Emissions Modeling Framework

2005 CMAS Conference

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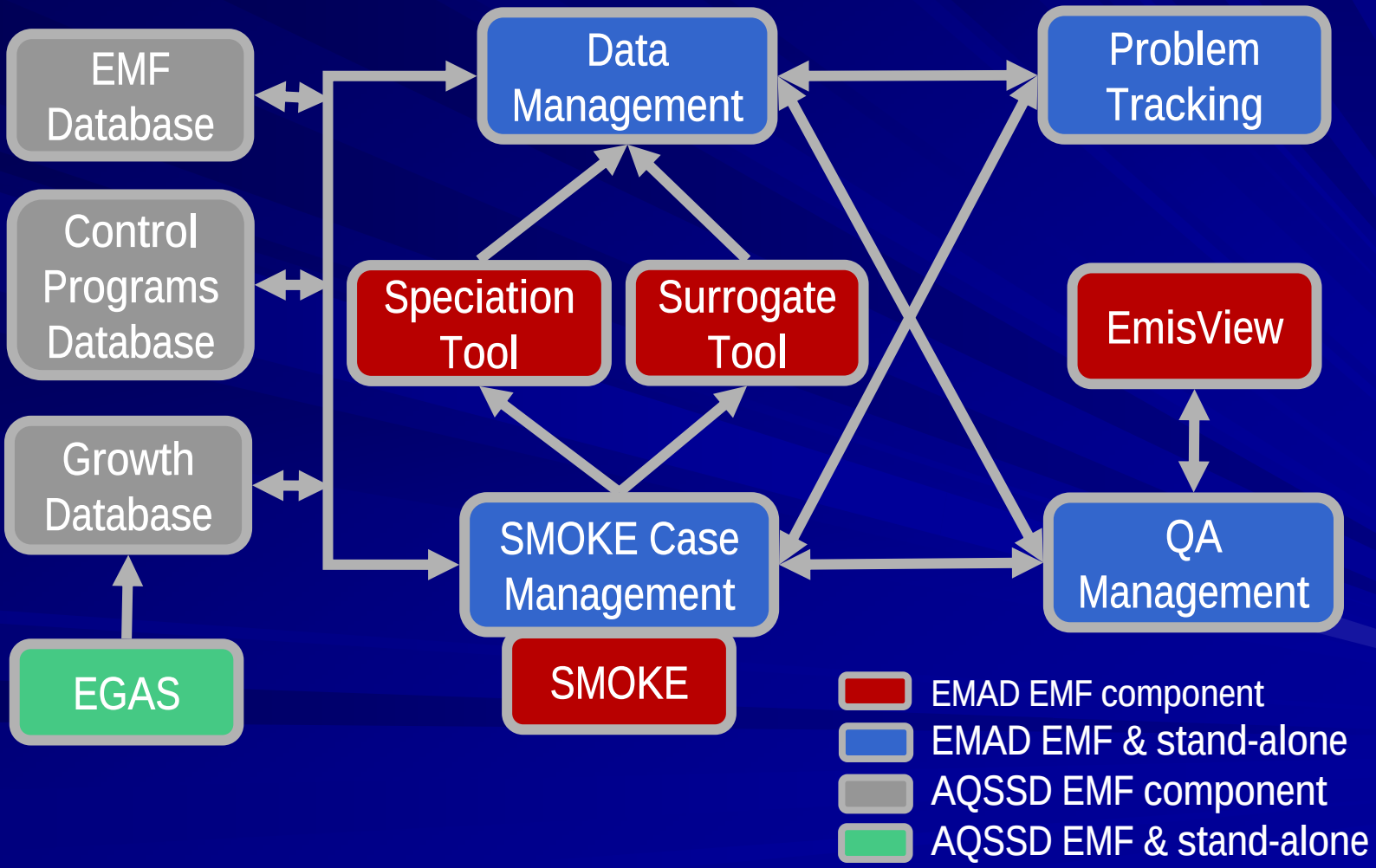
Overview

- EMF Goals
- EMF Components
  - Data Management
  - Case Management
  - EMF Database
- Expected benefits to community
- Schedule
- Show examples

Goals

- Create EPA's emissions modeling protocol
- Implement those practices efficiently
- Improve timeliness and quality of result
- Provide transparency & tracking
  - Data with versions
  - SMOKE runs and associated data
- Further integrate criteria & toxics modeling, including SMOKE updates
- Create tools that can be used by others outside of EPA

