# Monitor and Understand Vault Operational Logs

Vault Server Logs

- During startup, Vault will log configuration information to the log, such as listeners & ports, logging level, storage backend, Vault version, and much more….

- Once started, Vault will continue to log entries which are invaluable for troubleshooting

- The log level can be configured in multiple places in Vault, and include levels such as `err`, `warn`, `info`, `debug`, and `trace`

Vault Log Levels

ERROR

WARN

INFO

DEBUG

TRACE

Less Detailed Logs

Default Setting ⭐

More Detailed Logs
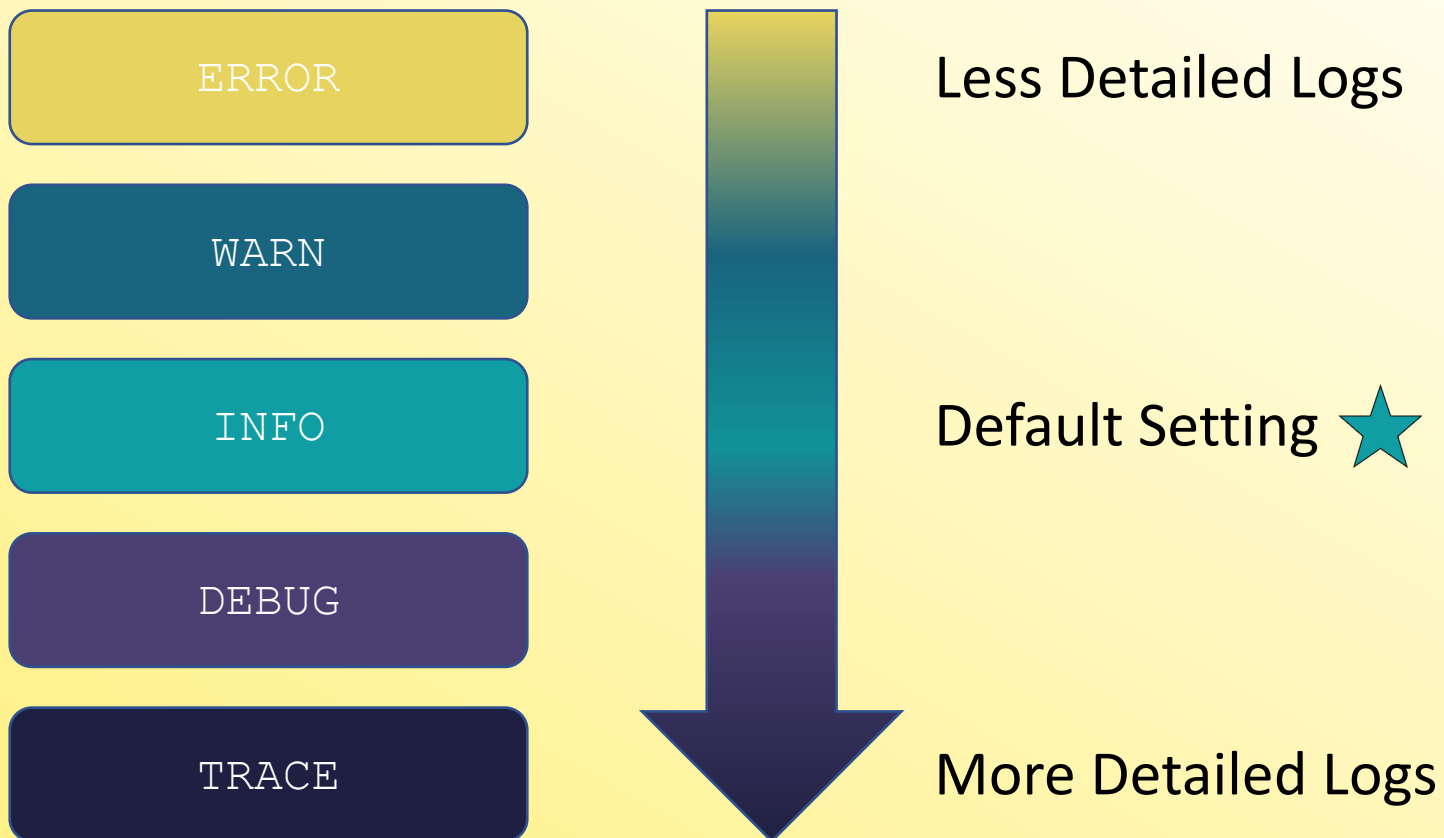
Specifying the Log Level

1. Use the CLI flag **-log_level** when starting the Vault service

```
$ vault server -config=/opt/vault/vault.hcl -log-level=debug
```

2. Set the environment variable **VAULT_LOG_LEVEL**

   • Change takes effect after Vault server is restarted

```
$ export VAULT_LOG_LEVEL=trace
```

3. Set the **log_level** configuration parameter in the Vault configuration file

   • Change takes effect after Vault server is restarted

```
log_level=warn
```

Where Can I Get the Vault Logs?

