SOFT
Simple Obfuscated File Transfer

Ministry of Agriculture and Lands
Ministry of Environment

Corporate Services Division
Information Management Branch

August 2010

What is SOFT?

- A way to transfer large files using email, by uploading the file to a secure server then emailing its location

- Example uses:
  - Transfer large files to a client or contractor
  - Receive contract deliverables
  - Send information to another government worker
  - Build a site specific to a particular project that allows public or contractors to submit large data files

What SOFT Does

- Provides simple, browser-based file transfer between Government and Public
- Requires no authentication
- Provides a level of assurance and confidentiality similar to email
- Hides file locations (must have the exact file URL to download)
- Compresses files into ZIP archives for faster download
- Supports custom business metadata in plain text and XML
- Allows business areas to build their own web form front ends
- Automatically deletes outdated files

Types of Government ↔ Public Transfer

- SOFT does **not** allow file transfer from public to public.

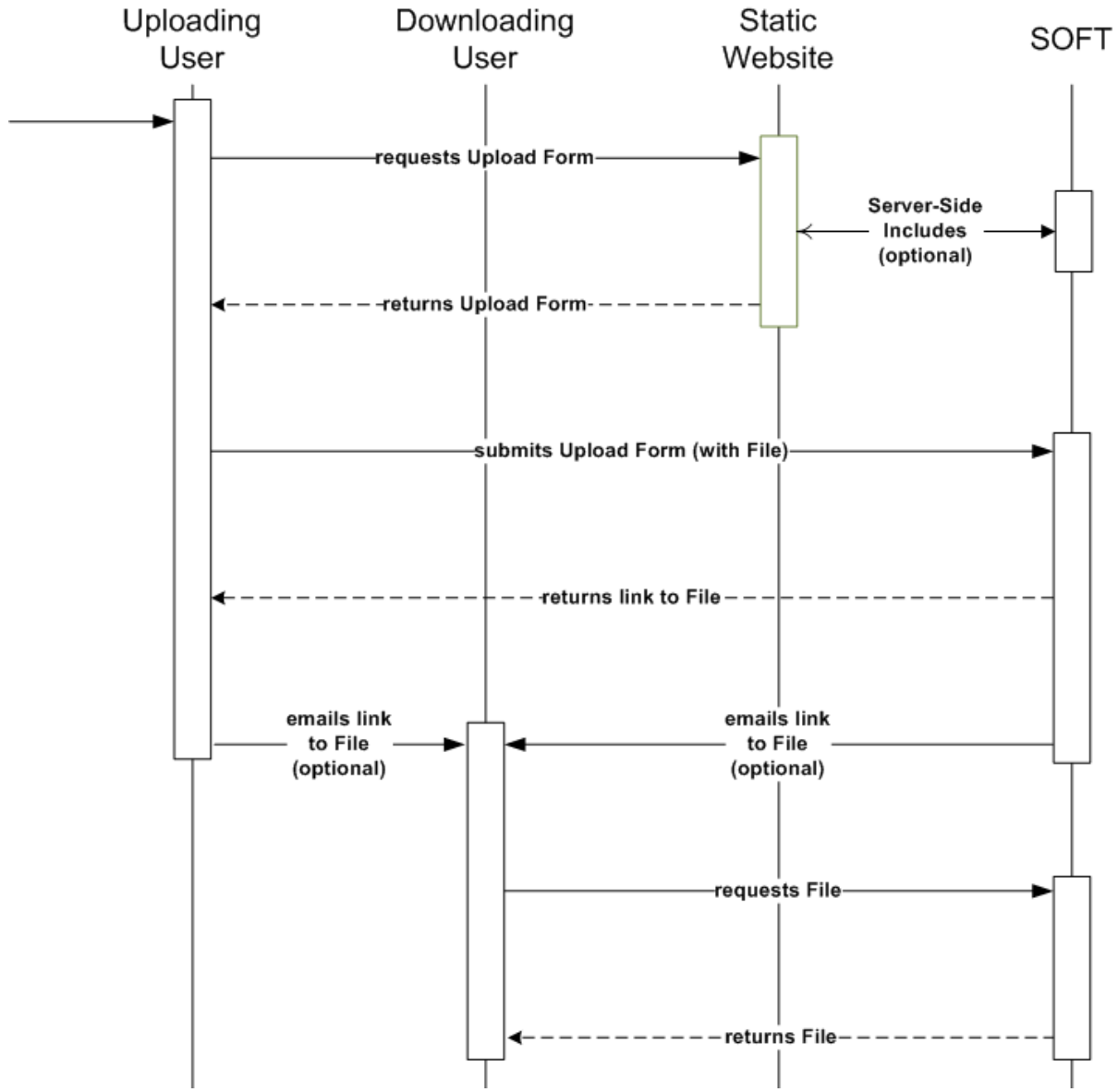| SOFT can transfer:	To BC Government	To Public
From BC Government	YES	YES
From Public	YES	**NEVER**

