Smack

> "Good for you, you've decided to clean the elevator!" - The Elevator, from Dark Star

Smack is the Simplified Mandatory Access Control Kernel. Smack is a kernel based implementation of mandatory access control that includes simplicity in its primary design goals.

Smack is not the only Mandatory Access Control scheme available for Linux. Those new to Mandatory Access Control are encouraged to compare Smack with the other mechanisms available to determine which is best suited to the problem at hand.

Smack consists of three major components:

- The kernel
- Basic utilities, which are helpful but not required
- Configuration data

The kernel component of Smack is implemented as a Linux Security Modules (LSM) module. It requires netlabel and works best with file systems that support extended attributes, although xattr support is not strictly required. It is safe to run a Smack kernel under a "vanilla" distribution.

Smack kernels use the CIPSO IP option. Some network configurations are intolerant of IP options and can impede access to systems that use them as Smack does.

Smack is used in the Tizen operating system. Please go to http://wiki.tizen.org for information about how Smack is used in Tizen.

The current git repository for Smack user space is:

> git://github.com/smack-team/smack.git

This should make and install on most modern distributions. There are five commands included in smackutil:

chsmack:
: display or set Smack extended attribute values

smackctl:
: load the Smack access rules

smackaccess:
: report if a process with one label has access to an object with another

These two commands are obsolete with the introduction of the smackfs/load2 and smackfs/cipso2 interfaces.

smackload:
: properly formats data for writing to smackfs/load

smackcipso:
: properly formats data for writing to smackfs/cipso

In keeping with the intent of Smack, configuration data is minimal and not strictly required. The most important configuration step is mounting the smackfs pseudo filesystem. If smackutil is installed the startup script will take care of this, but it can be manually as well.

Add this line to `/etc/fstab`:

```
smackfs /sys/fs/smackfs smackfs defaults 0 0
```

The `/sys/fs/smackfs` directory is created by the kernel.

Smack uses extended attributes (xattrs) to store labels on filesystem objects. The attributes are stored in the extended attribute security name space. A process must have `CAP_MAC_ADMIN` to change any of these attributes.

The extended attributes that Smack uses are:

SMACK64
: Used to make access control decisions. In almost all cases the label given to a new filesystem object will be the label of the process that created it.

SMACK64EXEC
: The Smack label of a process that execs a program file with this attribute set will run with this attribute's value.

SMACK64MMAP
: Don't allow the file to be mmapped by a process whose Smack label does not allow all of the access permitted to a process with the label contained in this attribute. This is a very specific use case for shared libraries.

SMACK64TRANSMUTE
: Can only have the value "TRUE". If this attribute is present on a directory when an object is created in the directory and the Smack rule (more below) that permitted the write access to the directory includes the transmute ("t") mode the object gets the label of the directory instead of the label of the creating process. If the object being created is a directory the SMACK64TRANSMUTE attribute is set as well.

SMACK64IPIN

This attribute is only available on file descriptors for sockets. Use the Smack label in this attribute for access control decisions on packets being delivered to this socket.

SMACK64IPOUT

This attribute is only available on file descriptors for sockets. Use the Smack label in this attribute for access control decisions on packets coming from this socket.

There are multiple ways to set a Smack label on a file:

```
# attr -S -s SMACK64 -V "value" path
# chsmack -a value path
```

A process can see the Smack label it is running with by reading `/proc/self/attr/current`. A process with `CAP_MAC_ADMIN` can set the process Smack by writing there.

Most Smack configuration is accomplished by writing to files in the smackfs filesystem. This pseudo-filesystem is mounted on `/sys/fs/smackfs`.

access

Provided for backward compatibility. The access2 interface is preferred and should be used instead. This interface reports whether a subject with the specified Smack label has a particular access to an object with a specified Smack label. Write a fixed format access rule to this file. The next read will indicate whether the access would be permitted. The text will be either "1" indicating access, or "0" indicating denial.

access2

This interface reports whether a subject with the specified Smack label has a particular access to an object with a specified Smack label. Write a long format access rule to this file. The next read will indicate whether the access would be permitted. The text will be either "1" indicating access, or "0" indicating denial.

ambient

This contains the Smack label applied to unlabeled network packets.

