Hocus Pocus!

The New “Magic” Behind FOCUS

Frank Fortner / David Reed – Iatric Systems, Inc.

Objectives

Acquire a basic understanding of MEDITECH's newest proprietary technology platform called FOCUS.

Contrast the basic differences between FOCUS and previous technologies and become better equipped to understand the benefits and challenges of a future migration to FOCUS.

Baseline

Defining NPR…

- “Pre-FOCUS” Client/Server technology

- Includes ALL 5.x versions (5.0 – 5.6)

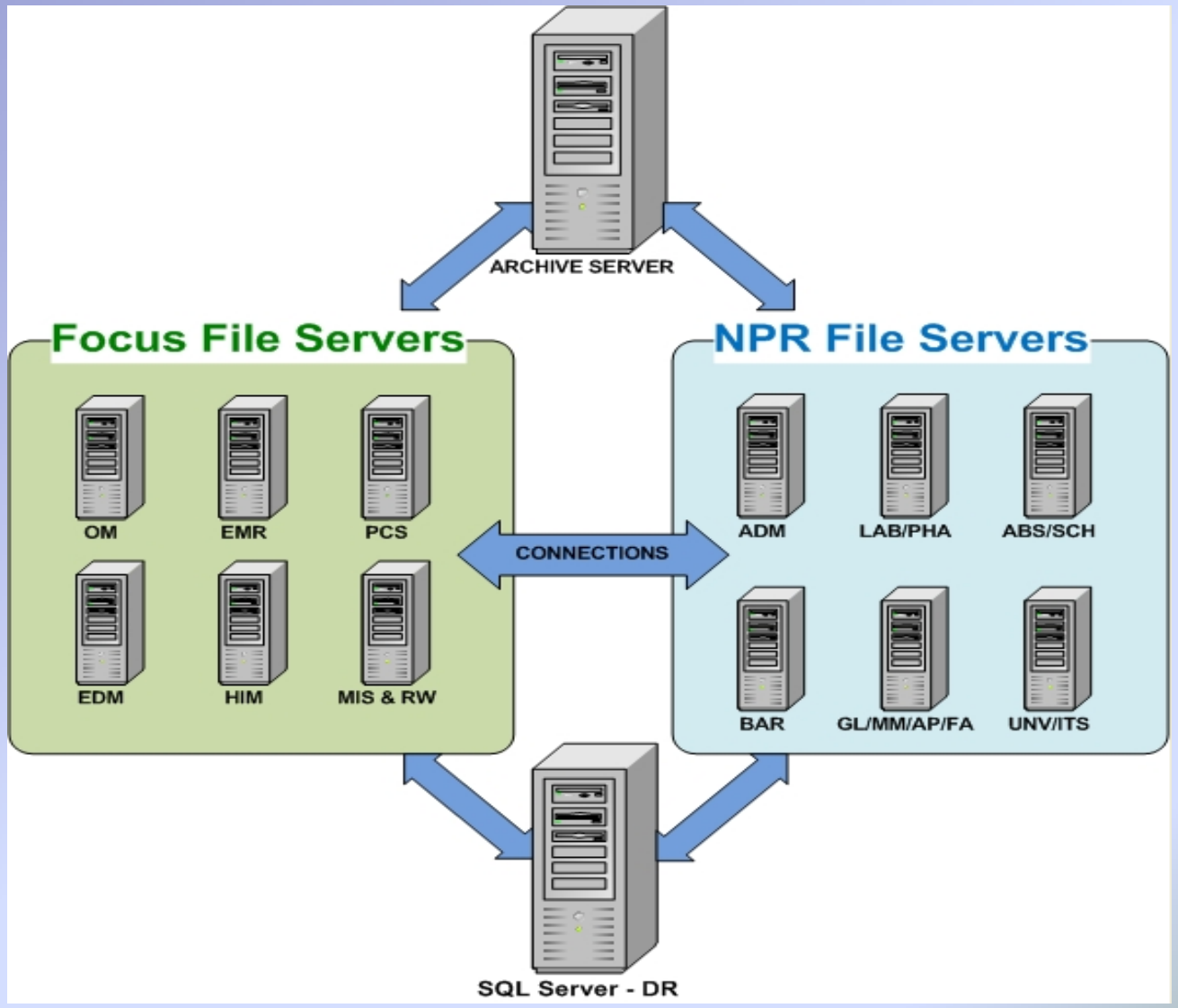
- Is a ***technology***, not a report writer!

TECHNOLOGY

What Is Client/Server 6.0?

- **Hybrid of NPR and new FOCUS Applications**
- **In 6.0 Adv. Clinicals are written in FOCUS (EMR, PCS, ED, OM - along with HIM and MIS)**
- **Everything else in 6.0 (for now) is NPR**
- **Communication between FOCUS and NPR**
- ***Very* Similar UI across FOCUS and NPR**

What Is Client/Server 6.0?



What is FOCUS?

- Development environment built for FS
- FOCUS is to FS what NPR Magic was to $T Magic
- “Chronological” Database Technology
- Optimized Network Management
- Updated Interface Tools for Screens / Reports

