Informatica® SSA-NAME3
10.0.0

API Reference Guide

Informatica SSA-NAME3 API Reference Guide
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Preface

Welcome to the Informatica SSA-NAME3 API Reference Guide. It is intended to be read by the developers of the application or system that uses SSA-NAME3.

This manual describes a typical program process flow for building an identity search application, and also lists in detail each of the API Functions. It describes the parameters required by these functions and the information returned.

Learning About Informatica SSA-NAME3

This section provides details of documentation available with the SSA-NAME3 product.

Introduction to SSA-NAME3

Provides an overview of SSA-NAME3. It is written in a way that can be read by someone who has no prior experience of the product and wants a general overview of SSA-NAME3. It explains the problems SSA-NAME3 overcomes and provides an overview of how this is done. One chapter is dedicated to providing an overview for Application Programmers.

Getting Started

This manual is intended to be the first technical material a new developer or designer reads before installing or using the SSA-NAME3 software, regardless of the platform or environment. Its goal is to help a new user get the software installed and produce a working prototype application that calls SSA-NAME3 and executes searches against their own data.

To achieve this it provides a "script" to follow which includes pointers to pertinent sections of the other manuals.

Application & Database Design

This manual contains tips and techniques useful for setting up and optimizing a name search and matching application, including database issues, and illustrates best-practice techniques, common pitfalls, and strategies regarding the subject of name and address matching.

Installation Guide

This manual provides information on how to install the SSA-NAME3 product.

SSA-NAME3 Workbench User Guide

This is a guide to using the SSA-NAME3 Workbench - a Java GUI tool that helps a programmer understand and prototype SSA-NAME3 calls. The Workbench is also used for:

- Generating Sample Program Code;
- Executing SSA-NAME3 Calls;
- Testing different SSA-NAME3 run-time options;
- Producing debugging and support information for Informatica Corporation

Note: The Workbench in itself is not a search and match application. It assists the developer build a search and match application.

API Reference

The ultimate goal of an SSA-NAME3 implementation is for application programs to be able to call SSA-NAME3's API Functions to build keys and search strategies and to compute match scores and decisions.

This manual describes a typical program process flow for building an identity search application, and also lists in detail each of the API Functions. It describes the parameters required by these functions and the information returned.

Population Override Manager User's Guide

This is a guide to using the SSA-NAME3 Population Override Manager - a Java GUI tool that allows a trained data analyst to override some of the Standard Population rules that are supplied with the product, or provided in the form of a Custom Population. The types of rules that can be overridden using this tool are:

- Edit-list rules
- Frequency tables
- Scalar Frequency Tables
- Matching Purposes

Note: Use of this tool without proper training from Informatica should not be attempted, as improper use can adversely affect the reliability and performance of the search application(s).

Edit Rule Wizard User's Guide

This is a guide to using the SSA-NAME3 Edit Rule Wizard - a Java GUI tool that helps a business user safely add certain types of Edit Rules to the Standard or Custom Population without requiring specific knowledge of SSA-NAME3 or support from a programmer or data analyst. The types of rules that can be added using this tool are:

- Discard a word or phrase when searching and matching (e.g. a new "noise" word)
- Add a new replacement word or phrase when searching and matching (e.g. a new "abbreviation", "nickname" or "acronym")
- Add a new compound name marker word

Release Notes

The Release Notes contain information about what's new in this version of SSA-NAME3. It is also used to summarize any documentation updates as they are published.

What Do I Read If. . .

I am. . .

. . . a business manager

The INTRODUCTION TO SSA-NAME3 will address questions such as "Why have we got SSA-NAME3?", "What does SSA-NAME3 do"?

I am. . .

. . . a system designer or DBA

The INTRODUCTION TO SSA-NAME3 will address questions such as "What resources are needed to implement SSA-NAME3?". The APPLICATION & DATABASE DESIGN manual will lead you through many of the design considerations of name search and matching applications.

I am. . .

. . . installing SSA-NAME3

Before attempting to install SSA-NAME3 you should read the Getting Started document. This will describe the pre-requisites and help you plan the installation and implementation of SSA-NAME3. The actual installation steps for your platform are documented in the Installation Guide.

I am. . .

. . . an Analyst or Application Programmer

A high-level overview is provided specifically for Application Programmers in the INTRODUCTION TO SSA-NAME3 manual. Before attempting to develop programs that interface with SSA-NAME3, you should also read the GETTING STARTED and APPLICATION & DATABASE DESIGN manuals, as well as experimenting with calls in the WORKBENCH USER GUIDE.

When developing the application program(s), use the API REFERENCE manual which describes a typical application and the Function parameters.

Working example programs that illustrate the calls to SSA-NAME3 in various languages are available by using the Sample Program button on the Workbench.

I want to know. . .

. . . what SSA-NAME3 does

The INTRODUCTION TO SSA-NAME3 manual gives an overview of what SSA-NAME3 does and how it does it.

I want to know. . .

. . . how to setup the database

Refer to the APPLICATION & DATABASE DESIGN manual for tips and techniques on configuring the database to store SSA-NAME3 Keys and optimizing it for searching and matching.

I want to know. . .

. . . how to code a search application

The INTRODUCTION TO SSA-NAME3 manual contains a specific section designed to get application programmers familiar with the concepts of developing an SSA-NAME3 search and match application.

The API REFERENCE GUIDE details the Function calls required and their parameters. The SSA-NAME3 WORKBENCH USER GUIDE shows how to generate a sample program in a variety of programming languages.

Informatica Resources

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Informatica Network hosts Informatica Global Customer Support, the Informatica Knowledge Base, and other product resources. To access Informatica Network, visit https://network.informatica.com.

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Informatica Velocity is a collection of tips and best practices developed by Informatica Professional Services. Developed from the real-world experience of hundreds of data management projects, Informatica Velocity represents the collective knowledge of our consultants who have worked with organizations from around the world to plan, develop, deploy, and maintain successful data management solutions.

If you are an Informatica Network member, you can access Informatica Velocity resources at http://velocity.informatica.com.

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CHAPTER 1

Introduction

This document is intended to be the Application Developer's resource for assistance with using the SSA-NAME3 API Functions.

The API gives user developed application programs the ability to use the functionality within SSANAME3. The API is available with wrappers for Active X as well as the standard interfaces for C/C++, COBOL and Java.

The API supports both local calls to the SSA-NAME3 Callable Routine (DLL, Shared Library, Load Module etc), as well as socket calls (through TCP/IP) to a server implementation of the Callable Routine.

The ability to call the SSA-NAME3 Server from a remote client has been provided so that a program may be developed and tested on one platform (example, a PC) while having its SSA-NAME3 calls executed on another platform (example, a server). This may increase the flexibility of the development and testing phases.

Note: In production, the calling application and the SSA-NAME3 Callable Routine should reside on the same computer, or severe performance degradation may be expected.

Configure Environment Variables

When you implement SSA-NAME3 by using a DLL, shared library, or load module, configure the following environment variables:

SSAPR

Specifies the absolute path for the standard populations. You can find the standard populations in the following directory:

- On Windows: `<Informatica Installation Directory>\pr`
- On UNIX: `<Informatica Installation Directory>/pr`

You can override the SSAPR environment variable at run time by specifying the `SSAPR` control in a ssan3_open call.

PATH

Specifies the search path for executable programs and libraries. Include the absolute path for the SSA-NAME3 binary directory in the PATH environment variable.

For example, `C:\InformaticaIR\bin`.

SSA_LIHOST

Specifies the host name of the License Server and the port number on which the License Server listens.

For example, localhost:1660.

CHAPTER 2

Program Design

For information about the general design of the application programs that will need to call SSANAME3, refer to the *APPLICATION and DATABASE DESIGN GUIDE* sections:

- The Basic Process Flow
- The Basic Function Flow

The Basic API Sequences

An application using SSA-NAME3 Version 2 will normally make 5 API calls:

1. **ssan3_open()** to open a session to the SSA-NAME3 services
2. **ssan3_close()** to terminate an open session to SSA-NAME3
3. **ssan3_get_keys_encoded()** to build keys on names or addresses
4. **ssan3_get_ranges_encoded()** to get search ranges for names or addresses
5. **ssan3_match_encoded()** to compare and match two records

In addition, if using the SSA-NAME3 Server, it is necessary to make the following two calls to open and close the socket connections:

- **ssan3_connect()**
- **ssan3_disconnect()**

If used, the **ssan3_connect** call should be done prior to the **ssan3_open call**, and the **ssan3_disconnect** call done after the **ssan3_close call**.

Only one connect, open, close and disconnect call should be made during the active life of the application or thread, that is from when the time the application or thread is started to the time it is terminated. These calls should frame the rest of the work done by the application.

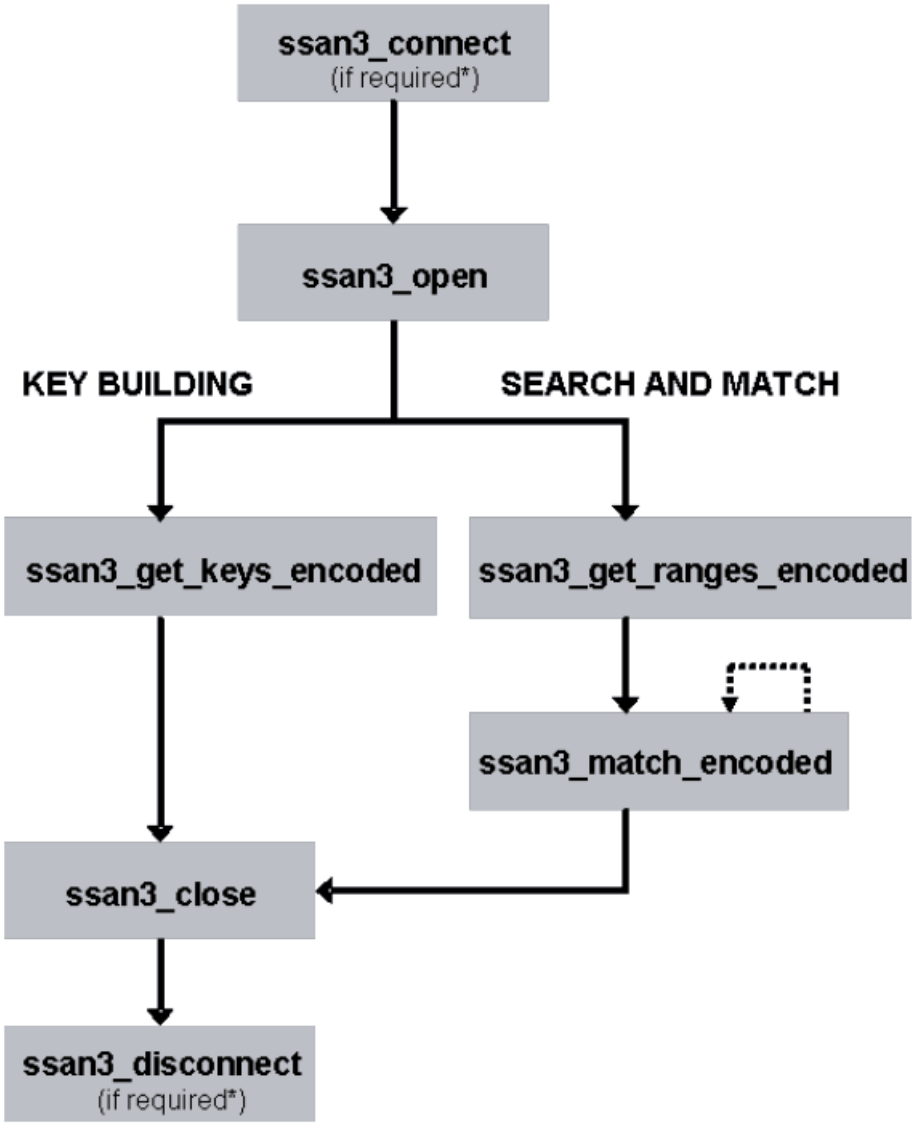
It is imperative that socket-handles and Session-IDs are not shared across concurrent transactions or threads.

In addition, if using the SSA-NAME3 Server and you wish to use 5-byte binary keys in order to save on disk space, it is necessary to make the following two calls to convert the 8-byte keys passed from the SSA-NAME3 Server:

- **ssan3_convert_keys()**
- **ssan3_convert_ranges()** If used, the **ssan3_convert_keys** call should be done after the **ssan3_get_keys_encoded** call, and the **ssan3_convert_ranges** call done after the **ssan3_get_ranges_encoded** call.

Note that some databases, programming languages and transport mechanisms will not support binary keys. If you are unsure, you need to contact Informatica Corporation.

At a very high level, the sequence of API's in an application using SSA-NAME3 is depicted as shown below:



SSA-NAME3 Sessions

SSA-NAME3 manages the resources it needs to satisfy API call requests in memory areas called "sessions". SSA-NAME3 acquires, manages and releases these memory areas.

A session is established explicitly, via an **ssan3_open** call, or implicitly, via any other call if SSANAME3 does not recognize the caller.

The establishment of a session goes through an initialization process. During this process, the specified Population Rules are loaded, and a work-area for SSA-NAME3's use is allocated. This is work that should happen as infrequently as possible, and this is to some extent under the control of the application designer.

It is important for performance that all of the function calls from the same transaction or process use the same session. In other words, calls to SSA-NAME3 from the same transaction or process for **ssan3_get_keys_encoded**, **ssan3_get_ranges_encoded**, and **ssan3_match_encoded**, will perform faster and use fewer resources if the same session is used during these calls.

One copy of SSA-NAME3 can handle 1024 sessions. In some cases, a large number of concurrent users, a large number of inactive sessions, or a large number of calls that do not properly re-use sessions, could lead to SSA-NAME3 running out of sessions.

If it is truly a large number of real concurrent users, then another copy of SSA-NAME3 may need to be started/loaded.

Otherwise, SSA-NAME3 will do its best to reuse sessions intelligently. However, if all else fails the SSA-NAME3 instance may need to be unloaded/reloaded or the SSA-NAME3 server re-started.

If a large number of users are expected to be using SSA-NAME3 services, it is recommended that the application be designed as a server process that manages a pool of available sessions for calling client applications.

Explicit Sessions

As said previously, it is recommended that an application open explicit sessions, as this provides more control over the system's resources and performance.

To request an explicit session, an **ssan3_open call** should be done passing a Session-ID of -1. This will cause a new valid Session-ID to be allocated and returned to the calling program (example, Session-ID 1048576), providing SSA-NAME3 with a handle to the initialized resources. It is this Session-ID (example, 1048576) that should be used for all subsequent SSA-NAME3 calls in the current transaction/ process in order for it to use the same session.

Do not pass a value of "-1" in the Session-ID field of a function unless you wish to force SSA-NAME3 to do an implicit **ssan3_open** again.

A session allocated through an **ssan3_open call** is locked and cannot be re-used by another session until released through the **ssan3_close call**, or by exceeding an inactivity time-out value as discussed below.

Once a session is finished with, it should be released through the **ssan3_close** call using the allocated Session-ID (example, 1048576). The Session-ID is then set to -1 by the **ssan3_close** call.

If it is likely to be common that sessions will be left open and become inactive, without being explicitly closed, then it is possible to control the length of time a session is held by SSA-NAME3. An inactivity time-out value (in seconds) may be passed in the **ssan3_open** call, or if using the SSA-NAME3 server, may be specified as a server start-up parameter. Once a period of inactivity has reached the time-out value, the session may be closed and reallocated to another caller. If the original caller tries to later reuse that session, it will be allocated a new Session-ID and cause the initialization process to be repeated.

Ephemeral Sessions

If an explicit **ssan3_open** call is not made, an implicit or "ephemeral" session is initiated for the calling application. An ephemeral session will be created if:

- The session id passed in any call is not known to SSA-NAME3
- The **ssan3_open** call does not pass a Session-ID value of -1

While ephemeral opens save the application from issuing the **ssan3_open** call, if SSA-NAME3 at some stage runs out of session handles, it may allocate a new session to an existing ephemeral session slot.

This means that the next call from the application who's ephemeral session was re-used will cause the initialization process to be repeated, and may lead to some performance degradation.

SSA-NAME3 will overwrite ephemeral sessions before checking for timed-out sessions.

Once a session is finished with, it should be released through the **ssan3_close** call.

Generating a Sample Program

It is recommended that the Sample Program feature of the Developer's Workbench be used to view language specific code examples. This is because the parameters required for each function, and the way they are specified, may vary depending on the programming language used.

CHAPTER 3

SSA-NAME3 Functions

This section describes the available `SSA-NAME3 V2 API` functions.

The calling conventions and parameters described in this section are intended to be a generic guide to programming. For programming language specific guidelines, refer to the Language Specific Guidelines chapter in conjunction after first familiarizing yourself with the ideas in this chapter.

Common Parameters

The following parameters are common to many of the API Functions.

Socket Handle

Only used if your application is calling the SSA-NAME3 Server, otherwise it should be set to `-1`. If using the SSA-NAME3 server, the **ssan3_connect** call will allocate a valid socket handle which should then be used on all subsequent calls.

Session ID

Should be either -1 on the **ssan3_open** call, if opening a new session, or a valid Session ID (as returned from **ssan3_open**) on any other call. For more information on Sessions, refer to SSA-NAME3 Sessions.

System

Qualifies and defines the location of the Population Rules to be used in the call. It corresponds to the name of the sub-directory (within the `pr` directory), or low-level extension of the PR dataset in z/OS environments, in which the Population Files (YSPs, YCPs or YLPs) are stored.

Population

The name of the Population rule set to be used. This generally corresponds to a Country/Language rule set (example, Australia, Brazil, UK, and USA); however, it could be any set of rules, especially if using a Custom Population (example, English Song Titles, or USA OFAC). Use the Population that corresponds to the data you are using. SSA-NAME3 will search for the Population in the location defined by the *SSAPR* environment variable and System parameter. It will search for Populations in the following order:

- `Population.ylp` (Local Population)
- `Population.ycp` (Custom Population)

- `Population.ysp` (Standard Population)

Controls

When calling many of the API functions, it is necessary to specify "Controls" to be used. These Controls define and refine the behaviour of the function. The format and content of the Controls will be dependent on the function being called and are described in the Controls section.

Response Code

Indicates the success or failure of a call to SSA-NAME3. A Response Code value of zero indicates a successful call. If the Response Code is not zero, then a description of the problem will be reported in the Error Message parameter.

Error Message

Refer to the section SSA-NAME3 Error Messages to see a list of possible messages.

Data

The SSA-NAME3 calls **ssan3_get_keys_encoded**, **ssan3_get_ranges_encoded** and **ssan3_match_encoded** all require data to work on. This is the user's identity data and will take the form of names, addresses, ID numbers, dates and other attributes. The name of the parameter for **ssan3_get_keys_encoded** and **ssan3_get_ranges_encoded** is Key Field Data, and for the **ssan3_match_encoded** call is Search Data and File Data.

Key Field Data contains the field value(s) to be used for the building of the SSA-NAME3 Keys when using the **ssan3_get_keys_encoded** function and for building search ranges when using the **ssan3_get_ranges_encoded** function.

Search Data contains the field value(s) from the search or transaction record (example, taken from a screen or input file) to be used to compare against the File data in an **ssan3_match_encoded** call.

File Data contains the field value(s) from the file record (example, the candidate record) to be used to compare against the Search data in an **ssan3_match_encoded** call.

The data fields required for each Key-Field or Match Purpose are shown in the Developer's Workbench for your Population.

Any field can be repeated. An example of a repeating field might be passing a person's current name and their former name in the one call for key-building.

The data can be provided by the calling application in either of two formats:
Tagged Data Format (the default)

The Tagged Data Format is the default method of supplying data in the **ssan3_get_keys_encoded**, **ssan3_get_ranges_encoded** and **ssan3_match_encoded** function calls.

By using the Tagged Data Format, the offsets and lengths of the data fields being passed do not need to be specified. Instead, a notation of field-names and delimiters is used to break up the fields. The field names are reserved words. The field names available for your Population rule-set can be found in the Developer's Workbench.

Note the use of the 3 delimiters to terminate the data. For example, if building keys for a Person's Name, the format would be similar to:

```
*Person_Name*Jane Smith***
```

Where `Person_Name` is the field name, the "*" is the delimiter, and "Jane Smith" is user-supplied data.

An example of building keys on a repeating field (in this case, current name and former name):

```
*Person_Name*Jane Smith*Person_Name*Jane Brown***
```

The following example shows the data supplied to an **ssan3_match** call for a Match Purpose that is using a person's name and address. The tagged data format for the `Search` and `File` Data will look like:

```
*Person_Name*Andrew Barker*Address_Part1*23 Acacia Drive
Sheffield*Address_Part2*Yorkshire
```

Where `Person_Name` and `Address_Part1` are the field names, the "*" is the delimiter, and the rest is user-supplied data.

A special format exists for Filters used in Multi-Purpose matching. This format is as follows:

```
*Filtern*<single value>
```

or

```
*Filtern(List(value1,value2,... valuen)
```

For more information on Filters, refer to the Controls section for the **ssan3_match** call.

By default the delimiter is an asterisk, however, it can be overridden by using the `DELIMITER=` Control in the appropriate function call.

If your data can contain asterisks, make sure that these are either cleaned out prior to calling the SSA-NAME3 functions, or use a different `DELIMITER=` setting.

Note: It is possible to pass redundant data as part of the Tagged Data Format string, meaning that the application program can make use of the same structure when calling **ssan3_get_keys**, **ssan3_get_ranges** or **ssan3_match**.

Scatter/Gather Format

A Scatter/Gather data format can also be used to supply data with the **ssan3_get_keys_encoded**, **ssan3_get_ranges_encoded** and **ssan3_match_encoded** function calls.

There are three formats:

```
Offset1,Length1,... ,Offsetn,Lengthn
```

and

```
Field1,Offset1,Length1,... ,Fieldn,Offsetn,Lengthn
Field1,Offset1,Length1,Encoding1... ,Fieldn,Offsetn,Lengthn,Encodingn
```

The first format may be used when passing Key Field Data to the **ssan3_get_keys_encoded** and **ssan3_get_ranges_encoded** calls. The second format must be used when passing Search Data and File Data to the **ssan3_match_encoded** call, and may also be used to pass Key Field Data. The third format can be used when passing Search Data and File Data to the **ssan3_match_encoded** call, and may also be used to pass Key Field Data.

Note: Lengths should be specified as number of bytes, not number of characters. This is important when passing data in multi-byte character sets such as Japanese or Unicode.

Following are all valid scatter / gather examples for passing `Key Field Data`:

```
FIELD=Person_Name Layout=0,50
```

Passes a single name, to be found at offset 0 in the `Key Field Data` parameter, for a length of 50.

```
FIELD=Person_Name Layout=0,50,50,50
```

Passes two names (example, a current name and a former name). The first name is found at offset 0 in the `Key Field Data` parameter, for a length of 50. The second name is found at offset 50 in the `Key Field Data`, also for a length 50.

```
FIELD=Person_Name Layout=Person_Name,0,50
```

Passes a single name, to be found at offset 0 in the `Key Field Data` parameter, for a length of 50.

```
FIELD=Person_Name
Layout=Person_Name,0,50,Person_Name,50,50
```

Passes two names (example, a current name and a former name). The first name is found at offset 0 in the `Key Field Data` parameter, for a length of 50. The second name is found at offset 50 in the `Key Field Data`, also for a length 50.

```
FIELD=Person_Name Layout=Person_Name,0,50,
Address_Part1,50,50
```

Passes a single name, to be found at offset 0 in the Key Field Data parameter, for a length of 50. `Address_Part1` is ignored.

The following example shows the valid scatter / gather formats for passing Search and File Data to the **ssan3_match_encoded** call:

```
PURPOSE=Resident Search=Person_Name,0,50,
Address_Part1,50,100,Address_Part2,150,50
File=Person_Name,0,50,Address_Part1,50,100,
Address_Part2,150,50
```

Passes a single name, to be found at offset 0 in the `Key Field Data` parameter, for a length of 50, a single street address, to be found at offset 50, for a length of 100, and a single locality line, to be found at offset 150, for a length of 50.

```
PURPOSE=Resident Search=Person_Name,0,50,
Person_Name,200,50,Address_Part1,50,100,
Address_Part2,150,50 File=Person_Name,0,50,
Person_Name,200,50,Address_Part1,50,100,
Address_Part2,150,50
```

Passes a single name (example, current name), to be found at offset 0 in the Key Field Data parameter, for a length of 50, a single street address, to be found at offset 50, for a length of 100, a single locality line, to be found at offset 150, for a length of 50, and another name (e.g. a former name), to be found at offset 200, for a length of 50.

```
PURPOSE=Resident Search=Organization_Name,0,50,
Person_Name,50,50,Address_Part1,100,100,
Address_Part2,200,50 File=Organization_Name,0,50,
Person_Name,50,50,Address_Part1,100,100,
Address_Part2,200,50
```

Passes a single name, to be found at offset 50 in the Key Field Data parameter, for a length of 50, a single street address, to be found at offset 100, for a length of 100, and a single locality line, to be found at offset 200, for a length of 50.

Note: `Organization_Name` is ignored as it is not used in the Resident Purpose.

```
PURPOSE=Resident Search=Organization_Name,0,50,8,
Person_Name,50,50,8,Address_Part1,100,100,8,
Address_Part2,200,50,8 File=Organization_Name,0,50,8,
Person_Name,50,50,8,Address_Part1,100,100,8,
Address_Part2,200,50,8
```

This is the same as the previous example except it also specifies the encoding for each field. In this example the encoding is '8' for UTF-8. The encoding can be different for each field. The values are as described for the `UNICODE_ENCODING¯` Control.

By using the syntax that includes the field name, it is possible to pass redundant fields which will be ignored by the function. The function will only access the fields needed by the Key Field Data or Match Purpose. In this way, the calling application can use a common data structure for **ssan3_get_keys_encoded**, **ssan3_get_ranges_encoded** and **ssan3_match_encoded**.

It is highly recommend that the scatter/gather format be used in all cases where the data is not in the same character set.

Field Limit

Whichever format is used to pass the data, either Tagged or Scatter/Gather, the maximum number of fields which may be passed in a single call is 256.

Data Limitations

The length for each field in the scatter/gather or tagged format is 2048. There is no limit to the total length of the Data Field other than that imposed by the programming language.

Data Length

The three SSA-NAME3 calls, **ssan3_get_keys_encoded**, **ssan3_get_ranges_encoded** and **ssan3_match_encoded** all require the length of the Data field to be supplied.

Data Type or Encoding

The three SSA-NAME3 calls, **ssan3_get_keys_encoded**, **ssan3_get_ranges_encoded** and **ssan3_match_encoded**, all require the data type or encoding. The encoding could be one of the Unicode encodings or a standard single or double byte character encoding.

The valid values for this field are:

Encoding	Meaning
TEXT	Data is not in a Unicode encoding
UTF-8	Unicode UTF-8 format
UTF-16	Unicode UTF-16 format
UTF-16LE	Unicode UTF-16 format Little Endian
UTF-16BE	Unicode UTF-16 format Big Endian
UTF-32	Unicode UTF-32 format
UCS-2	Same as Unicode UTF-16 format
UCS-4	Unicode UTF-32 format
CP932	Japanese CP932 Codepage (shift-JIS)
CP936	Chinese CP936 Codepage (GBK or Simplified Chinese)
CP949	Korean CP949 Codepage
CP950	Chinese CP950 Codepage (Big5 or Traditional Chinese)
UTF8	All keywords can be specified witout the "-"

There are short forms for these values:

Encoding	Meaning
Y	Unicode UTF-8 format
8	Unicode UTF-8 format
6	Unicode UTF-16 format
L	Unicode UTF-16LE format
B	Unicode UTF-16BE format
4	Unicode UCS-4 or UTF-32 format
J	Japanese CP932 codepage (Shift-JIS)
S	Chinese CP936 codepage (Simplified Chinese)
K	Korean CP949 codepage
T	Chinese CP950 codepage (Traditional Chinese)

Return Value

For those languages which support the returning of a value from a function, all the SSA-NAME3 API calls return a `Long`. If the call succeeded, the value will be zero. Otherwise, the value will be less than zero.

The first operation that the user program should perform after making a call to an SSA-NAME3 API is to check if the returned value is less than 0. If it is, then a catastrophic error has occurred and processing should not continue. If not less than zero, then the call was performed successfully, although a logical error may have been detected. E.g. an unknown keyword may have been found in the Controls parameter. This type of error is indicated by the Response Code field. For this reason, the user program should always check the Response Code field after checking that the returned value is not less than zero. Here is a snippet of C code to demonstrate:

```
rc = ssan3_open (sockh, session_id, sysName,
                                          population, controls,
                                          rsp_code,SSA_SI_RSP_SZ,
                                          n3_msg,SSA_SI_SSA_MSG_SZ);
if (rc < 0) {
                                      fprintf (stderr, "%s> Error %ld from ssan3_open
\n", prog, rc);
                                      exit (-17);
}
if (rsp_code[0] != '0') {
                                      fprintf (stderr, "%s> '%s'\n", prog, n3_msg);
                                      exit (-18);
}
/* do some more */
```

ssan3_connect

An optional function used to connect to an SSA-NAME3 Server through TCP/IP.

Parameters

Out	Socket Handle	Refer to the section Common Parameters
In	Host	IP Address or Name of remote computer
In	Port	Port Number SSA-NAME3 is Listening on [default is 1665]
Out	Response Code	Refer to the section Common Parameters
Out	Error Message	Refer to the section SSA-NAME3 Error Messages

For z/OS COBOL this function is named `SSACONN`.

ssan3_disconnect

An optional function used to disconnect from the SSA-NAME3 Server. This API can be used only if a **ssan3_connect** API was previously invoked.

Parameters

In	Socket Handle	Refer to the section Common Parameters
Out	Response Code	Refer to the section Common Parameters
Out	Error Message	Refer to the section SSA-NAME3 Error Messages

For z/OS COBOL this function is named `SSADISC`.

ssan3_open

This function opens and initiates an SSA-NAME3 session in preparation for using further API functions. It can also be used to set or override the *SSAPR* and *TIMEOUT* environment variables.

Parameters

In	Socket Handle	Refer to the Common Parameters section
Out	Session ID	Refer to the Common Parameters section
In	System	Refer to the Common Parameters section

In	Population	Refer to the Common Parameters section
In	Controls	Refer to the Controls section
Out	Response Code	Refer to the Common Parameters section
Out	Error Message	When Response Code is not zero, refer to the SSANAME3 Error Messages section. When `Response Code` is zero, this field will contain signatures of the core routine and population.

For z/OS COBOL this function is named `SSAOPEN`.

Note: The use of the `SSA-NAME3 CJK-SUPPORT` double-byte populations requires a separate license. Ensure you contact the local Informatica Corporation support office for details.

ssan3_close

This API closes the SSA-NAME3 session and releases memory. The session is then available for reuse.

Parameters

In	Socket Handle	Refer to the Common Parameters section
In/Out	Session ID	Refer to the Common Parameters section
In	System	Refer to the Common Parameters section
In	Population	Refer to the Common Parameters section
In	Controls	Refer to the Controls section
Out	Response Code	Refer to the Common Parameters section
Out	Error Message	Refer to the SSA-NAME3 Error Messages section

For z/OS COBOL this function is named `SSACLOSE`.

ssan3_get_keys_encoded

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA-NAME3 Key table. This is an extended version of the **ssan3_get_keys** function. It has two extra parameters that describe the length and type of the Key Field Data.

Parameters

In	Socket Handle	Refer to the Common Parameters section
In/Out	Session ID	Refer to the Common Parameters section
In	System	Refer to the Common Parameters section
In	Population	Refer to the Common Parameters section
In	Controls	Refer to the Controls section
Out	Response Code	Refer to the Common Parameters section
Out	Error Message	Refer to the SSA-NAME3 Error Messages section
In	Key Field Data	Refer to the Common Parameters section
In	Key Field Data Size	Refer to the Common Parameters section
In	Key Field Data Type or Encoding	Refer to the Common Parameters section
Out	Keys Count	A number defining the actual number of keys returned for this name or address
Out	Required Keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

When using `KEY_SIZE=5`, you will still allocate space for 8 byte keys, however the last 3 bytes of each key is unused.

For z/OS COBOL this function is not yet supported. Use the **ssan3_get_keys** function.

Limitations

Required Keys: **ssan3_get_keys** will return a maximum of 1024 keys. The `MAX_ENTRIES` Control can be used to specify a lower maximum value.

Key Size: 8 byte keys must be used in an application environment that uses the SSA-NAME3 server.

ssan3_get_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA-NAME3 Key table.

This function has been replaced by **ssan3_get_keys_encoded**.

Parameters

In	Socket Handle	Refer to the Common Parameters section
In/Out	Session ID	Refer to the Common Parameters section
In	System	Refer to the Common Parameters section
In	Population	Refer to the Common Parameters section
In	Controls	Refer to the Controls section
Out	Response Code	Refer to the Common Parameters section
Out	Error Message	Refer to the SSA-NAME3 Error Messages section
In	Key Field Data	Refer to the Common Parameters section
Out	Keys Count	A number defining the actual number of keys returned for this name or address
Out	Required Keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

For z/OS COBOL this function is named `GETKEYS`.

When using `KEY_SIZE=5`, you will still allocate space for 8 byte keys, however the last 3 bytes of each key is unused.

Limitations

Required Keys: **ssan3_get_keys** will return a maximum of 1024 keys. The `MAX_ENTRIES` Control can be used to specify a lower maximum value.

Key Size: 8 byte keys must be used in an application environment that uses the SSA-NAME3 server.

ssan3_convert_keys

An optional function used to convert the SSA-NAME3 8-byte Keys, passed from the SSA-NAME3 Server, into 5-byte binary Keys. You may choose to store 5-byte binary Keys in order to save on disk space.
Note that some databases, programming languages and transport mechanisms will not support binary keys. If you are unsure, please contact Informatica Corporation.

Parameters

In	Socket Handle	Refer to the Common Parameters section
In	Keys Count	A number defining the actual number of keys to be converted
In	8-byte Keys	An array of 8-byte keys, containing the number of keys defined in Keys Count

In	8-byte Keys Size	Size of the array of 8-byte keys in bytes
Out	5-byte Keys	An array of 5-byte keys, containing the number of keys defined in Keys Count
In	5-byte Keys Size	Size of the array of 5-byte keys
Out	Response Code	Refer to the Common Parameters section
Out	Error Message	Refer to the SSA-NAME3 Error Messages section

For z/OS COBOL this function is named `CONVKEYS`. Refer to the sample code for more information.

ssan3_get_ranges_encoded

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA-NAME3 Key table. This is an extended version of the **ssan3_get_ranges** function. It has two extra parameters that describe the length and type of the Key Field Data.

Parameters

In	Socket Handle	Refer to the Common Parameters section
In/Out	Session ID	Refer to the Common Parameters section
In	System	Refer to the Common Parameters section
In	Population	Refer to the Common Parameters section
In	Controls	Refer to the **ssan3_get_keys_encoded** Controls section
Out	Response Code	Refer to the Common Parameters section
Out	Error Message	Refer to the SSA-NAME3 Error Messages section
In	Key Field Data	Refer to the Common Parameters section
In	Key Field Data Size	Refer to the Common Parameters section
In	Key Field Data Type or Encoding	Refer to the Common Parameters section
Out	Ranges Count	A number defining the actual number of key ranges returned for this name or address
Out	Ranges Array	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address.

Contained in the `Ranges Array` will be a set of "Start" and "End" Key values. These should be used by the calling program to form a set of SQL select statements, or one SQL select statement with a number of `OR's`.

For example, the `Ranges Array` may contain the following Ranges:

```
Range #1: Y/$$$$$$ Y/$$$$$/
Range #2: WR$$$$$$ WR$$$$$/
```

In which case the calling program will select records from the SSA-NAME3 Key Table where SSANAME3 Key values are:

```
GREATER THAN OR EQUAL TO "Y/$$$$$$" AND LESS THAN OR EQUAL TO "Y/$$$$$/"
OR
GREATER THAN OR EQUAL TO "WR$$$$$$" AND LESS THAN OR EQUAL TO "WR$$$$$/".
```

When using `KEY_SIZE=5`, you will still allocate space for 8 byte key ranges (that is, 16 bytes), however the last 6 bytes of each range pair is unused (that is, only the first 10 bytes are used).

For z/OS COBOL this function is not yet supported. Use the **ssan3_get_ranges** function.

Limitations

Required Ranges: **ssan3_get_ranges_encoded** will return a maximum of 1024 ranges. The `MAX_ENTRIES` Control can be used to specify a lower maximum value.

Key Size: 8 byte keys must be used in an application environment that uses the SSA-NAME3 server.

ssan3_get_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA-NAME3 Key table.

This function has been replaced by **ssan3_get_ranges_encoded**.

Parameters

For z/OS COBOL this function is named `GETRNGES`.

Contained in the `Ranges Array` will be a set of "Start" and "End" Key values. These should be used by the calling program to form a set of SQL select statements, or one SQL select statement with a number of `OR's`.

For example, the `Ranges Array` may contain the following Ranges:

```
Range #1: Y/$$$$$$ Y/$$$$$/
Range #2: WR$$$$$$ WR$$$$$/
```

In which case the calling program will select records from the SSA-NAME3 Key Table where SSANAME3 Key values are:

```
GREATER THAN OR EQUAL TO "Y/$$$$$$" AND LESS THAN OR EQUAL TO "Y/$$$$$/"
OR
GREATER THAN OR EQUAL TO "WR$$$$$$" AND LESS THAN OR EQUAL TO "WR$$$$$/"
```

When using `KEY_SIZE=5`, you will still allocate space for 8 byte key ranges (that is, 16 bytes), however the last 6 bytes of each range pair is unused (that is, only the first 10 bytes are used).

Limitations

Required Ranges: **ssan3_get_ranges** will return a maximum of 1024 ranges. The `MAX_ENTRIES` Control can be used to specify a lower maximum value.

Key Size: 8 byte keys must be used in an application environment that uses the SSA-NAME3 server.

ssan3_convert_ranges

An optional function used to convert the SSA-NAME3 8-byte Key Ranges, passed from the SSANAME3 Server, into 5-byte binary Key Ranges. You will use this function if you have stored SSANAME3 5-byte binary Keys on your database.

Parameters

For z/OS COBOL this function is named `CONVRNGS`.

ssan3_match_encoded

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges_encoded** call, **ssan3_match_encoded** is called to further qualify the candidate records.

Parameters

For z/OS COBOL this function is not yet supported. Use the **ssan3_match** function.

ssan3_match

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

This function has been replaced by **ssan3_match_encoded**.

Parameters

For z/OS COBOL this function is named `SSAMATCH`.

ssan3_info

Returns Information regarding the selected `System` and `Population`.

Parameters

For z/OS COBOL this function is named `SSAINFO`.

CHAPTER 4

Language Specific Guidelines

This chapter provides tips and techniques when programming using specific programming languages. It should be read in conjunction with the sample code generated from the Developer's Workbench as well as the information provided in the Functions chapter.

Data Types

The section discusses the SSA-NAME3 data types used in this document. The *Language Specific Bindings* section describes the mapping between the SSA-NAME3 data types and the native data types used for specific programming languages.

Strings

The `String` data-type is a variable length piece of memory, terminated with a NUL character (0x00).

When using a `String` as an input parameter there is no need to explicitly tell SSA-NAME3 how long it is because SSA-NAME3 can detect its length.

When the API returns a `String` as an output parameter, the caller must allocate memory for it and in some programming languages, tell SSA-NAME3 how long it is. For example, in C it is not possible to detect how long a piece of memory is, so the caller must pass two parameters:

- the address of the memory, and
- its length.

SSA-NAME3 uses this information to prevent overwriting unallocated memory (which would result in GPF or core dump).

String Arrays

A `StringArray` is an array of Strings. It consists of an array of pointers, with each pointer pointing to a String. A String Array is usually passed through the API using three parameters:

- address of the array of pointers,
- number of pointers in the array, and
- the length of each String.

Note that since there is provision for only one length value, all Strings must be the same length.

Blocks

A `Block` data-type is a fixed length piece of memory. It is not NUL terminated. If a value is not long enough to fill the entire Block, the Block should be padded with spaces on the right. Since SSANAME3 cannot detect how long the memory is, Blocks are usually passed through the API using two parameters:

- a pointer to the memory, and
- the length of the Block

Block Arrays

A `BlockArray` is an array of Blocks. It consists of an array of pointers, with each pointer pointing to a Block. A Block Array is usually passed through the API using three parameters:

- address of the array of pointers,
- number of pointers in the array, and
- the length of each Block.

Note: Since there is provision for only one length value, all Blocks must be the same length.

Nulls and NULs

Some programming languages permit the use of Null pointers (such as C). Null pointers must never be passed as arguments to any API functions. If you do not wish to provide a value for an argument, use a `NUL` terminated (0x00) string instead (a zero-length, empty string).

Language Specific Bindings

Sample programs can be generated from the Developer's Workbench in the following programming languages:

- C
- C#
- C++
- Cobol (CICS)
- Cobol (z/OS)
- Java
- Microsoft SQL Server
- Perl
- PL/I (z/OS)
- Visual Basic 6
- VB.NET

Calling from C

ssan3_addr_get_cass_field

Use this function to retrieve cass specific address fields.

