GCP Cloud DNS: transfer your GoDaddy DNS to Google Cloud DNS with a website hosted in compute engine(VM).

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Oct 23, 2018 · 5 min read

Shifting from one Name server to another could be a messy task if you are not familiar with the configuration. In this blog, I will try to explain how you transfer godady(largest domain hoster) to Google Cloud DNS.

let us first go through some terms

DNS is a hierarchical distributed database that lets you store IP addresses and other data, and look them up by name. Google Cloud DNS lets you publish your zones and records in the DNS without the burden of managing your own DNS servers and software.

Cloud DNS concepts

The Cloud DNS API is built around projects, managed zones, record sets, and changes to record sets.

Project: that you build in GCP

Managed zones: In DNS managed zone is any distinct, contiguous portion of the domain name space in the Domain Name System (DNS) for which administrative responsibility has been delegated to a single manager.

DNSSEC: Domain Name System Security Extensions (DNSSEC) is a security feature of DNS that prevents an attacker from manipulating responses to DNS requests.

Domains, Subdomains, and Delegation: Domain is the root name of the site. Most subdomains are just records in the managed zone for the parent domain. Subdomains that are delegated by creating NS (name

server) records in their parent domain's zone need to have their own zones as well

Zone operations: Any changes that you make to managed zones in Google Cloud DNS are recorded in the operations collection, which lists managed zone updates (modifying descriptions or DNSSEC state or configuration).

Registrar: A domain name registrar is an organization that manages the reservation of Internet domain names. A registrar must be accredited by a generic top-level domain (gTLD) registry or a country code top-level domain (ccTLD) registry.

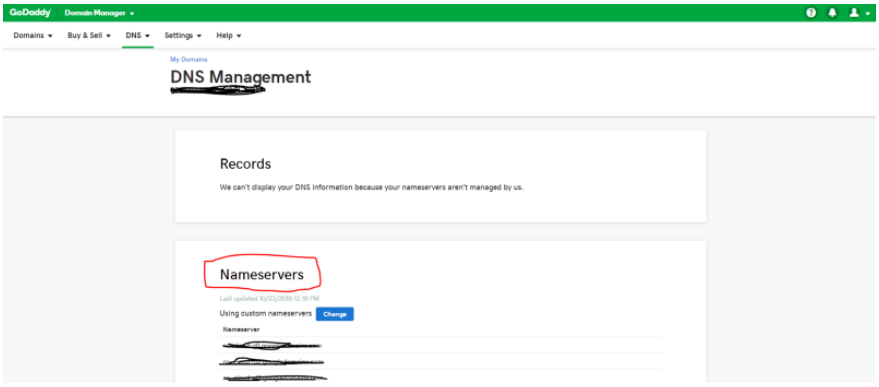
Below is the list of DNS record types

Record type	Description
A	Address record, which is used to map host names to their IPv4 address.
AAAA	IPv6 Address record, which is used to map host names to their IPv6 address.
CAA	Certificate Authority (CA) Authorization, which is used to specify which CAs are allowed to create certificates for a domain.
CNAME	Canonical name record, which is used to specify alias names.
IPSECKEY	IPSEC tunnel gateway data and public keys for IPSEC-capable clients to enable opportunistic encryption.
MX	Mail exchange record, which is used in routing requests to mail servers.
NAPTR	Naming authority pointer record, defined by RFC 3403.
NS	Name server record, which delegates a DNS zone to an authoritative server.
PTR	Pointer record, which is often used for reverse DNS lookups.
SOA	Start of authority record, which specifies authoritative information about a DNS zone. An SOA resource record is created for you when you create your managed zone. You can modify the record as needed.
SPF	Sender Policy Framework record, a deprecated record type formerly used in e-mail validation systems (use a TXT record instead).
SRV	Service locator record, which is used by some voice over IP, instant messaging protocols, and other applications.
SSHFP	SSH fingerprint for SSH clients to validate the public keys of SSH servers.
TLSA	TLS authentication record for TLS clients to validate X.509 server certificates.
TXT	Text record, which can contain arbitrary text and can also be used to define machine-readable data, such as security or abuse prevention information. A TXT record may contain one or more text strings; the maximum length of each individual string is 255 characters. Mail agents and other software agents will concatenate multiple strings. Enclose each string in quotation marks. For example:

Reference: https://cloud.google.com/dns/overview

Now lets got the actual task of transferring the domain

Step 1: Go to Godaddy's manage domain page and check the name server assigned currently.