Major Components



Data Management (1)

- Use consistent data across projects with diverse purposes
- Share data in a multi-user environment
  - Version control, problem tracking, record keeping for changes, metadata entry and review
  - Notification of data changes by “subscription”
- QA protocols: automate where possible and integrate closely with data
- Facilitate blending of multiple data sources

Data Management (2)

- Help prevent data handling and quality errors
- Store SMOKE emissions modeling data inputs in a shared database
  - Master data in central location
  - Multi-user approach allows accessing the same information across EPA
- Create spatial surrogates, speciation data, land use, & other SMOKE inputs from raw data
- Future: automated database coordination with EPA's new NEI data system

Case Management (1)

- Case is a run to create a emissions modeling output
  - SMOKE input data (e.g., speciation or spatial inputs)
  - Grown and/or controlled inventory
  - Full set of model-ready inputs for entire episode
- Provide SMOKE interface with a much shorter learning curve than script-based approach
  - Setup based on real-world decisions, not SMOKE settings (e.g., user specifies what AQ model, what chemical mechanism, what time period)
  - Can run for all sectors and an entire episode in a single “case”

Case Management (2)

- Fosters reuse and coordination of emissions modeling cases
- Notify case creators of data updates by other users for data they are using
- QA protocols: automated and integrated with case setup and use
- SMOKE support for CMAQ, CAMx, REMSAD, ASPEN, and AERMOD
- More robust tools for future-year projection

What will the EMF Database include?

- Emissions modeling ancillary files (e.g., chemical speciation data, spatial surrogates)
- Emission modeling case configuration details (e.g., grid, time period, input files used)
- Some emissions summaries and reports for reuse
- Metadata for data and cases
  - Origin, history (including QA), & documentation (including links to documents), access history, purposes for use
  - Data status (including QA) & fate
  - Who can access file and for what purpose
- At least phase 1: Copies of relevant parts of inventories for emissions modeling (before new NEI data system)

