UNIXvisual Quick Start

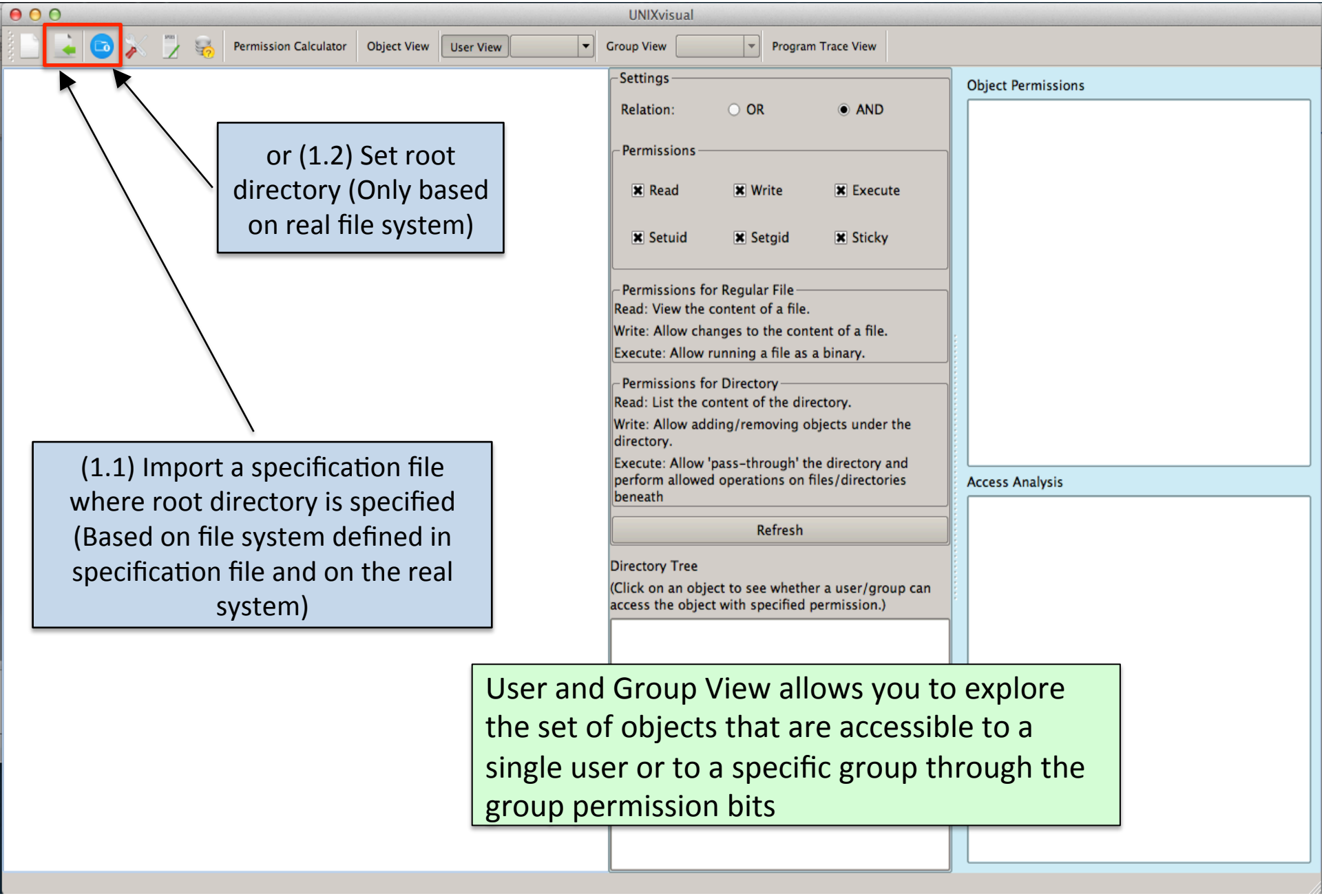
UNIXvisual requires a root directory from which to start. UNIXvisual will use the underlying file system or a user specification and there then are two ways to specify the root directory: through the change root directory option or through a specication file (.unix).

