

Locking of Source Objects

Natural provides locking mechanisms that prevent concurrent updating of Natural source objects. These mechanisms allow the locking of source objects that are edited in a local mainframe environment and/or in a SPoD (Natural Single Point of Development) environment connected to a mainframe server.

You can activate or deactivate different object locking mechanisms by using the profile parameter SLOCK (see also the *Parameter Reference*):

- **Locking in Local and SPoD Environments**

SLOCK=PRE activates locking of source objects that are edited either locally or in a SPoD environment, or using Natural ISPF, or in mixed environments.

SLOCK=PRE is the recommended setting when working in mixed environments.

- **Locking in SPoD Environments**

The default setting SLOCK=SPoD activates object locking only in a SPoD environment. A source object is then only locked when it is edited using Natural Studio. For further information, see Object Locking in the section Remote Development using SPoD in the Natural for Windows documentation.

In a SPoD environment, SLOCK=SPoD provides compatibility with Natural Version 4.1 (and below) and SPoD Version 2.1 (and below).

- **Checking for Latest Modification**

When setting SLOCK=POST, the source object which is being edited can be read into the source work area and modified by multiple users. However, only the user who saves a modification first can update the source object. This is done by comparing the time stamp of the source object stored in the database with the time stamp of the source object when it is read into the source work area. All other users receive appropriate error messages when trying to save the source. This is not compatible with the SPoD locking concept of previous Natural versions.

- **Locking Deactivated**

SLOCK=OFF deactivates all locking mechanisms.

The principles of object locking with profile parameter SLOCK=PRE set in a local environment are described in the following sections.

- Source Editing
- Saving Objects
- Unlocking Objects
- Moving, Deleting, Renaming and Replacing Objects

Source Editing

The sources of the following types of Natural object are locked while they are being edited with the appropriate Natural editor:

- Program
- Subprogram
- Subroutine
- Copycode
- Helproutine
- Text
- Map
- Local data area
- Global data area
- Parameter data area
- DDM (data definition module)

When you invoke a Natural editor, the source contained in the source work area will be locked. If the source object you want to edit has already been locked by another user (as indicated by an appropriate message), the source can be displayed in the editor but without an object name at the top of the screen. If you modify the source and want to keep the modifications, you have to save the source as a new source object with a new name.

Note:

Reading in a source into the source work area by using the READ command does *not* lock the source object. A source object is only locked when you invoke the Natural editor.

Saving Objects

You cannot save (SAVE and STOW commands) a source that is being locked by another user.

Unlocking Objects

A locked source object contained in the source work area is unlocked when you do any of the following:

- clear the source work area,
- read in the source of another source object into the source work area,
- log on to another library,
- terminate the Natural session,
- leave the Natural editor while the **Leave Editor with Unlock** option is set in the editor profile (see also *General Defaults* in *Editor Profile* in the section *General Information*). This option determines whether the source contained in the current source work area is unlocked when leaving the editor. This also applies to maps and DDMs.

You can use the UNLOCK system command (see the *System Commands* documentation) to view locked source objects or unlock them if required.

Moving, Deleting, Renaming and Replacing Objects

Object locking is also considered when using the system command DELETE or RENAME, the Object Handler or the utilities SYSMAIN, SYSTRANS or NATLOAD/NATUNLD.

When you move, delete, rename or replace a source object, the locking state of the object is checked:

- When the source object is locked, command execution is rejected.
- When the source object is not locked, the command is executed.

Restrictions

The utilities SYSRPC, SYSPARM and SYSERR do not support object locking.