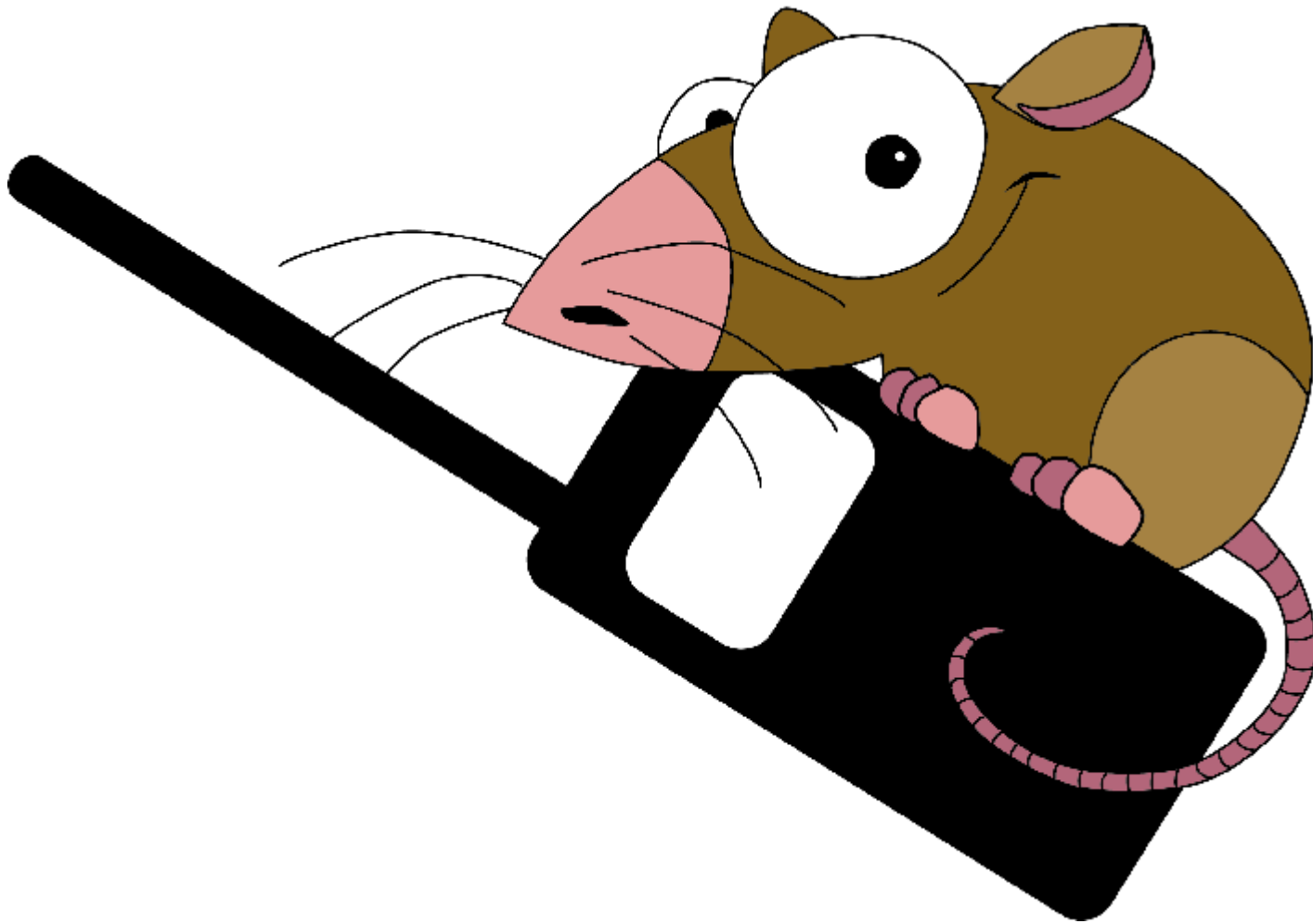


Emergency Communications with D-RATS



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Outline

- Data in an emergency
- Why D-STAR?
- D-RATS Features
 - Chatting
 - File transfers
 - Forms
 - Email
 - Positional awareness

Data in an Emergency

- Fast, error-free transfer of electronic records
 - Situation status reports
 - Resource requests
 - Patient manifests
 - Pictures of damage
- Quiet operation
 - Put radio operators directly in an EOC
 - Field stations in noisy environments
- Integrated logging of messages with times and dates

Why D-STAR?

