

# Improving Communication of APS Operations Information Using Social Networking Tools (e.g. TWITTER)

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# User Communication at the APS

- User Communication Mechanisms are not dealt with consistently:
  - Mostly done via email and email lists:
    - Autoinfo – hits APS people but not resident users
    - Xray\_ops – Mostly detailed messages from MCR
    - Aps\_resident\_users – list automatically updated from floor coordinator database. Includes all identified resident users.
    - Aps\_notify – email list to send beam up and beam down information.
  - <http://www.aps.anl.gov/Facility/Status/> does offer some web based notification
- The underlying technology is email lists. Works ok, but lists have grown up over time. Also, people who are on multiple lists can get duplicate messages.
- Result: While local people can navigate this (eventually), transient users don't always know where to go.
- All of these channels effectively deal with GLOBAL events. However, what is relevant to the user is
  - **“What is happening on MY beamline?”**



# Using Social Networking Tools

- A Perfect Storm?
  - Smartphone penetration in the US continues to grow.
  - QR Code use in the US seems to be increasing especially as a marketing tool.
  - Use of social networking tools is continuing to rise (Twitter, FaceBook, LinkedIn) and obtain traction
    - e.g. LinkedIn IPO
- Graduate Students are a significant fraction of our user community.
- Question: Can these effects be leveraged to improve the quality and granularity of communications and start to bring things together?
  - Answer: Possibly. We have been experimenting with an EPICS/Channel Access see ( <http://www.aps.anl.gov/epics> ) and ( <http://en.wikipedia.org/wiki/EPICS> ) ) to TWITTER application which sends information to individual Twitter feeds regarding events that prevent and enable opening permission to local beamline shutters.



# EPICS To Twitter.COM Interface

- Two Standalone applications are used consisting of
  - Soft IOC (Input Output Controller)
    - Used to create custom process variables (PVs) using calc records etc... so complex functions can be triggered (e.g. timeout functions, conditional triggers) This simplifies the python app and provides a place to store tweets in stringout records.
  - Python application
    - Reads two xml files.
      - One file contains the PV's, trigger conditions and tweets. Tweets can be stored in stringout records.
      - Second file contains the access Oauth access codes for Twitter.
    - Uses Matt Newville's EPICS to Python interface  
<http://cars9.uchicago.edu/software/python/pyepics3/index.html>
      - Application makes heavy use of Matt's alarm method.
    - Uses Joshua Roesslein's "Tweepy" A Python to twitter api interface:  
<https://github.com/tweepy/tweepy>
    - App monitors PVs and then sends out tweets to individual beamline channels.  
@APS\_01BM, @APS\_01ID .... @APS\_NOTIFY  
e.g. see [http://twitter.com/APS\\_NOTIFY](http://twitter.com/APS_NOTIFY)  
[http://twitter.com/APS\\_01BM](http://twitter.com/APS_01BM) to [http://twitter.com/APS\\_34BM](http://twitter.com/APS_34BM)  
[http://twitter.com/APS\\_01ID](http://twitter.com/APS_01ID) to [http://twitter.com/APS\\_34ID](http://twitter.com/APS_34ID)

Soft IOC and Python App are run in two separate GNU "screen" sessions under Linux

<http://www.gnu.org/software/screen>



twitter Search Have an account? Sign in

**APS Notification**  
 @APS\_Notify Lemont, Illinois  
 These tweets alert subscribers to major events that may happen during operations at the Advanced Photon Source. These events include loss of stored beam, etc...  
<http://www.aps.anl.gov>

+ Follow Text follow APS\_Notify to 40404 in the United States

Tweets Favorites Following Followers Lists

APS\_Notify APS Notification  
 \*\*NO BEAM\*\* at 04/27/11 00:00:04  
 27 Apr

APS\_Notify APS Notification  
 Beam Available at 04/20/11 08:00:07 101 mA 57 hr  
 20 Apr

APS\_Notify APS Notification  
 \*\*NO BEAM\*\* at 04/19/11 12:40:20  
 19 Apr

APS\_Notify APS Notification  
 Beam Available at 04/19/11 12:28:20 50 mA 87 hr  
 19 Apr

APS\_Notify APS Notification  
 \*\*NO BEAM\*\* at 04/19/11 08:00:08  
 19 Apr

APS\_Notify APS Notification  
 Beam Available at 04/18/11 03:04:02 101 mA 57 hr  
 16 Apr

APS\_Notify APS Notification  
 \*\*NO BEAM\*\* at 04/16/11 01:55:32 Problem: Under Investigation  
 16 Apr

APS\_Notify APS Notification  
 Beam Available at 04/13/11 08:00:10 101 mA 59 hr  
 13 Apr

Follow APS Notification on Twitter  
 Don't miss any updates from APS Notification. Sign up today and follow your interests!  
 Sign up & follow APS Notification »

About @APS\_Notify  
 177 Tweets 0 Following 39 Followers 0 Listed

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 Media Developers Resources © 2011 Twitter

