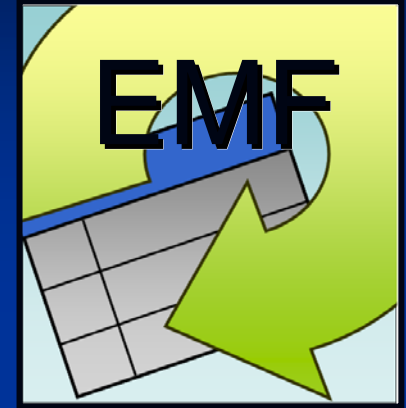


# Introduction to the Emissions Modeling Framework



**16th Annual International Emissions Inventory  
Conference – Raleigh, NC – May 14, 2007**

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# Course Overview

- Slides
  - Purpose
  - EMF components
  - Status and Schedule
  - Installation
- Hands-on
  - We'll go through main components of EMF
  - You can follow me through "point and click" steps or work ahead
  - Please ask questions or ask to change pace (faster/slower)
  - Break for 10 minutes at 9:20 and 10:50

# Purpose of the EMF

- Improve timeliness and quality of data used in air quality models
- Provide transparency & tracking
  - Data with versions, metadata, QA status
  - Emissions modeling applications and associated data
- Make it easier to run SMOKE and other emissions modeling tools
- Support multi-pollutant modeling: criteria & toxics
- Create tools that can be used by EPA and others (e.g., RPOs, states)

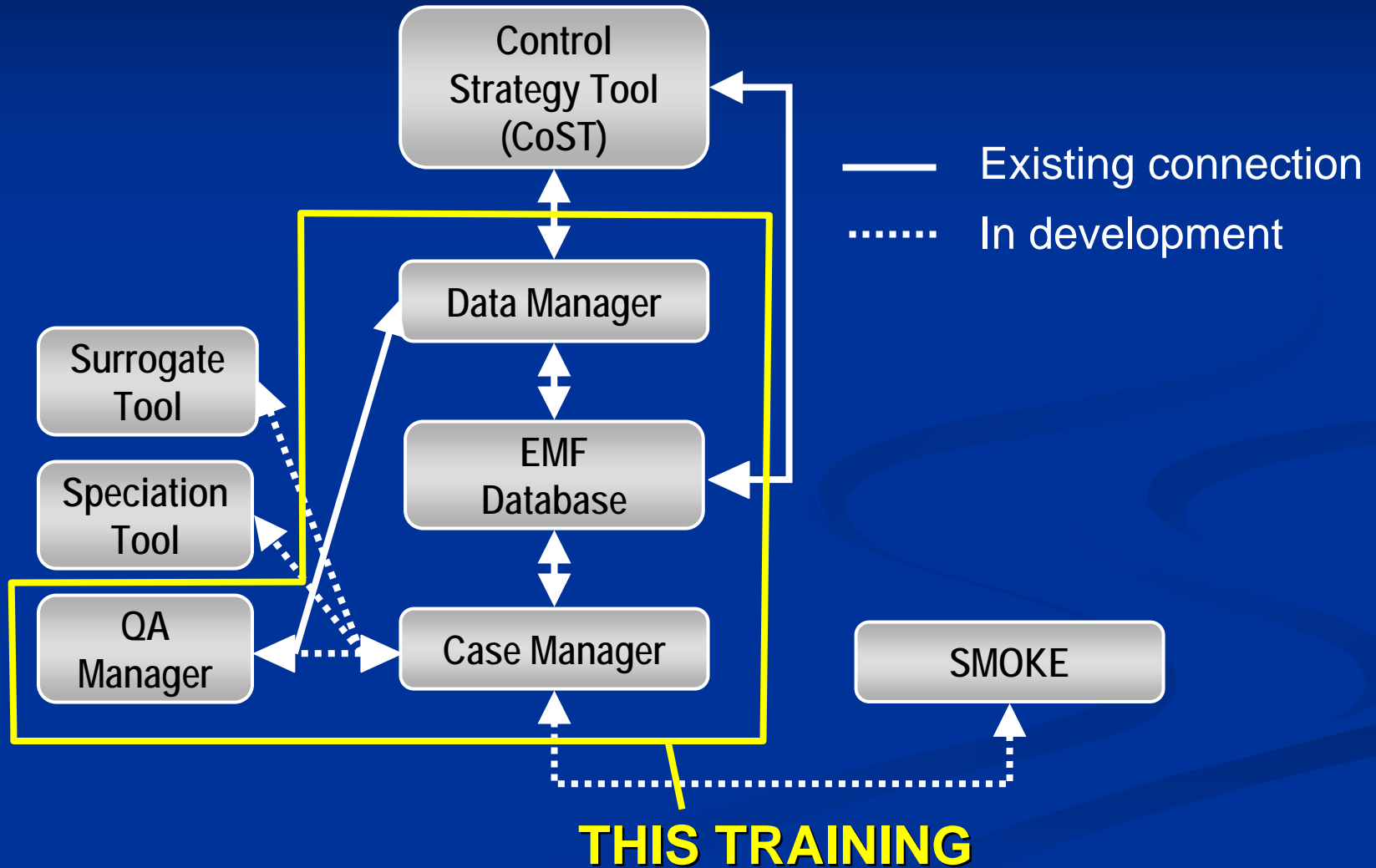
# Components of the EMF (1)