- "BC Government" is determined by network location.

What SOFT Does Not Do

- Transfer multiple files (multiple files must be zipped together before uploading to SOFT server)
- Transfer files larger than 2GB
- Encrypt contents of files in transit or at rest
- Recognize remote IDIR users as Government (unless VPN is used)
- Allow web forms to customize the "succeeded/upload complete" message
- Log who uploads/downloads
- Manage disk quotas
- Scan files for viruses

Comparison: SOFT, Email and FTP

	SOFT	Email attachments	FTP (ENV/MAL)
Software required	Browser	Email client or Browser (e.g. Spring)	FTP client or Browser (limited)
Number of files	1 (Many if zipped)	Many	Many
Maximum file size	2 GB	Within Gov 100MB To public ~5MB	Tens of GBs
Username/password required	No	Yes	No
Files accessible to	Recipient only	Recipient only	Anyone
Recipient notified by email	Yes	Yes	No
Use as Gov from outside network	Needs VPN	Yes	Needs VPN
Files encrypted	No	No	No
Files compressed	Yes	No	No
Files virus scanned	No	Yes	No
Collects business metadata	Yes	Limited	No
Storage cost ($/GB/month)	$1.50	$60.00	$1.50
Old files automatically deleted	Yes	No	Yes

SOFT Sequence Diagram

Calling SOFT from a Web Form

Web page

Web page

Other System

Web page

SOFT parameters in <form> section

POST

SOFT

Web page

Web page

Web page

Web page
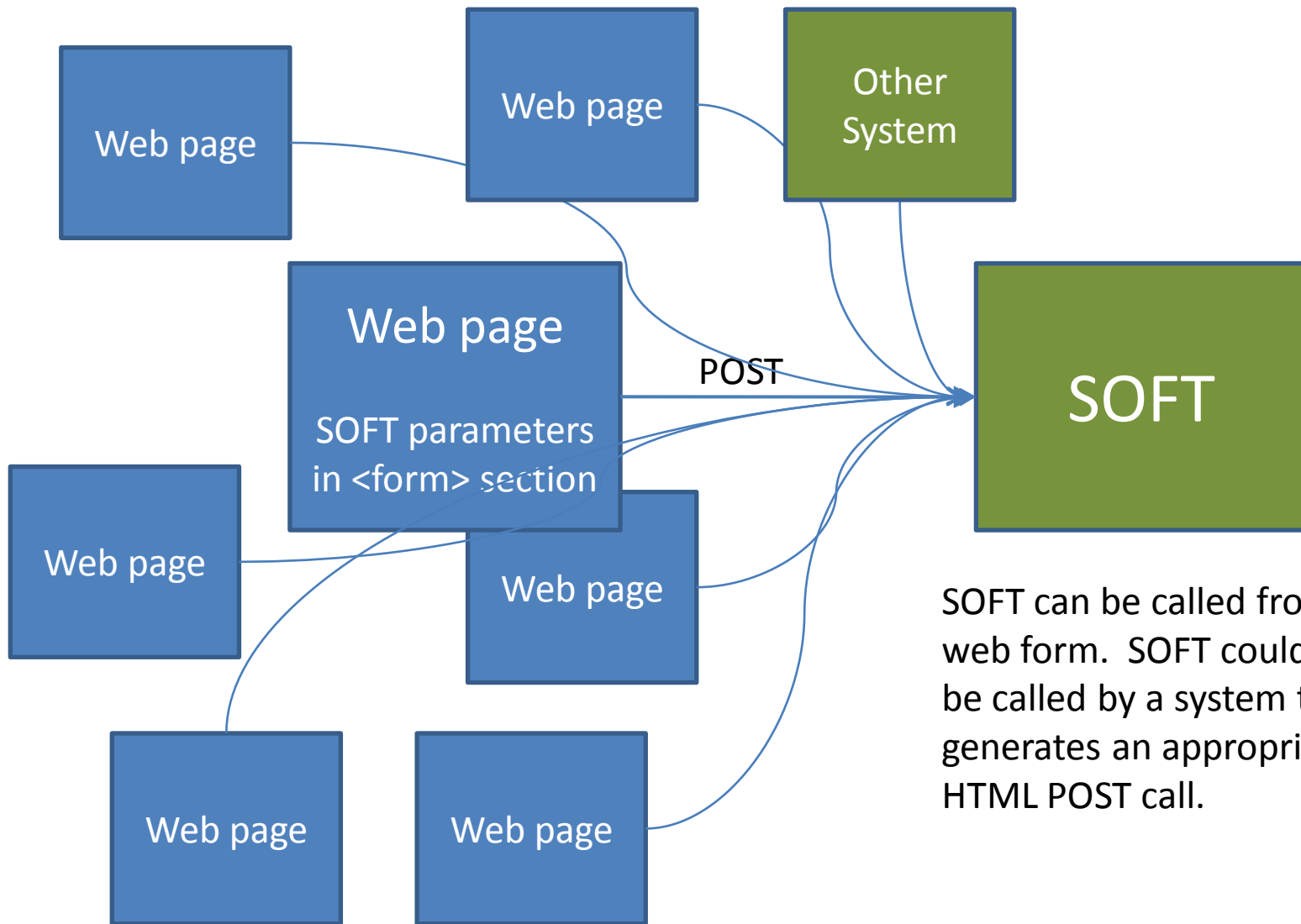
SOFT can be called from any web form. SOFT could also be called by a system that generates an appropriate HTML POST call.

What SOFT expects from the Web Form

SOFT parameters are called using a POST method:

- **_soft_filename** (mandatory): the file to upload.
- **_soft_mail_sendto** (optional): a valid email address
- **_soft_mail_subject** (optional): a custom subject line to use when sending the email
- **_soft_keep_days** (optional): requested number of days to retain the file before deletion; default is 7 days
- **_soft_force_gov** (optional): forces the upload to be accessible only from within BC Gov, even if it was uploaded from inside BC Gov; default is accessible anywhere
- **_soft_form_owner** (recommended): contact information for web form to allow SOFT maintenance notifications
- **Anything else**: copied into metadata files (Text/XML)

