SK Supernova alert on GCN Notice

- Since April 2021, SK supernova alert is now published on GCN (The Gamma-ray Coordinates Network) with the machine-readable format, too.
- An alert will be automatically published within some minutes from the detection of a neutrino burst by SK if the signal is significantly large.
  A bit lower significance signal generates an alert after expert check (<~ 1 hour)
- Almost 100% detection efficiency for core-collapse supernoves upto SMC. The typical error of SN direction is a few degree for SN in our galaxy.
- The notice (SK_SN) can be received with the same framework as other GCN notices; GRB, GW and high energy neturino alerts. A dummy (test) alert is published for test every month (on 1st day of the month).
- For more details about SK_SN Notice, refer to https://gcn.gsfc.nasa.gov/sk_sn.html

An example of SK_SN Test Notice (1 per month)
Distributed with binary and VOEevent formats

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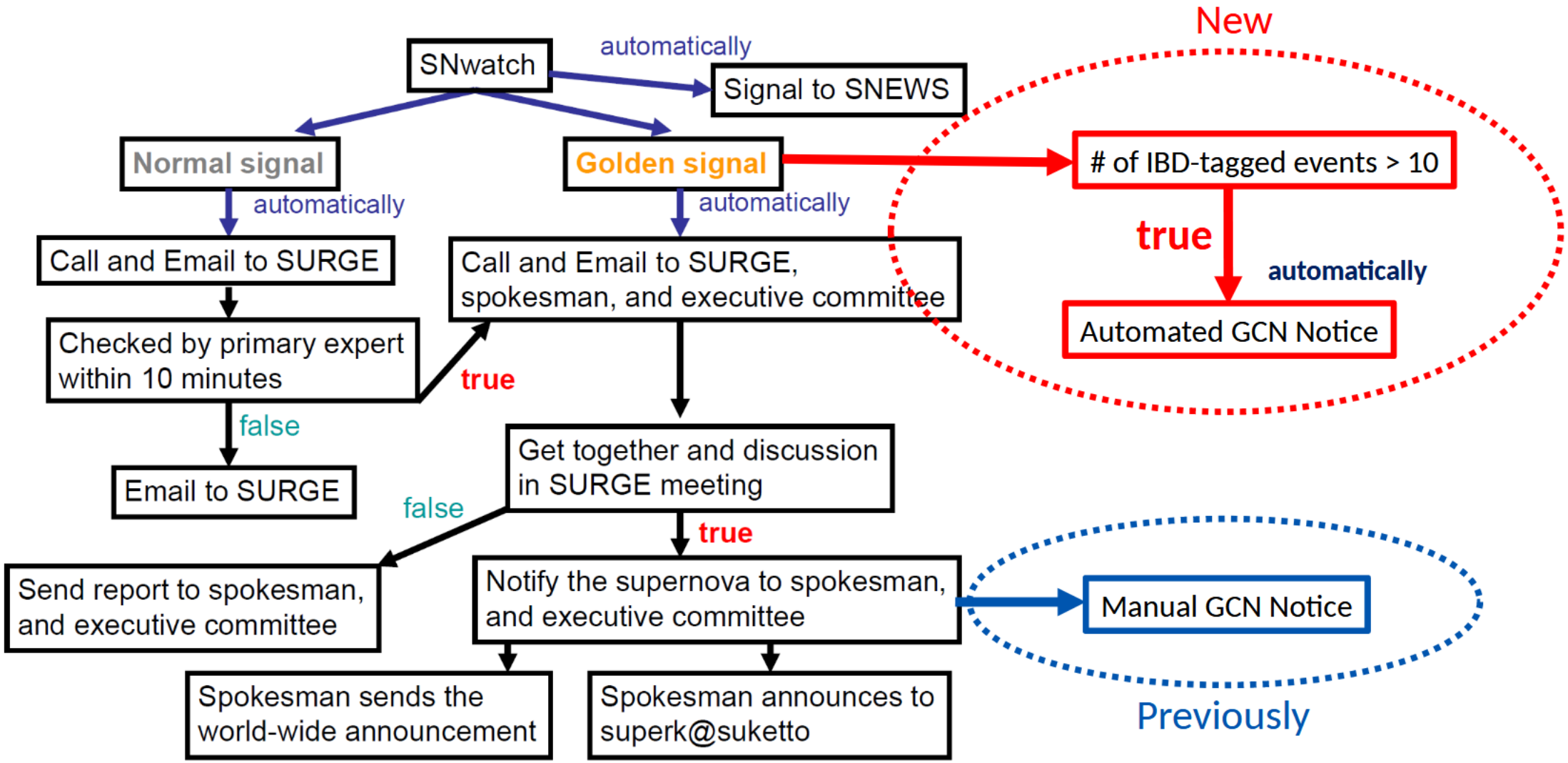
////////////////////////////////////////////////////////////////////////
TITLE:          GCN/SK_SN NOTICE
NOTICE_DATE:    Mon 01 Nov 21 00:00:14 UT
NOTICE_TYPE:    SK_SN  TEST
TRIGGER_NUMBER:  SK_SN  10030
SRC_RA:         254.4000d {+16h 57m 36s} (J2000),
                254.6087d {+16h 58m 26s} (current),
                253.9223d {+16h 55m 41s} (1950)
SRC_DEC:        +31.2600d {+31d 15' 36"} (J2000),
                +31.2275d {+31d 13' 39"} (current),
                +31.3360d {+31d 20' 10"} (1950)
SRC_ERROR68:    0.64 [deg radius, stat-only, 68% containment]
SRC_ERROR90:    0.91 [deg radius, stat-only, 90% containment]
SRC_ERROR95:    1.04 [deg radius, stat-only, 95% containment]
DISCOVERY_DATE:  19518 TJD;  304 DOY;  21/10/31 (yy/mm/dd)
DISCOVERY_TIME:  82816 SOD {23:00:16.74} UT
N_EVENTS:       64124   (Number of detected neutrino events)
ENERGY_LIMIT:   7.00 [MeV]  (Minimum energy of the neutrinos)
DURATION:       10.0 [sec]  (Collection duration of the neutrinos)
DISTANCE:       2.16 - 2.95 [kpc]  (low - high as SN1987A like SNe)
COMMENTS:       The position error is statistical only, there is no systematic added.
COMMENTS:       All numbers are preliminary.
COMMENTS:
COMMENTS:       NOTE: This is a TEST Notice.
COMMENTS:
```

SNWatch flow chart



SNWatch resolution