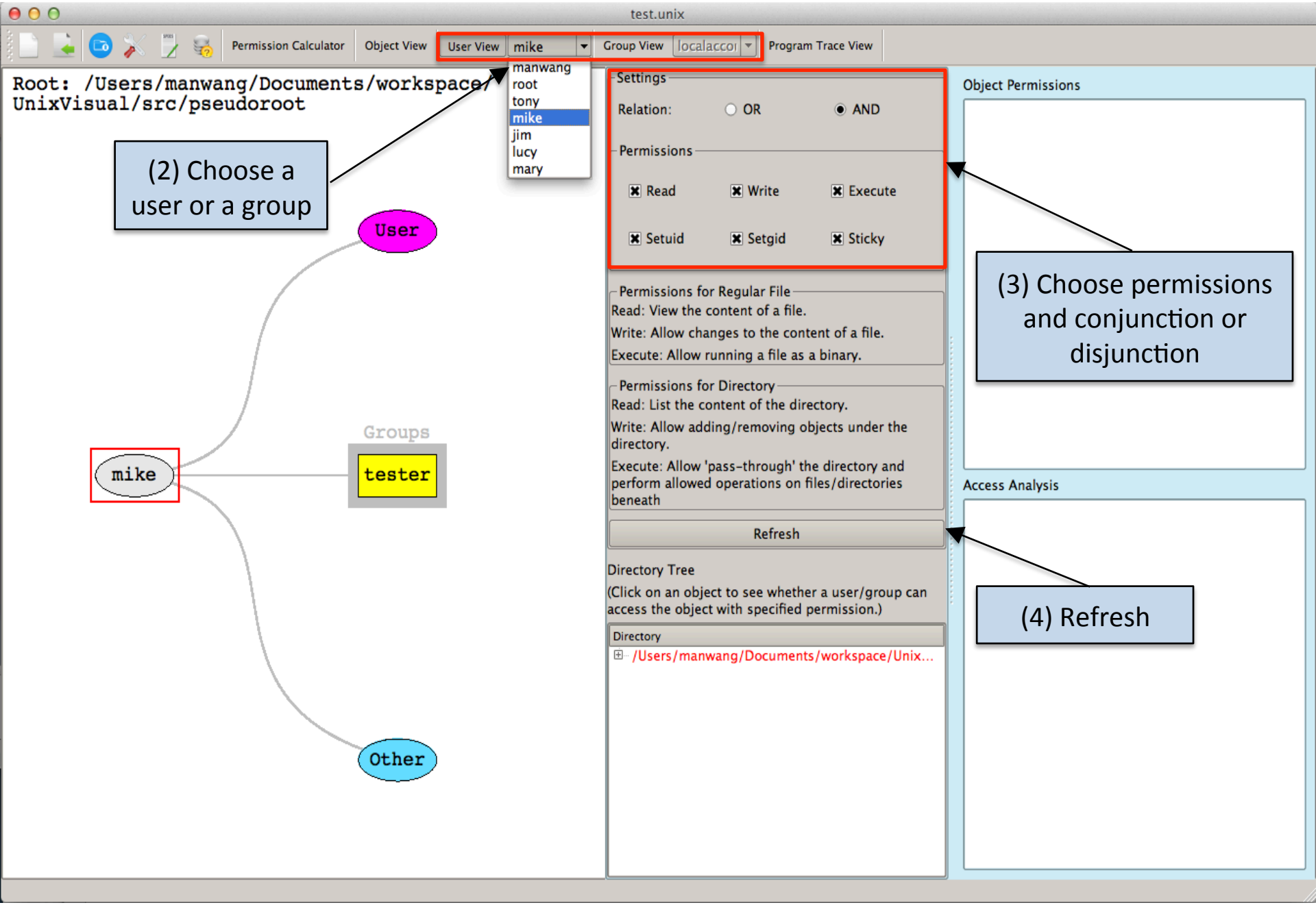
A notional system can be defined through a specification le. The file contains text that indicates the root directory, users, user-to-group assignment, objects and their permissions (information listed by using command “ls -l yourobject”). Below is an example:

```
UNIX
root: ./pseudoroot
user: tony, mike, lucy, mary
user: jim
group: tester           mike
group: developer        tony, lucy
group: manager          mary, jim
object: drwsrwxr--        tony:developer      -r        /code
object: rwsrw-r--         tony:developer                /code/program1
object: drwxrw-r--        mary:manager        -r        /document
object: drwxrw-r--        mary:manager        -r        /document/projectA
object: drwxrw-r--        mary:manager        -r        /document/projectA/testers
object: drwxrw-r--        jim:manager         -r        /document/projectB
object: drwxrw-r--        jim:manager         -r        /document/projectB/developers
object: drwxrwx--x        mike:tester         -r        /test
```

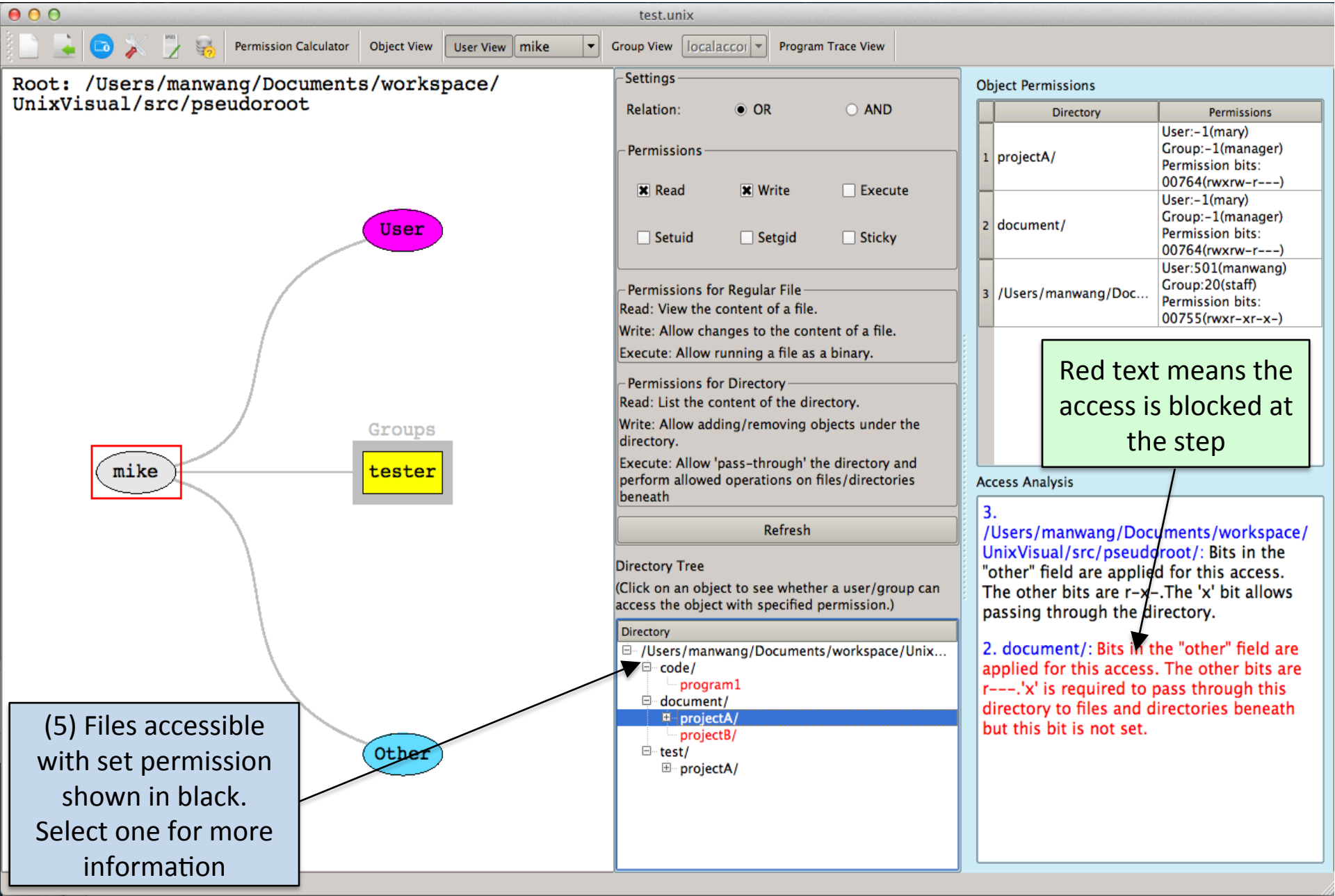
User and Group View

Blue boxes have the sequence of operations. Green boxes explain the functionality.

