

Fort Future

The Virtual Installation

Installation Process Simulation

Kelly Dilks

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What Happens if...



You have a virtual installation to build and test ideas to solve future requirements



Technology Gaps

Ability to rapidly create models and simulations to plan, rehearse, and aid execution of mobilization and deployment of Joint Forces using existing or readily available data



What we needed to be able to do?

- Rapidly create new models
- Bypass extensive data collection/creation
- Move processes to different locations and virtually test effectiveness
- Can test proposed infrastructures and processes
- Visualize the process and the choke points



Technology Shortfalls

- **GIS software needed data to be in GIS format**

Became evident it was more computationally intensive to use traditional GIS software for the real-time visualization and playback of scenarios.



The Virtual Installation

- **Process Simulation**

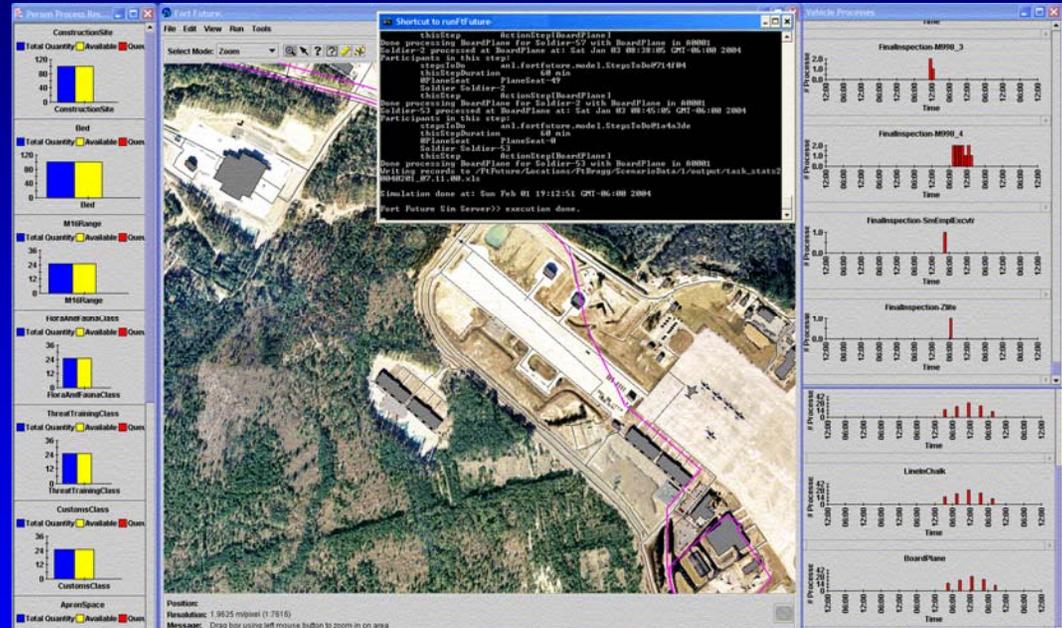
- Projection
- Dining Facilities
- Barracks Utilization

- **Utilities**

- Power
- Water
- **Fuel**

- **Force Protection**

- Interactive Plume Model Generation



Originally - The Virtual Installation

Developed to Overcome Challenges to Projection Simulation

- Defined set of projection requirements but no standardized execution between installations
- Within an installation, each deployment is unique
 - Different time requirements
 - Shifting facilities
 - Variations in status/readiness of personnel, equipment, and vehicles
 - Variations in training requirements
 - Variations in transportation assets



Becomes - The Virtual Sandbox

The Solution Created a Simulation Capability that:

