

Staying FOCUSED In a MAD, MAD, MAD, MAD World!!

MUSE Webcast



Introductions

Speaker Info:

Frank Fortner

Senior Vice President

Application Software Division

Objectives

- ***Acquire*** a basic understanding of MEDITECH's newest generation of HIS software, 6.x, built on a proprietary MEDITECH Advanced Technology platform once referred to as FOCUS.
- *Become **empowered*** with the knowledge necessary to make wise and well-informed decisions about your own possible migration to a 6.x version, which introduces the MEDITECH Advanced Technology platform.

MEDITECH Platforms

- MIIS
 - **\$T MAGIC**
 - NPR (MAGIC)
-
- **Client/Server NPR (VMAGIC)**
 - Client/Server FS
 - **Client/Server Advanced Technology (once called FOCUS)**

Two Sides to C/S 6.x

MEDITECH C/S 6.x

C/S NPR

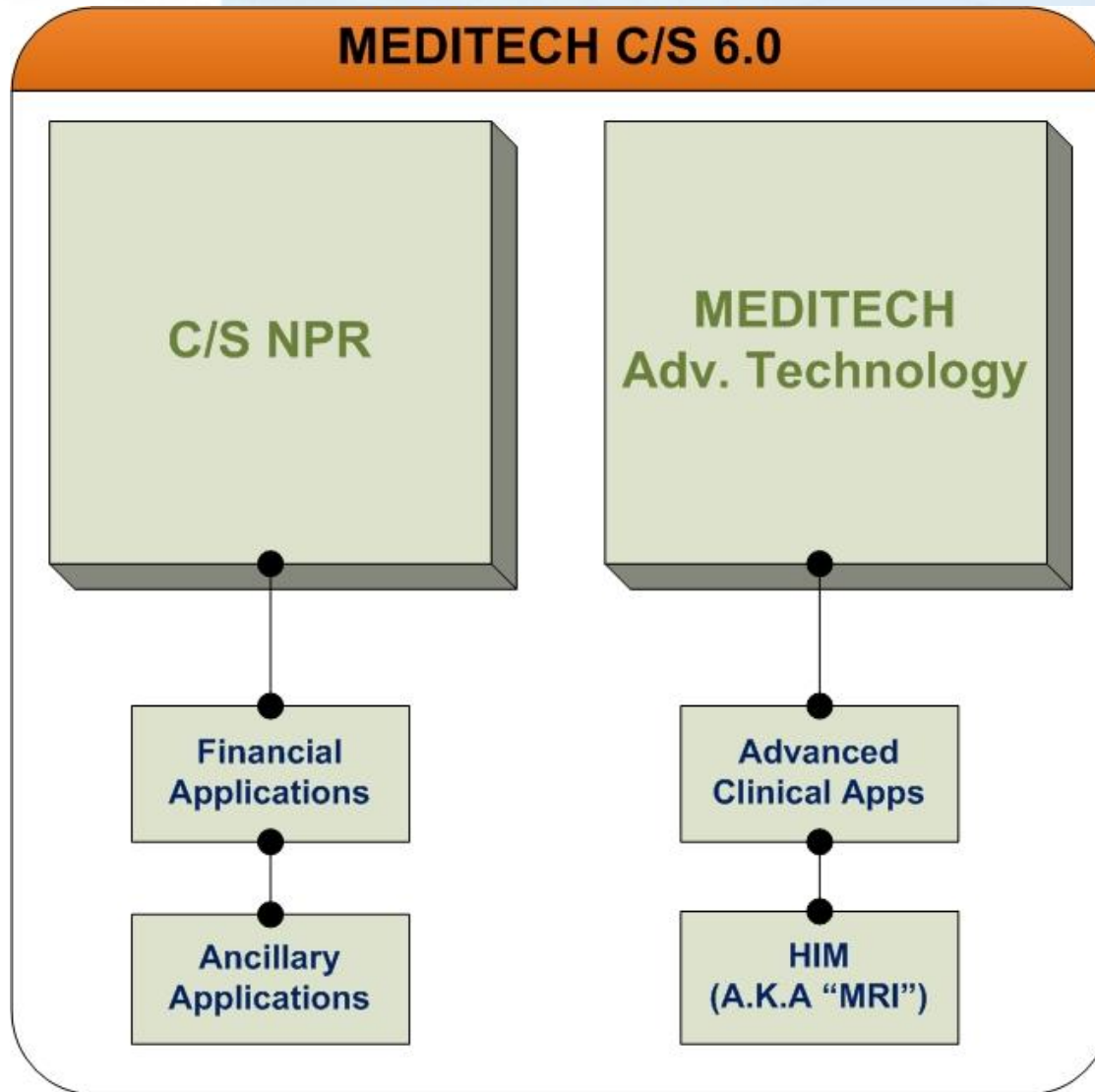
Connections

MEDITECH
Advanced
Technology

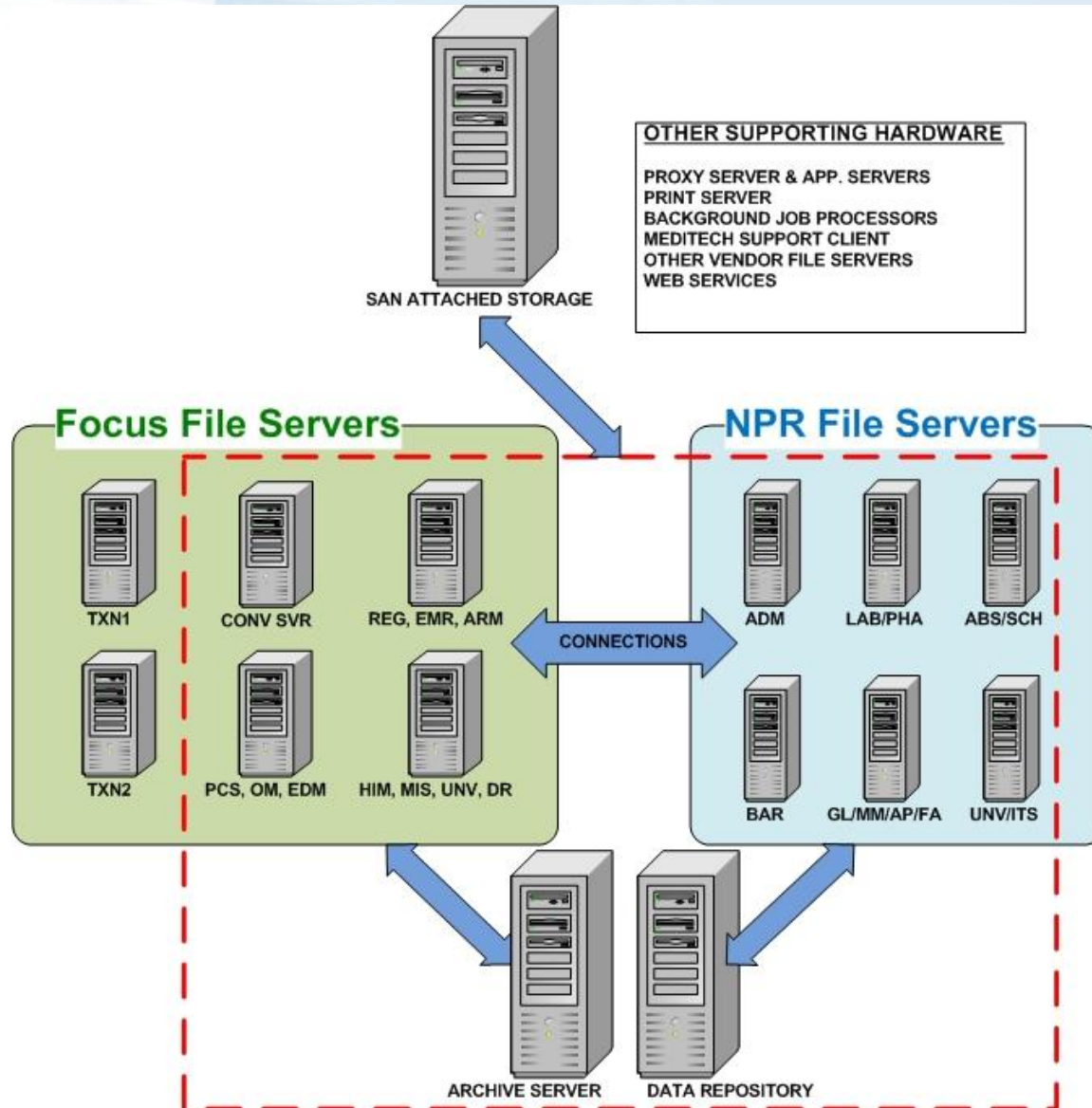
Nearly Identical UI

Separate Report Writers & DR Databases

6.0 Platform Breakdown




Physical View of 6.0





1st Key Takeaway!

- Current 5.x C/S customers migrating to 6.0 or 6.1 are migrating some applications to a very different C/S platform
- **Current MAGIC customers migrating to 6.0 or 6.1 are technically migrating to TWO very different C/S platforms. Some applications to one platform and some to the other.**



C/S 6.x

A Tale of TWO Platforms

(NPR and M-AT)

Defining C/S NPR

- Primary MAGIC-like technology in 5.x (called VMAGIC)
- **Similar database and programming language to MAGIC**
- Most applications in C/S 5.x “ported over” from MAGIC
- **Ironically Stands for “Non-Procedural Representation”**
- Not a report writer and yes, “Programming is Required”

Defining C/S NPR

- Similar Report Writer to the NPR RW found in MAGIC
- **Included a few pure “FS” applications (e.g. EMR, PCS)**
- Most 6.0 applications are still on the NPR platform
- **Limited lifespan in 6.x as more apps port to M-AT**

Defining M-AT

- New development environment built around FS language
- **M-AT is to FS what NPR MAGIC was to \$T MAGIC**
- New “Chronological” Database Technology (MAD)
- **Optimized Network Management**
- New User Interface Tools for Screens / Reports

MEDITECH Advanced Technology:

- Advanced Programming Language (APL)
- **Advanced Network Protocol (ANP)**
- Advanced Database (MAD)