change-rule

This interface allows modification of existing access control rules. The format accepted on write is:

```
"%s %s %s %s"
```

where the first string is the subject label, the second the object label, the third the access to allow and the fourth the access to deny. The access strings may contain only the characters "rwxat-". If a rule for a given subject and object exists it will be modified by enabling the permissions in the third string and disabling those in the fourth string. If there is no such rule it will be created using the access specified in the third and the fourth strings.

cipso

Provided for backward compatibility. The cipso2 interface is preferred and should be used instead. This interface allows a specific CIPSO header to be assigned to a Smack label. The format accepted on write is:

```
"%24s%4d%4d"["%4d"]...
```

The first string is a fixed Smack label. The first number is the level to use. The second number is the number of categories. The following numbers are the categories:

```
"level-3-cats-5-19          3   2   5  19"
```

cipso2

This interface allows a specific CIPSO header to be assigned to a Smack label. The format accepted on write is:

```
"%s%4d%4d"["%4d"]...
```

The first string is a long Smack label. The first number is the level to use. The second number is the number of categories. The following numbers are the categories:

```
"level-3-cats-5-19   3   2   5  19"
```

direct

This contains the CIPSO level used for Smack direct label representation in network packets.

doi

This contains the CIPSO domain of interpretation used in network packets.

ipv6host

This interface allows specific IPv6 internet addresses to be treated as single label hosts. Packets are sent to single label hosts only from processes that have Smack write access to the host label. All packets received from single label hosts are given the specified label. The format accepted on write is:

```
"%h:%h:%h:%h:%h:%h:%h:%h label" or
"%h:%h:%h:%h:%h:%h:%h:%h/%d label".
```

The "::" address shortcut is not supported. If label is "-DELETE" a matched entry will be deleted.

load

Provided for backward compatibility. The load2 interface is preferred and should be used instead. This interface allows access control rules in addition to the system defined rules to be specified. The format accepted on write is:

```
"%24s%24s%5s"
```

where the first string is the subject label, the second the object label, and the third the requested access. The access string may contain only the characters "rwxat-", and specifies which sort of access is allowed. The "-" is a placeholder for permissions that are not allowed. The string "r-x--" would specify read and execute access. Labels are limited to 23 characters in length.

load2

This interface allows access control rules in addition to the system defined rules to be specified. The format accepted on write is:

```
"%s %s %s"
```

where the first string is the subject label, the second the object label, and the third the requested access. The access string may contain only the characters "rwxat-", and specifies which sort of access is allowed. The "-" is a placeholder for permissions that are not allowed. The string "r-x--" would specify read and execute access.

load-self

Provided for backward compatibility. The load-self2 interface is preferred and should be used instead. This interface allows process specific access rules to be defined. These rules are only consulted if access would otherwise be permitted, and are intended to provide additional restrictions on the process. The format is the same as for the load interface.

load-self2

This interface allows process specific access rules to be defined. These rules are only consulted if access would otherwise be permitted, and are intended to provide additional restrictions on the process. The format is the same as for the load2 interface.

logging

This contains the Smack logging state.

mapped

This contains the CIPSO level used for Smack mapped label representation in network packets.

netlabel

This interface allows specific internet addresses to be treated as single label hosts. Packets are sent to single label hosts without CIPSO headers, but only from processes that have Smack write access to the host label. All packets received from single label hosts are given the specified label. The format accepted on write is:

```
"%d.%d.%d.%d label" or "%d.%d.%d.%d/%d label".
```

If the label specified is "-CIPSO" the address is treated as a host that supports CIPSO headers.

onlycap

This contains labels processes must have for CAP_MAC_ADMIN and `CAP_MAC_OVERRIDE` to be effective. If this file is empty these capabilities are effective at for processes with any label. The values are set by writing the desired labels, separated by spaces, to the file or cleared by writing "-" to the file.

ptrace

This is used to define the current ptrace policy

0 - default:
: this is the policy that relies on Smack access rules. For the `PTRACE_READ` a subject needs to have a read access on object. For the `PTRACE_ATTACH` a read-write access is required.

1 - exact:
: this is the policy that limits `PTRACE_ATTACH`. Attach is only allowed when subject's and object's labels are equal. `PTRACE_READ` is not affected. Can be overridden with `CAP_SYS_PTRACE`.