Example: A Very Simple Upload Page

```
<html><head></head>
  <body>
    <form action="/perl/soft/ul.pl" method="post"
          enctype="multipart/form-data">
      File to Upload:
      <input type="file" name="_soft_filename" /><br>
      <input type="submit" name="_soft_submit"
          value="Upload File">
    </form>
  </body>
</html>
```
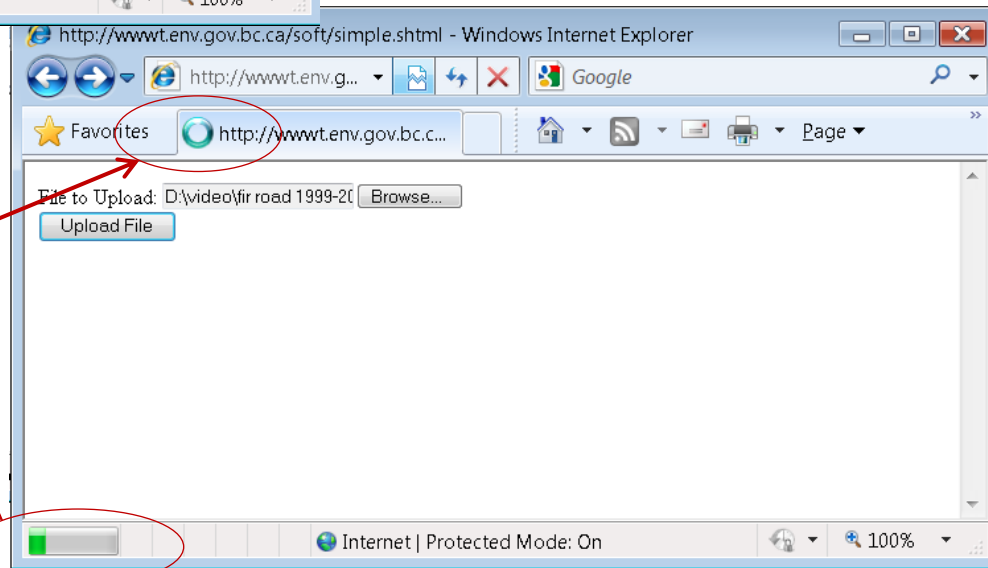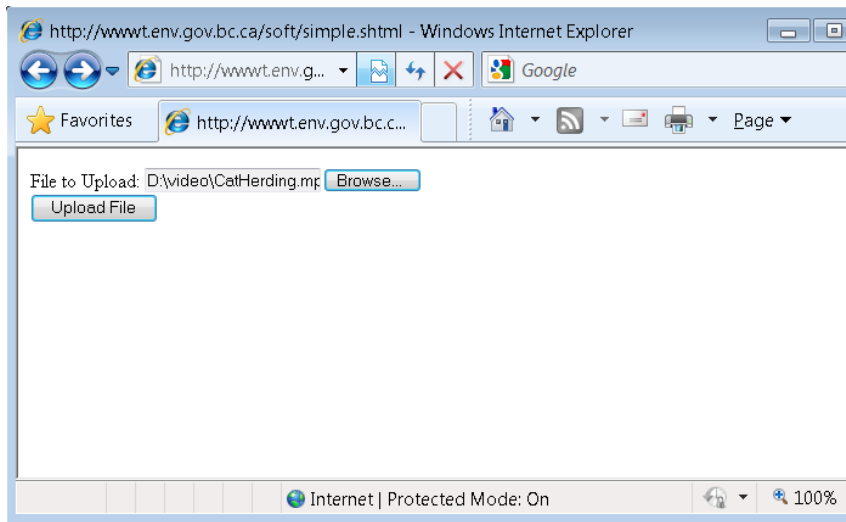
On a page this simple, these indicators are the only way the user can tell an upload is taking place.

Example: General-purpose upload

Upload is underway

This page uses JavaScript to show a custom message and animation while the upload is underway.

