

# Root CA configuration file

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```
# OpenSSL root CA configuration file.
# Copy to `/root/ca/openssl.cnf`.

[ ca ]
# `man ca`
default_ca = CA_default

[ CA_default ]
# Directory and file locations.
dir                = /root/ca
certs              = $dir/certs
crl_dir            = $dir/crl
new_certs_dir      = $dir/newcerts
database           = $dir/index.txt
serial             = $dir/serial
RANDFILE           = $dir/private/.rand

# The root key and root certificate.
private_key        = $dir/private/ca.key.pem
certificate         = $dir/certs/ca.cert.pem

# For certificate revocation lists.
crlnumber          = $dir/crlnumber
crl                = $dir/crl/ca.crl.pem
crl_extensions     = crl_ext
default_crl_days   = 30

# SHA-1 is deprecated, so use SHA-2 instead.
default_md         = sha256

name_opt           = ca_default
cert_opt           = ca_default
default_days       = 375
preserve           = no
policy             = policy_strict

[ policy_strict ]
# The root CA should only sign intermediate certificates that match.
# See the POLICY FORMAT section of `man ca`.
countryName        = match
stateOrProvinceName = match
organizationName    = match
organizationalUnitName = optional
commonName          = supplied
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emailAddress          = optional

[ policy_loose ]
# Allow the intermediate CA to sign a more diverse range of certificat
# See the POLICY FORMAT section of the `ca` man page.
countryName           = optional
stateOrProvinceName   = optional
localityName          = optional
organizationName       = optional
organizationalUnitName = optional
commonName            = supplied
emailAddress          = optional

[ req ]
# Options for the `req` tool (`man req`).
default_bits          = 2048
distinguished_name    = req_distinguished_name
string_mask           = utf8only

# SHA-1 is deprecated, so use SHA-2 instead.
default_md            = sha256

# Extension to add when the -x509 option is used.
x509_extensions       = v3_ca

[ req_distinguished_name ]
# See <https://en.wikipedia.org/wiki/Certificate\_signing\_request>.
countryName           = Country Name (2 letter code)
stateOrProvinceName   = State or Province Name
localityName          = Locality Name
0.organizationName     = Organization Name
organizationalUnitName = Organizational Unit Name
commonName            = Common Name
emailAddress          = Email Address

# Optionally, specify some defaults.
countryName_default   = GB
stateOrProvinceName_default = England
localityName_default  =
0.organizationName_default = Alice Ltd
organizationalUnitName_default =
emailAddress_default   =

[ v3_ca ]
# Extensions for a typical CA (`man x509v3_config`).
subjectKeyIdentifier = hash
authorityKeyIdentifier = keyid:always,issuer
basicConstraints = critical, CA:true
keyUsage = critical, digitalSignature, cRLSign, keyCertSign

[ v3_intermediate_ca ]
# Extensions for a typical intermediate CA (`man x509v3_config`).
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subjectKeyIdentifier = hash
authorityKeyIdentifier = keyid:always,issuer
basicConstraints = critical, CA:true, pathlen:0
keyUsage = critical, digitalSignature, cRLSign, keyCertSign

[ usr_cert ]
# Extensions for client certificates (`man x509v3_config`).
basicConstraints = CA:FALSE
nsCertType = client, email
nsComment = "OpenSSL Generated Client Certificate"
subjectKeyIdentifier = hash
authorityKeyIdentifier = keyid,issuer
keyUsage = critical, nonRepudiation, digitalSignature, keyEncipherment
extendedKeyUsage = clientAuth, emailProtection

[ server_cert ]
# Extensions for server certificates (`man x509v3_config`).
basicConstraints = CA:FALSE
nsCertType = server
nsComment = "OpenSSL Generated Server Certificate"
subjectKeyIdentifier = hash
authorityKeyIdentifier = keyid,issuer:always
keyUsage = critical, digitalSignature, keyEncipherment
extendedKeyUsage = serverAuth

[ crl_ext ]
# Extension for CRLs (`man x509v3_config`).
authorityKeyIdentifier=keyid:always

[ ocsp ]
# Extension for OCSP signing certificates (`man ocsp`).
basicConstraints = CA:FALSE
subjectKeyIdentifier = hash
authorityKeyIdentifier = keyid,issuer
keyUsage = critical, digitalSignature
extendedKeyUsage = critical, OCSPSigning
```

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