Knowledge

Archived - K589: Repairing a corrupted password database on BIG-IP or 3-DNS

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Applies to:

This article has been archived and is no longer maintained.

Topic

Introduction

BIG-IP and 3-DNS are based on BSD UNIX, which uses a password scheme somewhat different from other (particularly SVR4) UNIX platforms. These products also make use of shadow passwords. The combination of these two password methods requires some very specific fixes when the database is corrupt.

Standard Passwords

Like most UNIX platforms, BSD UNIX uses the /etc/passwd command for the regular accounts file. This file exists to provide compatibility to all applications that expect to see a plain-text password file. In addition to this file, BSD UNIX maintains a password database (/etc/pwd.db) that the operating system uses instead, but contains the same information as, the /etc/passwd file.

Shadow Passwords

The concern about a plain-text password file is that anyone can read it, exposing a major security hole. Shadow passwords fix this problem by creating counterparts to the passwd and pwd.db files that are readable only by root. These shadow password files are /etc/master.passwd and /etc/spwd.db.

When shadow passwords are in effect, the password fields in passwd and pwd.db are left blank; the passwords are kept only in the shadow password files.

Repairing the Database

The password database files can get corrupted. This usually happens most frequently when someone abruptly stops the First-Time Boot/Setup utility by using the power switch or reset button; but theoretically this could happen any time the system is killed before password database data is synchronized to disk. When this happens, the databases must be recreated before users will be able to log in again.

Method 1: master.passwd is clean

Usually when a database gets corrupted, the pwd.db and spwd.db files are affected, but the master.passwd file is untouched. This file is referred to as clean.

To fix a corrupted password database when the master.passwd file is clean, perform the following steps:

1. Log in to the controller in single-user mode.

   *Note: For specific instructions about how to log in to the controller in single-user mode, refer to **K993: Enabling networking from single-user mode**.*
2. Mount all available disks, by typing the following command:

   ```
   /sbin/mount -a
   ```
3. If the disks were not unmounted properly, the command mount will not properly mount the disks. If this occurs, clean the file system by typing the following commands:

   ```
   /sbin/fsck -y /dev/wd0a
   /sbin/fsck -y /dev/wd0h
   /sbin/fsck -y /dev/wd0g
   ```

For example:

```
bigip1:~# /sbin/fsck -y /dev/wd0g
** /dev/rwd0g (NO WRITE)
** Last Mounted on /var
** Phase 1 - Check Blocks and Sizes
** Phase 2 - Check Pathnames
** Phase 3 - Check Connectivity
** Phase 4 - Check Reference Counts
UNREF FILE I=150337 OWNER=root MODE=100644
SIZE=0 MTIME=Jul 19 05:35 2000
CLEAR? no

** Phase 5 - Check Cyl groups
1116 files, 52794 used, 1468306 free (1650 frags, 183332 blocks, 0.1% fragmentation)
bigip1:~#
```

4. Back up the passwd and master.passwd files, by typing the following commands:

```
cp /etc/passwd /etc/passwd.orig
cp /etc/master.passwd /etc/master.passwd.orig
```

For example:

```
bigip1:/# cp /etc/passwd /etc/passwd.orig
bigip1:/# cp /etc/master.passwd /etc/master.passwd.orig
```

5. Delete the password databases by typing the following command:

```
rm /etc/pwd.db
rm /etc/spwd.db
```

For example:

```
bigip1:/# rm /etc/pwd.db
bigip1:/# rm /etc/spwd.db
```

6. Recreate the password databases from master.passwd file, by typing the following command:

```
/usr/sbin/pwd_mkdb /etc/master.passwd
```

For example:

```
bigip1:/# /usr/sbin/pwd_mkdb /etc/master.passwd
```

Method 2: master.passwd is corrupt

Note: The following procedure will get you in to the system. From this point, you must create a password for the root account, plus add the other system accounts back in (preferably with vipw). You can use a master.passwd file from another BIG-IP as a template, or you could download a valid master.passwd from the References section.