- Integrated data support
 - Fewer wires, devices, less complexity
 - Smaller stations – No TNC/Modem needed
- Simultaneous voice and data on the same frequency
 - No need for separate radios
 - Simpler frequency plans
 - Positional reports in realtime while operator is speaking
- Gateway operation for wide-area operation
 - Data works through the gateway too

Chatting

- Quick instant-message operation among operators
 - Multicast so everyone sees everything
 - Good for broadcasting updates and instructions
- Quiet operation
 - Can operate in a very noisy environment
 - Doesn't contribute to noise in an operations center
- Easier to convey messages and ensure correctness
 - Numbers, Names, etc

15:39:40: **K7HIO**: This is station Fire1
 15:39:46: **KK7DS**> This is Rover3
 15:40:25: **K7HIO**: Rover3: Please proceed to pump station 3A and check the emergency power generator
 15:40:38: **KK7DS**> Okay, we will head over there. What is the passcode for the gate?
 15:41:09: **K7HIO**: The passcode is 92352312
 15:41:37: **KK7DS**> Is there a contact person we should meet with when we arrive?
 15:42:20: **K7HIO**: Check with Bob Johnson, he is the site supervisor
 15:42:36: **K7HIO**: We also have a message for him, I will send it to you. Please deliver it to Bob when you arrive
 15:42:39: **KK7DS**> Okay
 15:43:23: *Form transfer started with K7HIO (Message for Bob at Pump Station 3A)*
 15:43:30: *Transfer of form complete (770B @ 189.03 B/s)*

Send

| Status | ID | Last Edited | Last Transferred | Private | New |
|--------|---|-------------|----------------------|--------------------------|--|
| New | Message for Bob at Pump Station 3A from K7HIO | Never | Jan-19-2009 15:43:30 | <input type="checkbox"/> | New Open Reply Delete Send |

File Transfers

- Uses the integrated data subchannel
- Send any arbitrary file
- Instead of reading a document over voice, send it exactly in its natural form
- Interactive image resize and resample
- Compresses files where possible for speed
- Resume interrupted transfers

Forms

- Quick fillable forms that can be sent to other stations
 - Fillable for quick access
 - Smaller than an equivalent office document
- Printable view that mimics paper form format
- Recreate any agency form with integrated builder
 - Use the form that the served agency is used to
 - Create event-specific forms for efficiency
- Pass forms easily from station to station tracked with a transfer record

ICS-213 Form

| | |
|---------------|------------------|
| Incident Name | 2008 Earthquake |
| Time | 6 : 36 : 34 |
| Date | Sep 27 2008 |
| To | Ken |
| ICS Position | Operations Chief |
| Sender | Dan |
| ICS Position | Resources Chief |
| Subject | Additional needs |

Message

Ken,

We have a need for 12 additional front-end loaders for removing debris and rubble. We will need these by 0900 to support the next shift of workers.

Thanks,
Dan

Path

ISC-213 Form

| | | |
|---|---|---|
| Incident Name D-RATS Testing | Date/Time of message 23-May-2008 12:07:00 | GENERAL MESSAGE ICS 213-OS |
| To Bob | ICS Position Operations Chief | |
| Sender Suzie | ICS Position Supplies Leader | |
| Subject Request for tents | | |
| Message Bob, We desperately need 184 tents to cover our stations from the incessant Oregon rain. Also, please send rat traps. | | |
| Reply | | |
| Signature / Position (person replying) | | Date/Time of reply 23-May-2008 12:07:05 |
| GENERAL MESSAGE | June 2000 | ICS213-OS |

Block view is : Generated by D-RATS

Email

- Send and receive email from D-RATS station
 - Any station with internet access can be a gateway
 - Provide gateway access to RF stations with no other infrastructure
- Easy to setup in an event
 - Requires only an internet connection and email account
- Contact served agencies or out-of-area stations through the nearest internet node

Email Message

From

KK7DS

To

operations@state.gov.us

Subject

Operations Report


Message

Hello Bob,

I'm sending an email from the field via the Amateur Radio operators. Operations are going well here and the hams are keeping us in touch with both voice and data communications using the new D-STAR hardware we funded last Summer.

Thanks!