APL

(MEDITECH Advanced Programming Language)

What Is APL?

- **Until recently, APL was being called FOCUS code**
- High level source language; produces FS object code
- **Similar to how NPR produces Magic object code**
- No built-in editor; APL developers mostly use TextPad
- **No access to write APL or FS code anywhere in M-AT**



2nd Key Takeaway!

- There is NO end-USER access to write APL or FS code anywhere in M-AT
- **The NPR side of 6.x will still allow inserting NPR & MAGIC code in fragments, macros, computed fields and screen attributes but there is NOTHING even comparable in M-AT.**
- MEDITECH's position is that writing code is not necessary if you use the rules editor M-AT provides.

What Is FS?

- **FS = new(er) object code language introduced in 90's**
- **Stands for “Functional System”**
- **Interpreted language with lots of function calls**
- **Emphasis on client-side processing**
- **Very little support of Data Defs & Variables**
- **In 5.6, was purely object code; Now APL produces FS**



CODE COMPARISON

'Hello World' in MAGIC

```
T("")^#,  
N("Hello World!")^#;
```

Clear the screen & position at top



Write Hello World to the screen



Hello World in FS

```
:Code Main ← Name of Function
`200,300'@lw@OW, ← Create a window
"My First App"@lh ← Add a title to the window
"Hello World!!"@Wb, ← Output string in the foreground
DO{@RK~=27}@CW; ← Exit when user presses 'ESC'
                  Close the window
```


Hello World in APL

#Translation

:Options

Result

MSFile

:Product

Type

Unstructured

#Preamble

:Options

Type

Process

#Magic

:Code Main

`200,300'@lw@OW,

"My First App"@lh

"Hello World!!"@Wb,

DO{@RK~=27}@CW;

← Same as FS code in the Main body

Hello World in APL

#Translation

:Options	
Result	MSFile
:Product	
Type	Unstructured

Used to determine
"run-time" behavior

#Preamble

:Options	
Type	Process

#Magic

```
:Code Main
`200,300'@lw@OW,
"My First App"@lh
"Hello World!!"@Wb,
DO{@RK~=27}@CW;
```

Hello World in APL

#Translation

:Options

Result

MSFile

:Product

Type

Unstructured

#Preamble

:Options

Type

Process

Defines the Object type
i.e. how this object will be "called"

#Magic

:Code Main

``200,300'@lw@OW,`

`"My First App"@lh`

`"Hello World!!"@Wb,`

`DO{@RK~=27}@CW;`



ANP

(MEDITECH Advanced Networking Protocol)

What Is ANP?

