

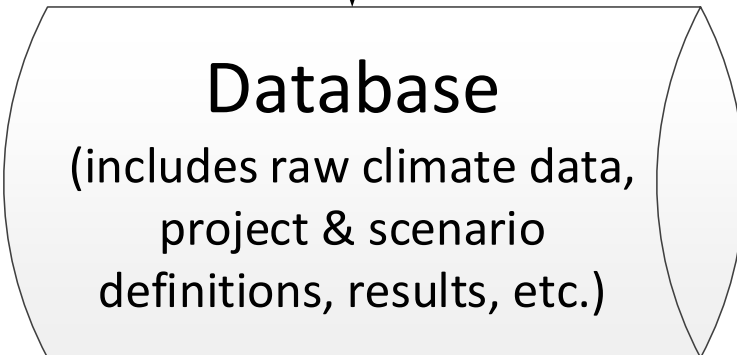
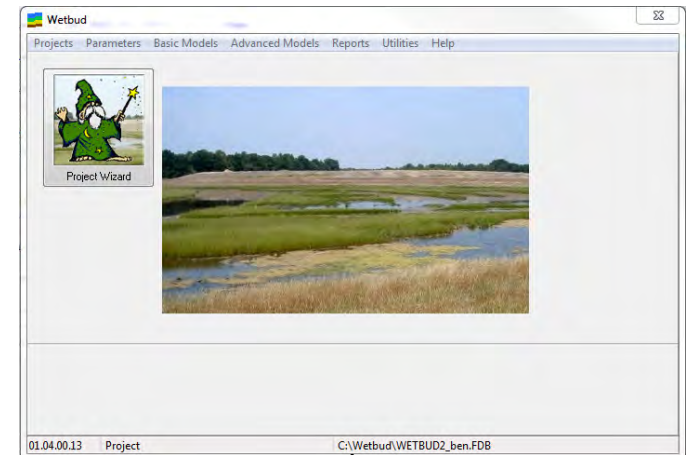
The programming structure and data requirements for Wetbud

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Piedmont Wetland Research
Symposium
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Gainesville, VA

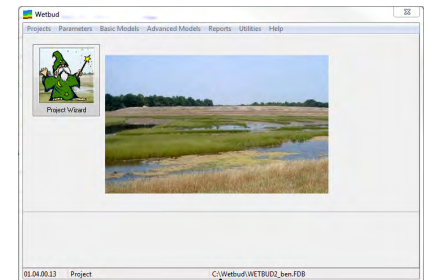
Wetbud Design Considerations (1/5)

- Available for Windows™ Systems ONLY (7, 8.1, 10)
- Developed for collaborative (office) environment
- Database driven application
 - Database stores primary data
 - Database stores results
- Features multiple projects and multiple scenarios per project



Wetbud Design Considerations (2/5)

- Climate (precipitation, weather, solar) data can be imported automatically directly from NOAA, NRCS or other sites
- Climate data can be imported manually for private weather stations
- ET data can be calculated (Penman, Thornthwaite) or Imported



Database
(includes raw climate data,
project & scenario
definitions, results, etc.)



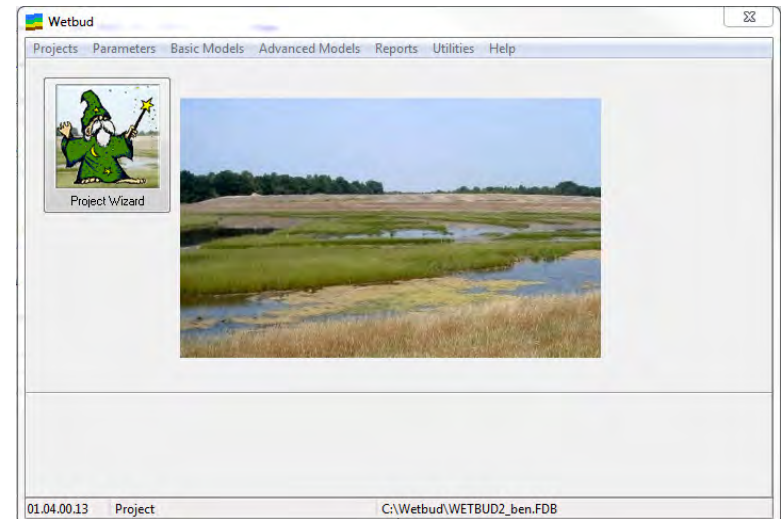
Wetbud Design Considerations (3/5)

- Climate data are **reusable**
- Data generated based on climate data (e.g., ET) are also **reusable**
- Climate data are tied to weather stations, i.e. by location
- The most time consuming part will be to get a “good” set of data.