Upload is complete

User emails the URL & is done
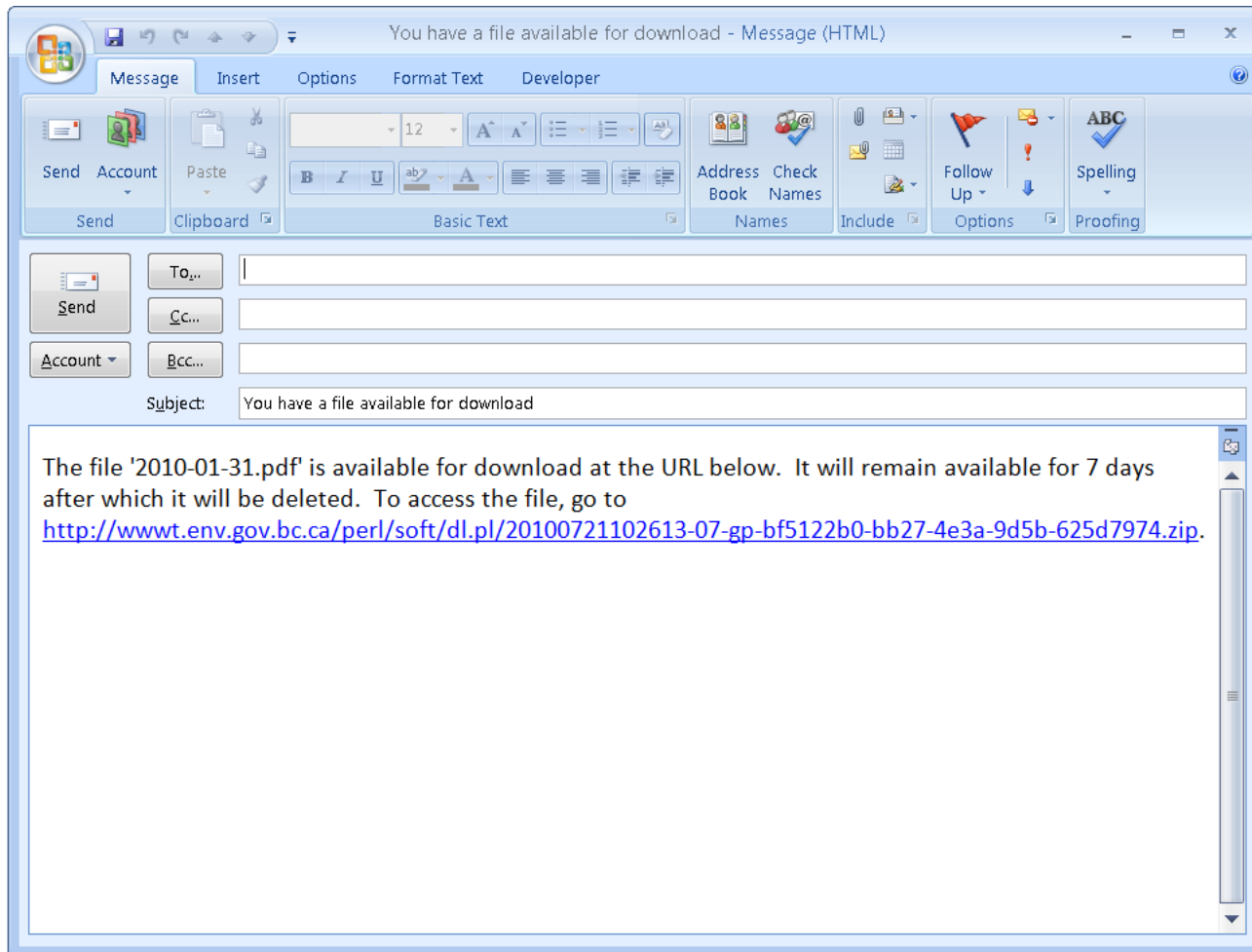
Example: Project submission form

External party enters data on Submission page

Detail from HTML file

```
<p>Project Name: <input name=projname></p>
<p>Project Number: <input name=projnum></p>
<p>Primary Contractor:
    <input name=contractor></p>
<p>Date Completed: <input name=date></p>
<input type="hidden" name="Project_Type"
    value="Mesic Snurf Detection Project" />
<input type="hidden" name="_soft_keep_days"
    value="4" />
<input type="hidden" name=_soft_mail_sendto
value="todd.glover@gov.bc.ca" />
<input type="hidden" name=_soft_mail_subject
    value="Mesic Project Submitted"/>
<input type="hidden" name=_soft_force_gov
    value="1" />
```

External party completes upload

SOFT has already sent a notification email

Ministry staff receives notification email

Mesic Project Submitted - Message (Plain Text)

Message   Developer

Reply | Reply to All | Forward | IM | Call | Delete | Move to Folder | Create Rule | Other Actions | Block Sender | Safe Lists | Not Junk | Categorize | Follow Up | Mark as Unread | Find | Send to OneNote

Respond | Actions | Junk E-mail | Options | OneNote

From: file-transfer-no-reply@gov.bc.ca   Sent: Wed 2010-07-21 10:41
To: Glover, Todd CSD:EX
Cc:
Subject: Mesic Project Submitted

The file 'ewp.zip' is available for download at the URL below. It will remain available for 4 days after which it will be deleted. To access the file, go to http://www.env.gov.bc.ca/perl/soft/dl.pl/20100721104127-04-gg-1b22a44a-a935-41ce-8dd5-9baa2a50.zip. It is only available within the government network.

