

Status of SAPP in Met Éireann

Rónán Darcy & Eoin Whelan

Met Éireann

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SAPP

- what is it?
- how does it work?
- why do I want it?

Experiences in Met Éireann

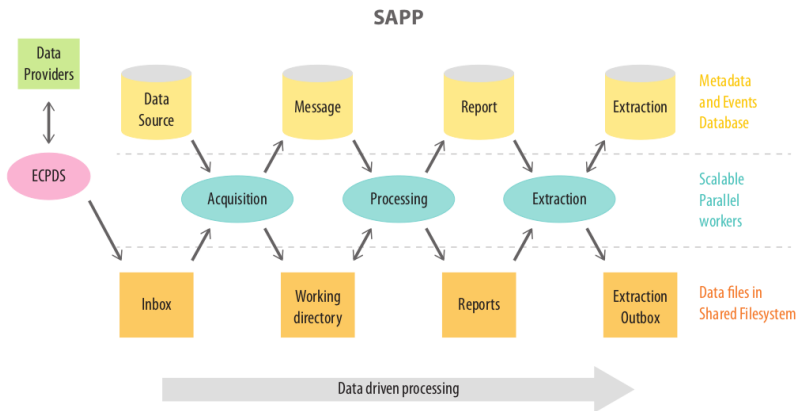
- customisation
- NWP testing
- future plans

Examples

- web interface
- map
- data tracker
- extractions

SAPP—what is it?

Scalable **A**cquisition and **P**re-**P**rocessing System, developed by ECMWF
 Observations → BUFR



SAPP—how does it work?

- SAPP provided as a virtual machine
- A few python scripts and a database
 - `acq_scanner.py`: acquire and store GTS messages
 - `proc_scanner.py`: process messages by DEQC
 - `ext_sched.py`: extract reports for data assimilation
 - MySQL database: message/report meta-data
- Django web interface



SAPP—why do I want it?

It works!

SAPP—why do I want it?

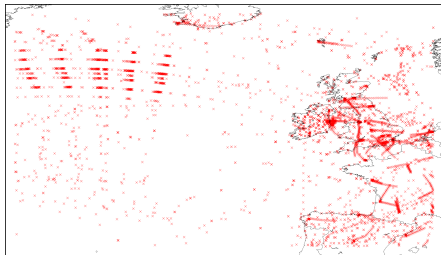
Met Éireann currently uses Automatic Data Extraction (ADE) system:

- became operational in 1995
- written in Fortran 77
- one long main (30,000 lines!)—adding new observations difficult
- not compatible with newer observation formats—important for NWP

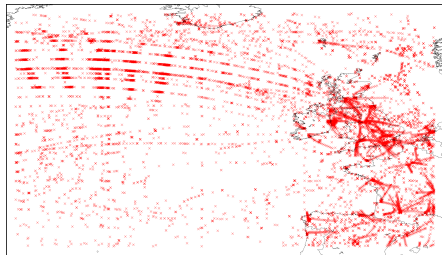
SAPP advantages:

- provided as virtual machine, ~~no setup~~ minimal setup required
- scalable with load balancing (obs processed as soon as they arrive)
- written in modern coding languages (python, SQL, Django)
- graphical monitoring through ecFlow and web interface
- ECMWF provide limited support through optional programme

- installation of ftp server
- extraction frequency changed to hourly from default 6 hours
- custom extraction windows depending on streams
- spatial restriction from global to limited area
- custom streams
 - sc (short-cutoff)—45 minutes (for IREPS)
 - nc (now-casting)—20 minutes (for future use...)
 - da (full global)—6 hours (for everything we miss)