Wetbud Design Considerations (4/5)

- The recent Wetbud release features Preloaded weather and climate data for 14 Virginia Stations



Wetbud Plus



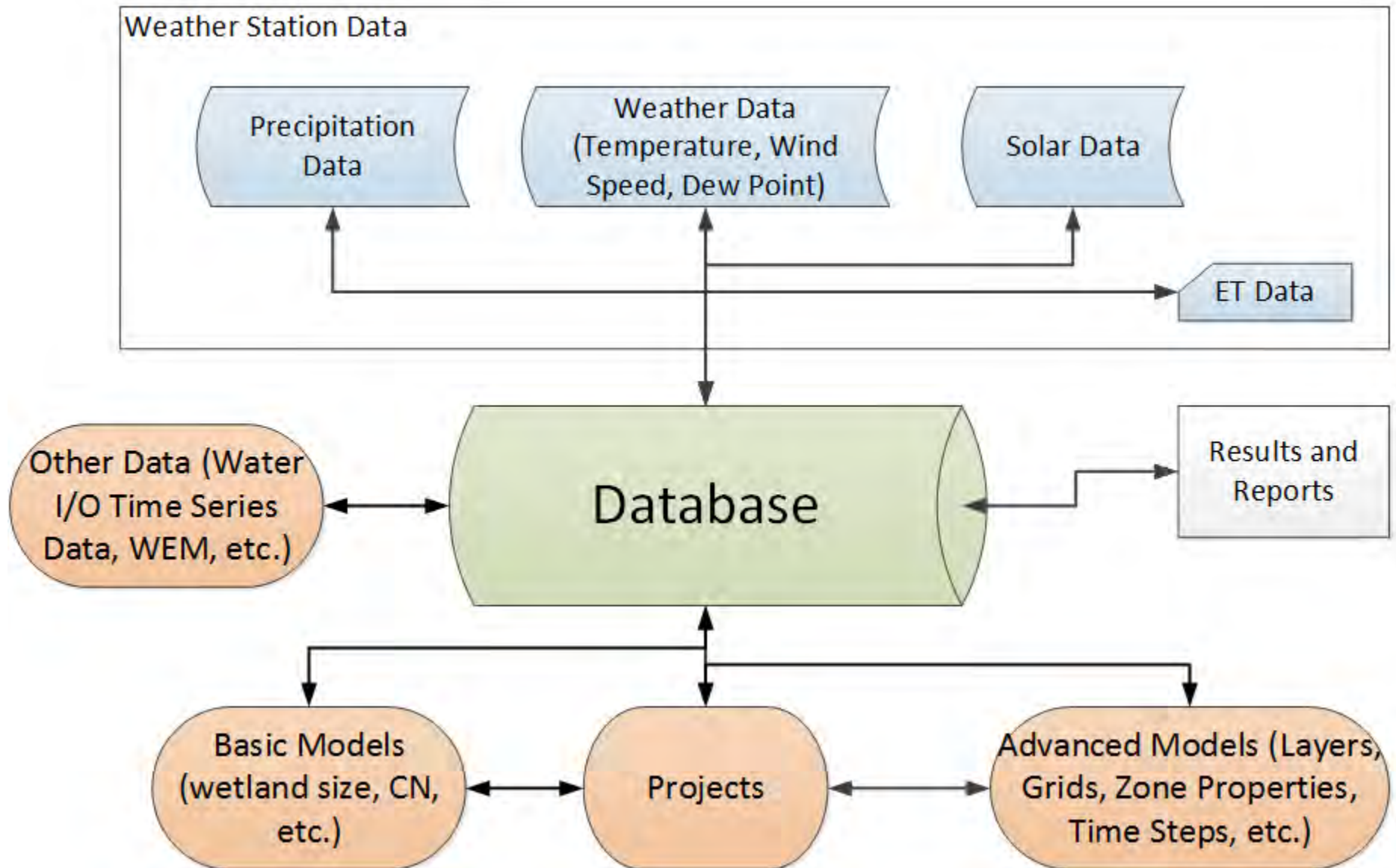
Database
(includes PRELOADED raw
climate data for 14 VA
Weather Stations)