- Data Manager
  - Stores and organizes input and output data. Includes metadata (Data Properties), Data Viewer, and Data Editor. Keeps both old and new versions of datasets for better tracking.
- Case Manager
  - Stores and organizes software runs for SMOKE, Surrogate Tool, and Speciation Tool. Provides graphical user interface (GUI) for SMOKE or other emissions modeling tools.
- QA Manager
  - Includes QA Templates, QA Steps and status. Runs SQL queries. Users defines steps and records progress. Separate parts for QA of Data and Cases.
- EMF Database
  - PostgreSQL heart of EMF. Contains actual emissions data, metadata, and information needed to drive EMF interface.

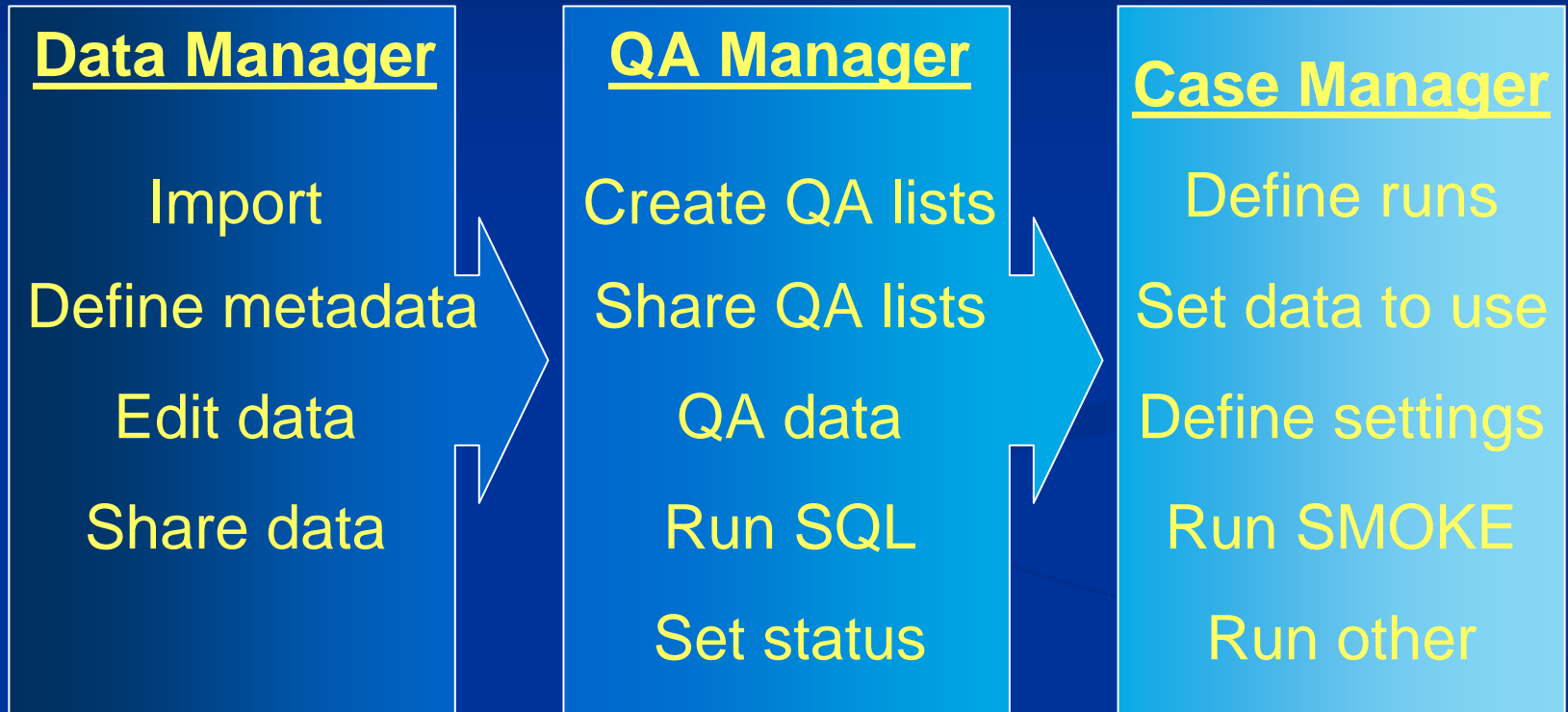
# Components of the EMF (2)