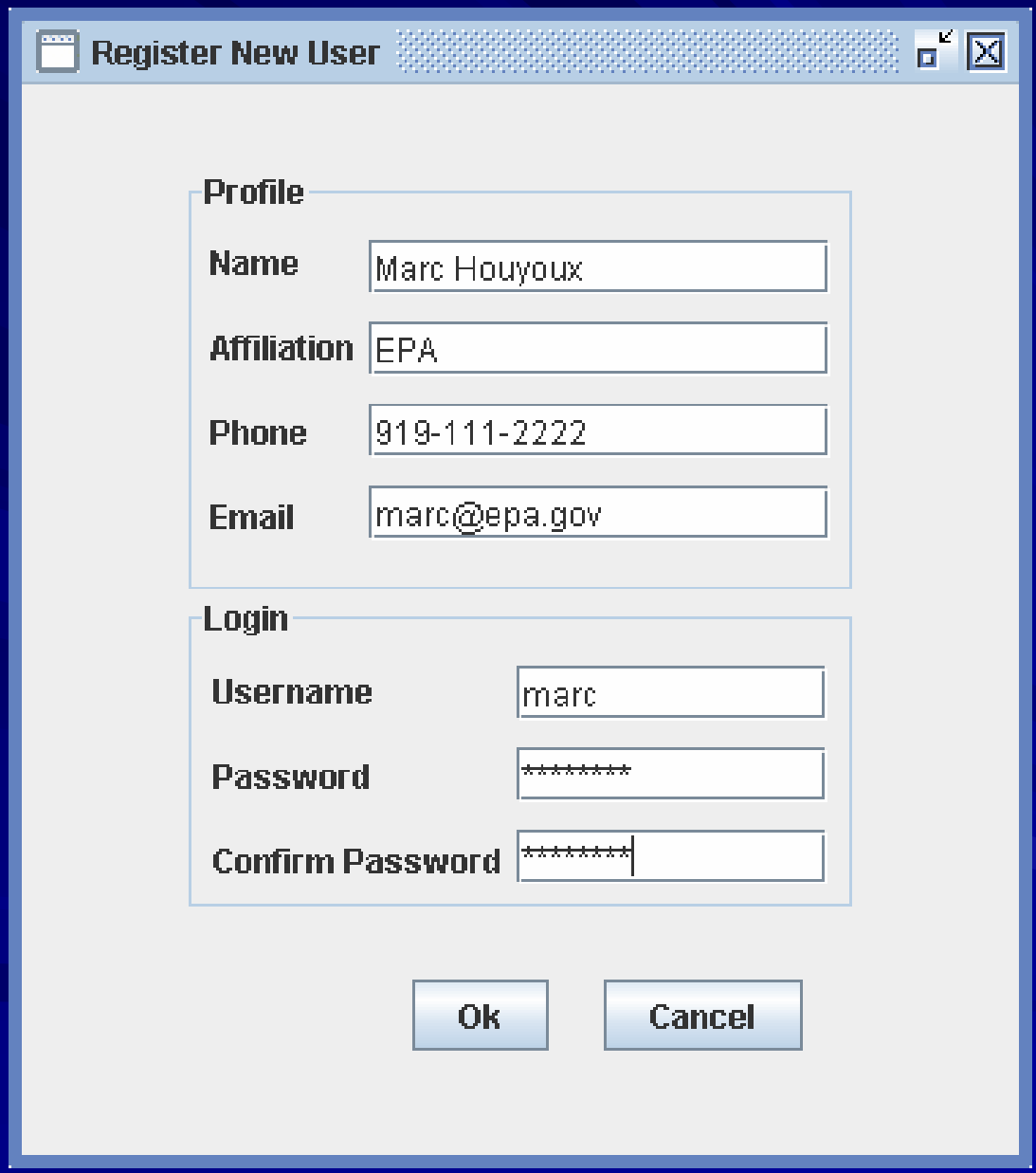
Expected benefits to community

- Although EMF is being developed first as an EPA resource, we are planning also to make it useable and available outside of EPA
- A new emissions data management resource
- A new emissions modeling QA resource
- Tool to create criteria/toxics speciation data
- Tool to create spatial surrogate data
- Help run SMOKE
  - AQ model preparation (criteria/PM/toxics)
  - Future-year inventories
  - Data summaries and analysis

Schedule

Milestone	Date
Initial EmisView	Aug '05
Complete Protocols	Nov '05
New hardware	Oct '05
Surrogate Tool	Oct '05
EMF: Data Management at EPA	Dec '05
Speciation Tool	Dec '05
SMOKE Updates for Multi-pollutant	Dec '05
EMF: Data Management public release	Mar '06
EMF: Integrated with EmisView	Feb '06
EMF: SMOKE Case Management at EPA	Jun '06
EMF public release	Sep '06


Login to EMF
Username
marc
Password
Sign In
Cancel
Forgot your Password ?
Not yet registered ?