2 - draconian:
: this policy behaves like the 'exact' above with an exception that it can't be overridden with `CAP_SYS_PTRACE`.

revoke-subject

Writing a Smack label here sets the access to '-' for all access rules with that subject label.

unconfined

If the kernel is configured with `CONFIG_SECURITY_SMACK_BRINGUP` a process with `CAP_MAC_ADMIN` can write a label into this interface. Thereafter, accesses that involve that label will be logged and the access permitted if it wouldn't be otherwise. Note that this is dangerous and can ruin the proper labeling of your system. It should never be used in production.

relabel-self

This interface contains a list of labels to which the process can transition to, by writing to `/proc/self/attr/current`. Normally a process can change its own label to any legal value, but only if it has `CAP_MAC_ADMIN`. This interface allows a process without `CAP_MAC_ADMIN` to relabel itself to one of labels from predefined list. A process without `CAP_MAC_ADMIN` can change its label only once. When it does, this list will be cleared. The values are set by writing the desired labels, separated by spaces, to the file or cleared by writing "-" to the file.

If you are using the smackload utility you can add access rules in `/etc/smack/accesses`. They take the form:

```
subjectlabel objectlabel access
```

access is a combination of the letters rwxatb which specify the kind of access permitted a subject with subjectlabel on an object with objectlabel. If there is no rule no access is allowed.

Look for additional programs on http://schaufler-ca.com

The Simplified Mandatory Access Control Kernel (Whitepaper)

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Mandatory Access Control

Computer systems employ a variety of schemes to constrain how information is shared among the people and services using the machine. Some of these schemes allow the program or user to decide what other programs or users are allowed access to pieces of data. These schemes are called discretionary access control mechanisms because the access control is specified at the discretion of the user. Other schemes do not leave the decision regarding what a user or program can access up to users or programs. These schemes are called mandatory access control mechanisms because you don't have a choice regarding the users or programs that have access to pieces of data.

Bell & LaPadula

From the middle of the 1980's until the turn of the century Mandatory Access Control (MAC) was very closely associated with the Bell & LaPadula security model, a mathematical description of the United States Department of Defense policy for marking paper documents. MAC in this form enjoyed a following within the Capital Beltway and Scandinavian supercomputer centers but was often sited as failing to address general needs.

Domain Type Enforcement

Around the turn of the century Domain Type Enforcement (DTE) became popular. This scheme organizes users, programs, and data into domains that are protected from each other. This scheme has been widely deployed as a component of popular Linux distributions. The administrative overhead required to maintain this scheme and the detailed understanding of the whole system necessary to provide a secure domain mapping leads to the scheme being disabled or used in limited ways in the majority of cases.

Smack

Smack is a Mandatory Access Control mechanism designed to provide useful MAC while avoiding the pitfalls of its predecessors. The limitations of Bell & LaPadula are addressed by providing a scheme whereby access can be controlled according to the requirements of the system and its purpose rather than those imposed by an arcane government policy. The complexity of Domain Type Enforcement and avoided by defining access controls in terms of the access modes already in use.

Smack Terminology

The jargon used to talk about Smack will be familiar to those who have dealt with other MAC systems and shouldn't be too difficult for the uninitiated to pick up. There are four terms that are used in a specific way and that are especially important:

Subject:
: A subject is an active entity on the computer system. On Smack a subject is a task, which is in turn the basic unit of execution.

Object:
: An object is a passive entity on the computer system. On Smack files of all types, IPC, and tasks can be objects.

Access:
: Any attempt by a subject to put information into or get information from an object is an access.

Label:
: Data that identifies the Mandatory Access Control characteristics of a subject or an object.

These definitions are consistent with the traditional use in the security community. There are also some terms from Linux that are likely

to crop up:

Capability:
: A task that possesses a capability has permission to violate an aspect of the system security policy, as identified by the specific capability. A task that possesses one or more capabilities is a privileged task, whereas a task with no capabilities is an unprivileged task.

Privilege:
: A task that is allowed to violate the system security policy is said to have privilege. As of this writing a task can have privilege either by possessing capabilities or by having an effective user of root.

Smack Basics

Smack is an extension to a Linux system. It enforces additional restrictions on what subjects can access which objects, based on the labels attached to each of the subject and the object.

Labels

Smack labels are ASCII character strings. They can be up to 255 characters long, but keeping them to twenty-three characters is recommended. Single character labels using special characters, that being anything other than a letter or digit, are reserved for use by the Smack development team. Smack labels are unstructured, case sensitive, and the only operation ever performed on them is comparison for equality. Smack labels cannot contain unprintable characters, the "/" (slash), the "\" (backslash), the "'" (quote) and '"' (double-quote) characters. Smack labels cannot begin with a '-'. This is reserved for special options.

