

User Exits

This section describes the user exits available with Natural Security. It contains information on:

- Logon-Related User Exits
 - RPC-Related User Exit
 - Other User Exits
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Logon-Related User Exits

The following logon-related user exits are available:

- LOGONEX1
- LOGONEX2
- LOGONEX3
- LOGONEX5

Note:

The user exit LOGONEX4 is not related to Natural Security's regular logon handling, but is only relevant in conjunction with a logon of an RPC client to a Natural RPC server in an RPC environment. It is described under *RPC-Related User Exit* below.

General Information on Sources and Objects

LOGONEX1, LOGONEX2, LOGONEX3 and LOGONEX5 are Natural subprograms which have to be stored in the library SYSLIB to be invoked.

The sources and object modules of these user exits are available in the library SYSSEC under the names NOGONEX1, NOGONEX2, NOGONEX3 and NOGONEX5 respectively.

You can modify each of the user exits to suit your requirements. To do so, you make a copy of NOGONEX n ($n = 1, 2, 3$ or 5), store it under the name LOGONEX n , make your adjustments to it, and then copy it into SYSLIB.

To ensure that the user exits are always present in SYSLIB, Natural Security proceeds as follows: The installation procedure, after loading all modules into their respective libraries, checks whether there already is a subprogram LOGONEX n contained in SYSLIB. If there is, it will be left untouched. If there is not, the object module of NOGONEX n will automatically be copied from SYSSEC to SYSLIB and stored there under the name LOGONEX n . At the same time, this ensures that your customized versions of the user exits are not accidentally overwritten by an installation procedure.

LOGONEX1

LOGONEX1 is *always* invoked by the Natural Security logon program.

Unless modified, LOGONEX1 invokes the Natural Security logon screen (map LOGONM1 or dialog box GLOGONM1; see Logon Screen / Logon Dialog Box).

By modifying LOGONEX1 it is possible to invoke your own logon screens.

LOGONEX2

LOGONEX2 is invoked by the Natural Security logon program under any of the following conditions:

- when "#" is entered as the library ID (or is passed from LOGONEX1 as library ID);
- when no library ID has been specified for the logon and neither a default library nor a private library exists which could have been invoked (see also Logon Without Library ID in the section *Logging On*).

When LOGONEX2 is invoked, the user ID and password have already been checked and found valid by the logon program. At this point, the Natural system variable *USER contains a valid value, which may be used.

Unless modified, LOGONEX2 consists of nothing but an END statement. On return to the logon program, a valid library ID must be passed to the logon program, otherwise the logon will be rejected. Moreover, it is possible to return one of possibly several IDs using which a user is linked to a library.

As the user ID/password check has already established the validity of the user-specific logon data when LOGONEX2 is invoked, LOGONEX2 may be used to implement additional user-specific procedures or to request user-specific data. For example, the application programming interface SECNOTE may be invoked to read user security notes.

When the logon program invokes LOGONEX1 or LOGONEX2, it passes the parameters #USERDUMMY1 and #USERDUMMY2 to the subprograms. Both parameters are provided for your use; their format/length is A8. You may assign values to these parameters in LOGONEX1 and subsequently use these values in LOGONEX2, as they are passed without modification from one subprogram to the other.

LOGONEX3

LOGONEX3 is invoked by the Natural Security logon program under any of the following conditions:

- if there are mailboxes to be displayed;
- if at least one of the parameters #USERDUMMY1 or #USERDUMMY2, passed from LOGONEX1 or LOGONEX2 respectively, is not blank.

LOGONEX3 is invoked immediately after a successful logon and before control is passed from the logon program to the library invoked; when LOGONEX3 is invoked, logon processing is completed except for the display of the mailboxes.

If LOGONEX3 is left unmodified, it performs the subprogram calls necessary for the display of mailboxes.

You may modify LOGONEX3 for one of the following purposes:

- to suppress the display of mailboxes;
- to have non-library-specific processing to be carried out immediately after a successful logon but before any library-specific transactions are executed.

LOGONEX5

LOGONEX5 is invoked by the Natural Security logon program whenever the system command LOGOFF is executed.

RPC-Related User Exit

The user exit LOGONEX4 is a Natural subprogram which is only used in an RPC environment. It is invoked by the Natural Security RPC logon program after a successful logon of an RPC client to a Natural RPC server.

Note:

The logon of an RPC client to a Natural RPC server does *not* cause any of the user exits described under *Logon-Related User Exits* (see above) to be invoked.

Invoking LOGONEX4 is always the last task performed by the logon program when all other logon processing has been completed, and before an RPC service is performed. At this time, the user ID and password have already been checked and found valid by the logon program, and the Natural system variables *USER and *LIBRARY-ID contain valid values, which may be used.

In conversational mode, the user exit is invoked when the conversation is started.

The input parameters for the user exit are the library ID and subprogram name. The output parameter of the user exit is a return code; this may be used to terminate the RPC logon with a non-zero return code. If this is the case, Natural issues error NAT1696 with reason code 10.

A sample source module for LOGONEX4 is available in the library SYSSEC under the name NOGONEX4. To invoke the user exit, its object module has to be stored under the name LOGONEX4 in the library SYSTEM on the FNAT system file assigned to the RPC server. After copying it to this library, the RPC server has to be restarted.

Once the user exit has been invoked, it remains active until the end of the RPC server session.

To deactivate the user exit, you have to first terminate the RPC server, and then remove the object LOGONEX4 from the library SYSTEM.

Do *not* remove LOGONEX4 while an RPC server session using that FNAT system file is still active, because this would make the RPC server session inoperable (error NAT0082 would be issued at the next logon to the RPC server).

Other User Exits

The library `SYSSEC` contains several other user exits:

- `NSCXXEX1` - where `XX` is the object type: `US` = user, `LI` = library, `DD` = DDM, `FI` = file, or `OB` = external object;
- `NSCUSEX2`.

The object-type-specific `NSCXXEX1` user exit is invoked immediately after a maintenance function for an object of the respective type has been performed.

`NSCUSEX2` is invoked when you use the function `Edit Group Members` and `CATALOG` the changes you have made. It displays a list of the group's members, indicating which members have been added to the group and which have been removed from it.

The parameters of these user exits are not modifiable.

For details, see the source code of user exits themselves.