



Election Management System (EMS)

Media Feed Technical Document

For the General Election

Revision 8.2

Commercial in Confidence

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REVISION HISTORY

VER	DATE	WHO	DESCRIPTION
1.1	17/6/1999	P Waite	Changed the output formats to include CIR data. This affected the format of the election.dat, eNN.dat and pNN.dat files.
1.2	30/7/1999	P Waite	Increased the number of digits for the 'Total polling places' and 'Polling places counted' fields of the Electorate Results files (eNN.dat) to cope with Maori electorates. These have changed from format '99' to '9999'.
2.0	9/7/2001	J.Glover	Removed references to 1996 elections to make the document more generic.
3.0	16/5/2002	P Waite	Updated for 2002 Election. Removed references to Maps, since we won't be doing these this time around. Also updated some small diffs in data. Changes to data feed: <ul style="list-style-type: none"> Candidate (candidate.dat) – added new field "List number". Election statistics (election.dat) – added new field "Minimal Votes". Polling place results (pNN.dat) – added new field "Vote total" to the PPRES repeating record. This is the total number of ballot papers received.
3.1	20/6/2002	P Waite	Changed Polling Place static data file format: moved Electorate Number to be just following the PP Number, and location field is therefore now last. Also extended the location field to be 100 chars in width to avoid truncation.
3.2	15/7/2002	P Waite	Fixed wrongly specified format in old .dat media feed where 'Total votes' field was given as 4-chars wide. This has been amended to 6-chars wide. NB: The actual media feed itself has always been generating the 6-char format, the only change is to this specification document, not the code.
4.0	24/5/2005	Catalyst	New sub-section added in the Technical Appendix to provide information on the URLs where the Election Night media feed results will reside.
4.02	28/2/2008	CEO	Removed references to 2005
5.0	15/9/2008	CEO	General updates to reflect 2008 setup.
6.0	10/12/2010	P Waite	In the ASCII media feed definition we have removed references to CIR (referenda) which are now handled differently. Legacy content which is no longer pertinent removed. Included the new XML media feed definition.
6.1	30/3/2011	EC	General updates to reflect change of name from CEO to EC and to provide background on the referendum on the voting system.
6.2	12/7/2011	P Waite	Added <total_all_parties> element to the statistics.xml metrics file. Added <registered> element to the party records in parties.xml.
6.3	7/4/2014	PWaite	Removed references to the old (obsolete) .dat media feed. Re-phrased content to use .xml examples where appropriate.
6.4	14/4/2014	EC	Minor updates to location of servers and number of results being entered.
6.5	18/8/2014	EC	Corrected references to polling places in text and in XML files and replaced with advance voting places and voting places. Also added the 'vp_id' field to the schema for advance voting places and voting places.
7.0	12/6/2017	PWaite	Version for 2017 General Election. Changed URL for media access. Added explanation for votingplace file-naming schema.
8.0	14/10/2017	PWaite	Fixes to generation of votingplaces.xml and voting place results files, such that vp_id is in both, and lines up, and the electorate + vp numbers provided in the results files are useful.
8.1	28/5/2020	EC	Remove references to previous elections
8.2	12/08/2020	EC	Merge Documents and added branding change

1 Scope

The election results are captured on the Electoral Commission's Election Management System (EMS).

The data is reformatted and made available to external organisations and for public viewing.

This document describes the data and access requirements to successfully acquire election night results online

.

- The files which will be made available.
- The data formats within the files.
- The URLs from which to access the results data.

2 Overview

The Returning Officers in the Electorates will be entering advance voting place and voting place results from 7:00pm on Election night.

These results are entered into the Election Management System (EMS) using computers connected remotely.

The data is captured, checked and reformatted into a number of different forms that can be accessed from different sources.

The formats range from advance voting and voting place details to nationwide results.

This data is made available to Media Organisations and simultaneously sent through to the Web for general public viewing.

There are four different levels at which this data is presented:

1. Static table information for electorates, candidates, parties, advance voting places and voting places.
2. Overall Status reports.
3. Electorate results data.
4. Advance voting place and voting place results data.