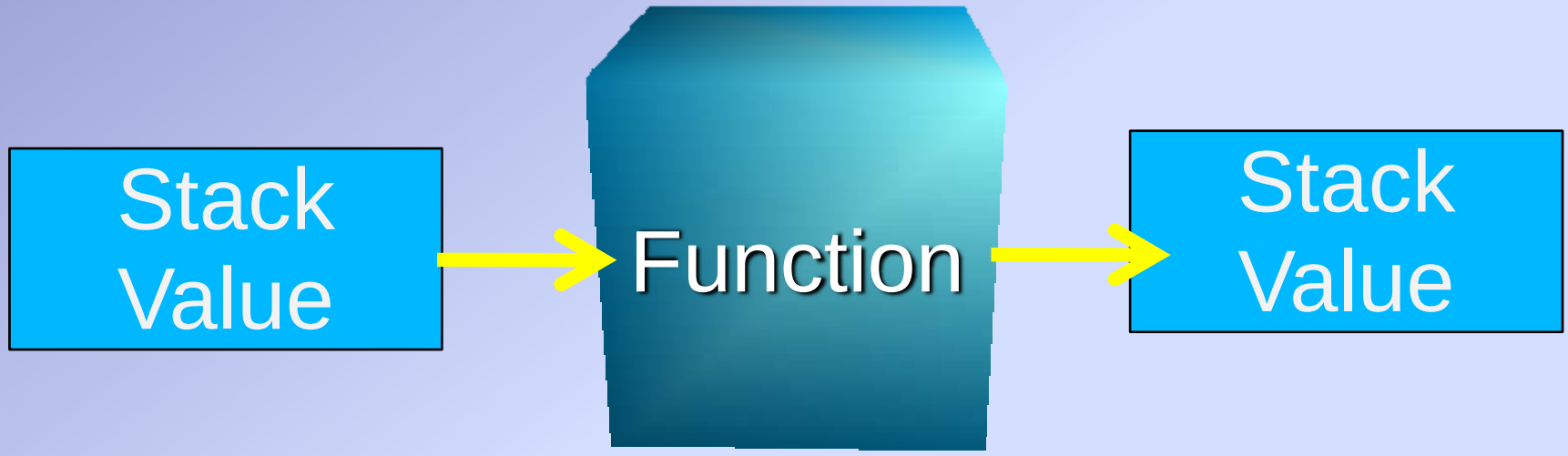
IATRIC systems

What Is FS?

- FS = new(er) programming language
- Stands for “Functional System”
- Interpreted language with lots of function calls
- Emphasis on client-side processing
- Very little support of Data Defs & Variables

IATRIC systems

Functional Programming



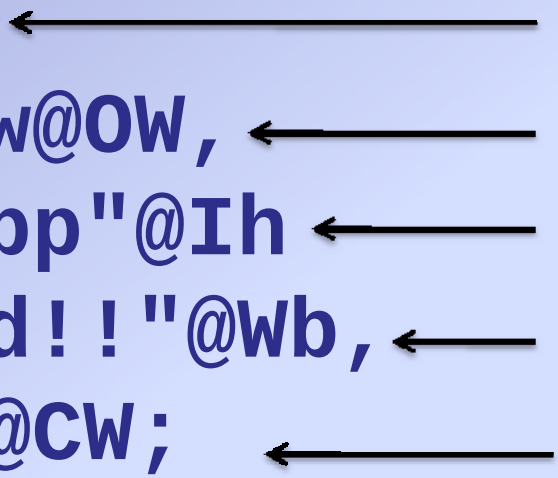
CODE COMPARISON

Hello World Code in Magic

```
T(“”)^#,
N(“Hello World!”)^#;
```

Hello World in FS

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



Hello World in FOCUS

```
#Translation

  :Options
    Result                  MSFile
  :Product
    Type                    Unstructured

#Preamble

  :Options
    Type                    Process

 #Magic


:Code Main
`200,300'@Iw@OW,
"My First App"@Ih
"Hello World!!"@Wb,
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Hello World in FOCUS

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#Translation

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#Preamble

  :Options
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 #Magic
```

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


Same as FS code in the Main body

Hello World in FOCUS

```
#Translation

  :Options
    Result                  MSFile
  :Product
    Type                    Unstructured

#Preamble

  :Options
    Type                    Process

 #Magic


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

Used to determine “run-time” behavior

Hello World in FOCUS

```
#Translation

 :Options
  Result                MSFile
 :Product
  Type                  Unstructured