▷ Path

 Cancel

 Save

Send

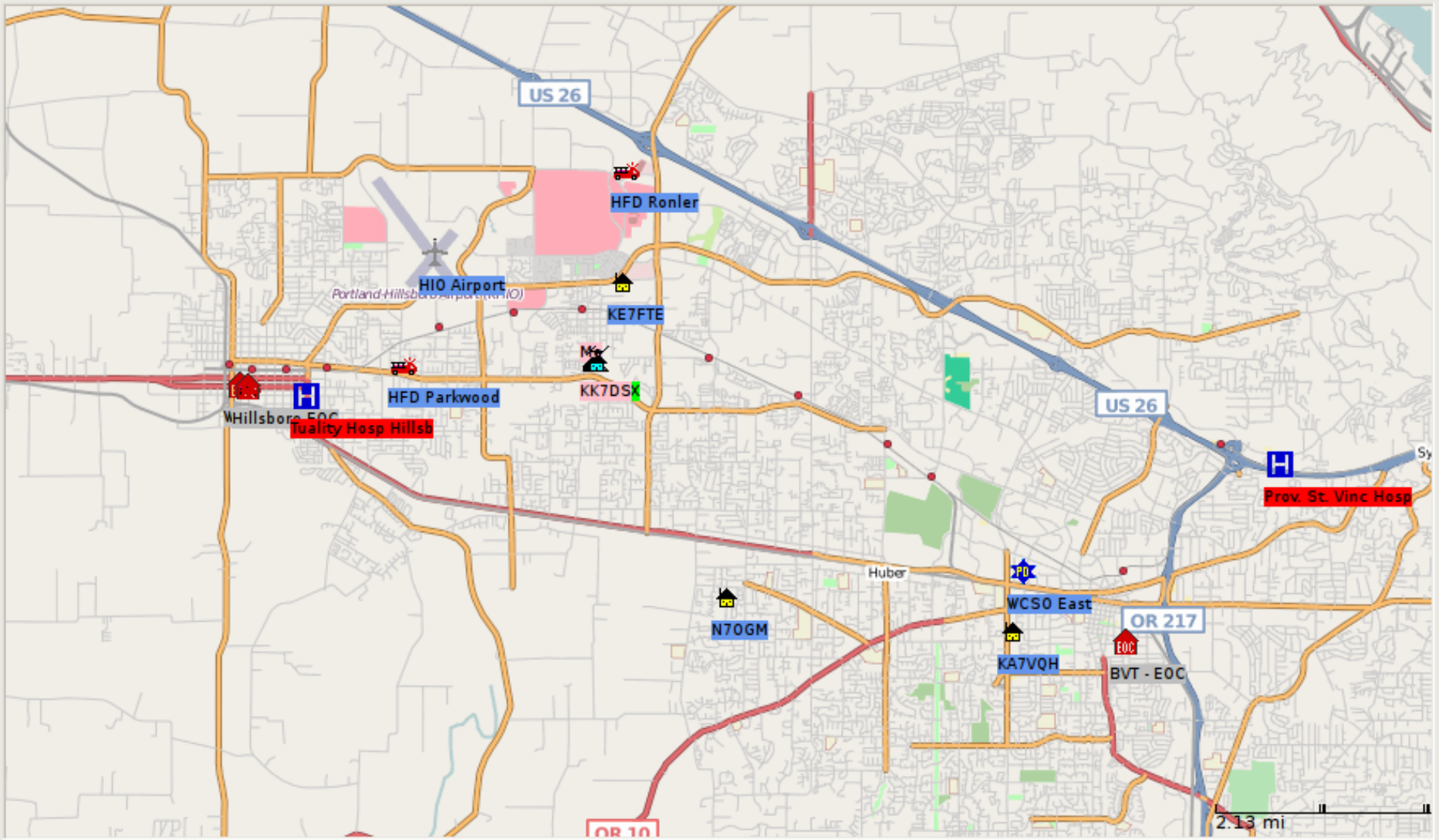
Export

Printable

Positional Awareness

- Integrated position reporting
- Integrated mapping
- Distance/bearing calculation to any station
- External GPS support for moving stations
- Use a D-STAR radio with an integrated or external GPS
 - IC-2820H, IC-92AD have integrated GPS options
 - Other ICOM radios can use any serial NMEA GPS

Map



| Show | Station | Latitude | Longitude | Distance | Direction |
|-------------------------------------|------------------------|----------|-----------|----------|-----------|
| <input checked="" type="checkbox"/> | D-STAR Gateways | | | | |
| <input checked="" type="checkbox"/> | WC Fire | | | | |
| <input checked="" type="checkbox"/> | Stations | | | | |
| <input checked="" type="checkbox"/> | WC EOCs | | | | |
| <input checked="" type="checkbox"/> | Washington County ARES | | | | |
| <input checked="" type="checkbox"/> | Misc | | | | |