- **Data storage & retrieval service**
- **Handles all transactions between server & clients**
- **ONLY way to store / retrieve data to / from the MAD**
- **Appends records, maintains & searches indexes**
- **Sets and releases locks called “Mutexes”**

What Is ANP?

- **Can handle multiple discrete requests in one network txn**
- This helps with network latency
- **Limits requests to no more than 1000**
- Also manages files and folders (create, delete, etc.)
- **Coincidentally, the same initials as A. Neil Pappalardo**



MAD

(MEDITECH Advanced Database)

Defining the MAD

- **Chronological; Append-Only; nothing is ever deleted**
- Naturally keeps audit trails of all entries and edits
- **Data are stored in multiple files**
- Much more normalized; Reg.Acct only stores pointers
- **Very fast at filing data; not so much when retrieving**
- Increased reliability; never an invalid state during a write

Defining the MAD

- **Increases performance by employing “coalescence”**
- **Coalescence combines record requests to ANP**
- **The trick is knowing how many objects to request**
- **Certain data dependencies force multiple ANP requests**

Defining the MAD

Sample Report

Patient Name	Acct#	Unit#		
Order#	Service Date	Category	Procedure	
#####1	02/10/2010	Laboratory	Glucose	
#####2	02/11/2010	Nursing	Vital Signs	
#####3	02/12/2010	Radiology	Chest X-Ray	
#####4	02/13/2010	Dietary	Regular	

How many ANP requests (imported objects) are necessary for this amount of data?

Defining the MAD

ANSWER = 14

Patient Name	Acct#	Unit#		
Order#	Service Date	Category	Procedure	
#####1	02/10/2010	Laboratory	Glucose	
#####2	02/11/2010	Nursing	Vital Signs	
#####3	02/12/2010	Radiology	Chest X-Ray	
#####4	02/13/2010	Dietary	Regular	

1 RegAcct (Patient's account#)

1 HimRec (Patient's medical record data to pull name and unit#)

4 OmOrd (1 for each order #)

4 OmCategory (1 for each category)

4 OmProcedure (1 for each procedure)

MAD Under The Hood

```
{MsGrpGe|A|{{ASPIRIN}|~}}
{MsGrpGe|C|{{COUMADIN}|~}}
{MsGrpGe|H|{{HEPARIN}|~}}
{MsGrpGe|HB|{{HEAPRIN-BOLUS}|~}}
{MsGrpGe|HC|{{HEPARIN/COUMADIN}|~}}
{MsGrpGe|N|{{NONE}|~}}
{MsGrpHi|{~|~}}
{MsGrpIds|M|LABPTPTT|{~|~}}
{MsGrpIds|N|PT/PTT RESPONSES|{~|~}}
{MsGrpMn|{{LABPTPTT|Y|PT/PTT RESPONSES||10|3}|~}}
{MsGrpwds|LABPTPTT|{~|~}}
{MsGrpwds|PT|{~|~}}
{MsGrpwds|PTT|{~|~}}
{MsGrpwds|RESPONSES|{~|~}}
!bt|{{20070522.192937||1529|R|+}}|MTFS07|meditech|{{MT|}}|MT|Mt,Meditech (meditech)|{|}|1}}

{MsGrpGe|A|{{ASPIRIN||}}|{|}|1}}
{MsGrpGe|C|{{COUMADIN||}}|{|}|1}}
{MsGrpGe|H|{{HEPARIN||}}|{|}|1}}
{MsGrpGe|HB|{{HEAPRIN-BOLUS||}}|{|}|1}}
{MsGrpGe|HC|{{HEPARIN/COUMADIN||}}|{|}|1}}
{MsGrpGe|N|{{NONE||}}|{|}|1}}
{MsGrpHi|{{A|C|H|HB|HC|N}}|{|}|1}}
!bt|{{20070723.213241||1732|R|+}}|MTBJP11|meditech|{{MT|}}|MT|Mt,Meditech)|{|}|1}}

{MsGrpGe|A|{{ASPIRIN|1|}}|{|}|1}}
{MsGrpGe|C|{{COUMADIN|2|}}|{|}|1}}
{MsGrpGe|H|{{HEPARIN|3|}}|{|}|1}}
{MsGrpGe|HB|{{HEAPRIN-BOLUS|4|}}|{|}|1}}
{MsGrpGe|HC|{{HEPARIN/COUMADIN|5|}}|{|}|1}}
{MsGrpGe|N|{{NONE|6|}}|{|}|1}}
!bt|{{20070913.70242||0702|R|+}}|MIMIS|iatrix|{{iatrix|}}|iatrix|iatrix,User)|{|}|1}}
```

Initial Entry 5/22/07

Edit on 7/23/07

Edit on 9/13/07



MUTEX

(Mutual Exclusion Locking)

MUTEX Record Locking

- **ForUI Mutex**
- **ForUpdate Mutex**

ForUI MUTEX

- **Protects entire user interface session**
- **Defined with a time period of ownership**
- **To other user can gain access to the record**



ForUpdate MUTEX

- **Defined only when updating record**
- **Time sensitive to ensure data integrity**
- **Will not allow older entry to replace newer one**





MAT USER INTERFACE

New Screen Technology

- **Menu Navigation**
- Desktop Screen Regions
- **Data Entry Screens**
- FOCUS vs. NPR
- **Lookups**
- **History / Audit Trail**