#Preamble

 :Options
  Type                  Process

#Magic


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

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

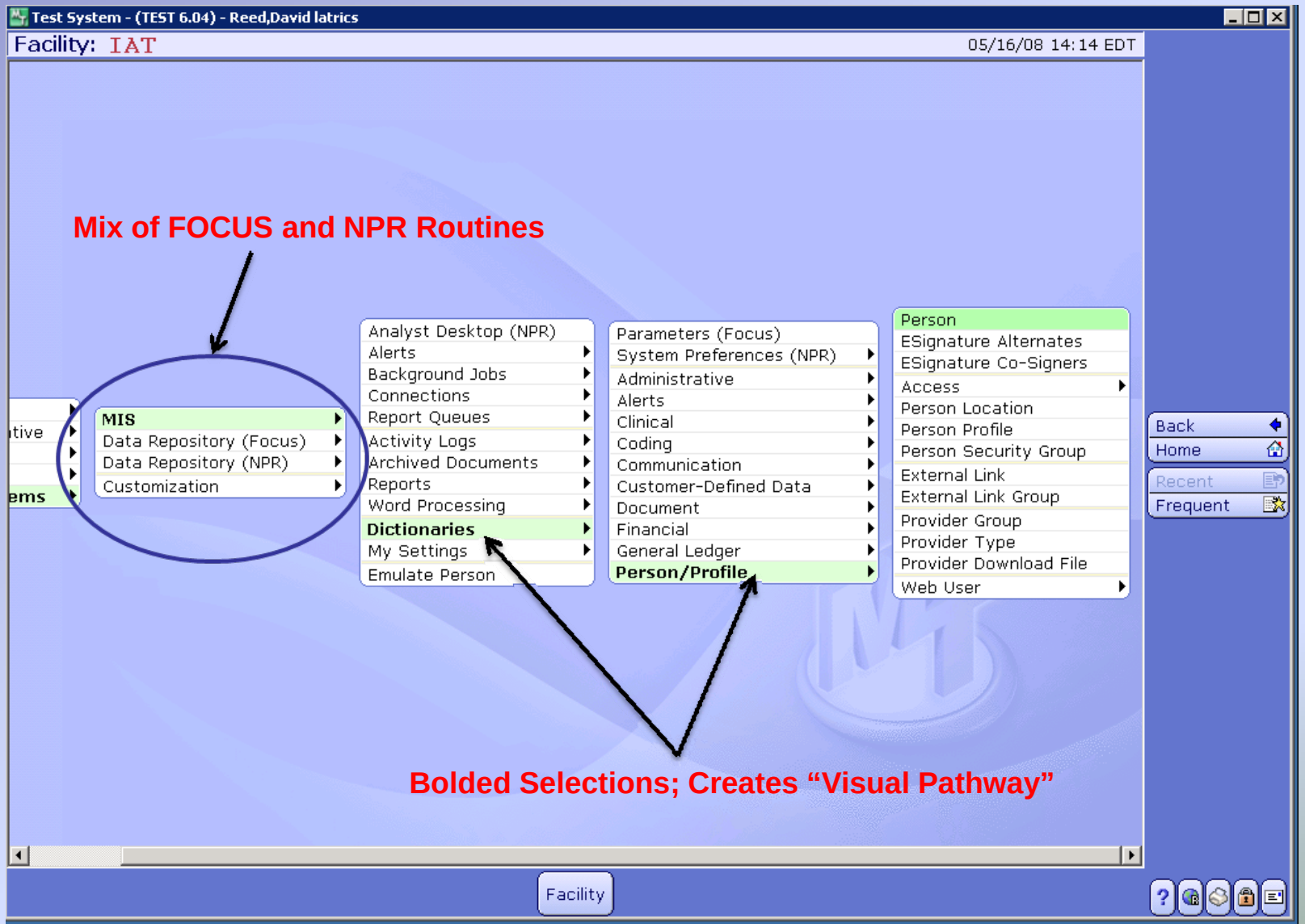
IATRIC systems

USER INTERFACE

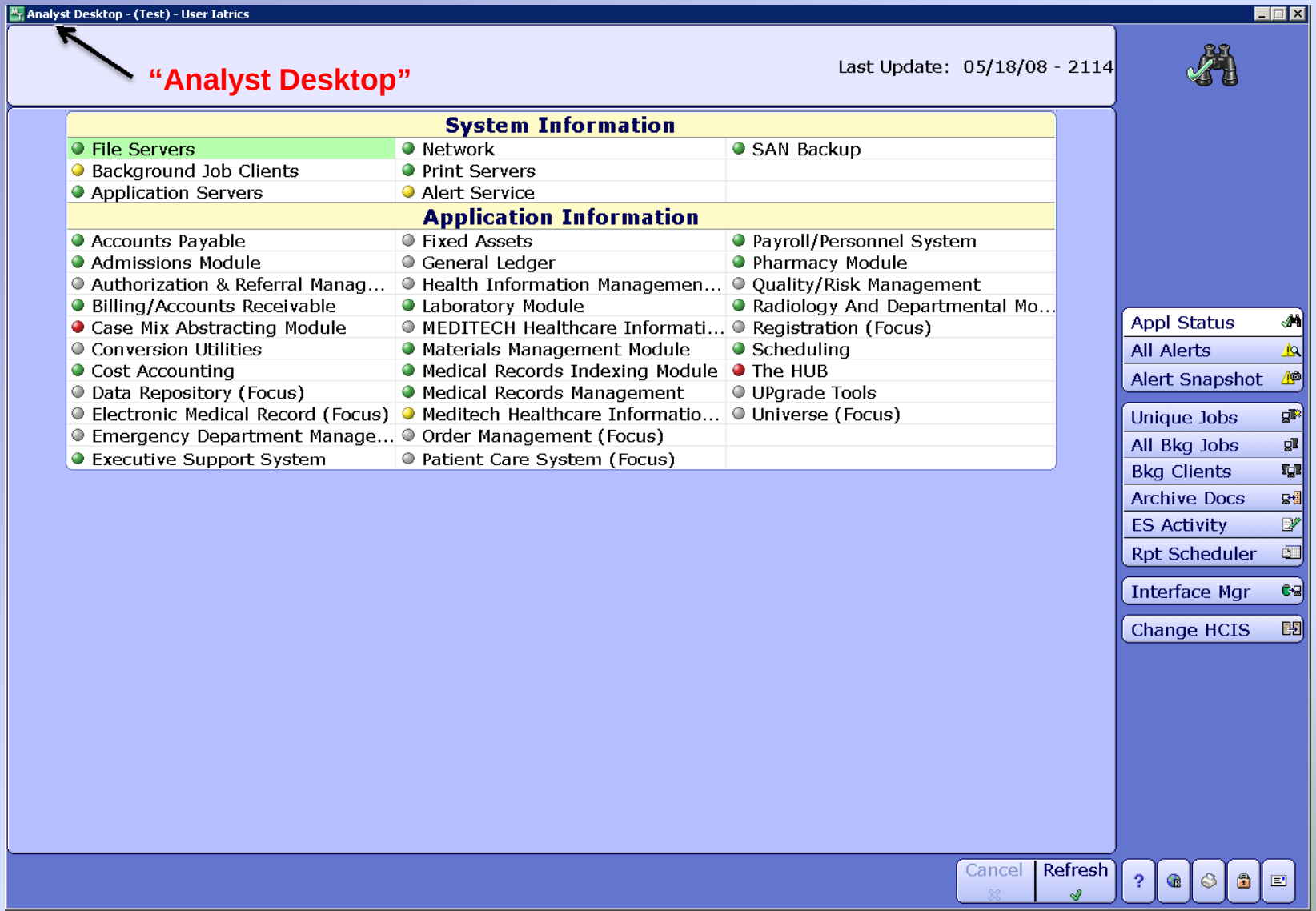
