



How Boeing is Using TRIRIGA to Optimize Return on Real Estate Assets

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Optimizing the World's Infrastructure

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Turning Opportunities to Outcomes

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- **Key Facts about Project**

- Upgrade from Facility Center 7 to TRIRIGA 9
- Implement Space Management Capabilities
- Boeing project-implementation standard is Agile Methodology

- **Special project features**

- First-of-its-kind CAD Migration capability
- Leverage Space Audit History features as monthly snapshot for chargeback and historical repository
- Additional retire/unretire space capability - more usability by excluding them from roll-up reporting and record searches



Modules Implemented

- **Environment:**
 - TRIRIGA Application Version: 9.7
 - TRIRIGA Platform Version: 2.7.2.6
 - AutoCAD Version: AutoCAD 2008
 - CAD Integrator version: 2010 v2 Build 7.0.4.00
 - WebSphere 6.1 (AIX 6.1)
 - Oracle Enterprise 11.2.0.2 (Linux 5.7)
- **Current:**
 - TRIRIGA Portfolio
 - TRIRIGA Facilities Management
 - TRIRIGA CAD Integrator
- **Future**
 - Facilities Condition Indexing (FCI)
 - Strategic Facilities Planning (SFP)



Project Challenges

- High Volumes of data to Migrate
 - 100 Sites
 - 2000 Buildings Totaling 84M FGSF
 - 225,000 Spaces
 - 175,000 Space Allocations
 - 200,000 chargeback records recorded and delivered to Accounting monthly
- Monthly Chargeback
 - On Demand Recording (Snapshot) and Validation Processes
- AutoCAD Drawing Migration
 - 2000 attached drawings to migrate, 220,000 Spaces
- Data center modernization
 - TRIRIGA needs robust hardware – it was a key to success – required an upgrade from IBM P690 to Power 770 Servers
 - AutoCAD upgrade from 2006 to 2008 at some Sites. AutoCAD 2010+ unavailable due to 64bit Windows 7 OS

Project Schedule

Task Name	Start	Finish	2011					2012					
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
<input type="checkbox"/> Boeing TRIRIGA 9 IWMS Space Management Implementation	Mon 11/29/10	Fri 11/16/12											
Analysis & Design	Mon 12/13/10	Mon 2/28/11											
<input type="checkbox"/> Platform Implementations and Stabilizations	Mon 11/29/10	Thu 9/1/11											
<input type="checkbox"/> Configuration	Tue 3/22/11	Mon 5/14/12											
<input type="checkbox"/> Testing	Thu 6/2/11	Fri 6/8/12											
<input type="checkbox"/> Training Prep	Wed 7/20/11	Fri 6/15/12											
<input type="checkbox"/> Software Express Pkg for CAD Integrator	Mon 8/29/11	Fri 6/15/12											
Go/No Go Discussion	Fri 6/8/12	Fri 6/8/12											
PRR	Fri 6/8/12	Fri 6/8/12											
<input type="checkbox"/> Production Deployment of Application Upgrades	Fri 10/28/11	Fri 11/16/12											

