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A unit file contains config directives for the unit and how it behaves. **/etc/systemd/system** reserved for files created and customized by admin. Config has 3 sections: [Unit] - generic options not dependent on type, [Unit type] - type-specific directives ([Service] for service units), and [Install] - directives for systemctl enable and disable (for unit installation).
[Unit] - description - description of the unit, shown in systemctl status. Documentation - list of URL references. After - only starts after all the units under this have started. Requires - units here are activated with the subject unit, if any one fails, the unit won't start. Wants - recommended way, won't affect start of unit. Conflicts - opposite of requires.
[Service] (configures startup type that affects functionality of ExecStart) - type - can be one of 1.*simple* - default value, process started with execstart is the main process, 2.*forking* - process started with ExecStart becomes main process, parent exits. 3.*oneshot* - process exits before starting consequent units. 4.*dbus* - similar to simple but consequent units start after main process gets dbus name. 5.*notify* - similar to simple, but consequent units start after sd_notify() is run. 6.*idle* - similar to simple, actual execution occurs after all jobs finish, to avoid shell output mixup. ExecStart - commands or scripts to be started when unit starts. ExecStartPre and Post specify things to start before and after ExecStart. ExecStop - commands or scripts to run after unit is stopped. ExecReload - when unit is reloaded. Restart - restarted after its process exits if this is enabled unless stopped by systemctl stop. RemainAfterExit - if true, considered active eevn after all processes exit. **[Install]** - Alias - space separated aliases for unit, systemctl understands these names. RequiredBy - list of units dependent on this unit, WantedBy - list of units weakly dependent on this unit, Also - list of units to install or uninstall with the unit, DefaultInstance - default instance for which this unit is instantiated.
Creating Custom Unit Files - 1.Prepare the custom executable file, if required, make a pid file or hold a constant pid for the main process. 2. Make the unit file in /etc/systemd/system/*name*.service directory (correct permissions 664). 3. Open the unit file and add the config options ([unit], [service], [install] stuff). 4. Notify systemd that a new *name*.service exists. Systemctl daemon-reload && systemctl start *name*.service. ONLY do daemon-reload if new files or changes to configs are made. **Creating a custom unit file by using the second instance of sshd service.** Done by modifying parameters to run a second instance and prevent conflicts with the main instance. 1. Create copy of sshd_config file. 2. Edit sshd-second_config file - assign diff port and different PID file. 3. Create a copy from usr/lib/systemd/system/sshd.service to /etc/systemd/system/sshd-second.service. 4. Modify the description. Add second service to the After option of the first so it only starts after the first one. Remove ExecStartPre from the original. Add the second service to the ExecStart with -f option so that the second one starts. 5. Enable the second service. Systemctl enable sshd-second.service. 7. Verify if it is running with status command and verify if the port is connected using ssh -p. **Modifying existing unit files.** Don't modify files in /usr/lib/systemd/system dir. Use /etc/systemd/system. 2 options: 1. Create directory /etc/systemd/system/*unit*.d to add config. Still uses the original file. If changes made in an install, these will automatically be applied. 2. Make a copy in the /etc/systemd/system/ dir, copy overrides the original. Useful for making significant changes. Won't change if original file is updated. To return to original config, delete the newly created files. Apply changes with daemon-reload. Alternate is `init q`. if modified config belongs to service, restart that service.
Extending the default config file. Mkdir /etc/systemd/system/*name*.service.d/ && touch *config_name*.conf in the new dir. Add new configs and then daemon-reload and systemctl restart *name*.service. **[**options like **ExecStart** and **Description** can only be described once - these will be overridden. BUT systemd-delta will show these units as extended even tho technically overridden.**] Overriding default config file.** Must be root. Copy to /etc/systemd/system/ dir, make changes and then daemon-reload and restart *name.*service. **Changing the timeout limit**. Useful to prevent malfunctioning services from freezing the system. 1. Copy the *name.*service to /etc/systemd/system/ dir and add TimeoutStartUSec. Then daemon-reload. For global, change DefaultTimeoutStartSec in .conf. Display modified unit files, `systemd-delta`.
Unit specifiers for templating and starting multiple unit files from one template: %n-full unit name, %p-prefix name, %i-instance name, %H-hostname, %t-runtime directory. %N,%I like %n,%i but replaces forbidden chars with ascii codes