**Messages sent to this channel are related to global storage ring status.**

Done



**APS\_14ID**  
 @APS\_14ID Lemont, Illinois  
 Status messages concerning 14ID at the Advanced Photon Source (@advancedphoton), Argonne National Laboratory (@argonne).  
<http://www.aps.anl.gov/Beamlines/>

+ Follow    Text follow APS\_14ID to 40404 in the United States

Tweets    Favorites    Following    Followers    Lists

**APS\_14ID** @APS\_14ID  
 14ID Shutter has CLOSED between the ring and beamline. This message is sent a maximum of one time in 10 minutes. Thu May 26 09:13:57 2011  
 31 minutes ago

**APS\_14ID** @APS\_14ID  
 14ID Shutter has OPENED between the ring and beamline. This message is sent a maximum of one time in 10 minutes. Thu May 26 09:12:37 2011  
 33 minutes ago

**APS\_14ID** @APS\_14ID  
 14ID FE equipment permit system is PREVENTING shutter opening. Wed May 25 16:06:36 2011  
 17 hours ago

**APS\_14ID** @APS\_14ID  
 14ID BL equipment permit system is PREVENTING shutter opening. Wed May 25 16:06:36 2011  
 17 hours ago

**APS\_14ID** @APS\_14ID  
 14ID: LN2 Keep Full B Valve CLOSED. Mon May 23 06:14:00 2011  
 23 May

**APS\_14ID** @APS\_14ID  
 14ID: LN2 Drop Valve for Sector 14 OPENED. Mon May 23 06:13:59 2011

Follow APS\_14ID on Twitter  
 Don't miss any updates from APS\_14ID. Sign up today and follow your interests!  
 Sign up & follow APS\_14ID »

About @APS\_14ID

|        |           |           |        |
|--------|-----------|-----------|--------|
| 1,999  | 0         | 10        | 0      |
| Tweets | Following | Followers | Listed |

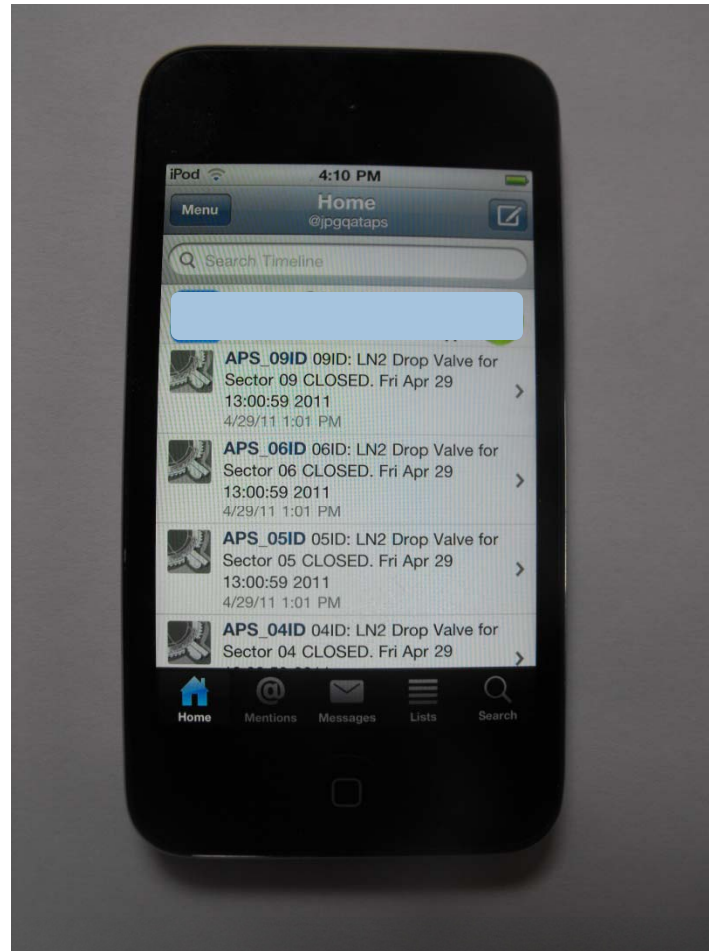
About Help Blog Mobile Status Jobs Terms Privacy Advertisers Businesses  
 Media Developers Resources © 2011 Twitter