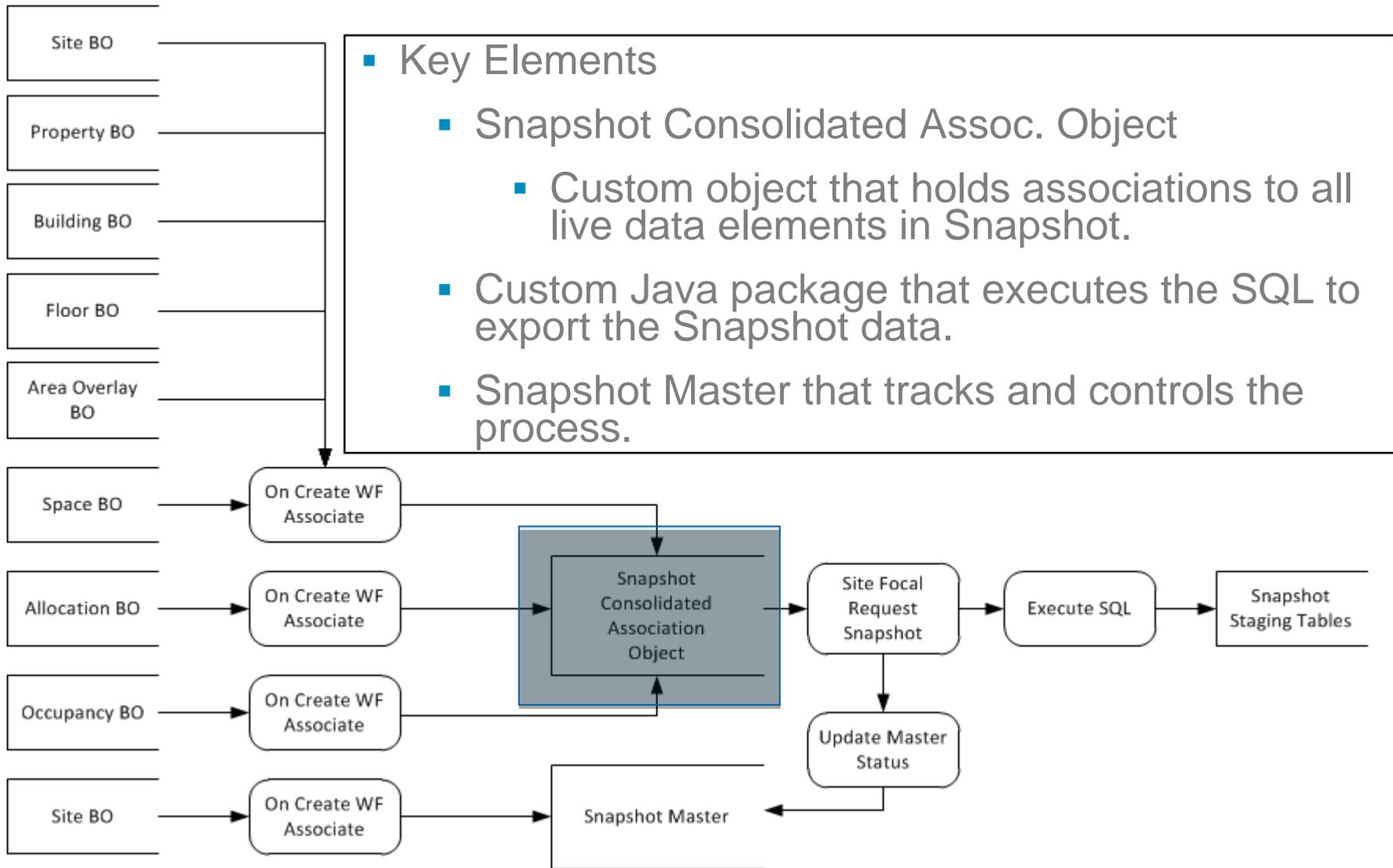
- Keys to Success:

- Methodical, well-planned deployment
- Streamlined Snapshot process – full re-design
- Hardware investments
- Partnering with IBM as vendor and factory rep (low walls)

- **Different volumes require different processes**
 - Smaller volumes (Site, Buildings, etc.) use Data Integrator
 - Helper workflows used to transform the imported data
 - Larger volumes used Business Connect
- **Multiple Billing Periods Required to complete Migration**
 - Process was complicated by inability to complete the migration within a monthly billing period. And allow time for business to prepare the Billing for that period.
 - Anticipated 3 months (periods), actual migration took 2.
 - Billing delivery (Snapshot) was switched to the new system with first migration.
 - Remaining FC7 Sites Bridged to the new billing until Migrated.