There are some predefined labels:

```
_       Pronounced "floor", a single underscore character.
^       Pronounced "hat", a single circumflex character.
*       Pronounced "star", a single asterisk character.
?       Pronounced "huh", a single question mark character.
@       Pronounced "web", a single at sign character.
```

Every task on a Smack system is assigned a label. The Smack label of a process will usually be assigned by the system initialization mechanism.

Access Rules

Smack uses the traditional access modes of Linux. These modes are read, execute, write, and occasionally append. There are a few cases where the access mode may not be obvious. These include:

Signals:
: A signal is a write operation from the subject task to the object task.

Internet Domain IPC:
: Transmission of a packet is considered a write operation from the source task to the destination task.

Smack restricts access based on the label attached to a subject and the label attached to the object it is trying to access. The rules enforced are, in order:

1. Any access requested by a task labeled "*" is denied.
2. A read or execute access requested by a task labeled "^" is permitted.
3. A read or execute access requested on an object labeled "_" is permitted.
4. Any access requested on an object labeled "*" is permitted.
5. Any access requested by a task on an object with the same label is permitted.
6. Any access requested that is explicitly defined in the loaded rule set is permitted.
7. Any other access is denied.

Smack Access Rules

With the isolation provided by Smack access separation is simple. There are many interesting cases where limited access by subjects to objects with different labels is desired. One example is the familiar spy model of sensitivity, where a scientist working on a highly classified project would be able to read documents of lower classifications and anything she writes will be "born" highly classified. To accommodate such schemes Smack includes a mechanism for specifying rules allowing access between labels.

Access Rule Format

The format of an access rule is:

```
subject-label object-label access
```

Where subject-label is the Smack label of the task, object-label is the Smack label of the thing being accessed, and access is a string specifying the sort of access allowed. The access specification is searched for letters that describe access modes:

a: indicates that append access should be granted. r: indicates that read access should be granted. w: indicates that write

access should be granted. x: indicates that execute access should be granted. t: indicates that the rule requests transmutation. b: indicates that the rule should be reported for bring-up.

Uppercase values for the specification letters are allowed as well. Access mode specifications can be in any order. Examples of acceptable rules are:

```
TopSecret Secret  rx
Secret    Unclass R
Manager   Game    x
User      HR      w
Snap      Crackle rwxatb
New       Old     rRrRr
Closed    Off     -
```

Examples of unacceptable rules are:

```
Top Secret Secret     rx
Ace        Ace        r
Odd        spells     waxbeans
```

Spaces are not allowed in labels. Since a subject always has access to files with the same label specifying a rule for that case is pointless. Only valid letters (rwxatbRWXATB) and the dash ('-') character are allowed in access specifications. The dash is a placeholder, so "a-r" is the same as "ar". A lone dash is used to specify that no access should be allowed.

Applying Access Rules

The developers of Linux rarely define new sorts of things, usually importing schemes and concepts from other systems. Most often, the other systems are variants of Unix. Unix has many endearing properties, but consistency of access control models is not one of them. Smack strives to treat accesses as uniformly as is sensible while keeping with the spirit of the underlying mechanism.

File system objects including files, directories, named pipes, symbolic links, and devices require access permissions that closely match those used by mode bit access. To open a file for reading read access is required on the file. To search a directory requires execute access. Creating a file with write access requires both read and write access on the containing directory. Deleting a file requires read and write access to the file and to the containing directory. It is possible that a user may be able to see that a file exists but not any of its attributes by the circumstance of having read access to the containing directory but not to the differently labeled file. This is an artifact of the file name being data in the directory, not a part of the file.

If a directory is marked as transmuting (SMACK64TRANSMUTE=TRUE) and the access rule that allows a process to create an object in that directory includes 't' access the label assigned to the new object will be that of the directory, not the creating process. This makes it much easier for two processes with different labels to share data without granting access to all of their files.

IPC objects, message queues, semaphore sets, and memory segments exist in flat namespaces and access requests are only required to match the object in question.

Process objects reflect tasks on the system and the Smack label used to access them is the same Smack label that the task would use for its own access attempts. Sending a signal via the kill() system call is a write operation from the signaler to the recipient. Debugging a process requires both reading and writing. Creating a new task is an internal operation that results in two tasks with identical Smack labels and requires no access checks.