**Currently messages to beamline Channels include include:**

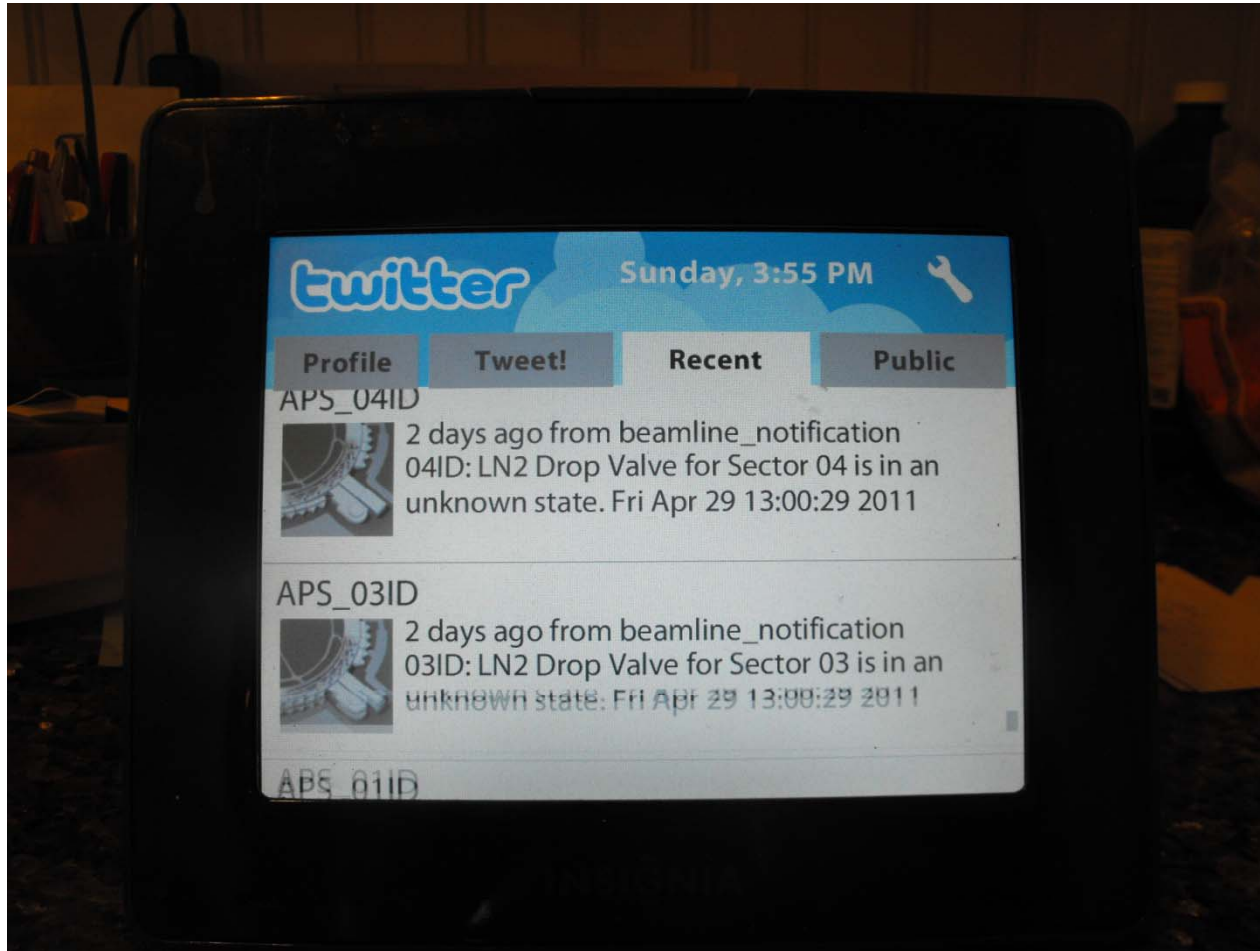
- Changes in Equipment Protection Status**
- Changes in Front End Shutter Status**
- Changes in Liquid Nitrogen System.**



In addition to SMS messaging, TWITTER smart phone apps can be used to keep track of status:



TWITTER apps on other custom devices (e.g. wireless internet displays using chumby.com technology) can also be made into displays.







Scan with your cellphone to  
**FOLLOW APS\_NOTIFY**  
on TWITTER.COM



Scan with your cellphone to  
**LEAVE APS\_NOTIFY**  
on TWITTER.COM

Twitter offers a method to follow and “leave” channels using SMS. In the US, messages are sent to 40404.

Codes can be built with high levels of error correction. This allows for a portion of the code to be obscured (e.g. with a target or sign) and still have a valid code.



Scan with your cellphone to  
**FOLLOW APS\_05ID**  
on TWITTER.COM



Scan with your cellphone to  
**LEAVE APS\_05ID**  
on TWITTER.COM



# Useful Links and Acknowledgement

## ■ Links

- <http://en.wikipedia.org/wiki/EPICS>
- <http://www.aps.anl.gov/epics/>
- <http://www.twitter.com/>
- <http://www.denso-wave.com/qrcode/aboutqr-e.html>
  - Note: The term QR code itself is a registered trademark of Denso-Wave.
- [http://en.wikipedia.org/wiki/QR\\_code](http://en.wikipedia.org/wiki/QR_code)
- <http://fukuchi.org/works/qrencode/index.en.html>
  - A library that can be used to generate codes
- <http://qrcode.kaywa.com>
  - One of many websites that can be used to generate codes
- <http://code.google.com/p/zxing/wiki/BarcodeContents>
  - Explanation of how information is contained in codes
- <http://zxing.org/w/decode.aspx>
  - Place which will read out what is in a code.

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