Prototype

```
long ssan3_addr_get_class_field (
          long    sockh ,           // Long in
          long    *session ,        // Long io
          char    *rsp ,            // String out
          long    rsp_size ,
          char    *ssaMsg ,         // String out
          long    ssaMsg_size ,
          long    suggest_idx ,     // Long in
          long    field_idx ,       // Long in
          char    *field_value ,    // Block out
          long    field_value_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a cass field
field_idx	Specifies a cass field within the nth suggestion
field_value	The cass field value

Return Code

negative for error, 0 for success

ssan3_addr_get_cass_field_cnt

Use this function to determine the max number of cass address fields

Prototype

```
long ssan3_addr_get_cass_field_cnt (
          long    sockh ,        // Long in
          long    *session ,     // Long io
          char    *rsp ,         // String out
          long    rsp_size ,
          char    *ssaMsg ,      // String out
          long    ssaMsg_size ,
          long    *count         // Long out
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of cass address fields

Return Code

negative for error, 0 for success

ssan3_addr_get_cass_field_info

Use this function to retrieve information about a suggestion.

Prototype

```
long ssan3_addr_get_cass_field_info (
          long    sockh ,            // Long in
          long    *session ,         // Long io
          char    *rsp ,             // String out
          long    rsp_size ,
          char    *ssaMsg ,          // String out
          long    ssaMsg_size ,
          long    suggest_idx ,      // Long in
          long    *field_length ,    // LongArray out
          long    field_length_num
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each cass address field

Return Code

negative for error, 0 for success

ssan3_addr_get_del_lines

Use this function to retrieve delivery address line information, This function is deprecated, use **addr_get_del_lines_ext** instead

Prototype

```
long ssan3_addr_get_del_lines (
          long    sockh ,             // Long in
          long    *session ,          // Long io
          char    *rsp ,              // String out
          long    rsp_size ,
          char    *ssaMsg ,           // String out
          long    ssaMsg_size ,
          long    suggest_idx ,       // Long in
          char    *del_line 1 ,       // Block out
          long    del_line 1_size ,
          char    *del_line 2 ,       // Block out
          long    del_line 2_size ,
          char    *del_line 3 ,       // Block out
          long    del_line 3_size ,
          char    *del_line 4 ,       // Block out
          long    del_line 4_size ,
          char    *del_line 5 ,       // Block out
          long    del_line 5_size ,
          char    *del_line 6 ,       // Block out
          long    del_line 6_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameter section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_line1	Delivery address line 1 output string
del_line2	Delivery address line 2 output string
del_line3	Delivery address line 3 output string
del_line4	Delivery address line 4 output string
del_line5	Delivery address line 5 output string
del_line6	Delivery address line 6 output string

Return Code

negative for error, 0 for success

ssan3_addr_get_del_lines_ext

Use this function to retrieve delivery address line information.

Prototype

```
long ssan3_addr_get_del_lines_ext (
          long                sockh ,             // Long in
```

```
            long     *session ,            // Long io
            char     *rsp ,                // String out
            long                rsp_size ,
            char     *ssaMsg ,             // String out
            long                ssaMsg_size ,
            long                suggest_idx ,         // Long in
            long                del_case ,            // Long in
            char     *del_line 1 ,         //    Block out
            long                del_line 1_size ,
            char     *del_line 2 ,         // Block out
            long     del_line 2_size ,
            char     *del_line 3 ,         // Block out
            long     del_line 3_size ,
            char     *del_line 4 ,         // Block out
            long     del_line 4_size ,
            char     *del_line 5 ,         // Block out
            long     del_line 5_size ,
            char     *del_line 6 ,         // Block out
            long     del_line 6_size
    ) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_case	Specifies delivery address line case option value. The allowed values are 0 = Unchanged, 1= Upper case, 2 = Lower case and 3 = Mixed case.
del_line1	Delivery address line 1 output string
del_line2	Delivery address line 2 output string
del_line3	Delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

ssan3_addr_get_field

Use this function to retrieve validated address fields.

Prototype

```
long ssan3_addr_get_field (
                                long
sockh ,                                                 / /     Long in
```

```
                                    long *
session ,                                 / /         Long io
                                    char *
rsp ,                                                 / /             String out
                                    long                rsp_size ,
                                    char *
ssaMsg ,                                 / /                String out
                                    long                ssaMsg_size ,
                                    long
suggest_idx ,     / /                        Long in
                                    long
field_idx ,         / /                           Long in
                                    char *         field_value , / /
Block out
                                    long                field_value_size ,
                                    long *   field_val_status , / /  Long out
                                    long *   field_val_mods / /      Long out
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field
field_value	The field value
field_idx	Specifies a field within the nth suggestion
field_val_status	Specifies how this field matched the validation data
field_val_mods	Specifies how this field was modified by validation data

Return Code

negative for error, 0 for success

ssan3_addr_get_field_count

Use this function to determine the max number of address fields.

Prototype

```
long ssan3_addr_get_field_count (
          long       sockh ,       / / Long in
          long *     session ,    / /  Long io
          char *     rsp ,       / /   String out
          long       rsp_size ,
          char *     ssaMsg ,   / /    String out
          long       ssaMsg_size ,
          long *     count     / /     Long out
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of address fields

Return Code

negative for error, 0 for success

ssan3_addr_get_field_ext

Use this function to retrieve all getter fields.

Prototype

```
long ssan3_addr_get_field_ext (
                                        long
sockh ,                                 / / Long in
                                        long *   session ,             / /  Long io
           char *   rsp ,                / /   String out
           long     rsp_size ,
           char *   ssaMsg ,            / /    String out
                                        long                 ssaMsg_size ,
                                        long
suggest_idx ,      / /        Long in
                                        long
field_operation , / /      Long in
                                        char *   field_name ,     / /       String in
           long     field_item_line , / /      Long in
           char *   field_type ,     / /       String in
                                        char *   field_value ,    / /       Block out
           long     field_value_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get fields
field_operation	Field operation Option 0 for AddressElements Option 1 for AddressLines Option 2 for AddressComplete Option 3 for EnrichmentData Option 4 for ResultDataParameter Option 5 for EnrichmentDataStatus
field_name	Refer AD `Result.dtd` for field names

field_item_line	Represent field line number or field item number
field_type	Refer AD `Result.dtd` for field attribute Type
field_value	Cleansed field output

Return Code

negative for error, 0 for success

ssan3_addr_get_field_idx

Use this function to retrieve individual address fields.

Prototype

```
long ssan3_addr_get_field_idx (
                                          long
sockh ,                                                / / Long in
                                          long *
session ,                                   / /     Long io
                                          char *
rsp ,                                               / /         String out
                                          long                  rsp_size ,
                                          char *
ssaMsg ,                                 / /              String out
                                          long                  ssaMsg_size ,
                                          long
suggest_idx ,          / /                Long in
                                          long
field_idx ,              / /                   Long in
                                          char *
field_value , / /                        Block out
                                          long                  field_value_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field. On successful parse, use 0 for ASM for AD version 4, 1 for ASM for AD version 5
field_idx	Specifies a field within the nth suggestion
field_value	The field value

Return Code

negative for error, 0 for success

ssan3_addr_get_field_info_ext

Use this function to retrieve information about a suggestion

Prototype

```
long ssan3_addr_get_field_info_ext (

long
sockh ,                                                 / /  Long in
                                                                long
*                    session ,                                   / /      Long io
                                                                char
*                    rsp ,                                                / /
String out

long                              rsp_size ,
                                                                char
*                    ssaMsg ,                                 / /              String out

long                              ssaMsg_size ,

long                              suggest_idx ,      / /                  Long in
                long *      field_length , / /       LongArray out
                long        field_length_num ,
                char *      addr_label_encoded , / / Block out
                long        addr_label_encoded_size ,
                char *      addr_label_charset , / / String out
                long        addr_label_charset_size ,
                long *      score               / / Long out
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each address field
addr_label_encoded	The returned label
addr_label_charset	The character set used in the address label
score	The returned label's score

Return Code

negative for error, 0 for success

ssan3_addr_get_field_len

Use this function to determine the max field length

Prototype

```
long ssan3_addr_get_field_len (
                                        long
sockh ,                               / / Long in
                                        long *
session ,                     / /     Long io
                                        char *     rsp ,          / /   String out
           long       rsp_size ,
                                        char *     ssaMsg ,      / /    String out
           long       ssaMsg_size ,
           long *     max_len     / /     Long out
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max address field length in bytes

Return Code

negative for error, 0 for success

ssan3_addr_get_line_len

Prototype

```
long ssan3_addr_get_line_len (
                                        long
sockh ,                       / /         Long in
                                        long *
session ,          / /             Long io
                                        char *   rsp ,       / /     String out
           long     rsp_size ,
                                        char *
ssaMsg ,     / /                    String out
           long     ssaMsg_size ,
           long *   max_len / /        Long out
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max line length in bytes

Return Code

negative for error, 0 for success

ssan3_addr_get_option

Use this function to set optional parameters.

Prototype

```
long ssan3_addr_get_option (
                                                long
sockh ,                                  / /            Long in
                                                long *    session ,      / /     Long io
                                                char *
rsp ,                                    / /                    String out
            long      rsp_size ,
            char *    ssaMsg ,     / /       String out
            long      ssaMsg_size ,
            char *    param,       / /       String in
            char *    value ,    / /         String out
            long      value_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to get.
value	Returns the value for the option.

Return Code

negative for error, 0 for success

ssan3_addr_init

Use this function to initialize the Address Standarization interface.

Prototype

```
long ssan3_addr_init (
           long      sockh ,       / / Long in
           long *    session ,    / /  Long io
           char *    rsp ,       / /   String out
           long      rsp_size ,
           char *    ssaMsg ,    / /   String out
           long      ssaMsg_size ,
           long      max_memory / /    Long in
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_memory	This field specifies the maximum amount of memory (MB) to be used by the Address Standarization engine

Return Code

negative for error, 0 for success

ssan3_addr_parse

Use this function to parse an address.

Prototype

```
long ssan3_addr_parse (
           long     sockh ,            / /    Long in
           long *   session ,         / /     Long io
           char *   rsp ,            / /      String out
           long     rsp_size ,
           char *   ssaMsg ,        / /       String out
           long     ssaMsg_size ,
           long *   field_length , / /        LongArray out
           long     field_length_num
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_length	An array containing the length of each parsed field

Return Code

negative for error, 0 for success

ssan3_addr_preload_country

Use this function to preload country database.

Prototype

```
long ssan3_addr_preload_country (
```

```
                long      sockh ,                / / Long in
                long *    session ,             / /  Long io
                char *    rsp ,                / /   String out
                long      rsp_size ,
                char *    ssaMsg ,           / /    String out
                long      ssaMsg_size ,
                char *    preload_type ,     / /     String in
                char *    preload_country , / /      String in
                char *    val_mode         / /       String in
    ) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
preload_type	type of preload to perform
preload_country	country database to be preloaded
val_mode	This field specified validation mode

Return Code

negative for error, 0 for success

ssan3_addr_set_attrib

Use this function to specify the character set of the data and a default country.

Prototype

```
    long ssan3_addr_set_attrib (
                  long      sockh ,               / / Long in
                  long *    session ,            / /  Long io
                  char *    rsp ,               / /   String out
                  long      rsp_size ,
                  char *    ssaMsg ,           / /    String out
                  long      ssaMsg_size ,
                  char *    char_set ,        / /     String in
                  char *    default_count ry / /      String in
    ) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

char_set	The name of the character set used to encode the input and output.
default_country	The default country used for validation when parsing cannot detect a country name.

Return Code

negative for error, 0 for success

ssan3_addr_set_del_lines

Use this function to set delivery address line information.

Prototype

```
long ssan3_addr_set_del_lines (
          long          sockh ,        / /  Long in
          long *        session ,     / /   Long io
          char *        rsp ,        / /    String out
          long          rsp_size ,
          char *        ssaMsg ,    / /     String out
          long          ssaMsg_size ,
          char *        del_line1 , / /     Block in
          long          del_line1_size ,
          char *        del_line2 , / /     Block in
          long          del_line2_size ,
          char *        del_line3 , / /     Block in
          long          del_line3_size ,
          char *        del_line4 , / /     Block in
          long          del_line4_size ,
          char *        del_line5 , / /     Block in
          long          del_line5_size ,
          char *        del_line6 , / /     Block in
          long          del_line6_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
del_line1	delivery address line 1 input string
del_line2	delivery address line 2 input string
del_line3	delivery address line 3 input string
del_line4	delivery address line 4 input string
del_line5	delivery address line 5 input string
del_line6	delivery address line 6 input string

Return Code

negative for error, 0 for success

ssan3_addr_set_field_case

Use this function to set individual input fields case option

Prototype

```
long ssan3_addr_set_field_case (

long                                        sockh ,                             / /
Long in
                                                                        long
*                                  session ,     / /  Long io
                char *         rsp ,        / /   String out
                long           rsp_size ,
                char *         ssaMsg ,    / /    String out
                long           ssaMsg_size ,
                long           field_idx , / /    Long in
                long           field_case / /     Long in
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_case	Specifies output field case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case.

Return Code

negative for error, 0 for success

ssan3_addr_set_field_idx

Use this function to set individual input fields by idx

Prototype

```
long ssan3_addr_set_field_idx (
                                          long
sockh ,                                / / Long in
                                          long *            session ,         / /
Long io
           char *   rsp ,             / /   String out
           long     rsp_size ,
           char *   ssaMsg ,         / /    String out
           long     ssaMsg_size ,
           long     field_idx ,     / /     Long in
           char *   field_value , / /       Block in
```

```
            long     field_value_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_value	Specifies a value for the nth field

Return Code

negative for error, 0 for success

ssan3_addr_set_field_name

Use this function to set individual input fields by name

Prototype

```
long ssan3_addr_set_field_name (
long   sockh ,           / /  Long in
long * session ,        / /   Long io
char * rsp ,           / /    String out
long   rsp_size ,
char * ssaMsg ,       / /     String out
long   ssaMsg_size ,
char * field_name ,  / /      String in
char * field_value , / /      Block in
long   field_value_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_name	Specifies the name of the field to set
field_value	Specifies a value for the field

Return Code

negative for error, 0 for success

ssan3_addr_set_lines

Use this function to provide an address to parse or validate

Prototype

```
long ssan3_addr_set_lines (
long    sockh ,              / / Long in
long *  session ,           / /  Long io
char *  rsp ,              / /   String out
long    rsp_size ,
char *  ssaMsg ,          / /    String out
long    ssaMsg_size ,
char *  line_1 ,         / /     Block in
long    line_1_size ,
char *  line_2 ,        / /      Block in
long    line_2_size ,
char *  line_3 ,       / /       Block in
long    line_3_size ,
char *  line_4 ,      / /        Block in
long    line_4_size ,
char *  line_5 ,     / /         Block in
long    line_5_size ,
char *  line_6 ,    / /          Block in
long    line_6_size ,
char *  line_7 ,   / /           Block in
long    line_7_size ,
char *  line_8 , / /             Block in
long    line_8_size ,
char *  line_9 , / /             Block in
long    line_9_size ,
char *  line_10 , / /            Block in
long    line_10_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
line_1	The first line of the address
line_2	The second line of the address
line_3	The third line of the address
line_4	The fourth line of the address
line_5	The fifth line of the address
line_6	The sixth line of the address
line_7	The seventh line of the address
line_8	The eighth line of the address

line_9	The ninth line of the address
line_10	The tenth line of the address

Return Code

negative for error, 0 for success

ssan3_addr_set_option

Use this function to set optional parameters

Prototype

```
long ssan3_addr_set_option (
long   sockh ,            / / Long in
long * session ,         / /  Long io
char * rsp ,            / /   String out
long   rsp_size ,
char * ssaMsg ,        / /    String out
long   ssaMsg_size ,
char * param,         / /     String in
char * value         / /      String in
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to set.
value	This field specifies a value for the option.

Return Code

negative for error, 0 for success

ssan3_addr_validate

Use this function to validate an address.

Prototype

```
long ssan3_addr_validate (
long    sockh ,          / / Long in
long *  session ,       / /  Long io
char *  rsp ,          / /   String out
long    rsp_size ,
char *  ssaMsg ,     / /    String out
long    ssaMsg_size ,
long *  status ,    / /      Long out
```

```
long *  n_suggest / /       Long out
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
status	The status returned by the validation process
n_suggest	The number of suggestions generated by validation

Return Code

negative for error, 0 for success

ssan3_close

Closes the SSA session and deallocates memory. Similarly to **ssa_open**, it is optional.

Prototype

```
long ssan3_close (
long   sockh ,          / / Long in
long * session ,       / /  Long io
char * system ,       / /   String in
char * population ,  / /    String in
char * controls ,   / /     String in
char * rsp ,       / /      String out
long   rsp_size ,
char * ssaMsg ,   / /       String out
long   ssaMsg_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_connect

Initiates a socket.

Prototype

```
long    ssan3_connect (
char *  host ,        / /   String in
long    port ,       / /    Long in
long *  sockh       / /     Long out
) ;
```

Parameters

host	This is the host to connect to.
port	This is the port to connect to.
sockh	This is a socket handle.

Return Code

negative for error, 0 for success

ssan3_convert_keys

Used to convert 8 byte keys (from server) to 5 byte keys (for client).

Prototype

```
long ssan3_convert_keys (
long    sockh ,         / / Long in
char ** keys8 ,        / /  StringArray in
long    keys8_num ,
char ** keys5 ,       / /   BlockArray out
long    keys5_num ,
long    keys5_s ize ,
char *  rsp ,       / /     String out
long    rsp_size ,
char *  ssaMsg ,   / /      String out
long    ssaMsg_size
) ;
```

Parameters

sockh	This is the socket to use for the call
keys8	block of 8 byte keys to be converted
keys5	block of 5 byte keys (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_convert_ranges

Used to convert 8 byte ranges (from server) to 5 byte ranges (for client).

Prototype

```
long ssan3_convert_ranges (
long     sockh ,         / / Long in
char **  ranges8 ,      / /  StringArray in
long     ranges8_num ,
char **  ranges5 ,     / /   BlockArray out
long     ranges5_num ,
long     ranges5_s ize ,
char *   rsp ,         / /    String out
long     rsp_size ,
char *   ssaMsg , / /        String out
long     ssaMsg_size
) ;
```

Parameters

sockh	This is the socket to use for the call
ranges8	block of 8 byte ranges to be converted
ranges5	block of 5 byte ranges (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_disconnect

Releases resources allocated to a socket.

Prototype

```
long ssan3_disconnect (
long sockh / / Long in
) ;
```

Parameters

sockh	This is the socket to use for the call

Return Code

negative for error, 0 for success

ssan3_errors_get_all

Get the Server side error messages from the last API function that failed. This function should be called repeatedly until it returns 1, meaning all messages have been retrieved.

Note: If a communication (socket) error occurred, this function will also fail. Refer to the *OPERATIONS MANUAL, Error Log* section for information on interpreting the Error Log.

Prototype

```
long ssan3_errors_get_all (
long   sockh ,       / / Long in
char * msg ,        / /  String out
long   msg_size
) ;
```

Parameters

sockh	This is the socket to use for the call
msg	This is an error message.

Return Code

negative for error, 0 for success

ssan3_get_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
long ssan3_get_keys (
long    sockh ,          / / Long in
long *  session ,       / /  Long io
char *  system ,       / /   String in
char *  population , / /     String in
char *  controls ,  / /      String in
char *  rsp ,       / /      String out
long    rsp_size ,
char *  ssaMsg , / /         String out
long    ssaMsg_size ,
char *  data , / /           String in
long *  count , / /          Long out
char ** keys , / /           StringArray out
long    keys_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the KEY_SIZE Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_keys_encoded

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
long ssan3_get_keys_encoded (
long    sockh ,          / / Long in
long *  session ,       / /  Long io
char *  system ,       / /   String in
char *  population ,  / /    String in
char *  controls ,   / /     String in
char *  rsp ,       / /      String out
long    rsp_size ,
char *  ssaMsg ,   / /       String out
long    ssaMsg_size ,
char *  data ,    / /        EncodedString in
long    dataSize ,
char *  dataEncType ,
long *  count , / /          Long out
char ** keys , / /           StringArray out
long    keys_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address keys An array of 8 or 5-byte keys, depending on the setting of the KEY_SIZE Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
long ssan3_get_ranges (
long    sockh ,         / / Long in
long *  session ,      / /  Long io
char *  system ,      / /   String in
char *  population , / /    String in
char *  controls ,  / /     String in
char *  rsp ,       / /     String out
long    rsp_size ,
char *  ssaMsg , / /        String out
long    ssaMsg_size ,
char *  data , / /          String in
long *  count , / /         Long out
char ** stab , / /          StringArray out
long    stab_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the KEY_SIZE Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_ranges_encoded

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
long ssan3_get_ranges_encoded (
long    sockh ,          / / Long in
long *  session ,       / /  Long io
char *  system ,       / /   String in
char *  population , / /     String in
char *  controls ,  / /      String in
char *  rsp ,       / /      String out
long    rsp_size ,
char *  ssaMsg , / /         String out
long    ssaMsg_size ,
char *  data , / /           EncodedString in
long    dataSize ,
char *  dataEncType ,
long *  count , / /          Long out
char ** stab , / /           StringArray out
long    stab_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the KEY_SIZE Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_info

Returns Information regarding the selected System and Population.

Prototype

```
long ssan3_info (
long   sockh ,          / / Long in
long *   session ,       / /  Long io
char *   system ,       / /   String in
char *   population , / /     String in
char *   cont rol s , / /     String in
char *   rsp ,        / /     String out
long     rsp_size ,
```

```
char *   ssaMsg , / /        String out
long     ssaMsg_size ,
long *   count , / /         Long out
char **  info , / /          StringArray out
long     info_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	A number defining the number of rows in the Items Array info An array of 1024 byte rows, containing the data returned for the specific **ssan3_info** call

Return Code

negative for error, 0 for success

ssan3_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
long ssan3_keys (
long    sockh ,            / / Long in
long *  session ,         / /  Long io
char *  system ,         / /   String in
char *  population ,    / /    String in
char *  controls ,     / /     String in
char *  rsp ,         / /      String out
long    rsp_size ,
char *  ssaMsg ,     / /       String out
long    ssaMsg_size ,
char *  data ,      / /        Block in
long    data_size ,
char *  encoding , / /         String in
long *  count ,   / /          Long out
char ** keys ,   / /           BlockArray out
long    keys_num,
long    keys_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of keys returned for this name or address
keys	An array of keys returned for this name or address

Return Code

negative for error, 0 for success

ssan3_match

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
long ssan3_match (
long   sockh ,              / / Long in
long * session ,           / /  Long io
char * system ,           / /   String in
char * population ,      / /    String in
char * controls ,       / /     String in
char * rsp ,           / /      String out
long   rsp_size ,
char * ssaMsg ,       / /       String out
long   ssaMsg_size ,
char * search ,      / /        String in
char * file ,       / /         String in
char * score ,     / /          String out
long   score_size ,
char * decision , / /           String out
long   decision_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	refer to CommonParameters section.
file	refer to CommonParameters section.
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3_match_encoded

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
long ssan3_match_encoded (
long   sockh ,          / / Long in
long   sockh ,         / /  Long in
long * session ,      / /   Long io
char * system ,      / /    String in
char * population , / /     String in
char * controls ,  / /      String in
char * rsp ,      / /       String out
long   rsp_size ,
char * ssaMsg , / /         String out
long   ssaMsg_size ,
char * search , / /         EncodedString in
long   searchSize ,
char * searchEncType ,
char * file , / /           EncodedString in
long   fileSize ,
char * fileEncType ,
char * score , / /          String out
long   score_size ,
char * decision , / /       String out
long   decision_ s i z e
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section.
file	Refer to the Common Parameters section.
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3_open

An optional function, but its use will improve performance. It opens and initiates an SSA-NAME3 session in preparation.

Prototype

```
long ssan3_open (
long   sockh ,          / / Long in
long * session ,       / /  Long io
char * system ,       / /   String in
char * population , / /     String in
char * controls ,  / /      String in
char * rsp ,       / /      String out
long   rsp_size ,
char * ssaMsg , / /         String out
long   ssaMsg_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section

population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
long ssan3_ranges (
long   sockh ,          / / Long in
long *  session ,       / /  Long io
char *  system ,       / /   String in
char *  population , / /     String in
char *  cont rol s , / /     String in
char *  rsp ,        / /     String out
long    rsp_size ,
char *  ssaMsg ,    / /      String out
long    ssaMsg_size ,
char *  data ,     / /       Block in
long    data_size ,
char *  encoding , / /       String in
long *  count , / /          Long out
char ** stab , / /           BlockArray out
long    stab_num ,
long    stab_size
) ;
```

Parameters

sockh	This is the socket to use for the call
session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field

count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs returned for this name or address

Return Code

negative for error, 0 for success

Calling from C#

Compilation and linking

C# programs should call the SSA-NAME3 DLL as shown in the sample program.

- To uninstall the dll, run the command, gacutil /u ssan3cs

  You don't need to do this unless you are installing a new version.
- To install the dll, run the command, gacutil /i c:\InformaticaIR\bin\ssan3cs.dll

  You can also achieve this by dragging the dll into `<WindowsDir>\ Assembly`
  - Compile:

    ```
    csc /reference:%SSABIN%\ssan3cs.dll sample.cs
    ```
  - Execute:

    ```
    sample
    ```

Coding the ssan3_close Call outside of the Finalize() Method

Calling the **ssan3_close** method from a **Finalize()** method is not recommended. This is because it delays the call to **ssan3_close** until the runtime runs garbage collection on the released object, which can be any time after the object has been released by the program.

Instead, it is recommended that the user implement a public cleanup or close method that performs the necessary housekeeping, including a call to **ssan3_close** to release open sessions prior to releasing the object.

Exceptions

All methods throw exceptions of type `SSAN3Exception`.

Common Parameters

Common parameters are accessible as class members.

addr_get_cass_field

Use this function to retrieve cass specific address fields.

Prototype

```
using s sa ;

public byte [ ] addr_get_cass_field (
                                int suggest_idx ,    / / Long in
                                int field_idx       / /  Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a cass field
field_idx	Specifies a cass field within the nth suggestion
field_value	The cass field value

Return Code

negative for error, 0 for success

addr_get_cass_field_cnt

Use this function to determine the max number of cass address fields.

Prototype

```
using ssa ;

public int addr_get_cass_field_cnt ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of cass address fields

Return Code

negative for error, 0 for success

addr_get_cass_field_info

Use this function to retrieve information about a suggestion.

Prototype

```
using ssa ;

public int [ ] addr_get_cass_field_info (
                                int suggest_idx / / Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each cass address field

Return Code

negative for error, 0 for success

addr_get_del_lines

Use this function to retrieve delivery address line information. This function is deprecated, use **addr_get_del_lines_ext** instead.

Prototype

```
using ssa ;
public structaddr_get_del_lines_structaddr_get_del_lines (
         int    suggest_idx      / / Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string

del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

addr_get_del_lines_ext

Use this function to retrieve delivery address line information.

Prototype

```
using ssa ;
public struct addr_get_del_lines_ext_struct addr_get_del_lines_ext (
int                    suggest_idx , / / Long in
int                    del_case                / /  Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_case	Specifies delivery address line case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case.
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

addr_get_field

Use this function to retrieve validated address fields.

Prototype

```
using ssa ;
```

```
public struct addr_get_field_struct addr_get_field (
int     suggest_idx , / / Long in
int     field_idx    / /  Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field
field_idx	Specifies a field within the nth suggestion
field_value	The field value
field_val_status	Specifies how this field matched the validation data
field_val_mods	Specifies how this field was modified by validation data

Return Code

negative for error, 0 for success

addr_get_field_count

Use this function to determine the max number of address fields.

Prototype

```
using ssa ;
public int addr_get_field_count ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of address fields

Return Code

negative for error, 0 for success

addr_get_field_ext

Use this function to retrieve all getter fields.

Prototype

```
using ssa ;
```

```
public byte [ ] addr_get_field_ext (
int     suggest_idx ,       / / Long in
int     field_operation , / /  Long in
string  field_name ,      / /   String in
int     field_item_line , / /  Long in
string  field_type        / /  String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get fields
field_operation	Field operation Option 0 for AddressElements Option 1 for AddressLines Option 2 for AddressComplete Option 3 for EnrichmentData Option 4 for ResultDataParameter Option 5 for EnrichmentDataStatus
field_name	Refer AD Result.dtd for field names
field_item_line	Represent field line number or field item number
field_type	Refer AD Result.dtd for field attribute Type
field_value	Cleansed field output

Return Code

negative for error, 0 for success

addr_get_field_idx

Use this function to retrieve individual address fields.

Prototype

```
using ssa ;
public byte [ ] addr_get_field_idx (
int     suggest_idx , / / Long in
int     field_idx    / /  Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field. On successful parse, use 0 for ASM for AD version 4, 1 for ASM for AD version 5

field_idx	Specifies a field within the nth suggestion
field_value	The field value

Return Code

negative for error, 0 for success

addr_get_field_info_ext

Use this function to retrieve information about a suggestion.

Prototype

```
using ssa ;
public struct addr_get_field_info_ext_struct addr_get_field_info_ext (
int    suggest_idx   / / Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each address field
addr_label_encoded	The returned label
addr_label_charset	The character set used in the address label
score	The returned label's score

Return Code

negative for error, 0 for success

addr_get_field_len

Use this function to determine the max field length.

Prototype

```
using ssa ;
public int addr_get_field_len ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max address field length in bytes

Return Code

negative for error, 0 for success

addr_get_line_len

Prototype

```
using ssa ;
public int addr_get_line_len ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max line length in bytes

Return Code

negative for error, 0 for success

addr_get_option

Use this function to set optional parameters.

Prototype

```
using ssa ;
public string addr_get_option (
string param / / String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

param	This field specifies the name of the option to get.
value	Returns the value for the option.

Return Code

negative for error, 0 for success

addr_init

Use this function to initialize the Address Standarization interface.

Prototype

```
using ssa ;
public void addr _ init (
int max_memory / 7 Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_memory	This field specifies the maximum amount of memory (MB) to be used by the Address Standarization engine.

Return Code

negative for error, 0 for success

addr_parse

Use this function to parse an address.

Prototype

```
using s sa ;
public int [ ] addr_parse ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_length	An array containing the length of each parsed field

Return Code

negative for error, 0 for success

addr_preload_country

Use this function to preload country database.

Prototype

```
using ssa ;
public void addr_preload_country (
string preload_type ,     / / String in
string preload_country , / /  String in
string val_mode         / /   String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
preload_type	type of preload to perform
preload_country	country database to be preloaded
val_mode	This field specified validation mode

Return Code

negative for error, 0 for success

addr_set_attrib

Use this function to specify the character set of the data and a default country.

Prototype

```
using ssa ;
public void addr_set_attrib (
string   char_set ,       / / String in
string   default_country / /  String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
char_set	The name of the character set used to encode the input and output.
default_country	The default country used for validation when parsing cannot detect a country name.

Return Code

negative for error, 0 for success

addr_set_del_lines

Use this function to set delivery address line information.

Prototype

```
using ssa ;
public void addr_set_del_lines (
byte [ ] del_line1 , / / Block in
byte [ ] del_line2 , / / Block in
byte [ ] del_line3 , / / Block in
byte [ ] del_line4 , / / Block in
byte [ ] del_line5 , / / Block in
byte [ ] del_line6   / / Block in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
del_line1	delivery address line 1 input string
del_line2	delivery address line 2 input string
del_line3	delivery address line 3 input string
del_line4	delivery address line 4 input string
del_line5	delivery address line 5 input string
del_line6	delivery address line 6 input string

Return Code

negative for error, 0 for success

addr_set_field_case

Use this function to set individual input fields case option.

Prototype

```
using ssa ;
public void addr_set_field_case (
int field_idx ,   / / Long in
int field_case   / /  Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section

ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_case	Specifies output field case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case.

Return Code

negative for error, 0 for success

addr_set_field_idx

Use this function to set individual input fields by idx.

Prototype

```
using ssa ;
public void addr_set_field_idx (
int      field_idx , / / Long in
byte [ ] field_value / / Block in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_value	Specifies a value for the nth field

Return Code

negative for error, 0 for success

addr_set_field_name

Use this function to set individual input fields by name.

Prototype

```
using ssa ;
public void addr_set_field_name (
string field_name ,   / / String in
byte [ ] field_value / /  Block in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_name	Specifies the name of the field to set
field_value	Specifies a value for the field

Return Code

negative for error, 0 for success

addr_set_lines

Use this function to provide an address to parse or validate.

Prototype

```
using ssa ;
public void addr_set_lines (
byte [ ] line_1 , / /  Block in
byte [ ] line_2 , / /  Block in
byte [ ] line_3 , / /  Block in
byte [ ] line_4 , / /  Block in
byte [ ] line_5 , / /  Block in
byte [ ] line_6 , / /  Block in
byte [ ] line_7 , / /  Block in
byte [ ] line_8 , / /  Block in
byte [ ] line_9 , / /  Block in
byte [ ] line_10 / /   Block in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
line_1	The first line of the address
line_2	The second line of the address
line_3	The third line of the address
line_4	The fourth line of the address
line_5	The fifth line of the address
line_6	The sixth line of the address
line_7	The seventh line of the address

line_8	The eighth line of the address
line_9	The ninth line of the address
line_10	The tenth line of the address

Return Code

negative for error, 0 for success

addr_set_option

Use this function to set optional parameters.

Prototype

```
using ssa ;
public void addr_set_option (
string param, / / String in
string value / /  String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to set.
value	This field specifies a value for the option.

Return Code

negative for error, 0 for success

addr_validate

Use this function to validate an address.

Prototype

```
using ssa ;
public struct addr_validate_struct addr_validate ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

status	The status returned by the validation process
n_suggest	The number of suggestions generated by validation

Return Code

negative for error, 0 for success

close

Closes the SSA session and deallocates memory. Similarly to **ssa_open**, it is optional.

Prototype

```
using ssa ;
public void close (
string controls / / String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

convert_keys

Used to convert 8 byte keys (from server) to 5 byte keys (for client).

Prototype

```
using ssa ;
public byte [ ] [ ] convert_keys (
          string [ ] keys8        / / StringArray in
) ;
```

Parameters

keys8	block of 8 byte keys to be converted
keys5	block of 5 byte keys (output)

rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

convert_ranges

Used to convert 8 byte ranges (from server) to 5 byte ranges (for client).

Prototype

```
using ssa ;
public byte [ ] [ ] convert_ranges (
string [ ] ranges8 / / StringArray in
) ;
```

Parameters

ranges8	block of 8 byte ranges to be converted
ranges5	block of 5 byte ranges (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

disconnect

Releases resources allocated to a socket.

Prototype

```
using ssa ;
public void disconnect ( ) ;
```

Parameters

none

Return Code

negative for error, 0 for success

errors_get_all

Get the Server side error messages from the last API function that failed. This function should be called repeatedly until it returns 1, meaning all messages have been retrieved.

Note: If a communication (socket) error occurred, this function will also fail. Refer to the *OPERATIONS MANUAL, Error Log* section for information on interpreting the Error Log.

Prototype

```
using ssa ;
public string errors_get_all ( ) ;
```

Parameters

msg is an error message.

Return Code

negative for error, 0 for success

get_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
using ssa ;
public string [ ] get_keys (
string controls , / / String in
string data      / /  String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

get_keys_encoded

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
using ssa ;
public string [ ] get_keys_encoded (
string controls , / / String in
string data , / / EncodedString in
int dataSize ,
string dataEncType
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

get_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
using ssa ;
public string [ ] get_ranges (
string controls , / / String in
string data      / /  String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section

rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

get_ranges_encoded

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
using ssa ;
public string [ ] get_ranges_encoded (
string controls , / /  String in
string data ,    / /  EncodedString in
int dataSize ,
string dataEncType
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

info

Returns Information regarding the selected `System` and `Population`.

Prototype

```
using ssa ;
public string [ ] info (
string controls / / String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	A number defining the number of rows in the Items Array
info	An array of 1024 byte rows, containing the data returned for the specific **ssan3_info** call

Return Code

negative for error, 0 for success

keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
using s sa ;
public byte [ ] [ ] keys (
string controls , / / String in
byte [ ] data , / / Block in
string encoding / / String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section

rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of keys returned for this name or address
keys	An array of keys returned for this name or address

Return Code

negative for error, 0 for success

match

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
using ssa ;
public struct match_struct match (
string controls , / / String in
string search ,  / /  String in
string file     / /   String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section.
file	Refer to the Common Parameters section.
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

match_encoded

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
using ssa ;
public struct match_struct match_encoded (
string controls , / / String in
string search , / /   EncodedString in
int searchSize ,
string searchEncType ,
string file , / / EncodedString in
int file Size ,
string fileEncType
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section.
file	Refer to the Common Parameters section.
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

open

An optional function, but its use will improve performance. It opens and initiates an SSA-NAME3 session in preparation.

Prototype

```
using ssa ;
public void open (
string system  ,     / / String in
string population , / /  String in
string controls    / /   String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
using ssa ;
public byte [ ] [ ] ranges (
string controls , / / String in
byte [ ] data ,  / /  Block in
string encoding / /   String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section

encoding	The encoding used for the data field
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs returned for this name or address

Return Code

negative for error, 0 for success

Calling from C++

Use of Destructors

C++, unlike JAVA and C# has destructors that are called whenever an instance of an object goes out of scope (or the delete operator is called on that object). This allows for any calls to resource releasing type functions (**ssan3_close** and **ssan3_disconnect** for example) to be made from an appropriate 'destructor'. Of course as soon as a class has an explicit destructor it must also have an explicit 'copy constructor' and 'assignment operator'. Once objects start getting copied around, it is easy to end up with two instance of an object with identical socket handles. When one of these objects goes out of scope the destructor is called and the socket connection is closed. When the second object tries to use the socket connection a conflict arises. Two ways to avoid this situation are as follows:

- To use some type of reference counting in the class so that the socket connection is only closed when the last objet which used it goes out of scope.
- Secondly, make the copy constructor and assignment operator for the class 'private' (and without a body). Then any attempts to make copies of these objects will cause a compilation error which it may then be possible to code around.

ssan3_addr_get_cass_field

Use this function to retrieve cass specific address fields.

Prototype

```
long ssan3_addr_get_cass_field (
long   sockh ,
long * session ,          / / Long io
char * rsp ,             / /  String out
long   rsp_size ,
char * ssaMsg ,         / /  String out
long   ssaMsg_size ,
long   suggest_idx ,   / / Long in
long   field_idx ,    / / Long in
char * field_value , / / Block out
long   field_value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a cass field
field_idx	Specifies a cass field within the nth suggestion
field_value	The cass field value

Return Code

negative for error, 0 for success

ssan3_addr_get_cass_field_cnt

Use this function to determine the max number of cass address fields.

Prototype

```
long ssan3_addr_get_cass_field_cnt (
long    sockh ,
long *  session ,    / / Long i o
char *  rsp ,       / /  String out
long    rsp_size ,
char *  ssaMsg ,   / /   String out
long    ssaMsg_size ,
long *  count    / /     Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of cass address fields

Return Code

negative for error, 0 for success

ssan3_addr_get_cass_field_info

Use this function to retrieve information about a suggestion.

Prototype

```
long ssan3_addr_get_cass_field_info (
long   sockh ,
```

```
long * session ,     / / Long i o
char * rsp ,        / /  String out
long   rsp_s ize ,
char * ssaMsg ,    / /   String out
long   ssaMsg_size ,
long   suggest_idx , / / Long in
long * field_length , / / LongArray out
long   field_length_num
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each cass address field

Return Code

negative for error, 0 for success

Enter an example to illustrate your reference here (optional).

ssan3_addr_get_del_lines

(deprecated) Use this function to retrieve delivery address line information This function is deprecated. Use **addr_get_del_lines_ext** instead.

Prototype

```
long ssan3_addr_get_del_lines (
long   sockh ,
long * session , / / Long io
char * rsp ,    / /  String out
long   rsp_size ,
char * ssaMsg , / /  String out
long   ssaMsg_size ,
long   suggest_idx , / / Long in
char * del_line1 , / / Block out
long   del_line1_size ,
char * del_line2 , / / Block out
long   del_line2_size ,
char * del_line3 , / / Block out
long   del_line3_size ,
char * del_line4 , / / Block out
long   del_line4_size ,
char * del_line5 , / / Block out
long   del_line5_size ,
char * del_line6 , / / Block out
long   del_line6_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

ssan3_addr_get_del_lines_ext

Use this function to retrieve delivery address line information.

Prototype

```
long ssan3_addr_get_del_lines_ext (
long sockh ,
long * session ,  / / Long io
char * rsp ,     / /  String out
long   rsp_size ,
char * ssaMsg , / /   String out
long   ssaMsg_size ,
long   suggest_idx , / / Long in
long   del_case , / /    Long in
char * del_line1 , / /   Block out
long   del_line1_size ,
char * del_line2 , / /   Block out
long   del_line2_size ,
char * del_line3 , / /   Block out
long   del_line3_size ,
char * del_line4 , / /   Block out
long   del_line4_size ,
char * del_line5 , / /   Block out
long   del_line5_size ,
char * del_line6 , / /   Block out
long   del_line6_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_case	Specifies delivery address line case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case.
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

ssan3_addr_get_field

Use this function to retrieve validated address fields.

Prototype

```
long ssan3_addr_get_field (
long sockh ,
long * session ,        / / Long io
char * rsp ,           / /  String out
long   rsp_size ,
char * ssaMsg ,       / /   String out
long   ssaMsg_size ,
long   suggest_idx , / /    Long in
long   field_idx , / /      Long in
char * field_value , / /    Block out
long   field_value_size ,
long * field_val_status , / / Long out
long * field_val_mods / / Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

suggest_idx	Specifies the nth suggestion from which to get a field
field_idx	Specifies a field within the nth suggestion
field_value	The field value
field_val_status	Specifies how this field matched the validation data
field_val_mods	Specifies how this field was modified by validation data

Return Code

negative for error, 0 for success

ssan3_addr_get_field_count

Use this function to determine the max number of address fields.

Prototype

```
long ssan3_addr_get_field_count (
long sockh ,
long * session , / / Long io
char * rsp , / /     String out
long   rsp_size ,
char * ssaMsg , / /  String out
long   ssaMsg_size ,
long * count / /     Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of address fields

Return Code

negative for error, 0 for success

ssan3_addr_get_field_ext

Use this function to retrieve all getter fields.