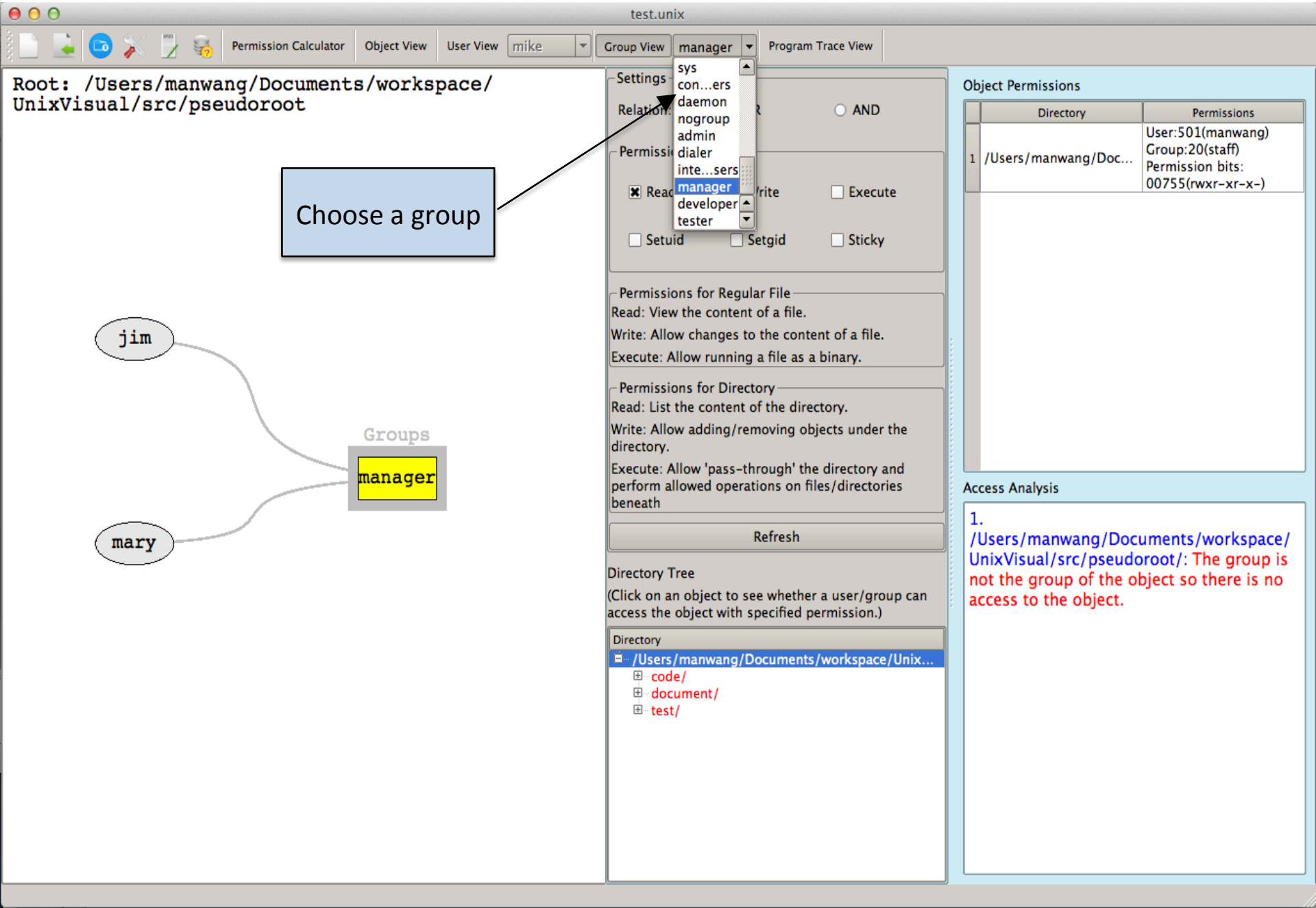



test.unix
Permission Calculator
Object View
User View
mike
Group View
Program Trace View
Root: /Users/manwang/Documents/workspace/UnixVisual/src/pseudoroot
manwang
root
tony
mike
jim
lucy
mary
(2) Choose a user or a group
User
Groups
mike
tester
Other
Settings
Relation:
OR
AND
Permissions
Read
Write
Execute
Setuid
Setgid
Sticky
Permissions for Regular File
Read: View the content of a file.
Write: Allow changes to the content of a file.
Execute: Allow running a file as a binary.
Permissions for Directory
Read: List the content of the directory.
Write: Allow adding/removing objects under the directory.
Execute: Allow 'pass-through' the directory and perform allowed operations on files/directories beneath
Refresh
Directory Tree
(Click on an object to see whether a user/group can access the object with specified permission.)
Directory
/Users/manwang/Documents/workspace/Unix...
Object Permissions
(3) Choose permissions and conjunction or disjunction
Access Analysis
(4) Refresh