Wetbud Design Considerations (4/5)

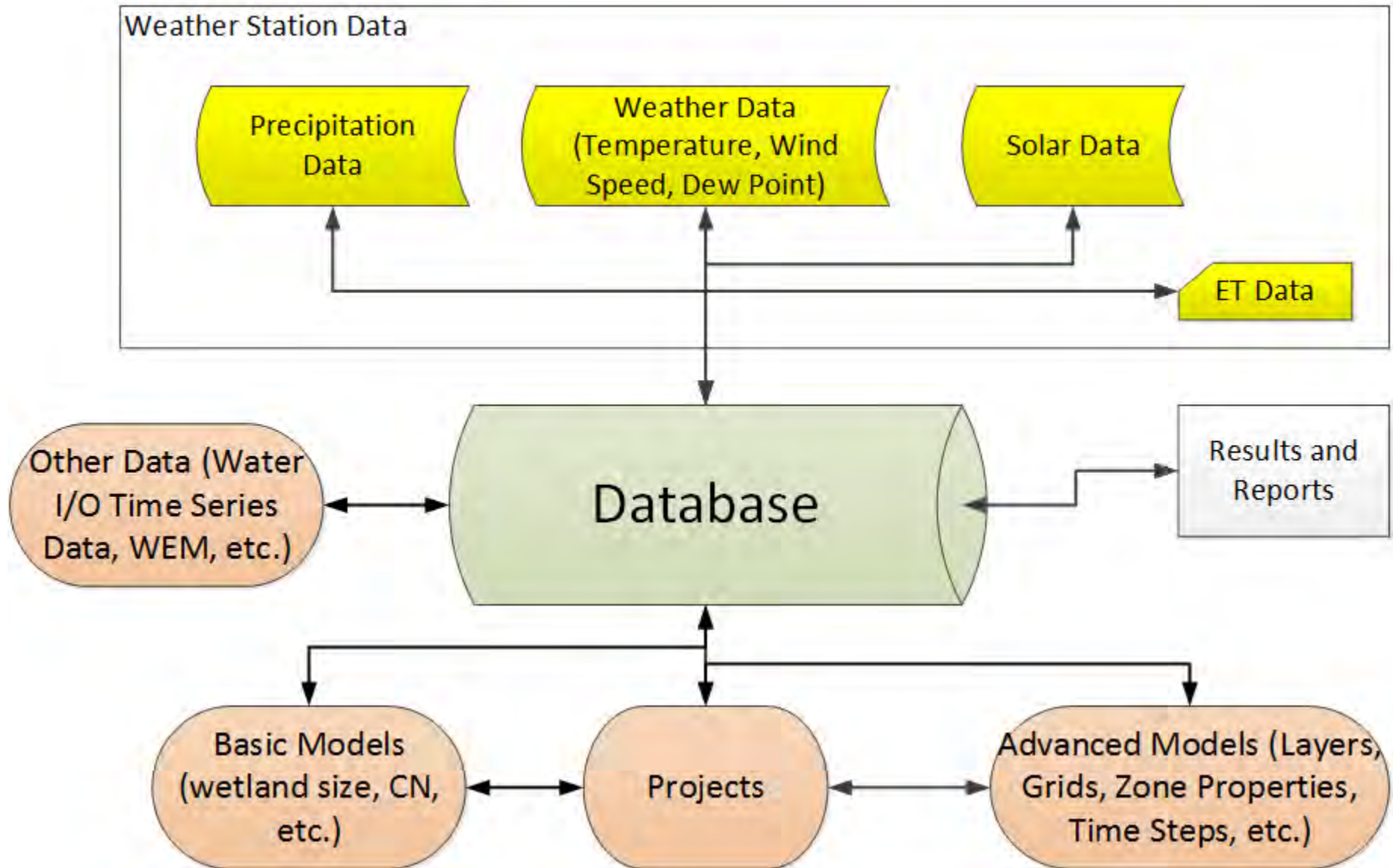
- Wetbud Plus features a project / scenario setup wizard.
- The wizard assumes that all needed climate data are in place.