Prototype

```
long ssan3_addr_get_field_ext (
long sockh ,
long * session , / / Long io
char * rsp ,    / /  String out
long   rsp_size ,
char * ssaMsg , / /  String out
long   ssaMsg_size ,
long   suggest_idx , / / Long in
```

```
long   field_operation , / / Long in
char * field_name , / /    String in
long   field_item_line , / / Long in
char * field_type , / /     String in
char * field_value , / /    Block out
long   field_value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get fields
field_operation	Field operation Option 0 for AddressElements Option 1 for AddressLines Option 2 for AddressComplete Option 3 for EnrichmentData Option 4 for ResultDataParameter Option 5 for EnrichmentDataStatus
field_name	Refer AD Result.dtd for field names
field_item_line	Represent field line number or field item number
field_type	Refer AD Result.dtd for field attribute Type
field_value	Cleansed field output

Return Code

negative for error, 0 for success

ssan3_addr_get_field_idx

Use this function to retrieve individual address fields.

Prototype

```
long ssan3_addr_get_field_idx (
long sockh ,
long * session , / / Long io
char * rsp ,    / /  String outlong rsp_size ,
char * ssaMsg , / /  String out
long   ssaMsg_size ,
long   suggest_idx , / / Long in
long   field_idx , / / Long in
char * field_value , / / Block out
long   field_value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

suggest_idx	Specifies the nth suggestion from which to get a field. On successful parse, use 0 for ASM for AD version 4, 1 for ASM for AD version 5
field_idx	Specifies a field within the nth suggestion
field_value	The field value

Return Code

negative for error, 0 for success

ssan3_addr_get_field_info_ext

Use this function to retrieve information about a suggestion.

Prototype

```
long ssan3_addr_get_field_info_ext (
long sockh ,
long * session , / / Long io
char * rsp ,    / /  String out
long   rsp_size ,
char * ssaMsg , / /  String out
long   ssaMsg_size ,
long   suggest_idx , / / Long in
long * field_length , / / LongArray out
long   field_length_num ,
char * addr_label_encoded , / / Block out
long   addr_label_encoded_size ,
char * addr_label_charset , / / String out
long   addr_label_charset_size ,
long * score / / Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each address field
addr_label_encoded	The returned label
addr_label_charset	The character set used in the address label
score	The returned label's score

Return Code

negative for error, 0 for success

ssan3_addr_get_field_len

Use this function to determine the max field length.

Prototype

```
long ssan3_addr_get_field_len (
long sockh ,
long * session , / / Long io
char * rsp ,    / /  String out
long   rsp_size ,
char * ssaMsg , / /  String out
long   ssaMsg_size ,
long * max_len / /   Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max address field length in bytes

Return Code

negative for error, 0 for success

ssan3_addr_get_line_len

Prototype

```
long ssan3_addr_get_line_len (
long sockh ,
long * session , / / Long io
char * rsp ,    / /  String out
long   rsp_size ,
char * ssaMsg , / /  String out
long   ssaMsg_size ,
long * max_len / /   Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max line length in bytes

Return Code

negative for error, 0 for success

ssan3_addr_get_option

Use this function to set optional parameters

Prototype

```
long ssan3_addr_get_option (
long sockh ,
long * session , / / Long io
char * rsp ,    / /  String out
long   rsp_size ,
char * ssaMsg , / /  String out
long   ssaMsg_size ,
char * param, / /    String in
char * value , / /   String out
long   value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to get.
value	Returns the value for the option.

Return Code

negative for error, 0 for success

ssan3_addr_init

Use this function to initialize the Address Standarization interface.

Prototype

```
long ssan3_addr_init (
long sockh ,
long * session , / / Long io
char * rsp ,    / /  String out
long   rsp_size ,
char * ssaMsg , / /  String out
long   ssaMsg_size ,
long   max_memory / / Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section

ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_memory	This field specifies the maximum amount of memory (MB) to be used by the Address Standarization engine.

Return Code

negative for error, 0 for success

ssan3_addr_parse

Use this function to parse an address.

Prototype

```
long ssan3_addr_parse (
long sockh ,
long * session , / /    Long io
char * rsp ,    / /     String out
long   rsp_size ,
char * ssaMsg , / /     String out
long   ssaMsg_size ,
long * field_length , / / LongArray out
long   field_length_num
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_length	An array containing the length of each parsed field

Return Code

negative for error, 0 for success

ssan3_addr_preload_country

Use this function to preload country database.

Prototype

```
long ssan3_addr_preload_country (
long sockh ,
long * session ,         / / Long io
char * rsp ,            / /  String out
long   rsp_size ,
char * ssaMsg ,        / /   String out
long   ssaMsg_size ,
char * preload_type , / /    String in
char * preload_country , / / String in
char * val_mode / /          String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
preload_type	type of preload to perform
preload_country	country database to be preloaded
val_mode	This field specified validation mode

Return Code

negative for error, 0 for success

ssan3_addr_set_attrib

Use this function to specify the character set of the data and a default country.

Prototype

```
long ssan3_addr_set_attrib (
long sockh ,
long * session ,      / / Long io
char * rsp ,         / /  String out
long   rsp_size ,
char * ssaMsg ,     / /   String out
long   ssaMsg_size ,
char * char_set , / /     String in
char * default_country / / String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
char_set	The name of the character set used to encode the input and output
default_country	The default country used for validation when parsing cannot detect a country name

Return Code

negative for error, 0 for success

ssan3_addr_set_del_lines

Use this function to set delivery address line information.

Prototype

```
long ssan3_addr_set_del_lines (
long sockh ,
long * session ,       / / Long io
char * rsp ,          / /  String out
long   rsp_size ,
char * ssaMsg ,      / /   String out
long   ssaMsg_size ,
char * del_line1 , / /     Block in
long   del_line1_size ,
char * del_line2 , / /     Block in
long   del_line2_size ,
char * del_line3 , / /     Block in
long   del_line3_size ,
char * del_line4 , / /     Block in
long   del_line4_size ,
char * del_line5 , / /     Block in
long   del_line5_size ,
char * del_line6 , / /     Block in
long   del_line6_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
del_line1	delivery address line 1 input string
del_line2	delivery address line 2 input string
del_line3	delivery address line 3 input string
del_line4	delivery address line 4 input string
del_line5	delivery address line 5 input string
del_line6	delivery address line 6 input string

Return Code

negative for error, 0 for success

ssan3_addr_set_field_case

Use this function to set individual input fields case option.

Prototype

```
long ssan3_addr_set_field_case (
long sockh ,
long * session ,     / / Long io
char * rsp ,        / /  String out
long   rsp_size ,
char * ssaMsg ,    / /   String out
long   ssaMsg_size ,
long   field_idx , / /   Long in
```

```
long   field_case / /    Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_case	Specifies output field case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case.

Return Code

negative for error, 0 for success

ssan3_addr_set_field_idx

Use this function to set individual input fields by idx.

Prototype

```
long ssan3_addr_set_field_idx (
long sockh ,
long * session ,     / / Long io
char * rsp ,        / /  String out
long   rsp_size ,
char * ssaMsg ,    / /   String out
long   ssaMsg_size ,
long   field_idx , / /   Long in
char * field_value , / / Block in
long   field_value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_value	Specifies a value for the nth field

Return Code

negative for error, 0 for success

ssan3_addr_set_field_name

Use this function to set individual input fields by name.

Prototype

```
long ssan3_addr_set_field_name (
long sockh ,
long * session ,       / / Long io
char * rsp ,          / /  String out
long   rsp_s ize ,
char * ssaMsg ,      / /   String out
long   ssaMsg_size ,
char * field_name , / /    String in
char * field_value , / /   Block in
long   field_value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_name	Specifies the name of the field to set
field_value	Specifies a value for the field

Return Code

negative for error, 0 for success

ssan3_addr_set_lines

Use this function to provide an address to parse or validate.

Prototype

```
long ssan3_addr_set_lines (
long sockh ,
long * session ,        / / Long io
char * rsp ,           / /  String out
long   rsp_size ,
char * ssaMsg ,       / /   String out
long   ssaMsg_size ,
char * line_1 ,      / /    Block in
long   line_1_size ,
char * line_2 ,     / /     Block in
long   line_2_size ,
char * line_3 ,    / /      Block in
long   line_3_size ,
char * line_4 ,   / /       Block in
long   line_4_size ,
char * line_5 , / /         Block in
long   line_5_size ,
char * line_6 , / /         Block in
long   line_6_size ,
char * line_7 , / /         Block in
long   line_7_size ,
char * line_8 , / /         Block in
long   line_8_size ,
char * line_9 , / /         Block in
long   line_9_size ,
char * line_10 , / /        Block in
```

```
long   line_10_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
line_1	The first line of the address
line_2	The second line of the address
line_3	The third line of the address
line_4	The fourth line of the address
line_5	The fifth line of the address
line_6	The sixth line of the address
line_7	The seventh line of the address
line_8	The eighth line of the address
line_9	The ninth line of the address
line_10	The tenth line of the address

Return Code

negative for error, 0 for success

ssan3_addr_set_option

Use this function to set optional parameters.

Prototype

```
long ssan3_addr_set_option (
long sockh ,
long * session ,    / / Long io
char * rsp ,       / /  String out
long   rsp_size ,
char * ssaMsg ,   / /   String out
long   ssaMsg_size ,
char * param,   / /     String in
char * value   / /      String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section

ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to set.
value	This field specifies a value for the option.

Return Code

negative for error, 0 for success

ssan3_addr_validate

Use this function to validate an address.

Prototype

```
long ssan3_addr_validate (
long sockh ,
long * session ,       / / Long io
char * rsp ,          / /  String out
long   rsp_s ize ,
char * ssaMsg ,      / /   String out
long   ssaMsg_size ,
long * status ,     / /    Long out
long * n_suggest   / /     Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
status	The status returned by the validation process
n_suggest	The number of suggestions generated by validation

Return Code

negative for error, 0 for success

ssan3_close

Closes the SSA session and deallocates memory. Similarly to **ssa_open**, it is optional.

Prototype

```
long ssan3_close (
long sockh ,
long * session ,       / / Long io
char * system ,       / /  String in
char * population , / /    String in
char * cont rol s , / /    String in
char * rsp ,       / /     String out
long   rsp_size ,
char * ssaMsg ,   / /      String out
```

```
long   ssaMsg_size
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_connect

Initiates a socket.

Prototype

```
long ssan3_connect (
char * host ,  / / String in
long   port , / /  Long in
long * sockh / /   Long out
) ;
```

Parameters

host	This is the host to connect to.
port	This is the port to connect to.
sockh	This is a socket handle.

Return Code

negative for error, 0 for success

ssan3_convert_keys

Used to convert 8 byte keys (from server) to 5 byte keys (for client).

Prototype

```
long ssan3_convert_keys (
long sockh ,
char ** keys8 ,        / / StringArray in
long    keys8_num ,
char ** keys5 ,       / /  BlockArray out
long    keys5_num ,
long    keys5_s ize ,
```

```
char *  rsp ,       / /    String out
long    rsp_s ize ,
char *  ssaMsg ,   / /     String out
long    ssaMsg_size
) ;
```

Parameters

keys8	Block of 8 byte keys to be converted
keys5	Block of 5 byte keys (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_convert_ranges

Used to convert 8 byte ranges (from server) to 5 byte ranges (for client).

Prototype

```
long ssan3_convert_ranges (
long sockh ,
char ** ranges8 , / / St r ingAr r a y in
long    ranges8_num ,
char ** ranges5 , / / Bl o c kAr r ay out
long    ranges5_num ,
long    ranges5_s ize ,
char *  rsp , / / S t r i n g out
long    rsp_s ize ,
char *  ssaMsg , / / S t r i n g out
long    ssaMsg_size
) ;
```

Parameters

ranges8	Block of 8 byte ranges to be converted
ranges5	Block of 5 byte ranges (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_disconnect

Releases resources allocated to a socket.

Prototype

```
long ssan3_disconnect (
long sockh
) ;
```

Parameters

none

Return Code

negative for error, 0 for success

ssan3_errors_get_all

Get the Server side error messages from the last API function that failed. This function should be called repeatedly until it returns 1, meaning all messages have been retrieved.
Note: if a communication (socket) error occurred, this function will also fail. Refer to the *OPERATIONS MANUAL, Error Log* section for information on interpreting the Error Log.

Prototype

```
long ssan3_errors_get_all (
long sockh ,
char * msg , / / String out
long msg_size
) ;
```

Parameters

msg is an error message.

Return Code

negative for error, 0 for success

ssan3_get_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
long ssan3_get_keys (
long sockh ,
long * session ,          / / Long io
char * system ,          / / String in
char * population ,     / /  String in
char * cont rol s ,    / /   String in
char * rsp ,          / /    String out
long   rsp_size ,
char * ssaMsg ,      / /     String out
long   ssaMsg_size ,
char * data ,       / /      String in
long * count ,     / /       Long out
char ** keys ,    / /        StringArray out
long    keys_size
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_keys_encoded

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
long ssan3_get_keys_encoded (
long sockh ,
long * session ,          / / Long i o
char * system ,          / /  String in
char * population ,     / /   String in
char * cont rol s ,    / /    String in
char * rsp ,          / /     String out
long   rsp_size ,
char * ssaMsg ,      / /      String out
long   ssaMsg_size ,
char * data ,       / /       EncodedString in
long   dataSize ,
char * dataEncType ,
long * count ,    / /         Long out
char ** keys ,  / /           StringArray out
long    keys_size
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section

controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

Enter an example to illustrate your reference here (optional).

ssan3_get_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
long ssan3_get_ranges (
long sockh ,
long * session ,         / / Long io
char * system ,         / /  String in
char * population ,    / /   String in
char * cont rol s ,   / /    String in
char * rsp ,         / /     String out
long   rsp_size ,
char * ssaMsg ,     / /      String out
long   ssaMsg_size ,
char * data ,     / /        String in
long * count ,   / /         Long out
char ** stab , / /           StringArray out
long    stab_size
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section

count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_ranges_encoded

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
long ssan3_get_ranges_encoded (
long sockh ,
long * session ,   / / Long io
char * system ,   / /  String in
char * population , / / String in
char * controls , / / String in
char * rsp , / / String out
long   rsp_size ,
char * ssaMsg , / / String out
long ssaMsg_size ,
char * data , / / EncodedString in
long dataSize ,
char * dataEncType ,
long * count , / / Long out
char ** stab , / / StringArray out
long stab_size
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_info

Returns Information regarding the selected `System` and `Population`.

Prototype

```
long ssan3_info (
long sockh ,
long * session , / / Long io
char * system , / /  String in
char * population , / / String in
char * controls , / / String in
char * rsp , / / String out
long   rsp_s ize ,
char * ssaMsg , / / String out
long ssaMsg_size ,
long * count , / / Long out
char ** info , / / StringArray out
long info_size
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	A number defining the number of rows in the Items Array
info	An array of 1024 byte rows, containing the data returned for the specific **ssan3_info** call

Return Code

negative for error, 0 for success

ssan3_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
long ssan3_keys (
                    long sockh ,
                    long * session , / / Long io
                    char * system , / / String in
                    char * population , / / String in
                    char * controls , / / String in
                    char * rsp , / / String out
                    long   rsp_size ,
                    char * ssaMsg , / / String out
                    long ssaMsg_size ,
                    char * data , / / Block in
```

```
                        long data_size ,
                        char * encoding , / / String in
                        long * count , / / Long out
                        char ** keys , / / BlockArray out
                        long keys_num,
                        long keys_s ize
    ) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of keys returned for this name or address
keys	An array of keys returned for this name or address

Return Code

negative for error, 0 for success

ssan3_match

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
long ssan3_match (
long sockh ,
long * session , / / Long io
char * system , / / String in
char * population , / / String in
char * controls , / / String in
char * rsp , / / String out
long   rsp_size ,
char * ssaMsg , / / String out
long ssaMsg_size ,
char * search , / / String in
char * file , / / String in
char * score , / / String out
long   score_size ,
char * decision , / / String out
long decision_ size
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to Common Parameters section
file	Refer to Common Parameters section
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3_match_encoded

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
long ssan3_match_encoded (
                    long sockh ,
     long * session , / / Long io
     char * system , / / String in
     char * population , / / String in
     char * controls , / / String in
     char * rsp , / / String out
     long rsp_size ,
     char * ssaMsg , / / String out
     long ssaMsg_size ,
     char * search , / / EncodedString in
     long searchSize ,
     char * searchEncType ,
     char * file , / / EncodedString in
     long fileSize ,
     char * fileEncType ,
     char * score , / / String out
     long score_size ,
     char * decision , / / String out
     long decision_size
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section.
file	Refer to the Common Parameters section.
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3_open

An optional function, but its use will improve performance. It opens and initiates an SSA-NAME3 session in preparation.

Prototype

```
long ssan3_open (
     long sockh ,
     long * session , / / Long io
     char * system , / / String in
     char * population , / / String in
     char * controls , / / String in
     char * rsp , / / String out
     long rsp_size ,
     char * ssaMsg , / / String out
     long ssaMsg_size
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section

rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a `Select` statement to retrieve records from the SSA Keys table.

Prototype

```
long ssan3_ranges (
                    long sockh ,
     long * session , / / Long i o
     char * system , / / String in
     char * population , / / String in
     char * controls , / / String in
     char * rsp , / / String out
     long rsp_size ,
     char * ssaMsg , / / String out
     long ssaMsg_size ,
     char * data , / / Block in
     long data_size ,
     char * encoding , / / String in
     long * count , / / Long out
     char ** stab , / / BlockArray out
     long stab_num ,
     long stab_size
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs returned for this name or address

Return Code

negative for error, 0 for success

Calling from COBOL

SSAN3-ADDR-GET-CASS-FIELD

Use this function to retrieve cass specific address fields.

Prototype

```
CALL SSAN3-ADDR-GET-CASS-FIELD USING
                                BY VALUE SOCKH,
                                BY REFERENCE SESSION,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG,
                                BY VALUE SUGGEST-IDX,
                                BY VALUE FIELD-IDX,
                                BY REFERENCE FIELD-VALUE,
                                BY VALUE FIELD-VALUE-SIZE
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
SUGGEST-IDX	Specifies the nth suggestion from which to get a cass field
FIELD-IDX	Specifies a cass field within the nth suggestion
FIELD-VALUE	The cass field value

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-CASS-FIELD-CNT

Use this function to determine the max number of cass address fields.

Prototype

```
CALL SSAN3-ADDR-GET-CASS-FIELD-CNT USING
                        BY VALUE SOCKH,
                        BY REFERENCE SESSION,
                        BY REFERENCE RSP ,
                        BY REFERENCE SSAMSG,
                        BY REFERENCE COUNT
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section

SSAMSG	Refer to the SSA-NAME3 Error Messages section
COUNT	Returns the max number of cass address fields

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-CASS-FIELD-INFO

Use this function to retrieve information about a suggestion.

Prototype

```
CALL SSAN3-ADDR-GET-CASS-FIELD-INFO USING
                            BY VALUE SOCKH,
                            BY REFERENCE SESSION,
                            BY REFERENCE RSP ,
                            BY REFERENCE SSAMSG,
                            BY VALUE SUGGEST-IDX,
                            BY REFERENCE FIELD-LENGTH,
                            BY VALUE FIELD-LENGTH-NUM
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
SUGGEST-IDX	Specifies the suggestion from which to retrieve information
FIELD-LENGTH	An array containing the length of each cass address field

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-DEL-LINES

(deprecated) Use this function to retrieve delivery address line information. This function is deprecated. Use **addr_get_del_lines_ext** instead

Prototype

```
CALL SSAN3-ADDR-GET-DEL-LINES USING
      BY VALUE      SOCKH,
      BY REFERENCE  SESSION,
      BY REFERENCE  RSP ,
      BY REFERENCE  SSAMSG,
      BY VALUE      SUGGEST-IDX,
      BY REFERENCE  DEL-LINE1,
      BY VALUE      DEL-LINE1-SIZE,
      BY REFERENCE  DEL-LINE2,
      BY VALUE      DEL-LINE2-SIZE,
      BY REFERENCE  DEL-LINE3,
```

```
        BY VALUE      DEL-LINE3-SIZE,
        BY REFERENCE  DEL-LINE4,
        BY VALUE      DEL-LINE4-SIZE,
        BY REFERENCE  DEL-LINE5,
        BY VALUE      DEL-LINE5-SIZE,
        BY REFERENCE  DEL-LINE6,
        BY VALUE      DEL-LINE6-SIZE
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
SUGGEST-IDX	Specifies the suggestion from which to get delivery address lines
DEL-LINE1	delivery address line 1 output string
DEL-LINE2	delivery address line 2 output string
DEL-LINE3	delivery address line 3 output string
DEL-LINE4	delivery address line 4 output string
DEL-LINE5	delivery address line 5 output string
DEL-LINE6	delivery address line 6 output string

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-DEL-LINES-EXT

Use this function to retrieve delivery address line information.

Prototype

```
CALL SSAN3-ADDR-GET-DEL-LINES-EXT USING
                            BY VALUE SOCKH,
                            BY REFERENCE SESSION,
                            BY REFERENCE RSP ,
                            BY REFERENCE SSAMSG,
                            BY VALUE SUGGEST-IDX,
                            BY VALUE DEL-CASE,
                            BY REFERENCE DEL-LINE1,
                            BY VALUE DEL-LINE1-SIZE,
                            BY REFERENCE DEL-LINE2,
                            BY VALUE DEL-LINE2-SIZE,
                            BY REFERENCE DEL-LINE3,
                            BY VALUE DEL-LINE3-SIZE,
                            BY REFERENCE DEL-LINE4,
                            BY VALUE DEL-LINE4-SIZE,
                            BY REFERENCE DEL-LINE5,
                            BY VALUE DEL-LINE5-SIZE,
                            BY REFERENCE DEL-LINE6,
                            BY VALUE DEL-LINE6-SIZE
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
SUGGEST-IDX	Specifies the suggestion from which to get delivery address lines
DEL-CASE	Specifies delivery address line case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case.
DEL-LINE1	delivery address line 1 output string
DEL-LINE2	delivery address line 2 output string
DEL-LINE3	delivery address line 3 output string
DEL-LINE4	delivery address line 4 output string
DEL-LINE5	delivery address line 5 output string
DEL-LINE6	delivery address line 6 output string

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-FIELD

Use this function to retrieve validated address fields.

Prototype

```
CALL SSAN3-ADDR-GET-FIELD USING
                    BY VALUE SOCKH,
                    BY REFERENCE SESSION,
                    BY REFERENCE RSP ,
                    BY REFERENCE SSAMSG,
                    BY VALUE SUGGEST-IDX,
                    BY VALUE FIELD-IDX,
                    BY REFERENCE FIELDVALUE,
                    BY VALUE FIELD-VALUE-SIZE,
                    BY REFERENCE FIELD-VAL-STATUS,
                    BY REFERENCE FIELD-VAL-MODS
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
SUGGEST-IDX	Specifies the nth suggestion from which to get a field

FIELD-IDX	Specifies a field within the nth suggestion
FIELD-VALUE	The field value
FIELD-VAL-STATUS	Specifies how this field matched the validation data
FIELD-VAL-MODS	Specifies how this field was modified by validation data

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-FIELD-COUNT

Use this function to determine the max number of address fields.

Prototype

```
CALL SSAN3-ADDR-GET-FIELD-COUNT USING
                    BY VALUE SOCKH,
                    BY REFERENCE SESSION,
                    BY REFERENCE RSP ,
                    BY REFERENCE SSAMSG,
                    BY REFERENCE COUNT
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
COUNT	Returns the max number of address fields

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-FIELD-EXT

Use this function to retrieve all getter fields.

Prototype

```
CALL SSAN3-ADDR-GET-FIELD-EXT USING
                        BY VALUE SOCKH,
                        BY REFERENCE SESSION,
                        BY REFERENCE RSP ,
                        BY REFERENCE SSAMSG,
                        BY VALUE SUGGEST-IDX,
                        BY VALUE FIELD-OPERATION,
                        BY REFERENCE FIELD-NAME,
                        BY VALUE FIELD-ITEM-LINE,
                        BY REFERENCE FIELD-TYPE,
```

```
                                BY REFERENCE FIELD-VALUE,
                                BY VALUE FIELD-VALUE-SIZE
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
SUGGEST-IDX	Specifies the suggestion from which to get fields
FIELD-OPERATION	Field operation Option 0 for AddressElements Option 1 for AddressLines Option 2 for AddressComplete Option 3 for EnrichmentData Option 4 for ResultDataParameter Option 5 for EnrichmentDataStatus
FIELD-NAME	Refer AD `Result.dtd` for field names
FIELD-ITEM-LINE	Represent field line number or field item number
FIELD-TYPE	Refer AD `Result.dtd` for field attribute Type
FIELD-VALUE	Cleansed field output

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-FIELD-IDX

Use this function to retrieve individual address fields.

Prototype

```
    CALL SSAN3-ADDR-GET-FIELD-IDX USING
                        BY VALUE SOCKH,
                        BY REFERENCE SESSION,
                        BY REFERENCE RSP ,
                        BY REFERENCE SSAMSG,
                        BY VALUE SUGGEST-IDX,
                        BY VALUE FIELD-IDX,
                        BY REFERENCE FIELD-VALUE,
                        BY VALUE FIELD-VALUE-SIZE
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
SUGGEST-IDX	Specifies the nth suggestion from which to get a field. On successful parse, use 0 for ASM for AD version 4, 1 for ASM for AD version 5

FIELD-IDX	Specifies a field within the nth suggestion
FIELD-VALUE	The field value

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-FIELD-INFO-EXT

Use this function to retrieve information about a suggestion.

Prototype

```
CALL SSAN3-ADDR-GET-FIELD-INFO-EXT USING
                    BY VALUE SOCKH,
                    BY REFERENCE SESSION,
                    BY REFERENCE RSP ,
                    BY REFERENCE SSAMSG,
                    BY VALUE SUGGEST-IDX,
                    BY REFERENCE FIELD-LENGTH,
                    BY VALUE FIELD-LENGTH-NUM,
                    BY REFERENCE ADDR-LABEL-ENCODED,
                    BY VALUE ADDR-LABEL-ENCODED-SIZE,
                    BY REFERENCE ADDR-LABEL-CHARSET,
                    BY REFERENCE SCORE
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
SUGGEST-IDX	Specifies the suggestion from which to retrieve information
FIELD-LENGTH	An array containing the length of each address field
ADDR-LABEL-ENCODED	The returned label
ADDR-LABEL-CHARSET	The character set used in the address label
SCORE	The returned label’s score

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-FIELD-LEN

Use this function to determine the max field length.

Prototype

```
CALL SSAN3-ADDR-GET-FIELD-LEN USING
                                    BY VALUE SOCKH,
                                    BY REFERENCE SESSION,
                                    BY REFERENCE RSP ,
                                    BY REFERENCE SSAMSG,
                                    BY REFERENCE MAX-LEN
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
MAX-LEN	Returns the max address field length in bytes

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-LINE-LEN

Prototype

```
CALL SSAN3-ADDR-GET-LINE-LEN USING
                                    BY VALUE SOCKH,
                                    BY REFERENCE SESSION,
                                    BY REFERENCE RSP ,
                                    BY REFERENCE SSAMSG,
                                    BY REFERENCE MAX-LEN
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
MAX-LEN	Returns the max line length in bytes

Return Code

negative for error, 0 for success

SSAN3-ADDR-GET-OPTION

Use this function to set optional parameters.

Prototype

```
CALL SSAN3-ADDR-GET-OPTION USING
```

```
                                    BY VALUE     SOCKH,
                                    BY REFERENCE SESSION,
                                    BY REFERENCE RSP ,
                                    BY REFERENCE SSAMSG,
                                    BY REFERENCE PARAM,
                                    BY REFERENCE VALUE
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
PARAM	This field specifies the name of the option to get.
VALUE	Returns the value for the option

Return Code

negative for error, 0 for success

SSAN3-ADDR-INIT

Use this function to initialize the Address Standarization interface.

Prototype

```
    CALL SSAN3-ADDR-INIT USING
                                BY VALUE SOCKH,
                                BY REFERENCE SESSION,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG,
                                BY VALUE MAX-MEMORY
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
MAX-MEMORY	This field specifies the maximum amount of memory (MB) to be used by the Address Standarization engine.

Return Code

negative for error, 0 for success

SSAN3-ADDR-PARSE

Use this function to parse an address.

Prototype

```
CALL SSAN3-ADDR-PARSE USING
                                BY VALUE SOCKH,
                                BY REFERENCE SESSION,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG,
                                BY REFERENCE FIELD-LENGTH,
                                BY VALUE FIELD-LENGTH-NUM
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
FIELD-LENGTH	An array containing the length of each parsed field

Return Code

negative for error, 0 for success

SSAN3-ADDR-PRELOAD-COUNTRY

Use this function to preload country database.

Prototype

```
CALL SSAN3-ADDR-PRELOAD-COUNTRY USING
                                   BY VALUE                 SOCKH,
                                   BY REFERENCE SESSION,
                                   BY REFERENCE RSP ,
                                   BY REFERENCE SSAMSG,
                                   BY REFERENCE PRELOAD-TYPE,
                                   BY REFERENCE PRELOAD-COUNTRY,
                                   BY REFERENCE VAL-MODE
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
PRELOAD-TYPE	Type of preload to perform
PRELOAD-COUNTRY	Country database to be preloaded
VAL-MODE	This field specified validation mode

Return Code

negative for error, 0 for success

SSAN3-ADDR-SET-ATTRIB

Use this function to specify the character set of the data and a default country.

Prototype

```
CALL SSAN3-ADDR-SET-ATTRIB USING
                                BY VALUE     SOCKH,
                                BY REFERENCE SESSION,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG,
                                BY REFERENCE CHAR-SET,
                                BY REFERENCE DEFAULT-COUNTRY
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
CHAR-SET	The name of the character set used to encode the input and output.
DEFAULT-COUNTRY	The default country used for validation when parsing cannot detect a country name.

Return Code

negative for error, 0 for success

SSAN3-ADDR-SET-DEL-LINES

Use this function to set delivery address line information.

Prototype

```
CALL SSAN3-ADDR-SET-DEL-LINES USING
                                BY VALUE     SOCKH,
                                BY REFERENCE SESSION,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG,
                                BY REFERENCE DEL-LINE1,
                                BY REFERENCE DEL-LINE2,
                                BY REFERENCE DEL-LINE3,
                                BY REFERENCE DEL-LINE4,
                                BY REFERENCE DEL-LINE5,
                                BY REFERENCE DEL-LINE6
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
DEL-LINE1	Delivery address line 1 input string

DEL-LINE2	Delivery address line 2 input string
DEL-LINE3	Delivery address line 3 input string
DEL-LINE4	Delivery address line 4 input string
DEL-LINE5	Delivery address line 5 input string

Return Code

negative for error, 0 for success

SSAN3-ADDR-SET-FIELD-CASE

Use this function to set individual input fields case option.

Prototype

```
CALL SSAN3-ADDR-SET-FIELD-CASE USING
                               BY VALUE SOCKH,
                               BY REFERENCE SESSION,
                               BY REFERENCE RSP ,
                               BY REFERENCE SSAMSG,
                               BY VALUE FIELD-IDX,
                               BY VALUE FIELD-CASE
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
FIELD-IDX	Specifies the nth field to set
FIELD-CASE	Specifies output field case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case.

Return Code

negative for error, 0 for success

SSAN3-ADDR-SET-FIELD-IDX

Use this function to set individual input fields by idx.

Prototype

```
CALL SSAN3-ADDR-SET-FIELD-IDX USING
                               BY VALUE SOCKH,
                               BY REFERENCE SESSION,
                               BY REFERENCE RSP ,
                               BY REFERENCE SSAMSG,
                               BY VALUE FIELD-IDX,
```

```
                                    BY REFERENCE FIELD-VALUE
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
FIELD-IDX	Specifies the nth field to set
FIELD-VALUE	Specifies a value for the nth field

Return Code

negative for error, 0 for success

SSAN3-ADDR-SET-FIELD-NAME

Use this function to set individual input fields by name.

Prototype

```
    CALL SSAN3-ADDR-SET-FIELD-NAME USING
                               BY VALUE SOCKH,
                               BY REFERENCE SESSION,
                               BY REFERENCE RSP ,
                               BY REFERENCE SSAMSG,
                               BY REFERENCE FIELD-NAME,
                               BY REFERENCE FIELD-VALUE
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
FIELD-NAME	Specifies the name of the field to set
FIELD-VALUE	Specifies a value for the field

Return Code

negative for error, 0 for success

SSAN3-ADDR-SET-LINES

Use this function to provide an address to parse or validate.

Prototype

```
    CALL SSAN3-ADDR-SET-LINES USING
```

```
                                    BY VALUE     SOCKH,
                                    BY REFERENCE SESSION,
                                    BY REFERENCE RSP ,
                                    BY REFERENCE SSAMSG,
                                    BY REFERENCE LINE-1 ,
                                    BY REFERENCE LINE-2 ,
                                    BY REFERENCE LINE-3 ,
                                    BY REFERENCE LINE-4 ,
                                    BY REFERENCE LINE-5 ,
                                    BY REFERENCE LINE-6 ,
                                    BY REFERENCE LINE-7 ,
                                    BY REFERENCE LINE-8 ,
                                    BY REFERENCE LINE-9 ,
                                    BY REFERENCE LINE-10
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
LINE-1	The first line of the address
LINE-2	The second line of the address
LINE-3	The third line of the address
LINE-4	The fourth line of the address
LINE-5	The fifth line of the address
LINE-6	The sixth line of the address
LINE-7	The seventh line of the address
LINE-8	The eighth line of the address
LINE-9	The ninth line of the address
LINE-10	The tenth line of the address

Return Code

negative for error, 0 for success

SSAN3-ADDR-SET-OPTION

Use this function to set optional parameters.

Prototype

```
    CALL SSAN3-ADDR-SET-OPTION USING
                                    BY VALUE SOCKH,
                                    BY REFERENCE SESSION,
                                    BY REFERENCE RSP ,
                                    BY REFERENCE SSAMSG,
                                    BY REFERENCE PARAM,
```

```
                                        BY REFERENCE VALUE
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
PARAM	This field specifies the name of the option to set.
VALUE	This field specifies a value for the option.

Return Code

negative for error, 0 for success

SSAN3-ADDR-VALIDATE

Use this function to validate an address.

Prototype

```
    CALL SSAN3-ADDR-VALIDATE USING
                                BY VALUE                SOCKH,
                                BY REFERENCE SESSION,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG,
                                BY REFERENCE STATUS,
                                BY REFERENCE N-SUGGEST
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
STATUS	The status returned by the validation process
N-SUGGEST	The number of suggestions generated by validation

Return Code

negative for error, 0 for success

SSAN3-CLOSE

Closes the SSA session and deallocates memory. Similarly to **ssa_open**, it is optional.

Prototype

```
    CALL SSAN3-CLOSE USING
```

```
                                    BY VALUE SOCKH,
                                    BY REFERENCE SESSION,
                                    BY REFERENCE SYSTEM,
                                    BY REFERENCE POPULATION,
                                    BY REFERENCE CONTROLS,
                                    BY REFERENCE RSP ,
                                    BY REFERENCE SSAMSG
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
SYSTEM	Refer to the Common Parameters section
POPULATION	Refer to the Common Parameters section
CONTROLS	Refer to the Controls section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

SSAN3-CONNECT

Initiates a socket.

Prototype

```
    CALL SSAN3-CONNECT USING
                              BY REFERENCE HOST,
                              BY VALUE PORT,
                              BY REFERENCE SOCKH
    END CALL
```

Parameters

HOST	This is the host to connect to.
PORT	This is the port to connect to.
SOCKH	This is a socket handle.

Return Code

negative for error, 0 for success

SSAN3-CONVERT-KEYS

Used to convert 8 byte keys (from server) to 5 byte keys (for client).

Prototype

```
    CALL SSAN3-CONVERT-KEYS USING
```

```
                                BY VALUE SOCKH,
                                BY REFERENCE KEYS8 ,
                                BY REFERENCE KEYS5 ,
                                BY VALUE KEYS5-NUM,
                                BY VALUE KEYS5-SIZE ,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG
    END CALL
```

Parameters

KEYS8	Block of 8 byte keys to be converted
KEYS5	Block of 5 byte keys (output)
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

SSAN3-CONVERT-RANGES

Used to convert 8 byte ranges (from server) to 5 byte ranges (for client).

Prototype

```
    CALL SSAN3-CONVERT-RANGES USING
                                BY VALUE     SOCKH,
                                BY REFERENCE RANGES8,
                                BY REFERENCE RANGES5,
                                BY VALUE     RANGES5-NUM,
                                BY VALUE     RANGES5-SIZE,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG
    END CALL
```

Parameters

RANGES8	Block of 8 byte ranges to be converted
RANGES5	Block of 5 byte ranges (output)
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

SSAN3-DISCONNECT

Releases resources allocated to a socket.

Prototype

```
CALL SSAN3-DISCONNECT USING
       BY VALUE SOCKH
END CALL
```

Parameters

none

Return Code

negative for error, 0 for success

SSAN3-ERRORS-GET-ALL

Get the Server side error messages from the last API function that failed. This function should be called repeatedly until it returns 1, meaning all messages have been retrieved.
Note: If a communication (socket) error occurred, this function will also fail. Refer to the *OPERATIONS MANUAL, Error Log* section for information on interpreting the Error Log.

Prototype

```
CALL SSAN3-ERRORS-GET-ALL USING
                                BY VALUE SOCKH,
                                BY REFERENCE MSG
END CALL
```

Parameters

MSG	This is an error message.

Return Code

negative for error, 0 for success

SSAN3-GET-KEYS

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
CALL SSAN3-GET-KEYS USING
                            BY VALUE     SOCKH,
                            BY REFERENCE SESSION,
                            BY REFERENCE SYSTEM,
                            BY REFERENCE POPULATION,
                            BY REFERENCE CONTROLS,
                            BY REFERENCE RSP ,
                            BY REFERENCE SSAMSG,
                            BY REFERENCE DATA,
                            BY REFERENCE COUNT,
                            BY REFERENCE KEYS
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
SYSTEM	Refer to the Common Parameters section
POPULATION	Refer to the Common Parameters section
CONTROLS	Refer to the Controls section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
DATA	Refer to the REF Controls section
COUNT	A number defining the actual number of keys returned for this name or address
KEYS	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

SSAN3-GET-RANGES

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a `Select` statement to retrieve records from the SSA Keys table.

Prototype

```
CALL SSAN3-GET-RANGES USING
                           BY VALUE     SOCKH,
                           BY REFERENCE SESSION,
                           BY REFERENCE SYSTEM,
                           BY REFERENCE POPULATION,
                           BY REFERENCE CONTROLS,
                           BY REFERENCE RSP
                           BY REFERENCE SSAMSG,
                           BY REFERENCE DATA,
                           BY REFERENCE COUNT,
                           BY REFERENCE STAB
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
SYSTEM	Refer to the Common Parameters section
POPULATION	Refer to the Common Parameters section
CONTROLS	Refer to the Controls section
RSP	Refer to the Common Parameters section

SSAMSG	Refer to the SSA-NAME3 Error Messages section
DATA	Refer to the REF Controls section
COUNT	A number defining the actual number of key ranges returned for this name or address
STAB	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

SSAN3-INFO

Returns Information regarding the selected `System` and `Population`.

Prototype

```
CALL SSAN3-INFO USING
                        BY VALUE     SOCKH,
                        BY REFERENCE SESSION,
                        BY REFERENCE SYSTEM,
                        BY REFERENCE POPULATION,
                        BY REFERENCE CONTROLS,
                        BY REFERENCE RSP ,
                        BY REFERENCE SSAMSG,
                        BY REFERENCE COUNT,
                        BY REFERENCE INFO
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
SYSTEM	Refer to the Common Parameters section
POPULATION	Refer to the Common Parameters section
CONTROLS	Refer to the Controls section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
COUNT	A number defining the number of rows in the Items Array
INFO	An array of 1024 byte rows, containing the data returned for the specific **ssan3_info** call

Return Code

negative for error, 0 for success

SSAN3-KEYS

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
CALL SSAN3-KEYS USING
                          BY VALUE                SOCKH,
                          BY REFERENCE SESSION,
                          BY REFERENCE SYSTEM,
                          BY REFERENCE POPULATION,
                          BY REFERENCE CONTROLS,
                          BY REFERENCE RSP ,
                          BY REFERENCE SSAMSG,
                          BY REFERENCE DATA,
                          BY REFERENCE ENCODING,
                          BY REFERENCE COUNT,
                          BY REFERENCE KEYS ,
                          BY VALUE                KEYS-NUM,
                          BY VALUE                KEYS-SIZE
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
SYSTEM	Refer to the Common Parameters section
POPULATION	Refer to the Common Parameters section
CONTROLS	Refer to the Controls section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
DATA	Refer to the REF Controls section
ENCODING	The encoding used for the data field
COUNT	A number defining the actual number of keys returned for this name or address
KEYS	An array of keys returned for this name or address

Return Code

negative for error, 0 for success

SSAN3-MATCH

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
CALL SSAN3-MATCH USING
                              BY VALUE                SOCKH,
                              BY REFERENCE SESSION,
```

```
                                BY REFERENCE SYSTEM,
                                BY REFERENCE POPULATION,
                                BY REFERENCE CONTROLS,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG,
                                BY REFERENCE SEARCH,
                                BY REFERENCE FILE ,
                                BY REFERENCE SCORE,
                                BY REFERENCE DECISION
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
SYSTEM	Refer to the Common Parameters section
POPULATION	Refer to the Common Parameters section
CONTROLS	Refer to the Controls section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the section SSA-NAME3 Error Messages
SEARCH	Refer to the Common Parameters section
FILE	Refer to the Common Parameters section
SCORE	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
DECISION	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

SSAN3-OPEN

An optional function, but its use will improve performance. It opens and initiates an SSA-NAME3 session in preparation.