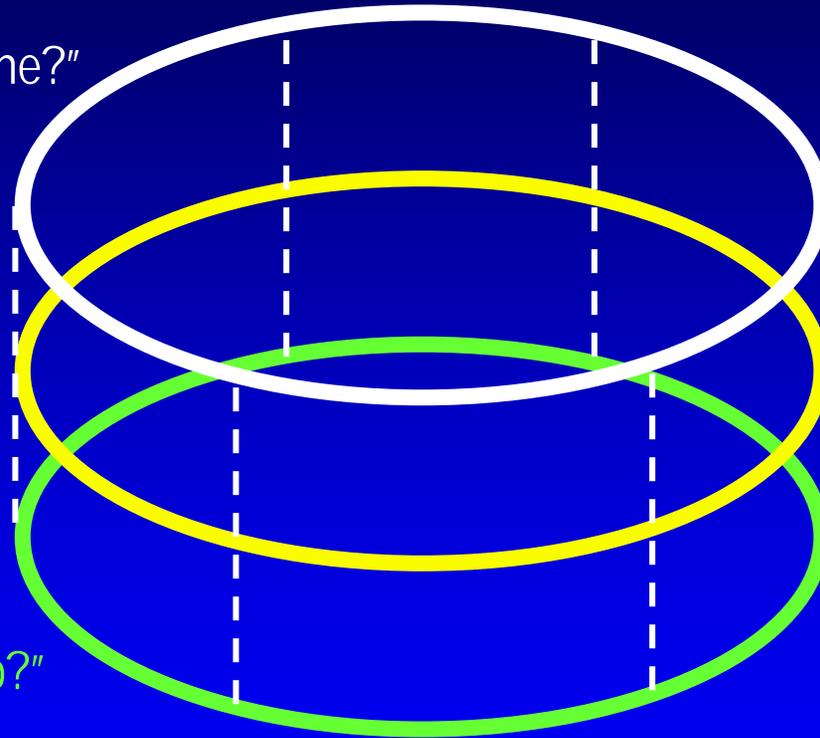
- Shifts modeling from the programmer to the user
- Creates a computable model of any geographic location using GIS Data
- Integrates any process with infrastructure including utilities (power, water, and fuel)
- Uses one-time data input for framework
- Can create additional locations in hours (with adequate data)
- Embeds expert knowledge



Interdependent Models – Everything happens at a location

Mission

“What must be done?”



Process

How much time does it take?

“Who does it?”

“Where does it happen?”

“What resources are needed?”

What constraints are there?

Infrastructure

“What must the facility do?”

“Can it do it?”

“What will improve it?”



Data Requirements

User-Provided
Data

Build Installation's Deployment Process
and Capacities

Installation
Respository

Training Capacity, GIS Layers and
existing databases such as HQ, EIS, IFS,
ISR, FPS, etc

TC AIMS II

Unit Specific Deployment Data
(Personnel/Logistics/Training)



Mission to Simulation

What is the mission?

What are the mission essential tasks?

What are the support requirements?

Can I accomplish the mission in the time allotted with the resources available?

What resources are required?

What processes are required?

What resources might be applied?

What resources are available?

What processes are available?

What processes might be established?

Where should the processes take place to best support the overall mission?



Test and rehearse possible courses of action in simulation

Installation METL Tool

METL Organization Page - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://localhost:8080/ffwb/controller?event=METL_REPORT_SUMMARY&orgid=3&instid=3 Go

Google Search Web Search Site News New! PageRank Page Info Up Highlight

FORT FUTURE

Home | Installation Planning | Force Projection | Facility Composer | Force Protection | Log in

IMA Region 2008

Fort Readiness

- [Army Community Hospital](#)
- [Contracting Command](#)
- [Directorate of Civilian Personnel](#)
- [Directorate of Community Activities](#)
 - [Administrative Support and Services](#)
 - [Alcohol and Drug](#)
 - [Army Community Services](#)
 - [Business Operations](#)
 - [Child and Youth Services](#)
 - [Community and Family Recreation](#)
 - [Transient Lodging](#)
- [Directorate of Information Management](#)
- [Directorate of Logistics](#)
 - [Deployment Plans](#)
 - [Installation Transportation Office](#)
 - [Maintenance Management Office](#)
 - [Supply](#)
- [Directorate of Plans, Training and Mobilization](#)
 - [Aviation Operations](#)
 - [Management Division](#)
 - [Mobilization Division](#)
 - [Museum Division](#)

Fort Readiness Requirements Summary Print

Mission

Provide vital information, power projection, combat preparation and sustainment, force protection and community support to Army and Joint Force tenants.

