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1. Introduction

Time Warner Cable provides commercial grade DNS and E-mail services to customers. In the past, a customer administrator would log into two separate web-based interfaces, with two separate logins to administer their e-mail accounts and DNS records. The new DNS and E-mail Administrative Interface is a combination of the DNS and E-mail interfaces into a single interface. Administrative time, efforts, and processes are streamlined by utilizing a single interface to view both DNS and e-mail account information.
2. Accessing the Application

The DNS and E-mail Administrative Interface tool is accessed via a Web browser and is optimized for Microsoft® Internet Explorer versions 6.0 and higher, and for Mozillas Firefox 2.0 and higher. But the tool also works well with other common browsers such as Opera and Apple’s Safari.

To access the DNS and E-mail Administrative Interface tool:

1. Enter the following address in a Web browser’s address field to access the Login page:
   
   https://dns-email.twcbc.com (or go to the page)

2. On the Login page, enter your User Name in the Login field, and Password.

   NOTE: You should have received your User Name from the Time Warner Cable account representative who assisted you with setting up your account. Your password should have been sent to you at the e-mail address that you provided to the same representative. If you do not know your User Name and Password, contact your local Time Warner Cable provider to obtain one.

3. Click Login. If this is your first time logging into the system you will be prompted to change the temporary password that was e-mailed to you. You will need to select a new password at this time. The password you choose will need to conform to the following standards.

   • Minimum of 8 and Maximum of 20 Characters and Numbers and Special Characters
   • Must contain at least one Capital letter, one Numeric and one Special Character such as $, #, !, &..
Your Login screen should look like the screen shot below. Once you have logged in you will then be taken to the main application screen.

4. The e-mail application screen will be your base from which you will be able to navigate to all sections of the tool. Let’s take a moment to learn the major areas that are common to all screens and sections.

The first section is the ‘Switch Context Area’. This is located in the upper left area of the white portion of the screen. The ‘Switch context to’ is a drop-down menu which is used to select a particular Mail Domain, DNS Zone or VFM account. Once a DNS Zone, Mail Domain or VFM is selected, the interface tool will pre-set variables dependent upon the selection made. You can see this area below highlighted by a red outline and expanded by green highlighting.
5. The next major section is the Bronze Menu Bar. This section allows you to select the editing feature you would like to perform. You will be able to Create, Modify, Delete, List and Logout.

6. The next area is the Blue Menu Bar, found below the Bronze Menu Bar. From here you will select Mail Accounts or DNS Records. It should be noted that the Blue Menu Bar available functions change per Context Area. If you are in a Mail Domain or a VFM, you will be able to work with Accounts. However, if you are in a DNS Zone you will be able to perform work with DNS Records. Below depicts what you should be expecting to see.

7. The final item of interest is the Key Icon located in the right hand side of the blue bar. This key icon will allow the user to modify their password at any time.
3. Working with E-mail Accounts

3.1 Creating E-mail Accounts

8. Login to the DNS and E-mail Administrative Interface tool via a Web browser, as described in Section 2.

9. Use the 'Select context' drop-down menu to select a mail domain.

10. Click Create in the Mail Menu bar (the bronze bar).

11. Click Account in the sub-menu bar (the blue bar). This will open the Create Account screen.

The mail domain field is automatically populated with the domain name previously selected from the drop-down menu.

The system will pre-populate any appropriate fields. In this case the Mail Domain name is already assigned in the 'Mail Domain' field.
12. In the ‘Account’ field enter the name of the account to be created.

13. Enter a password in the ‘Password’ field. Passwords must be a minimum of 4 and a maximum of 16 characters, numbers or special characters.

14. Enter the disk quota you wish to assign to this account in the ‘Disk Quota’ field. The disk quota may be any value up to the maximum space assigned to you when you signed up for the service. If you leave the field empty the system will assign 250mb by default.

15. Click the Create button. You may stop here and submit the account for creation, or you may add an Alias or a Forwarding e-mail address if desired.

The Interface tool will display an ‘Account created’ message:

Account "thomas@acmeglass.com" is created successfully.
3.1.1 Creating E-mail Accounts in Batch Mode

The Batch Creation checkbox may be used to create multiple accounts at one time. Please note when using this feature all accounts created will have the same disk quota size and the same password. Once accounts have been assigned to individual users, the users may change the pre-assigned password via the Webmail interface (Web Mail Reader).