- **Guiding principles:**
 - Includes all Location Portfolio elements. Represents FGSSF
 - Include: Active, Draft, Revision. Exclude Retired Spaces.
 - Floor Gross is delivered. Usable is billed.
 - Site Focals are accountable for when Snapshot for their Properties is created up to a deadline. Auto-Snapshot will infill at deadline.
 - Speed and flexibility – must support last-minute events leading up to monthly chargeback deadlines
- **Overall 1-2-3 Process:**
 1. Snapshot – Site Portfolio data is exported to Staging tables
 2. Validation – DI reports to confirm data and Action to flag as validated and lock the Snapshot process for the Site.
 3. Import to Finance System – Billing objective assigned and submitted to Billing System.

Snapshot Data Flow



Snapshot Solution Design

- Snapshot Master
 - Process Control
 - Process Meta-Data
 - Visibility of State
- Snapshot Reports
 - Crystal linked to external tables

Space Snapshot Master > 1000181 | Print Preview | Help

General | Notifications | Notes & Documents | System | Work Flow Instance | Reports | Associations | Audit Actions

► | (Required): General information for space allocation. Save & Close | Save | Activate | Cancel

General

Audit ID 1000181 **Current Status** Draft **Previous Status** Active

Audit Period February-2013

Site

Site ID 1000087 **Site Status** Active

Site Name St. Louis **Hierarchy Path** \Locations\St. Louis

Details

Instructions This form is used to Activate and Validate the Site Snapshot for all NON-RETIRED Spaces.

Click on Activate in the upper right corner and wait until you receive an email notification verifying Activation is complete. The Site data can then be Reactivated or Validated by clicking the appropriate actions in the upper right hand corner.

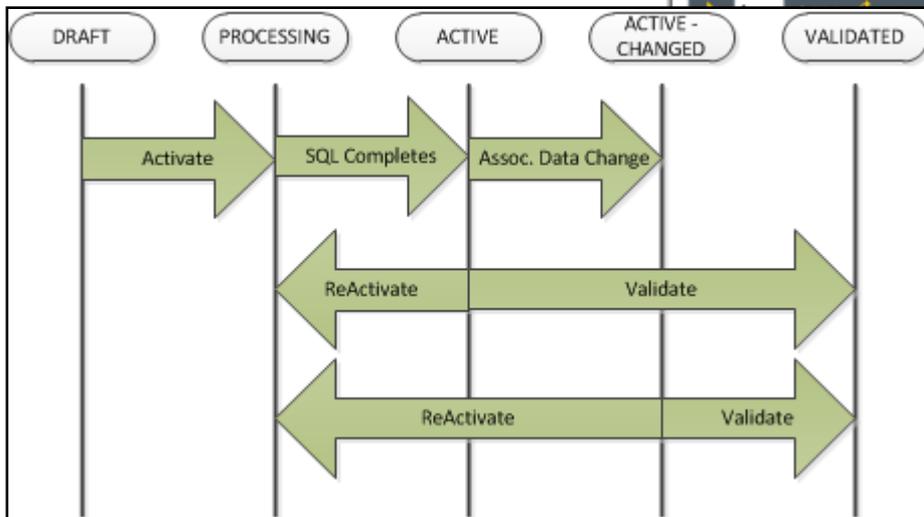
Audit Month February **Audit Year** 2013 **Activated Date** **Activated By**

Audit Month Code 2 **Snapshot Date** 01/31/2013 02:01:12 **Validated Date** **Validated By**

Space History

26923 total found | Apply Filters | Clear Filters | Show: 50

Area Name	Space Class	Space Area (A)	Sec Circ Proration Area(B)	Tenant Common Pro Area (C)	Planning Area (A+B)	Chargeback Area (A+B+C)
Contains	Contains	Equals	Equals	Equals	Equals	Equals
ons\St. IL-73-75-510-	AREA03.1 01- Cubicle-D	58.3399 square-foot	22.0659 square-foot	4.6023 square-foot	80.4058 square-foot	85.0081 square-foot
ons\St. IL-73-75-42-	AREA03.2 01- HardWall-D	156.8004 square-foot	56.6626 square-foot	14.0311 square-foot	213.463 square-foot	227.4941 square-foot
ons\St. IL-		58.7772				



- **Risks/Challenges**

- Site will not have the Snapshot completed by the Deadline
 - Finance agrees that billing any available data is better than nothing at all. Retro-active adjustments require data to adjust.
- Remote Sites have no direct Site Focal to create the Snapshot

- **Solution**

- Execute a scheduled workflow on the Deadline that will Active any Snapshot Master that is still in DRAFT State.
- Will not Validate the Auto-Snapshot or any existing Snapshot for that Month.
- Assures a complete set of Enterprise data is captured with each cycle.