Vision

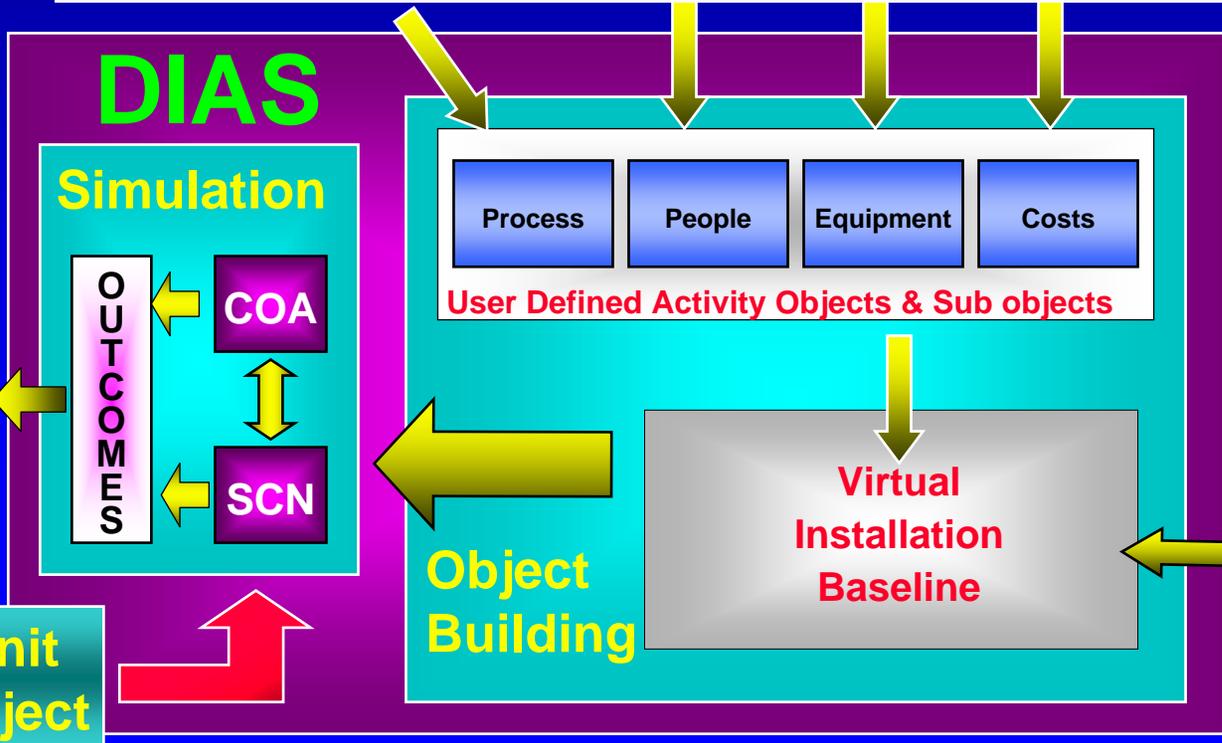
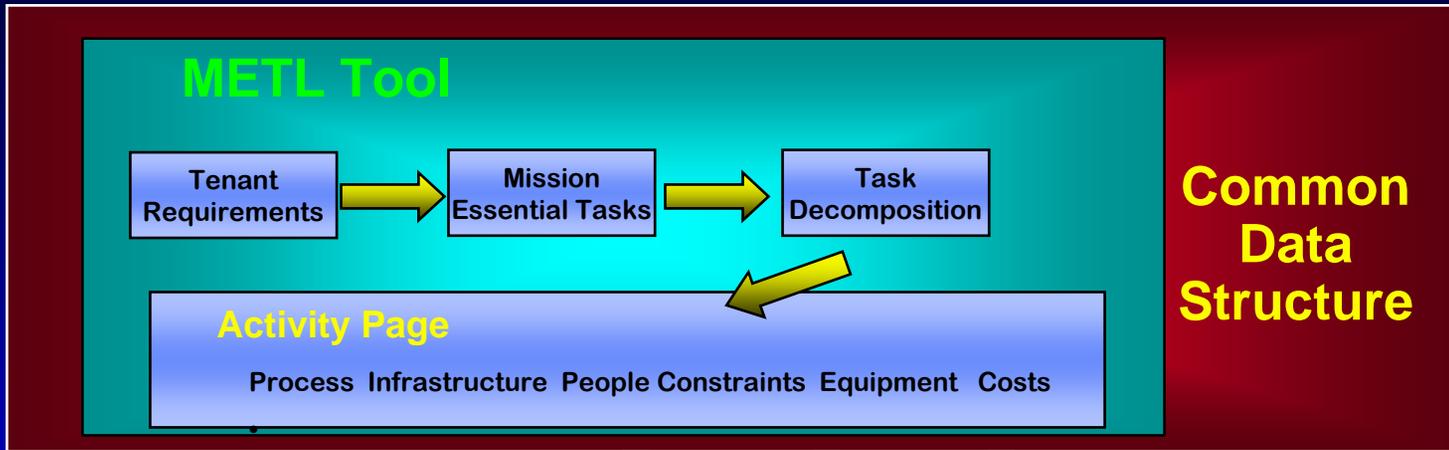
Total support to train, sustain, and project.