To create batch e-mail accounts at the same time begin as follows:

1. Login to the DNS and E-mail Administrative Interface tool via a Web browser, as described in Section 2.

2. Use the 'Select context' drop-down menu to select a mail domain.

3. Click Create in the Mail Menu bar (the bronze bar).

4. Click Account in the sub-menu bar (the blue bar).

5. Check the 'Batch Creation' checkbox at the bottom of the form.

6. The Batch Create Multiple Accounts form will open. The Mail Domain is pre-populated.
7. Enter the names of the accounts you wish to create in the **Accounts** window. Remember to separate each name with a space (see below for example).

8. Enter the password in the **Password** field.

9. Enter the disk quota to be assigned to each account in the **Disk Quota** field.

10. Click the **Create** button at the bottom of the screen.

The Interface tool will display an ‘Accounts Created’ message.

```
Accounts wendy@acmeglass.com, tgregg@acmeglass.com, tom.smith@acmeglass.com, fred.williams@acmeglass.com are created successfully.
```
3.2 Listing Accounts

To view a complete list of e-mail accounts for a particular mail domain, follow these steps:

1. Login to the DNS and E-mail Administrative Interface tool via a Web browser, as described in Section 2.
2. Use the ‘Select context’ drop-down menu to select a mail domain.
3. Click List in the Mail Menu Bar (the bronze bar).
4. Click Accounts in the sub-menu bar (the blue bar) to open the List Account form.

5. To view a complete list of accounts for the selected mail domain, leave the Account Pattern field blank and check the 'Detailed' checkbox at the bottom of the form.

6. To view a sub-set of the accounts, enter the initial character(s) of the account name and the wildcard character (*) in the Account Pattern field (for example, ‘f*’ displays all accounts beginning with the letter ‘F’) and check the 'Detailed' checkbox at the bottom of the form.

7. Click the List button to display the List Accounts page. To edit any of the accounts listed, just click on the account name in the left column of the page. See section 3.3.1 for details.

<table>
<thead>
<tr>
<th>Account</th>
<th>POP3 mail</th>
<th>Alias Forwarding Status</th>
<th>Delivery AutoReply</th>
<th>Quota Usage (MB)</th>
<th>SMTP</th>
<th>VFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>admin@acme glass.com</td>
<td>admin@acme glass.com</td>
<td>Active</td>
<td>Enable</td>
<td>None</td>
<td>0.05</td>
<td>N</td>
</tr>
<tr>
<td>fred.williams@acme glass.com</td>
<td>fred.williams@acme glass.com</td>
<td>Active</td>
<td>Enable</td>
<td>None</td>
<td>250</td>
<td>N</td>
</tr>
<tr>
<td>tina@acme glass.com</td>
<td>tina@acme glass.com</td>
<td>Active</td>
<td>Enable</td>
<td>None</td>
<td>250</td>
<td>N</td>
</tr>
<tr>
<td>tom.smith@acme glass.com</td>
<td>tom.smith@acme glass.com</td>
<td>Active</td>
<td>Enable</td>
<td>None</td>
<td>250</td>
<td>N</td>
</tr>
<tr>
<td>wendy@acme glass.com</td>
<td>wendy@acme glass.com</td>
<td>Active</td>
<td>Enable</td>
<td>None</td>
<td>250</td>
<td>N</td>
</tr>
</tbody>
</table>
3.3 Modifying Mail Accounts

1. Login to the DNS and E-mail Administrative Interface tool via a Web browser, as described in Section 2.

2. Use the ‘Select context’ drop-down menu to select a mail domain.

3. Click **Modify** in the Mail Menu bar (the bronze bar).

4. Click **Accounts** in the sub-menu bar (the blue bar).

5. Enter the name of the account to be modified in the ‘Account’ field. If you are unsure of the spelling of an account name, use the ‘Lookup’ feature by clicking the Lookup hyperlink next to the ‘Account’ field and follow the Lookup instructions.

6. Click the **Lookup** button at the bottom of the screen to populate the empty fields with the account data:
7. Modify the account as desired. The most common modifications include password and disk quota changes.

8. Click the Modify button to submit and save the changes.

Account "fred.williams@acmeaglass.com" is modified successfully.
3.3.1 Accessing Accounts via the List Accounts Page

An alternative method of accessing the Modify Account form is by clicking an account name in the List Accounts table.