Sockets are data structures attached to processes and sending a packet from one process to another requires that the sender have write access to the receiver. The receiver is not required to have read access to the sender.

Setting Access Rules

The configuration file /etc/smack/accesses contains the rules to be set at system startup. The contents are written to the special file /sys/fs/smackfs/load2. Rules can be added at any time and take effect immediately. For any pair of subject and object labels there can be only one rule, with the most recently specified overriding any earlier specification.

Task Attribute

The Smack label of a process can be read from /proc/<pid>/attr/current. A process can read its own Smack label from /proc/self/attr/current. A privileged process can change its own Smack label by writing to /proc/self/attr/current but not the label of another process.

File Attribute

The Smack label of a filesystem object is stored as an extended attribute named SMACK64 on the file. This attribute is in the security namespace. It can only be changed by a process with privilege.

Privilege

A process with CAP_MAC_OVERRIDE or CAP_MAC_ADMIN is privileged. CAP_MAC_OVERRIDE allows the process access to objects it would be denied otherwise. CAP_MAC_ADMIN allows a process to change Smack data, including rules and attributes.

Smack Networking

As mentioned before, Smack enforces access control on network protocol transmissions. Every packet sent by a Smack process is tagged with its Smack label. This is done by adding a CIPSO tag to the header of the IP packet. Each packet received is expected to have a CIPSO tag that identifies the label and if it lacks such a tag the network ambient label is assumed. Before the packet is delivered a check is made to determine that a subject with the label on the packet has write access to the receiving process and if that is not the case the packet is dropped.

CIPSO Configuration

It is normally unnecessary to specify the CIPSO configuration. The default values used by the system handle all internal cases. Smack will compose CIPSO label values to match the Smack labels being used without administrative intervention. Unlabeled packets that come into the system will be given the ambient label.

Smack requires configuration in the case where packets from a system that is not Smack that speaks CIPSO may be encountered. Usually this will be a Trusted Solaris system, but there are other, less widely deployed systems out there. CIPSO provides 3 important values, a Domain Of Interpretation (DOI), a level, and a category set with each packet. The DOI is intended to identify a group of systems that use compatible labeling schemes, and the DOI specified on the Smack system must match that of the remote system or packets will be discarded. The DOI is 3 by default. The value can be read from /sys/fs/smackfs/doi and can be changed by writing to /sys/fs/smackfs/doi.

The label and category set are mapped to a Smack label as defined in /etc/smack/cipso.

A Smack/CIPSO mapping has the form:

```
smack level [category [category]*]
```

Smack does not expect the level or category sets to be related in any particular way and does not assume or assign accesses based on them. Some examples of mappings:

```
TopSecret 7
TS:A,B    7 1 2
SecBDE    5 2 4 6
RAFTERS   7 12 26
```

The ":" and "," characters are permitted in a Smack label but have no special meaning.

The mapping of Smack labels to CIPSO values is defined by writing to /sys/fs/smackfs/cipso2.

In addition to explicit mappings Smack supports direct CIPSO mappings. One CIPSO level is used to indicate that the category set passed in the packet is in fact an encoding of the Smack label. The level used is 250 by default. The value can be read from /sys/fs/smackfs/direct and changed by writing to /sys/fs/smackfs/direct.

Socket Attributes

There are two attributes that are associated with sockets. These attributes can only be set by privileged tasks, but any task can read them for their own sockets.

SMACK64IPIN:
: The Smack label of the task object. A privileged program that will enforce policy may set this to the star label.

SMACK64IPOUT:
: The Smack label transmitted with outgoing packets. A privileged program may set this to match the label of another task with which it hopes to communicate.

Smack Netlabel Exceptions

You will often find that your labeled application has to talk to the outside, unlabeled world. To do this there's a special file /sys/fs/smackfs/netlabel where you can add some exceptions in the form of:

```
@IP1       LABEL1 or
@IP2/MASK  LABEL2
```

It means that your application will have unlabeled access to @IP1 if it has write access on LABEL1, and access to the subnet @IP2/MASK if it has write access on LABEL2.

Entries in the /sys/fs/smackfs/netlabel file are matched by longest mask first, like in classless IPv4 routing.