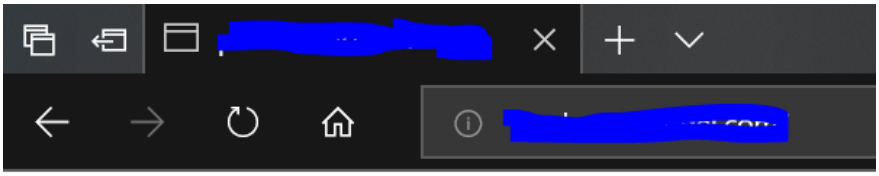


current name servers

Step 2: Create a Compute Engine VM and install the web server in it.

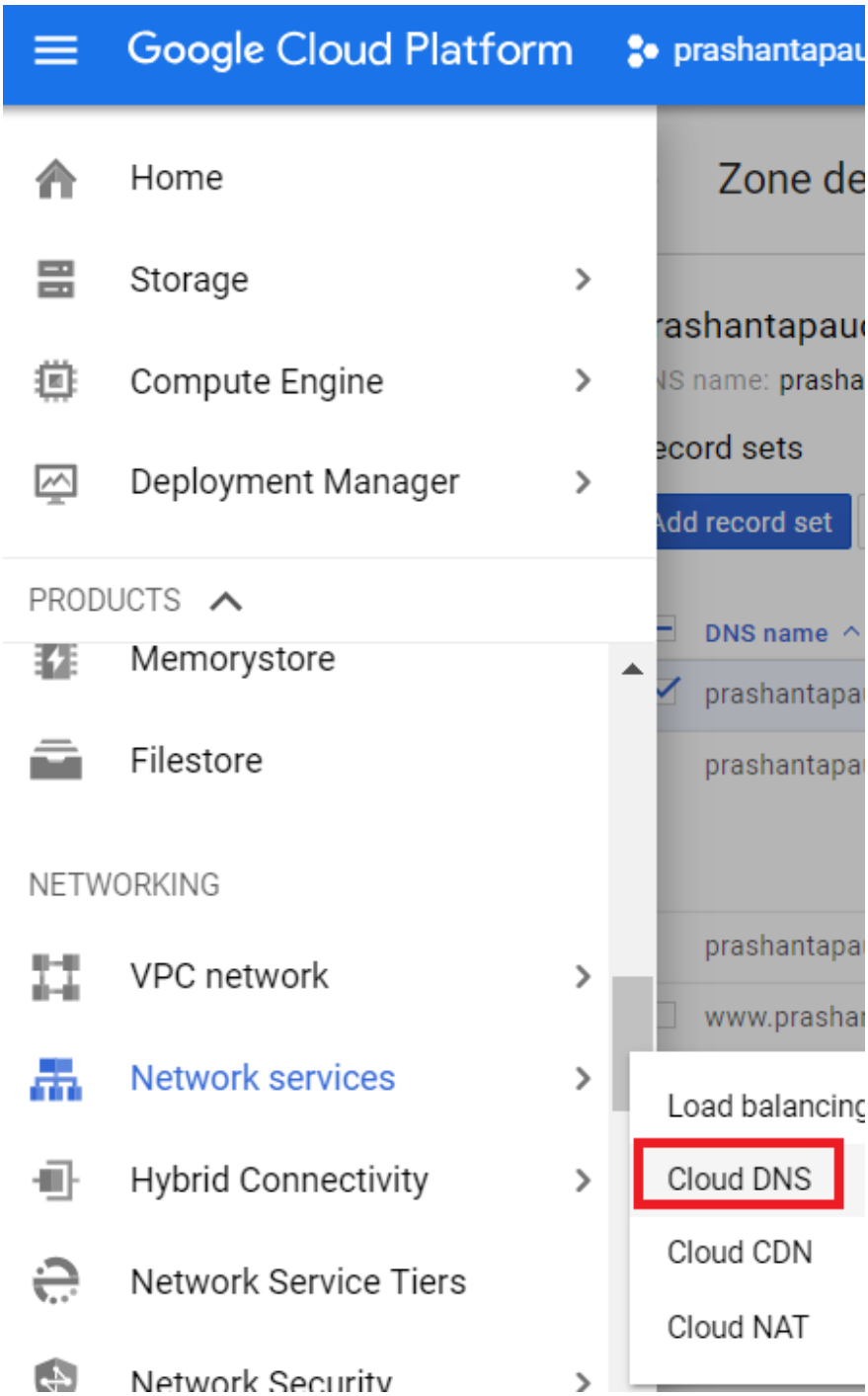
Please follow my blog for creating the web server