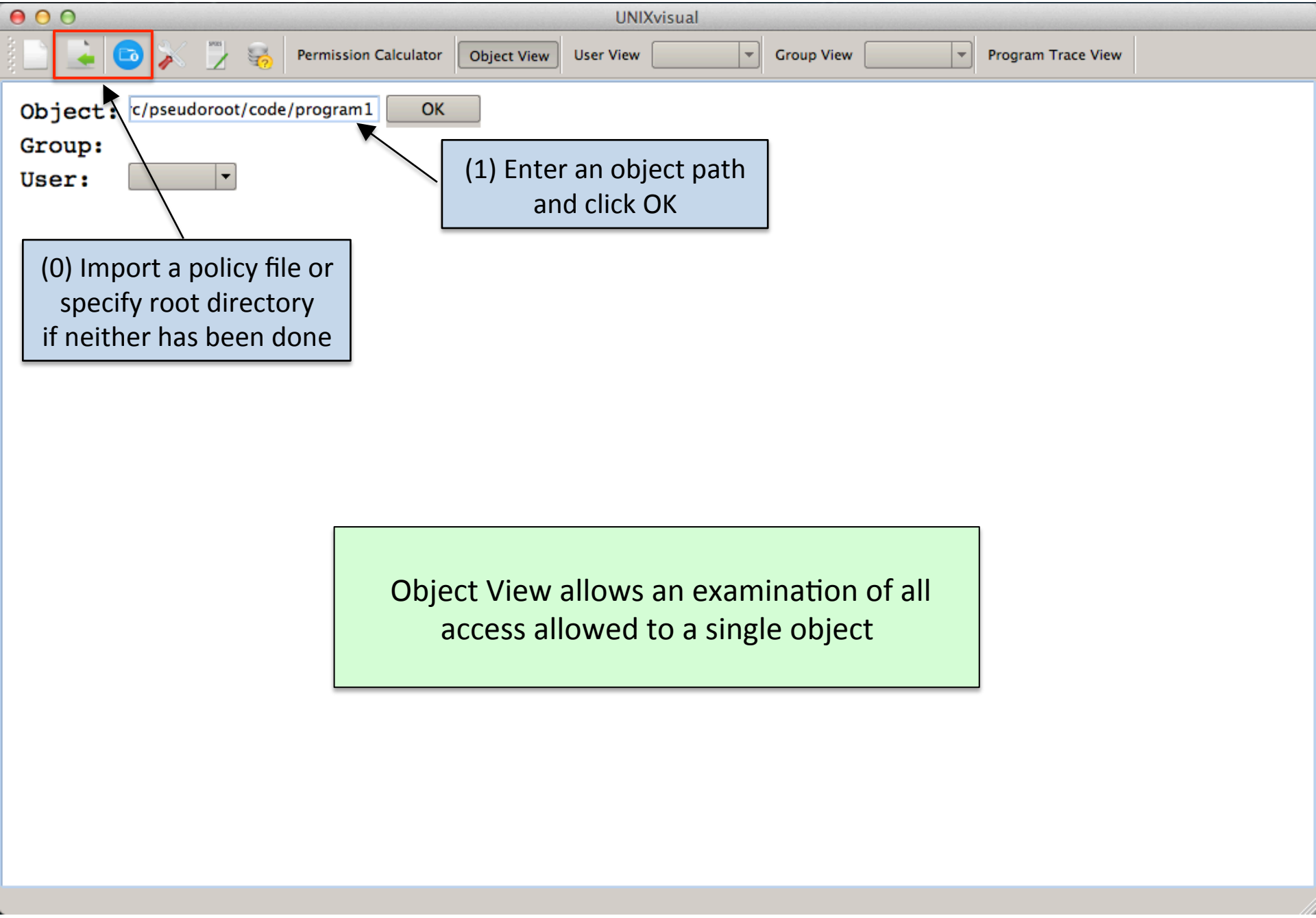
When a user is selected, a full permissions check is made. When access is allowed through any of the user, group, or world bits, UNIXvisual will indicate access is allowed.