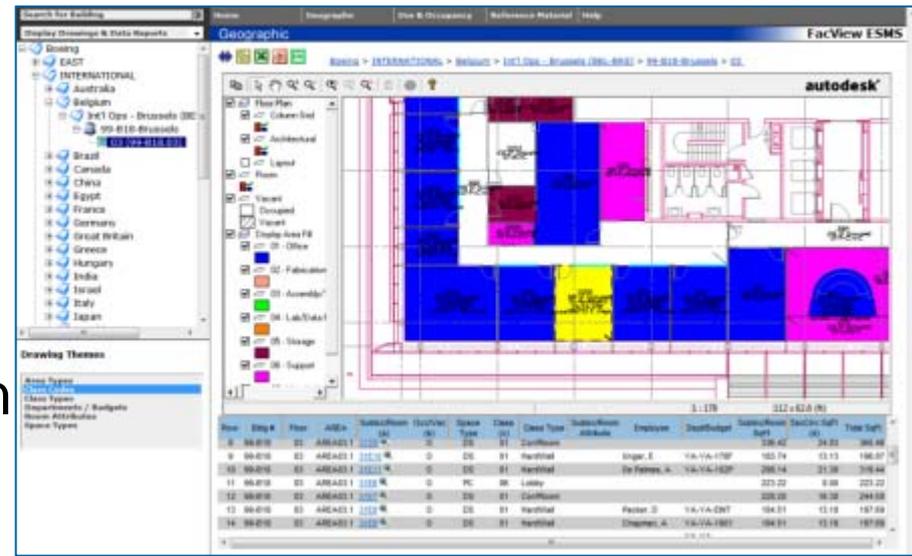


Benefits of the Snapshot Development

- **User Experience**
 - Snapshots created/exported within minutes
 - Validation instantaneous
 - Active – Changed State, Valuable feedback that data has changed since Snapshot created
 - Site Focal is in full control of the process.
- **Ancillary Benefits**
 - We are finding we can use the consolidated data elements of the snapshot for other interfaces and reporting.
 - Having our primary data element of interest consolidated as associations in one place is proving to be very useful for other day to day purposes.
- **Questions?**

CAD Drawing and Visualization is a Key Feature

- Web site provides enterprise data and drawings
- Drawings are converted to MapGuide SDF
- Background drawings remain DWG
- Supports
 - Data transparency equals data accuracy and quality
 - Eliminates 99% of data calls
 - Theming on different data elements
 - Change request reports are generated by field groups
 - Multiple roll up and discipline transforms
- Data is refreshed and changed drawings, are posted daily





AutoCAD Drawing Conversion FC7 to TR19

- High volume of drawings
 - 2000, with 220,000 Spaces to be attached to TRIRIGA 9
- Proposed processes were unacceptable
 - Contract it out – too costly and time consuming
 - Automated Upload Locations – Only 80% success rate
 - Depended upon the FC7 label being inside of the Polygon
 - Finding and manually attaching 44,000 Spaces was unacceptable
- Final process utilizes the XDATA of the FC7 Drawings
 - Each FC7 polygon has XDATA that definitively connects it to its Building/Floor/Space
 - Utilizing SQL and AutoLISP programming
 - Process drawing in batches (Sites)
 - Export the data from TRIRIGA
 - Build a script to process each drawing and Run the Batch
 - Success rate 100%, all issues could be traced to FC7 issues.
 - Large Site could be completed in a day, Small Sites in an hour.



Question and Answers

- ...





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