other languages are added as they become available. Currently, Dutch, Norwegian and Icelandic translations are in process. Refer to the section at the end of this document for information about obtaining translations in other languages.

Output from iForms includes:

- Graphical profile in standard ASEBA format & international format
- Textual narrative in standard ASEBA format & international format
- Comments report in English & administered language that details the ratings given and comments made by the informant.
  - Profiles, narratives and comments reports are provided in portable document format (.pdf) files
- Form data to import into ADM
- Data for analysis of both raw items and scores
  - Data for analysis files are ASEBA standard .csv files that can be imported into spreadsheet programs and can be processed by the ASEBA A2S utility into SPSS® data files.
  - iForms includes access to the Okapi data file concatenation utility to enable you to append together individual files into a single file for analysis. See the companion document “Okapi User Guide” for details.

ASEBA iForms uses “e-units” to account for each form administration and scoring. E-unit charges are listed below. E-units are available in different package sizes. Please refer to the ASEBA online catalog for pricing at <http://www.aseba.org>. Your account purchase includes 100 free e-units. iForms is operated on a subscription basis, and annual renewal is required. Free e-units are included with each renewal.

<b>iForms activity</b>	<b>E-units charged</b>
Entry by respondent	1
Scored profile, scored narrative, and data for analysis in any combination <sup>†</sup>	1
Comments report	0
Form data to import into ADM	0

### ***Integration With Other ASEBA Software***

The ASEBA iForms Service allows you to download completed rating forms and import those into Assessment Data Manager (ADM<sup>®</sup>). ADM allows you to create cross-informant reports and to store the rating forms for as long as needed. In ADM, you can also edit and re-score the rating forms.

For further ease of obtaining analysis files, ASEBA also sells the A2S utility to convert data exported from the iForms Service to SPSS files. A

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<sup>†</sup> Only a single e-unit is charged for one, all, or any combination of these output types.

separate cost-free utility named Okapi, to combine multiple data files into a single file, is also available with the ASEBA iForms Service.

## **Organization Of This Document**

### **Who is “the person”?**

Throughout this document, “person information” and “the person” are used to refer to the person being evaluated. Although the initial release of the iForms Service provides rating forms for children, the possibility of future expansion calls for the more general word “person” rather than “child”.

### **Other headings in this document**

This document continues in sections directed to different audiences. Of course, you may belong to more than one audience. One section addresses the needs of IT managers or Systems administrators, including a summary of the function of the tools in iForms and a discussion of organizational resources required for iForms require and security. The section for Software Engineers dicusses the implementation of iForms, and provides details about the required and optional parameters. The section for the iForms Account Administrator reviews the functions that this administrator performs and gives information on how to organize your account. Other sections discuss security of the iForms services and the use of the translation web-site.

## **Information for Systems Administrators & IT Managers**

As mentioned in the Overview, iForms is a collection of custom web services. These services can be integrated into web and desktop applications. The iForms custom web services, in essence, are software classes or objects (with accessible properties and implementable methods) that reside on the ASEBA server rather than in a local .dll or other API file.

*“Web services are simple, self contained applications which perform functions, from simple requests to complicated business processes. The ‘web services’ model uses WSDL, UDDI and SOAP/XMLP...”*  
*([http://www.finance.gov.au/publications/australian-government-technical-interoperability-framework/docs/AGTIF\\_V2\\_-\\_FINAL.pdf](http://www.finance.gov.au/publications/australian-government-technical-interoperability-framework/docs/AGTIF_V2_-_FINAL.pdf)).*

Your application can “consume”, or use, the custom web services in a web based application or a desktop application. Consuming the services from a desktop application *requires that your application can connect to the Internet.*

## What You Need to Provide

The first essential is that your iForms account subscription is kept current and an adequate balance of e-units is maintained.

In addition to that, you must have a web site that supports server-side scripting or post-back processing, or a desktop application with Internet access. A database application is required, as you will need to provide the iForms Service with information for each form requested, keep track of tokens and recipients, store files and etc.