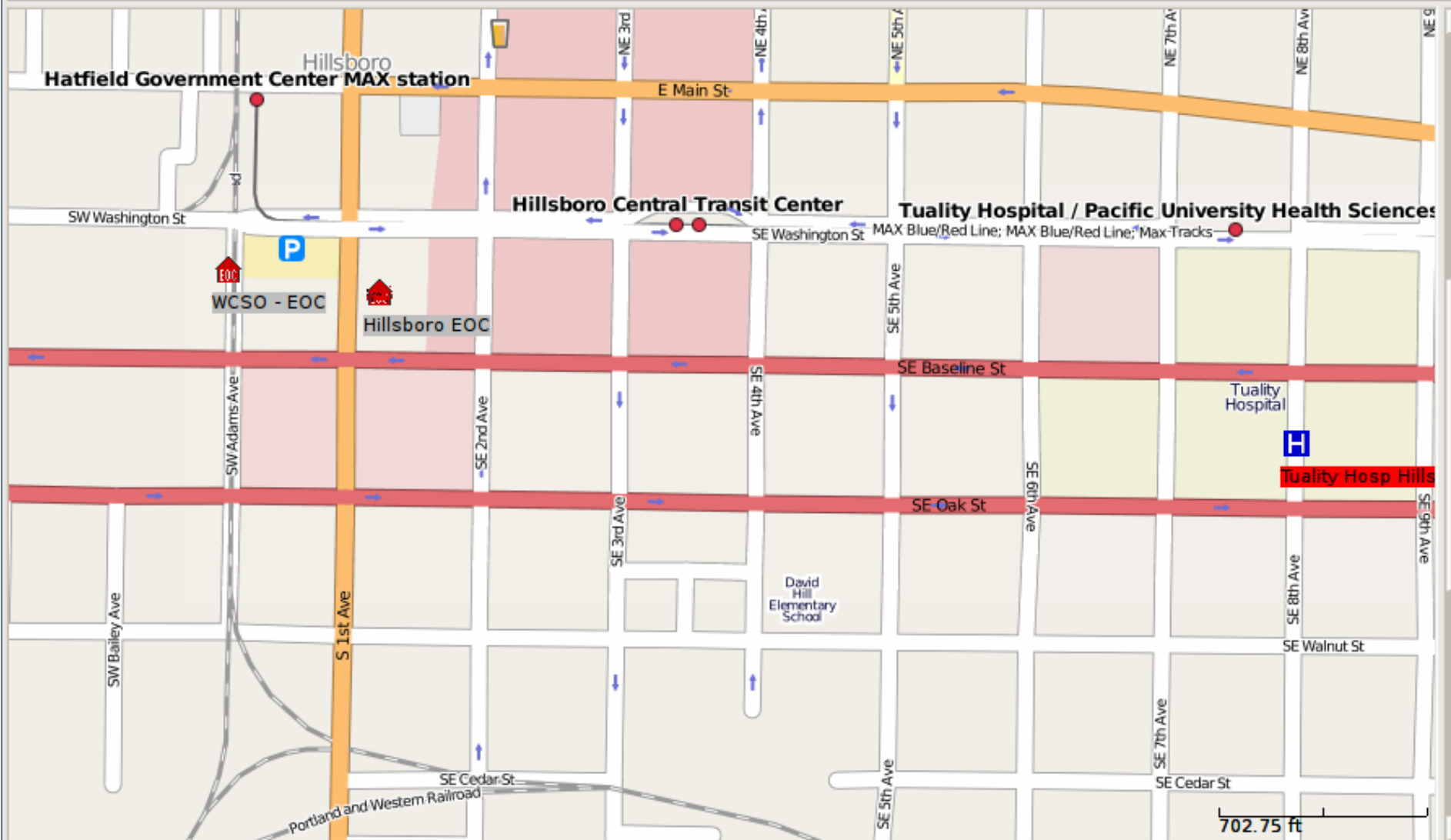
Zoom (12)
 Min Max

Track center

45.4525, -122.9703

Static position

Map



| Show | Station | Latitude | Longitude | Distance | Direction |
|-------------------------------------|------------------------|----------|-----------|----------|-----------|
| <input checked="" type="checkbox"/> | WCSO - EOC | 45.5211 | -122.9916 | 0.10 | 278.10 |
| <input checked="" type="checkbox"/> | Tigard - EOC | 45.4267 | -122.7673 | 12.60 | 121.07 |
| <input checked="" type="checkbox"/> | Vernonia - EOC | 45.8575 | -123.1805 | 25.04 | 338.46 |
| <input checked="" type="checkbox"/> | BVT - EOC | 45.4832 | -122.8042 | 9.36 | 106.11 |
| <input checked="" type="checkbox"/> | Hillsboro EOC | 45.5209 | -122.9896 | 0.00 | 132.40 |
| <input checked="" type="checkbox"/> | Washington County ARES | | | | |

Zoom (16)

Min Max

Track center

45.5172, -122.9823

Center: Hillsboro EOC

Static position