

**CIAC**

Computer Incident Advisory Capability

**The Console Password**  
**For**  
**Dec Workstations**  
**CIAC-2303**

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# Table of Contents

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<b>Overview .....</b>	<b>1</b>
Introduction.....	1
Notation used in this document.....	1
Warnings.....	2
<b>VAXstations.....</b>	<b>3</b>
Selecting and entering the VAXstation console password.....	3
Enabling and disabling the password.....	4
Placing the VAXstation in privileged mode .....	5
Learning the status of the password.....	5
Exiting privileged mode.....	5
VAXstation 3100 Series console commands .....	6
VAXstation 4000 Series console commands .....	7
<b>DECstations .....</b>	<b>8</b>
Setting the DECstation console password.....	8
Enabling and disabling the password.....	8
DECstation console commands .....	9
<b>Conclusion.....</b>	<b>10</b>

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# The Console Password Feature for DEC Workstations

## Overview

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### Introduction

Newer VAXstations and all DECstations offer a “hardware” password feature that, when enabled, restricts unauthorized access to your system console terminal when turned on or restarted. VAXstation 3100s shipped after July, 1989 offer this feature. A description of this feature should be part of the *Hardware User Guide* for your workstation; however, some of the early systems did not document this security enhancement. This document is based on the author’s investigation as well as information provided by the Digital Equipment Corporation.

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### Notation used in this document

Due to the different commands and syntax, VAXstations and DECstations will be described in two separate sections within this document. In the VAXstation section of this document, uppercase commands are used only to improve readability; lowercase commands are acceptable. Console input may be in uppercase or lowercase (VAXstations are not case sensitive, but DECstations are). Commands may be abbreviated to the minimum set of unique letters. Commands are not acted upon until the Return key is pressed, thus allowing corrections to be made with the <⊞> (delete key) or <Control-U> (hold down the control key while pressing the letter U).


Notation	Meaning
>>> or >>	Console or chevron prompt. VAXstations use the three chevron prompt (>>>) and DECstations use the two chevron prompt (>>).
R>	A DECstation console that has its password set will use R> for its prompt, indicating it is in restricted mode.
< >	Angle brackets enclose items which show the range of digits or name (possibly an abbreviation) of the data to be supplied.
[ ]	Square brackets surround optional items.
{ }	Curly brackets (braces) indicate you must select only one of the enclosed optional items.
	The vertical bar character separates optional items and may be read as a logical "or."
<b>Control-C</b>	Aborts an operation in progress.
<b>Control-Q</b>	Resumes output to the screen.
<b>Control-S</b>	Suspends output to the screen.
<b>Control-U</b>	Is the line erase key sequence.
⊗	Character delete key.

## Warnings

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 **When a DEC workstation is first shipped, its console system operates in privileged command mode. If you do nothing to change from privileged mode, there will be no console command restrictions. Anyone with physical console access can activate *any* console command, the most vulnerable being *interactive booting*. When you set and enable the console password, you can restrict the available console commands to:**

- (1) **booting without parameters from the default device,**
- (2) **a command used to enable privileged command mode and,**
- (3) **other commands that do not provide information or control to unauthorized personnel.**

 **If you have set a password and then forget what it is, you must have a DEC Field Service Engineer open up your system to re-enable privileged command mode.**

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<b>4</b>	<p><b>Confirm the correct entry of the new password:</b></p> <p>If the password character string entered in step 3 is legal, the console prompts you to enter the new password a second time, to verify correct entry:</p> <p>2 &gt;&gt;&gt;                                    <i>or</i>            PSWD2 &gt;&gt;&gt;</p> <p>Re-enter the new password and press &lt; <b>Return</b> &gt;. If the confirming password exactly matches the new password, the new password is accepted.</p>
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## Enabling and disabling the password

After selecting and entering a password, described in the previous section, use the privileged command *SET PSE* to enable (activate) or disable (deactivate) the password. Entering and enabling are separate actions, i.e., entering a password will not automatically enable (or disable) that password. If you do not use one of the following commands, the password state will remain as it was before the first or a new password was entered.