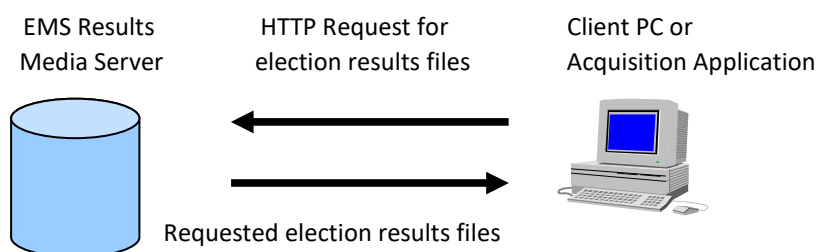
This allows organisations to choose the required detail to suit their own requirements.

3 The Media Feed

3.1 OVERVIEW

3.1.1 The Delivery Mechanism

The Delivery Mechanism is the way in which data is delivered to the recipients on the night. A high-level view of this mechanism is shown below:

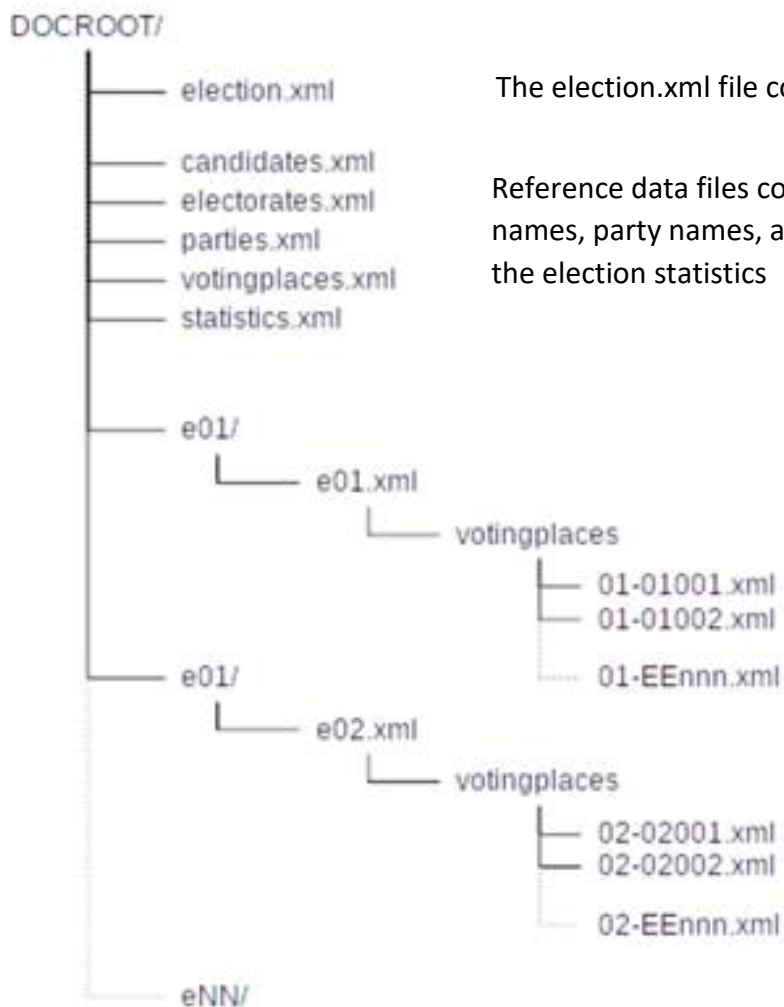


The mechanism is simple HTTP over TCP/IP, and will require no authentication for the duration of election night. See the last section of this document for the URL(s) to use.

3.1.2 Media Feed Format

The media feed format is in the form of a set of XML files accessible over HTTP from a webserver. Data is presented as XML which can be validated via publicly available DTD. Full details of the XML files, their organisation, and their content are provided in the next section.