[Edit Requirements Summary](#) [View Installation Summary](#)

Fort Readiness - Mission Essential Task List

Current Tasks - Assigned Organizations





- ### Installation Repository
- Infrastructure – IFS
 - Transportation – GIS
 - Terrain – GIS
 - etc, etc, etc

Components

- **Computable Framework Objects**
- **Computable Process Objects**
- **Computable Entity and Entity Group Objects**
- **Computable Resource Objects**



The Process Object

1 **Object State Change** in **Time** Minutes with **Quantity** Resources

1 **tank fueled** in **30** minutes with **1 low volume hose** and **1 fueler**

1 **tank fueled** in **10** minutes with **1 high volume hose** and **1 fueler**

Must satisfy a “to do” at a location



The Resource Object

Object Type	Sub-type	Role	Capacity
Person	Dentist	Perform Exams	30 minutes
	Mechanic	Inspect Vehicles	30 minutes
Vehicle	K-Loader	Move platforms	1 40' platform 2 20' platforms
	Bus	Move Troops	40 passengers
Equipment	Fuel Pump	Fuel Vehicles	10 gpm
Supplies	Packing Cardboard	Insulate objects	yes/no

Required for a process to execute at a location



The Entity Object

Object Type	Roles	Attributes
Person	Commander Mechanic	Dental Medical
Vehicle	M1A1 Tank M2A3 IFV	Weight Fuel Capacity
Equipment	Generator	Volume (space)
Supplies	Ammunition Rations	Bulk Three to a soldier

**Establishes a discrete object with “to do’s”
at a location**



The Entity Group Object

Company Group Object:

Company Commander

First Sergeant

Company Executive Officer

Platoon Leaders

Platoon Sergeants

Squad Leaders

NCOs

Soldiers

Driver/Vehicle Group Object:

Driver

TC

Vehicle

Equipment

Collections of “Things” at a location



The Road Ahead

Completion of Version 1 (1 October 2004)

- **Web Version**
- **User Interfaces**
- **Entity Attributes (Standard Database Inputs)**
- **Additional Data Output Capture**
- **Integration with Power and Water Modules**