I installed Debian Linux with apache2. I deleted the default HTML of apache with very basic HTML.So my website looks like

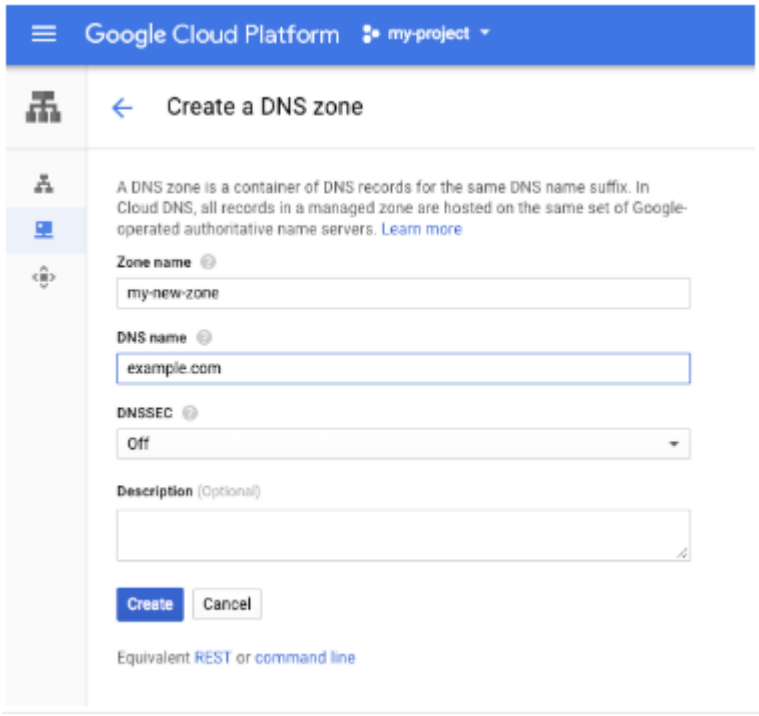


Basic web page

Step 3: Now go to the Google cloud console and then to the cloud DNS



Step 4: create a zone file and add records



create zone

and then add A and CNAME record

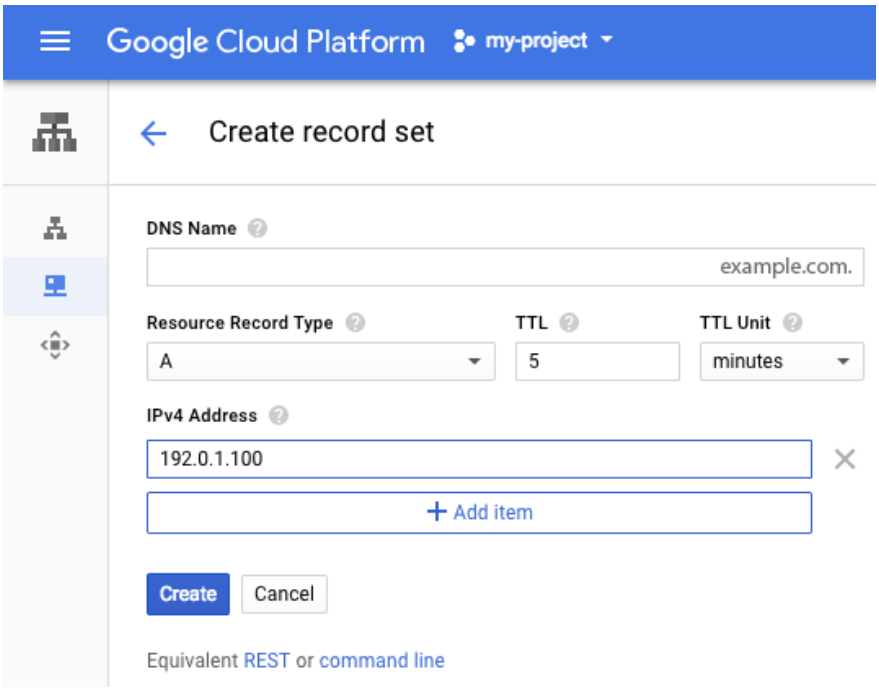
Google says:

Create a new record

Create a new record to point the domain to an external IP address.

If your IP address is in the form `#.#.#.#`, you have an IPv4 address and need to create an `A` record. If your IP address is in the format `#:#:#:#:#:#:#:#`, you have an IPv6 address and need to create an `AAAA` record.