- Control Strategy Tool (CoST)
  - Users can build control strategies and create controlled SMOKE inputs.
  - Contains control measures database
  - More information in next training
- Surrogate Tool
  - Creates spatial surrogate SMOKE input file from Geographic Information System (GIS) Shapefiles using Java and MIMS Spatial Allocator.
- Speciation Tool
  - Creates speciation profile SMOKE input files for user-defined chemical mechanisms using PostgreSQL and PERL. Supports CMAQ toxic mechanism and CAP/HAP VOC integration.

# Components of the EMF (3)



# Steps for Using the EMF



# EMF Status and Schedule

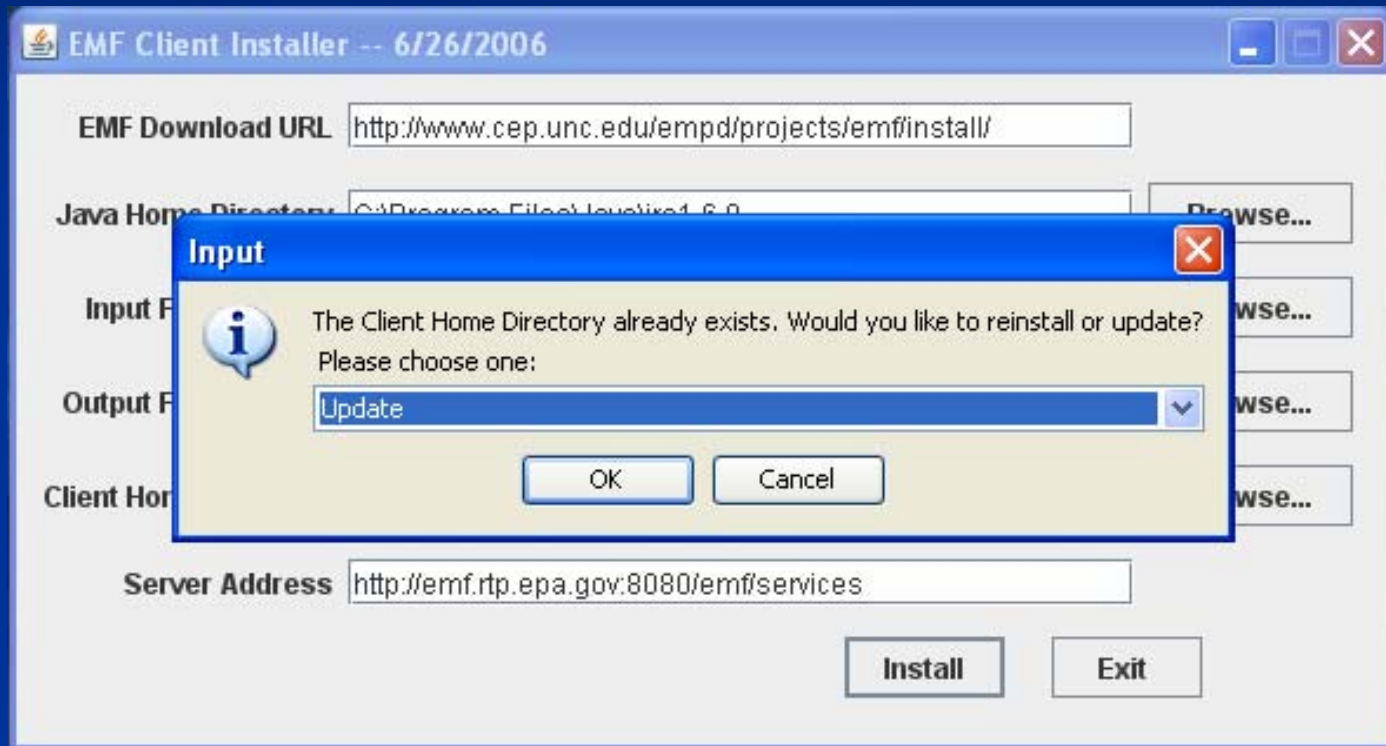
- EPA is using Data Manager for its current 2002 modeling. QA Manager use is being phased in gradually.
- Case Management partially completed
  - Not yet running SMOKE
  - We want to have in trial use at EPA summer 2007
  - Goal to use in Final Ozone NAAQS RIA Modeling
- Final Spatial Surrogate Tool available, but not yet from EMF
- Beta Speciation Tool available, but not yet from EMF
- CoST development ongoing
- Beta public release in early June, 2007
- More complete release by August 15<sup>th</sup>