Clicks link to start download

Staff now has the submitted project

Caution: Maximum Upload File Size

- There is a maximum 2GB total for all information transferred from browser to system (including fields, headers and the file)
- A technology limitation (browsers & web server), not SOFT
- Different browsers handle it differently
- In most cases, SOFT never gets control
  → not pretty

- Looked at IE8, FF3, Chrome

- Browser market share (June 2010):
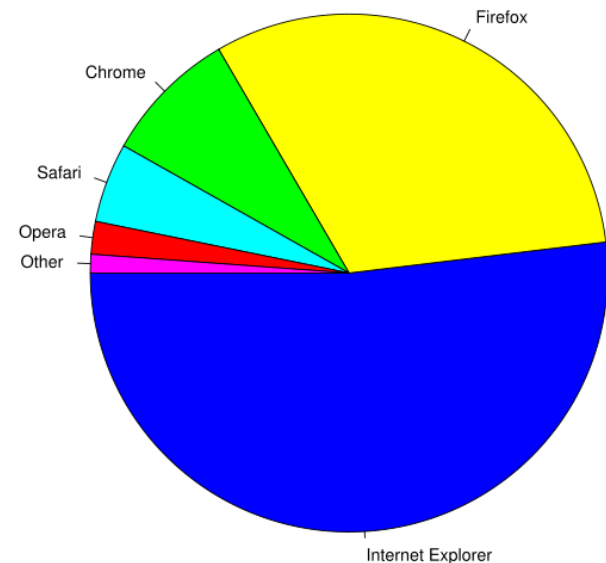
Internet Explorer 8 with >2GB Upload

- Upload looks normal

- Stops after approx 2 minutes

- Shows IE error "Internet Explorer cannot display the webpage"
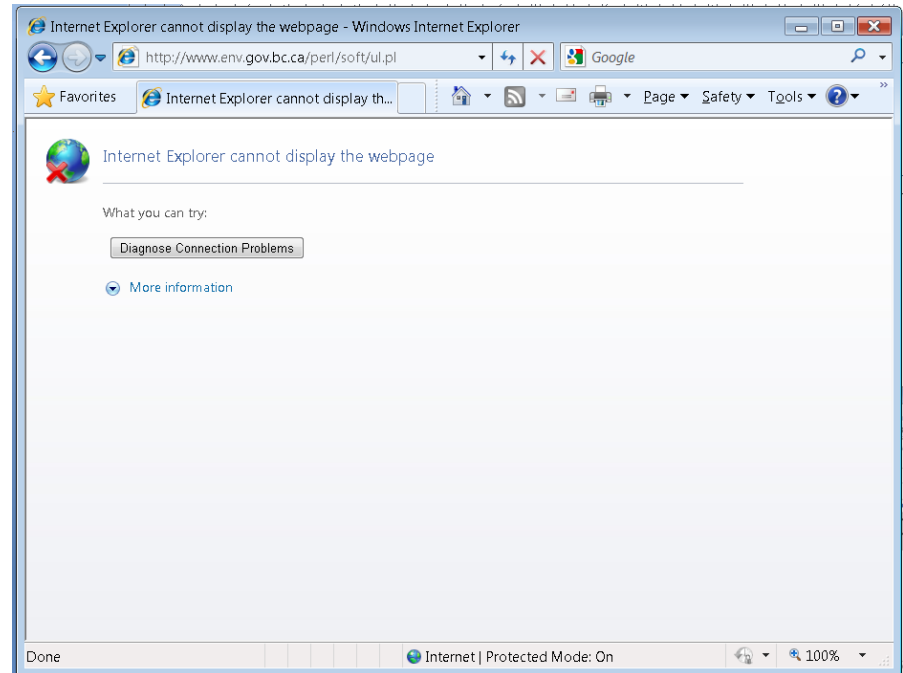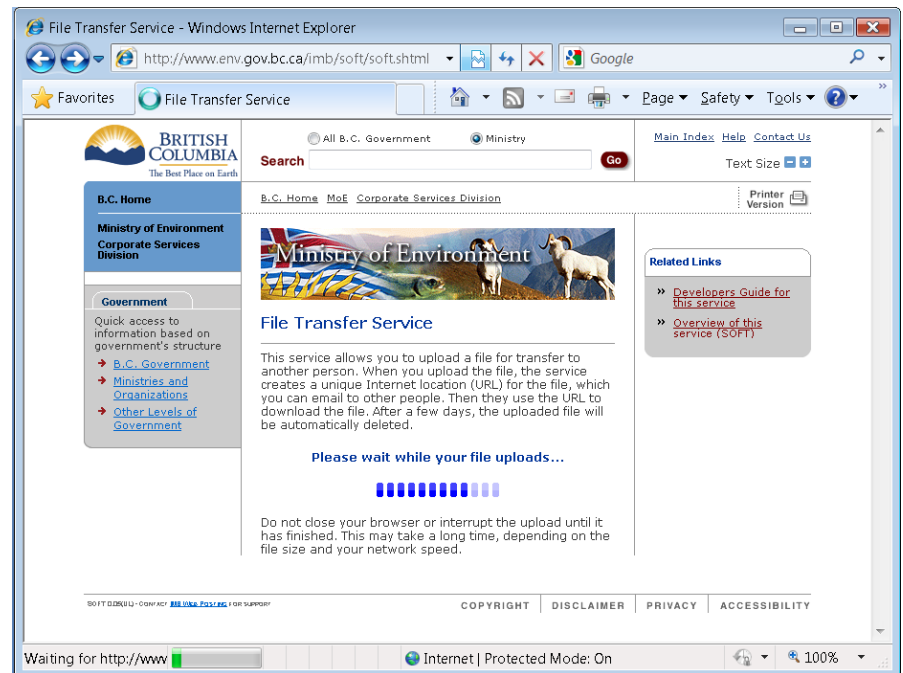
Firefox 3 with >2GB upload