Menu Navigation

Test System - (TEST 6.04) - Reed,David Iatrics
Facility: IAT
05/16/08 14:14 EDT

Mix of M-AT and NPR Routines

- MIS
 - Data Repository (Focus)
 - Data Repository (NPR)
 - Customization
- Analyst Desktop (NPR)
- Alerts
- Background Jobs
- Connections
- Report Queues
- Activity Logs
- Archived Documents
- Reports
- Word Processing
- Dictionaries**
- My Settings
- Emulate Person

- Parameters (Focus)
- System Preferences (NPR)
- Administrative
- Alerts
- Clinical
- Coding
- Communication
- Customer-Defined Data
- Document
- Financial
- General Ledger
- Person/Profile**

- Person**
- ESignature Alternates
- ESignature Co-Signers
- Access
- Person Location
- Person Profile
- Person Security Group
- External Link
- External Link Group
- Provider Group
- Provider Type
- Provider Download File
- Web User

Bolded Selections; Creates "Visual Pathway"

Facility

Role-Based Desktop

Analyst Desktop - (Test) - User Iatrics Last Update: 05/18/08 - 2114

“Analyst Desktop”

System Information		
<input checked="" type="radio"/> File Servers	<input checked="" type="radio"/> Network	<input checked="" type="radio"/> SAN Backup
<input checked="" type="radio"/> Background Job Clients	<input checked="" type="radio"/> Print Servers	
<input checked="" type="radio"/> Application Servers	<input checked="" type="radio"/> Alert Service	

Application Information		
<input checked="" type="radio"/> Accounts Payable	<input type="radio"/> Fixed Assets	<input checked="" type="radio"/> Payroll/Personnel System
<input checked="" type="radio"/> Admissions Module	<input type="radio"/> General Ledger	<input checked="" type="radio"/> Pharmacy Module
<input type="radio"/> Authorization & Referral Manag...	<input type="radio"/> Health Information Managemen...	<input type="radio"/> Quality/Risk Management
<input checked="" type="radio"/> Billing/Accounts Receivable	<input checked="" type="radio"/> Laboratory Module	<input checked="" type="radio"/> Radiology And Departmental Mo...
<input checked="" type="radio"/> Case Mix Abstracting Module	<input type="radio"/> MEDITECH Healthcare Informati...	<input type="radio"/> Registration (Focus)
<input type="radio"/> Conversion Utilities	<input checked="" type="radio"/> Materials Management Module	<input checked="" type="radio"/> Scheduling
<input checked="" type="radio"/> Cost Accounting	<input checked="" type="radio"/> Medical Records Indexing Module	<input checked="" type="radio"/> The HUB
<input type="radio"/> Data Repository (Focus)	<input checked="" type="radio"/> Medical Records Management	<input type="radio"/> Upgrade Tools
<input type="radio"/> Electronic Medical Record (Focus)	<input checked="" type="radio"/> Meditech Healthcare Informatio...	<input type="radio"/> Universe (Focus)
<input type="radio"/> Emergency Department Manage...	<input type="radio"/> Order Management (Focus)	
<input checked="" type="radio"/> Executive Support System	<input type="radio"/> Patient Care System (Focus)	

Appl Status

All Alerts

Alert Snapshot

Unique Jobs

All Bkg Jobs

Bkg Clients

Archive Docs

ES Activity

Rpt Scheduler

Interface Mgr

Change HCIS

Cancel Refresh ?

Desktop Screen Regions

The screenshot shows a desktop application window titled "Physician Care Manager - (TEST 6.04) - Reed,David Iatrics". The interface is divided into several regions:

- HEADER:** The top section of the application, containing patient information and navigation tabs. It includes:
 - Window title: "Physician Care Manager - (TEST 6.04) - Reed,David Iatrics"
 - Left side: "TEST,LAB" with an information icon.
 - Center: Patient details including "9 M 12/05/1998", "5S 506-A", "Adm Inpatient", and "Allergy/AdvReac: Not Recorded".
 - Right side: "Emr# 100000145" and "100000000156".
 - Navigation tabs: "Clinical", "Legal/Indicators", "Demographics", and "Referrals".
- BODY:** The main content area containing several data tables:
 - Problem:** Table with columns: Problem, Curr Visit, Status, Diagnosis, Date.
 - Allergy/AdvReac:** Table with columns: Allergy/AdvReac, Type, Severity, Reaction, Status, Date.
 - Home Medication:** Table with columns: Home Medication, Instructions, Last Confirmed, Status.
 - Patient Pharmacy:** Table with a single column: Patient Pharmacy.
 - Procedure:** Table with columns: Procedure, Code, Last Date.
 - Diagnosis:** Table with columns: Diagnosis, Code, Last Date, Visits.
- MENU:** A vertical sidebar on the right side of the application, containing various navigation options:
 - My Notices
 - Patient Lists
 - Next Patient
 - Select Visits
 - Summary
 - Review Visit
 - Notices
 - New Results
 - Clinical Panels
 - Vital Signs
 - I & O
 - Medications
 - Laboratory
 - Microbiology
 - Blood Bank
 - Reports
 - Patient Care
 - Notes
 - Orders
 - Amb Orders
 - Document
 - Preferences
- FOOTER:** The bottom section of the application, containing an "Archive" button.

BODY

HEADER

MENU

FOOTER

Data Entry Screens

Group Response Dictionary - (TEST 6.04) - Iatrics,User

LABPTPTT - PT/PTT RESPONSES Last Edit: 09/13/07 07:02

Main Elements ← **Multi-Page Controls**

Element Mnemonic	*Element Name	Rank	Value
A	ASPIRIN	1	
C	COUMADIN	2	
H	HEPARIN	3	
HB	HEAPRIN-BOLUS	4	
HC	HEPARIN/COUMADIN	5	

← **Navigation (Scroll) Bars**

Mnemonic E & M Coding Bullet Name

+ x

Document Comment Text

Chosen Menu Option →

View
New
Edit
Report

Historical Audit Trail → History

New Cancel & Save Buttons → Cancel Save

?