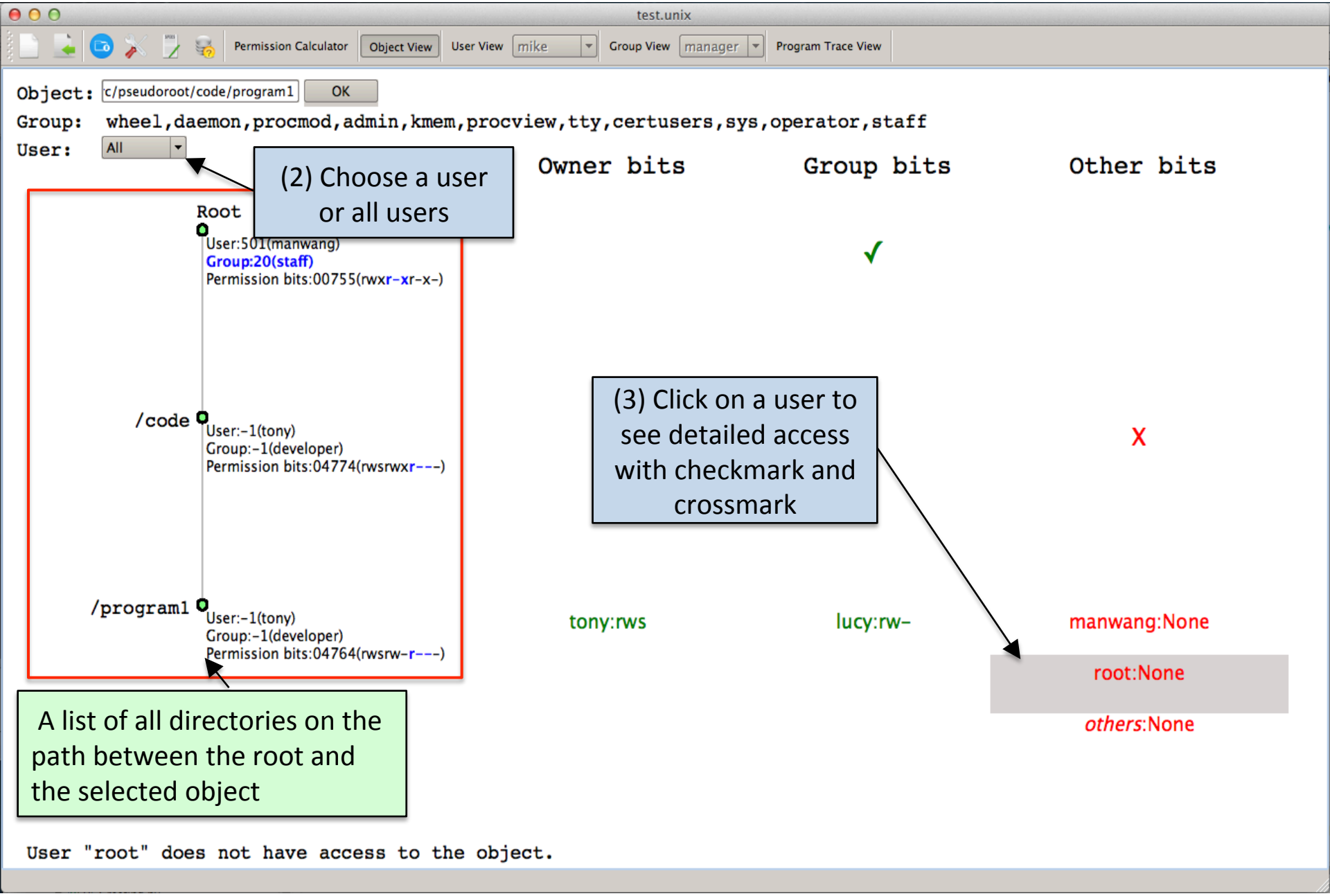


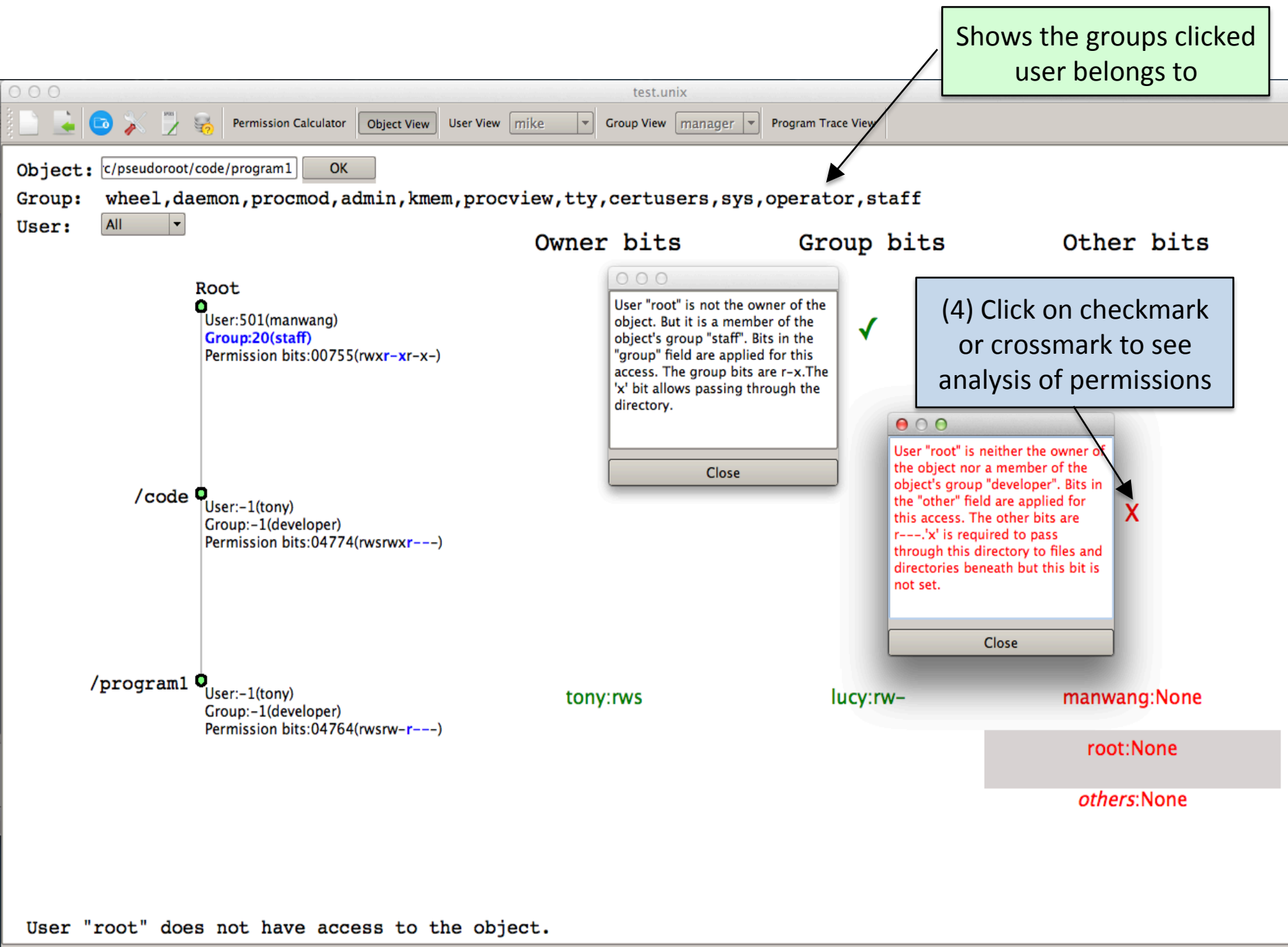
When a group is selected, only the group permission bits are checked.