- Upload looks normal
- Clues that nothing is happening:
  - No "Loading..." on tab
  - "Done" on status bar
- No error condition is ever detected
- Animation (if present) continues forever
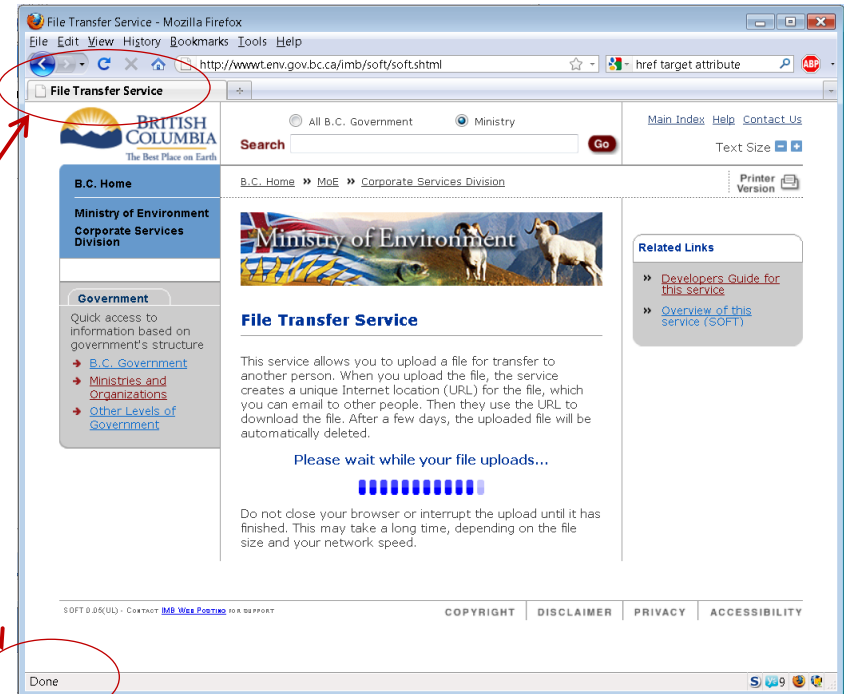
Google Chrome with >2GB upload