New Screen Technology

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

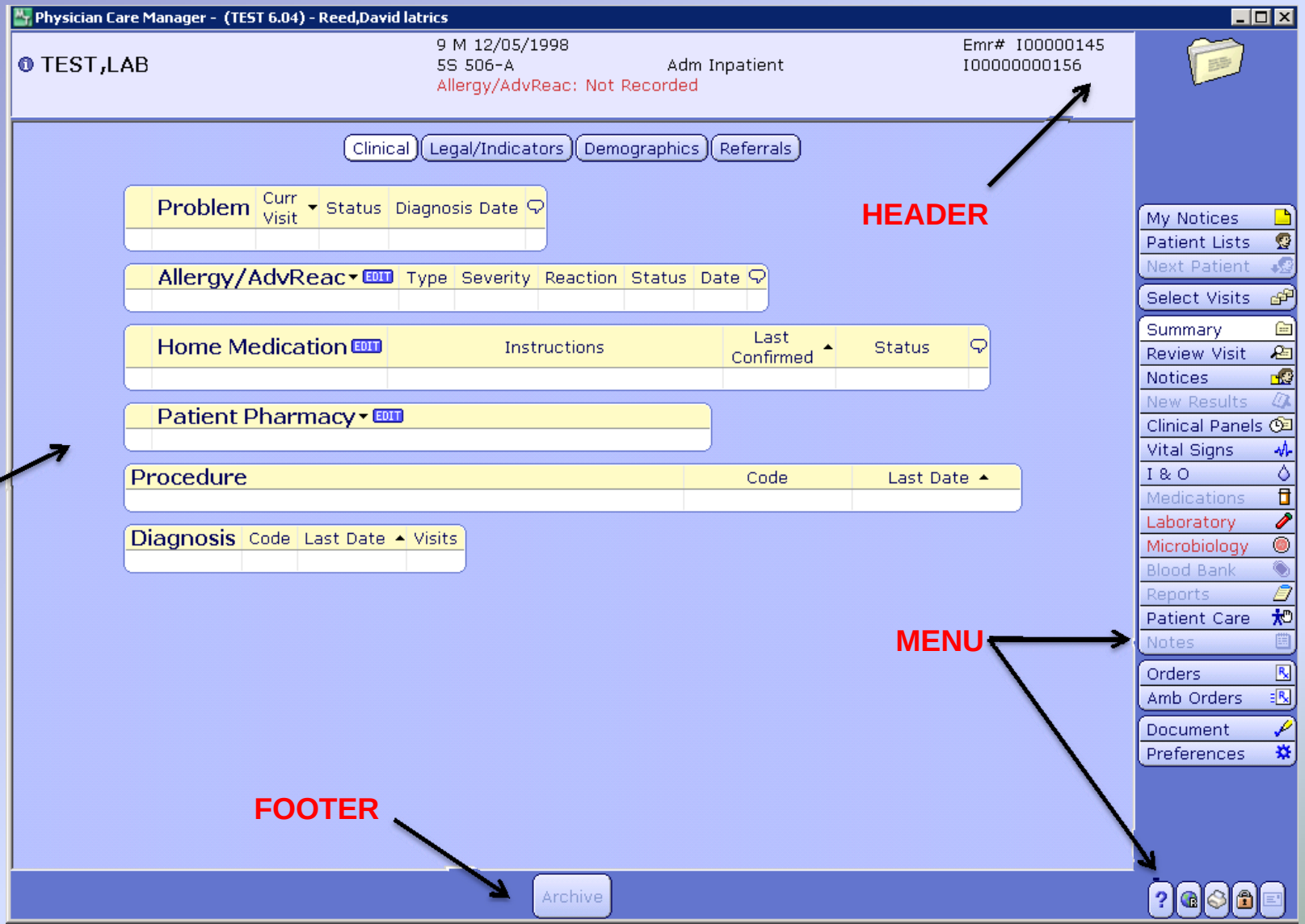
Menu Navigation



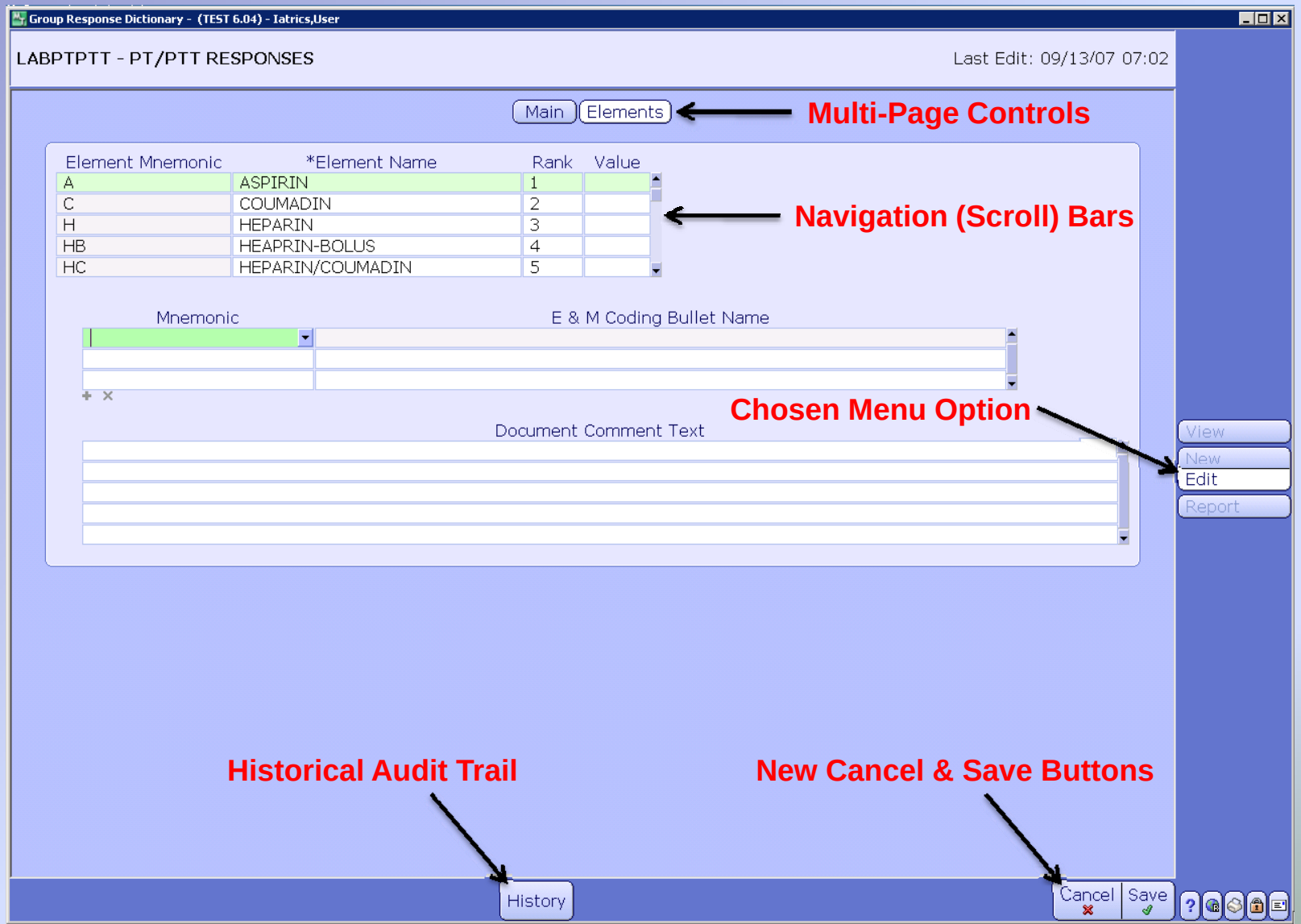
Role-Based Desktop



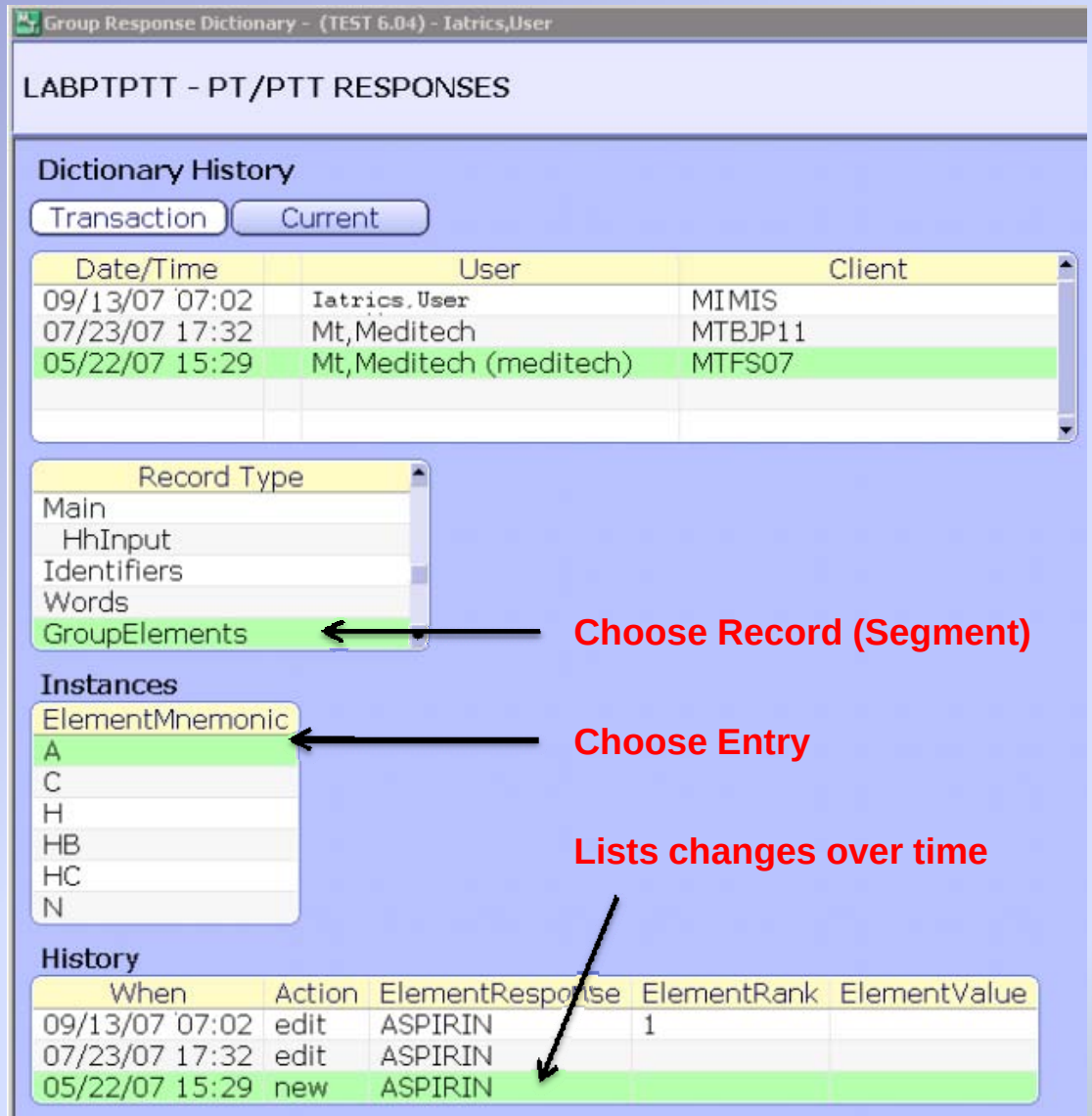
Desktop Screen Regions