# Installing EMF

- Both Server and Client need to be installed
  - Require PostgreSQL 8.2, Java 6, and Tomcat 5.5
- Instructions available at:  
<http://www.ie.unc.edu/cempd/projects/emf/install/>
- Server: install 1 per site (shared database)
  - Mailing list will notify site admins of server updates
- Client: install 1 per user computer
  - EMF “Installer” handles initial install and updates. Simply double-click on icon and installation runs.
  - EMF Client tells you when its inconsistent with the version of the server.

# Installer in action



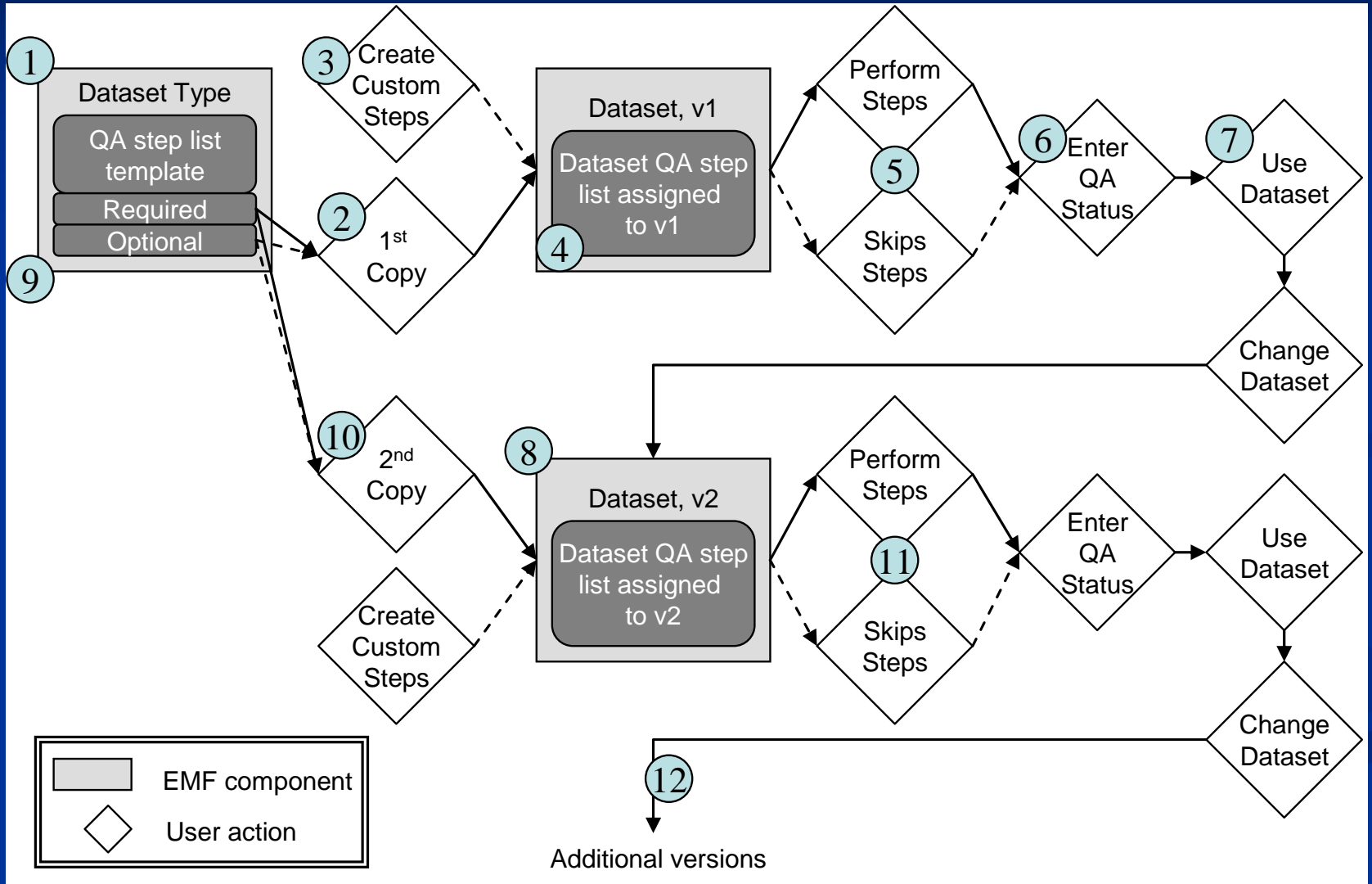
# Special notes for this training

- Your computer is running both the client and the server
- Ground rules for proceeding
  - You can follow me through “point and click” steps
  - You can move ahead if you like
  - Please ask questions or ask to change pace (faster/slower)
  - Optional exercises at end for those who move ahead