Register New User
Profile
Name
Marc Houyoux
Affiliation
EPA
Phone
919-111-2222
Email
marc@epa.gov
Login
Username
marc
Password
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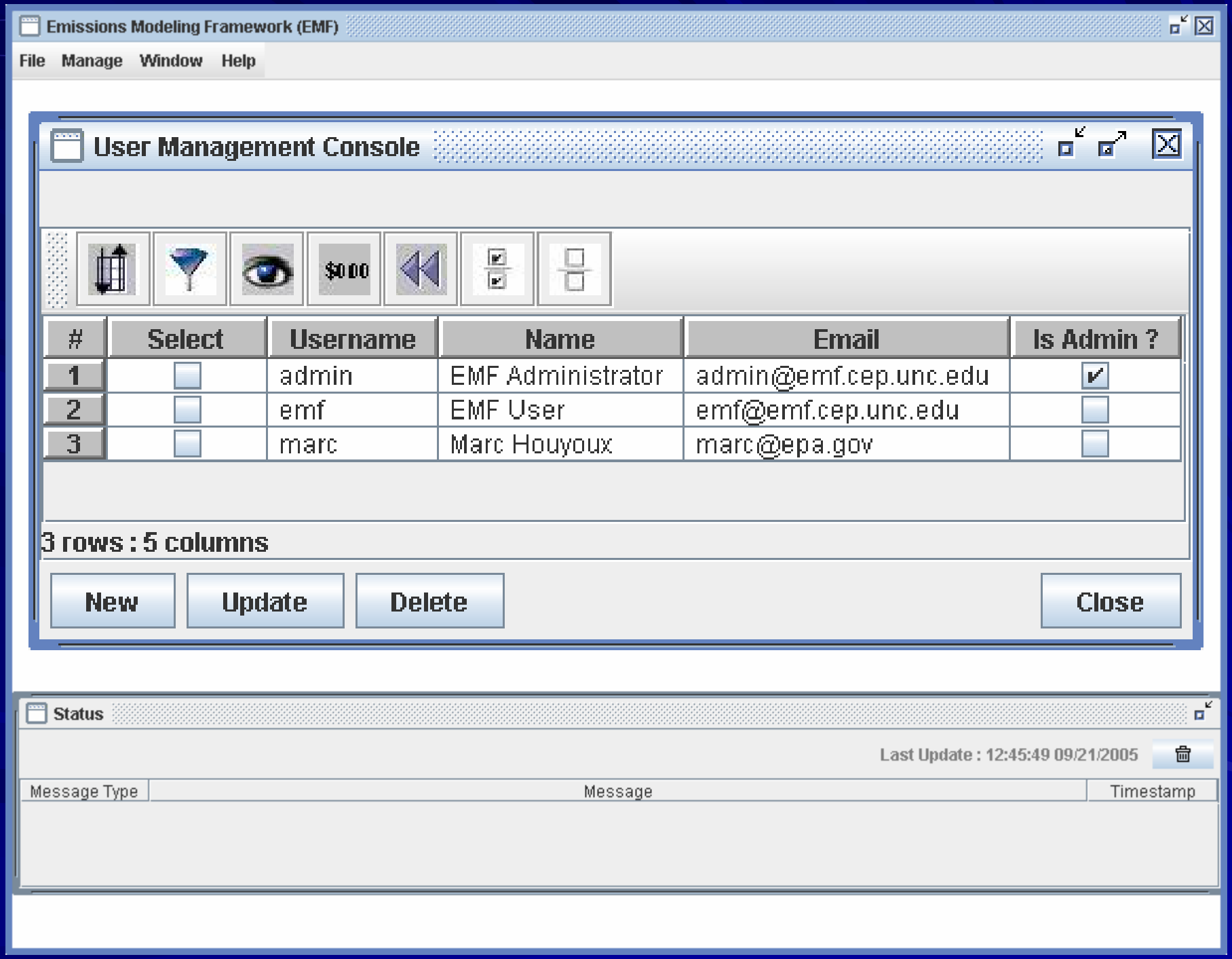
Confirm Password
****
Ok
Cancel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File
Manage
Window
Help
User Management Console