3.2 XML MEDIA FEED



The election.xml file contains a summary of the election status

Reference data files containing the candidate names, electorate names, party names, advance voting and voting place details, and the election statistics

Voting place XML filename schema:

The filename for voting place files is formatted as **NN-EEEnnn.xml** where NN is the number of the electorate the votes are for, EE is the number of the electorate the voting place is physically located in, and nnn is the number of the voting place within that physical electorate

Electorate results are stored under the appropriate 'eNN/' directory according to electorate number in a file 'eNN.xml'

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3.2.1 Detailed File Formats

The XML media feed data files are all generated in the UTF-8 character set.

Date timestamps are in ISO 8601 format with no timezone eg: “**2010-10-29T18:07:32**”.

List of files in the XML media feed (relative to DOCROOT):

- election.xml
- candidates.xml
- electorates.xml
- parties.xml
- votingplaces.xml
- statistics.xml
- eNN/eNN.xml
- eNN/votingplaces/NN-EEenn.xml

The internal structure of the files is described in the following sections.

3.2.1.1 Election Statistics and Overall Status

File naming format: **election.xml**

Location: **DOCROOT**

Description: **Contains overall election results status.**

```
<election updated="2010-11-19T20:05:55">
  <statistics>
    <total_voting_places_counted>6306</total_voting_places_counted>
    <percent_voting_places_counted> 99.8</percent_voting_places_counted>
    <total_votes_cast>2103859</total_votes_cast>
    <percent_votes_cast> 70.3</percent_votes_cast>
    <total_electorates_final>71</total_electorates_final>
    <percent_electorates_final>100.0</percent_electorates_final>
    <total_minimal_votes>1261</total_minimal_votes>
    <total_special_votes>208001</total_special_votes>
    <total_registered_parties>19</total_registered_parties>
  </statistics>
  <partystatus>
    <party p_no="1">
      <votes>77842</votes>
      <percent_votes> 3.7</percent_votes>
      <party_seats>4</party_seats>
      <candidate_seats>1</candidate_seats>
      <total_seats>5</total_seats>
    </party>

    <party p_no="2">
      <votes>1779</votes>
      <percent_votes> 0.1</percent_votes>
      <party_seats>0</party_seats>
      <candidate_seats>0</candidate_seats>
      <total_seats>0</total_seats>
    </party>

    <party p_no="4">
      <votes>7589</votes>
      <percent_votes> 0.4</percent_votes>
      <party_seats>0</party_seats>
      <candidate_seats>0</candidate_seats>
      <total_seats>0</total_seats>
    </party>

    (for all registered parties)

  </partystatus>
</election>
```

DTD: <https://electionresults.govt.nz/assets/dtd/results-election-1.1.dtd>

3.2.1.2 Candidates

File naming format: **candidates.xml**

Location: DOCROOT

Description: Contains list of all candidates contesting the election, with links to their party (unless independent), and the electorate in which they are standing.

```
<candidates>
```

```
  <candidate c_no="1">
    <candidate_name>NATHAN, Marama</candidate_name>
    <electorate>66</electorate>
    <party>0</party>
    <list_no>0</list_no>
  </candidate>

  <candidate c_no="117">
    <candidate_name>BOYCE, Ben (Ben)</candidate_name>
    <electorate>0</electorate>
    <party>78</party>
    <list_no>2</list_no>
  </candidate>
```

(for all candidates)

```
</candidates>
```

DTD: <https://electionresults.govt.nz/assets/dtd/refdata-candidates-1.1.dtd>

3.2.1.3 Electorates

File naming format: **electorates.xml**

Location: DOCROOT Description:

Contains list of all electorates.

```
<electorates>

  <electorate e_no="1">
    <electorate_name>Auckland Central</electorate_name>
  </electorate>

  <electorate e_no="2">
    <electorate_name>Bay of Plenty</electorate_name>
  </electorate>

  (for all electorates)

</electorates>
```