On modern Linux distributions using systemd, you can use `journalctl` to view the logs

```
# Read Vault logs captured by journald
$ journalctl -b --no-pager -u vault
...
Dec 25 17:01:47 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:47.950Z [DEBUG] replication.index.local: saved
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.907Z [DEBUG] rollback: attempting rollback:
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.907Z [DEBUG] rollback: attempting rollback:
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.907Z [DEBUG] rollback: attempting rollback:
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.907Z [DEBUG] rollback: attempting rollback:
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.907Z [DEBUG] rollback: attempting rollback:
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.947Z [DEBUG] replication.index.perf: saved
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.950Z [DEBUG] replication.index.local: saved
```

Page Up/Down - Scroll   Shift-G – Go to the bottom of logs   CTRL-C – Exit from journalctl

Where Can I Get the Vault Logs?

On modern Linux distributions using systemd, you can use `journalctl` to view the logs

```
Terminal

# Read Vault logs captured by journald
$ journalctl -b --no-pager -u vault
...
Dec 25 17:01:47 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:47.950Z [DEBUG] replication.index.local: saved
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.907Z [DEBUG] rollback: attempting rollback:
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.907Z [DEBUG] rollback: attempting rollback:
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.907Z [DEBUG] rollback: attempting rollback:
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.907Z [DEBUG] rollback: attempting rollback:
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.907Z [DEBUG] rollback: attempting rollback:
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.947Z [DEBUG] replication.index.perf: saved
Dec 25 17:01:52 ip-10-42-0-27 vault[7954]: 2022-12-25T17:01:52.950Z [DEBUG] replication.index.local: saved
```

Page Up/Down - Scroll   Shift-G – Go to the bottom of logs   CTRL-C – Exit from journalctl

Where Can I Get the Vault Logs?

Logs from Docker containers can be retrieved using the `docker logs` command

```
# Read Vault logs captured by Docker
$ docker logs vault0

Couldn't start vault with IPC_LOCK. Disabling IPC_LOCK, please use --cap-add IPC_LOCK
==> Vault server configuration:

             Api Address: http://0.0.0.0:8200
                     Cgo: disabled
         Cluster Address: https://0.0.0.0:8201
              Go Version: go1.17.9
              Listener 1: tcp (addr: "0.0.0.0:8200", cluster address: "0.0.0.0:8201", max_request_duration:
"1m30s", max_request_size: "33554432", tls: "disabled")
               Log Level: info
                   Mlock: supported: true, enabled: false
           Recovery Mode: false
                 Storage: inmem
                 Version: Vault v1.10.3
             Version Sha: af866591ee60485f05d6e32dd63dde93df686dfb
```
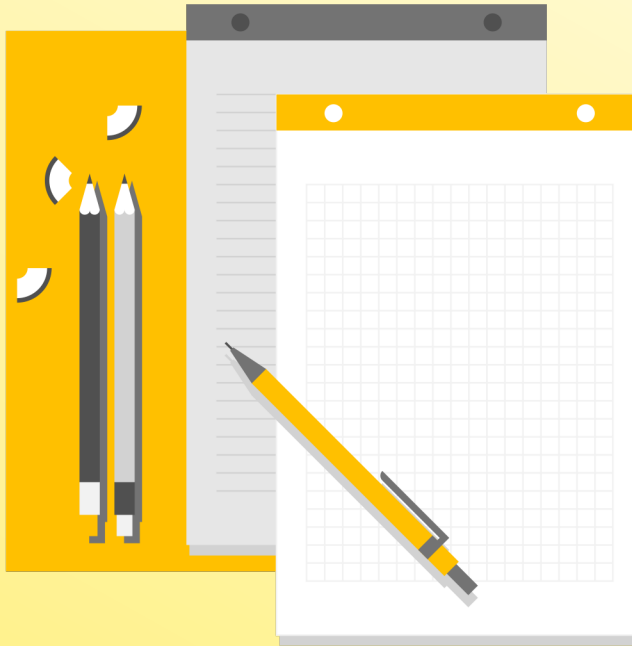
And on the Exam?

Make sure to check out the "About the Exam" video at the end of the course to learn more about exam-specific information regarding logs