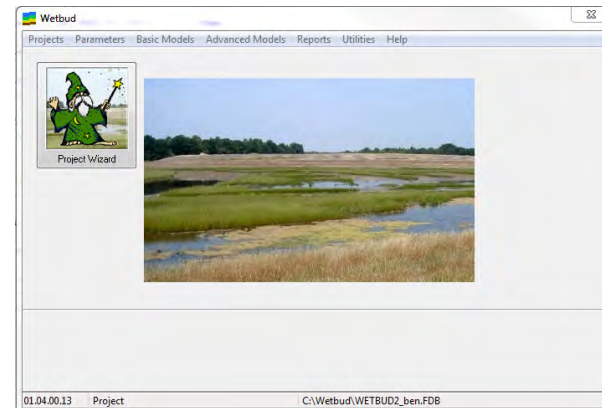
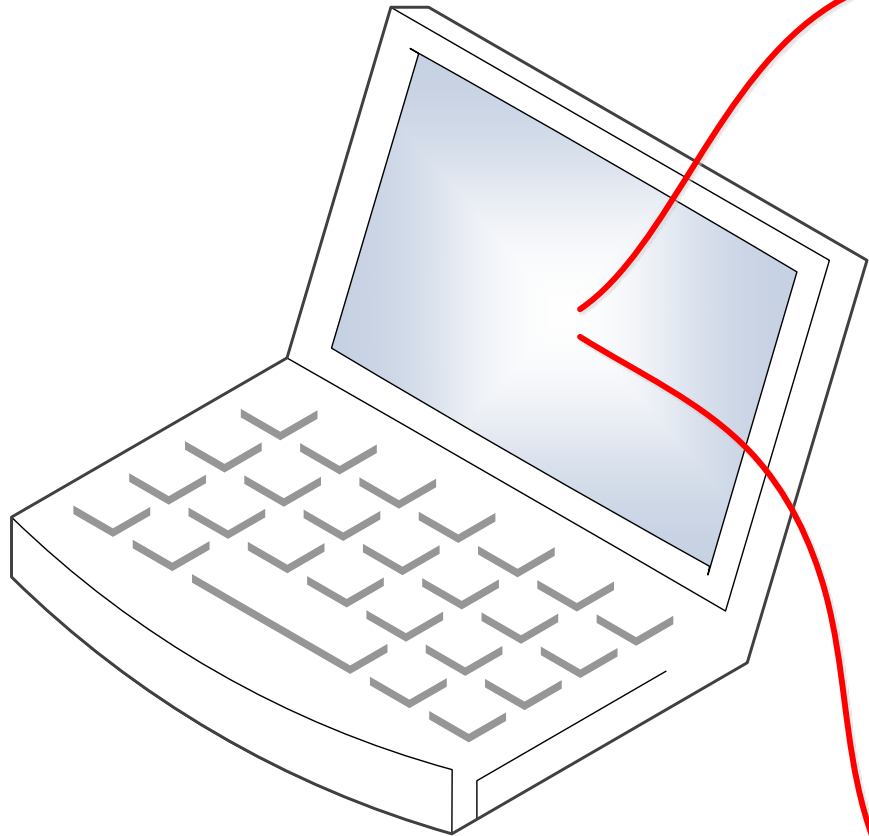
What's in the Database