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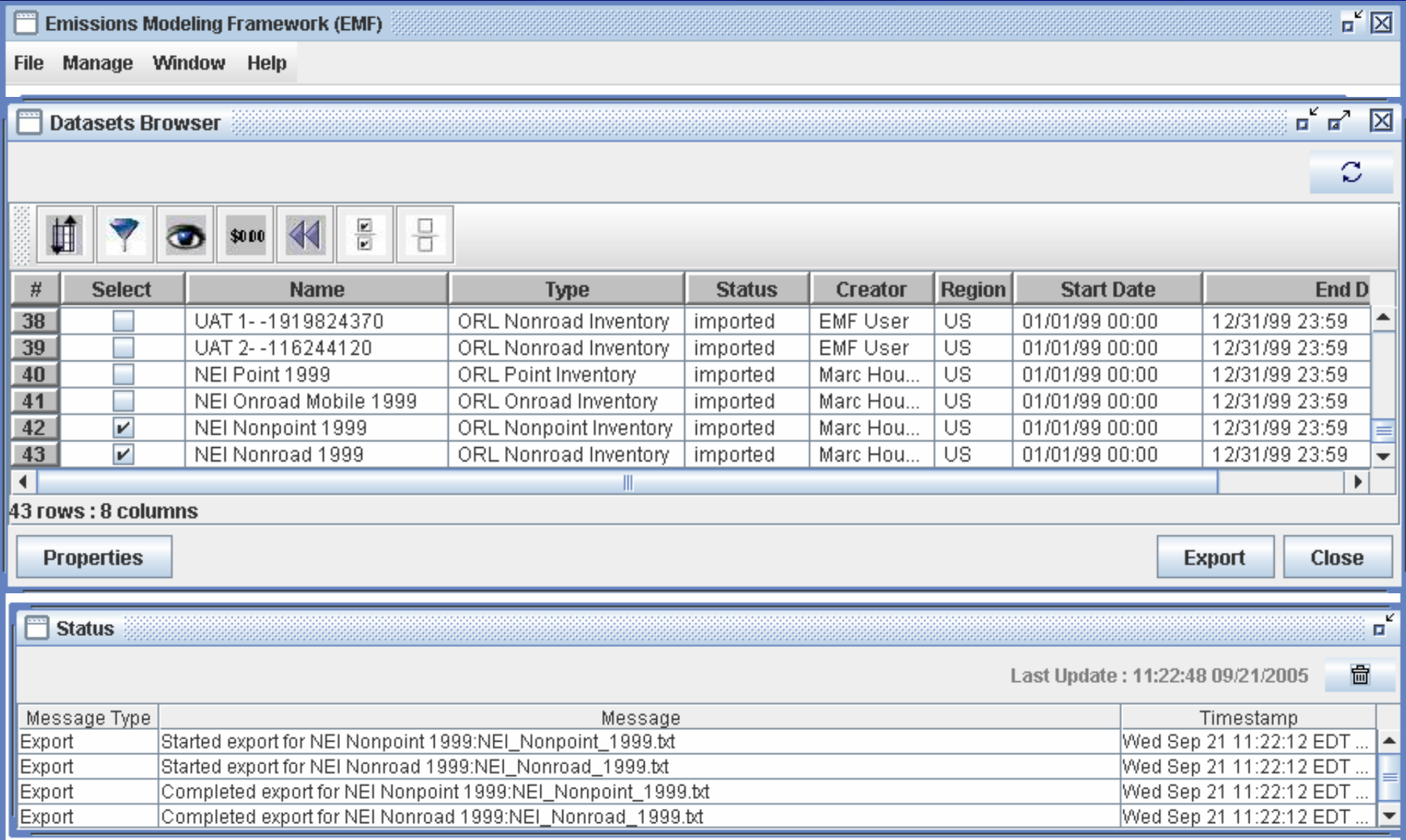
| Select | Username | Name | Email | Is Admin ?
1 | admin | EMF Administrator | admin@emf.cep.unc.edu
2 | emf | EMF User | emf@emf.cep.unc.edu
3 | marc | Marc Houyoux | marc@epa.gov
3 rows : 5 columns
New
Update
Delete
Close
Status
Last Update : 12:45:49 09/21/2005
Message Type
Message
Timestamp