History

Group Response Dictionary - (TEST 6.04) - Iatrics,User

LABPTPTT - PT/PTT RESPONSES

Dictionary History

Transaction Current

Date/Time	User	Client
09/13/07 07:02	Iatrics,User	MIMIS
07/23/07 17:32	Mt,Meditech	MTBJP11
05/22/07 15:29	Mt,Meditech (meditech)	MTFS07

Record Type

- Main
- HhInput
- Identifiers
- Words
- GroupElements

Instances

ElementMnemonic
A
C
H
HB
HC
N

History

When	Action	ElementResponse	ElementRank	ElementValue
09/13/07 07:02	edit	ASPIRIN	1	
07/23/07 17:32	edit	ASPIRIN		
05/22/07 15:29	new	ASPIRIN		

Choose Record (Segment)

Choose Entry

Lists changes over time

Lookups

Group Response Lookup

Search

Name	Active	Mnemonic
Pt. Care Ref - Behavior	Yes	PD.PCR4
Pt. Care Ref - Communication	Yes	PD.PCR3
Pt. Care Ref - Disabilities	Yes	PD.PCR1
Pt. Care Ref - Impairments	Yes	PD.PCR2
PT/PTT RESPONSES	Yes	LABPTTT

Type full or partial mnemonic and press <Enter> - Choices populate in window below

Lookup Options

- Identifier
- Mnemonic
- Name
- Any Word
- Active
- Inactive
- Both

Lookups

Favorites Category Name 0 Queued

Orders by Name

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	Del	Clear	List
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	-------	------

Order Tra|

Type-ahead Technology

Stylus-Input Keyboard

	Tra
<input type="checkbox"/>	Tracheostomy Tray
<input type="checkbox"/>	Tracker Infus Catheter [RAD]
<input type="checkbox"/>	Transbronchial Biopsy
<input type="checkbox"/>	Transcath Thrombolization [RAD]
<input type="checkbox"/>	Transesophageal Echo
<input type="checkbox"/>	Transferrin [RL]
<input type="checkbox"/>	Transforam Lum Single [RAD]
<input type="checkbox"/>	Transforaminal Lum Add [RAD]



NPR vs. M-AT Screens

6.x NPR Screen

C/S PHA Edit Patient Data

Octagon, Vertical line (points to patient ID icon)

Rounded corners (points to right sidebar)

Right menu larger (points to right sidebar)

Bigger buttons (points to bottom navigation bar)

Patient Data | Comments | Allergy/AdvReac | Queries | Lifetime Treatments

TestIatric,Vfs
29/M 03/01/1980
3NUR 312-A

W030008163 5 ft 8 in 172.72 cm 1.95 m2
M331098 180 lb 0 oz 81.646627 kg
Allergy: PLEASE UPDATE PATIENT ALLERGY INFO AdvReac: NO ADVERSE DRUG ...

Height		Weight		Body Surface Area (m2)
Feet	5	Pounds	180	1.95
Inches	8	Ounces		
Centimeters	172.72	Kilograms	81.647	

Cart 3NUR

Allergy Data

ADR Data

Cancel Save ? [Icons]

M-AT Screen

Round, no line (pointing to patient name)

Square Corners (pointing to top-right corner)

Variable size (pointing to table column width)

Smaller buttons (pointing to bottom toolbar)

TestIatric,Vfs 29 M 03/01/1980 5 ft 8 in/180 lb/1.95 m² M331098
 3NUR 312-A Adm Inpatient W030008163
 Allergy/AdvReac: Not Recorded

Include Interventions Outcomes Medications
 Look ahead 8 hours

Care Item	Last Done	Status/Due	Today 12:00	Today 13:00	Today 14:00	Today 15:00	Today 16:00	Today 17:00	NOW
A Admission Physical Assessment	X1	-5h	⏸						
A Admission Questions/PMH	X1	-5h	⏸						
A Fall Education Video	X1	-5h	⏸						
A Fall Education Video	X1	-5h	⏸						
A Height and Weight	X1	-5h	⏸						
A IV Flowsheet	Q4	-5h	⏸				⏸		
A Pain Assessment	Q4	-5h	⏸				⏸		
A Patient Visit-Nurse	Q2	-5h	⏸		⏸		⏸		
A Vital Signs	Q4	-5h	⏸				⏸		
A Activities of Daily Living-Nurse Aide	TID	-4h		⏸					
A Patient Visit-Nurse Aide	Q2NA	-4h		⏸				⏸	
A Turn & Position	Q2NA	-4h		⏸		⏸			
A Intake and Output	QIDIO	-3h			⏸				
I PRN Med. Responses Documented	Q8IO	-3h			⏸				
A RN Review of Data	Q8IO	-3h			⏸				
A Activities of Daily Living-Nurse	Q8	-68m					⏸		
A Daily Shift Assessment	Q8	-68m					⏸		
A Fall Risk Score	Q8	-68m					⏸		
A Interdisciplinary Patient Education	Q8	-68m					⏸		
A Monitor/Rhythm Assessment	Q8	-68m					⏸		
A Skin Assessment	Q8	-68m					⏸		
I Telemetry Monitor In Use	DAILY@0000	7h							
A Isolation	DAILY	15h							
A Skin Risk Assessment Scale	DAILY	15h							
A Bowel Movement	AS NEEDED								
A Change in Condition									
A Discharge Status	.on Disch...								
A Interdisciplinary Priorities-Ancillaries									

Right sidebar menu items: Status Board, Select Visits, Summary, Review Visit, Notices, New Results, Clinical Panels, Vital Signs, I & O, Medications, Laboratory, Microbiology, Blood Bank, Reports, Patient Care, Notes, Refresh EMR, Orders, Amb Orders, Clinical Data, Plan Of Care, Worklist, Mar, Write Note, TAR, Discharge

Bottom toolbar: Refresh, Change View, Add, Not Done, View/Edit, Document



5-Minute Break?