1. Click **Add record set**.
2. To create an `A` record, select `A` from the **Resource Record Type** menu. To create an `AAAA` record, select `AAAA`.
3. Under **IPv4 Address** or **IPv6 Address** section, enter the IP address you want to use with this domain.

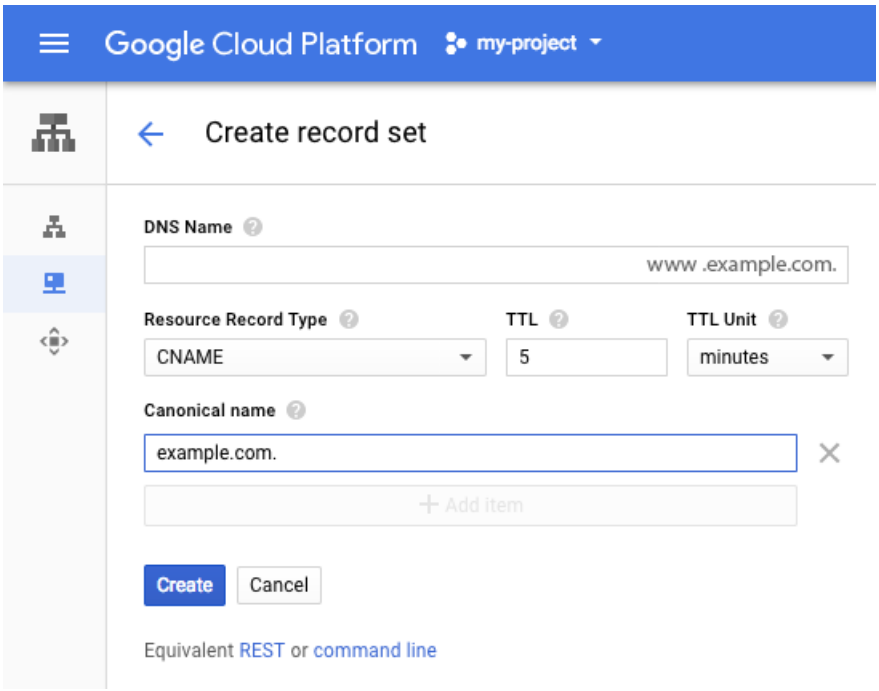


1. Click **Create**.

Create a CNAME record

Next, create a CNAME record for the `www` subdomain:

1. Click **Add record set**.
2. Under **DNS Name**, enter `www` .
3. Under **Resource Record Type**, choose `CNAME` .
4. Under the **Canonical name**, enter the domain name, followed by a period. For example, `example.com.` .