DTD: <https://electionresults.govt.nz/assets/dtd/refdata-electorates-1.1.dtd>

3.2.1.4 Parties

File naming format: **parties.xml**

Location: DOCROOT

Description: Contains list of all parties (registered and nonregistered).

```
<parties>
  <party p_no="1">
    <abbrev>ACT</abbrev>
    <short_name>ACT New Zealand</short_name>
    <party_name>ACT New Zealand</party_name>
    <registered>yes</registered>
  </party>

  <party p_no="2">
    <abbrev>ALL</abbrev>
    <short_name>Alliance</short_name>
    <party_name>Alliance</party_name>
    <registered>yes</registered>
  </party>

  <party p_no="4">
    <abbrev>EG</abbrev>
    <short_name>Example Party</short_name>
    <party_name>An Example Party</party_name>
    <registered>no</registered>
  </party>

  (for all parties)

</parties>
```

DTD: <https://electionresults.govt.nz/assets/dtd/refdata-parties-1.1.dtd>

3.2.1.5 Voting Places

File naming format: **votingplaces.xml**

Location: DOCROOT

Description: Contains a list of all advance voting places and voting places country-wide, and the link to the electorate. The `vp_id` will match the attribute of the same name in the voting place results files. Attribute `vp_e_no` is the number of the electorate the voting place is physically located in.

```
<votingplaces>
  <votingplace vp_id="1" vp_e_no="24">
    <vp_address>
      Grey Lynn Primary School, 44 Surrey Crescent, Grey Lynn
    </vp_address>
    <vp_lat>-36.86297676</vp_lat>
    <vp_lon>174.735383</vp_lon>
  </votingplace>
  <votingplace vp_id="2" vp_e_no="1">
    <vp_address>
      Marist School, 82 Kelmarna Avenue, Herne Bay
    </vp_address>
    <vp_lat>-36.851248</vp_lat>
    <vp_lon>174.7355594</vp_lon>
  </votingplace>

  (for all advance voting places and voting places)
</votingplaces>
```

DTD: <https://electionresults.govt.nz/assets/dtd/refdata-votingplaces-1.1.dtd>

3.2.1.6 Election Metrics

File naming format: **statistics.xml**

Location: **DOCROOT**

Description: Contains useful election metrics which are static in nature.

```
<statistics updated="2010-11-19T20:05:46">
  <total_registered_parties>19</total_registered_parties>
  <total_all_parties>67</total_all_parties>
  <total_electorates>71</total_electorates>
  <total_candidates>682</total_candidates>
  <total_voting_places>6320</total_voting_places>
  <total_electors>2990759</total_electors>
</statistics>
```

DTD: <https://electionresults.govt.nz/assets/dtd/refdata-statistics-1.1.dtd>

3.2.1.7 Electorate result

File naming format: **eNN.xml**
 (where NN is the number of the electorate:
 e01.xml, e02.xml etc.)

Location: **DOCROOT/eNN**

Description: Contains the summary of the electorate results to date. NOTE: This file does not exist until at least one voting place result has been submitted for the electorate.

```
<electorate e_no="1" final="true" updated="2010-11-19T20:05:55">
  <statistics>
    <total_voting_places>43</total_voting_places>
    <total_voting_places_counted>41</total_voting_places_counted>
    <percent_voting_places_counted> 95.3</percent_voting_places_counted>
    <total_votes_cast>28185</total_votes_cast>
    <percent_votes_cast> 63.6</percent_votes_cast>
    <total_party_informals>84</total_party_informals>
    <total_candidate_informals>231</total_candidate_informals>
    <total_registered_parties>19</total_registered_parties>
    <total_candidates>13</total_candidates>
  </statistics>
  <partyvotes>
    <party p_no="1">
      <votes>1211</votes>
    </party>
    <party p_no="2">
      <votes>5</votes>
    </party>
    (for all registered parties)
  </partyvotes>
  <candidatevotes>
    <candidate c_no="118">
      <votes>3695</votes>
    </candidate>
    <candidate c_no="178">
      <votes>99</votes>
    </candidate>
    (for all candidates)
  </candidatevotes>
</electorate>
```

DTD: <https://electionresults.govt.nz/assets/dtd/results-electorate-1.1.dtd>

3.2.1.8 Voting place result

File naming format: **NN-EEnnn.xml**

(where NN is the number of the electorate the results are for, EE is the number of the electorate the voting place is physically located in, and nnn is the number of the voting place within that physical electorate)

NOTE: This file does not exist until at least one voting place result has been submitted for the electorate.