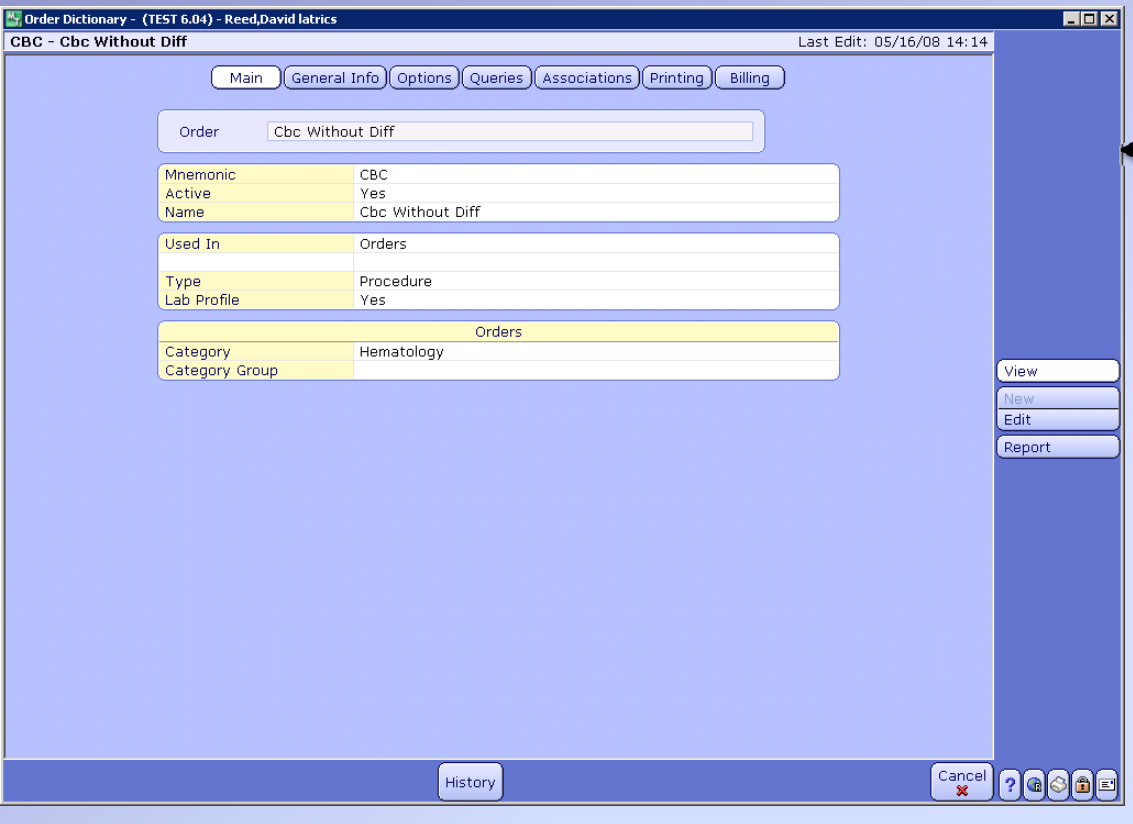
Data Entry Screens



History

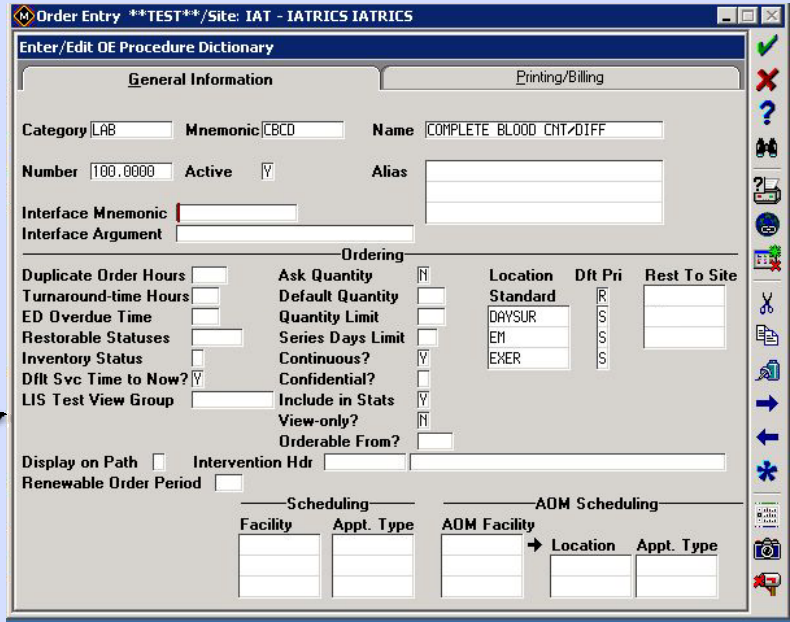

Group Response Dictionary - (TEST 6.04) - Iatrics,User
LABPTPTT - PT/PTT RESPONSES
Dictionary History
Transaction
Current
Date/Time
User
Client
09/13/07 07:02
Iatrics,User
MIMIS
07/23/07 17:32
Mt,Meditech
MTBJP11
05/22/07 15:29
Mt,Meditech (meditech)
MTFS07
Record Type
Main
HhInput
Identifiers
Words
GroupElements
Choose Record (Segment)
Instances
ElementMnemonic
A
C
H
HB
HC
N
Choose Entry
Lists changes over time
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