Preloaded Stations

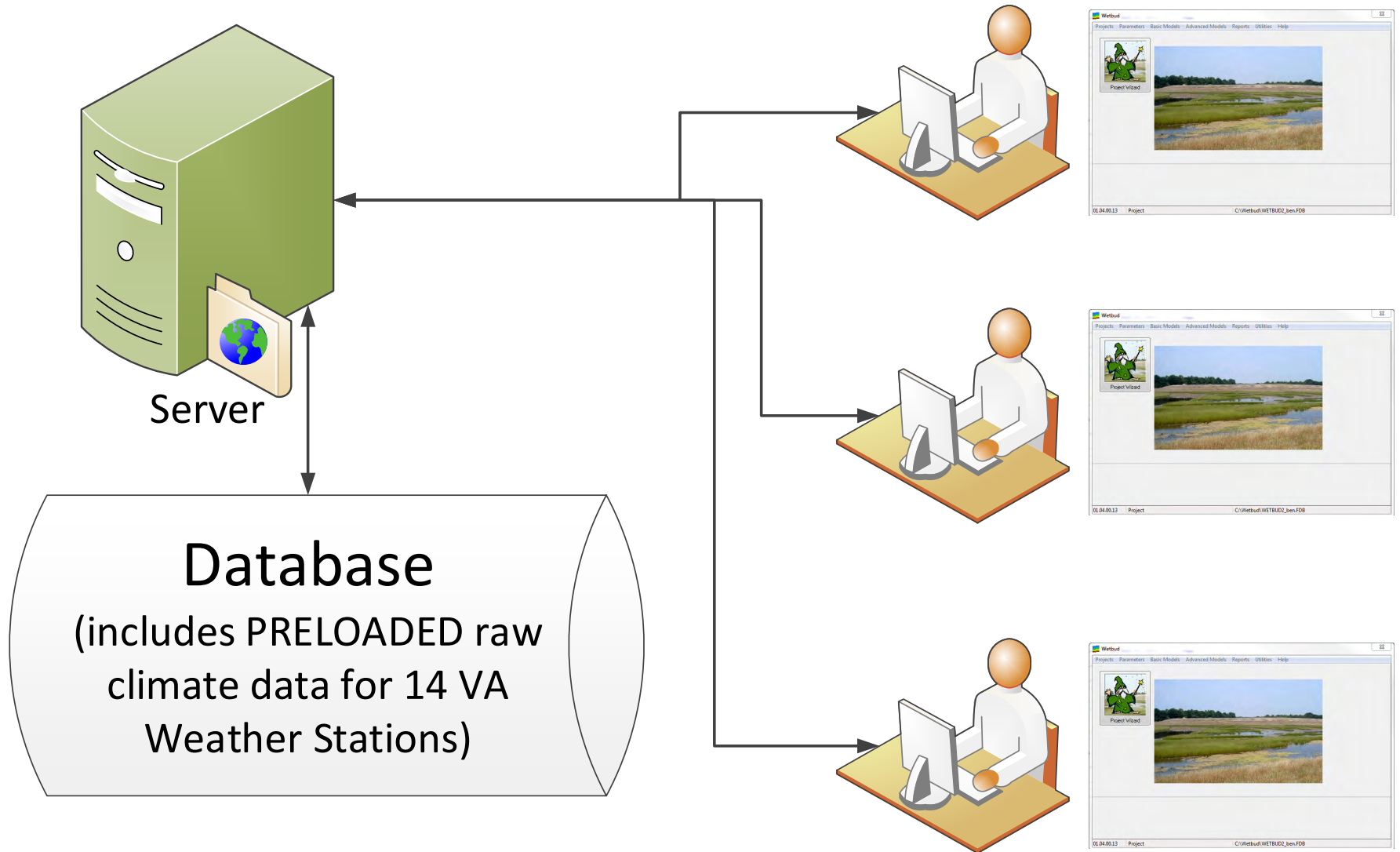


Typical Single User Setup



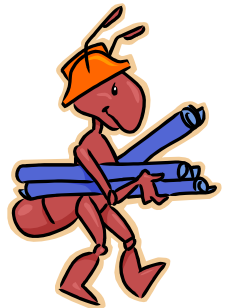
Database
(includes PRELOADED raw
climate data for 14 VA
Weather Stations)

Typical Multiuser Office Environment



Working with a Database

- Seamless interface with the application on a LAN environment
- Work is not “lost” in excel or DOC files on individual computers
- Data is shared
- Simplifies backing up of work
- Comments are allowed in most areas to document actions
- Reporting is fully parametric



The concept of a Wetbud Project

- Project information includes the location of the wetland, the weather station that will be used for the analysis, the WETS stations used for the analysis, and information on the setup of the Steam Overbank and WEM calculations options
- A single project may include multiple basic and multiple advanced models



The concept of a Wetbud Scenario

- Scenarios allow multiple different runs under a project where the user can modify wetland size, the type of input and output, weir settings, etc.
- All basic scenario data results are automatically stored in the Wetbud Database.