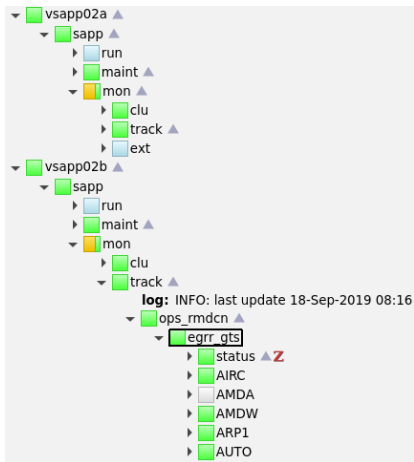


(a) ADE extraction

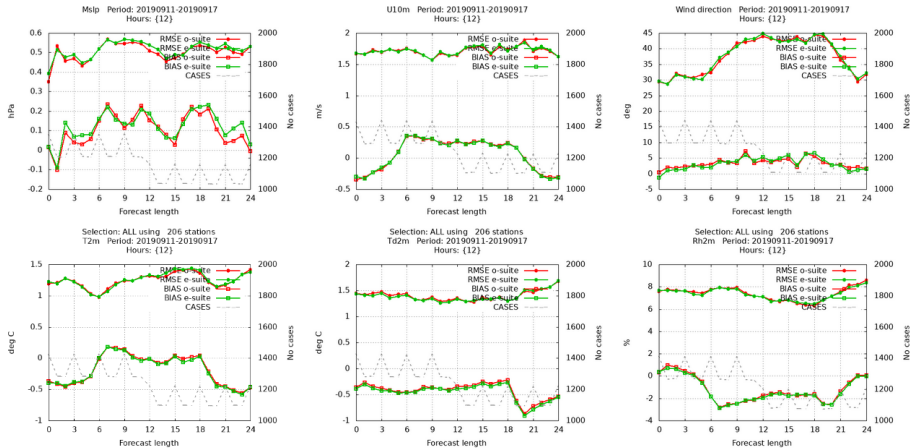


(b) SAPP extraction

- Two virtual machines running in parallel for over three months
- Very reliable (so far...)
- Sending BUFR files to cca/ccb on ECMWF in real time for testing

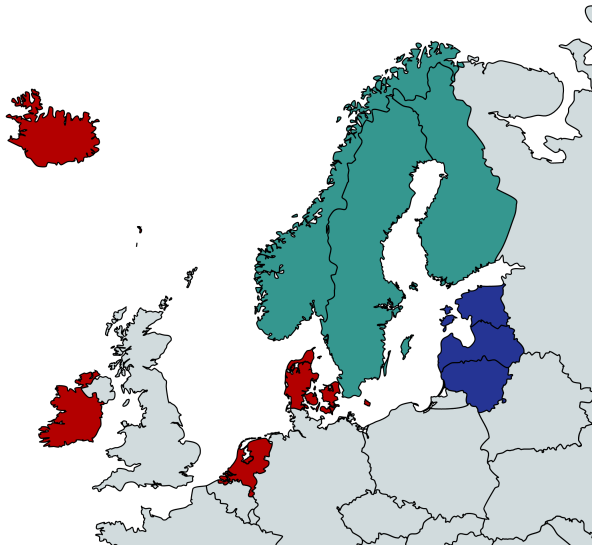


e-suite in pseudo-operational mode, 3 hour cycling, LL=24,3,3,3



- Plans to replace ADE with SAPP imminently (ADE will continue to run as a 'hot backup')
- Add non-conventional obs streams (satellite, LIDAR etc.)
- Add Irish roadside/climate stations
- Investigate viability for use in UWC-West...

- MetCoOp/UWC-East
- UWC-East
- UWC-West



vsapp02a web tools

Main

Config DB

[Configure vsapp02a \(ie datasource_deqc_deqc_route_extraction tables\)](#)

Supervisor

[vsapp02a process manager](#)

[vsapp02a system monitor](#)

Proc Monitor

[Proc: data tracker \(acq->proc->ext\)](#)

[Proc: data availability \(incl. GTS and Station metadata\)](#)

[Proc: Yesterday's 24h processing data volumes](#)

[Proc: last 24h processing stats](#)

[Proc: last 2hrs proc stats \(details\)](#)

[Proc: 24hrs BUFR templates proc status](#)

[Proc: deqc history \(first/last proc\)](#)

Acq Monitor

[Acq: last 24h acq data volumes](#)

[Acq: datasource no data check](#)

[Acq: datasource inbox file counts](#)

[Acq: incoming BUFR templates tracking](#)

Charts

Timeliness charts/maps

[Timeliness \(replate-ingdate\) for data processed 'shift' days ago between 'hh1' and 'hh2' hours \(parameters: deqc_stype_orig_id_shift_usedate\)](#)

[Timeliness history: daily count of processed reports and min,avg,max delays \(parameters: deqc_stype_orig_id_datasource_from_date_to_date\)](#)

[Proc: 00Z eqrr BSSH stations timeliness \(color coded\)](#)

Volumes/counts/subsets charts

[Proc: vday acq/proc timeline \(ie BSSH\)](#)

[Proc: vday proc volumes in KB](#)

[Proc: vday proc subsets by datatype \(source=deqcsubtype\)](#)

[Acq: acq stats history \(eq eqrr_gts\)](#)

[Proc: Data volumes history \(eq eqrr BSSH\)](#)

[Proc: Data volumes history \(eq metop A = satid 4\)](#)

Extraction analysis

[DA vs DCDA Extractions history \(parameters: deqc_stype_orig_id_circle_from_date_to_date\)](#)

[Message_Report_Extraction daily count stats](#)

[DC12 Extraction dupl. filter report](#)