Prototype

```
    CALL SSAN3-OPEN USING
                                BY VALUE     SOCKH,
                                BY REFERENCE SESSION,
                                BY REFERENCE SYSTEM,
                                BY REFERENCE POPULATION,
                                BY REFERENCE CONTROLS,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG
    END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
SYSTEM	Refer to the Common Parameters section
POPULATION	Refer to the Common Parameters section
CONTROLS	Refer to the Controls section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

SSAN3-RANGES

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
CALL SSAN3-RANGES USING
                                BY VALUE     SOCKH,
                                BY REFERENCE SESSION,
                                BY REFERENCE SYSTEM,
                                BY REFERENCE POPULATION,
                                BY REFERENCE CONTROLS,
                                BY REFERENCE RSP ,
                                BY REFERENCE SSAMSG,
                                BY REFERENCE DATA,
                                BY REFERENCE ENCODING,
                                BY REFERENCE COUNT,
                                BY REFERENCE STAB,
                                BY VALUE     STAB-NUM,
                                BY VALUE     STAB-SIZE
END CALL
```

Parameters

SESSION	Refer to the Common Parameters section
SYSTEM	Refer to the Common Parameters section
POPULATION	Refer to the Common Parameters section
CONTROLS	Refer to the Controls section
RSP	Refer to the Common Parameters section
SSAMSG	Refer to the SSA-NAME3 Error Messages section
DATA	Refer to the REF Controls section

ENCODING	The encoding used for the data field
COUNT	A number defining the actual number of key ranges returned for this name or address
STAB	An array of pairs returned for this name or address

Return Code

negative for error, 0 for success

Calling from Java

Coding the ssan3_close Call outside of the Finalize() Method

Calling the **ssan3_close** method from the `finalize()` method is not recommended. This is because it delays the call to **ssan3_close** until the Java runtime runs garbage collection on the released object, which can be anytime after the object has been released by the Java program

Instead, it is recommended that the user implement a public cleanup or close method that performs the necessary housekeeping, including a call to **ssan3_close** to release open sessions prior to releasing the object.

For example, calling **ssan3_close** from the `finally` part of a `try/catch/finally` block. Example,

```
static public void main (String arg[]) {
         nm3object w = null;
         try {
               w = new nm3object (arg);
               ....
        } catch (SomeException e) {
               ....
        } finally {
              if (w.h () != -1)
                      w.close ();
              if (w != null)
                      w.disconnect ();
        }
}
```

Formatting Search Data and File Data strings

When formatting Search Data and File Data strings, keep in mind that the Java concatenation operator (+) does not scale well. The CPU cycles required rise exponentially as the size and quantity of strings to be concatenated increase. The concatenation operator (+) is only efficient for concatenating a small (2-3) number of short strings. When concatenating a large quantity of strings, the `StringBuffer append()` method will perform better. Once created, a single `StringBuffer` can be reused by setting the string length to `0` with the `setLength(0)` method.

ssan3_addr_get_cass_field

Use this function to retrieve cass specific address fields.

Prototype

```
using s sa . ssaname3 ;

public synchronized int ssan3_addr_get_cass_field (
                            int [ ]    session , / / Long io
                            String [ ] rsp , / / String out
                            String [ ] ssaMsg , / / String out
                            int        suggest_idx , / / Long in
                            int        field_idx , / / Long in
                            byte [ ]   field_value , / / Block out
                            int        field_value_size
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a cass field
field_idx	Specifies a cass field within the nth suggestion
field_value	The cass field value

Return Code

negative for error, 0 for success

ssan3_addr_get_cass_field_cnt

Use this function to determine the max number of cass address fields.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_cass_field_cnt (
                            int [ ]                session , / / Long io
                            String [ ]     rsp ,             / /  String out
       String [ ]  ssaMsg , / /  String out
       int [ ]     count   / /   Long out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of cass address fields

Return Code

negative for error, 0 for success

ssan3_addr_get_cass_field_info

Use this function to retrieve information about a suggestion.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_cass_field_ info (
                            int [ ]    session , / / Long io
                            String [ ] rsp ,    / /  String out
                            String [ ] ssaMsg , / /  String out
                            int        suggest_idx ,   / /   Long in
                            int [ ]    field_length , / / LongArray out
                            int        field_length_num
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each cass address field

Return Code

negative for error, 0 for success

ssan3_addr_get_del_lines

(deprecated) Use this function to retrieve delivery address line information This function is deprecated. Use **addr_get_del_lines_ext** instead.

Prototype

```
using ssa.ssaname3 ;
public synchronized int ssan3_addr_get_del_lines (
                            int             [ ] session , / / Long io
                            String [ ] rsp ,             / /     String out
                            String [ ] ssaMsg , / /     String out
                            int                             suggest_idx , / / Long in
                            byte  [ ]        del_line1 , / / Block out
                            int                             del_line1_size ,
                            byte  [ ]     del_line2 , / / Block out
                            int        del_line2_size ,
                            byte  [ ]  del_line3 , / / Block out
                            int        del_line3_size ,
                            byte  [ ]  del_line4 , / / Block out
                            int        del_line4_size ,
                            byte  [ ]  del_line5 , / / Block out
                            int        del_line5_size ,
                            byte  [ ]  del_line6 , / / Block out
                            int        del_line6_size
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

ssan3_addr_get_del_lines_ext

Use this function to retrieve delivery address line information.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_del_lines_ext (

       int [ ]    session , / / Long io
       String [ ] rsp ,    / /  String out
       String [ ] ssaMsg , / /  String out
       int      suggest_idx , / /  Long in
       int      del_case , / / Long in
       byte [ ] del_line1 , / / Block out
       int      del_line1_size ,
       byte [ ] del_line2 , / / Block out
       int      del_line2_size ,
                           byte [ ] del_line3 , / / Block out
                           int      del_line3_size ,
                           byte [ ] del_line4 , / / Block out
                           int      del_line4_size ,
                           byte [ ] del_line5 , / / Block out
                           int      del_line5_size ,
                           byte [ ] del_line6 , / / Block out
                           int      del_line6_size
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_case	Specifies delivery address line case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case.
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

ssan3_addr_get_field

Use this function to retrieve validated address fields.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_field (
                            int [ ]            session , / / Long io
                            String [ ] rsp , / / String out
                            String [ ] ssaMsg , / / String out
                            int        suggest_idx , / / Long in
                            int        field_idx , / / Long in
                            byte [ ]   field_value , / / Block out
                            int        field_value_size ,
                            int [ ]    field_val_status , / / Long out
                            int [ ]    field_val_mods / / Long out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

suggest_idx	Specifies the nth suggestion from which to get a field
field_idx	Specifies a field within the nth suggestion
field_value	The field value
field_val_status	Specifies how this field matched the validation data
field_val_mods	Specifies how this field was modified by validation data

Return Code

negative for error, 0 for success

ssan3_addr_get_field_count

Use this function to determine the max number of address fields.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_field_count (
                           int     [ ]         session , / / Long io
                           String [ ] rsp , / / String out
                           String [ ] ssaMsg , / / String out
                           int [ ]    count / / Long out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of address fields

Return Code

negative for error, 0 for success

ssan3_addr_get_field_ext

Use this function to retrieve all getter fields.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_field_ ext (
       int [ ]    session , / / Long io
       String [ ] rsp , / / String out
                           String [ ] ssaMsg , / / String out
                           int        suggest_idx , / / Long in
                           int        field_operation , / / Long in
                           String     field_name , / / String in
```

```
                                int        field_item_line , / / Long in
                                String     field_type , / / String in
                                byte [ ]   field_value , / / Block out
                                int        field_value_size
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get fields
field_operation	Field operation Option 0 for AddressElements Option 1 for AddressLines Option 2 for AddressComplete Option 3 for EnrichmentData Option 4 for ResultDataParameter Option 5 for EnrichmentDataStatus
field_name	Refer AD `Result.dtd` for field names
field_item_line	Represent field line number or field item number
field_type	Refer AD `Result.dtd` for field attribute Type
field_value	Cleansed field output

Return Code

negative for error, 0 for success

ssan3_addr_get_field_idx

Use this function to retrieve individual address fields.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_field_idx (
                                int [ ]    session , / / Long io
                                String [ ] rsp , / / String out
                                String [ ] ssaMsg , / / String out
                                int suggest_idx , / / Long in
                                int field_idx , / / Long in
                                byte [ ] field_value , / / Block out
                                int field_value_size
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

suggest_idx	Specifies the nth suggestion from which to get a field. On successful parse, use 0 for ASM for AD version 4, 1 for ASM for AD version 5
field_idx	Specifies a field within the nth suggestion
field_value	The field value

Return Code

negative for error, 0 for success

ssan3_addr_get_field_info_ext

Use this function to retrieve information about a suggestion.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_field_info_ext (
                           int [ ]    session , / / Long io
                           String [ ] rsp , / / String out
       String [ ] ssaMsg , / / String out
       int suggest_idx , / / Long in
       int [ ] field_length , / / LongArray out
       int field_length_num ,
       byte [ ] addr_label_encoded , / / Block out
       int addr_label_encoded_size ,
       String [ ] addr_label_charset , / / String out
       int [ ] score / / Long out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each address field
addr_label_encoded	The returned label
addr_label_charset	The character set used in the address label
score	The returned label's score

Return Code

negative for error, 0 for success

ssan3_addr_get_field_len

Use this function to determine the max field length.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_field_len (
                          int [ ]    session , / / Long io
       String [ ] rsp , / / String out
       String [ ] ssaMsg , / / String out
       int [ ]    max_len / / Long out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max address field length in bytes

Return Code

negative for error, 0 for success

ssan3_addr_get_line_len

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_line_len (
       int [ ]    session , / / Long io
       String [ ] rsp , / / String out
       String [ ] ssaMsg , / / String out
       int [ ]    max_len / / Long out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max line length in bytes

Return Code

negative for error, 0 for success

ssan3_addr_get_option

Use this function to set optional parameters.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_get_option (
       int [ ]    session , / / Long io
       String [ ] rsp , / / String out
       String [ ] ssaMsg , / / String out
       String param, / / String in
       String [ ] value / / String out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to get
value	Returns the value for the option

Return Code

negative for error, 0 for success

ssan3_addr_init

Use this function to initialize the Address Standarization interface.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_init (
        int [ ] session , / / Long io
        String [ ] rsp , / / String out
        String [ ] ssaMsg , / / String out
        int        max_memory / / Long in
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_memory	This field specifies the maximum amount of memory (MB) to be used by the Address Standarization engine

Return Code

negative for error, 0 for success

ssan3_addr_parse

Use this function to parse an address.

Prototype

```
using ssa.ssaname3 ;
public synchronized int ssan3_addr_parse (
                            int [ ]             session , / / Long io
                            String [ ] rsp , / / String out
                            String [ ] ssaMsg , / / String out
                            int [ ]             field_length , / / LongArray out
                            int field_length_num
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_length	An array containing the length of each parsed field

Return Code

negative for error, 0 for success

ssan3_addr_preload_country

Use this function to preload country database.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_preload_country (
        int [ ]    session , / / Long io
        String [ ] rsp , / / String out
        String [ ] ssaMsg , / / String out
        String     preload_type , / / String in
        String     preload_country , / / String in
        String     val_mode / / String in
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
preload_type	Type of preload to perform
preload_country	Country database to be preloaded
val_mode	This field specified validation mode

Return Code

negative for error, 0 for success

ssan3_addr_set_attrib

Use this function to specify the character set of the data and a default country.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_set_attrib (
        int [ ]    session , / / Long io
        String [ ] rsp , / / String out
        String [ ] ssaMsg , / / String out
        String     char_set , / / String in
        String     default_country / / String in
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
char_set	The name of the character set used to encode the input and output
default_country	The default country used for validation when parsing cannot detect a country name

Return Code

negative for error, 0 for success

ssan3_addr_set_del_lines

Use this function to set delivery address line information.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_set_del_lines (
         int [ ]    session , / / Long io
         String [ ] rsp , / / String out
         String [ ] ssaMsg , / / String out
         byte [ ]   del_line1 , / / Block in
         byte [ ]   del_line2 , / / Block in
         byte [ ]   del_line3 , / / Block in
         byte [ ]   del_line4 , / / Block in
         byte [ ]   del_line5 , / / Block in
         byte [ ]   del_line6 / /   Block in
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
del_line1	Delivery address line 1 input string
del_line2	Delivery address line 2 input string
del_line3	Delivery address line 3 input string
del_line4	Delivery address line 4 input string
del_line5	Delivery address line 5 input string
del_line6	Delivery address line 6 input string

Return Code

negative for error, 0 for success

ssan3_addr_set_field_case

Use this function to set individual input fields case option.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_set_field_case (
       int  [ ]   session , / / Long io
       String [ ] rsp , / / String out
       String [ ] ssaMsg , / / String out
       int        field_idx , / / Long in
       int        field_case / / Long
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_case	Specifies output field case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case

Return Code

negative for error, 0 for success

ssan3_addr_set_field_idx

Use this function to set individual input fields by idx.

Prototype

```
using ssa.
ssaname3 ;
public synchronized int ssan3_addr_set_field_idx (
         int [ ]    session , / / Long io
         String [ ] rsp , / /  String out
         String [ ] ssaMsg , / / String out
         int        field_idx , / / Long in
         byte [ ]   field_value / / Block in
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_value	Specifies a value for the nth field

Return Code

negative for error, 0 for success

ssan3_addr_set_field_name

Use this function to set individual input fields by name.

Prototype

```
using ssa.ssaname3 ;

public synchronized int s san3_addr_set_f ield_name (
        int [ ]    session , / / Long io
        String [ ] rsp , / / String out
        String [ ] ssaMsg , / / String out
        String     field_name , / / String in
        byte [ ]   field_value / / Block in
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_name	Specifies the name of the field to set
field_value	Specifies a value for the field

Return Code

negative for error, 0 for success

ssan3_addr_set_lines

Use this function to provide an address to parse or validate.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_set_lines (
        int [ ]    session , / / Long io
        String [ ] rsp , / / String out
        String [ ] ssaMsg , / / String out
        byte [ ]   line_1 , / / Block in
        byte [ ]   line_2 , / / Block in
        byte [ ]   line_3 , / / Block in
        byte [ ]   line_4 , / / Block in
        byte [ ]   line_5 , / / Block in
        byte [ ]   line_6 , / / Block in
        byte [ ]   line_7 , / / Block in
        byte [ ]   line_8 , / / Block in
        byte [ ]   line_9 , / / Block in
        byte [ ]   line_10 / /  Block in
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
line_1	The first line of the address
line_2	The second line of the address
line_3	The third line of the address
line_4	The fourth line of the address
line_5	The fifth line of the address
line_6	The sixth line of the address
line_7	The seventh line of the address
line_8	The eighth line of the address
line_9	The ninth line of the address
line_10	The tenth line of the address

Return Code

negative for error, 0 for success

ssan3_addr_set_option

Use this function to set optional parameters.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_set_option (
        int [ ]    session , / / Long io
        String [ ] rsp , / / String out
        String [ ] ssaMsg , / / String out
        String     param, / / String in
        String     value / / String in
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to set
value	This field specifies a value for the option

Return Code

negative for error, 0 for success

ssan3_addr_validate

Use this function to validate an address.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_addr_validate (
       int [ ]    session , / / Long io
       String [ ] rsp , / / String out
       String [ ] ssaMsg , / / String out
       int [ ]    status , / / Long out
       int [ ]    n_suggest / / Long out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
status	The status returned by the validation process
n_suggest	The number of suggestions generated by validation

Return Code

negative for error, 0 for success

ssan3_close

Closes the SSA session and deallocates memory. Similarly to **ssa_open**, it is optional.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_close (
                            int [ ] session , / / Long io
                            String     system , / / String in
                            String     population , / / String in
                            String     controls , / / String in
                            String [ ] rsp , / / String out
                            String [ ] ssaMsg / / String out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_convert_keys

Used to convert 8 byte keys (from server) to 5 byte keys (for client).

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_convert_keys (
       String [ ]   keys8 , / / StringArray in
       byte [ ] [ ] keys5 , / / BlockArray out
       int [ ]      keys5_num ,
       int [ ]      keys5_s ize ,
       String [ ]   rsp , / / String out
       String [ ]   ssaMsg / / String out
) throws SSAAPIException , SSASocketException ;
```

Parameters

keys8	Block of 8 byte keys to be converted
keys5	Block of 5 byte keys (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_convert_ranges

Used to convert 8 byte ranges (from server) to 5 byte ranges (for client).

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_convert_ranges (
       String [ ] ranges8 , / / StringArray in
       byte [ ] [ ] ranges5 , / / BlockArray out
       int [ ]      ranges5_num ,
       int [ ]      ranges5_size ,
       String [ ]   rsp , / / String out
       String [ ]   ssaMsg / / String out
) throws SSAAPIException , SSASocketException ;
```

Parameters

ranges8	Block of 8 byte ranges to be converted
ranges5	Block of 5 byte ranges (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_disconnect

Releases resources allocated to a socket.

Prototype

```
using ssa.ssaname3 ;
public synchronized int ssan3_disconnect ( ) throws SSAAPIException ,
SSASocketException ;
```

Parameters

none

Return Code

negative for error, 0 for success

ssan3_errors_get_all

Get the Server side error messages from the last API function that failed. This function should be called repeatedly until it returns 1, meaning all messages have been retrieved.

Note: If a communication (socket) error occurred, this function will also fail. Refer to the *OPERATIONS MANUAL, Error Log* section for information on interpreting the Error Log.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_errors_get_all (
String [ ] msg / / String out
) throws SSAAPIException , SSASocketException ;
```

Parameters

msg	This is an error message

Return Code

negative for error, 0 for success

ssan3_get_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_get_keys (
                            int [ ]         session , / / Long io
                            String             system , / / String in
                            String    population , / / String in
       String    controls , / / String in
       String [ ] rsp , / / String out
       String [ ] ssaMsg , / / String out
       String data , / / String in
       int [ ] count , / / Long out
       String [ ] keys / / StringArray out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section

rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_keys_encoded

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_get_keys_encoded (
                            int [ ] session , / / Long io
                            String system , / / String in
                            String population , / / String in
                            String controls , / / String in
                            String [ ] rsp , / / String out
                            String [ ] ssaMsg , / / String out
                            String data , / / EncodedString in
                            String dataEncType ,
                            int [ ] count , / / Long out
                            String [ ] keys / / StringArray out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_get_ranges (
                           int [ ] session , / / Long io
                           String system , / / String in
                           String population , / / String in
                           String controls , / / String in
                           String [ ] rsp , / / String out
                           String [ ] ssaMsg , / / String out
                           String data , / / String in
                           int [ ] count , / / Long out
                           String [ ] stab / / StringArray out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_ranges_encoded

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
using ssa.ssaname3 ;
```

```
public synchronized int ssan3_get_ranges_encoded (
                            int [ ] session , / / Long io
                            String  system , / / String in
                            String  population , / / String in
                            String     controls , / / String in
                            String [ ] rsp , / / String out
                            String [ ] ssaMsg , / / String out
                            String data , / / EncodedString in
                            String dataEncType ,
                            int [ ] count , / / Long out
                            String [ ] stab / / StringArray out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_info

Returns Information regarding the selected `System` and `Population`.

Prototype

```
using ssa.ssaname3 ;

public sychronized int ssan3_info (
                               int [ ] session , / / Long io
                               String  system , / / String in
                               String  population , / / String in
                               String  controls , / / String in
                               String [ ] rsp , / / String out
                               String [ ] ssaMsg , / / String out
                               int [ ] count , / / Long out
                               String [ ] info / / StringArray out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the section Controls
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	A number defining the number of rows in the Items Array
info	An array of 1024 byte rows, containing the data returned for the specific **ssan3_info** call

Return Code

negative for error, 0 for success

ssan3_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_keys (
                            int [ ] session , / / Long io
                            String  system , / / String in
       String  population , / / String in
       String  controls , / / String in
       String [ ] rsp , / / String out
       String [ ] ssaMsg , / / String out
       byte [ ] data , / / Block in
       String encoding , / / String in
       int [ ] count , / / Long out
       byte [ ] [ ] keys , / / BlockArray out
       int [ ] keys_num,
       int [ ] keys_size
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of keys returned for this name or address
keys	An array of keys returned for this name or address

Return Code

negative for error, 0 for success

ssan3_match

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_match (
                                int [ ] session , / / Long io
                                String     system , / / String in
                                String     population , / / String in
                                String     controls , / / String in
                                String [ ] rsp , / / String out
                                String [ ] ssaMsg , / / String out
                                String                  search , / / String in
                                String file , / / String in
                                String [ ] score , / / String out
                                String [ ] decision / / String out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section
file	Refer to the Common Parameters section

score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3_match_encoded

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_match_encoded (
                            int [ ] session , / / Long io
                            String system , / / String in
                            String population , / / String in
        String controls , / / String in
        String [ ] rsp , / / String out
        String [ ] ssaMsg , / / String out
        String search , / / EncodedString in
        String searchEncType ,
        String file , / / EncodedString in
        String fileEncType ,
        String [ ] score , / / String out
        String [ ] decision / / String out
) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section
file	Refer to the Common Parameters section
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3_open

An optional function, but its use will improve performance. It opens and initiates an SSA-NAME3 session in preparation.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_open (
                            int [ ] session , / / Long io
                            String system , / / String in
                            String population , / / String in
                            String controls , / / String in
                            String [ ] rsp , / / String out
                            String [ ] ssaMsg / / String out
) throws SSAAPIException , SSASocketxception ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
using ssa.ssaname3 ;

public synchronized int ssan3_ranges (
                            int [ ] session , / / Long io
                            String system , / / String in
                            String population , / / String in
                            String controls , / / String in
                            String [ ] rsp , / / String out
                            String [ ] ssaMsg , / / String out
                            byte [ ] data , / / Block in
                            String encoding , / / String in
                            int [ ] count , / / Long out
                            byte [ ] [ ] stab , / / BlockArray out
```

```
                                int [ ] stab_num ,
                                int [ ] stab_size
    ) throws SSAAPIException , SSASocketException ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs returned for this name or address

Return Code

negative for error, 0 for success

Calling from Microsoft SQL Server

Prerequisites

Before you access SSA-NAME3 functionality from Microsoft SQL Server, perform the following prerequisite tasks:

1. Copy the `<Informatica Installation Directory>\mssql\ssan3xp.dll` file to the `<Microsoft SQL Server Installation Directory>\Binn` directory.
2. Copy the following files from the `<Informatica Installation Directory>\bin` directory to the `<Microsoft SQL Server Installation Directory>\Binn` directory:
   - ssan3cl.dll
   - ssaiok.dll
   - ssali.dll
   - ssan3v2.dll
   - ssan3tb.dll

3. Create the following system environment variables:
   - SSA_LIHOST=<License Server Host>:<Port>
   - SSAPR=<Informatica Installation Directory>\pr

   For information about creating environment variables on Windows, consult the Windows documentation.
4. Restart the **SQL Server (MSSQLSERVER)** service.

ssan3xp_addr_get_cass_field

Use this function to retrieve cass specific address fields.

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_cass_field (
                            @rc OUTPUT,
                            @sockh ,
                            @session OUTPUT, - Long io
                            @rsp OUTPUT, - String out
                            @ssaMsg OUTPUT, - String out
                            @suggest_idx , - Long in
                            @field_idx , - Long in
                            @field_value OUTPUT,- Block out
                            @field_value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a cass field
field_idx	Specifies a cass field within the nth suggestion
field_value	The cass field value

Return Code

negative for error, 0 for success

ssan3xp_addr_get_cass_field_cnt

Use this function to determine the max number of cass address fields.

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_cass_field_cnt (
                            @rc OUTPUT,
                            @sockh ,
                            @session OUTPUT, - Long io
                            @rsp OUTPUT, - String out
                            @ssaMsg OUTPUT, - String out
                            @count OUTPUT - Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of cass address fields

Return Code

negative for error, 0 for success

ssan3xp_addr_get_cass_field_info

Use this function to retrieve information about a suggestion.

Prototype

```
CREATE TABLE #ssan3xp_addr_get_cass_field_info_layout (
                                field_length INT)
INSERT #ssan3xp_addr_get_cass_field_info_layout
                                    EXEC
master.dbo.ssan3xp_addr_get_cass_field_info_layout
                @rc OUTPUT,
                                                                        @sockh ,
                @session OUTPUT, - Long io
                @rsp OUTPUT, - String out
                @ssaMsg OUTPUT, - String out
                @suggest_idx , - Long in
                @field_length OUTPUT,- LongArray out
                @field_length_num ;
if @rc < 0 begin
    goto ret ;
end ;
DECLARE ssan3xp_addr_get_cass_field_info_cursor CURSOR SCROLL FOR
SELECT
     field_length
FROM #ssan3xp_addr_get_cass_field_info
OPEN ssan3xp_addr_get_cass_field_info_cursor ;
FETCH FIRST FROM ssan3xp_addr_get_cass_field_info_cursor INTO
       field_length ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each cass address field

Return Code

negative for error, 0 for success

ssan3xp_addr_get_del_lines

(deprecated) Use this function to retrieve delivery address line information This function is deprecated. Use **addr_get_del_lines_ext** instead.

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_del_lines (
                                @rc OUTPUT,
                                @sockh ,
                                @session OUTPUT, - Long io
                                @rsp OUTPUT, - String out
                                @ssaMsg OUTPUT, - String out
                                @suggest_idx , - Long in
                                @del_line1 OUTPUT,- Block out
                                @de l_line1_size ,
                                @del_line2 OUTPUT,- Block out
                                @de l_line2_size ,
                                @del_line3 OUTPUT,- Block out
                                @de l_line3_size ,
                                @del_line4 OUTPUT,- Block out
                                @de l_line4_size ,
                                @del_line5 OUTPUT,- Block out
                                @de l_line5_size ,
                                @del_line6 OUTPUT,- Block out
                                @del_line6_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

ssan3xp_addr_get_del_lines_ext

Use this function to retrieve delivery address line information.

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_del_lines_ext (
                              @rc OUTPUT,
                              @sockh ,
                              @session OUTPUT, - Long io
                              @rsp OUTPUT, - String out
                              @ssaMsg OUTPUT, - String out
                              @suggest_idx , - Long in
                              @del_case , - Long in
                              @del_line1 OUTPUT,- Block out
                              @de l_line1_size ,
                              @del_line2 OUTPUT,- Block out
                              @de l_line2_size ,
                              @del_line3 OUTPUT,- Block out
                              @de l_line3_size ,
                              @del_line4 OUTPUT,- Block out
                              @de l_line4_size ,
                              @del_line5 OUTPUT,- Block out
                              @de l_line5_size ,
                              @del_line6 OUTPUT,- Block out
                              @del_line6_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_case	Specifies delivery address line case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

ssan3xp_addr_get_field

Use this function to retrieve validated address fields.

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_field (
                        @rc OUTPUT,
                        @sockh ,
                        @session OUTPUT, - Long io
                        @rsp OUTPUT, - String out
                        @ssaMsg OUTPUT, - String out
                        @suggest_idx , - Long in
                        @field_idx , - Long in
                        @field_value OUTPUT,- Block out
                        @field_value_size ,
                        @field_val_status OUTPUT,- Long out
                        @field_val_mods OUTPUT - Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field
field_idx	Specifies a field within the nth suggestion
field_value	The field value
field_val_status	Specifies how this field matched the validation data
field_val_mods	Specifies how this field was modified by validation data

Return Code

negative for error, 0 for success

ssan3xp_addr_get_field_count

Use this function to determine the max number of address fields.

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_field_count (
                    @rc OUTPUT,
                    @sockh ,
                    @session OUTPUT, - Long io
                    @rsp OUTPUT, - String out
                    @ssaMsg OUTPUT, - String out
                    @count OUTPUT - Long out
) ;
```

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section

ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of address fields

Return Code

negative for error, 0 for success

ssan3xp_addr_get_field_ext

Use this function to retrieve all getter fields.

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_field_ext (
                        @rc OUTPUT,
                        @sockh ,
                        @session OUTPUT, - Long io
                        @rsp OUTPUT, - String out
                        @ssaMsg OUTPUT, - String out
                        @suggest_idx , - Long in
                        @field_operation ,- Long in
                        @field_name , - String in
                        @field_item_line ,- Long in
                        @field_type , - String in
                        @field_value OUTPUT,- Block out
                        @field_value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get fields
field_operation	Field operation Option 0 for AddressElements Option 1 for AddressLines Option 2 for AddressComplete Option 3 for EnrichmentData Option 4 for ResultDataParameter Option 5 for EnrichmentDataStatus
field_name	Refer AD `Result.dtd` for field names
field_item_line	Represent field line number or field item number
field_type	Refer AD `Result.dtd` for field attribute Type
field_value	Cleansed field output

Return Code

negative for error, 0 for success

ssan3xp_addr_get_field_idx

Use this function to retrieve individual address fields.

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_f ield_idx (
                    @rc OUTPUT,
                    @sockh ,
                    @session OUTPUT, - Long io
                    @rsp OUTPUT, - String out
                    @ssaMsg OUTPUT, - String out
                    @suggest_idx , - Long in
                    @field_idx , - Long in
                    @field_value OUTPUT,- Block out
                    @field_value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field. On successful parse, use 0 for ASM for AD version 4, 1 for ASM for AD version 5
field_idx	Specifies a field within the nth suggestion
field_value	The field value

Return Code

negative for error, 0 for success

ssan3xp_addr_get_field_info_ext

Use this function to retrieve information about a suggestion.

Prototype

```
CREATE TABLE #ssan3xp_addr_get_field_info_ext_layout (
        field_length INT)
INSERT #ssan3xp_addr_get_field_info_ext_layout
                           EXEC master.dbo.ssan3xp_addr_get_field_info_ext_layout
                                                        @rc OUTPUT,
                                                        @sockh ,
                                                        @session OUTPUT, - Long i o
                                                        @rsp OUTPUT, - String out
                                                        @ssaMsg OUTPUT, - String out
                                                        @suggest_idx , - Long in
                                                        @f i e ld_l ength OUTPUT,-
LongArray out
                                                        @field_length_num ,
                                                        @addr_label_encoded OUTPUT,-
Block out
                                                        @addr_label_encoded_size ,
                                                        @addr_label_char set
OUTPUT,- String out
                                                        @score OUTPUT; - Long out
if @rc < 0 begin
```

```
                              goto ret ;
end ;
DECLARE ssan3xp_addr_get_field_info_ext_cursor CURSOR SCROLL FOR
SELECT
                                    field_length
FROM #ssan3xp_addr_get_field_info_ext
OPEN ssan3xp_addr_get_field_info_ext_cursor ;
FETCH FIRST FROM ssan3xp_addr_get_field_info_ext_cursor INTO
                              field_length ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each address field
addr_label_encoded	The returned label
addr_label_charset	The character set used in the address label
score	The returned label's score

Return Code

negative for error, 0 for success

ssan3xp_addr_get_field_len

Use this function to determine the max field length.

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_field_len (
                    @rc OUTPUT,
                    @sockh ,
                    @session OUTPUT, - Long io
                    @rsp OUTPUT, - String out
                    @ssaMsg OUTPUT, - String out
                    @max_len OUTPUT - Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max address field length in bytes

Return Code

negative for error, 0 for success

ssan3xp_addr_get_line_len

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_line_len (
                        @rc OUTPUT,
                        @sockh ,
                        @session OUTPUT, - Long io
                        @rsp OUTPUT, - String out
                        @ssaMsg OUTPUT, - String out
                        @max_len OUTPUT - Long out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max line length in bytes

Return Code

negative for error, 0 for success

ssan3xp_addr_get_option

Use this function to set optional parameters.

Prototype

```
EXEC master.dbo.ssan3xp_addr_get_option (
                    @rc OUTPUT,
                    @sockh ,
                    @session OUTPUT, - Long io
                    @rsp OUTPUT, - String out
                    @ssaMsg OUTPUT, - String out
                    @param, - String in
                    @value OUTPUT - String out
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to get
value	Returns the value for the option

Return Code

negative for error, 0 for success

ssan3xp_addr_init

Use this function to initialize the Address Standarization interface.

Prototype

```
EXEC master.dbo.ssan3xp_addr_init (
                            @rc OUTPUT,
                            @sockh ,
                            @session OUTPUT, - Long io
                            @rsp OUTPUT, - String out
                            @ssaMsg OUTPUT, - String out
                            @max_memory - Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_memory	This field specifies the maximum amount of memory (MB) to be used by the Address Standarization engine

Return Code

negative for error, 0 for success

ssan3xp_addr_parse

Use this function to parse an address.

Prototype

```
CREATE TABLE #ssan3xp_addr_parse_layout (
                              field_length INT)
INSERT #ssan3xp_addr_parse_layout
       EXEC master.dbo.ssan3xp_addr_parse_layout
              @rc OUTPUT,
              @sockh ,
              @session OUTPUT, .... Long io
              @rsp OUTPUT, .... String out
              @ssaMsg OUTPUT, .... String out
              @field_length OUTPUT,.... LongArray out
              @field_length_num ;
if @rc < 0 begin
     goto ret ;
end ;
DECLARE ssan3xp_addr_parse_cursor CURSOR SCROLL FOR
SELECT
       field_length
FROM #ssan3xp_addr_parse
OPEN ssan3xp_addr_parse_cursor ;
FETCH FIRST FROM ssan3xp_addr_parse_cursor INTO
        field_leng th ;
WHILE @@FETCH_STATUS = 0 begin
```

```
. . .
END;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_length	An array containing the length of each parsed field

Return Code

negative for error, 0 for success

ssan3xp_addr_preload_country

Use this function to preload country database.

Prototype

```
EXEC master.dbo.ssan3xp_addr_preload_country (
      @rc OUTPUT,
      @sockh ,
      @session OUTPUT, - Long io
      @rsp OUTPUT, - String out
      @ssaMsg OUTPUT, - String out
      @preload_type , - String in
      @preload_country ,- String in
      @val_mode - String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
preload_type	Type of preload to perform
preload_country	Country database to be preloaded
val_mode	This field specified validation mode

Return Code

negative for error, 0 for success

ssan3xp_addr_set_attrib

Use this function to specify the character set of the data and a default country.

Prototype

```
EXEC master.dbo.ssan3xp_addr_set_attrib (
                            @rc OUTPUT,
                            @sockh ,
                            @session OUTPUT, - Long io
                            @rsp OUTPUT, - String out
                            @ssaMsg OUTPUT, - String out
                            @char_set , - String in
                            @default_country - String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
char_set	The name of the character set used to encode the input and output
default_country	The default country used for validation when parsing cannot detect a country name

Return Code

negative for error, 0 for success

ssan3xp_addr_set_del_lines

Use this function to set delivery address line information.

Prototype

```
EXEC master.dbo.ssan3xp_addr_set_del_lines (
                            @rc OUTPUT,
                            @sockh ,
                            @session OUTPUT, - Long io
                            @rsp OUTPUT, - String out
       @ssaMsg OUTPUT, - String out
       @del_line1 , - Block in
       @del_line2 , - Block in
       @del_line3 , - Block in
       @del_line4 , - Block in
       @del_line5 , - Block in
       @del_l ine6 - Block in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
del_line1	Delivery address line 1 input string
del_line2	Delivery address line 2 input string

del_line3	Delivery address line 3 input string
del_line4	Delivery address line 4 input string
del_line5	Delivery address line 5 input string
del_line6	Delivery address line 6 input string

Return Code

negative for error, 0 for success

ssan3xp_addr_set_field_case

Use this function to set individual input fields case option.

Prototype

```
EXEC master.dbo.ssan3xp_addr_set_field_case (
                        @rc OUTPUT,
                        @sockh ,
                        @session OUTPUT, - Long io
                        @rsp OUTPUT, - String out
                        @ssaMsg OUTPUT, - String out
                        @field_idx , - Long in
                        @field_case - Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_case	Specifies output field case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case

Return Code

negative for error, 0 for success

ssan3xp_addr_set_field_idx

Use this function to set individual input fields by idx.

Prototype

```
EXEC master.dbo.ssan3xp_addr_set_field_idx (
                        @rc OUTPUT,
      @sockh ,
      @session OUTPUT, - Long io
      @rsp OUTPUT, - String out
      @ssaMsg OUTPUT, - String out
```

```
        @field_idx , - Long in
        @field_value - Block in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_value	Specifies a value for the nth field

Return Code

negative for error, 0 for success

ssan3xp_addr_set_field_name

Use this function to set individual input fields by name.

Prototype

```
EXEC master.dbo.ssan3xp_addr_set_field_name (
                    @rc OUTPUT,
                    @sockh ,
                    @session OUTPUT, - Long io
                    @rsp OUTPUT, - String out
                    @ssaMsg OUTPUT, - String out
                    @field_name , - String in
                    @field_value - Block in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_name	Specifies the name of the field to set
field_value	Specifies a value for the field

Return Code

negative for error, 0 for success

ssan3xp_addr_set_lines

Use this function to provide an address to parse or validate.

Prototype

```
EXEC master.dbo.ssan3xp_addr_set_lines (
                            @rc OUTPUT,
                            @sockh ,
                            @session OUTPUT, - Long io
                            @rsp OUTPUT, - String out
                            @ssaMsg OUTPUT, - String out
                            @line_1 , - Block in
                            @line_2 , - Block in
                            @line_3 , - Block in
                            @line_4 , - Block in
                            @line_5 , - Block in
                            @line_6 , - Block in
                            @line_7 , - Block in
                            @line_8 , - Block in
                            @line_9 , - Block in
                            @line_10 - Block in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
line_1	The first line of the address
line_2	The second line of the address
line_3	The third line of the address
line_4	The fourth line of the address
line_5	The fifth line of the address
line_6	The sixth line of the address
line_7	The seventh line of the address
line_8	The eighth line of the address
line_9	The ninth line of the address
line_10	The tenth line of the address

Return Code

negative for error, 0 for success

ssan3xp_addr_set_option

Use this function to set optional parameters.

Prototype

```
EXEC master.dbo.ssan3xp_addr_set_option (
                        @rc OUTPUT,
```

```
                        @sockh ,
                        @session OUTPUT, - Long io
                        @rsp OUTPUT, - String out
                        @ssaMsg OUTPUT, - String out
                        @param, - String in
                        @value - String in
    ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to set
value	This field specifies a value for the option

Return Code

negative for error, 0 for success

ssan3xp_addr_validate

Use this function to validate an address.

Prototype

```
    EXEC master.dbo.ssan3xp_addr_validate (
                            @rc OUTPUT,
                            @sockh ,
                            @session OUTPUT, - Long io
                            @rsp OUTPUT, - String out
                            @ssaMsg OUTPUT, - String out
                            @status OUTPUT, - Long out
                            @n_suggest OUTPUT - Long out
    ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
status	The status returned by the validation process
n_suggest	The number of suggestions generated by validation

Return Code

negative for error, 0 for success

ssan3xp_close

Closes the SSA session and deallocates memory. Similarly to **ssa_open**, it is optional.

Prototype

```
EXEC master.dbo.ssan3xp_close (
                        @rc OUTPUT,
                        @sockh ,
                        @session OUTPUT, - Long io
                        @system , - String in
                        @population , - String in
                        @controls , - String in
                        @rsp OUTPUT, - String out
                        @ssaMsg OUTPUT - String out
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3xp_connect

Initiates a socket.

Prototype

```
EXEC master.dbo.ssan3xp_connect (
                    @rc OUTPUT,
                    @host , - String in
                    @port , - Long in
                    @sockh OUTPUT - Long out
) ;
```

Parameters

host	This is the host to connect to
port	This is the port to connect to
sockh	This is a socket handle

Return Code

negative for error, 0 for success

ssan3xp_convert_keys

Used to convert 8 byte keys (from server) to 5 byte keys (for client).

Prototype

```
CREATE TABLE #ssan3xp_convert_keys_layout (
                                keys5 VARCHAR(256))
INSERT #ssan3xp_convert_keys_layout
        EXEC master.dbo.ssan3xp_convert_keys_layout
              @rc OUTPUT,
              @sockh ,
              @keys8 , - StringArray in
              @keys5 OUTPUT, - BlockArray out
              @keys5_num,
              @keys5_size ,
              @rsp OUTPUT, - String out
              @ssaMsg OUTPUT; - String out
if @rc < 0 begin
       goto ret ;
end ;
DECLARE ssan3xp_convert_keys_cursor CURSOR SCROLL FOR
SELECT
        keys5
FROM #ssan3xp_convert_keys
OPEN ssan3xp_convert_keys_cursor ;
FETCH FIRST FROM ssan3xp_convert_keys_cursor INTO
       keys5 ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

keys8	Block of 8 byte keys to be converted
keys5	Block of 5 byte keys (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3xp_convert_ranges

Used to convert 8 byte ranges (from server) to 5 byte ranges (for client).