A special label '@' and an option '-CIPSO' can be used there:

```
@      means Internet, any application with any label has access to it
-CIPSO means standard CIPSO networking
```

If you don't know what CIPSO is and don't plan to use it, you can just do:

```
echo 127.0.0.1 -CIPSO > /sys/fs/smackfs/netlabel
echo 0.0.0.0/0 @      > /sys/fs/smackfs/netlabel
```

If you use CIPSO on your 192.168.0.0/16 local network and need also unlabeled Internet access, you can have:

```
echo 127.0.0.1      -CIPSO > /sys/fs/smackfs/netlabel
echo 192.168.0.0/16 -CIPSO > /sys/fs/smackfs/netlabel
echo 0.0.0.0/0      @      > /sys/fs/smackfs/netlabel
```

Writing Applications for Smack

There are three sorts of applications that will run on a Smack system. How an application interacts with Smack will determine what it will have to do to work properly under Smack.

Smack Ignorant Applications

By far the majority of applications have no reason whatever to care about the unique properties of Smack. Since invoking a program has no impact on the Smack label associated with the process the only concern likely to arise is whether the process has execute access to the program.

Smack Relevant Applications

Some programs can be improved by teaching them about Smack, but do not make any security decisions themselves. The utility ls(1) is one example of such a program.

Smack Enforcing Applications

These are special programs that not only know about Smack, but participate in the enforcement of system policy. In most cases these are the programs that set up user sessions. There are also network services that provide information to processes running with various labels.

File System Interfaces

Smack maintains labels on file system objects using extended attributes. The Smack label of a file, directory, or other file system object can be obtained using getxattr(2):

```
len = getxattr("/", "security.SMACK64", value, sizeof (value));
```

will put the Smack label of the root directory into value. A privileged process can set the Smack label of a file system object with setxattr(2):

```
len = strlen("Rubble");
rc = setxattr("/foo", "security.SMACK64", "Rubble", len, 0);
```

will set the Smack label of /foo to "Rubble" if the program has appropriate privilege.

Socket Interfaces

The socket attributes can be read using fgetxattr(2).

A privileged process can set the Smack label of outgoing packets with fsetxattr(2):

```
len = strlen("Rubble");
rc = fsetxattr(fd, "security.SMACK64IPOUT", "Rubble", len, 0);
```

will set the Smack label "Rubble" on packets going out from the socket if the program has appropriate privilege:

```
rc = fsetxattr(fd, "security.SMACK64IPIN, "*", strlen("*"), 0);
```

will set the Smack label "*" as the object label against which incoming packets will be checked if the program has appropriate privilege.

Administration

Smack supports some mount options:

smackfsdef=label:
: specifies the label to give files that lack the Smack label extended attribute.

smackfsroot=label:
: specifies the label to assign the root of the file system if it lacks the Smack extended attribute.

smackfshat=label:
: specifies a label that must have read access to all labels set on the filesystem. Not yet enforced.

smackfsfloor=label:
: specifies a label to which all labels set on the filesystem must have read access. Not yet enforced.

smackfstransmute=label:
: behaves exactly like smackfsroot except that it also sets the transmute flag on the root of the mount

These mount options apply to all file system types.

Smack auditing

If you want Smack auditing of security events, you need to set CONFIG_AUDIT in your kernel configuration. By default, all denied events will be audited. You can change this behavior by writing a single character to the /sys/fs/smackfs/logging file:

```
0 : no logging
1 : log denied (default)
2 : log accepted
3 : log denied & accepted
```

Events are logged as 'key=value' pairs, for each event you at least will get the subject, the object, the rights requested, the action, the kernel function that triggered the event, plus other pairs depending on the type of event audited.

Bringup Mode

Bringup mode provides logging features that can make application configuration and system bringup easier. Configure the kernel with CONFIG_SECURITY_SMACK_BRINGUP to enable these features. When bringup mode is enabled accesses that succeed due to rules marked with the "b" access mode will logged. When a new label is introduced for processes rules can be added aggressively, marked with the "b". The logging allows tracking of which rules actual get used for that label.

Another feature of bringup mode is the "unconfined" option. Writing a label to /sys/fs/smackfs/unconfined makes subjects with that label able to access any object, and objects with that label accessible to all subjects. Any access that is granted because a label is unconfined is logged. This feature is dangerous, as files and directories may be created in places they couldn't if the policy were being enforced.