1. Click the name of the account name to be modified.

   ![List Accounts Table]

   An alternative method of accessing the Modify Account form is by clicking an account name in the List Accounts table.

2. You will see the Modify Account form pre-populated with the data for the account you selected. From this point, modifications to the account may be made as described in Section 3.3 above. Screen shots for a sample edit may be seen below.

   ![Modify Account Form]

   From this point, modifications to the account may be made as described in Section 3.3 above. Screen shots for a sample edit may be seen below.
3.4 Delete Mail Accounts

1. Login to the DNS and E-mail Administrative Interface tool via a Web browser, as described in Section 2.

2. Use the ‘Select context’ drop-down menu to select a mail domain.

3. Click **Delete** in the Mail Menu Bar (the bronze bar).

4. Click **Accounts** in the sub-menu bar (the blue bar) to open the Delete Account form.

5. Enter the name of the account to be modified in the ‘Account’ field.
   
   **NOTE:** If you are unsure of the spelling of an account name, use the ‘Lookup’ feature by clicking the Lookup hyperlink next to the ‘Account’ field and follow the Lookup instructions (sees section 3.5).

6. Click the **Delete** button at the bottom of the form to submit the account for deletion.
7. A confirmation dialog box opens. Click the **OK** button to delete the account completely.

![Confirmation Dialog Box]

The interface tool will display an ‘Account Deleted’ message.

![Account Deleted Message]

### 3.5 Accessing Accounts via Lookup

An alternative method of accessing account data is by clicking the Lookup link found on the Modify Account and Delete Account forms.

1. Click the Lookup link located next to the ‘Account’ field.

![List Account Form]

2. The Interface tool will open the List Account form. Enter a partial spelling of the name or account in the ‘Account Pattern’ field, or leave the field blank completely to retrieve all accounts in the mail domain.
3. Check the ‘Detailed’ checkbox to generate a list of accounts.

4. Click the List button to submit your query.

5. The Interface Tool will display a list of accounts satisfying your criteria.

6. Select an account within the list by clicking the account name. The Interface tool will open either the Modify Account form or the Delete Account form, depending on which form you were in when you clicked ‘Lookup.’ The form will be pre-populated with the account data for the account you selected. From this point you may modify or delete the account.
4. Working with DNS Records

Refer to Appendix “A” for detailed explanation of each record type.

4.1 Creating a DNS Record

1. Login to the DNS and E-mail Administrative Interface tool via a Web browser, as described in Section 2.
2. Use the ‘Select context’ drop-down menu to select a DNS zone.
3. Click Create in the Main Menu Bar (the bronze bar).
4. Click DNS Record in the sub-menu bar (the blue bar) to open the Create DNS Record form. Note that the Interface tool has pre-set the Domain Name value based on your selection in Step 2 above.
4.1.1 Create “A” Records

In this example, two “A” records will be created.

1. From the Create DNS Record form, use the radio buttons to select the ‘A Record’ Record Type.

   **Note:** Both the ‘A Record’ and ‘A Record (with PTR)’ selections will create an “A” record, however, ‘A Record (with PTR)’ will create a PTR record that corresponds to the “A” record. In order to use the ‘A Record (with PTR)’ selection you must be using STATIC IP space that has been assigned by your local TWC Division. If you are using Dynamic IP space, you will not be able to use this feature or create PTR records.

2. The first example record will consist of the domain name only, which will resolve to IP address 24.30.10.5. Since there will be no associated host value for this record, we will leave the host field blank. Enter the IP Address in the ‘IP Address’ field.

3. Use the ‘TTL’ (Time to Live) field to set the TTL for this record. The default value is 86400 seconds, or 24 hours. To accept the default value (86,400 seconds), leave the field blank and proceed. To select a new value, determine a value greater than 900 seconds (15 minutes), and enter it into the TTL field.
4. Click the **Create** button to submit the record to be saved.
5. The Interface tool will display a ‘Record Created’ message.

   DNS A record is created successfully.
   (‘Full DNS Query’ can be used to verify the actual record status in DNS server)

**Note:** To view a list of all DNS records for the selected DNS zone, check the ‘Full DNS Query’ radio button at the bottom of the screen.
The screen displays the Create DNS Record form and a complete listing of all records for that Zone. In the example below, the SOA (Define SOA) record is displayed along with one “A” record. As additional records are added, the table at the bottom will expand to reflect all records.