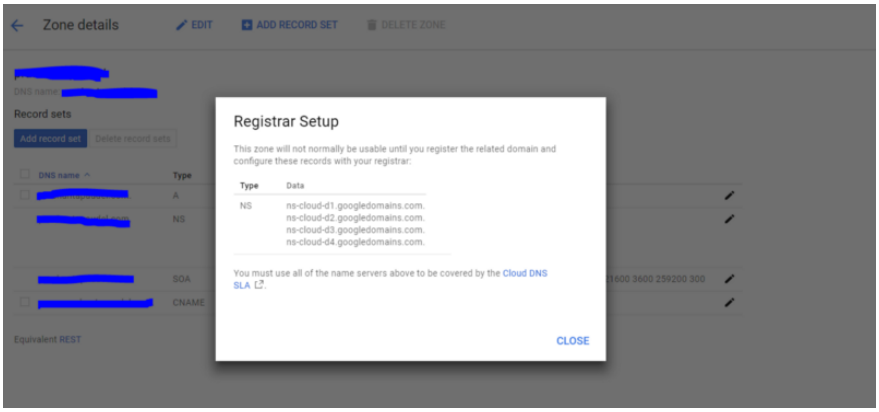


1. Click **Create**.

The record update will take some time to propagate depending on the time-to-live (TTL) values in your zone. You can verify that the DNS records are working by visiting the domain name and confirming that the domain resolves to your IP address.

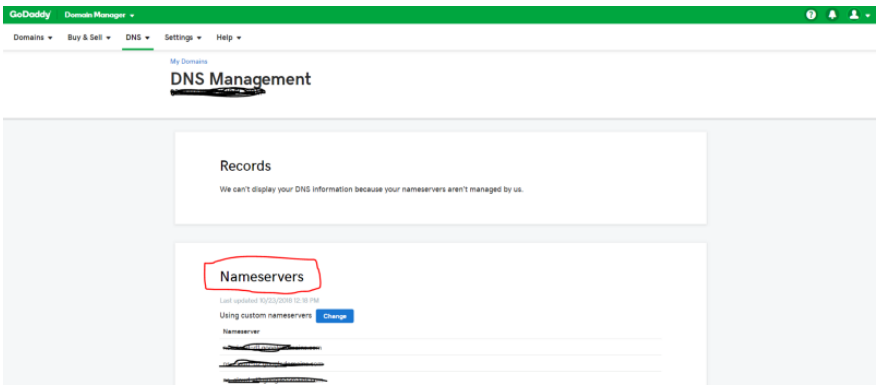
Step 5: Migrate DNS

Now all you need to do is remove the default name server in step 1 with the name server mentioned in zone detail page in GCP



GCP zone detail page with registrar info

copy the name servers detail and put it into the Nameservers list in Godaddy's Domain manager page

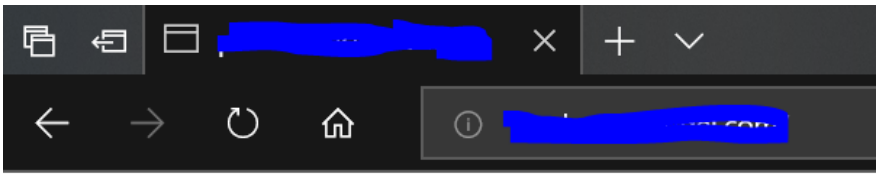


Domain manager

finally, check the current nameserver by using commands

```
dig xyz.com - linux
nslookup xyz.com - windows
```

If you see the sample page we created in step 2 while trying domain we put in zone file's A record then your DNS is migrated to Google.



In this way, we can simply transfer DNS from other vendors to Cloud DNS.