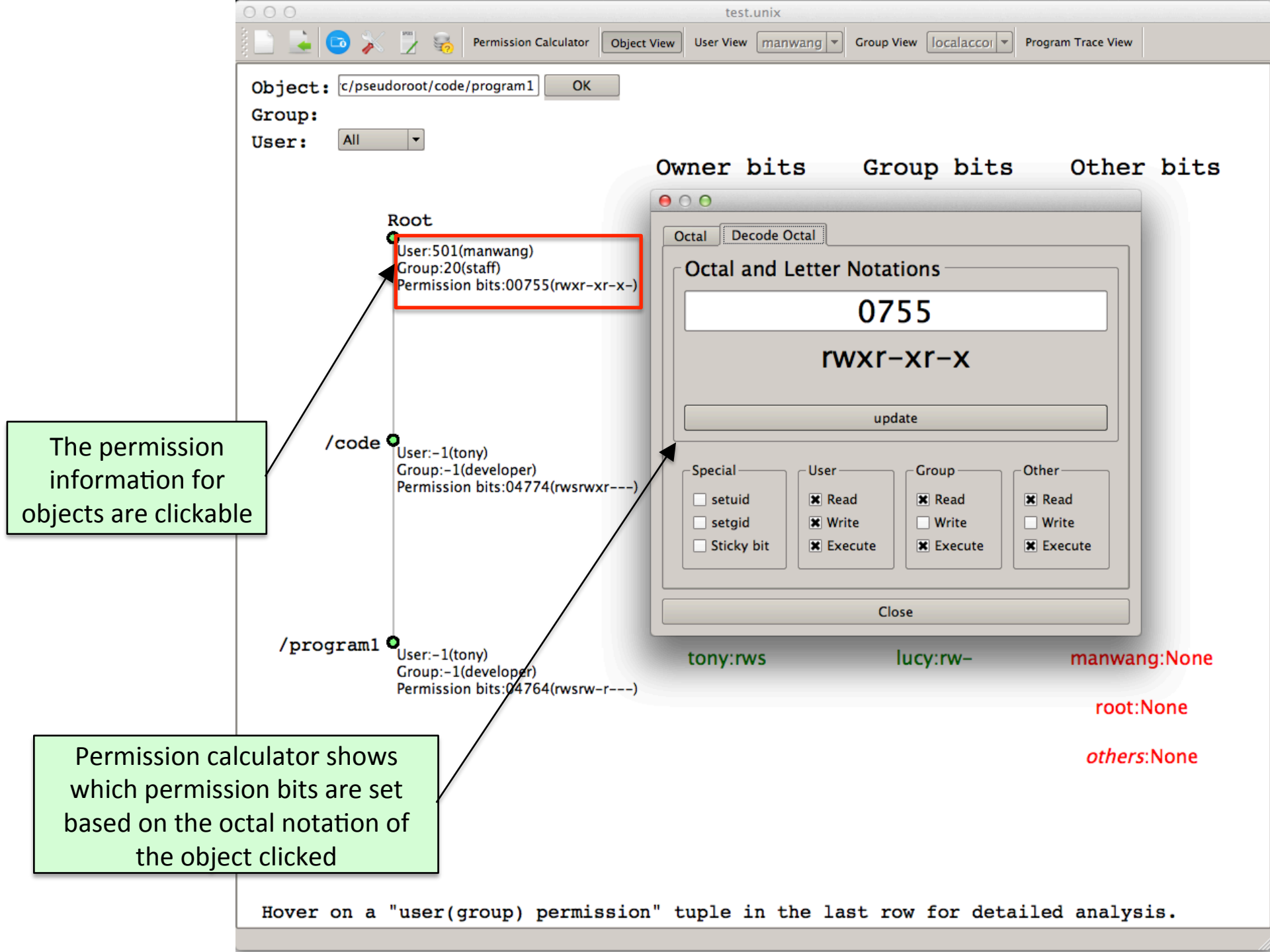


Object View

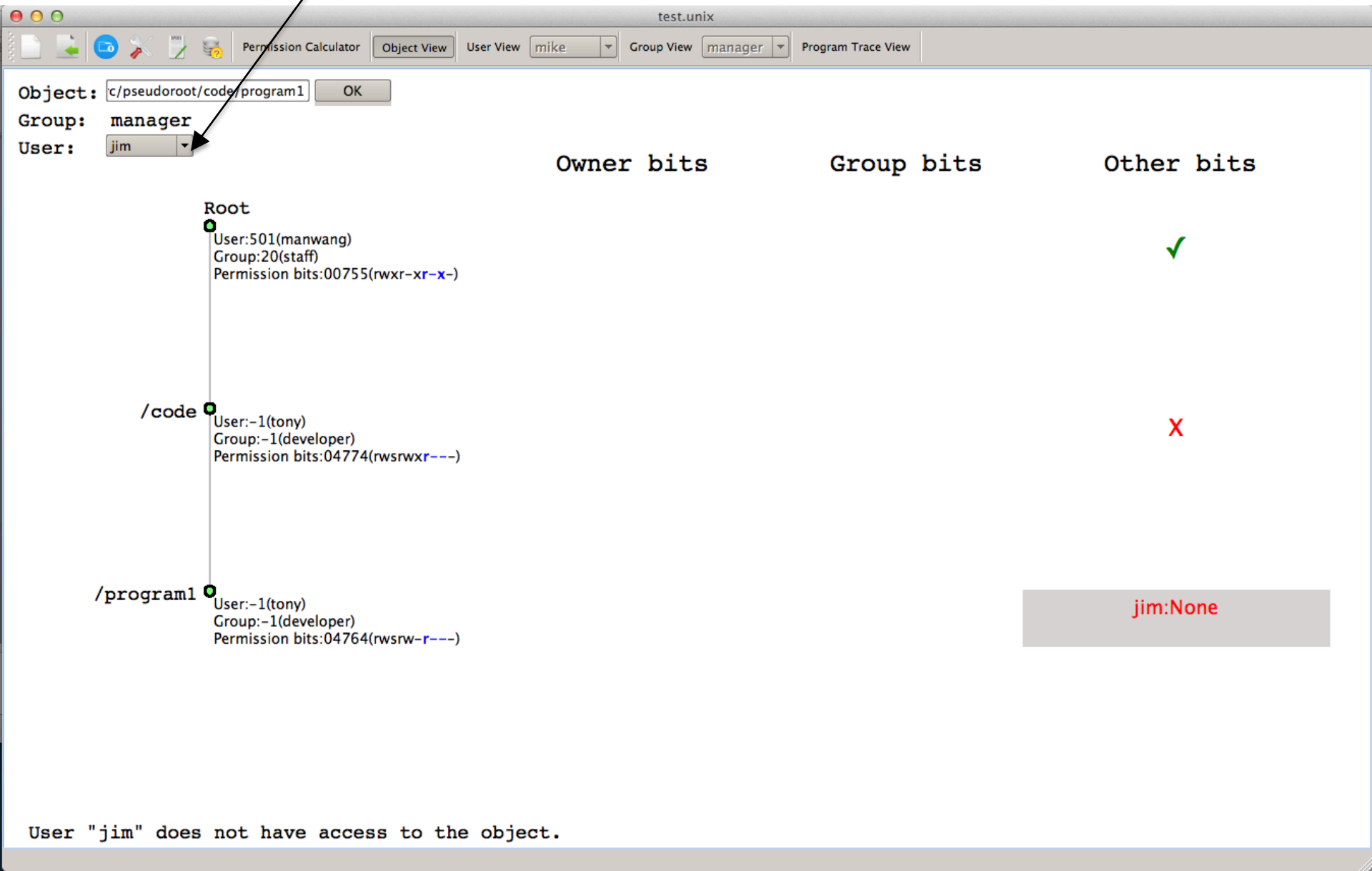

UNIXvisual
Permission Calculator
Object View
User View
Group View
Program Trace View
Object:
c/pseudoroot/code/program1
OK
Group:
User:
(1) Enter an object path and click OK
(0) Import a policy file or specify root directory if neither has been done
Object View allows an examination of all access allowed to a single object