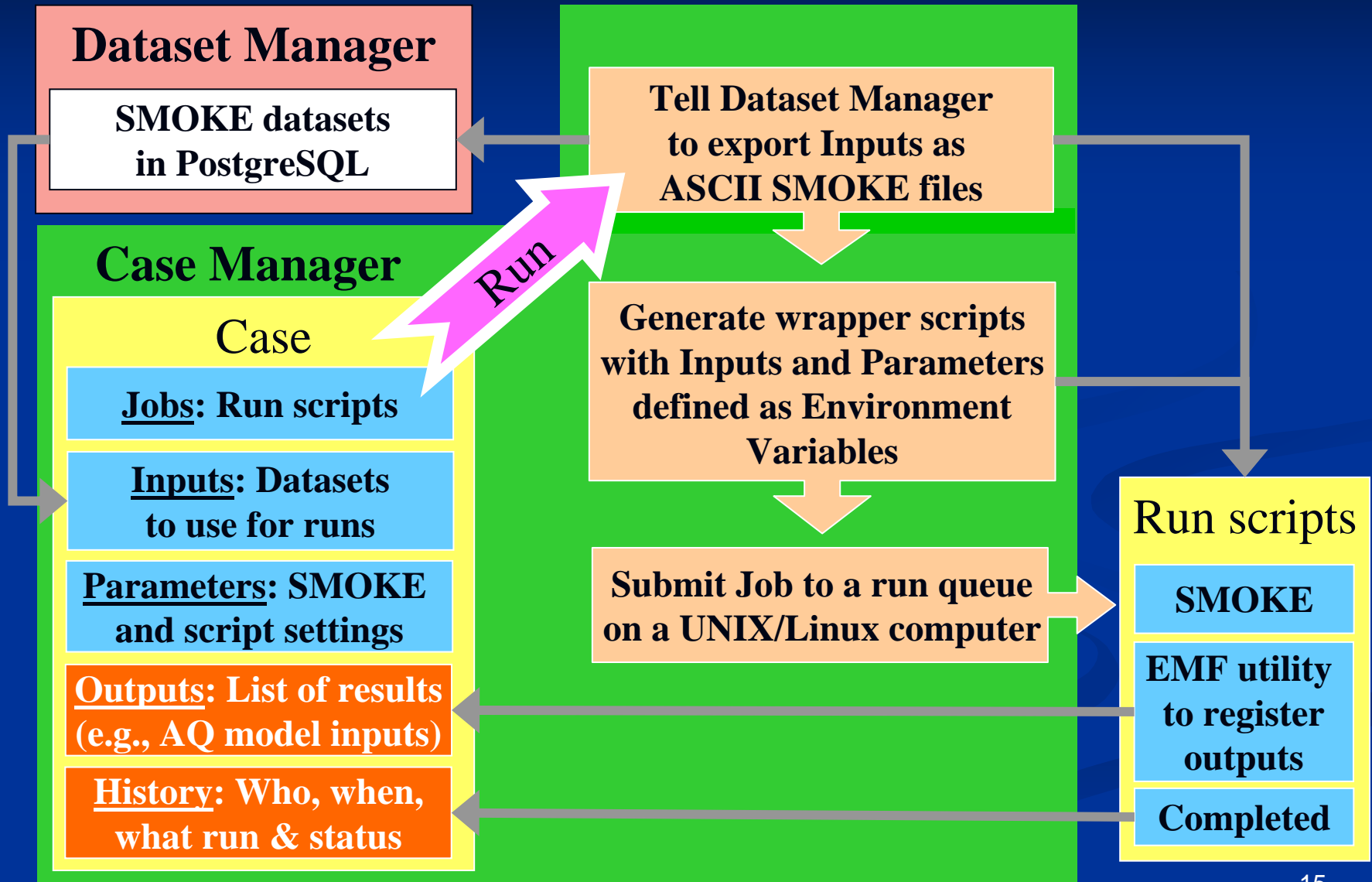
# Hands-On Training

**Extra slides for  
later**

# EMF QA Approach



# Case Management Overview



# Case Management Overview