[TEST] Coverage maps

[\[TEST\] last 10 mins of processed data \(tres<1h\) on map](#)

[TAC2BUFR: BSSH Stations \(deqc_region_block_date\)](#)

Extra

Other

[Adm: sql/chart test](#)

[Adm: dlang actions changelog](#)

[Proc: msg processing monitor \(incl. GTS\)](#)

[Proc: on demand 06h msg processing stats](#)

[Proc: on demand 24h report stats by deqc subtype/replate](#)

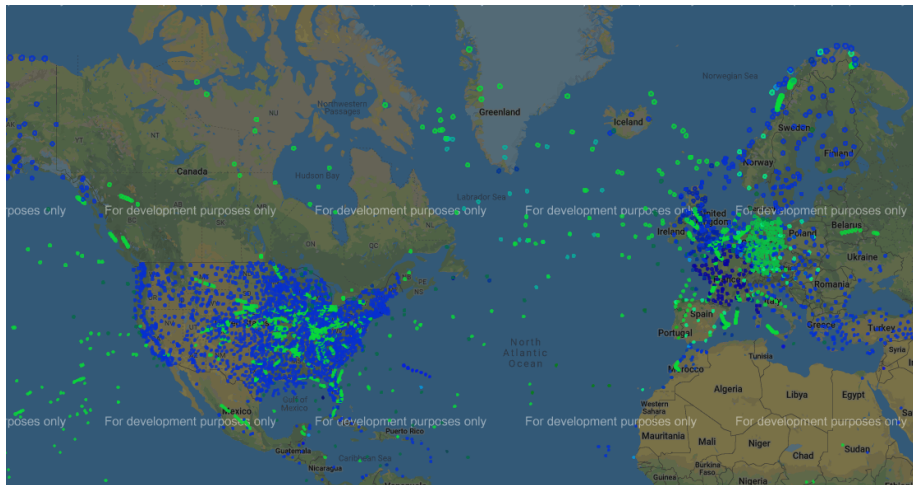
WMO Station list monitoring

[TAC2BUFR monitor](#)

[stations' lat lon changelog](#)

[stations not found in WMO catalogue](#)

Examples—map



SAPP Data tracker

Nrecs:
 Status:
 Deqc:
 Rstype:
 Orig id:
 Date type:
 Date itr:
 From date:
 To date:

Show entries Search:

deqc	taaai	cccc	bbb	status	workdir	datasource	mfname	msize	msgdate	ingdate	mtype	mstype	mid
AIRC	UDAS02	BABJ	NNN	compl	20190918GI_NmV	egrr_gts	EMTN.20190918090201	479	2019-09-18 08:54:00	2019-09-18 09:02:16	0	0	13619510
AIRC	UDAS02	BABJ	NNN	compl	20190918GI_NmV	egrr_gts	EMTN.20190918090201	479	2019-09-18 08:54:00	2019-09-18 09:02:16	0	0	13619510
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Select extraction to change

ADD EXTRACTION +

61 results (1476 total)

Action: 0 of 61 selected

<input type="checkbox"/>	ID	ACTIVE	EXT FAMILY	EXT ITEM	SEQ	DEQC	STYPE	ORIG ID	PP	DATASOURCE
<input type="checkbox"/>	3618	✔	MS1	BUFR0001	7	BUY	181	0	1	
<input type="checkbox"/>	3614	✔	MS1	BUFR0001	39	BSS	178	0	1	-
<input type="checkbox"/>	3613	✔	MS1	BUFR0001	7	BUQ	182	0	1	
<input type="checkbox"/>	3612	✔	MS1	BUFR0001	7	BUQ	181	0	1	
<input type="checkbox"/>	3533	✔	MS1	BUFR0001	26	B06	96	0	1	-
<input type="checkbox"/>	3528	✔	MS1	BUFR0001	41	BTE	109	0	1	-
<input type="checkbox"/>	3516	✔	MS1	BUFR0001	40	BSS	180	0	1	-
<input type="checkbox"/>	3515	✔	MS1	BUFR0001	38	BSS	176	0	1	-
<input type="checkbox"/>	3514	✔	MS1	BUFR0001	37	BSS	172	0	1	-

FILTER

By pp

- All
- 0
- 1
- 2
- 3
- 4

By ext family

- All
- DA1
- DC1
- GRIB
- MACC
- MS1
- OCEA

SAPP Optional Programme

A couple of years ago, some Member and Co-operating States declared an interest in installing SAPP in their own operational processing environments. Following an initial trial phase, in December 2018 the ECMWF Council approved the Optional Programme supporting the provision of SAPP to participating states. This means only the Member and Co-operating States that have chosen to participate in the Optional Programme will be provided with SAPP user support, including any workshops or online documentation.