6. In the second example, an “A” record for this domain will have a host value associated with it. The domain www.acmeglass.com points to 24.30.10.5.

7. On the current Create DNS Record form, click the radio button for record type ‘A Record’.

8. Enter ‘www’ into the ‘Host Name’ field.

Note: Do Not enter the domain or Top Level Domain since that is already known; it was previously set using the ‘Select context’ drop-down menu.

9. Enter the IP address in the ‘IP Address’ field.
10. Click the **Create** button at the bottom of the form to submit the record for creation.

The Interface tool will display a ‘Record Created’ message.

![Create DNS Record Interface](image)

**DNS A record is created successfully.**

("Full DNS Query" can be used to verify the actual record status in DNS server)

### 4.1.2 Creating an MX Record

An MX record consists of both an ‘Exchange’ record and an “A” record. The Exchange record should be created first, followed by the necessary “A” record.

For our example the exchange record will be as follows:

- Exchange record = mail.acmeglass.com
- priority = 10
- IP address = 24.30.10.6

1. Starting from a blank Create DNS Record form (see section 4.1), select the ‘MX Record’ radio button. Note that field names on the form change to reflect the naming convention for MX records. The MX record field names are ‘Host Value’, ‘Mail Exchange’, ‘TTL’, and a new field, ‘Priority’. 
2. The host value may be left blank, as it is not needed to create the record. This field is required only when multiple servers are located at different locations, otherwise it should be left blank.

3. In the 'Mail Exchange' field enter the host name of the mail server, in this case 'mail.' Do not enter the domain and top level domain, as these were selected with the 'Search context' drop-down menu.

4. Enter any value in the 'Priority' field, unless the existence of multiple MX records for the domain requires prioritization.

5. Leave the 'TTL' field blank to accept the default value of 86,400 second (24 hours).

6. Click the Create button to submit the record for creation.

The Interface tool will display an 'MX record created' message.
7. Create a corresponding “A” record for this MX record. Refer to section 4.1.1, ‘Creating “A” Records.’

4.1.3 Create a CNAME Record

1. Starting from a blank Create DNS Record form (see section 4.1), select the ‘CNAME’ radio button. Note that field names on the form change to reflect the naming convention for CNAME records. The CNAME record field names are ‘Alias Name’, ‘Canonical Name’, and ‘TTL.’

2. In the Alias field enter the Alias value you want to apply to this record. In this example, the value www2 is entered.

3. In the Canonical Name field, enter the location to which the alias should point. For example, www2.acmeglass.com should point to or be directed to www.acmesiding.com.

4. Click the Create button to submit the record for creation. Below is an example of a properly created form entry prior to submission.
4.1.4 Creating a new PTR Record

A PTR record, also referred to as a Reverse IP record, is an “A” record in reverse. In the case of an “A” record, DNS lists a Fully Qualified Domain such as www.foo.com and points it to an IP address. A PTR record lists an IP address and points it to a Fully Qualified Domain such as www.foo.com.

Unlike domain names, IP space used by TWC is owned by TWC. TWC assigns the customer the right to use certain blocks of space, which are assigned during the account creation process. The customer may choose DNS service providers, including TWC, a third-party DNS service provider, or the customer may manage their own DNS services. IP addresses, however, may only be managed by the owner of the IP space, which is TWC.

In order to enter PTR records into the TWC DNS server, the IP space must be TWC-owned IP space. This means that the IP space is assigned to the customer by TWC for their use only.

1. Login to the DNS and E-mail Administrative Interface tool via a Web browser, as described in Section 2.
2. Use the ‘Select context’ drop-down menu to select a DNS zone.
3. Click Create in the Main Menu Bar (the bronze bar).
4. Click DNS Record in the sub-menu bar (the blue bar) to open the Create DNS Record form.

The Interface tool will display a ‘CNAME record created’ message.

DNS A record is created successfully.
("Full DNS Query" can be used to verify the actual record status in DNS server)
5. Starting from a blank Create DNS Record form, select the ‘PTR’ radio button. Note that field names on the form change to reflect the naming convention for PTR records. The PTR record field names are ‘IP Address’, ‘Host Name’, and ‘TTL.’