Emissions Modeling Framework (EMF)
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Datasets Browser
$000
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39 UAT 2- -116244120 ORL Nonroad Inventory imported EMF User US 01/01/99 00:00 12/31/99 23:59
40 NEI Point 1999 ORL Point Inventory imported Marc Hou... US 01/01/99 00:00 12/31/99 23:59
41 NEI Onroad Mobile 1999 ORL Onroad Inventory imported Marc Hou... US 01/01/99 00:00 12/31/99 23:59
42 NEI Nonpoint 1999 ORL Nonpoint Inventory imported Marc Hou... US 01/01/99 00:00 12/31/99 23:59
43 NEI Nonroad 1999 ORL Nonroad Inventory imported Marc Hou... US 01/01/99 00:00 12/31/99 23:59
43 rows : 8 columns
Properties
Export
Close
Status
Last Update : 11:22:48 09/21/2005
Message Type Message Timestamp
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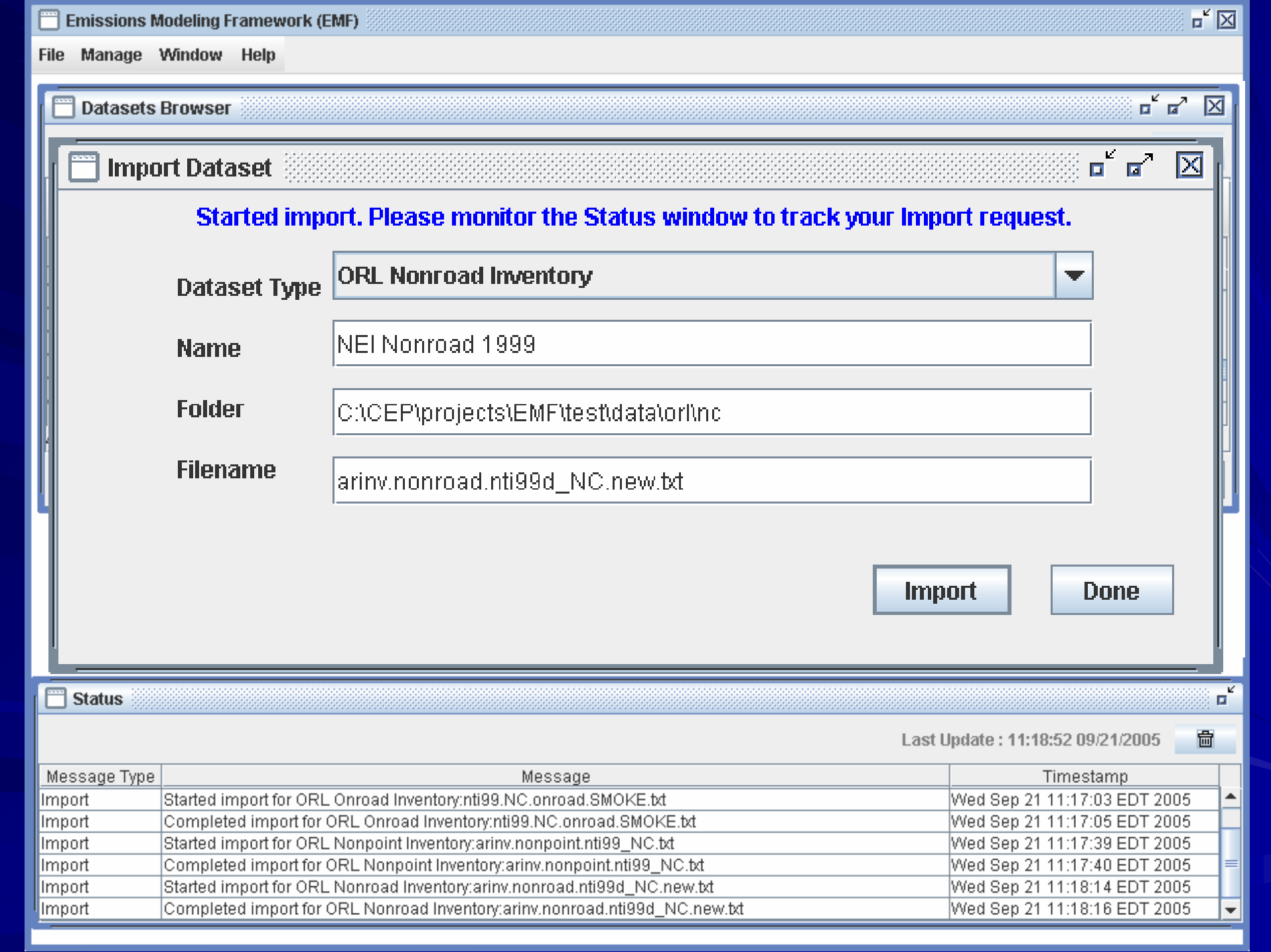
Export Started export for NEI Nonroad 1999:NEI_Nonroad_1999.txt Wed Sep 21 11:22:12 EDT ...
Export Completed export for NEI Nonpoint 1999:NEI_Nonpoint_1999.txt Wed Sep 21 11:22:12 EDT ...
Export Completed export for NEI Nonroad 1999:NEI_Nonroad_1999.txt Wed Sep 21 11:22:12 EDT ...