If both the password databases and the master.passwd file are corrupt, you must create a new master.passwd file before you recreate the password database.

To create the master.passwd file, perform the following steps:

1. Log in to the controller in single-user mode.

   *Note: For specific instructions about how to log in to the controller in single-user mode, refer to **K993: Enabling networking from single-user mode**.*

2. Mount all available disks by typing the following command:

```
/sbin/mount -a
```

3. If the disks were not unmounted properly, the command mount will not properly mount the disks. If this occurs, clean the file system by typing the following commands:

```
/sbin/fsck -y /dev/wd0a
/sbin/fsck -y /dev/wd0h
/sbin/fsck -y /dev/wd0g
```

   For example:

```
bigip1:~# /sbin/fsck -y /dev/wd0g
** /dev/rwd0g (NO WRITE)
** Last Mounted on /var
```

```
** Phase 1 - Check Blocks and Sizes
** Phase 2 - Check Pathnames
** Phase 3 - Check Connectivity
** Phase 4 - Check Reference Counts
UNREF FILE I=150337 OWNER=root MODE=100644
SIZE=0 MTIME=Jul 19 05:35 2000
CLEAR? no

** Phase 5 - Check Cyl groups
1116 files, 52794 used, 1468306 free (1650 frags, 183332 blocks, 0.1% fragmentation)
bigip1:~#
```

4. Delete the /etc/passwd, /etc/master.passwd, /etc/pwd.db, and /etc/spwd.db files, by typing the following command:

```
rm /etc/passwd /etc/master.passwd /etc/pwd.db /etc/spwd.db
```

5. Create a file named /etc/master.passwd and type the following line:

```
root::0:0:daemon:0:0:System Administrator:/root:/bin/bash
```

If you cannot access an editor because of a path issue or unmounted filesystems, you can echo this line to the file by typing the following command:

Important: This following command must be on one line. If the following line breaks, it was done for formatting purposes only. The command will not work if it is on two lines as displayed.

```
echo ''root::0:0:daemon:0:0:System Admin:/root:/bin/bash'' \
 >/etc/master.passwd)
```

For example:

Important: This following command must be on one line. If the following line breaks, it was done for formatting purposes only. The command will not work if it is on two lines as displayed.

```
bigip1:/# echo ''root::0:0:daemon:0:0:System Admin:/root: \
 /bin/bash'' >/etc/master.passwd

bigip1:/#
```

6. Recreate the password databases from this new master.passwd file, by typing the following command:

```
/usr/sbin/pwd_mkdb /etc/master.passwd
```

References

Refer to the following man pages contain additional information:

pwd_mkdb man page

passwd(5) man page

Current master.passwd File

You should be able to use the master.passwd file for BIG-IP or 3-DNS Controller version 2.0 or later. You can log in and recreate the databases from the master.passwd file using the following example:

```
root:_J9..RefxLd7UeXtPO0s:0:0:daemon:0:0:System Administrator:/root:/bin/bash
support:*:0:0:daemon:0:0:Support:/root:/bin/bash
daemon:*:1:1::0:0:System Daemon:/nonexistent:/sbin/nologin
sys:*:2:2::0:0:Operating System:/nonexistent:/sbin/nologin
bin:*:3:7::0:0:BSDI Software:/nonexistent:/sbin/nologin
operator:*:5:5::0:0:System Operator:/nonexistent:/sbin/nologin
tty:*:6:6::0:0:Terminal User:/nonexistent:/sbin/nologin
nobody:*:32767:32766::0:0:Unprivileged user:/nonexistent:/sbin/nologin
nonroot:*:65534:32766::0:0:Non-root root user for NFS:/nonexistent:/sbin/nologin
```

- Support Solution - **K000150207: Error 51133, F5 registration key is not compatible with the detected platform - This platform, "BIG-IQ Pool", cannot be activated with this registration key "XXXXXXX-XXXXXXX"**

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