Prototype

```
CREATE TABLE #ssan3xp_convert_ranges_layout (
ranges5 VARCHAR(256) )
INSERT #ssan3xp_convert_ranges_layout
                                EXEC master.dbo.ssan3xp_convert_ranges_layout
                                                        @rc OUTPUT,
                                                        @sockh ,
                                                        @ranges8 , - StringArray in
                                                        @ranges5 OUTPUT, - BlockArray out
                                                        @ranges5_num ,
                                                        @ranges5_size ,
                                                        @rsp OUTPUT, - String out
              @ssaMsg OUTPUT; - String out
```

```
if @rc < 0 begin
       goto r e t ;
end ;
DECLARE ssan3xp_convert_ranges_cursor CURSOR SCROLL FOR
SELECT
         ranges5
FROM #ssan3xp_convert_ranges
OPEN ssan3xp_convert_ranges_cursor ;
FETCH FIRST FROM ssan3xp_convert_ranges_cursor INTO
         ranges5 ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

ranges8	Block of 8 byte ranges to be converted
ranges5	Block of 5 byte ranges (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3xp_disconnect

Releases resources allocated to a socket.

Prototype

```
EXEC master.dbo.ssan3xp_disconnect (
                            @rc OUTPUT,
                            @sockh
) ;
```

Parameters

none

Return Code

negative for error, 0 for success

ssan3xp_errors_get_all

Get the Server side error messages from the last API function that failed. This function should be called repeatedly until it returns 1, meaning all messages have been retrieved.

Note: If a communication (socket) error occurred, this function will also fail. Refer to the *OPERATIONS MANUAL, Error Log* section for information on interpreting the Error Log.

Prototype

```
EXEC master.dbo.ssan3xp_errors_get_all (
                          @rc OUTPUT,
                          @sockh ,
      @msg OUTPUT - String out
) ;
```

Parameters

msg is an error message.

Return Code

negative for error, 0 for success

get_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
using ssa;

my @keys = $ssa->get_keys (
        $controls , # String in
        $data       # String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the KEY_SIZE Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3xp_get_keys_encoded_text

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
CREATE TABLE #ssan3xp_get_keys_encoded_text_layout (
        keys   VARCHAR(256))
INSERT #ssan3xp_get_keys_encoded_text_layout
EXEC master.dbo.ssan3xp_get_keys_encoded_text_layout
        @rc OUTPUT,
```

```
        @sockh ,
        @session OUTPUT, - Long io
        @system , - String in
        @population , - String in
        @controls , - String in
        @rsp OUTPUT, - String out
        @ssaMsg OUTPUT, - String out
        @data , - EncodedString in
        @count OUTPUT, - Long out
        @keys OUTPUT; - StringArray out
if @rc < 0 begin
        goto ret ;
end ;
DECLARE ssan3xp_get_keys_encoded_text_cursor CURSOR SCROLL FOR
SELECT
        keys
FROM #ssan3xp_get_keys_encoded_text
OPEN ssan3xp_get_keys_encoded_text_cur sor ;
FETCH FIRST FROM ssan3xp_get_keys_encoded_text_cursor INTO
       keys ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3xp_get_keys_encoded_unicode

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
CREATE TABLE #ssan3xp_get_keys_encoded_unicode_layout (
       keys     VARCHAR(256))
INSERT #ssan3xp_get_keys_encoded_unicode_layout
        EXEC master.dbo.ssan3xp_get_keys_encoded_unicode_layout
               @rc OUTPUT,
               @sockh ,
```

```
                @session OUTPUT, - Long io
                @system , - String in
                @population , - String in
                @controls , - String in
                @rsp OUTPUT, - String out
                @ssaMsg OUTPUT, - String out
                @data , - EncodedString in
                @count OUTPUT, - Long out
                @keys OUTPUT; - StringArray out
if @rc < 0 begin
        goto ret ;
end ;
DECLARE ssan3xp_get_keys_encoded_unicode_cursor CURSOR SCROLL FOR
SELECT
        keys
FROM #ssan3xp_get_keys_encoded_unicode
OPEN ssan3xp_get_keys_encoded_unicode_cursor ;
FETCH FIRST FROM ssan3xp_get_keys_encoded_unicode_cursor INTO
       keys ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3xp_get_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
CREATE TABLE #ssan3xp_get_ranges_layout (
                              stab    VARCHAR(256))
INSERT #ssan3xp_get_ranges_layout
        EXEC master.dbo.ssan3xp_get_ranges_layout
             @rc OUTPUT,
             @sockh ,
             @session OUTPUT, - Long i o
```

```
                @system , - String in
                @population , - String in
                @controls , - String in
                @rsp OUTPUT, - String out
                @ssaMsg OUTPUT, - String out
                @data , - EncodedString in
                @count OUTPUT, - Long out
                @stab OUTPUT; - StringArray out
if @rc < 0 begin
                                goto r e t ;
end ;
DECLARE ssan3xp_get_ranges_cursor CURSOR SCROLL FOR
SELECT
          stab
FROM # ssan3xp_get_ranges
OPEN ssan3xp_get_ranges_cursor ;
FETCH FIRST FROM ssan3xp_get_ranges_cursor INTO
         stab ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

get_ranges_encoded

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
using ssa;

my @stab = $ssa->get_ranges_encoded (
          $controls ,      # String in
          $data ,          # EncodedString in
          $dataEncType
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3xp_get_ranges_encoded_unicode

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
CREATE TABLE #ssan3xp_get_ranges_encoded_unicode_layout (
                        stab   VARCHAR(256))
INSERT #ssan3xp_get_ranges_encoded_unicode_layout
        EXEC master.dbo.ssan3xp_get_ranges_encoded_unicode_layout
               @rc OUTPUT,
               @sockh ,
               @session OUTPUT, - Long io
               @system , - String in
               @population , - String in
               @controls , - String in
               @rsp OUTPUT, - String out
               @ssaMsg OUTPUT, - String out
               @data , - EncodedString in
               @count OUTPUT, - Long out
               @stab OUTPUT; - StringArray out
if @rc < 0 begin
       goto ret ;
end ;
DECLARE ssan3xp_get_ranges_encoded_unicode_cursor CURSOR SCROLL FOR
SELECT
        stab
FROM #ssan3xp_get_ranges_encoded_unicode
OPEN ssan3xp_get_ranges_encoded_unicode_cursor ;
FETCH FIRST FROM ssan3xp_get_ranges_encoded_unicode_cursor INTO
        stab ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or addressKEY_SIZE

Return Code

negative for error, 0 for success

ssan3xp_info

Returns Information regarding the selected System and Population.

Prototype

```
CREATE TABLE #ssan3xp_info_layout (
        info   VARCHAR(256))
INSERT #ssan3xp_info_layout
        EXEC master.dbo.ssan3xp_info_layout
               @rc OUTPUT,
               @sockh ,
               @session OUTPUT, - Long io
               @system , - String in
               @population , - String in
               @controls , - String in
               @rsp OUTPUT, - String out
               @ssaMsg OUTPUT, - String out
               @count OUTPUT, - Long out
               @info OUTPUT; - StringArray out
if @rc < 0 begin
        goto ret ;
end ;
DECLARE ssan3xp_info_cursor CURSOR SCROLL FOR
SELECT
        info
FROM #ssan3xp_info
OPEN ssan3xp_info_cursor ;
FETCH FIRST FROM ssan3xp_info_cursor INTO
        info ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	A number defining the number of rows in the Items Array
info	An array of 1024 byte rows, containing the data returned for the specific **ssan3_info** call

Return Code

negative for error, 0 for success

ssan3xp_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
CREATE TABLE #ssan3xp_keys_layout (
        keys   VARCHAR(256))

INSERT #ssan3xp_keys_layout
        EXEC master.dbo.ssan3xp_keys_layout
               @rc OUTPUT,
               @sockh ,
               @session OUTPUT, - Long io
               @system , - String in
               @population , - String in
               @controls , - String in
               @rsp OUTPUT, - String out
               @ssaMsg OUTPUT, - String out
               @data , - Block in
               @encoding , - String in
               @count OUTPUT, - Long out
               @keys OUTPUT, - BlockArray out
               @keys_num,
               @keys_size ;
if @rc < 0 begin
         goto ret ;
end ;
DECLARE ssan3xp_keys_cursor CURSOR SCROLL FOR
SELECT
         keys
FROM # ssan3xp_keys
OPEN ssan3xp_keys_cursor ;
FETCH FIRST FROM ssan3xp_keys_cursor INTO
         keys ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of keys returned for this name or address
keys	An array of keys returned for this name or address

Return Code

negative for error, 0 for success

ssan3xp_match

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
EXEC master.dbo.ssan3xp_match (
       @rc OUTPUT,
       @sockh ,
       @session OUTPUT, - Long io
       @system , - String in
       @population , - String in
                           @controls , - String in
                           @rsp OUTPUT, - String out
                           @ssaMsg OUTPUT, - String out
                           @search , - EncodedString in
                           @file , - EncodedString in
                           @score OUTPUT, - String out
                           @decision OUTPUT - String out
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section

controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section
file	Refer to the Common Parameters section
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3xp_match_encoded_text

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
EXEC master.dbo.ssan3xp_match_encoded_text (
                        @rc OUTPUT,
                        @sockh ,
                        @session OUTPUT, - Long io
                        @system , - String in
                        @population , - String in
                        @controls , - String in
                        @rsp OUTPUT, - String out
                        @ssaMsg OUTPUT, - String out
                        @search , - EncodedString in
      @file , - EncodedString in
      @score OUTPUT, - String out
      @decision OUTPUT - String out
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

search	Refer to the Common Parameters section
file	Refer to the Common Parameters section
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3xp_match_encoded_unicode

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
EXEC master.dbo.ssan3xp_match_encoded_unicode (
       @rc OUTPUT,
       @sockh ,
       @session OUTPUT, - Long io
       @system , - String in
       @population , - String in
       @controls , - String in
       @rsp OUTPUT, - String out
       @ssaMsg OUTPUT, - String out
       @search , - EncodedString in
       @file , - EncodedString in
       @score OUTPUT, - String out
       @decision OUTPUT - String out
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section
file	Refer to the Common Parameters section

score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3xp_open

An optional function, but its use will improve performance. It opens and initiates an SSA-NAME3 session in preparation.

Prototype

```
using ssa;

$ssa->open (
                              $system ,         # String in
                              $population ,     # String in
                              $controls         # String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3xp_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
CREATE TABLE #ssan3xp_ranges_layout (
       stab   VARCHAR(256))
INSERT #ssan3xp_ranges_layout
        EXEC master.dbo.ssan3xp_ranges_layout
              @rc OUTPUT,
              @sockh ,
              @session OUTPUT, - Long io
              @system , - String in
```

```
                @population , - String in
                @controls , - String in
                @rsp OUTPUT, - String out
                @ssaMsg OUTPUT, - String out
                @data , - Block in
                @encoding , - String in
                @count OUTPUT, - Long out
                @stab OUTPUT, - BlockArray out
                @stab_num ,
                @stab_size ;
if @rc < 0 begin
        goto ret ;
end ;
DECLARE ssan3xp_ranges_cursor CURSOR SCROLL FOR
SELECT
        stab
FROM #ssan3xp_ranges
OPEN ssan3xp_ranges_cursor ;
FETCH FIRST FROM ssan3xp_ranges_cursor INTO
       stab ;
WHILE @@FETCH_STATUS = 0 begin
. . .
END;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs returned for this name or address

Return Code

negative for error, 0 for success

Calling from Perl

addr_get_cass_field

Use this function to retrieve cass specific address fields.

Prototype

```
using ssa ;

my $field_value = $ssa->addr_get_cass_field (
        $suggest_idx , # Long in
        $field_idx   # Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a cass field
field_idx	Specifies a cass field within the nth suggestion
field_value	The cass field value

Return Code

negative for error, 0 for success

addr_get_cass_field_cnt

Use this function to determine the max number of cass address fields.

Prototype

```
using ssa ;

my $count = $ssa->addr_get_cass_field_cnt ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of cass address fields

Return Code

negative for error, 0 for success

addr_get_cass_field_info

Use this function to retrieve information about a suggestion.

Prototype

```
using ssa ;

my @field_length = $ssa->addr_get_cass_field_info (
        $suggest_idx # Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each cass address field

Return Code

negative for error, 0 for success

addr_get_del_lines

(deprecated) Use this function to retrieve delivery address line information This function is deprecated. Use **addr_get_del_lines_ext** instead.

Prototype

```
using ssa ;

my ($del_line1 , $del_line2 , $del_line3 , $del_line4 , $del_line5 , $del_line 6 ) =
$ssa ->addr_get_de
$suggest_idx # Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string

del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

addr_get_del_lines_ext

Use this function to retrieve delivery address line information.

Prototype

```
using ssa ;

my ($del_line1 , $del_line2 , $del_line3 , $del_line4 , $del_line5 , $del_line6) = $ssa-
>addr_get_de
        $suggest_idx , # Long in
        $del_case      # Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_case	Specifies delivery address line case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

addr_get_field

Use this function to retrieve validated address fields.

Prototype

```
using ssa ;

my ($field_value , $field_val_status , $field_val_mods ) = $ssa->addr_get_field (
      $suggest_idx , # Long in
      $field_idx     # Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field
field_idx	Specifies a field within the nth suggestion
field_value	The field value
field_val_status	Specifies how this field matched the validation data
field_val_mods	Specifies how this field was modified by validation data

Return Code

negative for error, 0 for success

addr_get_field_count

Use this function to determine the max number of address fields.

Prototype

```
using ssa;

my $count = $ssa->addr_get_field_count ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of address fields

Return Code

negative for error, 0 for success

addr_get_field_ext

Use this function to retrieve all getter fields.

Prototype

```
using ssa;

my $field_value = $ssa->addr_get_field_ext (
        $suggest_idx ,     # Long in
        $field_operation , # Long in
        $field_name ,      # String in
        $field_item_line , # Long in
        $field_type        # String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the section SSA-NAME3 Error Messages
suggest_idx	Specifies the suggestion from which to get fields
field_operation	Field operation Option 0 for AddressElements Option 1 for AddressLines Option 2 for AddressComplete Option 3 for EnrichmentData Option 4 for ResultDataParameter Option 5 for EnrichmentDataStatus
field_name	Refer AD `Result.dtd` for field names
field_item_line	Represent field line number or field item number
field_type	Refer AD `Result.dtd` for field attribute Type
field_value	Cleansed field output

Return Code

negative for error, 0 for success

addr_get_field_idx

Use this function to retrieve individual address fields.

Prototype

```
using ssa ;
my $field_value = $ssa->addr_get_field_idx (
      $suggest_idx , # Long in
      $field_idx     # Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field. On successful parse, use 0 for ASM for AD version 4, 1 for ASM for AD version 5
field_idx	Specifies a field within the nth suggestion
field_value	The field value

Return Code

negative for error, 0 for success

addr_get_field_info_ext

Use this function to retrieve information about a suggestion.

Prototype

```
using ssa ;
my ($field_length , $addr_label_encoded , $addr_label_charset , $score ) = $ssa-
>addr_get_field_ info_
        $suggest_idx # Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each address field
addr_label_encoded	The returned label
addr_label_charset	The character set used in the address label
score	The returned label's score

Return Code

negative for error, 0 for success

addr_get_field_len

Use this function to determine the max field length.

Prototype

```
using ssa ;

my $max_len = $ssa->addr_get_field_len ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max address field length in bytes

Return Code

negative for error, 0 for success

addr_get_line_len

Prototype

```
using ssa ;
my $max_len = $ssa->addr_get_line_len ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max line length in bytes

Return Code

negative for error, 0 for success

addr_get_option

Use this function to set optional parameters.

Prototype

```
using ssa ;

my $value = $ssa->addr_get_option (
       $param      # String in
) ;
```

Parameters

sessrspion	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to get
value	Returns the value for the option

Return Code

negative for error, 0 for success

addr_init

Use this function to initialize the Address Standarization interface.

Prototype

```
using ssa;

$ssa->addr_init (
      $max_memory   # Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_memory	This field specifies the maximum amount of memory (MB) to be used by the Address Standarization engine

Return Code

negative for error, 0 for success

addr_parse

Use this function to parse an address.

Prototype

```
using ssa ;

my @field_length = $ssa->addr_parse ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_length	An array containing the length of each parsed field

Return Code

negative for error, 0 for success

addr_preload_country

Use this function to preload country database.

Prototype

```
using s sa ;
$ssa->addr_preload_country (
        $preload_type ,    # String in
        $preload_country , # String in
        $val_mode          # String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
preload_type	Type of preload to perform
preload_country	country database to be preloaded
val_mode	This field specified validation mode

Return Code

negative for error, 0 for success

addr_set_attrib

Use this function to specify the character set of the data and a default country.

Prototype

```
using ssa;

$ssa->addr_set_attrib (
       $char_set ,      # String in
```

```
        $default_country # String in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
char_set	The name of the character set used to encode the input and output
default_country	The default country used for validation when parsing cannot detect a country name

Return Code

negative for error, 0 for success

addr_set_del_lines

Use this function to set delivery address line information.

Prototype

```
using ssa;

$ssa->addr_set_del_lines (
        $del_line1 ,    # Block in
        $del_line1_size ,
        $del_line2 ,    # Block in
        $del_line2_size ,
        $del_line3 ,    # Block in
        $del_line3_size ,
        $del_line4 ,    # Block in
        $del_line4_size ,
        $del_line5 ,    # Block in
        $del_line5_size ,
        $del_line6 ,    # Block in
        $del_line6_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
del_line1	Delivery address line 1 input string
del_line2	Delivery address line 2 input string
del_line3	Delivery address line 3 input string
del_line4	Delivery address line 4 input string

del_line5	Delivery address line 5 input string
del_line6	Delivery address line 6 input string

Return Code

negative for error, 0 for success

addr_set_field_case

Use this function to set individual input fields case option.

Prototype

```
using ssa;

$ssa->addr_set_field_case (
                                $field_idx , # Long in
                                $field_case  # Long in
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_case	Specifies output field case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case

Return Code

negative for error, 0 for success

addr_set_field_idx

Use this function to set individual input fields by idx.

Prototype

```
using ssa;

$ssa->addr_set_field_idx (
        $field_idx ,   # Long in
        $field_value , # Block in
        $field_value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_value	Specifies a value for the nth field

Return Code

negative for error, 0 for success

addr_set_field_name

Use this function to set individual input fields by name.

Prototype

```
using ssa;

$ssa->addr_set_field_name (
                                $field_name ,  # String in
                                $field_value , # Block in
                                $field_value_size
) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_name	Specifies the name of the field to set
field_value	Specifies a value for the field

Return Code

negative for error, 0 for success

addr_set_lines

Use this function to provide an address to parse or validate.

Prototype

```
using ssa;

$ssa->addr_set_lines (
        $line_1 ,     # Block in
        $line_1_size ,
```

```
            $line_2 ,     # Block in
            $line_2_size ,
            $line_3 ,     # Block in
            $line_3_size ,
            $line_4 ,     # Block in
            $line_4_size ,
            $line_5 ,     # Block in
            $line_5_size ,
            $line_6 ,     # Block in
            $line_6_size ,
            $line_7 ,     # Block in
            $line_7_size ,
            $line_8 ,     # Block in
            $line_8_size ,
            $line_9 ,     # Block in
            $line_9_size ,
            $line_10 ,    # Block in
            $line_10_size
    ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
line_1	The first line of the address
line_2	The second line of the address
line_3	The third line of the address
line_4	The fourth line of the address
line_5	The fifth line of the address
line_6	The sixth line of the address
line_7	The seventh line of the address
line_8	The eighth line of the address
line_9	The ninth line of the address
line_10	The tenth line of the address

Return Code

negative for error, 0 for success

addr_set_option

Use this function to set optional parameters.

Prototype

```
using ssa;

$ssa->addr_set_option (
```

```
            $param , # String in
            $value   # String in
    ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to set
value	This field specifies a value for the option

Return Code

negative for error, 0 for success

addr_validate

Use this function to validate an address.

Prototype

```
using ssa;
my ($status $n_suggest ) = $ssa->addr_validate ( ) ;
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
status	The status returned by the validation process
n_suggest	The number of suggestions generated by validation

Return Code

negative for error, 0 for success

close

Closes the SSA session and deallocates memory. Similarly to **ssa_open**, it is optional.

Prototype

```
using ssa;

$ssa->close (
                              $controls # String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

convert_keys

Used to convert 8 byte keys (from server) to 5 byte keys (for client).

Prototype

```
using ssa;

my @keys5 = $ssa->convert_keys (
                \@keys8 ,      # StringArray in
        $keys8_num
) ;
```

Parameters

keys8	Block of 8 byte keys to be converted
keys5	Block of 5 byte keys (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

convert_ranges

Used to convert 8 byte ranges (from server) to 5 byte ranges (for client).

Prototype

```
using ssa;
my @ranges5 = $ssa->convert_ranges (
                            \@ranges8 ,       # StringArray in
                            $ranges8_num
) ;
```

Parameters

ranges8	Block of 8 byte ranges to be converted
ranges5	Block of 5 byte ranges (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

disconnect

Releases resources allocated to a socket.

Prototype

```
using ssa;

$ssa->disconnect ( ) ;
```

Parameters

none

Return Code

negative for error, 0 for success

errors_get_all

Get the Server side error messages from the last API function that failed. This function should be called repeatedly until it returns 1, meaning all messages have been retrieved.

Note: If a communication (socket) error occurred, this function will also fail. Refer to the *OPERATIONS MANUAL, Error Log* section for information on interpreting the Error Log.

Prototype

```
using ssa;

my $msg = $ssa->errors_get_all ( ) ;
```

Parameters

msg	This is an error message

Return Code

negative for error, 0 for success

get_keys_encoded

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
using ssa;

my @keys = $ssa->get_keys_encoded (
                                $controls ,                         # String in
                                $data ,                                     #
EncodedString in
                                $dataEncType
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

get_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
using ssa;

my @stab = $ssa->get_ranges (
         $controls ,    # String in
         $data          # String in
) ;t
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

info

Returns Information regarding the selected `System` and `Population`.

Prototype

```
using ssa;
my @info = $ssa->info (
                                    $controls       # String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	A number defining the number of rows in the Items Array
info	An array of 1024 byte rows, containing the data returned for the specific **ssan3_info** call

Return Code

negative for error, 0 for success

keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
using ssa;

my @keys = $ssa->keys (
      $controls ,        # String in
      $data ,            # Block in
      $data_size ,
      $encoding          # String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of keys returned for this name or address
keys	An array of keys returned for this name or address

Return Code

negative for error, 0 for success

match

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
using ssa;

my ($score , $decision ) = $ssa->match (
                                $controls ,        # String in
```

```
                                $search ,          # String in
                                $file              # String in
    ) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section
file	Refer to the Common Parameters section
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

match_encoded

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
using ssa;

my ($score , $decision ) = $ssa->match_encoded (
                                $controls ,                              # String in
                                $search ,                                      #
EncodedString in
                                $searchEncType ,
                                $file ,                                                #
EncodedString in
                                $fileEncType
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section

population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section
file	Refer to the Common Parameters section
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
using ssa;

my @stab = $ssa->ranges (
        $controls ,     # String in
        $data ,         # Block in
        $data_size ,
        $encoding       # String in
) ;
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field

count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs returned for this name or address

Return Code

negative for error, 0 for success

Calling from Visual Basic 6

VB programs should call the SSA-NAME3 DLL (`ssan3ca.dll`). This is achieved by adding the supplied module `%SSATOP%\h\ssan3v6.bas` to the VB project concerned.

addr_get_cass_field

Use this function to retrieve cass specific address fields.

Prototype

```
Public Function ssan3_addr_get_cass_field ( _
                           ByVal session As Integer , _ ' Long io
                           ByVal rsp As String , _ ' String out
                           ByRef rsp_size As Integer , _
                           ByVal ssaMsg As String , _ ' String out
                           ByRef ssaMsg_size As Integer , _
                           ByRef suggest_idx As Integer , _ ' Long in
                           ByRef field_idx As Integer , _ ' Long in
                           ByVal field_value ( ) As Byte , _ ' Block out
                           ByRef field_value_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a cass field
field_idx	Specifies a cass field within the nth suggestion
field_value	The cass field value

Return Code

negative for error, 0 for success

ssan3_addr_get_cass_field_cnt

Use this function to determine the max number of cass address fields.

Prototype

```
Public Function ssan3_addr_get_cass_field_ cnt ( _
       ByVal session As Integer , _ ' Long io
       ByVal rsp As String , _ ' String out
       ByRef rsp_size As Integer , _
       ByVal ssaMsg As String , _ ' String out
       ByRef ssaMsg_size As Integer , _
       ByVal count As Integer _ ' Long out
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of cass address fields

Return Code

negative for error, 0 for success

ssan3_addr_get_cass_field_info

Use this function to retrieve information about a suggestion.

Prototype

```
Public Function ssan3_addr_get_cass_field_info ( _
                                ByVal session As Integer , _ ' Long io
                                ByVal rsp As String , _ ' String out
                                ByRef rsp_size As Integer , _
                                ByVal ssaMsg As String , _ ' String out
                                ByRef ssaMsg_size As Integer , _
                                ByRef suggest_idx As Integer , _ ' Long in
                                ByVal field_length ( ) As Integer , _ ' LongArray out
                                ByRef field_length_num As Integer _
) As Integer)
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each cass address field

Return Code

negative for error, 0 for success

ssan3_addr_get_del_lines

(deprecated) Use this function to retrieve delivery address line information. This function is deprecated, use **addr_get_del_lines_ext** instead.

Prototype

```
Public Function ssan3_addr_get_del_lines ( _
                            ByVal session As Integer , _ ' Long io
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByRef suggest_idx As Integer , _ ' Long in
                            ByVal del_line1 ( ) As Byte , _ ' Block out
                            ByRef del_line1_size As Integer , _
                            ByVal del_line2 ( ) As Byte , _ ' Block out
                            ByRef del_line2_size As Integer , _
                            ByVal del_line3 ( ) As Byte , _ ' Block out
                            ByRef del_line3_size As Integer , _
                            ByVal del_line4 ( ) As Byte , _ ' Block out
                            ByRef del_line4_size As Integer , _
                            ByVal del_line5 ( ) As Byte , _ ' Block out
                            ByRef del_line5_size As Integer , _
                            ByVal del_line6 ( ) As Byte , _ ' Block out
                            ByRef del_line6_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

ssan3_addr_get_del_lines_ext

Use this function to retrieve delivery address line information.

Prototype

```
Public Function ssan3_addr_get_del_lines_ext ( _
```

```
                                ByVal session As Integer , _ ' Long io
                                ByVal rsp As String , _ ' String out
                                ByRef rsp_size As Integer , _
                                ByVal ssaMsg As String , _ ' String out
                                ByRef ssaMsg_size As Integer , _
                                ByRef suggest_idx As Integer , _ ' Long in
                                ByRef del_case As Integer , _ ' Long in
                                ByVal del_line1 ( ) As Byte , _ ' Block out
                                ByRef del_line1_size As Integer , _
                                ByVal del_line2 ( ) As Byte , _ ' Block out
                                ByRef del_line2_size As Integer , _
                                ByVal del_line3 ( ) As Byte , _ ' Block out
                                ByRef del_line3_size As Integer , _
                                ByVal del_line4 ( ) As Byte , _ ' Block out
                                ByRef del_line4_size As Integer , _
                                ByVal del_line5 ( ) As Byte , _ ' Block out
                                ByRef del_line5_size As Integer , _
                                ByVal del_line6 ( ) As Byte , _ ' Block out
                                ByRef del_line6_size As Integer _
    ) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_case	Specifies delivery address line case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

ssan3_addr_get_field

Use this function to retrieve validated address fields.

Prototype

```
Public Function ssan3_addr_get_field ( _
                            ByVal session As Integer , _ ' Long io
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
```

```
                                ByVal ssaMsg As String , _ ' String out
                                ByRef ssaMsg_size As Integer , _
                                ByRef suggest_idx As Integer , _ ' Long in
                                ByRef field_idx As Integer , _ ' Long in
                                ByVal field_value ( ) As Byte , _ ' Block out
                                ByRef field_value_size As Integer , _
                                ByVal field_val_status As Integer , _ ' Long out
                                ByVal field_val_mods As Integer _ ' Long out
    ) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field
field_idx	Specifies a field within the nth suggestion
field_value	The field value
field_val_status	Specifies how this field matched the validation data
field_val_mods	Specifies how this field was modified by validation data

Return Code

negative for error, 0 for success

ssan3_addr_get_field_count

Use this function to determine the max number of address fields.

Prototype

```
    Public Function ssan3_addr_get_field_count ( _
                            ByVal session As Integer , _ ' Long io
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByVal count As Integer _ ' Long out
    ) As Integer
```

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of address fields

Return Code

negative for error, 0 for success

ssan3_addr_get_field_ext

Use this function to retrieve all getter fields.

Prototype

```
Public Function ssan3_addr_get_field_ext ( _
                           ByVal session As Integer , _ ' Long i o
                           ByVal rsp As String , _ ' String out
                           ByRef rsp_size As Integer , _
                           ByVal ssaMsg As String , _ ' String out
                           ByRef ssaMsg_size As Integer , _
                           ByRef suggest_idx As Integer , _ ' Long in
                           ByRef field_operation As Integer , _ ' Long in
                           ByRef field_name As String , _ ' String in
      ByRef field_item_line As Integer , _ ' Long in
      ByRef field_type As String , _ ' String in
      ByVal field_value ( ) As Byte , _ ' Block out
      ByRef field_value_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get fields
field_operation	Field operation Option 0 for AddressElements Option 1 for AddressLines Option 2 for AddressComplete Option 3 for EnrichmentData Option 4 for ResultDataParameter Option 5 for EnrichmentDataStatus
field_name	Refer AD `Result.dtd` for field names
field_item_line	Represent field line number or field item number
field_type	Refer AD `Result.dtd` for field attribute Type
field_value	Cleansed field output

Return Code

negative for error, 0 for success

ssan3_addr_get_field_idx

Use this function to retrieve individual address fields.

Prototype

```
Public Function ssan3_addr_get_field_idx ( _
                           ByVal session As Integer , _ ' Long io
                           ByVal rsp As String , _ ' String out
                           ByRef rsp_size As Integer , _
                           ByVal ssaMsg As String , _ ' String out
                           ByRef ssaMsg_size As Integer , _
                           ByRef suggest_idx As Integer , _ ' Long in
                           ByRef field_idx As Integer , _ ' Long in
```

```
                                ByVal field_value ( ) As Byte , _ ' Block out
                                ByRef field_value_size As Integer _
    ) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field. On successful parse, use 0 for ASM for AD version 4, 1 for ASM for AD version 5
field_idx	Specifies a field within the nth suggestion
field_value	The field value

Return Code

negative for error, 0 for success

ssan3_addr_get_field_info_ext

Use this function to retrieve information about a suggestion.

Prototype

```
Public Function ssan3_addr_get_field_info_ext ( _
       ByVal session As Integer , _ ' Long io
       ByVal rsp As String , _ ' String out
       ByRef rsp_size As Integer , _
       ByVal ssaMsg As String , _ ' String out
       ByRef ssaMsg_size As Integer , _
       ByRef suggest_idx As Integer , _ ' Long in
       ByVal field_length ( ) As Integer , _ ' LongArray out
       ByRef field_length_num As Integer , _
       ByVal addr_label_encoded ( ) As Byte , _ ' Block out
       ByRef addr_label_encoded_size As Integer , _
       ByVal addr_label_charset As String , _ ' String out
       ByRef addr_label_charset_size As Integer , _
       ByVal score As Integer _ ' Long out
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each address field
addr_label_encoded	The returned label

addr_label_charset	The character set used in the address label
score	The returned label's score

Return Code

negative for error, 0 for success

ssan3_addr_get_field_len

Use this function to determine the max field length.

Prototype

```
Public Function ssan3_addr_get_field_len ( _
       ByVal session As Integer , _ ' Long io
       ByVal rsp As String , _ ' String out
       ByRef rsp_size As Integer , _
       ByVal ssaMsg As String , _ ' String out
       ByRef ssaMsg_size As Integer , _
       ByVal max_len As Integer _ ' Long out
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max address field length in bytes

Return Code

negative for error, 0 for success

ssan3_addr_get_line_len

Prototype

```
Public Function ssan3_addr_get_line_len ( _
       ByVal session As Integer , _ ' Long io
       ByVal rsp As String , _ ' String out
       ByRef rsp_size As Integer , _
       ByVal ssaMsg As String , _ ' String out
       ByRef ssaMsg_size As Integer , _
       ByVal max_len As Integer _ ' Long out
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section

ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max line length in bytes

Return Code

negative for error, 0 for success

ssan3_addr_get_option

Use this function to set optional parameters.

Prototype

```
Public Function ssan3_addr_get_option ( _
                            ByVal session As Integer , _ ' Long io
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByRef param As String , _ ' String in
                            ByVal value As String , _ ' String out
                            ByRef value_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to get
value	Returns the value for the option

Return Code

negative for error, 0 for success

ssan3_addr_init

Use this function to initialize the Address Standarization interface.

Prototype

```
Public Function ssan3_addr_init ( _
                            ByVal session As Integer , _ ' Long io
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByRef max_memory As Integer _ ' Long in
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_memory	This field specifies the maximum amount of memory (MB) to be used by the Address Standarization engine

Return Code

negative for error, 0 for success

ssan3_addr_parse

Use this function to parse an address.

Prototype

```
Public Function ssan3_addr_parse ( _
                           ByVal session As Integer , _ ' Long io
                           ByVal rsp As String , _ ' String out
                           ByRef rsp_size As Integer , _
                           ByVal ssaMsg As String , _ ' String out
                           ByRef ssaMsg_size As Integer , _
                           ByVal field_length ( ) As Integer , _ ' LongArray out
                           ByRef field_length_num As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_length	An array containing the length of each parsed field

Return Code

negative for error, 0 for success

ssan3_addr_preload_country

Use this function to preload country database.

Prototype

```
Public Function ssan3_addr_preload_country ( _
                           ByVal session As Integer , _ ' Long io
                           ByVal rsp As String , _ ' String out
                           ByRef rsp_size As Integer , _
                           ByVal ssaMsg As String , _ ' String out
                           ByRef ssaMsg_size As Integer , _
                           ByRef preload_type As String , _ ' String in
```

```
                                ByRef preload_country As String , _ ' String in
                                ByRef val_mode As String _ ' String in
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
preload_type	Type of preload to perform
preload_country	Country database to be preloaded
val_mode	This field specified validation mode

Return Code

negative for error, 0 for success

ssan3_addr_set_attrib

Use this function to specify the character set of the data and a default country.

Prototype

```
Public Function ssan3_addr_set_attrib ( _
                            ByVal session As Integer , _ ' Long io
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByRef char_set As String , _ ' String in
                            ByRef default_country As String _ ' String in
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
char_set	The name of the character set used to encode the input and output
default_country	The default country used for validation when parsing cannot detect a country name

Return Code

negative for error, 0 for success

ssan3_addr_set_del_lines

Use this function to set delivery address line information.

Prototype

```
Public Function ssan3_addr_set_del_lines ( _
                          ByVal session As Integer , _ ' Long io
                          ByVal rsp As String , _ ' String out
       ByRef rsp_size As Integer , _
       ByVal ssaMsg As String , _ ' String out
       ByRef ssaMsg_size As Integer , _
       ByRef del_line1 ( ) As Byte , _ ' Block in
       ByRef del_line2 ( ) As Byte , _ ' Block in
       ByRef del_line3 ( ) As Byte , _ ' Block in
       ByRef del_line4 ( ) As Byte , _ ' Block in
       ByRef del_line5 ( ) As Byte , _ ' Block in
       ByRef del_line6 ( ) As Byte _ ' Block in
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
del_line1	Delivery address line 1 input string
del_line2	Delivery address line 2 input string
del_line3	Delivery address line 3 input string
del_line4	Delivery address line 4 input string
del_line5	Delivery address line 5 input string
del_line6	Delivery address line 6 input string

Return Code

negative for error, 0 for success

ssan3_addr_set_field_case

Use this function to set individual input fields case option.

Prototype

```
Public Function ssan3_addr_set_field_case ( _
                          ByVal session As Integer , _ ' Long io
                          ByVal rsp As String , _ ' String out
                          ByRef rsp_size As Integer , _
                          ByVal ssaMsg As String , _ ' String out
                          ByRef ssaMsg_size As Integer , _
                          ByRef field_idx As Integer , _ ' Long in
                          ByRef field_case As Integer _ ' Long in
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_case	Specifies output field case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case

Return Code

negative for error, 0 for success

ssan3_addr_set_field_idx

Use this function to set individual input fields by idx.

Prototype

```
Public Function ssan3_addr_set_field_idx ( _
                           ByVal session As Integer , _ ' Long io
                           ByVal rsp As String , _ ' String out
                           ByRef rsp_size As Integer , _
                           ByVal ssaMsg As String , _ ' String out
                           ByRef ssaMsg_size As Integer , _
                           ByRef field_idx As Integer , _ ' Long in
                           ByRef field_value ( ) As Byte _ ' Block in
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_value	Specifies a value for the nth field

Return Code

negative for error, 0 for success

ssan3_addr_set_field_name

Use this function to set individual input fields by name.

Prototype

```
Public Function ssan3_addr_set_field_name ( _
                           ByVal session As Integer , _ ' Long io
```

```
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByRef field_name As String , _ ' String in
                            ByRef field_value ( ) As Byte _ ' Block in
    ) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_name	Specifies the name of the field to set
field_value	Specifies a value for the field

Return Code

negative for error, 0 for success

ssan3_addr_set_lines

Use this function to provide an address to parse or validate.

Prototype

```
    Public Function ssan3_addr_set_lines ( _
                            ByVal session As Integer , _ ' Long io
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByRef line_1 ( ) As Byte , _ ' Block in
                            ByRef line_2 ( ) As Byte , _ ' Block in
                            ByRef line_3 ( ) As Byte , _ ' Block in
                            ByRef line_4 ( ) As Byte , _ ' Block in
                            ByRef line_5 ( ) As Byte , _ ' Block in
                            ByRef line_6 ( ) As Byte , _ ' Block in
                            ByRef line_7 ( ) As Byte , _ ' Block in
                            ByRef line_8 ( ) As Byte , _ ' Block in
                            ByRef line_9 ( ) As Byte , _ ' Block in
                            ByRef line_10 ( ) As Byte _ ' Block in
    ) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
line_1	The first line of the address
line_2	The second line of the address

line_3	The third line of the address
line_4	The fourth line of the address
line_5	The fifth line of the address
line_6	The sixth line of the address
line_7	The seventh line of the address
line_8	The eighth line of the address
line_9	The ninth line of the address
line_10	The tenth line of the address

Return Code

negative for error, 0 for success

ssan3_addr_set_option

Use this function to set optional parameters.

Prototype

```
Public Function ssan3_addr_set_option ( _
                          ByVal session As Integer , _ ' Long io
                          ByVal rsp As String , _ ' String out
                          ByRef rsp_size As Integer , _
                          ByVal ssaMsg As String , _ ' String out
                          ByRef ssaMsg_size As Integer , _
                          ByRef param As String , _ ' String in
                          ByRef value As String _ ' String in
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to set
value	This field specifies a value for the option

Return Code

negative for error, 0 for success

ssan3_addr_validate

Use this function to validate an address.

Prototype

```
Public Function ssan3_addr_validate ( _
                            ByVal session As Integer , _ ' Long io
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByVal status As Integer , _ ' Long out
                            ByVal n_suggest As Integer _ ' Long out
) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
status	The status returned by the validation process
n_suggest	The number of suggestions generated by validation

Return Code

negative for error, 0 for success

ssan3_close

Closes the SSA session and deallocates memory. Similarly to **ssa_open**, it is optional.

Prototype

```
Public Function ssan3_clos e ( _
                            ByVal session As Integer , _ ' Long io
                            ByRef system As String , _ ' String in
                            ByRef population As String , _ ' String in
                            ByRef controls As String , _ ' String in
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_connect

Initiates a socket.

Prototype

```
Public Function ssan3_connect ( _
                           ByRef host As String , _ ' String in
                           ByRef port As Integer , _ ' Long in
                           ByVal sockh As Integer _' Long out
) As Integer
```

Parameters

host	This is the host to connect to
port	This is the port to connect to
sockh	This is a socket handle

Return Code

negative for error, 0 for success

ssan3_convert_keys

Used to convert 8 byte keys (from server) to 5 byte keys (for client).

Prototype

```
Public Function ssan3_convert_keys ( _
                           ByRef keys8 ( ) As String , _ ' StringArray in
                           ByVal keys5 ( ) ( ) As Byte , _ ' BlockArray out
                           ByRef keys5_num As Integer , _
                           ByRef keys5_size As Integer , _
                           ByVal rsp As String , _ ' String out
                           ByRef rsp_size As Integer , _
                           ByVal ssaMsg As String , _ ' String out
                           ByRef ssaMsg_size As Integer _
) As Integer
```

Parameters

keys8	Block of 8 byte keys to be converted
keys5	Block of 5 byte keys (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_convert_ranges

Used to convert 8 byte ranges (from server) to 5 byte ranges (for client).

Prototype

```
Public Function ssan3_convert_ranges ( _
                            ByRef ranges8 ( ) As String , _ ' StringArray in
                            ByVal ranges5 ( ) ( ) As Byte , _ ' BlockArray out
                            ByRef ranges5_num As Integer , _
                            ByRef ranges5_size As Integer , _
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer _
) As Integer
```

Parameters

ranges8	Block of 8 byte ranges to be converted
ranges5	Block of 5 byte ranges (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_disconnect

Releases resources allocated to a socket.