Emissions Modeling Framework (EMF)
File
Manage
Window
Help
Datasets Browser
Import Dataset
Started import. Please monitor the Status window to track your Import request.
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ORL Nonroad Inventory
Name
NEI Nonroad 1999
Folder
C:\CEP\projects\EMF\test\data\orl\nc
Filename
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Import
Done
Status
Last Update : 11:18:52 09/21/2005
Message Type
Message
Timestamp
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Wed Sep 21 11:17:03 EDT 2005
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Wed Sep 21 11:17:05 EDT 2005
Import
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Wed Sep 21 11:17:39 EDT 2005
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Wed Sep 21 11:17:40 EDT 2005
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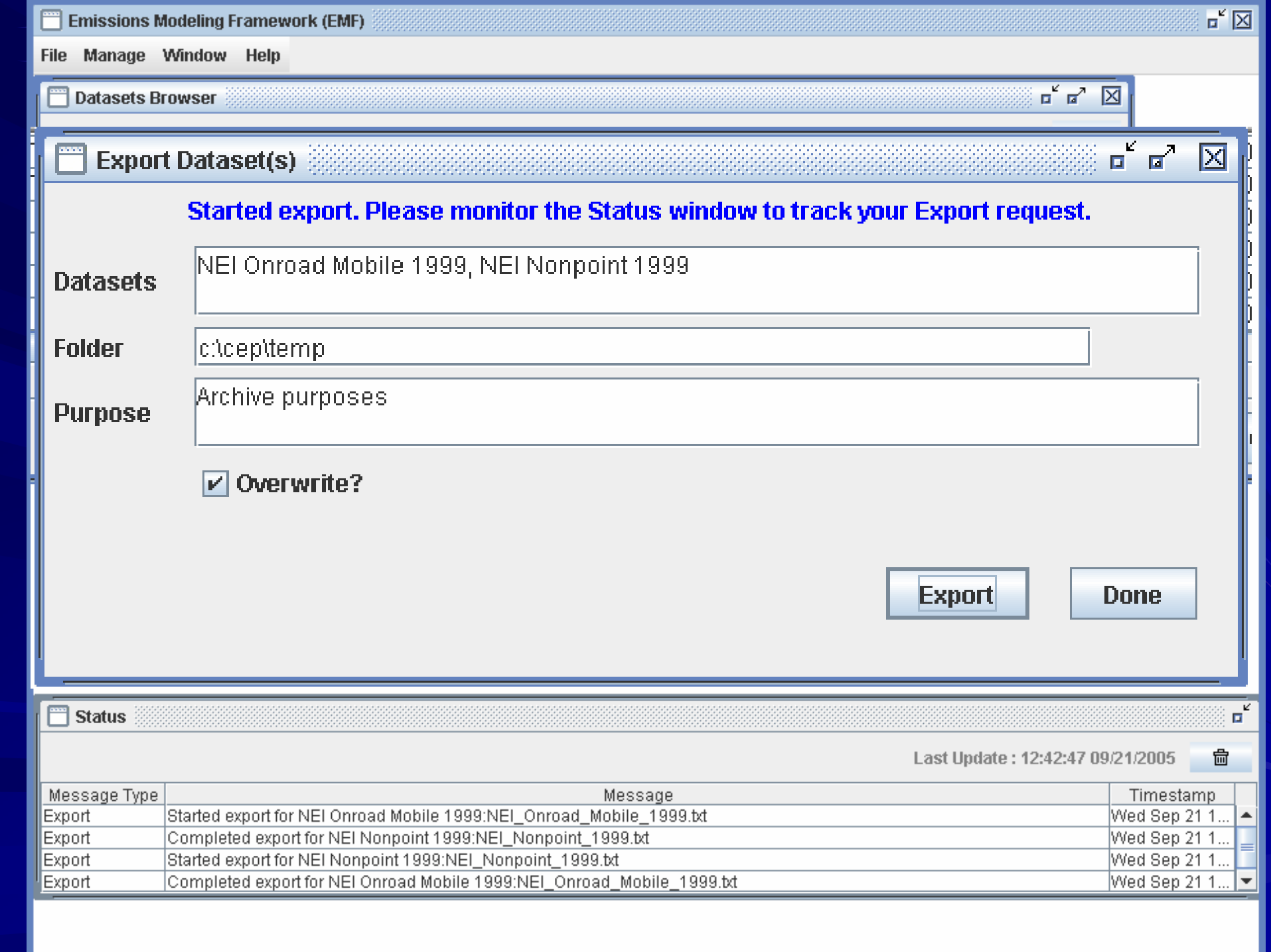
Emissions Modeling Framework (EMF)
File
Manage
Window
Help
Datasets Browser
Export Dataset(s)
Started export. Please monitor the Status window to track your Export request.
Datasets
NEI Onroad Mobile 1999, NEI Nonpoint 1999
Folder
c:\cep\temp
Purpose
Archive purposes
Overwrite?
Export
Done
Status
Last Update : 12:42:47 09/21/2005
Message Type
Message
