Lock Modes

A process running within a VMSCluster may obtain a lock on a resource. There are six lock modes that can be granted, and these determine the level of exclusivity of access to the resource. Once a lock has been granted, it is possible to convert the lock to a higher or lower level of lock mode. When all processes have unlocked a resource, the system's information about the resource is destroyed.

- Null Lock (NL). Indicates interest in the resource, but does not prevent other processes from locking it. It has the advantage that the resource and its lock value block are preserved, even when no processes are locking it.
- Concurrent Read (CR). Indicates a desire to read (but not update) the resource. It allows other processes to read or update the resource, but prevents others from having exclusive access to it. This is usually employed on high-level resources, in order that higher levels of lock can be obtained on subordinate resources.
- Concurrent Write (CW). Indicates a desire to read and update the resource. It also allows other processes to read or update the resource, but prevents others from having exclusive access to it. This is also usually employed on high-level resources, in order that higher levels of lock can be obtained on subordinate resources.
- Protected Read (PR). This is the traditional *share lock*, which indicates a desire to read the resource but prevents other from updating it. Others can however also read the resource.
- Protected Write (PW). This is the traditional *update lock*, which indicates a desire to read and update the resource and prevents others from updating it. Others with Concurrent Read access can however read the resource.
- Exclusive (EX). This is the traditional *exclusive lock* which allows read and update access to the resource, and prevents others from having any access to it.

The following truth table shows the compatibility of each lock mode with the others:

Mode	NL	CR	CW	PR	PW	EX
NL	Yes	Yes	Yes	Yes	Yes	Yes
CR	Yes	Yes	Yes	Yes	Yes	No
CW	Yes	Yes	Yes	No	No	No
PR	Yes	Yes	No	Yes	No	No
PW	Yes	Yes	No	No	No	No
EX	Yes	No	No	No	No	No