HARDWARE

Typical 6.0 Configuration (151 – 300 beds)

- 8 NPR and 3 M-AT File Servers (incl. LIVE & TEST)
- **SAN attached storage (1200+ GB addressable) Raid ten**
- 2 Transaction Servers
- **16 Background Job Processors (2 TEST / 14 LIVE)**
- Background servers running on VMWare

System Architecture

Transaction Server

- Controls all database writes; avoids partial filing
- Protects database from client/user failure
- Backups are transactionally aware across servers
- Roll-forward a database from a prior backup

System Architecture

Conversion Server

- Limits downtime for conversion of data structures
- **Allow for database file conversions to be performed offline**
- Conversion performed on a backup copy, then updated
- **When the two are close enough, “swap & update”**



CONNECTIONS

Quick Facts

- “Connection” is synonymous with interface
- **MT-2-MT Interfaces have always existed**
- The difference here is platform-2-platform

Connections

The image shows a hierarchical menu structure on a light blue background. The menu items are as follows:

- Info Systems** (dropdown arrow)
 - Clinical (dropdown arrow)
 - Administrative (dropdown arrow)
 - Ancillary (dropdown arrow)
 - Financial (dropdown arrow)
- MIS** (dropdown arrow)
 - Data Repository (dropdown arrow)
 - Customization (dropdown arrow)
- Analyst Desktop (NPR)
- Alerts (dropdown arrow)
- Background Jobs (dropdown arrow)
- Connections** (dropdown arrow) (highlighted in green)
 - Report Queues (dropdown arrow)
 - Activity Logs (dropdown arrow)
 - Archived Documents (dropdown arrow)
 - Reports (dropdown arrow)
 - Word Processing (dropdown arrow)
 - Dictionaries (dropdown arrow)
 - My Settings (dropdown arrow)
 - Emulate Person
- Manage Outbox (Focus)
- Manage Inbox (Focus)** (dropdown arrow) (highlighted in green with a red arrow pointing to it)
- Interface Manager (NPR)
- Connection Manager (NPR)
- Manage Event Queue (Focus)
- Manage Event Reader (Focus)
- View Dictionaries (dropdown arrow)


Connections

Manage Inbox Connections - (TEST 6.04) - IATRIC,SYSTEMS

0 of 21 Selected

<input checked="" type="checkbox"/>	Connection ▾	Bkg Job Status	Bkg Job Client	Unprocessed Msgs	Inprocess Msgs
<input type="checkbox"/>	ARM Authorizations	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	Abstract Data	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	EMR Dictionaries	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	EMR ITS Reports	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	EMR Laboratory Data	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	EMR Notices	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	EMR Pharmacy Data	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	HIM ADT Inbox	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	HIM SCA Documents	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	MIS Archive Data	ACTIVE	WAM-BG13	NOT COUNTED	0
<input type="checkbox"/>	MIS Dictionaries	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	OM CWS Orders	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	OM Dictionaries	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	OM ITS Orders	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	OM LIS Orders	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	OM PHA Orders	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	OR Data From NPR	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	PCS Next Medications	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	PCS Sch Assessments	ACTIVE	WAM-BG13	0	0
<input type="checkbox"/>	SCH Appointments	ACTIVE	WAM-BG13	0	0

Msg Filer ARM Authorizations
Del Svc Folder
Sender Magic NPR Application



From NPR to M-AT

Connections

Manage Outbox Connections - (TEST 6.04) - IATRIC,SYSTEMS

0 of 10 Selected

✓	Connection ▾	Bkg Job Status	Bkg Job Client	Last Queued	Last Processed	Msgs Pending
<input type="checkbox"/>	EMR Documentation	ACTIVE	WAM-BG13			0
<input type="checkbox"/>	Email	ACTIVE	WAM-BG13			0
<input type="checkbox"/>	MIS Alerts	ACTIVE	WAM-BG13	499018 - 05/16/09 11:21	499018 - 05/16/09 11:21	0
<input type="checkbox"/>	MIS B/AR Batches	ACTIVE	WAM-BG13	497912 - 05/16/09 00:00	497912 - 05/16/09 00:00	0
<input type="checkbox"/>	MIS Dictionaries	ACTIVE	WAM-BG13	497584 - 05/15/09 15:36	497584 - 05/15/09 15:36	0
<input type="checkbox"/>	OM CWS Orders	ACTIVE	WAM-BG13	497583 - 05/15/09 15:07	497583 - 05/15/09 15:07	0
<input type="checkbox"/>	OM ITS Orders	ACTIVE	WAM-BG13	497583 - 05/15/09 15:07	497583 - 05/15/09 15:07	0
<input type="checkbox"/>	OM LIS Orders	ACTIVE	WAM-BG13	497583 - 05/15/09 15:07	497583 - 05/15/09 15:07	0
<input type="checkbox"/>	OM OV Orders	ACTIVE	WAM-BG13	497583 - 05/15/09 15:07	497583 - 05/15/09 15:07	0
<input type="checkbox"/>	OM PHA Orders	ACTIVE	WAM-BG13	497583 - 05/15/09 15:07	497583 - 05/15/09 15:07	0

Msg Gen Documentation
Del Svc Folder
Recipient Magic NPR Applications

Action Items

- Select
- Messages
- Halt
- Change Client
- Activate
- Inactivate

From M-AT to NPR



CDS & ATTRIBUTES

Quick Facts

- Customer-defined screens exist in M-AT
- **ONLY VERY BASIC Attributes exist in M-AT**
- Rules in M-AT allow for complex logic



Key Takeaway!