The last sine qua non is that you must also have programming resources sufficient to integrate iForms into your data collection stream, including HTML coding, server-side scripting, and advanced object creation and XML parsing. iForms includes example applications in VisualBasic<sup>®</sup> .NET and HTTP Get/Post samples.

## Database and Web-Site Considerations

While each programming language or software development environment will differ in the specific implementation of web services, the use of the iForms services begins within your application.

You **need a database** that you can write code/scripts against, and one that you can use to supply information through a user interface. iForms requires a few basic pieces of information that your application must provide. iForms also requires you to store and recall security tokens (long number strings). These requirements are best solved in a database environment. If you are using a web-site as your data collection platform, the web-site needs to support scripting and it needs to connect to a database.

If you are planning to store output files on your server or site, the approximate file sizes for the different kinds of iForms output are listed in this table:

<b>Output Type</b>	<b>Size, Kbytes</b>
International profile	40
International narrative	30
US Profile	130
US Narrative	70
Scored data for analysis, 1 record, each additional record < 1k	3
Raw data for analysis, 1 record, each additional record < 1k	3
Data for ADM, 1 form	10

## Security and Restricted Access

Your data collection application provides the security to prevent unauthorized users from accessing ASEBA rating forms. The rating forms are “launched” from within your data collection stream. Whether the administration of a form is immediate or delayed, the responsibility for protecting passwords and URL addresses, and therefore protecting the health information of your patients, lies with you.

You can determine the appropriate level of identifying information to provide to ASEBA. Identifying, or potentially identifying, information required to properly score ASEBA forms includes the age and gender of the person being evaluated (date of birth is not required, only current age), and an ID number. The ID number **does not have to contain identifying information about the person or the informant**. The same ID number can be used for all your respondents, in the case of completely anonymous data collection.

ASEBA provides security by issuing random passwords (access key codes) for respondents to use to complete forms, by providing an encrypted channel for information to travel over, and by implementing other industry standards. A separate document detailing ASEBA's security practices is available.

Research considerations will also require your system to control access to iForms so as to accurately track variables pertinent to your research. These might include the time of administration, research treatment or control group membership and any of a host of other variables. To this end, ASEBA provides a “pass-through” variable you can inform that will travel with the rating form through to ADM and into data analysis files.

### ***What does ASEBA provide?***

The iForms Services provide these functions:

1. Security information needed to administer a form;
2. Form administration and scoring;
3. Automated download of output from scoring of the form, and;
4. Automated deletion of the downloaded information from the ASEBA servers.

The security and forms administration functions are the basic functions of iForms. The automated download function is optional – you can choose to have recipients of output notified by email and allow those recipients to log in and download the output themselves. Similarly, automated deletion is optional. ASEBA will delete all output 35 days after it is created.

Another method of deleting is to allow recipients to log in and delete the output themselves.

You can use the automated download of output as an efficient means of delivering information to whatever electronic record system you might be using. For example, you could configure your application to copy the comments reports (the form as completed by the respondent) into a drop directory for import into an electronic medical records system, while simultaneously sending the profile, via email, to the clinician. Automated delivery of output can happen in real-time as soon as a form is completed and scored, or can be scheduled to run in batches.

## **Security**

Details of how ASEBA implements various security features are available in the companion document "ASEBA Internet Security". Briefly, ASEBA addresses and provides security at the network, application, database, file, code, and data center levels.

### ***Network Security***

iForms runs on a **secure web site** (Secure Sockets Layer (SSL) 256-bit, port 443 technology). A "**secure Web site**" provides secure communication and has a valid certificate. Secure communication means that the information that you provide, such as passwords, names, and other information is encrypted during transmission between your computer and the web site, so that it can't be read or intercepted by other people. The certificate is a statement verifying the security of the site. A certificate contains information that a specific Web site is authentic. This ensures that no other site can assume the identity of the original site.