Projects and Scenarios

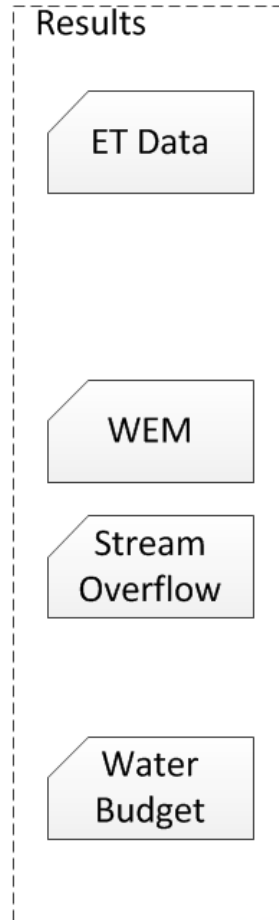
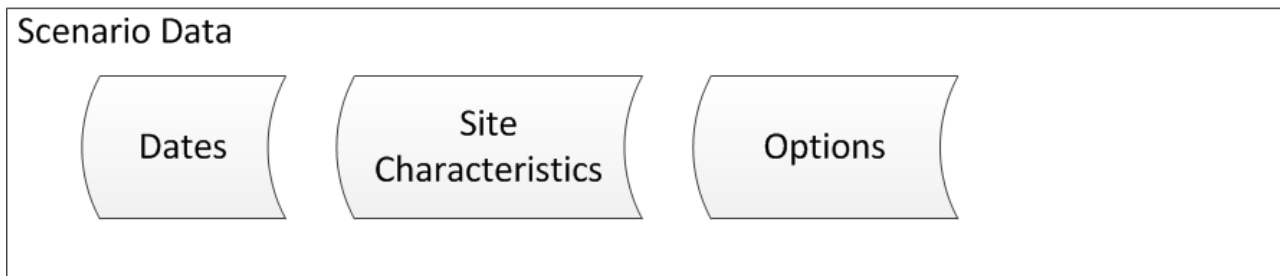
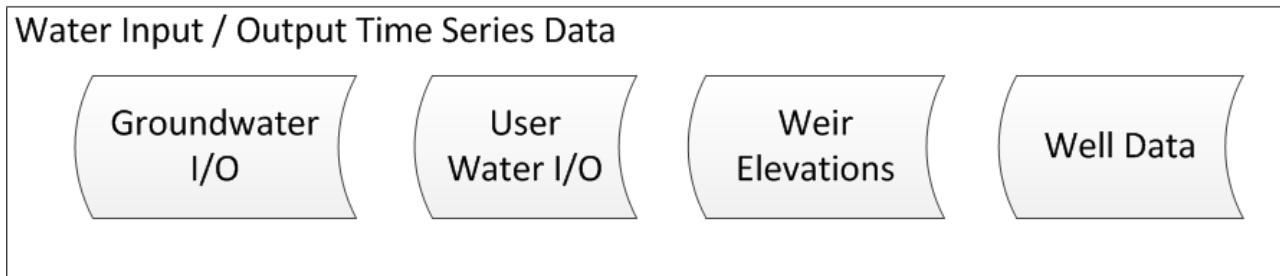
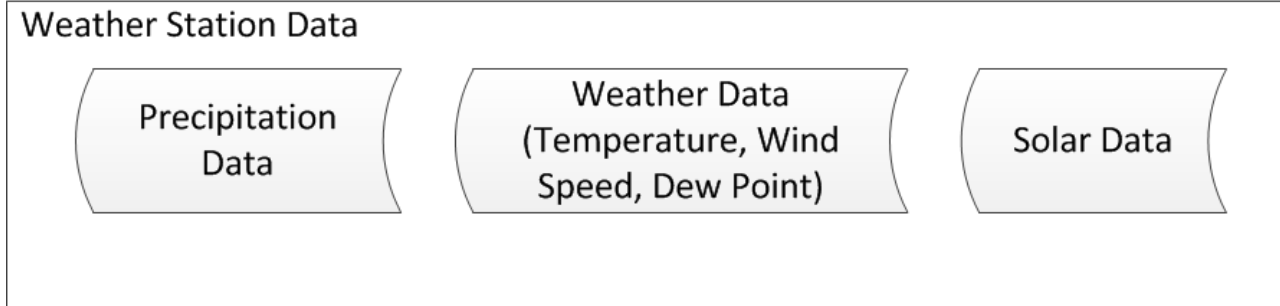
- Site specific data, such as well information, ground water information, etc., is stored at project level, so that all Project Scenarios can access it.
- Basic scenarios can be simplistic or sophisticated depending on the level of analysis
- Advanced scenarios are solved using Modflow. Modelling is more complicated since data need to be “translated” to be Modflow compatible