Action	Command
Enable	<pre>&gt;&gt;&gt; SET PSE 1</pre> <p><b>+</b>     <b>If you have <u>not</u> set a password (see step 2), the following error message is displayed: ?33 NO PSWD DEF</b></p>
Disable	<pre>&gt;&gt;&gt; SET PSE 0</pre>

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 **If you enter something other than “1” or “0”, the following error message is displayed: ?24 INV DGT**


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## Placing the VAXstation in privileged mode

Use the *LOGIN* command to place a VAXstation in privileged mode. This makes all console commands accessible. The form of the command is

```
>>> LOGIN
```

---

 **If a password is not enabled, the error message returned is: ?32 PSWD NOTEN**

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If a password is enabled, the console prompts for password entry:

```
3100 series                    4000 series  
? >>>                            or            PSWD0 >>>
```

If the correct password is entered, the VAXstation is placed in privileged mode. You then have access to all commands until issuing a command that exits console privileged mode (see the section “Exiting Privileged Mode,” below).



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 **If an incorrect password is entered, the error message returned is: ?23 ILL CMD**

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## Learning the status of the password

To check on the status of the password feature, use the command:

```
>>> SHOW PSE
```

If a "1" or "PSE = 00000001" is displayed, the password is enabled. If a "0" or "PSE = 00000000" is displayed, the password is disabled.

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 **If the console is already in unprivileged mode, entering this command will result in the error message, ?23 ILL CMD, indicating that the password is enabled.**

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## Exiting privileged mode

The following console commands, executed while the console is in privileged mode, cause an exit from privileged mode before any other operations are begun (also see asterisked commands in the Console Commands table on the next page):

```
>>> BOOT (with any supplied parameters)
>>> CONTINUE
>>> HALT
>>> START
```

Once privileged mode is exited, you must use the LOGIN command and correctly enter the console password to regain privileged mode.

## VAXstation 3100 Series console commands

The following commands are for the VAXstation 3100 series computers. Use the help command to find commands available on your particular make and model.

Category	Command
<b>Unprivileged commands</b>	>>> BOOT >>> CONTINUE >>> HALT >>> LOGIN

**Privileged  
commands**

```
>>> BOOT* [/[R5:]<bflg>] [<ddau>[:]]
>>> CONTINUE*
>>> DEPOSIT [{ /B | /W | /L }] [{ /P | /V | /I }]
    [/G] [/U] /N:<n>[ { <addr> | <sym> | + | - |
    * | @ } ] [<datum>]]
>>> DTE
>>> EXAMINE [{ /B | /W | /L }] [{ /P | /V | /I }]
    [/G] [/U] [N:<n>][ { <addr> | <sym> | + | - |
    * | @ } ]
>>> FIND [ { /MEMORY | /RPB } ]
>>> HALT*
>>> HELP
>>> INITIALIZE
>>> LOGIN
>>> REPEAT <cmd>
>>> SET BFLG <bflg>      "8 hex digits"
>>> SET BOOT <ddau>
>>> SET HALT <1-3>
>>> SET KBD <0-15>
>>> SET MOP <0-1>
>>> SET PSE <0-1>
>>> SET PSWD
>>> SET TRIG <0-1>
>>> SHOW { BFLG | BOOT | DEV | ESTAT | ETHER | HALT
    | KBD | MEM | MOP | PSE | SCSIA | SCSIB | TRIG
    }
>>> START* <addr>
>>> TEST <n> [ <m> ]
>>> UNJAM
>>> XFER <addr> <cnt> ...
```

\* executing these commands will terminate console  
privileged mode

**VAXstation  
4000 Series  
console  
commands**

The following commands are for the VAXstation 4000 series computers. Use the help command to find commands available on your particular make and model.