### ***Data Encryption and Storage***

Data in iForms are protected by an industry-approved firewall separating the database from the web site. All files that are viewed, printed, or downloaded, are encrypted. All personally identifying data temporarily stored on ASEBA web servers are encrypted. Your account information is also encrypted.

There is no long-term data storage on ASEBA web servers. It is the user's responsibility to download data and scored output in a timely manner, then to delete them. The expiration dates assigned by iForms represent the date your output and electronic form requests will be permanently removed from the ASEBA web server. Requests for respondents to

complete forms are valid for 60 days, and output from completed forms is automatically deleted after 35 days.

### ***Download Security***

Your account is assigned a unique security token number by ASEBA. Each time you use the iForms custom web services to programmatically download data, the security token is changed and the new token is returned to your application along with the data. The old security token is then invalidated. Because the token is valid only for a single use, this prevents someone from learning a security token and trying to re-use it.

### ***User Interface Security***

All login screens within the iForms Service and respondent site include the use of a CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart) challenge. This challenge ensures that a human, not a bot or other malware, is logging in.

## **Information for Software Engineers & Programmers**

ASEBA provides a VisualBasic® .NET example application to show how to consume each of the web services in the iForms Services.

Regardless of your development environment or programming language, you will need to add a reference or declaration to the iForms Services. Once declared, you use the services simply by calling them as you would any other function used in your application.

The result of each service call is an XML file that your application must parse. Generally, each XML file contains a status message and one or more return values. The return values are strings and files. You use the strings in still other services calls, and process the files. The files returned are all compressed files in .zip format. The files compressed include .pdf files (profiles and narratives), text files (data for analysis and manifest files) and other .zip files (ADM data transfer files). The manifest file, available in different formats, lists, for each compressed file, the names and original size of the file, the type of output, the identifying information for the person associated with the output, the information for the respondent associated with the output, and some administrative information about the output.

## ***Listing of Services in iForms***

Full examples of each service are available from the iForms administration screen. Examples are made available as parameter lists, SOAP examples and HTTP Get and Post examples.

### **Access Key Code Creation**

The first service your application consumes sets up a form for a respondent to complete. This service provides (returns) the information you need to immediately begin form administration. For your respondent, a single click on a link or button leads directly to the ASEBA form entry screen.

If you want the respondent to complete the form at a later time, the service will create an access keycode for you. This keycode acts as a password that allows the respondent to complete only the specified form. You can send the respondent the keycode and URL information to complete the rating form. **Respondents can complete the form in as many sessions as required.**

### **Utility Functions**

#### **Access key code verification**

This service allows you to verify whether a specific access key code is still valid. You can determine if the form associated with the key code has been completed or not.

#### **Recipient list validation**

This service allows you to retrieve the current list of recipients in your account. This allows you to validate output recipient choices made in your application.

### **Form Administration and Scoring**

iForms presents your respondent with the appropriate ASEBA rating form, collects their responses and returns the respondent back to your web site (or simply to an ending page if your data collection interface is not web based). You can upload a graphic to use as a banner or header on the respondent entry web pages, and you can add one or two sentences to the respondent greeting page. If you are using a web-site, you can specify a "form completed" page to which the respondents are returned at the end of a form.

Below is the list of supported browsers that your respondents can use:

- Microsoft Internet Explorer version 5.5 or higher
- Firefox version 2.0 or higher
- Safari version 3.0 or higher
- Mozilla version 1.x
- Netscape Navigator version 7.2

Any browser not included in the above list is not supported.

Scoring and output creation happen automatically and immediately when the rating form is completed. Report and data recipients within your account can be notified by email when there is a file available for them. The notice includes a link to the recipient login screen for quick and easy retrieval of information. Depending on traffic load, some scoring output files can take up to several minutes to become available.