Timestamp
Export
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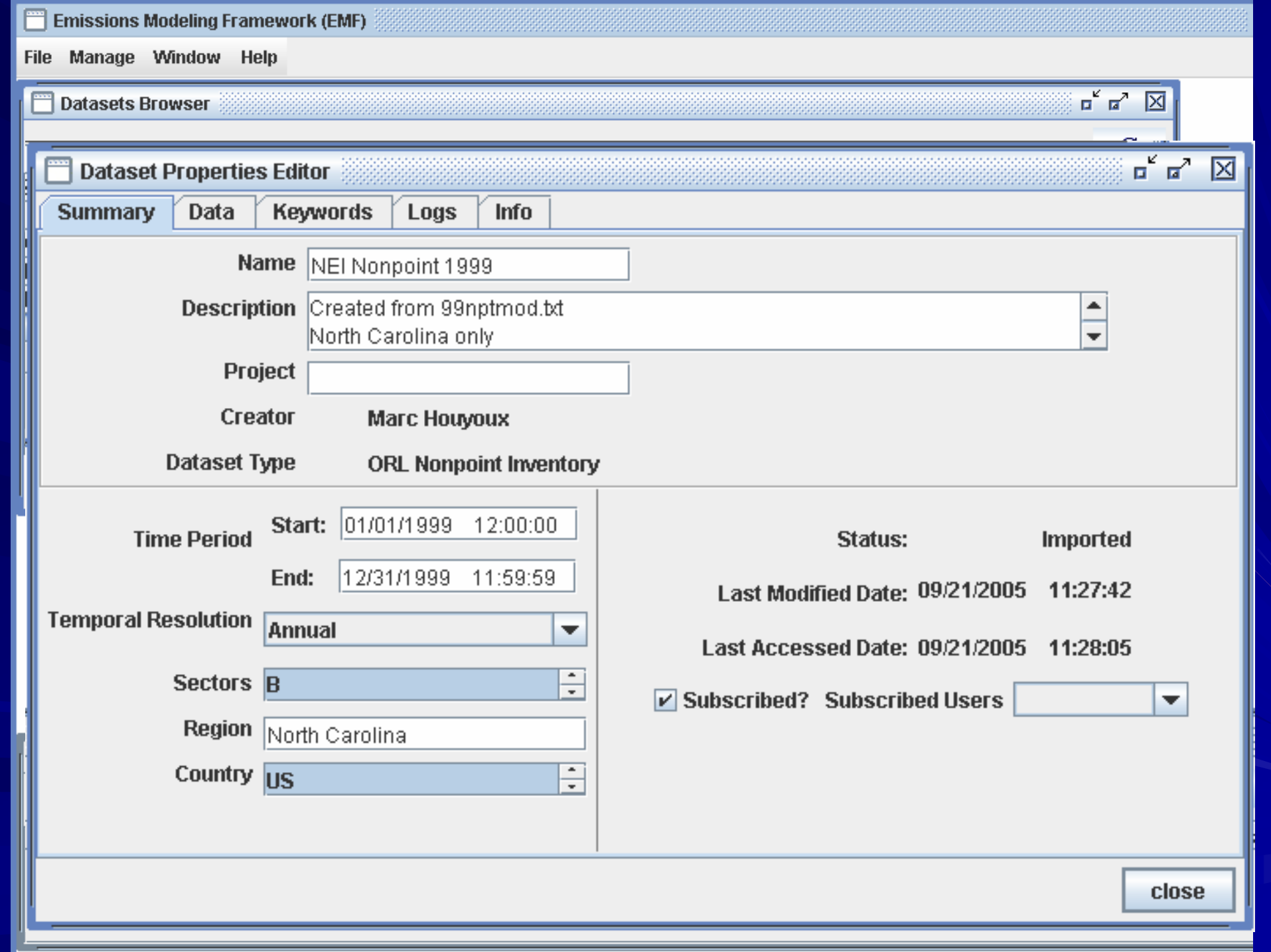
Wed Sep 21 1...
Export
Completed export for NEI Nonpoint 1999:NEI_Nonpoint_1999.txt
Wed Sep 21 1...
Export
Started export for NEI Nonpoint 1999:NEI_Nonpoint_1999.txt
Wed Sep 21 1...
Export
Completed export for NEI Onroad Mobile 1999:NEI_Onroad_Mobile_1999.txt
Wed Sep 21 1...


Emissions Modeling Framework (EMF)
File Manage Window Help
Datasets Browser
Dataset Properties Editor
Summary Data Keywords Logs Info
Name NEI Nonpoint 1999
Description Created from 99nptmod.txt
North Carolina only
Project
Creator Marc Houyoux
Dataset Type ORL Nonpoint Inventory
Time Period Start: 01/01/1999 12:00:00
End: 12/31/1999 11:59:59
Temporal Resolution Annual
Sectors B
Region North Carolina
Country US
Status: Imported
Last Modified Date: 09/21/2005 11:27:42
Last Accessed Date: 09/21/2005 11:28:05
Subscribed? Subscribed Users
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Disclaimer

The research presented here was performed in part under a Memorandum of Understanding between the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) and under agreement DW13921548. This work constitutes a contribution to the NOAA Air Quality Program.