- Building custom screens in M-AT means a lot less coding of attributes, fancy tricks, screen pop-ups, etc.
- **Complex logic of screenflow are limited by the few available attributes and the rules wizard**

CDS & Attributes

Analyst Desktop (NPR)

Alerts ▶

Background Jobs ▶

Connections ▶

Report Queues ▶

Activity Logs ▶

Archived Documents ▶

Reports ▶

Word Processing ▶

Dictionaries ▶

My Settings ▶

Emulate Person

MIS Parameters

System Preferences (NPR) ▶

Administrative Dictionaries ▶

Alert Dictionaries ▶

Clinical Dictionaries ▶

Coding Dictionaries ▶

Communications Dictionaries ▶

Cust-Defined Data Dictionaries ▶

Document Dictionaries ▶

Financial Dictionaries ▶

General Ledger Dictionaries ▶

Group Response

Query

Record (Focus)

Screen (Focus) ←

Screen (NPR) ▶

CDS & Attributes

Screen Dictionary - (TEST 6.04) - IATRIC,SYSTEMS

OEADMITMSG - ADT ED Admit Request Last Edit: 10/14/08 14:37

Screen

Mnemonic

*Active

*Name

Data Record

*Type of Block	New Row	Block Label	Block Style
Single Response Queries	Yes		

Text

*Type	Query	Text	Lines
Query	OEADMACTNO	Acct #	
Query	OEADMATTDR	Att Dr	
Query	OEADMADMDR	Adm Dr(IF diff)	
Query	OEADMPTNAM	Name	
Query	OEADMDX	Diagnosis	

Default	<input type="text" value="String"/>
Default String	<input type="text" value=""/>
Default Rule	<input type="text" value=""/>
Editable	<input type="text" value="Yes"/>
Editable Rule	<input type="text" value=""/>
Required	<input type="text" value="No"/>
Required Rule	<input type="text" value=""/>
Suppress	<input type="text" value="No"/>
Suppress Rule	<input type="text" value=""/>

Basic Screen Attributes

Rule Editor

MIS Rule Dictionary - (TEST 6.04) - IATRIC,SYSTEMS
BPM - Blood Pressure Mean Last Edit: 09/16/08 15:51

Rule

Mnemonic

*Active

*Name

Category

*Mode

MIS Rule Dictionary - (TEST 6.04) - IATRIC,SYSTEMS
BPM - Blood Pressure Mean Last Edit: 09/16/08 15:51

Variable	External	Description
V1	▼	
V2		
V3		
BloodPressure	Yes	Expects data in the format: 120/80
Systolic		
Diastolic		
Length		

+ x

Field	Var	Key 1	Var	Key 2

Rule Editor

MIS Rule Dictionary - (TEST 6.04) - IATRIC,SYSTEMS

BPM - Blood Pressure Mean Last Edit: 09/16/08 15:51

Main Variables Rule

Enter Line Undo Back Space Cancel Line End Line

Line	Rule English Display
1	From BloodPressure, Find the starting position of "/", SaveAs V1
2	Get the length of BloodPressure Save as Length
3	Length - V1 - 1 Save as V2
4	BloodPressure, Take the First V1 characters, Save as Systolic
5	BloodPressure, Take the Last V2 characters, Save as Diastolic
6	(Systolic - Diastolic) / 3 + Diastolic Save as V3
7	If V3 Is equal to 0 Then Compute Nil Save as V3
8	Set program result to: V3

3rd Party Integration?



3rd Party Integration

The Myths

- Rumors say no 3rd party applications in 6.x
- **No 3rd party company can access M-AT data**
- 3rd party vendors are completely locked out

3rd Party Integration

How do other vendor products integrate with MEDITECH?

- Extract data via data drivers or native code
- Receive data via interfaces & virtual printers
- Screen Scrape – reading data from screens
- Send data to MEDITECH via standard interfaces
- Scripting – sending “ghosted” keystrokes to screens
- Link to / launch various routines from MEDITECH

3rd Party Integration

The Truth about What Is Possible:

- Data can be extracted from M-AT. Drivers already exist!
- Interfaces already exist that fetch data from M-AT
- Scripting and Screen Scraping works – actually better!!
- It is possible to link/launch from M-AT screens



DATA EXTRACTION

FOCUS to NPR

The screenshot displays a File Reader application window with the following content:

File Reader
Address: C:\Program Files\Iatric Systems\ 10.70.0.153

M-AT "List" Structure

```
+ 1. {NPR|{{{WO-20080317132214|846.0003|17888.0002|0}}|D|{20080618.0800|0400|R|+}}|B
+ 2. {NPR|{{{WO-20080317132214|846.0008|17865.0001|0}}|D|{20080610.1419|1019|R|+}}|B
+ 3. {NPR|{{{WO-20080317132214|846.0005|17865.0002|0}}|D|{20080610.1419|1019|R|+}}|B
+ 4. {NPR|{{{WO-20080317132214|846.0011|17863.0003|0}}|D|{20080609.0800|0400|R|+}}|B
+ 5. {NPR|{{{WO-20080317132214|846.0004|17863.0001|0}}|D|{20080609.0800|0400|R|+}}|B
+ 6. {NPR|{{{WO-20080317132214|846.0011|17670.0011|0}}|+|{20080317.192234|1522|R|+}}
+ 7. {NPR|{{{WO-20080317132214|846.0010|17670.0010|0}}|+|{20080317.192234|1522|R|+}}
+ 8. {NPR|{{{WO-20080317132214|846.0009|17670.0009|0}}|+|{20080317.192234|1522|R|+}}
+ 9. {NPR|{{{WO-20080317132214|846.0008|17670.0008|0}}|+|{20080317.192234|1522|R|+}}
+ 10. {NPR|{{{WO-20080317132214|846.0007|17670.0007|0}}|+|{20080317.192234|1522|R|+}}
+ 11. {NPR|{{{WO-20080317132214|846.0006|17670.0006|0}}|+|{20080317.192234|1522|R|+}}
+ 12. {NPR|{{{WO-20080317132214|846.0005|17670.0005|0}}|+|{20080317.192234|1522|R|+}}
+ 13. {NPR|{{{WO-20080317132214|846.0004|17670.0004|0}}|+|{20080317.192234|1522|R|+}}
+ 14. {NPR|{{{WO-20080317132214|846.0003|17670.0003|0}}|+|{20080317.192234|1522|R|+}}
+ 15. {NPR|{{{WO-20080317132214|846.0002|17670.0002|0}}|+|{20080317.192234|1522|R|+}}
.
```