6. Enter the IP Address in the IP Address field.

7. Enter the corresponding host name in the Host Name field. In this example, host name ‘mail’ is entered.

8. Click the Create button to submit the record for creation.
In the event you receive an error message similar to the one below, it means that your account has not been assigned a Static IP, so you cannot create PTR records. Contact your local TWC representative for assistance.

![Failed to create DNS record:IP address is neither allowed nor in the range:FOQ1ID02-13](image)

**Note:** The Interface tool will display a ‘PTR record created’ message. To view PTR records you will need to use the List feature (see section 4.2). The PTR record will not appear in the table displayed.

### 4.1.5 Creating a TXT Record

TXT records provide the ability to associate text with a host or other name.

The TXT record can also be used to define the Sender Policy Framework (SPF) information record, which may be used to validate legitimate e-mail sources from a domain. If SPF is used, then it must follow the format designated for SPF usage. The proper SPF format is currently not defined in an RFC (Request For Comment), but is being tested by the user community and has been adopted by some individuals and organizations.

For additional information on working with and the proper formatting of SPF records, refer to the following link: [http://spf.pobox.com/](http://spf.pobox.com/). A TXT record in SPF format is entered exactly the same as any other TXT record, except the SPF format is used in the ‘Value’ field.

1. Login to the DNS and E-mail Administrative Interface tool via a Web browser, as described in Section 2.
2. Use the ‘Select context’ drop-down menu to select a DNS zone.
3. Click **Create** in the Main Menu Bar (the bronze bar).
4. Click **DNS Record** in the sub-menu bar (the blue bar) to open the Create DNS Record form

Starting from a blank Create DNS Record form, select the ‘TXT’ radio button. Note that field names on the form change to reflect the naming convention for TXT records. The TXT record field names are ‘Name’, ‘Value’, and ‘TTL.’

(continued)
5. Enter the formatted SPF record in the Value Field.
6. Click the Create button to submit the record for creation

The Interface tool will display a ‘DNS TXT record created’ message.

If you click again on DNS records you will see your TXT record created at the bottom of the screen.

4.2 List Records

1. Login to the DNS and E-mail Administrative Interface tool, as described in Section 2

2. Use the ‘Select context’ drop-down menu to select a Domain Name/DNS zone.

3. Click List in the Main Menu Bar (the bronze bar).

4. Click DNS Record in the sub-menu bar (the blue bar) to open the List DNS Records form.
5. Check the ‘All’ check box for a complete list of records for this Domain Name/DNS zone. Check marks are automatically placed in all the other checkboxes. To view a specific record type, select the specific record type.

6. Leave the Name field blank.

7. Click the List button to submit your query.

A list of all records is listed within the List DNS records table. From this list, you may also click on any of the records to modify or delete the selected record.

4.3 Modify DNS Records

1. Login to the DNS and E-mail Administrative Interface tool, as described in Section 2.

2. Use the ‘Select context’ drop-down menu to select a DNS zone.

3. Click Modify in the Main Menu Bar (the bronze bar).

4. Click DNS Record in the sub-menu bar (the blue bar). Below is the Modify DNS Record form that will be displayed.
5. Click the ‘Full DNS Query’ radio button at the bottom of the form to display the DNS Record details for the Domain Name/DNS Zone.

6. Select the record to modify and click the hyperlink under the Host column to populate the missing data for the record.
7. Enter the new address into the IP Address field, then click the Modify button at the bottom to submit and save changes.

The Interface tool displays a 'Record modified' message.
8. By clicking on the ‘DNS Record’ link (see above) in the Sub-Menu bar (the blue bar), the Modify screen will appear. The details in the bottom half of the screen should reflect your changes. Below is an example.

4.4 Delete DNS Records

1. Login to the DNS and E-mail Administrative Interface tool, as described in Section 2.

2. Use the ‘Select context’ drop-down menu to select a Domain Name/DNS zone.

3. Click Delete in the Main Menu Bar (the bronze bar).

4. Click DNS Record in the sub-menu bar (the blue bar). Below is Modify DNS Record form that will be displayed.

5. Click the ‘Full DNS Query’ radio button at the bottom of the form to display the DNS Record details for the DNS Zone.
6. Locate the record to delete. Click the check mark on the right side of the record.

The fields will be pre-populated on the Delete DNS Record form. To delete the record, click the Delete button at the bottom of the screen.