Prototype

```
Public Function ssan3_disconnect ( _ ) As Integer
```

Parameters

none

Return Code

negative for error, 0 for success

ssan3_errors_get_all

Get the Server side error messages from the last API function that failed. This function should be called repeatedly until it returns 1, meaning all messages have been retrieved.

Note: If a communication (socket) error occurred, this function will also fail. Refer to the *OPERATIONS MANUAL, Error Log* section for information on interpreting the Error Log.

Prototype

```
Public Function ssan3_errors_get_all ( _
                            ByVal msg As String , _ ' String out
                            ByRef msg_size As Integer _
) As Integer
```

Parameters

msg	This is an error message

Return Code

negative for error, 0 for success

ssan3_get_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
Public Function ssan3_get_keys ( _
                            ByVal session As Integer , _ ' Long io
                            ByRef system As String , _ ' String in
                            ByRef population As String , _ ' String in
                            ByRef controls As String , _ ' String in
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByRef data As String , _ ' String in
                            ByVal count As Integer , _ ' Long out
                            ByVal keys ( ) As String , _ ' StringArray out
                            ByRef keys_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_keys_encoded

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
Public Function ssan3_get_keys_encoded ( _
                            ByVal session As Integer , _ ' Long io
                            ByRef system As String , _ ' String in
                            ByRef population As String , _ ' String in
                            ByRef controls As String , _ ' String in
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByVal data As String , _ ' EncodedString in
                            ByVal dataSize As Integer ,
                            ByVal dataEncType As String ,
                            ByVal count As Integer , _ ' Long out
                            ByVal keys ( ) As String , _ ' StringArray out
                            ByRef keys_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
Public Function ssan3_get_ranges ( _
                            ByVal session As Integer , _ ' Long io
                            ByRef system As String , _ ' String in
                            ByRef population As String , _ ' String in
```

```
                                ByRef controls As String , _ ' String in
                                ByVal rsp As String , _ ' String out
                                ByRef rsp_size As Integer , _
                                ByVal ssaMsg As String , _ ' String out
                                ByRef ssaMsg_size As Integer , _
                                ByRef data As String , _ ' String in
                                ByVal count As Integer , _ ' Long out
                                ByVal stab ( ) As String , _ ' StringArray out
                                ByRef stab_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_ranges_encoded

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
Public Function ssan3_get_ranges_encoded ( _
                    ByVal session As Integer , _ ' Long io
       ByRef system As String , _ ' String in
       ByRef population As String , _ ' String in
       ByRef controls As String , _ ' String in
       ByVal rsp As String , _ ' String out
       ByRef rsp_size As Integer , _
       ByVal ssaMsg As String , _ ' String out
       ByRef ssaMsg_size As Integer , _
       ByVal data As String , _ ' EncodedString in
       ByVal dataSize As Integer ,
       ByVal dataEncType As String ,
       ByVal count As Integer , _ ' Long out
       ByVal stab ( ) As String , _ ' StringArray out
       ByRef stab_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_info

Returns Information regarding the selected `System` and `Population`.

Prototype

```
Public Function ssan3_info ( _
                           ByVal session As Integer , _ ' Long io
                           ByRef system As String , _ ' String in
                           ByRef population As String , _ ' String in
                           ByRef controls As String , _ ' String in
                           ByVal rsp As String , _ ' String out
                           ByRef rsp_size As Integer , _
                           ByVal ssaMsg As String , _ ' String out
                           ByRef ssaMsg_size As Integer , _
                           ByVal count As Integer , _ ' Long out
                           ByVal info ( ) As String , _ ' StringArray out
                           ByRef info_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section

ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	A number defining the number of rows in the Items Array
info	An array of 1024 byte rows, containing the data returned for the specific **ssan3_info** call

Return Code

negative for error, 0 for success

ssan3_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
Public Function ssan3_keys ( _
                           ByVal session As Integer , _ ' Long io
                           ByRef system As String , _ ' String in
                           ByRef population As String , _ ' String in
                           ByRef controls As String , _ ' String in
                           ByVal rsp As String , _ ' String out
                           ByRef rsp_size As Integer , _
                           ByVal ssaMsg As String , _ ' String out
                           ByRef ssaMsg_size As Integer , _
                           ByRef data ( ) As Byte , _ ' Block in
                           ByRef encoding As String , _ ' String in
                           ByVal count As Integer , _ ' Long out
                           ByVal keys ( ) ( ) As Byte , _ ' BlockArray out
                           ByRef keys_num As Integer , _
                           ByRef keys_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of keys returned for this name or address
keys	An array of keys returned for this name or address

Return Code

negative for error, 0 for success

ssan3_match

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
Public Function ssan3_match ( _
                          ByVal session As Integer , _ ' Long io
       ByRef system As String , _ ' String in
       ByRef population As String , _ ' String in
       ByRef controls As String , _ ' String in
       ByVal rsp As String , _ ' String out
       ByRef rsp_size As Integer , _
       ByVal ssaMsg As String , _ ' String out
       ByRef ssaMsg_size As Integer , _
       ByRef search As String , _ ' String in
       ByRef file As String , _ ' String in
       ByVal score As String , _ ' String out
       ByRef score_size As Integer , _
                          ByVal decision As String , _ ' String out
                          ByRef decision_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section
file	Refer to the Common Parameters section
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3_match_encoded

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
Public Function ssan3_match_encoded ( _
                            ByVal session As Integer , _ ' Long io
                            ByRef system As String , _ ' String in
                            ByRef population As String , _ ' String in
                            ByRef controls As String , _ ' String in
                            ByVal rsp As String , _ ' String out
                            ByRef rsp_size As Integer , _
                            ByVal ssaMsg As String , _ ' String out
                            ByRef ssaMsg_size As Integer , _
                            ByVal search As String , _ ' EncodedString in
                            ByVal searchSize As Integer ,
                            ByVal searchEncType As String ,
                            ByVal file As String , _ ' EncodedString in
                            ByVal fileSize As Integer ,
                            ByVal fileEncType As String ,
                            ByVal score As String , _ ' String out
                            ByRef score_size As Integer , _
                            ByVal decision As String , _ ' String out
                            ByRef decision_size As Integer _
) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section
file	Refer to the Common Parameters section
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3_open

An optional function, but its use will improve performance. It opens and initiates an SSA-NAME3 session in preparation.

Prototype

```
Public Function ssan3_open ( _
                            ByVal session As Integer , _ ' Long io
                            ByRef system As String , _ ' String in
```

```
                              ByRef population As String , _ ' String in
                              ByRef controls As String , _ ' String in
                              ByVal rsp As String , _ ' String out
                              ByRef rsp_size As Integer , _
                              ByVal ssaMsg As String , _ ' String out
                              ByRef ssaMsg_size As Integer _
    ) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
    Public Function ssan3_ranges ( _
                              ByVal session As Integer , _ ' Long io
                              ByRef system As String , _ ' String in
                              ByRef population As String , _ ' String in
                              ByRef controls As String , _ ' String in
                              ByVal rsp As String , _ ' String out
                              ByRef rsp_size As Integer , _
                              ByVal ssaMsg As String , _ ' String out
                              ByRef ssaMsg_size As Integer , _
                              ByRef data ( ) As Byte , _ ' Block in
                              ByRef encoding As String , _ ' String in
                              ByVal count As Integer , _ ' Long out
                              ByVal stab ( ) ( ) As Byte , _ ' BlockArray out
                              ByRef stab_num As Integer , _
                              ByRef stab_size As Integer _
    ) As Integer
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section

rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs returned for this name or address

Return Code

negative for error, 0 for success

Calling from Visual Basic .NET

VB.NET programs should call the SSA-NAME3 DLL (`ssan3cs.dll`) as shown in the sample program. Further hints are provided below.

To use the `ssan3cs.dll` in a project being created in the Visual Studios.NET IDE, use the following steps as a guideline:

Add a reference to the `ssan3cs.dll`:

- Right-click on the project/solution name in the **Solution Explorer** pane of the IDE. Select **Add Reference...**
- Make sure that the **.NET** tab is the active tab. Use the **Browse** button to find ssan3cs.dll
- Highlight the dll in the Explorer window and click **Open**.
- This adds the `ssan3cs.dll` to the Selected Components pane of the **Add Reference** dialog. Click **OK**.

Add the `ssa` namespace to the project/solution:

- Right-Click on the project/solution name in the **Solution Explore** pane of the IDE. Select **Properties**.
- Click Imports under the **Common Properties** folder.
- In the **Namespace:** textbox type `ssa` and click **Add Import**.
- Click **OK** to exit.

Step 2 eliminates the need to have the following in any module:

```
Imports ssa
```

Otherwise, you can skip Step 2 and add the `Imports` statement as above.

Coding the ssan3_close Call outside of the Finalize() Method

Calling the **ssan3_close** method from a `Finalize()` method is not recommended. This is because it delays the call to **ssan3_close** until the runtime runs garbage collection on the released object, which can be anytime after the object has been released by the program.

Instead, it is recommended that the user implement a public cleanup or close method that performs the necessary housekeeping, including a call to `ssan3_close` to release open sessions prior to releasing the object.

addr_get_cass_field

Use this function to retrieve cass specific address fields.

Prototype

```
Imports ssa

Public Function addr_get_cass_field ( _
        ByRef suggest_idx As Integer , _ ' Long in
        ByRef field_idx As Integer _ ' Long in
) As Byte ( )
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a cass field
field_idx	Specifies a cass field within the nth suggestion
field_value	The cass field value

Return Code

negative for error, 0 for success

addr_get_field_count

Use this function to determine the max number of address fields.

Prototype

```
Imports ssa

Public Function addr_get_field_count ( ) As Integer
```

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of address fields

Return Code

negative for error, 0 for success

addr_get_cass_field_info

Use this function to retrieve information about a suggestion.

Prototype

```
Imports ssa

Public Function addr_get_cass_field_info ( _
                            ByRef suggest_idx As Integer _ ' Long in
) As Integer ( )
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each cass address field

Return Code

negative for error, 0 for success

addr_get_del_lines

(deprecated) Use this function to retrieve delivery address line information. This function is deprecated, use **addr_get_del_lines_ext** instead.

Prototype

```
Imports ssa

Public Function addr _ge t _de l_l ine s ( _
       ByRef suggest_idx As Integer _ ' Long in
) As addr_get_del_lines_struct
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string

del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

addr_get_del_lines_ext

Use this function to retrieve delivery address line information.

Prototype

```
Imports ssa

Public Function addr_get_del_lines_ext ( _
       ByRef suggest_idx As Integer , _ ' Long in
       ByRef del_case As Integer _ ' Long in
) As addr_get_del_lines_ext_struct
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get delivery address lines
del_case	Specifies delivery address line case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case
del_line1	delivery address line 1 output string
del_line2	delivery address line 2 output string
del_line3	delivery address line 3 output string
del_line4	delivery address line 4 output string
del_line5	delivery address line 5 output string
del_line6	delivery address line 6 output string

Return Code

negative for error, 0 for success

addr_get_field

Use this function to retrieve validated address fields.

Prototype

```
Imports ssa
Public Function addr_get_field ( _
       ByRef suggest_idx As Integer , _ ' Long in
       ByRef field_idx As Integer _ ' Long in
) As addr_get_field_struct
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the nth suggestion from which to get a field
field_idx	Specifies a field within the nth suggestion
field_value	The field value
field_val_status	Specifies how this field matched the validation data
field_val_mods	Specifies how this field was modified by validation data

Return Code

negative for error, 0 for success

addr_get_field_count

Use this function to determine the max number of address fields.

Prototype

```
Imports ssa

Public Function addr_get_field_count ( ) As Integer
```

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	Returns the max number of address fields

Return Code

negative for error, 0 for success

addr_get_field_ext

Use this function to retrieve all getter fields.

Prototype

```
Imports ssa

Public Function addr_get_field_ext ( _
       ByRef suggest_idx As Integer , _ ' Long in
       ByRef field_operation As Integer , _ ' Long in
       ByRef field_name As String , _ ' String in
       ByRef field_item_line As Integer , _ ' Long in
       ByRef field_type As String _ ' String in
) As Byte ( )
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to get fields
field_operation	Field operation Option 0 for AddressElements Option 1 for AddressLines Option 2 for AddressComplete Option 3 for EnrichmentData Option 4 for ResultDataParameter Option 5 for EnrichmentDataStatus
field_name	Refer AD `Result.dtd` for field names
field_item_line	Represent field line number or field item number
field_type	Refer AD `Result.dtd` for field attribute Type
field_value	Cleansed field output

Return Code

negative for error, 0 for success

addr_get_field_idx

Use this function to retrieve individual address fields.

Prototype

```
Imports ssa

Public Function addr_get_field_ idx ( _
       ByRef suggest_idx As Integer , _ ' Long in
       ByRef field_idx As Integer _ ' Long in
) As Byte ( )
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

suggest_idx	Specifies the nth suggestion from which to get a field. On successful parse, use 0 for ASM for AD version 4, 1 for ASM for AD version 5
field_idx	Specifies a field within the nth suggestion
field_value	The field value

Return Code

negative for error, 0 for success

addr_get_field_info_ext

Use this function to retrieve information about a suggestion.

Prototype

```
Imports ssa
Public Function addr_get_field_info_ext ( _
                            ByRef suggest_idx As Integer _ ' Long in
) As addr_get_field_info_ext_struct
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
suggest_idx	Specifies the suggestion from which to retrieve information
field_length	An array containing the length of each address field
addr_label_encoded	The returned label
addr_label_charset	The character set used in the address label
score	The returned label's score

Return Code

negative for error, 0 for success

addr_get_field_len

Use this function to determine the max field length.

Prototype

```
Imports ssa

Public Function addr_get_field_len ( ) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max address field length in bytes

Return Code

negative for error, 0 for success

addr_get_line_len

Prototype

```
Imports ssa

Public Function addr_get_line_len ( ) As Integer
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_len	Returns the max line length in bytes

Return Code

negative for error, 0 for success

addr_get_option

Use this function to set optional parameters.

Prototype

```
Imports ssa
Public Function addr_get_option ( _
       ByRef param As String _ ' String in
) As String
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

param	This field specifies the name of the option to get
value	Returns the value for the option

Return Code

negative for error, 0 for success

addr_init

Use this function to initialize the Address Standarization interface.

Prototype

```
Imports ssa
Public Sub addr_init ( _
        ByRef max_memory As Integer _ ' Long in
)
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
max_memory	This field specifies the maximum amount of memory (MB) to be used by the Address Standarization engine

Return Code

negative for error, 0 for success

addr_parse

Use this function to parse an address.

Prototype

```
Imports ssa
Public Function addr_parse ( ) As Integer ( )
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_length	An array containing the length of each parsed field

Return Code

negative for error, 0 for success

addr_preload_country

Use this function to preload country database.

Prototype

```
Imports ssa
Public Sub addr_preload_country ( _
                            ByRef preload_type As String , _ ' String in
                            ByRef preload_country As String , _ ' String in
                            ByRef val_mode As String _ ' String in
)
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
preload_type	Type of preload to perform
preload_country	Country database to be preloaded
val_mode	This field specified validation mode

Return Code

negative for error, 0 for success

addr_set_attrib

Use this function to specify the character set of the data and a default country.

Prototype

```
Imports ssa
Public Sub addr_set_attrib ( _
       ByRef char_set As String , _ ' String in
       ByRef default_country As String _ ' String in
)
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
char_set	The name of the character set used to encode the input and output
default_country	The default country used for validation when parsing cannot detect a country name

Return Code

negative for error, 0 for success

addr_set_del_lines

Use this function to set delivery address line information.

Prototype

```
Imports ssa
Public Sub addr_set_del_lines ( _
                            ByRef del_line1 ( ) As Byte , _ ' Block in
                            ByRef del_line2 ( ) As Byte , _ ' Block in
                            ByRef del_line3 ( ) As Byte , _ ' Block in
                            ByRef del_line4 ( ) As Byte , _ ' Block in
                            ByRef del_line5 ( ) As Byte , _ ' Block in
                            ByRef del_line6 ( ) As Byte _ ' Block in
)
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
del_line1	Delivery address line 1 input string
del_line2	Delivery address line 2 input string
del_line3	Delivery address line 3 input string
del_line4	Delivery address line 4 input string
del_line5	Delivery address line 5 input string
del_line6	Delivery address line 6 input string

Return Code

negative for error, 0 for success

addr_set_field_case

Use this function to set individual input fields case option.

Prototype

```
Imports ssa
Public Sub addr_set_field_case ( _
       ByRef field_idx As Integer , _ ' Long in
       ByRef field_case As Integer _ ' Long in
)
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section

ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_case	Specifies output field case option value. The allowed values are 0 = Unchanged, 1 = Upper case, 2 = Lower case and 3 = Mixed case

Return Code

negative for error, 0 for success

addr_set_field_idx

Use this function to set individual input fields by idx.

Prototype

```
Imports ssa
Public Sub addr_set_field_idx ( _
       ByRef field_idx As Integer , _ ' Long in
       ByRef field_value ( ) As Byte _ ' Block in
)
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_idx	Specifies the nth field to set
field_value	Specifies a value for the nth field

Return Code

negative for error, 0 for success

addr_set_field_name

Use this function to set individual input fields by name.

Prototype

```
Imports ssa
Public Sub addr_set_f ield_name ( _
       ByRef field_name As String , _ ' String in
       ByRef field_value ( ) As Byte _ ' Block in
)
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
field_name	Specifies the name of the field to set
field_value	Specifies a value for the field

Return Code

negative for error, 0 for success

addr_set_lines

Use this function to provide an address to parse or validate.

Prototype

```
Imports ssa
Public Sub addr_set_lines ( _
       ByRef line_1 ( ) As Byte , _ ' Block in
       ByRef line_2 ( ) As Byte , _ ' Block in
       ByRef line_3 ( ) As Byte , _ ' Block in
       ByRef line_4 ( ) As Byte , _ ' Block in
       ByRef line_5 ( ) As Byte , _ ' Block in
       ByRef line_6 ( ) As Byte , _ ' Block in
       ByRef line_7 ( ) As Byte , _ ' Block in
       ByRef line_8 ( ) As Byte , _ ' Block in
       ByRef line_9 ( ) As Byte , _ ' Block in
       ByRef line_10 ( ) As Byte _' Block in
)
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
line_1	The first line of the address
line_2	The second line of the address
line_3	The third line of the address
line_4	The fourth line of the address
line_5	The fifth line of the address
line_6	The sixth line of the address

line_7	The seventh line of the address
line_8	The eighth line of the address
line_9	The ninth line of the address
line_10	The tenth line of the address

Return Code

negative for error, 0 for success

addr_set_option

Use this function to set optional parameters.

Prototype

```
Imports ssa
Public Sub addr_set_option ( _
       ByRef param As String , _ ' String in
       ByRef value As String _ ' String in
)
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
param	This field specifies the name of the option to set
value	This field specifies a value for the option

Return Code

negative for error, 0 for success

addr_validate

Use this function to validate an address.

Prototype

```
Imports ssa

Public Function addr_validate ( ) As addr_validate_struct
```

Parameters

session	Refer to the Common Parameters section
rsp	Refer to the Common Parameters section

ssaMsg	Refer to the SSA-NAME3 Error Messages section
status	The status returned by the validation process
n_suggest	The number of suggestions generated by validation

Return Code

negative for error, 0 for success

close

Closes the SSA session and deallocates memory. Similarly to **ssa_open**, it is optional.

Prototype

```
Imports ssa

Public Sub close ( _
                              ByRef controls As String _ ' String in
)
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_convert_keys

Used to convert 8 byte keys (from server) to 5 byte keys (for client).

Prototype

```
Imports ssa
Public Function convert_keys ( _
       ByRef keys8 ( ) As String _ ' StringArray in
) As Byte ( ) ( )
```

Parameters

keys8	Block of 8 byte keys to be converted
keys5	Block of 5 byte keys (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ssan3_convert_ranges

Used to convert 8 byte ranges (from server) to 5 byte ranges (for client).

Prototype

```
Imports ssa

Public Function convert_ranges ( _
       ByRef ranges8 ( ) As String _ ' StringArray in
) As Byte ( ) ( )
```

Parameters

ranges8	Block of 8 byte ranges to be converted
ranges5	Block of 5 byte ranges (output)
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

disconnect

Releases resources allocated to a socket.

Prototype

```
Imports ssa

Public Sub disconnect ( )
```

Parameters

none

Return Code

negative for error, 0 for success

errors_get_all

Get the Server side error messages from the last API function that failed. This function should be called repeatedly until it returns 1, meaning all messages have been retrieved.

Note: If a communication (socket) error occurred, this function will also fail. Refer to the *OPERATIONS MANUAL, Error Log* section for information on interpreting the Error Log.

Prototype

```
Imports ssa

Public Function errors_get_all ( ) As String
```

Parameters

msg	This is an error message

Return Code

negative for error, 0 for success

get_keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
Imports ssa

Public Function get_keys ( _
       ByRef controls As String , _ ' String in
       ByRef data As String _ ' String in
) As String ( )
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_keys_encoded

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
Imports ssa

Public Function get_keys_encoded ( _
                            ByRef controls As String , _ ' String in
                            ByVal -16s As String ' data , EncodedString
                            ByVal As Integer dataSize ,
                            ByVal As String dataEncType
) As String ( )
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of keys returned for this name or address
keys	An array of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

get_ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
Imports ssa

Public Function get_ranges ( _
       ByRef controls As String , _ ' String in
       ByRef data As String _ ' String in
) As String ( )
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_get_ranges_encoded

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
Imports ssa

Public Function get_ranges_encoded ( _
       ByRef controls As String , _ ' String in
       ByVal -16s As String ' data , EncodedString
       ByVal As Integer dataSize ,
       ByVal As String dataEncType
) As String ( )
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section

count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs of 8 or 5-byte keys, depending on the setting of the `KEY_SIZE` Control, returned for this name or address

Return Code

negative for error, 0 for success

ssan3_info

Returns Information regarding the selected `System` and `Population`.

Prototype

```
Imports ssa

Public Function info ( _
       ByRef controls As String _ ' String in
) As String ( )
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
count	A number defining the number of rows in the Items Array
info	An array of 1024 byte rows, containing the data returned for the specific **ssan3_info** call

Return Code

negative for error, 0 for success

keys

Used to get the SSA-NAME3 Keys for a name or address which the application program will store in the SSA Keys table.

Prototype

```
Imports ssa

Public Function keys ( _
                          ByRef controls As String , _ ' String in
                          ByRef data ( ) As Byte , _ ' Block in
                          ByRef encoding As String _ ' String in
) As Byte ( ) ( )
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of keys returned for this name or address
keys	An array of keys returned for this name or address

Return Code

negative for error, 0 for success

match

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
Imports ssa
Public Function match ( _
       ByRef controls As String , _ ' String in
       ByRef search As String , _ ' String in
       ByRef file As String _ ' String in
) As match_struct
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section

file	Refer to the Common Parameters section
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

ssan3_match_encoded

Used to get a score and match decision for two records, a search record and a file record. Once a set of candidate records have been retrieved as a result of selecting data based on the ranges returned in **ssan3_get_ranges** call, **ssan3_match** is called to further qualify the candidate records.

Prototype

```
Imports ssa
Public Function match_encoded ( _
       ByRef controls As String , _ ' String in
       ByVal -16s As String ' search , EncodedString
       ByVal As Integer sear chSize ,
       ByVal As String searchEncType ,
       ByVal -16s As String ' file , EncodedString
       ByVal As Integer fileSize ,
       ByVal As String fileEncType
) As match_encoded_struct
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section
search	Refer to the Common Parameters section
file	Refer to the Common Parameters section
score	A 3 byte number between 0-100 indicating a confidence level of the match. The score value depends on the data, Match Purpose and Match Level
decision	'A' meaning 'Accept'. The Score is above the Accept Limit for the specified Purpose and Match Level

Return Code

negative for error, 0 for success

open

An optional function, but its use will improve performance. It opens and initiates an SSA-NAME3 session in preparation.

Prototype

```
Imports ssa
Public Sub open ( _
                          ByRef system As String , _ ' String in
                          ByRef population As String , _ ' String in
                          ByRef controls As String _ ' String in
)
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section
ssaMsg	Refer to the SSA-NAME3 Error Messages section

Return Code

negative for error, 0 for success

ranges

Used to get the SSA-NAME3 Key Ranges for a name or address which the application program will use in a Select statement to retrieve records from the SSA Keys table.

Prototype

```
Imports ssa
Public Function ranges ( _
       ByRef controls As String , _ ' String in
       ByRef data ( ) As Byte , _ ' Block in
       ByRef encoding As String _ ' String in
) As Byte ( ) ( )
```

Parameters

session	Refer to the Common Parameters section
system	Refer to the Common Parameters section
population	Refer to the Common Parameters section
controls	Refer to the Controls section
rsp	Refer to the Common Parameters section

ssaMsg	Refer to the SSA-NAME3 Error Messages section
data	Refer to the REF Controls section
encoding	The encoding used for the data field
count	A number defining the actual number of key ranges returned for this name or address
stab	An array of pairs returned for this name or address

Return Code

negative for error, 0 for success

CHAPTER 5

Controls

When invoking any of the SSA-NAME3 functions, it is necessary to specify the `Controls` to be used. The format and content of the `Controls` is dependent on the function being invoked.

Conventions

- Controls take the form of keyword=value.
- Multiple Controls are separated by a single space. There are no spaces within the keyword or the value themselves.
- [ ] around a Control means that Control is optional.
- The Controls are not case sensitive.
- Some Control values (example, field names, search names, purpose names) depend upon the Population Rules being used. For a definitive list of the Controls values available in your Population, use the SSA-NAME3 Developer's Workbench.

ssan3_connect Controls

`connect` does not require any Controls.

ssan3_disconnect Controls

`disconnect` does not require any Controls.

ssan3_open Controls

For **ssan3_open** optional Controls are used to set the `SSAPR` environment variable and session `TIMEOUT` value. (The `SSAPR` environment variable can also be set in the application's or SSA-NAME3 server's execution environment)

Syntax

```
[SSAPR=}directory name]
[TIMEOUT=}n seconds]
```

Definitions

SSAPR (Optional)	Specify the directory containing the Population Files. For example, on MSWin32 platforms this may be: `c:\InformaticaIR\nm3\pr`. Or for Unix platforms it may be `/InformaticaIR/nm3/pr`. This can also be set as an environment variable.
TIMEOUT (Optional)	Specify the number of seconds to keep a session since the last API call before allowing it to be overwritten. The default setting is 0 - i.e. no time-out value. This allows inactive sessions to be made available for new sessions, and reduces the risk of SSA-NAME3 running out of sessions. For more information, see the *SSA-NAME3 "Sessions"* section.

ssan3_close Controls

For **ssan3_close** optional Controls can be used to force a Population to be unloaded from memory and/or force all open sessions closed. In a multi-user environment, these options should only be used by the application responsible for the distribution of sessions to clients. This application is the only component in a position to know when all sessions are closed, or to block new sessions from being opened if the need for either of these functions exists. Improper use of these Controls in a production environment could adversely impact regular application processing. Call Informatica Corporation Technical Support for more information on using these Controls.

Syntax

```
[UNLOAD]
[TERM]
```

Definitions

UNLOAD (Optional)	Specifying UNLOAD on an **ssan3_close** call will cause the Population specified in the call to be unloaded from memory, but only after all currently open sessions have been closed. After a successful unload, the next call to SSA-NAME3 requiring this Population will trigger a reload from disk.
TERM (Optional)	Specifying TERM on an **ssan3_close** call will force all currently open sessions in the SSA-NAME3 instance to be closed. This will force a reload of the Population on the next call to SSA-NAME3. Using this Control while sessions are open could result in abnormal termination of the processes using those sessions and should be used with great care.

ssan3_get_keys_encoded Controls

For ssan3_get_keys_encoded, the `Controls` specify the fields in the data that you can use as the key fields for key building, the key level, and the layout of the key field data.

Syntax

```
FIELD=field name
[KEY_LEVEL=key level]
[KEY_SIZE=5|8]
[NAMEFORMAT=name format]
[UNICODE_ENCODING=Unicode type]
```

```
[ENCODING=Unicode type]
[LAYOUT=[field1,]offset1,length1,... ,
[fieldn,]offsetn,lengthn]
[DELIMITER=delimiter]
[MAX_ENTRIES=n]
[GEOCODE_FORMAT=0|1]
```

Definitions

Field	Mandatory/ Optional	Description
FIELD	Mandatory	Defines the field for which you want to build keys. With most standard populations, you can use one of the following predefined fields: - Person_Name - Organization_Name - Address_Part1 - Geocode You can use only one key field in a function call. If you want to build a key on another field that contains a different type of data, use two separate functions so that you can store the keys in two separate indexes.
KEY_LEVEL	Optional	Indicates the type of key level that you want to build. With most standard populations, you can use one of the following predefined values: - Standard - Extended - Limited The default value is Standard.
KEY_SIZE=[5|8]	Optional	Specifies the length of the SSA-NAME3 keys that you want to return. The default key-size for both the ssan3_get_keys and ssan3_get_ranges functions is 8 bytes. For some applications and database designs, you can use a smaller and more compressed key. In this case, specifying the `KEY_SIZE` to 5 instructs SSA-NAME3 to build the 5-byte binary key instead of the 8-byte character key. **Note:** To use the 5-byte keys, check that your database supports the storage and access of binary keys and that your application environment is capable of passing binary values around unchanged. In IBM DB2 UDB, set the `IDENTITY` option when you create the database so that the collating sequence of the 8-byte character keys is correct. Alternatively, you can use the 5-byte binary keys.
NAMEFORMAT L/R	Optional	Defines whether the major word in the name or address is on the left end or the right end. For example, in Western person names, the family name is on the right end of the names. Use the `NAMEFORMAT` control to override the default name format. For more information about the default name format for a given standard population field and its effects, from the **Help** menu of SSA-NAME3 Workbench, click **Population Documentation**.
PREFKEYONLY Y/A	Optional	Returns only the preferred key for the input record. If the input record contains multiple values then `PREFKEYONLY¯A` will return the preferred key for each value. `PREFKEYONLY ¯Y` will only return one key regardless of how many values are passed for the field
UNICODE_ENCODING	Optional	Instructs SSA-NAME3 to accept Unicode data input, and specifies the Unicode format of the data that you want to pass.
ENCODING	Optional	Functions similar to the `UNICODE_ENCODING` keyword.

Field	Mandatory/ Optional	Description
LAYOUT	Optional	Specifies the offset and length pairs (Scatter / Gather format) of the data to be passed for key building in the `Key Field Data` parameter. Refer to the section on Function parameters for more information. If this control is omitted then the data is expected to be in Tagged Data Format.
DELIMITER	Optional	Overrides the default delimiter - asterisk (*) if you pass the key field data by using the Tagged Data Format.
MAX_ENTRIES	Optional	Controls the maximum number of keys that SSA-NAME3 returns in the `Required Keys` parameter. By default, SSA-NAME3 returns a maximum of 1024 keys. The control accepts integer values up to 65535. If a name generates more keys than the number specified by `MAX_ENTRIES`, a Response Code of 1 is returned with an empty Keys array.

GEOCODE_FORMAT=[0|1]	Optional	Indicates the order of the latitude and longitude coordinates that you specify to generate keys.
		If `GEOCODE_FORMAT=1`, SSA-NAME3 considers the geographic coordinates in the following order:
		`*Geocode*<Longitude> <Latitude>***`
		If `GEOCODE_FORMAT=0`, SSA-NAME3 considers the geographic coordinates in the following order:
		`*Geocode*<Latitude> <Longitude>***`
		The default value is 0.

ssan3_convert_keys Controls

`Convert Keys` does not require any Controls.

ssan3_get_ranges_encoded Controls

For ssan3_get_ranges_encoded, the `Controls` specify the fields in the data that you can use as the key fields to build search ranges, the search level, and the layout of the key field data.

Syntax

```
FIELD=field name
[SEARCH_LEVEL=search level]
[KEY_SIZE=5|8]
[NAMEFORMAT=name format]
[UNICODE_ENCODING=Unicode type]
[ENCODING=Unicode type]
[SEARCH_LIMIT=n]
[LAYOUT=[field1,]offset1,length1,... ,
[fieldn,]offsetn,lengthn]
[DELIMITER=delimiter]
[MAX_ENTRIES=n]
[SECPROBE=Y/N]
```

```
[BATCHMODE=Y|S|N]
[GEOCODE_FORMAT=0|1]
[GEOCODE_RADIUS=n]
```

Definitions

Field	Required /Optional	Description
FIELD	Required	Defines the field on which you want to build search ranges. With most standard populations, you can use one of the following predefined fields: - Person_Name - Organization_Name - Address_Part1 - Geocode You can use only one key field in a function call.
SEARCH_LEVEL	Optional	Specifies the type of search level that you want to perform. With most standard populations, you can use one of the following predefined values: - Typical - Exhaustive - Extreme - Narrow The default value is Typical. **Note:** The `SEARCH_LEVEL` control is not applicable to the Geocode field. If you specify the `SEARCH_LEVEL` control with a `Geocode` field, SSA-NAME3 ignores the `SEARCH_LEVEL` control.
KEY_SIZE=[5|8]	Optional	Specifies the length of the SSA-NAME3 keys that you want to return. Use the same value that you have set for the ssan3_get_keys function. The default key-size for both the ssan3_get_keys and ssan3_get_ranges functions is 8 bytes. For some applications and database designs, you can use a smaller and more compressed key. In this case, specifying the `KEY_SIZE` to 5 instructs SSA-NAME3 to build the 5-byte binary key instead of the 8-byte character key. **Note:** To use the 5-byte keys, check that your database supports the storage and access of binary keys and that your application environment can pass binary values around unchanged. In IBM DB2 UDB, set the `IDENTITY` option when you create the database so that the collating sequence of the 8-byte character keys is correct. Alternatively, you can use the 5-byte binary keys.
NAMEFORMAT L/R	Optional	Defines whether the major word in the name or address is on the left end or the right end. For example, in Western person names, the family name is on the right end of the names. Use the `NAMEFORMAT` control to override the default name format. For more information about the default name format for a given standard population field and its effects, from the **Help** menu of SSA-NAME3 Workbench, click **Population Documentation**.
UNICODE_ENCODING	Optional	Instructs SSA-NAME3 to accept Unicode data input, and specifies the Unicode format of the data that you want to pass.
ENCODING	Optional	Functions similar to the `UNICODE_ENCODING` keyword.

Field	Required /Optional	Description
SEARCH_LIMIT	Optional	Specifies the maximum percentage of the file that is allowed to be returned in any one search. This can be helpful in preventing costly searches. The percentage value is a number up to 2 decimal places. When the function is called, the Search Strategy is evaluated before any database I/O is done. If it is calculated that the search would return a greater percentage of the file than allowed, an error message will be returned to the calling program. **Note:** For the `Search_Limit` to be useful, the Population must include a Scalar Frequency Table. See the Population Override Manager for more details.
SECPROBE Y/N	Optional	Changes secondary name ranges from a range to a probe and narrows the searches that use secondary names.
BATCHMODE=[Y|S|N]	Optional	Adjusts secondary name searches and custom set ranges for batch applications. You can convert secondary name searches from ranges to probes and custom set search ranges to probes, and you can remove secondary name searches. Use one of the following values: **Y** Converts secondary name searches from ranges to probes and custom set ranges to probes. **S** Removes all the secondary name searches and converts custome set ranges to probes. **N** Turns off BATCHMODE.

GEOCODE_FORMAT=[0|1]	Optional	Indicates the order of the latitude and longitude coordinates that you specify to build search ranges.
		If `GEOCODE_FORMAT=1`, SSA-NAME3 considers the geographic coordinates in the following order:
		`*Geocode*<Longitude> <Latitude>***`
		If `GEOCODE_FORMAT=0`, SSA-NAME3 considers the geographic coordinates in the following order:
		`*Geocode*<Latitude> <Longitude>***`
		The default value is 0.

GEOCODE_RADIUS	Optional	Indicates the search radius to build search ranges according to the latitude and longitude coordinates that you specify. The default value is 1000 m, and the default unit is meter. For example: `FIELD=GEOCODE GEOCODE_FORMAT=1 GEOCODE_RADIUS=100` Use the following guidelines when you specify the geocode radius: - SSA-NAME3 considers the radius to be in meters even if you specify any other unit. - SSA-NAME3 ignores the decimal values and uses the whole number as the radius. For example, if you specify the radius as 850.8, SSA-NAME3 considers the radius as 850.

ssan3_convert_ranges Controls

`Convert Ranges` does not require any Controls.

ssan3_match_encoded Controls

The ssan3_match_encoded call compares two records and computes a match decision and a score. The ssan3_match_encoded Controls set the purpose, the match level, and optionally, the layout of the search data and file data.

Syntax

```
PURPOSE=<expression>
[MATCH_LEVEL=matchlevel][+/-nn][+/-nn]
[ADJWEIGHT=field,+/-n]
[NAMEFORMAT=name format]
[EARLYEXIT=Y/N]
[UNICODE_ENCODING=Unicode type]
[ENCODING=Unicode type]
[DELIMITER=delimiter]
[MATCH_OPTIONS=(fieldname:option,...)]
[MIN_MATCH_FIELDS=number of match field pairs]
[SEARCH=field1[(matching type expression1)],offset1,length1,... ,
fieldn[(matching type expressionn)],offsetn,lengthn]
[FILE=field1[(matching type expression1)],offset1,length1,... ,
fieldn[(matching type expressionn)],offsetn,lengthn]
[LWM=Y/N/ONLY]
[LWM_FIELDS=field1,weight1[,...,fieldn,weightn]]
[LWM_LIMIT=rejectscore[,acceptscore]]
```

Definitions

Control	Mandatory/ Optional	Description

PURPOSE	Mandatory	Specifies the name of the matching purpose to use in a match call. The PURPOSE control uses the following syntax:
		`PURPOSE=(<expression>)`
		Use one of the following formats for `<expression>`:
		`<expression> := <Purpose_Name>`
		`<expression> := <Purpose_Name>(<Match_level>)`
		`<expression> := (not<expression>)`
		`<expression> := (<expression> or <expression>)`
		`<expression> := (<expression> and <expression>)`
		`<expression> := (<expression>)`
		In the `ssan3_match` section of the SSA-NAME3 Workbench, under **Mandatory Controls**, you can find a list of the supported purpose names. With most standard populations, you can use one of the following predefined purposes:
		`Address`
		`Contact`
		`Division`
		`Fields`
		`Household`
		`Individual`
		`Organization`
		`Person_Name`
		`Resident`
		`Wide_Contact`
		`Geocode`
		`Filter1,Filter2,... Filter9`
		For more information about each purpose and its required and optional fields, from the **Help** menu of the SSA-NAME3 Workbench, click **Population Documentation**.
		The simple form of `<expression>` is `PURPOSE=<Purpose_Name>`.
		For example, `PURPOSE=Address` performs matching on the specified address fields.

MATCH_LEVEL	Optional	Controls the match level. With most standard populations, you can use one of the following predefined match levels: - Typical - Conservative - Loose The default value is Typical. Use the `MATCH_LEVEL` control to adjust the predefined accept or reject score limits that affect the match decisions. The `MATCH_LEVEL` control uses the following guidelines: - If one of the adjusted limits is greater than 100, the limit is set to 100. - If one of the adjusted limits is less than 0, the limit is set to 0. - If the adjusted accept limit is less than the reject limit, the accept limit is set to the reject limit. - If the accept match adjustment is 101, the accept limit is set to 101. As a result, SSA-NAME3 does not accept any record, and SSA-NAME3 either rejects a record or marks it as undecided. For example, if `MATCH_LEVEL=Loose+101-10`, the accept limit is set to 101.

Control	Mandatory/ Optional	Description

		If a match call returns a score of 100, SSA-NAME3 marks the record as undecided.
		If a match call returns a score that is less than 100 and less than the reject limit, SSA-NAME3 rejects the record. If the score is less than 100 but greater than or equal to the reject limit, SSA-NAME3 marks the record as undecided.
		Note: The `MATCH_LEVEL` control is not applicable to the `Geocode` purpose. If you specify the `MATCH_LEVEL` control with a `Geocode` purpose, SSA-NAME3 ignores the `MATCH_LEVEL` control.
		You can use one of the following match level expressions:
		matchlevel+/-nn
		Adjusts the accept and reject limits by using the same specified number. For example:
		`MATCH_LEVEL=Typical+20`
		If the predefined accept limit is 79 and reject limit is 50, the adjusted accept limit is 99 and reject limit is 70.
		matchlevel+/-nn+/-nn
		Adjusts the accept and reject limits by using the specified numbers. For example:
		`MATCH_LEVEL=Typical-40+40`
		If the predefined accept limit is 79 and reject limit is 50, the calculated accept limit is 39, which is less than the reject limit of 90. The adjusted accept limit is set to 90, and the reject limit remains at 90.

ADJWEIGHT	Optional	Adjusts the weight of a single field in a match purpose up or down relative to the other fields in the purpose. Use the following format:
		`ADJWEIGHT=field{+/-}n`
		The `field` is a valid field name in the purpose that you define in the `PURPOSE=` control, and `n` is a single-digit number.
		Note: Standard populations use weights that are less than 10, so use smaller `ADJWEIGHT` adjustments. For example:
		`PURPOSE=Individual`
		`ADJWEIGHT=Person_Name+2`
		In this example, the definition increases the weight of the `Person_Name` field in the `Individual` match purpose by 2. The definition increases the importance of the `Person_Name` field and decreases the importance of the other fields. Experiment with different values and across a representative sample set of records to gauge the overall effect of this setting.