### **Automated Download of Outputs**

Some iForms solutions may require automated delivery of output. This delivery is available so that your application can receive a compressed file of the output files and a “manifest” file detailing the contents of the output files. The automation of the delivery allows your application, not an end user, to request that the files are delivered to your server or application. You can modify your application to re-route the output as needed.

To use this function effectively, you can create “dummy” recipients in your account based on *the type of output*. For example you can create one recipient for all graphical profiles and one for data for analysis. This particular web service will identify all the output which has not yet been downloaded for that recipient. The output is zipped into a single file and delivered to your application in XML format. Your application can then parse the XML file, creating a byte stream of the zip file to save to disk. Your application can open the zip file and inspect the manifest file included in it to verify that all the specified files were recreated with correct names and sizes. The manifest file is available in XML, Windows® .ini, and character-separated value files so that you can process it using any of the most ubiquitous technologies.

The manifest file details the id number of the person, the type of form, the file name of the output, and other details you need to determine how to handle each file. For example, the scored profiles and electronic form reports can be sent directly to an electronic patient record, while the data for analysis can be concatenated into your analysis file.

You can schedule consumption of this service in your application, or make it event based (i.e., when the respondent returns to your web-site you can consume the service, and download output as soon as it is created).

When your application consumes this service, you must send your **security token** along with other parameters. The initial value of the token will be sent to you when your iForms account is created. **Every time the token is used, the value changes and the old value is no longer valid** for use in downloading data. The new token value is returned to your application in the XML file along with the data.

### **Automated Deletion of Downloaded Outputs**

Some solutions may require deletion of data and records from the ASEBA servers on a schedule (even immediately when the form is completed). A web service is available that accepts a security token as a parameter, and then deletes from the ASEBA server all the files and records that were downloaded using that security token. Pairing this and the download service allows you to automatically download your files, verify them, process them, and then delete them from the ASEBA server.

### **Using the iForms Web Services in Your Application**

1. You retrieve person and respondent information from your database and use it to consume the iForms custom web service to obtain an access keycode for form administration. Other parameters you specify will assign the output from the form to various users of your account.
2. You open an instance of a browser and provide the URL to administer a rating form, including the access key code from step 1.
  - a) The form can be administered immediately, or later, from any computer using the URL and valid keycode generated by the custom web service.
    - You can launch delayed form administration from your own application. First use the keycode validation service, then redirect the respondent to the rating form if the keycode is valid.
  - b) After the form is administered, the recipients you specified in step 1 are notified. They can login to iForms to retrieve the output.
  - c) After the form is administered, the access keycode is removed from the ASEBA database of valid keycodes and cannot be re-used.
3. You can use the custom web services to programmatically download all output for a specific recipient and then to delete all such downloaded data from the ASEBA server.

## ***Required & Optional Parameters of Form Administration & Scoring***

These are the required (**red text**) and optional fields that are sent to the form administration and scoring web service as parameters. You can download recipient numbers and clinician names in .csv format to your application using your iForms account manager interface. A recipient number is a unique ID assigned by iForms to each of the users in your account.

- **Subject (person being assessed) ID**, 12 characters
- **Form type**
- **Name of person requesting the form (clinician name)**
- **Language used to administer the form**, default value is the language setting for your account
- Subject gender (M,F)
- Subject age in years
  - The respondent can provide the gender and age if you do not wish to provide them. Gender and age are required fields and must have valid values on the respondent screen.
- Flag for items administered (numbered problem items only vs. problem items and adaptive/social functioning items)
- **Your iForms Service account number**
- **Your iForms Service password**
- Subject first, last, and other names
- Respondent (informant) name as "first last"
- Respondent type (parent, kind of teacher, etc.) code
- Respondent gender
- Respondent description
- Respondent society code, ASEBA reserved codes only
- Free text field – this 20 character field is passed into the ASEBA iForms Service and back to your application in the data files.
- Finish URL – Full URL the respondent is returned to after finishing the form. ASEBA provides a default generic ending page.