Location: **DOCROOT/eNN/votingplaces/**

Description: Contains the advance voting place and voting place results to date.

- Attribute `vp_id` matches the same unique attribute in `votingplaces.xml`.
- Attribute `vp_e_no` is the number of the electorate the voting place is physically located in.
- Attribute `e_no` is the number of the electorate the results are for.
- Attribute `vp_no` is the number of this voting place within the electorate.

```
<votingplace vp_id="4" vp_e_no="1" e_no="1" vp_no="98" updated="2010-11-19T20:05:03">
  <time_received>2008-11-19T20:04:31</time_received>
  <statistics>
    <total_issued_ballot_papers>1988</total_issued_ballot_papers>
    <total_party_informals>2</total_party_informals>
    <total_candidate_informals>19</total_candidate_informals>
  </statistics>
  <partyvotes>
    <party p_no="1">
      <votes>88</votes>
    </party>
    <party p_no="2">
      <votes>0</votes>
    </party>
    (for all registered parties)
  </partyvotes>
  <candidatevotes>
    <candidate c_no="118">
      <votes>210</votes>
    </candidate>
    <candidate c_no="178">
      <votes>14</votes>
    </candidate>
    (for all candidates)
  </candidatevotes>
</votingplace>
```

DTD: <https://electionresults.govt.nz/assets/dtd/results-votingplace-1.1.dtd>

4 Results Acquisition Algorithm

A simple method by which a client process can acquire election results changes as they become available is suggested here in the form of a high-level logical algorithm.

In this discussion, we ignore the static data files (candidate, parties, etc). We assume the client application will read this data at some time convenient to it, such as once-only at start-up, or via a manually keyed menu-option. Obviously this data *must* be read before any meaning can be attached to the content of the results files.

This approach involves reading the timestamp of the **election.xml** file until a timestamp change is detected, indicating that results have come in. Subsequent checks on the electorate results file **eNN.xml** would also use the local file timestamp.

While **election.xml** not changed – sleep awhile.

If **election.xml** changed then:

Process the **election.xml** file as required.

For each changed **eNN** / **eNN.xml** :

- Process the new electorate results data, **eNN.xml**
- If processing at Voting Place level, process the equivalent voting places data for the electorate, **eNN/NN-EEenn.xml**.

Loop next.

end.

The above algorithm would sit in an endless loop, and encapsulates the simple approach needed to process incoming results.

It should also be noted that the electorate results files, **eNN.xml**, are not guaranteed to exist. They are only copied from the server when at least one advance voting place or voting place result has been submitted for the electorate. Until that time they will not exist, either on the server. Application code must therefore deal with this case.

5 Summary

The Election Results Media Feed is presented as a set of XML files.

Media organisations are expected to retrieve these media feed files using HTTP over TCP, either by an application making HTTP requests, or by using a standard web-browser.

The election results data itself is presented as a directory hierarchy of data files. This methodology should suit everyone interested in receiving results in a timely manner on election night.

6 Server Access

6.1 MEDIA SERVERS

For the Election Night feed there will be a single URL for media to access results:

<http://media.election.net.nz/xml/>

This URL will be live from 7.00pm onwards on Election Night.

6.2 FIRST FALL-BACK OPTION

Should the above location become unavailable, the fall-back option for media data will be in a same sub-directory of the public website at the following URL:

<http://electionresults.govt.nz/xml/>

6.3 CLOUD OPTION

Should the first fall-back option become unavailable, the next fall-back option for media data will be in a same sub-directory of the public website at the following URL:

<http://dr.electionresults.govt.nz/xml/>