Control	Mandatory/ Optional	Description
NAMEFORMAT=L/R	Optional	Defines whether the major word in the name or address is on the left end or the right end. For example, in Western person names, the family name is on the right end of the names. Use the `NAMEFORMAT` control to override the default name format. For more information about the default name format for a given standard population field and its effects, from the **Help** menu of SSA-NAME3 Workbench, click **Population Documentation**. You can provide extra weight to match the major words in the `Person_Name` field in some purposes such as `Person_Name`, `Household`, `Family`, and `Wide_Household`. **Note:** The `NAMEFORMAT` control in a `match` call overrides the name format for all name and address fields in the match purpose, so use the `NAMEFORMAT` control with caution.
EARLYEXIT=Y/N	Optional	By default, SSA-NAME3 matching includes logic to check the score of the first field in a Purpose. If the score is low enough to cause a reject of the entire record, it takes an early exit from the match process. It results in a potential performance improvement, and the performance improves when it rejects more records. When an early exit is taken, the record score is set to 0. To preserve the real score of "unmatched" records (for example for analysis in the Developer's Workbench), you can disable the early exit logic by specifying `EARLYEXIT=N`. **Note:** If you disable the early exit logic, the lightweight matching is disabled even though you have enabled the lightweight matching by configuring `LWM=Y`.
UNICODE_ENCODING	Optional	Instructs SSA-NAME3 to accept Unicode data input, and specifies the Unicode format of the data that you want to pass.
ENCODING	Optional	Functions similar to the `UNICODE_ENCODING` keyword.
DELIMITER	Optional	Overrides the default delimiter - asterisk (*) if you pass the key field data by using the Tagged Data Format.

Control	Mandatory/ Optional	Description
MATCH_OPTIONS	Optional	Defines options for a specific field. The MATCH_OPTIONS control uses the following syntax: MATCH_OPTIONS=(fieldname:option,...) Use the MATCH_OPTIONS control for the following fields: **Date** The Date field accepts the Date_Format option. The MATCH_OPTIONS control uses the following format for the Date_Format option : MATCH_OPTIONS=DATE:Date_Format=<DDMMYY>|<MMDDYY>|<YYMMDD> The values are not case sensitive. **Geocode** The Geocode field accepts the FORMAT and RADIUS options. The MATCH_OPTIONS control uses the following format for the FORMAT and RADIUS options: MATCH_OPTIONS=GEOCODE:FORMAT=1,GEOCODE:RADIUS=10000 The FORMAT option indicates the order of the latitude and longitude coordinates that you specify. If GEOCODE:FORMAT=1, SSA-NAME3 considers the geographic coordinates in the following order: *Geocode*<Longitude> <Latitude>*** If GEOCODE:FORMAT=0, SSA-NAME3 considers the geographic coordinates in the following order: *Geocode*<Latitude> <Longitude>*** The default value is 0. The RADIUS option indicates the search radius to generate keys according to the latitude and longitude coordinates that you specify. The default value is 1000 m, and the default unit is meter. Use the following guidelines when you specify the geocode radius: - SSA-NAME3 considers the radius to be in meters even if you specify any other unit. - SSA-NAME3 ignores the decimal values and uses the whole number as the radius. For example, if you specify the radius as 850.8, SSA-NAME3 considers the radius as 850. **Note:** SSA-NAME3 ignores any incorrect or unrecognised options in the MATCH_OPTIONS control and proceeds with matching, which might result in unexpected scores.
MIN_MATCH_FIELDS	Optional	Specify the minimum number of field pairs that must be supplied. If a field is supplied for both the search or file record then it is counted. MIN_MATCH_FIELDS=number

Control	Mandatory/ Optional	Description
SEARCH and FILE	Optional	Use the SEARCH and FILE controls to specify the field names and their offset and length pairs in the scatter or gather format for the data in the `Search Data` and `File Data` fields. If you do not specify the offset and length pairs for the field names, SSA-NAME3 considers the data in the tagged data format. You can extend any of the key fields and set the weight for the extended fields. The extended fields use the algorithm of the key fields. Use the extended fields to override the weight of the key fields in the run time. You can also specify the type of matching to perform between the data in the `Search Data` and `File Data` fields. You can use the following matching types: - Exact matching. Returns 100% score only if the search data values match with the file data values. - Inexact matching. Returns 100% score if the search data values do not match with the file data values. - Range matching. Returns 100% score if the search data and file data values are within the specified range. **Note:** If you specify different matching types in the SEARCH and FILE parameters, the matching type that you specify in the SEARCH parameter takes precedence. **Exact Matching** Use the following format to perform exact matching: `PURPOSE=<Purpose Name> SEARCH=<Field Name>[(<Field ID>;<Weight>;Exact[:B|Z|ZB])],<Offset>,<Length> FILE=[(<Field ID>;<Weight>;Exact)],<Offset>,<Length>` If you want to extend a key field, use any number as the `Field ID` value. If you do not want to extend any key field, use 0 as the `Field ID` value. If you extend a key field in the search or file data, you must extend the corresponding key field in the search or file data. The value `B` indicates a null value, the value `Z` indicates a zero value, and the value `ZB` indicates a null or zero value. The following sample expressions perform exact matching between the search data and file data values: - `PURPOSE=Person_Name SEARCH=Person_Name(Exact),0,16 FILE=Person_Name,0,16`. The expression returns 100% score only if the search data value exactly matches with the file data value. - `PURPOSE=Fields SEARCH=Person_Name(2;5;Exact),0,16 FILE=Person_Name(2;Exact),0,16`. The expression creates an extended field for the `Person_Name` field named `Person_Name(2)` and sets the weight for the extended field to 5. The search data value returns 100% score if the search data value exactly matches with the file data value. - `PURPOSE=Person_Name SEARCH=Person_Name(0;5;Exact),0,16 FILE=Person_Name,0,16`. The expression sets the weight of the `Person_Name` field to 5 without creating any extended field. The search data value returns 100% score if the search data value exactly matches with the file data value. - `PURPOSE=Person_Name SEARCH=Person_Name(1;Exact),0,16 FILE=Person_Name(1;Exact),0,16`. The expression creates an extended field for the `Person_Name` field named `Person_Name(1)`. The extended field uses the weight of the `Person_Name` field. The search data value returns 100% score if the search data value exactly matches with the file data value. - `PURPOSE=Fields SEARCH=Date,0,8 FILE=Date(Exact:Z),0,8`. The expression returns 100% score if the file data value is 0. **Inexact Matching** Use the following format to perform inexact matching:

Control	Mandatory/ Optional	Description
		PURPOSE=<Purpose Name> SEARCH=<Field Name>[(<Field ID>;<Weight>;!Exact[:B|Z|ZB])],<Offset>,<Length> FILE=[(<Field ID>;<Weight>;!Exact)],<Offset>,<Length> If you want to extend a key field, use any number as the Field ID value. If you do not want to extend any key field, use 0 as the Field ID value. If you extend a key field in the search or file data, you must extend the corresponding key field in the search or file data. The value B indicates a null value, the value Z indicates a zero value, and the value ZB indicates a null or zero value. The following sample expressions perform inexact matching between the search data and file data values: - PURPOSE=Person_Name SEARCH=Person_Name(!Exact),0,16 FILE=Person_Name,0,16. The expression returns 100% score if the search data value does not match with the file data value. - PURPOSE=Fields SEARCH=Person_Name(1;5;!Exact),0,16 FILE=Person_Name(1;!Exact),0,16. The expression creates an extended field for the Person_Name field named Person_Name(1) and sets the weight for the extended field to 5. The search data value returns 100% score if the search data value does not match with the file data value. - PURPOSE=Person_Name SEARCH=Person_Name(0;5;!Exact),0,16 FILE=Person_Name,0,16. The expression sets the weight of the Person_Name field to 5 without creating any extended field. The search data value returns 100% score if the search data value does not match with the file data value. - PURPOSE=Fields SEARCH=Person_Name(3;!Exact),0,16 FILE=Person_Name(3;!Exact),0,16. The expression creates an extended field for the Person_Name field named Person_Name(3), and the extended field uses the weight of the Person_Name field. The search data value returns 100% score if the search data value does not match with the file data value. - PURPOSE=Fields SEARCH=Date,0,8 FILE=Date(!Exact:ZB),0,8. The expression returns 100% score if the file data value is not 0 or null. **Range Matching** Use one of the following formats to perform range matching on numeric fields: - PURPOSE=<Purpose Name> SEARCH=<Field Name>[(<Field ID>;<Weight>;Range:<Negative Limit>;<Positive Limit>)],<Offset>,<Length> FILE=<Field Name>[(<Field ID>;<Weight>;Range:<Negative Limit>;<Positive Limit>)],<Offset>,<Length> If you want to extend a key field, use any number as the Field ID value. If you do not want to extend any key field, use 0 as the Field ID value. If you extend a key field in the search or file data, you must extend the corresponding key field in the search or file data. For example, the PURPOSE=Person_Name SEARCH=Person_Name, 0,16,Attribute1(1;5;Range:20;10),16,2 FILE=Person_Name, 0,16,Attribute1(1;Range),16,2 expression creates an extended field for the Attribute1 field named Attribute1(1) and sets the weight for the extended field to 5. If the Attribute1(1) value in the search data is 100, the range for the search data is 100-20 to 100+10, which is 80 to 110. The range matching returns 100% score if the Attribute1(1) value in the file data is within the search data range. If both the positive and negative limits are the same, you can specify the range in the (Range:<Limit>) format. For example, (Range:20) equals (Range:20;20).

Control	Mandatory/ Optional	Description
		- PURPOSE=<Purpose Name> SEARCH=<Field Name>[(<Field ID>;<Weight>;Range:%<Negative Limit>;<Positive Limit>)],<Offset>,<Length> SEARCH=<Field Name>[(<Field ID>;<Weight>;Range:%<Negative Limit>;<Positive Limit>)],<Offset>,<Length> If you want to extend a key field, use any number as the Field ID value. If you do not want to extend any key field, use 0 as the Field ID value. If you extend a key field in the search or file data, you must extend the corresponding key field in the search or file data. For example, the PURPOSE=Person_Name SEARCH=Person_Name, 0,16,Attribute1,16,2 FILE=Person_Name, 0,16,Attribute1(Range:%10;20),16,2 expression indicates that if the Attribute1 value in the file data is 100, the range for the file data is 100-10% of the Attribute1 value to 100+20% of the Attribute1 value, which is 90 to 120. The range matching returns 100% score if the Attribute1 value in the search data is within the file data range. If both the positive and negative limits are the same, you can specify the range in the (Range:%<Limit>) format. For example, (Range:%20) equals (Range:%20;20). - PURPOSE=<Purpose Name> SEARCH=<Field Name>[(Range:F|S)],<Offset>,<Length> FILE=<Field Name>[(Range:F|S]),<Offset>,<Length> The value F indicates to use the file data to create the range, and the value S indicates to use the search data to create the range. For example, the PURPOSE=Fields SEARCH=Date(Range:F),0,4 FILE=Date(Range:F),0,4,Date(Range:F),4,4 expression indicates that if the file data is 50008000, the range for the search data is 5000 to 8000. The range matching returns 100% score if the Date value in the search data is within the file data range. Use one of the following formats to perform range matching on date fields: - PURPOSE=<Purpose Name> SEARCH=<Date Field Name>[(Range:F|S)],<Offset>,<Length> FILE=<Date Field Name>[(Range:F|S]),<Offset>,<Length> The value F indicates to use the file data to create the range, and the value S indicates to use the search data to create the range. For example, the PURPOSE=Fields SEARCH=Date(Range:F),0,8 FILE=Date(Range:F),0,8,Date(Range:F),8,8 expression indicates that if the file data is 1999101019991020, the range for the search data is 19991010 to 19991020. The range matching returns 100% score if the Date value in the search data is within the file data range. - PURPOSE=<Purpose Name> SEARCH=<Date Field Name>[(DateRange:<Negative Limit>;<Positive Limit>)],<Offset>,<Length> SEARCH=<Date Field Name>[(DateRange:<Negative Limit>;<Positive Limit>)],<Offset>,<Length> For example, the PURPOSE=Fields SEARCH=Date(Range:F),0,8 FILE=Date(DateRange:5;10),8,8 expression indicates that if the Date value in the file data is 20150410, the range for the file data is 20150405 to 20150420. The range matching returns 100% score if the Date value in the search data is within the file data range. If both the positive and negative limits are the same, you can specify the range in the (DateRange:<Limit>) format. For example, (DateRange:7) equals (DateRange:7;7).

Control	Mandatory/ Optional	Description
		- `PURPOSE=<Purpose Name> SEARCH=<Date Field Name>[(DateRange:%<Negative Limit>;<Positive Limit>)],<Offset>,<Length> SEARCH=<Date Field Name>[(DateRange:%<Negative Limit>;<Positive Limit>)],<Offset>,<Length>` For example, the `PURPOSE=Fields SEARCH=Date,0,8 FILE=Date(DateRange:%10;20),0,8` expression indicates that if the `Date` value in the file data is 19991010, the range for the file data is 10-10% of the `Date` value to 10+20% of the `Date` value, which is 19991009 to 19991012. The range matching returns 100% score if the `Date` value in the search data is within the file data range. If both the positive and negative limits are the same, you can specify the range in the `(DateRange:%<Limit>)` format. For example, `(DateRange:%20)` equals `(DateRange:%20;20)`.

Control	Mandatory/ Optional	Description

FILTER_SEARCHVALUES	Optional	Use the FILTER_SEARCHVALUES control to specify a list of values to match with the data in the Search Data field, File Data field, or both the fields. Use the Filter purpose to specify the data in the Search Data and File Data fields.
		The FILTER_SEARCHVALUES control uses the following format to specify a list of search values:
		`PURPOSE=(Filter<Filter Purpose Number>,...) FILTER_SEARCHVALUES=<Filter Purpose Number>,<List of Flags>, (<List of Values>)|{<Value>,(<List of Values>)}`
		For example:
		`PURPOSE=(Filter2 AND Filter3) FILTER_SEARCHVALUES=2,SP, (WILLIAM,BILL),3,FP,{ROBERT,(ROB,ROBBIE)}`
		The FILTER_SEARCHVALUES control uses the following parameters:
		Filter Purpose Number
		Indicates the Filter purpose number for which you define a list of values.
		For example, if you use the Filter5 purpose to specify the search data, use 5 as the Filter purpose number.
		(List of Values)|{Value,(List of Values)}
		Indicates the list of values to match with the search data, file data, or both. You can specify a list of values, or you can pair a value with a list of values.
		For example:
		`FILTER_SEARCHVALUES=2,SP,(WILLIAM,BILL),3,FP,{ROBERT, (ROB,ROBBIE)}`
		Use appropriate flags to indicate whether to match the specified values with the search data, file data, or both.
		List of Flags
		Indicates whether to match the specified values with the search data, file data, or both. You can use multiple flags. For example, FP.
		If you specify a list of values, you can use the following flags:
		- S. Indicates to match the values with the search data.
		- F. Indicates to match the values with the file data.
		- B. Indicates to match the values with both the search and file data.
		- P. Indicates to match the values in the list with the search data, file data, or both based on the length of the values in the list. This flag functions in conjunction with other flags.
		For example, specify `FILTER_SEARCHVALUES=2,SP,Rob` as one of the SCORE-LOGIC controls and `*Filter2*Rose***` in the search data. The length of `Rob` is three characters, so the matching considers only the first three characters of the search data. The matching does not return 100% score because `Rob` in the list does not exactly match with the first three characters of the search data, which are `Ros`.
		If you pair a value with a list of values, you can use the following flags:
		- S. Indicates to match the value with the search data and the list of values with the file data.
		- F. Indicates to match the value with the file data and the list of values with the search data.

Control	Mandatory/ Optional	Description
		- P. Indicates to match the values in the list with the search data, the file data, or both based on the length of the values in the list. This flag functions in conjunction with other flags. For example, the `FILTER_SEARCHVALUES=3,S,{ROBERT,(ROB,ROBBIE)}` control indicates to match `Robert` with the search data and the list of values, `Rob and Robbie`, with the file data. You can also perform inexact matching to get 100% score if the list values do not match with the search or file data. To perform inexact matching, use the following format when you define the Filter purpose: `PURPOSE=(NOT Filter<Number>, NOT Filter<Number>,...)` The usage of NOT indicates that you want to perform inexact matching. For example, the `PURPOSE=(NOT Filter2) FILTER_SEARCHVALUES=2,SP,(WILLIAM,BILL)` expression returns 100% score if the list values do not match with the search data.
LWM=Y/N/ONLY	Optional	Enables or disables lightweight matching. Use the value `Y` to enable lightweight matching. Lightweight matching uses a fast score estimate to reject the obvious mismatches. The records that lightweight matching passes go to the full scoring for robust scoring and ranking. SSA-NAME3 returns the full score and the decision to the caller. **Note:** If you create system definition files by using the SDF Wizard, the lightweight matching is enabled by default. Use the value `N` to disable lightweight matching. SSA-NAME3 matching performs full scoring on all the matching records. Use the value `ONLY` to enable lightweight matching and disable full scoring. Lightweight matching returns the estimate as the final score to the caller.

Control	Mandatory/ Optional	Description
LWM_FIELDS	Optional	Specifies the fields to which you want to apply lightweight matching and their weights. These values override the values that you have defined in the match purpose during the run time. Based on the lightweight matching scores, SSA-NAME3 rejects the obvious mismatches. If you do not set any value, SSA-NAME3 retrieves the fields from the match purpose and assigns equal weight to them. The syntax of the LWM_FIELDS control is as follows: `LWM_FIELDS=<field1>,<weight1>[,...,<fieldn>,<weightn>]` where `field` is a valid field name that you have defined in the Purpose control, and `weight` is the relative significance of the specified field (0-100) when compared to the other fields. For example, `LWM_FIELDS=Person_Name,5,Address_Part1,1` Lightweight matching is useful when you apply it to the fields that have low variations such as addresses. Lightweight matching is not efficient for the fields with high variations, where SSA-NAME3 handles the variations through Edit-list, and lightweight matching might incorrectly reject the records.
LWM_LIMIT	Optional	Specifies the accept and reject limits for the lightweight matching score. Based on the limits, SSA-NAME3 accepts or rejects the search results. The syntax of the LWM_LIMIT control is as follows: `LWM_LIMIT=<Reject>[,<Accept>]` where `Reject` and `Accept` are the integer values ranging from 0 through 100. For example, `LWM_LIMIT=50,90` If `LWM=N`, the `LWM_LIMIT` control has no effect. If `LWM=Y`, SSA-NAME3 rejects the lightweight matching scores that are less than the reject limit. The accept limit has no effect, and you can omit it. If `LWM=ONLY`, SSA-NAME3 rejects the lightweight matching scores that are less than the reject limit. It accepts the scores that are greater than the accept limit. It marks the scores of the records that are greater than or equal to the reject limit and less than the accept limit as undecided. The default reject limit is 65, and the default accept limit is 90. If you have not set the accept limit and the reject limit is greater than 90, the accept limit is equal to the reject limit.

ssan3_info Controls

The ssan3_info call returns information about a selected system or population.

Syntax

```
ITEM=<Item Type> SELECT=<Field Name|Purpose Name>
```

Definitions

Control	Description
ITEM	Defines the type of information to retrieve from the population. In the ssan3_info section of the SSA-NAME3 Workbench, under **Mandatory Controls**, you can find a complete list of the supported item types. For example: `ITEM=key_level` returns all the available values of the `Key_Level` control.
SELECT	Specifies the field name or the purpose name based on the item type to retrieve information about the field or purpose. The `SELECT` control is applicable to the following item types: - purpose.list - fieldlen - match_explain_count - field.options The `purpose.list` and `fieldlen` item types require the `SELECT` control. The `SELECT` control is optional for the `field.options` and `match_explain_count` item types, and if you do not specify the `SELECT` control for these item types, the ssan3_info call retrieves information about all the fields or purposes. For example: `ITEM=fieldlen SELECT=CreditCard` returns the key length of the `CreditCard` field.

CHAPTER 6

Advanced Controls

This chapter includes the following topics:

UNICODE_ENCODING

The **ssan3_get_keys_encoded**, **ssan3_get_ranges_encoded** and **ssan3_match_encoded** calls have a Field Data Type parameter that can be used to specify the encoding type. This control is only for use with the **ssan3_get_keys**, **ssan3_get_ranges** and **ssan3_match** function calls. The section on UTF-8 considerations is relevant to all API function calls.

This Control is used in the **ssan3_get_keys**, **ssan3_get_ranges** and **ssan3_match** function calls, and instructs SSA-NAME3 to accept Unicode data input.

Possible values are:

Encoding	Meaning
TEXT	Data is not in a Unicode encoding
UTF-8	Unicode UTF-8 format
UTF-16	Unicode UTF-16 format
UTF-16LE	Unicode UTF-16 format Little Endian
UTF-16BE	Unicode UTF-16 format Big Endian
UTF-32	Unicode UTF-32 format
UCS-2	Same as Unicode UTF-16 format
UCS-4	Unicode UTF-32 format
CP932	Japanese CP932 Codepage (shift-JIS)
CP936	Chinese CP936 Codepage (GBK or Simplified Chinese)

Encoding	Meaning
CP949	Korean CP949 Codepage
CP950	Chinese CP950 Codepage (Big5 or Traditional Chinese)
UTF8	All keywords can be specified without the hyphen (-)
DBCSHOST	Japanese - Host, DBCS

There are short forms for these values

Encoding	Meaning
Y	Unicode UTF-8 format
8	Unicode UTF-8 format
6	Unicode UTF-16 format
L	Unicode UTF-16LE format
B	Unicode UTF-16BE format
4	Unicode UCS-4 or UTF-32 format
J	Japanese CP932 codepage (Shift-JIS)
S	Chinese CP936 codepage (Simplified Chinese)
K	Korean CP949 codepage
T	Chinese CP950 codepage (Traditional Chinese)
D	Japanese - Host, DBCS

All call parameters use single byte except for Key Field Data in the **ssan3_get_keys** and **ssan3_get_ranges** calls and `Search Data` and `File Data` in the **ssan3_match** call.

When passing Unicode data, all length and offset values must be number of bytes, not number of characters. UTF8 is a variable length encoding so the number of characters represented will have varying lengths depending on the content of the data.

Scatter / Gather Data Format should be used except for UTF8 encoding in which case the following notes should be considered.

UTF8 Considerations

If the UNICODE UTF8 encoding is being used then as long as (great) care is taken, all parameters can be treated as Unicode. All return parameters are single character UTF8 except for data from the SSA-NAME3 v2 Info calls which may contain national characters.

For Tagged Data Format the UTF8 encoding can only be used if the delimiter character consists of the single byte UTF8 characters. All the standard (non-accented) characters (A-Z and a-z) and digits (0-9) and many punctuation characters are represented in UTF8 as a single 8 bit character.

In UTF8 if the character code is less than 128 (00 to 7F in hex) then it is a single byte character otherwise it could be a 2 to 6 byte character.

Everything between the delimiter characters will be passed unchanged.

It is also possible to use a multi-byte UTF8 character or characters for the `DELIMITER`.

PURPOSE

The `PURPOSE` Control specifies the name of the Matching Purpose to use in the Match call. It takes the following form:

```
PURPOSE=(<expression>)
```

Where `<expression>` is one of the following formats:

```
<expression> := <Purpose_Name>
<expression> := <Purpose_Name>(<Match_level>)
<expression> := not <expression>
<expression> := <expression> or <expression>
<expression> := <expression> and <expression>
<expression> := (<expression>)
```

Note: The `<expression>` requires brackets () whenever there are embedded spaces, that is when using not, and, or.

The simple form of the Purpose `<expression>`

```
PURPOSE=<Purpose_Name>
```

is also the most commonly used format. For example:`PURPOSE=Address` will cause a match to be done on the supplied Address fields to determine the match purpose "same address".

The form of the `<expression>`:`PURPOSE=<Purpose_Name>(<Match_level>)`

For example:`PURPOSE=Address(Conservative)` is the same as specifying:`PURPOSE=Address MATCH_LEVEL=Conservative`

However, if both ways of specifying a Match Level are used, the value specified locally associated with each of the purposes will take precedence over the match level specified by the `MATCH_LEVEL` keyword. Only purposes that do not have an individual match level specified will adopt the match level specified by the `MATCH_LEVEL` keyword.

Combining multiple expressions, gives the application designer more flexibility in choosing the method in which match decisions and scores are computed.

Using Filters

A common need for combining multiple expressions is in the use of exact match "filters" to cause candidate records to be rejected early, usually based on the value of some flag.

There are nine (9) pre-defined Filters that can be used with special reserved names Filter1, Filter2,. . . Filter9. Multiple filters are provided in case the Matching need requires to filter on more than one field. The filter values are normally expected to be flags, usually single-characters; however they can be any length up to 255 characters The matching done on filters is an exact match, with no editing, which is why they are more suited to codes and flags.

There is another control that is used to return a score of 0% when one or both of the fields used for the Filter are empty or blank.

```
FILTER_OPTIONS=B|Y|E|S|F
```

B = Both search and file must be blank

Y = Same as E (Either)

E = Either search and file may be blank

S = Search is blank

F = File is blank

The default is to return 100% if both fields are blank.

For example, consider a name file that includes both person and company names. This name file also includes a name type ("P" for person and "C" for company). The business needs to be able to search across both name types in the one search (to avoid missing a match if the name type is wrong), but would also benefit from a search within each name type (a "Person" search and a "Company" search).

For this example, a single unpartitioned SSA-NAME3 Key index would be built. (Partitioning by name type would make searching across name types difficult). Such an index would typically use the `Organization_Name` algorithm as it supports a mixture of personal and organization names.

To support the searching within name type, the matching can use the Filter syntax (a `Filtern` Purpose in combination with the real Match Purpose.)

In this example, to cause a Match function to accept only Typical Matches about "People", using the Purpose "same Organization", the following Controls syntax might be used:

```
PURPOSE=(Filter1 AND Organization(Typical))
```

An example of the corresponding `Search Data` would be:`*Filter1*P*Organization_Name*<search name>***`

And the `File Data` would look similar:

```
*Filter1*<Name type flag from file>*
Organization_Name*<name from file>***
```

This will filter out candidates that have a name type of "C".

Of course, this only makes sense if the search application has control over injecting the correct name type into the search record.

The format of the `Filtern` in the `Search Data` and `File Data` can one of the following:

```
a) *Filtern*<single value>*
(b) *Filtern*<value1>*Filtern*<value2>*...
*Filtern*<valuen>*
(c) *Filtern*List(value1,value2,... valuen)*
```

Note: `(b)` and `(c)` give the same result, that is the ability to evaluate multiple values for the one Filter. The `n` in `valuen` can be a value up to 99.

For example, if the people in our imaginary database could have one of two flags (say "P" or "I"), then the corresponding Search Data appear as:`*Filter1*List(P,I)*Organization_Name*<search name>* **`

. . . or this

```
*Filter1*P*Filter1*I*Organization_Name*<search name>***
```

In another example that uses a `Person_Name` index, filtering may be required on two flags, say on Name Type and on Archive Status (a flag that is set to "A" if the record has been archived).

In this case, to cause a Match function to return only Typical Matches about non-archived people, using the Purpose "same Resident", the following Controls syntax might be used:

```
PURPOSE=(Filter1 AND (NOT Filter2) AND
Resident(Typical))
```

An example of the corresponding `Search Data` would be:

```
*Filter1*List(P,I)*Filter2*A*Person_Name*
<search name>*Address_Part1*
<search street address>*Address_Part2*
<search locality line>***
```

And the `File Data` would appear as:

```
*Filter1*<Name type flag from file>*Filter2*
<Archive Status flag from file>*Person_Name*
<name from file>*Address_Part1*
<street address from file>*Address_Part2*
<locality line from file>***
```

The List and repeating field formats may be used for both Search and File Data. If this is the case, the matching done will be many-to-many (i.e. not positional).

The Filter construct is particularly useful for IIR systems and DCE projects, where the user does not have control over the `SELECT` statement in candidate selection. For simple SSA-NAME3 Applications, the programmer could achieve the same effect by hard-coding a WHERE into the `SELECT` clause. However, for cases where dynamic lists are used for filtering, it may be easier for the SSA-NAME3 programmer to string these into the `PURPOSE` Control of the **ssan3_match** call.

When running Clustering projects, remember that there is not a concept of search and file record, i.e. the clustering process is about grouping file records. Therefore, using the Filter construct in clustering is restricted to using whatever flags are in the file data. This is useful for adding some additional requirements for a record to join a cluster. For example, in the first example in this section, if the mixed person and company file were to be clustered, using filtering would make it possible to ensure only records with the same name type were grouped together.

FILTER_SEARCHVAL Control

You can use the FILTER_SEARCHVAL control to specify a fixed value for the FilterN field. When you use FILTER_SEARCHVAL=value, the value must match both the search and file records.

The following example matches as the FILTER1 values for the search and file record are the same and FILTER_SEARCHVAL is not specified:

```
Controls: 'PURPOSE=(FILTER1 AND PERSON_NAME)'
Search data: '*filter1*A*Person_Name*Mike Taylor***'
File data: '*filter1*A*Person_Name*Mike Taylor***'
Score:
'100'
Decision: 'A'
```

The following example does not match as the FILTER1 fields do not match the value specified by the FILTER_SEARCHVAL control:

```
Controls: 'PURPOSE=(FILTER1 AND PERSON_NAME) FILTER_SEARCHVAL=B'
Search data: '*filter1*A*Person_Name*Mike Taylor***'
File data: '*filter1*A*Person_Name*Mike Taylor***'
Score:
'000'
Decision: 'R'
```

The following example matches as both FILTER1 fields are the same and they match the value specified by the FILTER_SEARCHVAL control:

```
Controls: 'PURPOSE=(FILTER1 AND PERSON_NAME) FILTER_SEARCHVAL=B'
Search data: '*filter1*B*Person_Name*Mike Taylor***'
File data: '*filter1*B*Person_Name*Mike Taylor***'
Score:
'100'
Decision: 'A'
```

Multi-Purpose Matching

Another use for combining multiple expressions will be to achieve Multi-Purpose Matching.

When multiple Purposes are used, it is important to note the following:

The Multi-Purpose expression is evaluated in a strict left to right order;

Early exit from the match process is only possible after evaluation of the first Purpose;

All Purposes in the expression share the same data as passed in the Search Data and File Data fields.

If two Purposes share the same field and both Purposes need to be evaluated, that field will be evaluated twice (as it may been defined with different match options depending on which Purpose it is in).

One example of Multi-Purpose matching is to create an early exit condition that is likely to improve performance. This would be either an early "accept" where Purposes are joined by an OR, or an early "reject" in the case of an AND. Again, note that early exit from the match process is only possible after evaluation of the first Purpose.

For example, if in a typical Resident purpose it is logically possible to reject on the basis of "Address" not passing a Conservative match, the following might be used:`PURPOSE=(Address(Conservative) AND Resident(Typical))`

If the Address purpose receives a "Reject" decision from the Conservative match, the Resident Purpose is not evaluated as the AND has failed. However, if the Address purpose does not result in a Reject condition and the Resident purpose is thus evaluated, note that the address data will be re-matched as part of the Resident purpose, in addition to the `Person_Name` field.

In the above example overall performance (i.e. the run-time of a batch job, or the overall performance of an online system) improves the more often early-exit occurs. Conversely, performance can decrease the more often both Purposes need to be evaluated (because the address field must be evaluated for each Purpose).

Another example of Multi-Purpose matching is to return a super-set of matches, such as:`PURPOSE=(Individual OR Resident)`

This will cause matches to be accepted where either the same Individual (Name + (Date of Birth or ID Number)) OR the same Resident (Name + Address) is present. In this example, the `Match_Level` Control will be used to apply to both Purposes.

A third example is for mixing Match Levels. For example:

```
PURPOSE=(Contact(Typical) OR
Wide_Contact(Conservative))
```

This will accept matches if either `Person_Name`, `Organization_Name` and `Address` match at the `Typical` level, or `Person_Name` and `Organization_Name` match at the Conservative level.

In the above two examples, again note the performance impact of both Purposes being evaluated (i.e. based on the fact that certain fields would be evaluated twice).

When combining Purposes with `<and, or, not>`, the Purposes are evaluated in a left-to-right order. If the score/decision from the first Purpose invalidates the expression, then no further processing is done and the process returns with that Purpose's score/decision.

If all Purposes are evaluated, the score/decisions are combined in the following manner:

```
<expression a> and <expression b>
```

If <expression a> decision =	and <expression b> decision =	Final decision / Score
Reject	N/A	Reject / <exp. a> Score
Undecided	Accept	Undecided / Score=lowest
Undecided	Undecided	Undecided / Score=lowest
Undecided	Reject	Reject / Score=lowest
Accept	Accept	Accept / Score=lowest
Accept	Undecided	Undecided / Score=lowest
Accept	Reject	Reject / Score=lowest

<expression a> or <expression b>

If <expression a> decision =	or <expression b> decision =	Final decision / Score
Accept	N/A	Accept / <exp. a> Score
Undecided	Accept	Accept / Score=highest
Undecided	Undecided	Undecided / Score= highest
Undecided	Reject	Undecided / Score= highest
Reject	Accept	Accept / Score=highest
Reject	Undecided	Undecided / Score= highest
Reject	Reject	Reject / Score= highest

not <expression>

If <expression> decision not =	Decision / Score returned
Accept	Reject / Score=100-Score
Undecided	Undecided / Score=100-Score
Reject	Accept / Score=100-Score

SSA-NAME3 Error Messages

The following error messages may be received from an SSA-NAME3 Call. Contact Informatica Corporation if you require assistance resolving the problem.

The following messages refer to problems with the parameters or the formatting of the parameters. You should check that the parameters are correct. Use the message as an indicator as to which parameter to check. Some of the messages refer to a `CONTROLS` keyword which has an invalid or incorrect value.

```
Invalid population parameter
Invalid codepage parameter
Invalid field parameter
Invalid key_level parameter
Invalid offset/length parameter
Length parameter exceeds maximum
Invalid search type parameter
Invalid purpose parameter
Invalid level parameter
Invalid search data layout
Invalid file data layout
Search record does not contain all fields required for Purpose
File record does not contain all fields required for Purpose
Invalid system parameter
Invalid Controls parameter
Field delimiter not specified or is invalid
Invalid key field data layout
Invalid INFO type
Unrecognized keyword found in controls
No keywords found in controls
Keyword not allowed for this call type
Invalid NAMEFORMAT value - must be L or R
Invalid CHARACTER ENCODING value
Key Data Field does not contain any input data
MAX_ENTRIES value is greater than supported size
Invalid KEYSIZE value - must be 5 or 8
Missing field parameter
Missing matching bracket
Syntax error in purpose expression
Syntax error in weight adjustment
Syntax error in weight adjustment, invalid number
Syntax error in weight adjustment, missing fieldname
Invalid value for WSTACK (valid values are B,S or F}
Invalid EARLYEXIT value - must be Y or N
Search record is empty
File record is empty
Input record is empty
level name too long
Invalid SCACHE value - must be Y or N
No populations found in the SSAPR/system directory
No systems found in the SSAPR directory
```

These error messages refer to internal errors and should be referred to Informatica Corporation.

```
Internal error assembling record for matching
Error reported by core
Work area is too small
Not enough memory to allocate workarea
Unable to establish session
Error reading SSAPR directory
Cannot sort in the available memory
Unsupported call - old CALL interface no longer supported
Unable to allocate space for layout
NAMESET word stack overflow
```

These error messages indicate that the number of values that would have been returned was larger than the field size specified to return the values. For example the keys and search ranges have a maximum value of 1024 entries. The Info records maximum size is 99.

```
NAMESET key stack overflow
NAMESET search table overflow
Ranges table overflow
Key table overflow
Info table overflow
```

The following messages refer to problems with the Data Encoding Type. The `UNICODE_ENCODING` control (if used) must match the Data Encoding Type. The specification of the Data Field (using tagged or scatter gather format) must not contain a length that is longer than the value specified in the Data Field length parameter.

```
Specified user encoding does not match UNICODE_ENCODING control
Invalid user encoding has been specified
Layout specifies field beyond limits of input record
Please verify your search data
Please verify your file data
```

The following message indicates that the value specified in the `SEARCH_LIMIT` control was too small for the number of records expected to be returned by the search.`Search too wide - increase SEARCH_LIMIT`

CHAPTER 7

Address Standardization

The Address Standardization APIs are used to parse addresses into their components fields and to validate them against postal reference databases. They can only be used successfully if the separately licensable *Address Standardization Module* has been installed.

This section of the documentation describes the functions, semantics, process flow, parameter values / setting and returned data.

Initialization

A session must first be created by calling **ssan3_open**.

Each caller must initialize the Address Standardization sub-system by calling **ssan3_addr_init**. This API must be called prior to calling any other Address Standardization APIs.

Note: By default ASM uses AddressDoctor v4. To use ASM with AddressDoctor v5 call **ssan3_addr_set_option** API prior to calling **ssan3_addr_init**. Refer below table for **ssan3_addr_set_option**:

Option Name	Option Value	Meaning
LIBRARY_VERSION	V5	Use ASM with AddressDoctor v5
	V4	Use ASM with AddressDoctor v4

Character Sets and Countries

Initialization is usually followed by a call to **ssan3_addr_set_attrib**. This is used to define the character set of the input data. The parsed / validated address fields will be returned to the caller using this character set as well. A list of supported character sets appear below for ASM using AddressDoctor v4:

Character Set
UTF32BE
UTF32LE

Character Set
UTF16BE
UTF16LE
UTF8
UCS4BE
UCS4LE
UCS2BE
UCS2LE
ISO8859_1
ISO8859_2
ISO8859_3
ISO8859_4
ISO8859_5
ISO8859_6
ISO8859_7
ISO8859_8
ISO8859_9
ISO8859_10
ISO8859_15
IBM437
IBM850
IBM852
IBM855
IBM857
IBM862
WIN1250
WIN1251
WIN1252

Character Set
WIN1253
WIN1254
WIN1255
WIN1256
WIN1257
BIG5
JIS
GBK
UHC
ASCII
EBCDIC

Note: Character sets like `UTF32BE`, `UTF32LE`, `UCS4BE` and `UCS4LE` not supported by ASM using AddressDoctor v5.

As some of these character sets are multi-byte, **ssan3_addr_set_lines** and **ssan3_addr_get_field_idx** transfer address data using the Block data type (fixed length, non-nul terminated pieces of memory).

The **ssan3_addr_set_attrib** API is also used to specify a default country. This value is used only when address parsing fails to find a valid country within the address. A list of valid country names appear below:

Country Name
Aruba
Afghanistan
Angola
Anguilla
Albania
Andorra
Netherlands Antilles
United Arab Emirates
Argentina
Armenia

Country Name
American Samoa
Antarctica
French Southern Territories
Antigua and Barbuda
Australia
Austria
Azerbaijan
Burundi
Belgium
Benin
Burkina Faso
Bangladesh
Bulgaria
Bahrain
Bahamas
Bosnia and Herzegovina
Belarus
Belize
Bermuda
Bolivia
Brazil
Barbados
Brunei Darussalam
Bhutan
Bouvet Island
Botswana
Central African Republic

Country Name
Canada
Cocos Islands
Switzerland
Chile
China
Cte d’Ivoire
Cameroon
Congo, The Democratic Republic of the
Congo
Cook Islands
Colombia
Comoros
Cape Verde
Costa Rica
Cuba
Christmas Island
Cayman Islands
Cyprus
Czech Republic
Germany
Djibouti
Dominica
Denmark
Dominican Republic
Algeria
Ecuador
Egypt

Country Name
Eritrea
Western Sahara
Spain
Estonia
Ethiopia
Finland
Fiji
Falkland Islands
France
Faroe Islands
Micronesia, Federated States of
Gabon
United Kingdom
Georgia
Ghana
Gibraltar
Guinea
Guadeloupe
Gambia
GuineaBissau
Equatorial Guinea
Greece
Grenada
Greenland
Guatemala
French Guiana
Guam

Country Name
Guyana
Hong Kong
Heard Island and McDonald Islands
Honduras
Croatia
Haiti
Hungary
Indonesia
India
British Indian Ocean Territory
Ireland
Iran, Islamic Republic of
Iraq
Iceland
Israel
Italy
Jamaica
Jordan
Japan
Kazakstan
Kenya
Kyrgyzstan
Cambodia
Kiribati
Saint Kitts and Nevis
Korea, Republic of
Kuwait

Country Name
Lao People’s Democratic Republic
Lebanon
Liberia
Libyan Arab Jamahiriya
Saint Lucia
Liechtenstein
Sri Lanka
Lesotho
Lithuania
Luxembourg
Latvia
Macau
Morocco
Monaco
Moldova, Republic of
Madagascar
Maldives
Mexico
Marshall Islands
Macedonia, The Former Yugoslav Republic of
Mali
Malta
Myanmar
Mongolia
Northern Mariana Islands
Mozambique
Mauritania

Country Name
Montserrat
Martinique
Mauritius
Malawi
Malaysia
Mayotte
Namibia
New Caledonia
Niger
Norfolk Island
Nigeria
Nicaragua
Niue
Netherlands
Norway
Nepal
Nauru
New Zealand
Oman
Pakistan
Panama
Pitcairn
Peru
Philippines
Palau
Papua New Guinea
Poland

Country Name
Puerto Rico
Korea, Democratic People's Republic of
Portugal
Paraguay
Palestinian Territory, Occupied
French Polynesia
Qatar
Runion
Romania
Russian Federation
Rwanda
Saudi Arabia
Sudan
Senegal
Singapore
South Georgia and the South Sandwich Islands
Saint Helena
Svalbard and Jan Mayen
Solomon Islands
Sierra Leone
El Salvador
San Marino
Somalia
Saint Pierre and Miquelon
So Tom and Prncipe
Suriname
Slovakia

Country Name
Slovenia
Sweden
Swaziland
Seychelles
Syrian Arab Republic
Turks and Caicos Islands
Chad
Togo
Thailand
Tajikistan
Tokelau
Turkmenistan
Timor-Leste
Tonga
Trinidad and Tobago
Tunisia
Turkey
Tuvalu
Taiwan, Province of China
Tanzania, United Republic of
Uganda
Ukraine
United States Minor Outlying Islands
Uruguay
United States
Uzbekistan
Holy See

Country Name
Saint Vincent and the Grenadines
Venezuela
Virgin Islands, British
Virgin Islands, U.S.
Viet Nam
Vanuatu
Wallis and Futuna
Samoa
Yemen
Serbia and Montenegro
South Africa
Zambia
Zimbabwe

The character set and default country are used for the life of the session or until they are changed.