Category	Command
<b>Unprivileged commands</b>	<pre>&gt;&gt;&gt; BOOT &gt;&gt;&gt; CONTINUE &gt;&gt;&gt; HALT &gt;&gt;&gt; LOGIN &gt;&gt;&gt; ! "begin comment"</pre>
<b>Privileged commands</b>	<pre>&gt;&gt;&gt; BOOT* [/[R5:]&lt;bflg&gt;] [&lt;ddau&gt;[:]] &gt;&gt;&gt; CONTINUE* &gt;&gt;&gt; DEPOSIT [{ /B   /W   /L }] [{ /P   /V   /I }]       [/G] [/U] [/N:&lt;n&gt;][{ &lt;addr&gt;   &lt;sym&gt;   +   -         *   @ } [&lt;datum&gt;]] &gt;&gt;&gt; EXAMINE [{ /B   /W   /L }] [{ /P   /V   /I }]       [/G] [/U] [/N:&lt;n&gt;][{ &lt;addr&gt;   &lt;sym&gt;   +   -         *   @ }] &gt;&gt;&gt; FIND [{ /MEMORY   /RPB }] &gt;&gt;&gt; HALT* &gt;&gt;&gt; HELP &gt;&gt;&gt; INITIALIZE &gt;&gt;&gt; LOGIN &gt;&gt;&gt; REPEAT &lt;cmd&gt; &gt;&gt;&gt; SET BFLG &lt;bflg&gt;      "8 hex digits" &gt;&gt;&gt; SET BOOT &lt;ddau&gt; &gt;&gt;&gt; SET DIAGENV &lt;1-3&gt; &gt;&gt;&gt; SET HALT &lt;1-3&gt; &gt;&gt;&gt; SET KBD &lt;0-15&gt; &gt;&gt;&gt; SET MOP &lt;0-1&gt; &gt;&gt;&gt; SET PSE &lt;0-1&gt; &gt;&gt;&gt; SET PSWD &gt;&gt;&gt; SET SCSI &lt;0-7&gt; &gt;&gt;&gt; SET TRIG &lt;0-1&gt; &gt;&gt;&gt; SHOW { BFLG   BOOT   CONFIG   DEV   DIAGENV         ERROR   ESTAT   ETHER   FBOOT   HALT   KBD         MEM   MOP   PSE   SCSI   TRIG } &gt;&gt;&gt; START* &lt;addr&gt; &gt;&gt;&gt; TEST [ /UTIL ] &lt;devnam   devnbr&gt; &gt;&gt;&gt; UNJAM &gt;&gt;&gt; X &lt;addr&gt; &lt;cnt&gt; ... &gt;&gt;&gt; ? "help command" &gt;&gt;&gt; ! "begin comment"</pre> <p>* executing these commands will terminate console privileged mode</p>

# DECstations

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## Setting the DECstation console password

If you have multiple monitors connected to your workstation, the monitor connected to the option slot with the lowest number is the system console. This monitor displays all system information. The following commands are for the DECstation 5000 model 200:

Step	Command/Action
1	<p><b>Select a password:</b></p> <p>The password <i>must</i> be an ASCII string of characters with a minimum length of six characters. The system does not prevent password reuse, but it is good security practice to select a previously unused one.</p>
2	<p><b>Enter the password:</b></p> <p>Use the privileged command &lt; <b>passwd -s</b> &gt; to enter a new password into the console system:</p> <pre>&gt;&gt; passwd -s</pre> <p>If the console password is already set and the console is in restricted mode, you must use the <i>passwd</i> command without arguments to activate privileged command mode. The <i>passwd</i> command then prompts with the prompt "PWD: "</p> <p>The console does not echo (display) any password as you enter it.</p>
3	<p><b>Confirm the correct entry of the new password:</b></p> <p>Enter the new password and press Return. If the password character string is legal, the console prompts you to re-enter the new password, in order to verify that it was correctly entered:</p> <pre>PWD: PWD:</pre> <p>Re-enter the new password and press Return. If the second (verification) password exactly matches the first (new) password, the new password is accepted.</p>

## Enabling and disabling the password

Action	Command/Method
<b>Enable</b>	The password takes effect after the system is reset (by pushing the reset button on the back of the system unit or by powering up). The console prompt becomes <b>R</b> .
<b>Disable</b>	The privileged command <i>passwd -c</i> clears the existing password. When the console password is cleared, console access is unrestricted and the console prompt becomes <b>&gt;&gt; .</b>

## DECstation console commands

The following commands are for the DECstation 5000 model 200 computers. Use the help command to find commands available on your particular make and model.

Categories	Commands
<b>Unprivileged commands</b>	R> passwd R> boot
<b>Privileged commands</b>	>> ? [command name] "Help command" >> boot [[-z #] [-n] #/path [arguments...]] >> cat #/scriptname >> cnfg [#] >> d [-bhw] [-s #] RANGE value >> e [-bhwcdux] [-s #] RANGE >> erl [-c] >> go [address] >> init [[#] -m] [arguments...] >> ls [#] >> passwd [-c] [-s] >> printenv [EnvironmentVariableName] >> restart >> script name >> setenv EnvironmentVariableName value >> sh [-belvs] [#scriptname] [arguments...] >> t [-l] #/testname [arguments...] >> unsetenv EnvironmentVariableName

## Conclusion

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We are living in an age where our society relies more and more on computers and computerized information. The insider threat is an ever-present danger. Using the console *password* feature can help defend your computer system, its programs, and its data from attack.

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