Basic Scenarios (1/2)

- Calculate water budget for three typical years (WDN) or for given range
- Calculations are performed on a monthly basis
- Data may be constants or time series (precipitation, ET, groundwater I/O, weir elevations, etc.)
- Groundwater time series may be generated via a built-in WEM algorithm
- Stream overbank time series may be generated via a built in algorithm



Basic Scenarios (2/2)



Advanced Scenarios (1/2)

- Solution is generated via the publically available Modflow code.
- Wetbud will seamlessly generate the input required for Modflow.
- Due to the model types considered, input to Modflow (and solution times) is greatly simplified
- Calculations may be done on a daily basis
- Data for precipitation and ET can be used directly from the Wetbud databank
- Results are currently not stored in the database.



Advanced Scenarios (2/2)

Input Data

Precipitation
Data

ET Data

Groundwater

Soil
Properties

Geometry

Area

Cell Size

Layers

Topo

Modelling

Grid
Zones

Cell Zones

Model Setup
and Boundary
Conditions

Results

Water
Elevations



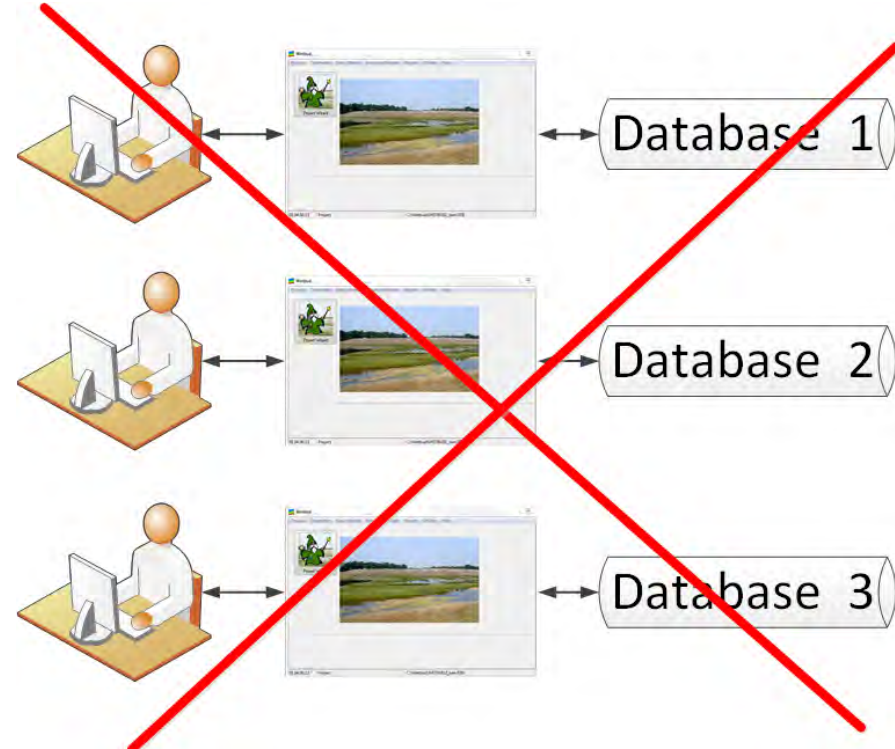
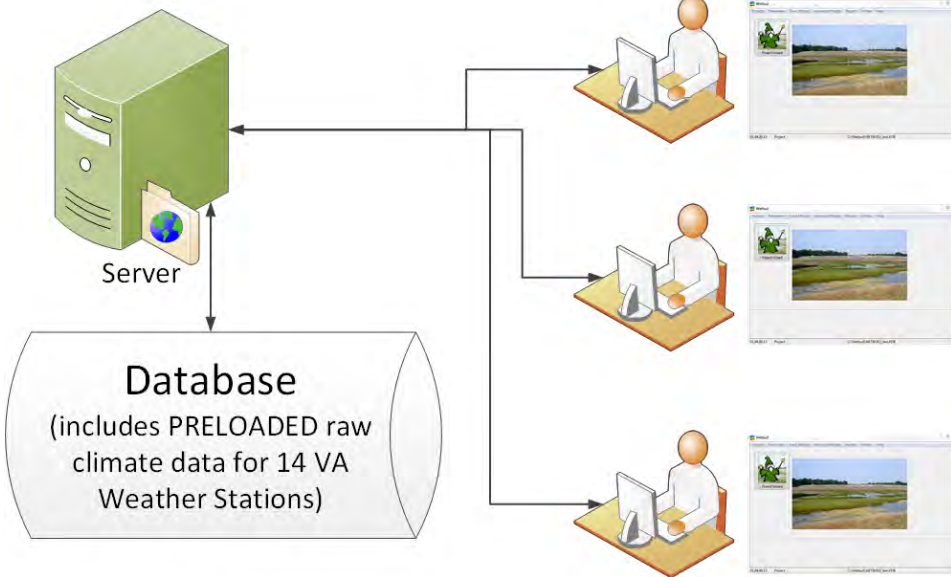
What happens when you install Wetbud for the first time?

- The installer will install
 - The firebird database server (if not already there)
 - The Wetbud executable under c:\wetbud
 - The Wetbud database under
Users\xxx\Documents\MyWetbud
 - The Preloaded Database with Examples

What happens when you update your Wetbud installation?

- The installer will
 - Make a backup copy of the current database
 - Will update the executable
 - Will ask the user whether
 - To update the existing DB (the structure will be updated, but not the data)
 - To replace the existing DB with a blank DB
 - To replace the existing DB with a DB with Preloaded VA Stations
 - To replace the existing DB with a DB with Preloaded VA Stations and Examples