Providing an Input Address

Address data may be provided in "10 line format", by calling **ssan3_addr_set_lines**. If "5 line format" similar to its appearance on an envelope is to be used, the remaining lines should be passed as empty string.

When calling the CASS certified engine (`Val_Mode=Certify`), only 4 lines of input are accepted. Any additional lines will be ignored. The input lines must correspond to

- Organization,
- Delivery Address,
- Locality (City, State and Zip), and
- Country

Parsing an Address

Parsing is the process of separating the address lines into separate address fields. It does not check whether or not the address fields constitute a valid postal address.

A call to **ssan3_addr_parse** returns a Long Array of field lengths. These correspond to the lengths of the parsed address fields, as per the table below. Fields with a length of zero simply mean that a particular address component was not present (for example, a middle name).

Field Index	Address Field
0	Organization
1	Department
2	Nobility (e.g. Lord)
3	Title (e.g. Mr)
4	First Name
5	Middle Name
6	Last Name
7	Function (e.g. Manager)
8	Building
9	Sub-Building
10	Street_1
11	Street_2
12	House Number
13	P.O. Box
14	Dependent Locality (e.g. URB, Colonia)
15	Locality (e.g. County)
16	Province (e.g. State)
17	Zip Code
18	Country
19	Double Dependent Locality
20	Sorting Code (Mail Sort)
21	County Information
22	Zip+4
23	Geocoding Latitude
24	Geocoding Longitude

Field Index	Address Field
25	Geocoding Unit
26	Residue

Note: Some fields will not return values for ASM with AddressDoctor v4, since they may not be supported (i.e. geocoding related fields).

For example, field length [13] represents the length of the "PO Box" component of the address.

Validating an Address

Validating involves parsing the address into its component fields and checking those fields against a postal validation database. **ssan3_addr_validate** returns a `status` that indicates whether or not the address was valid, and if not, whether it could be corrected and its likelihood of being delivered successfully. Refer the table below for validation status for ASM using AddressDoctor v4:

Status Code	Meaning
0	Address is correct
1	Address was corrected
2	Needs correction; deliverability high
3	Needs correction; deliverability fair
4	Needs correction; deliverability small
5	Country not recognized
6	No valid country database found
7	Country not unlocked
8	No validate called yet
9	Insufficient information
10	No suggestions
11	Suggestions incomplete
12	Suggestions

Refer below table for validation status for ASM using AddressDoctor v5:

Status Code	Meaning
0	Verified - Input data correct - all elements were checked and input matched perfectly
1	Verified - Input data correct on input but some or all elements were standardised or input contains outdated names or exonyms
2	Verified - Input data correct but some elements could not be verified because of incomplete reference data
3	Verified - Input data correct but the user standardisation has deteriorated deliverability
4	Corrected - all elements have been checked
5	Corrected - but some elements could not be checked
6	Corrected - but delivery status unclear
7	Corrected - but delivery status unclear because user standardisation was wrong
8	Data could not be corrected completely, but is very likely to be deliverable - single match
9	Data could not be corrected completely, but is very likely to be deliverable - multiple matches
10	Data could not be corrected, but there is a slim chance that the address is deliverable
11	Data could not be corrected and is pretty unlikely to be delivered
12	FastCompletion Status - Suggestions are available - complete address
13	FastCompletion Status - Suggested address is complete but combined with elements from the input
14	FastCompletion Status - Suggested address is not complete
15	FastCompletion Status - Insufficient information provided to generate suggestions
16	Country recognized from ForceCountryISO3 Setting
17	Country recognized from DefaultCountryISO3 Setting
18	Country recognized from name without errors
19	Country recognized from name with errors
20	Country recognized from territory
21	Country recognized from province
22	Country recognized from major town
23	Country recognized from format
24	Country recognized from script
25	Country not recognized - multiple matches

Status Code	Meaning
26	Country not recognized
27	Parsed perfectly
28	Parsed with multiple results
29	Parsed with Errors - Elements change position
30	Parse Error - Input Format Mismatch
31	Validation Error: No validation performed because country was not recognized
32	Validation Error: No validation performed because required reference database is not available
33	Validation Error: No validation performed because country could not be unlocked
34	Validation Error: No validation performed because reference database is corrupt or in wrong format
35	Validation Error: No validation performed because reference database is too old - contact AddressDoctor to obtain updated reference data

The validation process may generate a number of suggested addresses when the input address is ambiguous. For example, the address

```
1520 Chestnut
Anytown AT 12345
USA
```

may be ambiguous because both 1520 Chestnut Drive and 1520 Chestnut Court exist and without additional information, we cannot tell them apart. The number of suggestions returned is an output parameter from the validate call.

Retrieving Address Fields

After parsing or validation, individual address fields are available for collection as part of a "suggestion". Suggestion 0 always holds the parsed fields. Suggestions numbered 1 and above hold the validated address fields.

Individual fields are retrieved one by one using **ssan3_addr_get_field_idx** by nominating the suggestion index and field index. As some fields may be missing, only those fields that have a non-zero length (as determined by calling **ssan3_addr_parse** or **ssan3_addr_get_field_info**) should be retrieved.

After validation, a field may be retrieved with **ssan3_addr_get_field**. This API is similar to **ssan3_addr_get_field_idx** but returns two extra codes that describe how the particular field matched the

validation data (`val_status`) and whether or not it was changed by the validation process (`val_mods`). Refer below table for `val_status` and `val_mods` for ASM using AddressDoctor v4:

val_status	Meaning
0	Empty
1	Not found
2	Not Checked (no reference data or no chance of success)
3	Matched with errors
4	Matched without errors

val_mods	Meaning
0	Empty
1	Not checked
2	Not checked but standardized
3	Checked and corrected (changed or inserted)
4	Validated, but changed (synonyms, old names)
5	Validated, but standardized
6	Validated and unchanged

Refer below table for `val_status` and `val_mods` for ASM using AddressDoctor v5:

val_status	Meaning
0	Empty
1	Not found
2	Not checked (no reference data)
3	Wrong - Set by validation only
4	Match with errors in this element

val_status	Meaning
5	Match with changes
6	Match without errors

val_mods	Meaning
0	Empty
1	Not validated and not changed
2	Not validated bus standardized
3	Validated but not changed due to invalid input
4	Validated but not changed due to lack of reference data
5	Validated but not changed due to multiple matches
6	Validated and changed by eliminating the input value
7	Validated and changed due to correction based on reference data
8	Validated and changed by adding value based on reference data
9	Validated, not changed, but delivery status not clear
12	Validated, verified but changed due to outdated name
13	Validated, verified but changed from exonym to official name
14	Validated, verified but changed due to standardization based on casing or language
15	Validated, verified and not changed due to perfect match

Setting Options

Some optional aspects of Address Standardization behaviour may be set with the **ssan3_addr_set_option** API.

Option Name	Option Value	Meaning
Val_Mode	Correct	Correct the input address. Do not generate suggestions. Generally used in batch mode.
	Suggest	Generate suggestions (the default). Generally used by online applications where the operator can choose between a list of possibilities.

Option Name	Option Value	Meaning
	Complete	Use an incomplete address (fragment) to quickly generate suggestions. Used for online "fast completion" style of applications.
	Certify	Use CASS certified validation rules defined by the USPS. Certify mode is only available for US addresses and requires additional database files to be installed in the DB directory.
Force_Country	True	Force the use of the Default Country
	False	Use Country detected from parsing the Address. This is the Default.
FORMAT_ZIP	True	To format the zip code in country specific format
	False	To unset the format of zip code in country specific format. This is the Default.
BASE_ZIP	True	To retrieve the zip code in Base format
	False	To unset the base format of zip code. This is the Default.

Getting Options

Some aspects of Address Standardization behavior may be obtained with the **ssan3_addr_get_option** API.

Option Name	Option Value	Meaning
VERSION	N/A	Gets the version number of the validation database

Sample Code

Sample code that demonstrates the API calls is in the samples directory `ssaas/ad/samples`.

Compilation and linking instructions can be found in the comment block at the beginning of the samples.

To run using the Name3 DLL no parameters are required and it can be run as follows:`addrstd`

To run using the Name3 Server the `host:port` of the Name3 Server must be supplied on the command line. For example,

```
addrstd -h%SSA_N3HOST%
```

The sample code by default makes use of ASM with AddressDoctor v5. To use ASM with AddressDoctor v4 run sample code with `-v4` command line option.

For example for Name3 Server mode:

```
addrstd -h%SSA_N3PORT% -v4
```

For example for Name3 DLL mode:`addrstd -v4`

The sample code makes use of the Swiss validation database. This should be installed prior to use. See the *Validation Database Files* section for details.

Validation Database Files

The validation process makes use of postal validation databases stored in a sub-directory of SSA-NAME3's installation named `ssaas/ad/ad/db` for ASM using AddressDoctor v4 and `ssaas/ad5/ad/db` for ASM using AddressDoctor v5.

The Address Standardization Module installer does not install any validation databases. They are ordered separately by contacting Informatica Corporation. When you receive these files (named *.MD), you must copy them into the directory specified above. You will also receive a file named key that contains an unlock code for your specific databases. This file must be copied to the same directory.

Also in case of ASM using AddressDoctor v5 to support geocoding, unlock code for geocoding should be present in file named `key.geo`. This file must be copied to the same directory where key is copied.

ASM configuration for AddressDoctor v5

The values of unlock key, number of threads, maximum number of address object to be used for Address Standardization are determined from the values in the file `ssaasmv5.xml`.

Note: The format of the ASM ADv5 configuration XML should be in UTF-8.

Address Standardization XML configuration file samples:

The simplest XML configuration file:

```
<?xml version="1.0" encoding="UTF-8"?>
<ASM_ADv5_Config>
<MAX_THREAD>1</MAX_THREAD>
<MAX_ADOBJECTS>2</MAX_ADOBJECTS>
<AD5_UNLOCK_CODE>
<UNLOCK_CODE>**Placeholder for UnlockCode**</UNLOCK_CODE>
</AD5_UNLOCK_CODE>
</ASM_ADv5_Config>
```

Note: `MAX_THREAD` value should not be set to a larger value than the number of cores/CPUs. Its recommended to set the value of `MAX_ADOBJECTS` as twice the number of threads set using `MAX_THREAD`. Also these options should be set before starting Name3 servers.

XML Configuration with multiple license key:

```
<?xml version="1.0" encoding="UTF-8"?>
<ASM_ADv5_Config>
        <MAX_THREAD>1</MAX_THREAD>
        <MAX_ADOBJECTS>2</MAX_ADOBJECTS>
        <AD5_UNLOCK_CODE>
             <UNLOCK_CODE>**Placeholder for UnlockCode 1**</UNLOCK_CODE>
             <UNLOCK_CODE>**Placeholder for UnlockCode 2**</UNLOCK_CODE>
                  ...
             <UNLOCK_CODE>**Placeholder for UnlockCode N**</UNLOCK_CODE>
        </AD5_UNLOCK_CODE>
</ASM_ADv5_Config>
```

XML configuration with preload options:

```
<?xml version="1.0" encoding="UTF-8"?>
<ASM_ADv5_Config>
        <MAX_THREAD>1</MAX_THREAD>
```

```
        <MAX_ADOBJECTS>2</MAX_ADOBJECTS>
        <AD5_UNLOCK_CODE>
             <UNLOCK_CODE>**Placeholder for UnlockCode 1**</UNLOCK_CODE>
        </AD5_UNLOCK_CODE>
        <PRELOAD_COUNTRIES>
                <PRELOAD TYPE="FULL">Switzerland</PRELOAD>
                <PRELOAD TYPE="PARTIAL" VALMODE="CORRECT">Canada</PRELOAD>
                <PRELOAD VALMODE="CERTIFY">Australia</PRELOAD>
        </PRELOAD_COUNTRIES>
</ASM_ADv5_Config>
```

Note: Refer to *Character Sets and Countries* section for valid country name for preload.

XML configuration with enrichment options:

```
<?xml version="1.0" encoding="UTF-8"?>
<ASM_ADv5_Config>
                                <MAX_THREAD>1</MAX_THREAD>
                                <MAX_ADOBJECTS>2</MAX_ADOBJECTS>
                                <AD5_UNLOCK_CODE>
                                                                    <UNLOCK_CODE>**Placeholder
for UnlockCode 1**</UNLOCK_CODE>
                                </AD5_UNLOCK_CODE>
                                <PRELOAD_COUNTRIES>
                                                                                    <PRELOAD
TYPE="PARTIAL" VALMODE="CERTIFY">Australia</PRELOAD>
                                </PRELOAD_COUNTRIES>
                                <PROCESS_OPTION>

<ENRICHMENT_OPTION>EnrichmentGeoCoding</ENRICHMENT_OPTION>

<ENRICHMENT_OPTION>EnrichmentCASS</ENRICHMENT_OPTION>
                                </PROCESS_OPTION>
</ASM_ADv5_Config>
```

Note: To get CASS, GeoCoding, AMAS, SERP enrichment fields we need to specify enrichment options. EnrichmentGeoCoding, EnrichmentCASS, EnrichmentAMAS, EnrichmentSERP, EnrichmentSNA etc. are the possible values for enrichment option.

Batch Test Utility

Provided with the Address Standardization Module is the batch utility asmnm3. This program utilizes all of the API functions. It takes address from an input file and can perform both parsing and validation. It is ideal for verifying programs that utilize the Address Standardization Module API or for batch processing a small number of addresses.

```
%SSABIN%\asmnm3 InputFile -hHostName:PortNumber [Options]
```

where

InputFile

The input file will consist of addresses in a ten line format. Addresses with less than 10 lines must be terminated with a comment line. This is a line beginning with the comment string which defaults to the '#' character.

-hHostName:PortNumber

NM3 Server host name and port number

Possible options are

-a	Prints the suggested address label.
-A	Force the use of archive tables.

-b	Force the use of ASM with Address Doctor v5 (default v4).
-cCharSet	The Character set to use. The default is WIN1250.
-dDefaultCountry	The Country to use when parsing cannot determine a country from the address.
-f	Force the use of the DefaultCountry.
-gFileName	CASS summary report file-name
-i	Individual field-level input. When specified, each input address consists of n lines, where n is the maximum number of Field-Index values supported, as documented in the *Parsing an Address* section. Each field value must be prefixed by 3 bytes (which are ignored). This reserves space for a 2 digit fieldindex plus a space, used for documentation purposes

For example, a valid input file appears as follows:

```
00
01
02
03 Mr.
04 John
05 Peter
06 Smith
07
08
09
10 Main Street S
11
12 100 Apt 23A
13
14
15 New York
16 NY
17 10023
18 USA
#
```

Option	Description
-Lpreload_country	The Country to use during preloading of database into memory.
-mValMode	The Mode to use for validation purposes valid values are `Suggest`, `Correct` and `Complete`. The default value is `Suggest`.
-o	PO Box complete flag.
-pPopulation	The SSA-Name3 Population to use.
-P	Force the use of partially fielded. This should be accompanied with Individual field-level input.
-sSystem	The NM3 System Directory
-S	Prints the address match score.
-rString	Set the comment string. This defaults to`#`.
-Tpreload_type	Set the preload type. This defaults to `NOPRELOAD`.

Option	Description
-v	Performs Validation. The default is to parse only.
-xml	Generate CASS 3553 summary report in xml format.
-y	Set preferred language type.
-z	Prints the Validation database version.
-ZzipFormat	Set the format of the output zip code. The valid values are `BASE_ZIP` and `FORMAT_ZIP`.

CHAPTER 8

ASM Workbench

This chapter includes the following topics:

Introduction

The ASM Developer's Workbench is a Java GUI tool that helps a programmer prototype Address Standardization API calls. The ASM Workbench is used to parse addresses into their individual component fields and to validate them against postal reference databases. The ASM Workbench is used for:

- Parsing Unfielded Address Format
- Validating Fielded and Unfielded Address Format

In order to use the ASM Developer's Workbench, SSA-NAME3 core modules should have been installed, either locally, or on another computer/server.

Launching the ASM Workbench

ASM Workbench can be launched from SSA-NAME3 `%SSABIN%` directory.

Command line startup for ASM Workbench

To run ASM Workbench from command line you will need to establish the environment by running `%SSABIN%\env\isss.bat` and start the server. Once your environment is established and servers are up and running, execute `asmcli`. Following are the main input parameters for launching SSA-NAME3 Workbench:

```
asmcli -hHostName:PortNumber -1File1 -2File2 [options]
```

where

-hHostName:PortNumber

Search Server Host name and Port Number.

1File1

Specifies the file where log message are redirected.

2File2

Specifies the file where error message are redirected.

-b

Use ASM with AddressDoctor v5.

-cCharacterSet

The Character set to use. The default is WIN1250.

-dDefaultCountry

The Country to use when parsing can not determine a country from the address.

-mValidationMode

The Mode to use for validation purposes valid values are `Suggest`, `Correct`, `Complete` and `Certify`. The default value is `Suggest`.

For example:

```
%SSABIN%\asmcli -h%SSA_N3HOST% -1asmcli.log -2asmcli.err -d"United States" -pusa -sdefault
```

ASM Workbench Input Options

Country Specific Input

Country specific Input:

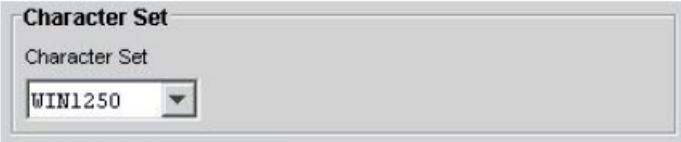
Force Country option

Force country option is used to force the use of default country.

Note: Before selecting a Country Name for validating an address or preloading country database into memory, appropriate Postal database (`.MD`) file must be present in `%SSATOP%/ssaas/ad/ad/db` directory for ASM using AddressDoctor v4 and in `%SSATOP%/ssaas/ad5/ad/db` directory for ASM using AddressDoctor v5.

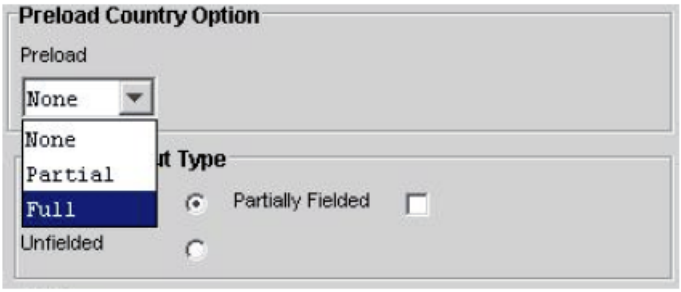
Character Set

This is used to define the character set of the input data. The parsed / validated address fields will be returned to the caller using this character set as well.



Country Preload Option

Preload option provides greater flexibility in loading the country address database into memory. The preload option includes partial preload for US CASS (certified) including ZIP move and EWS data. Only one country database can be preloaded. If database file is not located or insufficient memory, causes preload to fail.



Partial Preload

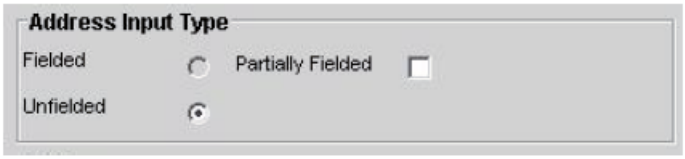
Partial preloading will load the data and indexing structures into memory. The reference data itself will remain on the hard drive. Partial is an alternative when not enough memory is available to fully load the desired databases.

Full Preload

Full preloading will move the entire reference database into memory. This may need a significant amount of memory for countries with large databases such as USA or, but it will increase the processing speed significantly.

Note: Before preload of country verify selected country name contains corresponding database (`.MD`) file located in appropriate postal reference database directory `%SSATOP%/ssaas/ad/ad/db` for ASM using AddressDoctor v4 and `%SSATOP%/ssaas/ad5/ad/db` for ASM using AddressDoctor v5.

Address Input Type



Fielded address Input

Fielded addresses will typically provide the most reliable results when cleansing an address. This address input provide separate field for each address component input.

Partially Fielded Input

In many databases address data has been partially broken out. for example a separate state, or postal code field. But some of the address is left in generic "address lines". In this case the address data are input using the fielded data (example: Contact, Province, Locality, Country, Postal Code) by selecting Fielded address input type, and then use the DeliveryAddressLines to input the `ADDRESS_LINE_*` elements, this is done by selecting Partially Fielded checkbox.

UnFielded Input

UnFielded Address Input has no explicit structure (other than 10 line input) this input is most flexible, but produce least reliable results.

Options

Batch Mode

Batch Mode is mainly used for importing input file containing unfielded input data and correcting the input address.

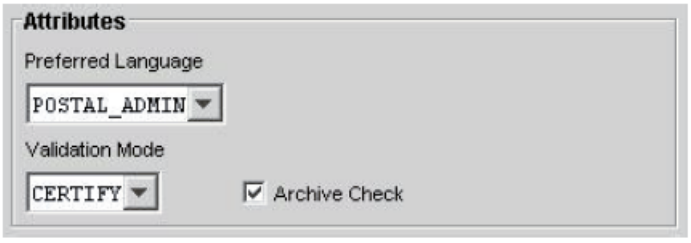
Interactive Mode

Interactive Mode is user driven, user has to use either unfielded (10 line input) or fielded inputs (individual components address input).

Parsing and Validation Frame

ASM Workbench provides four different operations for parsing, validating, certify input address and reset for clearing the input fields. For Fielded Address Format type Parse button will be disabled and for certify validation mode Validation button will be disabled.

Attributes



Preferred Language

This option is used to represent address into appropriate language type.

Option Value	Meaning
POSTAL_ADMIN	Set preferred language to that which is preferred by the postal service. This is the default.
LATIN_SCRIPT	Return the address using Latin script.
ENGLISH	English version of the address.

Validation Mode

Some optional aspects of Address Standardization behavior may be set by selecting the Validation Mode combo box.

Option Value	Meaning
Correct	Correct the input address. Do not generate suggestions. Generally used in batch mode.
Suggest	Generate suggestions (the default). Generally used by online applications where the operator can choose between a list of possibilities.
Complete	Use an incomplete address (fragment) to quickly generate suggestions. Used for online "fast completion" style of applications.
Certify	Use CASS certified validation rules defined by the USPS. Certify mode is only available for US addresses and requires additional database files to be installed in the DB directory.

Archive Check

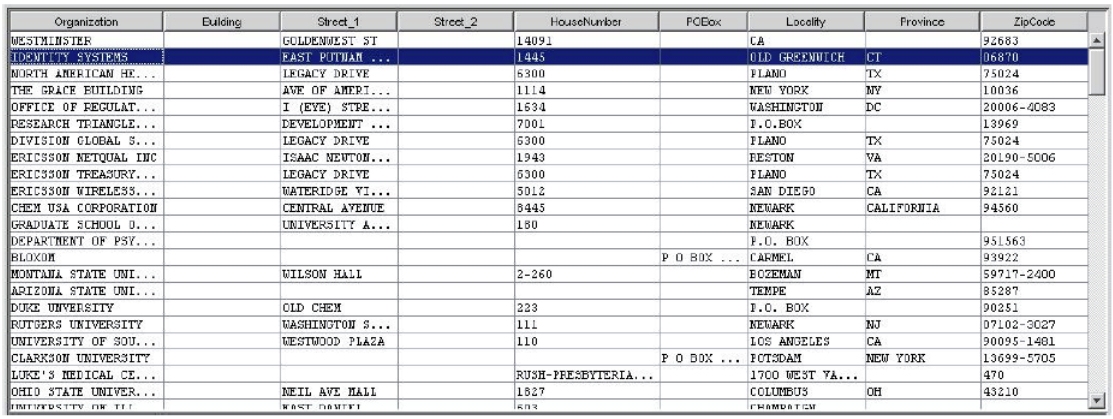
Archive Check option will include vanity names and outdated names (especially for localities) in the processing. Skipping this option will improve the speed very slightly, but may not correct addresses containing vanity names or outdate locality names. Two countries where you should definitely use this option are Germany and the US.

Suggested Address Label Display

The address shown in the suggested address label display is formatted according to the address formatting rules in the country

Address Result Panel Display

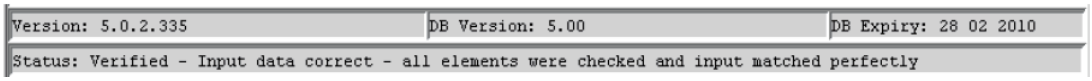
After parsing or validation, individual address fields are available for collection as part of a "suggestion". Suggestion 0 always holds the parsed fields. Suggestions numbered 1 and above hold the validated address fields. Individual fields are viewed in the List box in Output Results Frame. When the users has chosen the **UnFielded** and **validate** option, then Output frame list out the suggestion for the input address, once the user clicks on each suggestion the output address data from the List is mapped to corresponding fields in Fielded address display panel.



Organization	Building	Street_1	Street_2	HouseNumber	POBox	Locality	Province	ZipCode
WESTMINSTER		GOLDENWEST ST		14091		CA		92683
IDENTITY SYSTEMS		EAST PUTNAM ...		1445		OLD GREENWICH	CT	06870
NORTH AMERICAN HE...		LEGACY DRIVE		6300		PLANO	TX	75024
THE GRACE BUILDING		AVE OF AMERI...		1114		NEW YORK	NY	10036
OFFICE OF REGULAT...		I (EYE) STRE...		1634		WASHINGTON	DC	20006-4083
RESEARCH TRIANGLE...		DEVELOPMENT ...		7001		P.O.BOX		13969
DIVISION GLOBAL S...		LEGACY DRIVE		6300		PLANO	TX	75024
ERICSSON NETQUAL INC		ISAAC NEUTON...		1943		RESTON	VA	20190-5006
ERICSSON TREASURY...		LEGACY DRIVE		6300		PLANO	TX	75024
ERICSSON WIRELESS...		WATERIDGE VI...		5012		SAN DIEGO	CA	92121
CHEM USA CORPORATION		CENTRAL AVENUE		8445		NEWARK	CALIFORNIA	94560
GRADUATE SCHOOL O...		UNIVERSITY A...		180		NEWARK		
DEPARTMENT OF PSY...						P.O. BOX		951563
BLOXOM					P O BOX ...	CARMEL	CA	93922
MONTANA STATE UNI...		WILSON HALL		2-260		BOZEMAN	MT	59717-2400
ARIZONA STATE UNI...						TEMPE	AZ	85287
DUKE UNVERSITY		OLD CHEM		223		P.O. BOX		90251
RUTGERS UNIVERSITY		WASHINGTON S...		111		NEWARK	NJ	07102-3027
UNIVERSITY OF SOU...		WESTWOOD PLAZA		110		LOS ANGELES	CA	90095-1481
CLARKSON UNIVERSITY					P O BOX ...	POTSDAM	NEW YORK	13699-5705
LUKE'S MEDICAL CE...				RUSH-PRESBYTERIA...		1700 WEST VA...		470
OHIO STATE UNIVER...		NEIL AVE MALL		1827		COLUMBUS	OH	43210
UNIVERSITY OF IL...		WEST DANIEL		503		CHAMPAIGN		

Validation Status and Database Version Display

Status bar displays Validation postal database version, AddressDoctor version and the status message when we press the validation button to validate the address.



Where version represents the Validation Database version and the status represent the Validation Status as mention in the following table for ASM using AddressDoctor v4:

Status Code	Meaning
0	Address is correct
1	Address was corrected
2	Needs correction; deliverability high
3	Needs correction; deliverability fair
4	Needs correction; deliverability small
5	Country not recognized
6	No valid country database found
7	Country not unlocked

Status Code	Meaning
8	No validate called yet
9	Insufficient information
10	No suggestions
11	Suggestions incomplete
12	Suggestions

Refer below table for validation status for ASM using AddressDoctor v5:

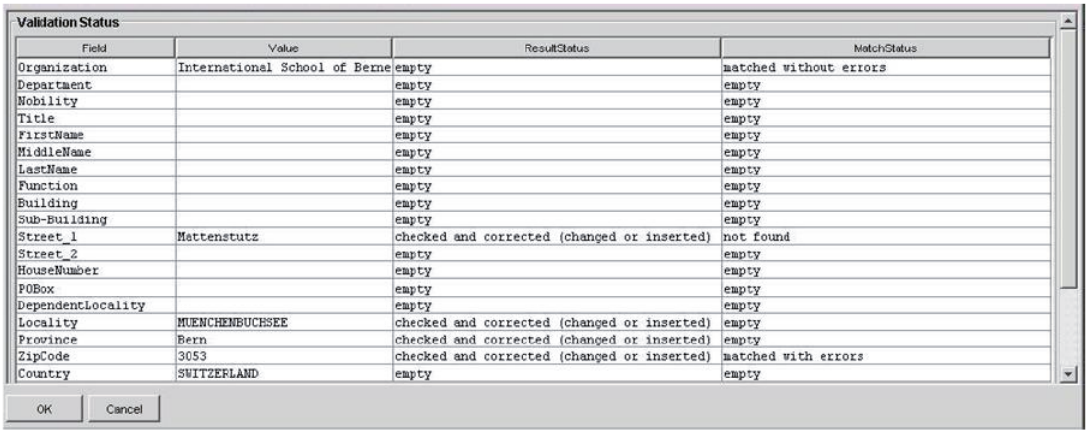
Status Code	Meaning
0	Verified - Input data correct - all elements were checked and input matched perfectly
1	Verified - Input data correct on input but some or all elements were standardised or input contains outdated names or exonyms
2	Verified - Input data correct but some elements could not be verified because of incomplete reference data
3	Verified - Input data correct but the user standardisation has deteriorated deliverability
4	Corrected - all elements have been checked
5	Corrected - but some elements could not be checked
6	Corrected - but delivery status unclear
7	Corrected - but delivery status unclear because user standardisation was wrong
8	Data could not be corrected completely, but is very likely to be deliverable - single match
9	Data could not be corrected completely, but is very likely to be deliverable - multiple matches
10	Data could not be corrected, but there is a slim chance that the address is deliverable
11	Data could not be corrected and is pretty unlikely to be delivered
12	FastCompletion Status - Suggestions are available - complete address
13	FastCompletion Status - Suggested address is complete but combined with elements from the input
14	FastCompletion Status - Suggested address is not complete
15	FastCompletion Status - Insufficient information provided to generate suggestions
16	Country recognized from ForceCountryISO3 Setting
17	Country recognized from DefaultCountryISO3 Setting

Status Code	Meaning
18	Country recognized from name without errors
19	Country recognized from name with errors
20	Country recognized from territory
21	Country recognized from province
22	Country recognized from major town
23	Country recognized from format
24	Country recognized from script
25	Country not recognized - multiple matches
26	Country not recognized
27	Parsed perfectly
28	Parsed with multiple results
29	Parsed with Errors - Elements change position
30	Parse Error - Input Format Mismatch
31	Validation Error: No validation performed because country was not recognized
32	Validation Error: No validation performed because required reference database is not available
33	Validation Error: No validation performed because country could not be unlocked
34	Validation Error: No validation performed because reference database is corrupt or in wrong format
35	Validation Error: No validation performed because reference database is too old - you need to contact AddressDoctor to obtain updated reference data

Output Result Frame Column Selection Menu

Output Result Frame also provides option to select the list of column that user wants to view on the Output result panel. When the user right clicks on the list panel then popup menu displays on the screen showing the list of columns that user wants to enable or disable on the list.

Field Status Display



Match Status

All results share a Match Status that describes how the address elements matched to the postal reference data. Refer below table for match status for ASM using AddressDoctor v4:

Match Status	Meaning
0	Empty
1	Not found
2	Not Checked (no reference data or no chance of success)
3	Matched with errors
4	Matched without errors

Refer below table for match status for ASM using AddressDoctor v5:

val_status	Meaning
0	Empty
1	Not found
2	Not checked (no reference data)
3	Wrong - Set by validation only
4	Match with errors in this element
5	Match with changes
6	Match without errors

Result Status

The Result Status indicates for each address component if and how it has been modified during the address validation process. Refer below table for result status for ASM using AddressDoctor v4:

Result Status	Meaning
0	Empty
1	Not checked
2	Not checked but standardized
3	Checked and corrected (changed or inserted)
4	Validated, but changed (synonyms, old names)

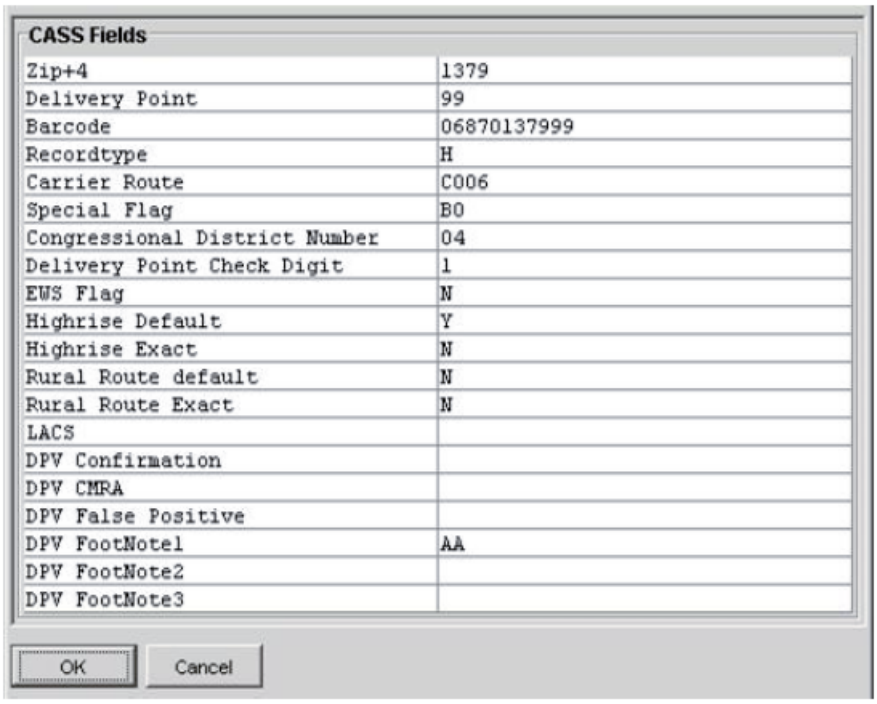
Result Status	Meaning
5	Validated, but standardized
6	Validated and unchanged

Refer below table for result status for ASM using AddressDoctor v5:

val_mods	Meaning
0	Empty
1	Not validated and not changed
2	Not validated bus standardized
3	Validated but not changed due to invalid input
4	Validated but not changed due to lack of reference data
5	Validated but not changed due to multiple matches
6	Validated and changed by eliminating the input value
7	Validated and changed due to correction based on reference data
8	Validated and changed by adding value based on reference data
9	Validated, not changed, but delivery status not clear
12	Validated, verified but changed due to outdated name
13	Validated, verified but changed from exonym to official name
14	Validated, verified but changed due to standardization based on casing or language
15	Validated, verified and not changed due to perfect match

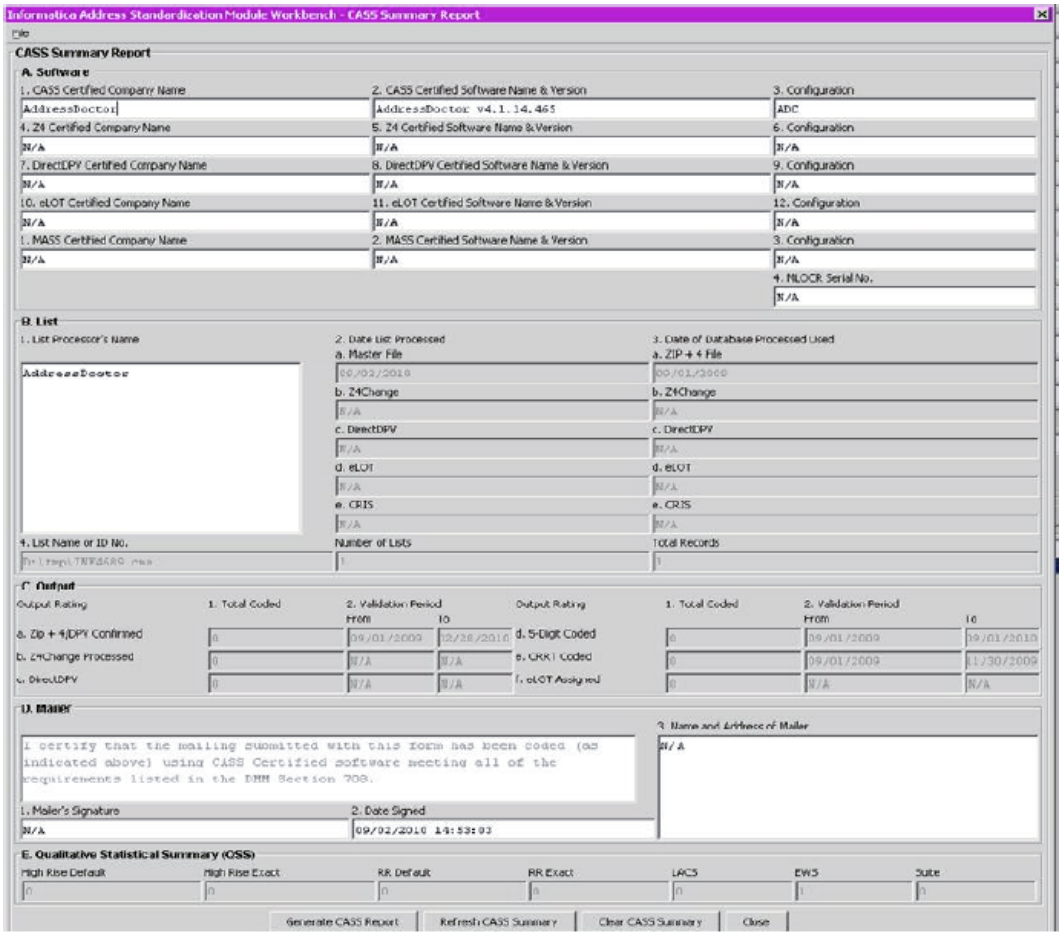
CASS Field Status Display

When validating address using validation mode as Certify, The Result panels shows validated address fields and when Display CASS Fields is selected will pop up CASS fields dialog as shown below:



CASS Summary Report Display

USPS Form 3553 CASS certification can be generated by selecting **View CASS Report** from popup menu displayed in the address result tab for CASS certified address. Selecting this option displays **CASS Summary** report dialog as shown below:



Statistics Reports - CASS Certification

ASM also provides options to generate USPS CASS 3553 Summary report which displays total records coded in each category. The report can be generated in HTML and XML format. CASS 3553 summary report sections are explained in detail under **CASS Summary Report Display**.

File Menu Options

File | Clear Results

Menu option **File** > **Clear Results** menu option is used to clear the address result output display windows.

File | Save Input

Menu option **File** > **Save Input** will prompt File Dialog, this options reads the file name from user and dumps address input and options(including validation mode, preload option, attributes) in the input file, which can be used as input for ASM Batch Test utility.

File | View CASS Summary

Menu option **File** > **View CASS Summary** will display CASS Summary report dialog.

File | Generate CASS Report

Menu option **File** > **Generate CASS Report** will prompt File Dialog, this options reads the file name from user and generate CASS summary for the input address. File format can be either XML or HTML.

File | Clear CASS Summary

Menu option **File** > **Clear CASS Summary** is used to clear accumulated CASS summary after multiple validation using validation mode as certify.

File | Exit

Menu option **File** > **Exit** will prompt to close and exit all SSA-NAME3 Workbench sessions.

ASM Workbench and Batch Test utility

Using ASM Workbench, select **File** > **Save Input**option, the current Fielded or Unfielded Workbench input can be dumped to flat file, this flat file can be used as input for the ASM Batch Test utility `asmiss`.

This is a sample dump of UnFielded Address Input created by the ASM Workbench:

```
# ***Informatica's ASM input file***
# -hlocalhost:1666
# -dSwitzerland -cWIN1250 -l -mSuggest -v -yENGLISH -z -S -a -A -th
WOLFTRONIC Disco & Concert Equip.
zur Brunnenstube
Aeugst am Albis
CHE
```

This is a sample dump of Fielded Address Input created by the ASM Workbench:

```
# ***Informatica's ASM input file***
# -hlocalhost:1666
# -dSwitzerland -cWIN1250 -i -l -mSuggest -v -yENGLISH -z -S -a -A -th
00 International School of Berne
01
02
03
04
05
06
07
08
09
10 Mattenstutz
11
12
13
14
15 MUENCHENBUCHSEE
16 Bern
17 3053
18 Switzerland
#
```

The command to run the ASM Batch Test utility is as follows:

```
SSABIN%\asmiss [-h<host:port>] <ASM Workbench generated input file>
```

Note: The -h option must be specified either in the input file or on the command line. The command line overwrites any value specified in the input file.

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