NPR Structure

```
Structure: /FSLIST
^["FSLIST", "NPR", 0, 1, 0, 1, 8] = +WGHSMRCYWBSU
^["FSLIST", "NPR", 0, 1, 0, 1, 9] = +
^["FSLIST", "NPR", 0, 1, 0, 1, 10] = +
^["FSLIST", "NPR", 0, 1, 0, 1, 11] = +
^["FSLIST", "NPR", 0, 1, 0, 1, 12] = +
^["FSLIST", "NPR", 0, 1, 0, 1, 13] = +
^["FSLIST", "NPR", 0, 1, 0, 1, 14] = +
^["FSLIST", "NPR", 0, 1, 0, 1, 15] = +
^["FSLIST", "NPR", 0, 1, 0, 1, 16] = +
^["FSLIST", "NPR", 0, 1, 1, 0] = +0500000
^["FSLIST", "NPR", 0, 1, 1, 1] = +Vital Signs
^["FSLIST", "NPR", 0, 1, 2, 0] = +
^["FSLIST", "NPR", 1, 0] = +NPR
^["FSLIST", "NPR", 1, 1, 0, 0, 0] = +WO-20080317132214
^["FSLIST", "NPR", 1, 1, 0, 0, 1] = +846.0003
^["FSLIST", "NPR", 1, 1, 0, 0, 2] = +17888.0002
^["FSLIST", "NPR", 1, 1, 0, 0, 3] = +0
^["FSLIST", "NPR", 1, 1, 0, 1, 0] = +0
^["FSLIST", "NPR", 1, 1, 0, 1, 1, 0] = +20080618.0800
^["FSLIST", "NPR", 1, 1, 0, 1, 1, 1] = +
^["FSLIST", "NPR", 1, 1, 0, 1, 1, 2] = +0400
<PAGE 2>
```

FOCUS Data from CS NPR Rpt

Client Server Focus Interface - (IAT/IAT.DEV/IAT.DEV) - MEDITECH

Launching NPR Report From Custom Menu

The screenshot shows a software interface with a blue background. At the top, the title bar reads 'Client Server Focus Interface - (IAT/IAT.DEV/IAT.DEV) - MEDITECH'. In the center, the text 'Launching NPR Report From Custom Menu' has a red arrow pointing to a menu. On the left, there is an 'Applications' menu with items like 'MIS Database' and 'NPR Database'. On the right, there is a 'Main Menu' with several items. The item 'List PCS Intervention Dictionary from Focus' is highlighted in green and circled in red.

Applications
MIS Database
NPR Database

Main Menu
List PCS Intervention Dictionary from Focus

FOCUS Data from CS NPR Rpt

List PCS Intervention Dictionary from Focus - (IAT/IAT.DEV/IAT.DEV) - MEDITECH


* From Mnemonic
* Thru Mnemonic
* Active

Cancel OK ? ? ? ? ?


FOCUS Data from CS NPR Rpt

Client Server Focus Interface Lookup

Search

Mnemonic	Name
0500000	Vital Signs
0500030	Intake and Output
0500100	Hemodynamic Monitoring
0909090	Collect Specimen
1000060	Alarms on at all times
1250032	Urine Dipstick
2000005	Assess Hydration Status
2250001	Cardiac Assessment
2250002	Monitor/Rhythm Assessment
2250003	Edema Assessment
2250004	Neurovascular/Sensory/Motor Assessment
2300000	Head, Neck, Ears, Eyes & Throat Assessment
2500000	Assess Level of Consciousness 
2500001	Neurological Assessment
2500004	Dysreflexia Assessment
2500007	Assess Deep Tendon Reflexes
2500090	Seizure Assessment/Precautions
2750001	Pain Assessment
2750002	Chest Pain Assessment
2750003	Epidural Assessment

Active
Inactive
Both

Prior Next Cancel 

FOCUS Data from CS NPR Rpt

[PID=24792]List Pcs Intervention Dictionary from Focus - MEDITECH Document Preview

File Help

DATE: 05/15/09 @ 1229 Client Server Focus Interface PAGE 1
USER: MT List Pcs Intervention Dictionary from Focus

Mnemonic	Active	Description	Emr ID
0500000	Y	Vital Signs	
0500010	N	Monitor laboratory values	
0500030	Y	Intake and Output	

Scripting / Screen Scraping

Diet/Meal Daily Totals - Facility: (TEST 6.04) - IATRIC,SYSTEMS

Date: Mon May 18

	Diet Name	Count
Breakfast	Regular	2
	NPO	1
	1200 ADA Diabetic	1
	1800 ADA Diabetic	1
Lunch	Regular	2
Dinner		

Diet name - Regular
Diet count - 2

Selection
Meal Count
Meal Count by Loc

Facility HIM Dept

Diet Name & Count were "scraped" off the screen



Key Takeaway!



3rd party software is available to interface and directly integrate with M-AT applications!!

Report Writer

REPORT WRITING

Report Writing in 6.x

- There are two report writers (NPR RW & Report Designer)
- **On the M-AT side, terminology has changed**
 - DPMs are now called Objects
 - Segments are now called Records
 - Data elements are now called Fields
- No fragments, macros or *current* ability to use M-AT or FS code inside computed fields

Report Writing in M-AT

- Rule Editor / Wizard *may* eliminate need for code
- **Performance comparisons have been interesting**
- All M-AT application data is available with no special “tricks” needed (e.g. fragments)
- **No current plan to allow NPR to get data from MAD**
- No NPR to M-AT report conversion



IMPROVEMENTS

Improvements in M-AT

- **Built-in audit trails of everything**
- **Improved network performance**
- **Reduced downtime; increased reliability**
- **Data corruption virtually eliminated**
- **Modern screen technology & workflow**

Improvements in M-AT

- Easier for MEDITECH to support
- **A LOT less “locking” issues in FOCUS (thanks to MUTEX)**
- The concept of multiple databases is gone



THINKING ABOUT 6.x?

Things to consider...

- Not an update – Installing new platform(s)
- **Phased Approach / Multiple Conversions (until 6.2)**
- Put in extra effort on report conversion plan!!
- **Understand how much data will be converted**
- Count the cost & decide on best timeframe

***Staying FOCUSED in a
MAD, MAD,
MAD, MAD World!***



Thank you for attending!