Dos and Don'ts



How would I install Wetbud on my small office network

- Select the computer that will act like a server
- Install Wetbud on that computer
- Tweak the firewall settings so that other computers can connect to the database
- Install Wetbud on other office computers
- Instruct Wetbud to connect to the server computer instead of the local DB

FAQ (1/3)

- I want to move to the newer Wetbud DB with preloaded stations, but I still want to access my previous Database. Which install option should I use?
 - The installer will always automatically backup your current database.
 - You will be able to access the previous database.
 - Select the option to delete the current database and install a database with preloaded stations and examples.

FAQs (2/3)

- I want to move to the newer Wetbud DB with preloaded stations, but I have put together some climate data that I don't want to lose. Can I import my climate data into Wetbud?
 - Importing data is very easy and can be done through excel files. It is recommended that you export the data before you update Wetbud. Check the Manual for exporting options.
- Can I automatically merge the data from two databases?
 - It is strongly recommended that you only work with ONE database in your work environment

FAQs (3/3)

- I can not connect to the dropbox link or any other file sharing system to download the Wetbud install file.
 - Some organizations prohibit such connections through their network for security reasons. Contact your IT administrator to manually load the install file on your computer.
- I get errors when trying to install Wetbud.
 - You may not have administrator privileges / rights to perform installations of software on your computer. Contact your IT administrator.

Questions?



- Download the latest Wetbud version:
<http://www.landrehab.org/wetbud/>