test.unix
Permission Calculator
Object View
User View
mike
Group View
manager
Program Trace View
Object:
c/pseudoroot/code/program1
OK
Group:
wheel,daemon,procmod,admin,kmem,procview,tty,certusers,sys,operator,staff
User:
All
(2) Choose a user or all users
Owner bits
Group bits
Other bits
Root
User:501(manwang)
Group:20(staff)
Permission bits:00755(rwxr-xr-x)
/code
User:-1(tony)
Group:-1(developer)
Permission bits:04774(rwsrwxr---)
/program1
User:-1(tony)
Group:-1(developer)
Permission bits:04764(rwsrw-r---)
(3) Click on a user to see detailed access with checkmark and crossmark
tony:rws
lucy:rw-
manwang:None
root:None
others:None
A list of all directories on the path between the root and the selected object
User "root" does not have access to the object.

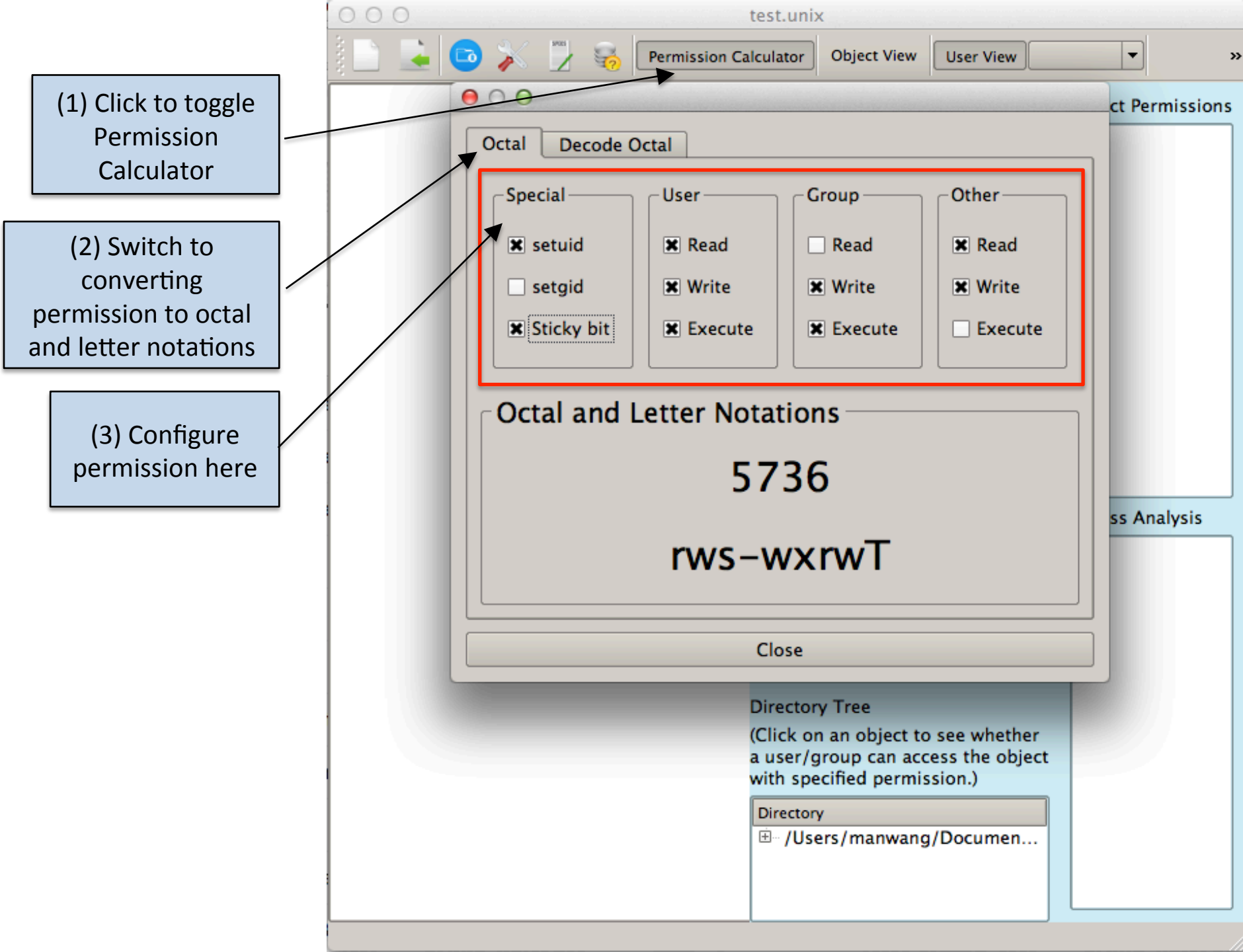

Shows the groups clicked user belongs to
test.unix
Permission Calculator
Object View
User View
mike
Group View
manager
Program Trace View
Object: c/pseudoroot/code/program1
OK
Group: wheel,daemon,procmod,admin,kmem,procview,tty,certusers,sys,operator,staff
User: All
Owner bits
Group bits
Other bits
Root
User:501(manwang)
Group:20(staff)
Permission bits:00755(rwxr-xr-x)
User "root" is not the owner of the object. But it is a member of the object's group "staff". Bits in the "group" field are applied for this access. The group bits are r-x.The 'x' bit allows passing through the directory.
Close
(4) Click on checkmark or crossmark to see analysis of permissions
User "root" is neither the owner of the object nor a member of the object's group "developer". Bits in the "other" field are applied for this access. The other bits are r---.'x' is required to pass through this directory to files and directories beneath but this bit is not set.
Close
X
/code
User:-1(tony)
Group:-1(developer)
Permission bits:04774(rwsrwxr---)
/program1
User:-1(tony)
Group:-1(developer)
Permission bits:04764(rwsrw-r---)
tony:rws
lucy:rw-
manwang:None
root:None
others:None
User "root" does not have access to the object.