*The Interface tool displays a 'Record deleted' message.*

**DNS CNAME record is deleted successfully.**
Appendix A – Frequently Used Terms

CNAME Record

A CNAME record is an alias name for another DNS name. This is created to save the administrator time. CNAME records also save time because reverse lookup only enables one name per IP address. In this case, the most relevant name is used in the reverse lookup record and CNAMEs are used for the rest. (This is not mandatory. “A” records may be used with the most relevant name on the reverse lookup record with no adverse affects.)

Fully Qualified Name (FQN)

“www” or “mail” are not FQNs. www.microsoft.com or ftp.microsoft.com are FQNs. microsoft.com is a domain name, but not necessarily a FQN.

Primary DNS Server

The DNS server maintains the master zone information for a domain. All changes to domain information take place here and are propagated to the secondary servers at the Refresh interval, as specified in the actual zone information file. Primary DNS servers may be primary DNS servers for multiple zones. Primary DNS servers may be secondary DNS servers for other zones.

Record Types

- **A** The most basic DNS address record used for translating a name to an IP address.
- **MX** Mail transfer records for directing mail across the Internet.
- **CNAME** An alias record used for situations where an “A” address is not wanted for a host, but where more than one name will point to the same address.
- **PTR** The opposite of an “A” record, used to translate an IP address to a name.
- **TXT** A simple means for entering common text that you want to convey to someone else. Most commonly used in conjunction with SPF format and for MX records.

Reverse Lookup

The process of obtaining a DNS host name and domain name from an IP address.
Secondary DNS Server

A DNS server that backs up the primary DNS server for a zone. InterNIC/Network Solutions requires that there be at least one server. It is recommended to have more than one, if resources permit. A secondary DNS server may serve as another secondary DNS server for other zones. It may also be a primary DNS server for a different zone than it is secondary. Multiple zones also apply to this model.

Start of Authority (SOA)

Start of Authority is also referred to as an SOA Record. This is the first record in a zone file. It usually reads:

```plaintext
@ IN SOA NS1.mydomain.com. root.mydomain.com. ( 
1996050101 ; Serial [yyyyMMddNN] 
21600 ; Refresh [6h] 
3600 ; Retry [1h] 
691200 ; Expire [8d] 
86400) ; TTL [1d]
```

This designates the server as the Primary DNS server for the zone. Explanations of the numbers are as follows:

- **Serial Number**: The version of the file. It must be incremented every time the file is updated so the secondary knows when to update its files.
- **Refresh**: The amount of time the secondaries will wait before checking to see if it should request a new transfer from the primary.
- **Retry**: The amount of time the secondary will wait before trying to contact the primary again if the primary is not available when the secondary attempts to contact it. This is so that if the primary is not functioning, the secondary does not panic and saturate the network by attempting to contact the primary. It is not a big concern if there is only one secondary, but if there are several, there is a possibility of saturating a network segment while trying to contact a primary.
- **Expire**: The length of time the secondary DNS server will keep the DNS records for a given zone, if it cannot contact the primary.
- **TTL**: Also referred to as a Minimum Time To Latency (TTL). The amount of time records from this zone file will remain in another DNS server’s cache. It is the time before the caching DNS server deletes the record and queries the primary or secondary again for a copy of the record. This occurs so that if DNS record changes, other DNS servers on the Internet will eventually receive the latest version of that record.
Top Level Domains

The Top Level Domains (TLDs) are “com”, “net”, “edu”, “mil”, “int”, etc. There are also Top Level Domains for an individual country. Examples include “ca” (Canada), “de” (Germany), “be” (Belgium), “jp” (Japan), “au” (Australia). These are collectively referred to in DNS as “.” (a period/dot). The dot, “.”, is the absolute top of the domain name hierarchy. In a boot file, the cache record says “cache . cache.dns” (for Bind).

In NT DNS, look under HKLM/System/CurrentControlSet/Services/DNS/Zones, and a key called “.” will be found. This is the equivalent of the boot file and specifies the cache file for Top Level Domains.

ALL top level domains. In cases where the Root server is not authoritative for a domain, (such as Canada, “ca”, or Germany, “de”) the Root server knows where the top level name servers are for that domain and will answer the query as such. The DNS server receiving the query (such as the ISP’s DNS server, or your DNS server) will send the same query to the DNS server for that TLD and receive an answer back from that DNS server. This adds an extra step that does not apply to the domains that the Root-Servers .net handle.