- Upload looks normal

- Shows %progress in lower left corner

- Reaches 100% in approx 10 minutes

- Ends with SOFT error page "CGI request entity too large"
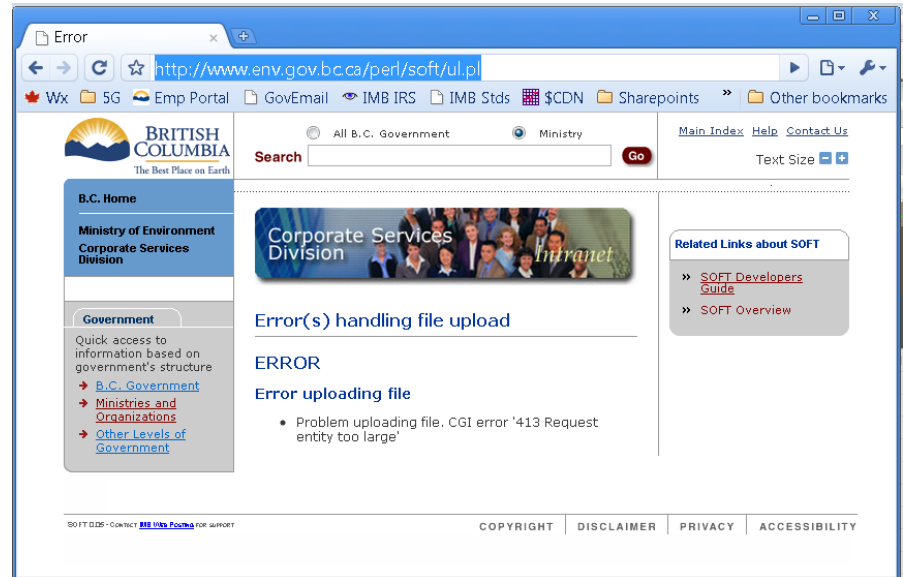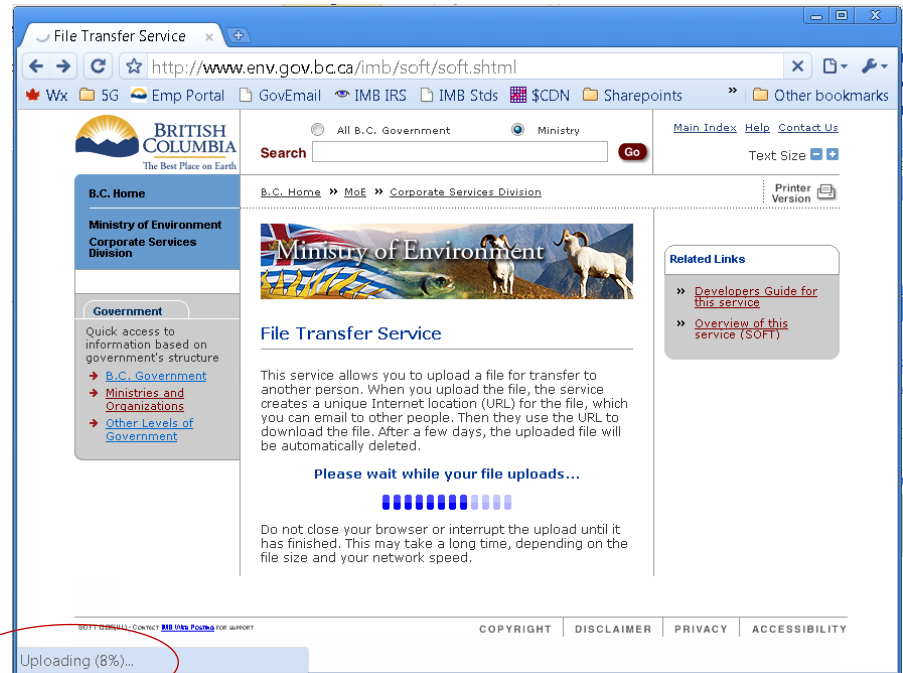
Questions?

Please direct questions and comments to
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