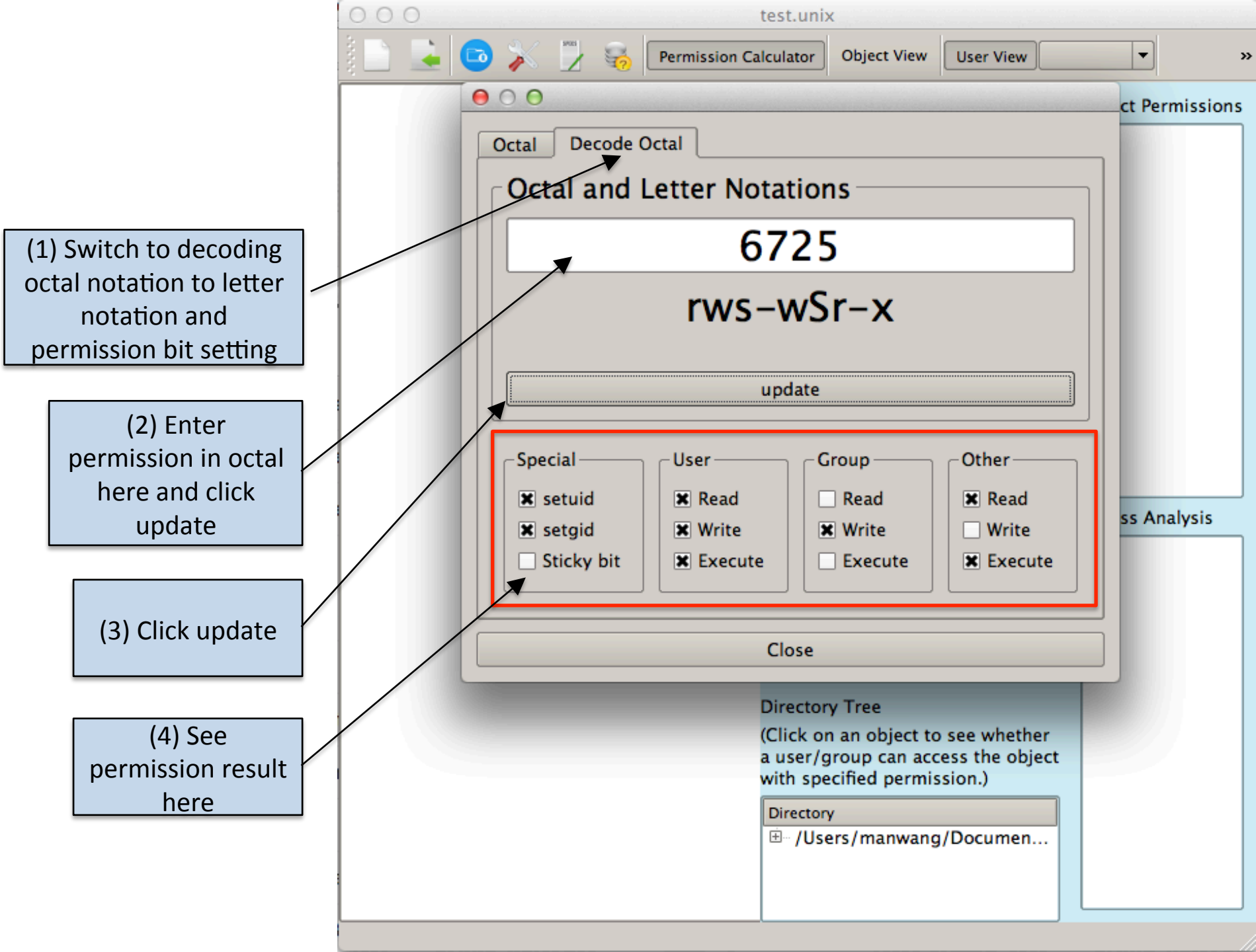

test.unix
Permission Calculator
Object View
User View
manwang
Group View
localaccou
Program Trace View
Object:
c/pseudoroot/code/program1
OK
Group:
User:
All
Owner bits
Group bits
Other bits
Root
User:501(manwang)
Group:20(staff)
Permission bits:00755(rwxr-xr-x)
/code
User:-1(tony)
Group:-1(developer)
Permission bits:04774(rwsrwxr---)
/program1
User:-1(tony)
Group:-1(developer)
Permission bits:04764(rwsrw-r---)
Octal
Decode Octal
Octal and Letter Notations
0755
rwxr-xr-x
update
Special
setuid
setgid
Sticky bit
User
Read
Write
Execute
Group
Read
Write
Execute
Other
Read
Write
Execute
Close
tony:rws
lucy:rw-
manwang:None
root:None
others:None
The permission information for objects are clickable
Permission calculator shows which permission bits are set based on the octal notation of the object clicked
Hover on a "user(group) permission" tuple in the last row for detailed analysis.

Examining a specific user is available too



Permission Calculator


(1) Click to toggle Permission Calculator
(2) Switch to converting permission to octal and letter notations
(3) Configure permission here
test.unix
Permission Calculator
Object View
User View
Octal
Decode Octal
Special
setuid
setgid
Sticky bit
User
Read
Write
Execute
Group
Read
Write
Execute
Other
Read
Write
Execute
Octal and Letter Notations
5736
rws-wxrwT
Close
Directory Tree
(Click on an object to see whether a user/group can access the object with specified permission.)
Directory
/Users/manwang/Documen...


(1) Switch to decoding octal notation to letter notation and permission bit setting
(2) Enter permission in octal here and click update
(3) Click update
(4) See permission result here
test.unix
Permission Calculator
Object View
User View
Octal
Decode Octal
Octal and Letter Notations
6725
rws-wSr-x
update
Special
setuid
setgid
Sticky bit
User
Read
Write
Execute
Group
Read
Write
Execute
Other
Read
Write
Execute
Close
Directory Tree
(Click on an object to see whether a user/group can access the object with specified permission.)
Directory
/Users/manwang/Documen...