**At least one of the following RNs (Recipient number) is required.**

- RN1 for ADM Data Import File
- RN2 for profile / narrative
- RN3 for profile / narrative
- RN4 for report of questions, answers and comments
- RN5 for data files for analysis.
- For profile / narrative recipients, one XOR choice of a) profile, b) narrative, or c) both **is required**.
- For profile / narrative recipients and RN4 recipients, an output language choice (XOR) of a) English or b) language in which the form was administered **is required**.

## Information for the iForms Account Administrator

Some account management functions deal with organizing the account. Some functions are more technical, requiring some programming knowledge to correctly carry them out. The iForms account administrator should have thorough knowledge of the environment and organization in which iForms is to be used. The software engineer might perform some of the more technical functions listed here.

### Account Management

The iForms account management screens allow you, the account administrator, to:

- manage users in your account,
- view reports of activity within your account,
- set default options for your account,
- upload your custom graphic for display as a header in the respondent web site,
- set the custom greeting that will be used in the respondent web site,
- download the Okapi data concatenation utility,
- and access the list of parameters for the various web services.

You can add and remove users from your account at any time. When you add a user, you can export the list of user names and user id numbers (called "recipient numbers") to a .csv file to be imported into your application. Your application must be able to present or validate a correct list of recipients for the various types of output, and the .csv file is the mechanism used to transfer recipient numbers from the ASEBA database to yours. With these recipient numbers, you can correctly generate parameters for your application to consume the iForms services.

You can specify regional settings of date and language for your account. You can customize your respondents' experience of form completion by adding your graphics file that will be used (pending approval by ASEBA) as the banner for your respondents and by including text of your choosing on the greeting screen.

You can download the data concatenation utility Okapi. Okapi provides a simple user interface that allows you to specify multiple data analysis files downloaded from iForms to be merged into a single file.

Along with the download of recipient numbers, another important function that crosses from the account administrator role into the programmer role is accessing the list of parameters used by the various services. These are made available as parameter lists, SOAP examples and HTTP Get and Post examples.

## Translations and Font Support

As new translations become available, they will be added to the iForms Service. If you are interested in providing a new translation, please contact ASEBA by e-mail ([mail@aseba.org](mailto:mail@aseba.org)), or at US phone number 802.656.5130. New translations are completed using a special ASEBA web-site.

International narratives, profiles, and comment reports are created using a font that supports these languages: Abaza, Adyghe , Afar , Afrikaans, Albanian, Avar, Azeri (Latin), Balkar, Basque, Belarusian, Bosnian, Breton, Bulgarian, Catalan, Croatian, Czech, Danish, Dargin, Dutch, English, Esperanto, Estonian, Faroese, Finnish, French, Friulian, German, Greek, Greek (polytonic), Greenlandic, Hawaiian, Hungarian, Icelandic, Indonesian, Ingush, Interlingua, Irish Gaelic, Italian, Kabardian, Komi, Kumyk, Kurdish (Latin), Lak, Latvian, Lezgian, Lithuanian, Luxemburgish, Macedonian, Malay, Maltese, Mordvin (Erzya), Mordvin (Moksha), Māori, Nanai, Nenets, Nivkh, Norwegian (Bokmål), Norwegian (Nynorsk), Polish, Portuguese, Rhaeto-Romanic, Romani, Romanian, Russian, Sanskrit transliteration, Selkup, Serbian (Cyrillic), Serbian (Latin), Slovak, Slovene, Sorbian, Spanish, Swahili, Swedish, Sámi (Inari), Sámi (Lule), Sámi (Northern), Sámi (Southern), Tabasaran, Tagalog (Filipino), Turkish, Ukrainian, Vietnamese, and Welsh.

The iForms site used by rating forms respondents and the site used by iForms output recipients can be presented using any character set represented in this list of languages. Full support for Asian character sets may be made available in the future.