FOCUS vs. NPR

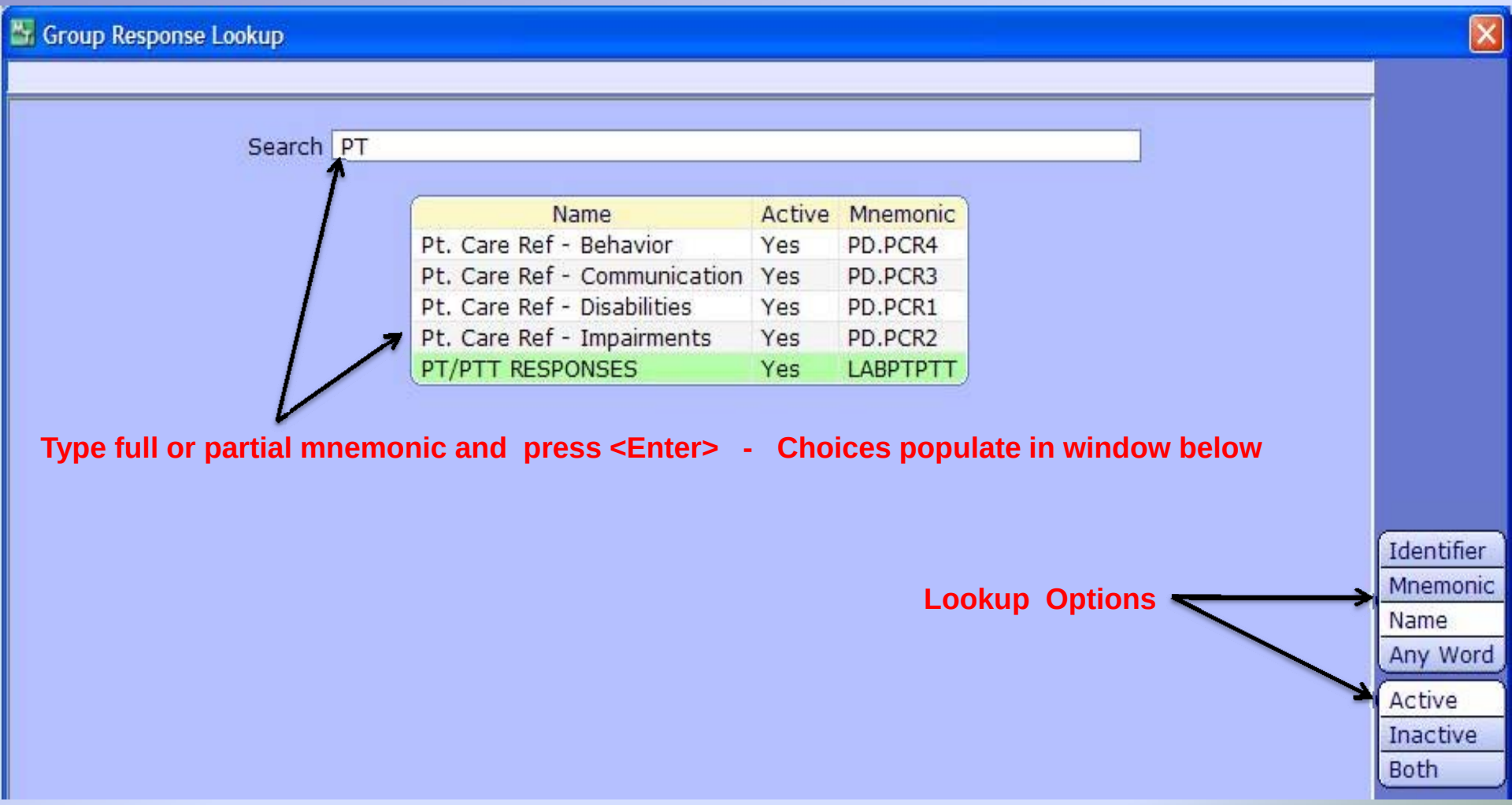


FOCUS Enter/Edit Order Dx

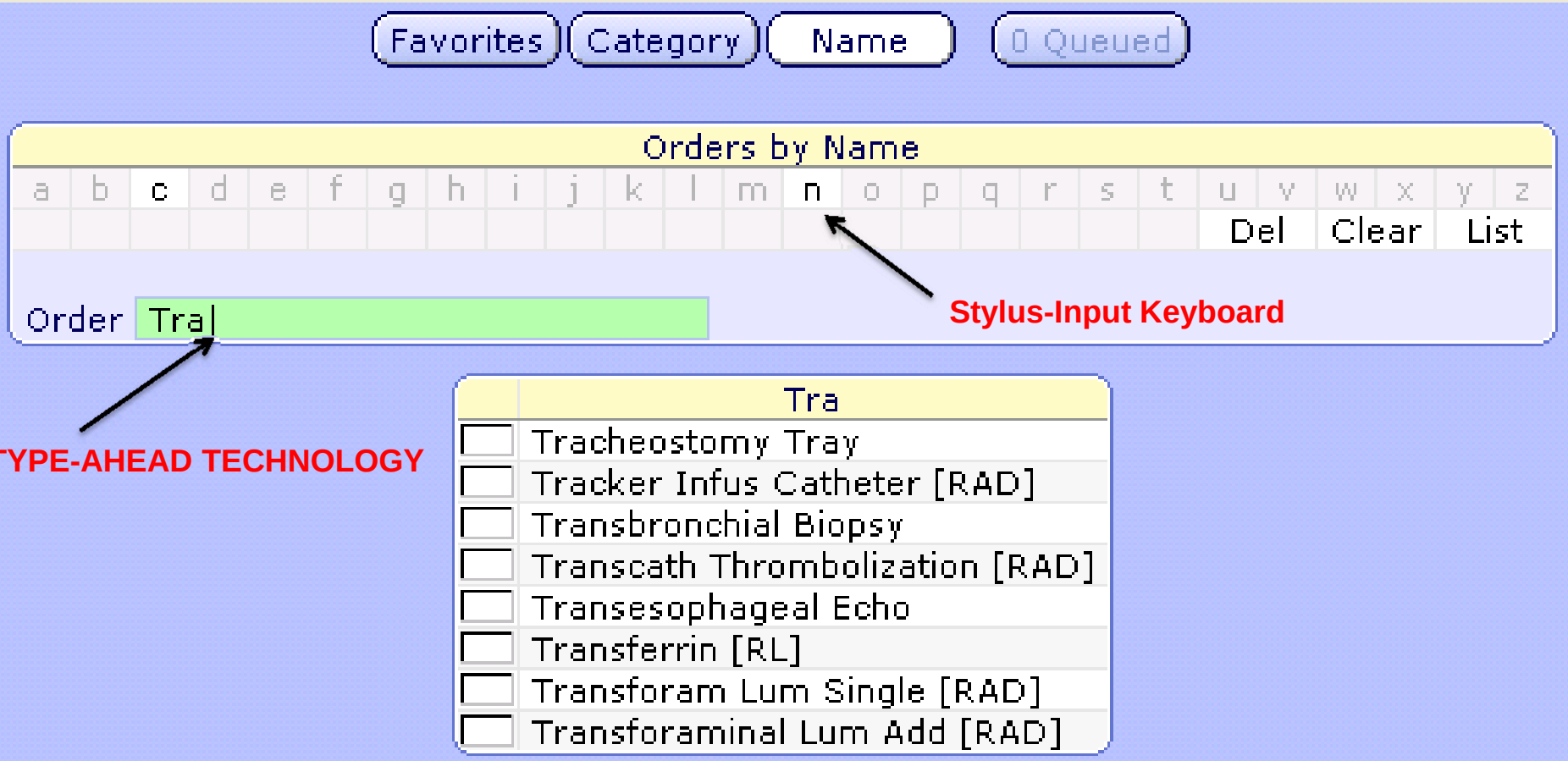
NPR Enter/Edit OE Procedure Dx



Lookups


Group Response Lookup
Search PT
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 LABPTPTT
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
Stylus-Input Keyboard
TYPE-AHEAD TECHNOLOGY
Tra
Tracheostomy Tray
Tracker Infus Catheter [RAD]
Transbronchial Biopsy
Transcath Thrombolization [RAD]
Transesophageal Echo
Transferrin [RL]
Transforam Lum Single [RAD]
Transforaminal Lum Add [RAD]

IATRIC systems

HARDWARE

Typical Configuration

6 NPR and 3 Focus File Servers

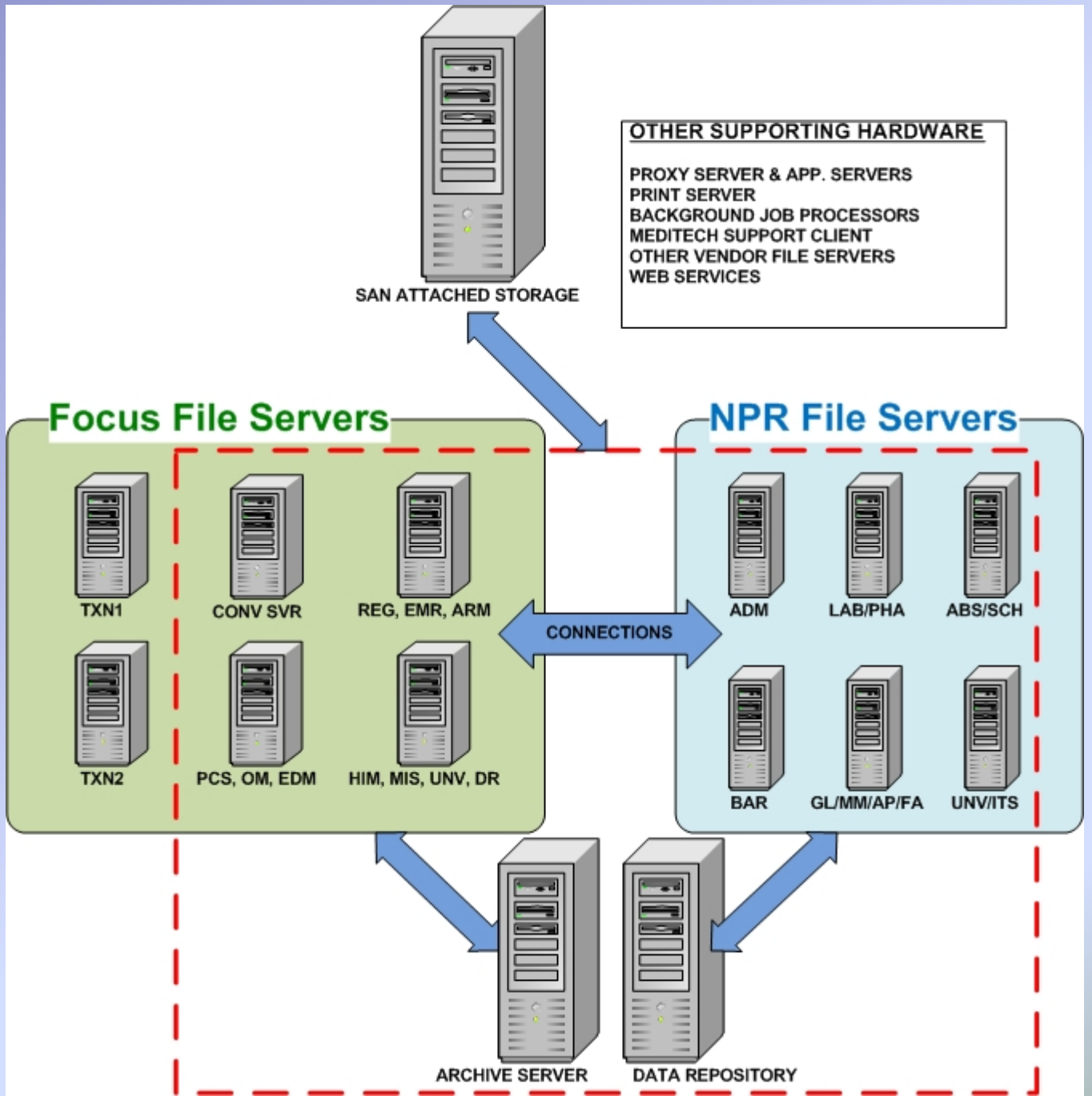
SAN attached storage

2 Transaction Servers

11 Background Job Processors

Other needed machines

Cost vs. Under Configuring?


SAN ATTACHED STORAGE
OTHER SUPPORTING HARDWARE
PROXY SERVER & APP. SERVERS
PRINT SERVER
BACKGROUND JOB PROCESSORS
MEDITECH SUPPORT CLIENT
OTHER VENDOR FILE SERVERS
WEB SERVICES
Focus File Servers
NPR File Servers
TXN1
CONV SVR
REG, EMR, ARM
TXN2
PCS, OM, EDM
HIM, MIS, UNV, DR
CONNECTIONS
ADM
LAB/PHA
ABS/SCH
BAR
GL/MM/AP/FA
UNV/ITS
ARCHIVE SERVER
DATA REPOSITORY

Network Design

- Careful application design allows correctly-grained network usage
- Network protocols allow efficient transfers
- Minimized effect of high latency or slow bandwidth
- Small runtime footprints

IATRIC systems

System Architecture

Transaction Server

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

System Architecture

Conversion Server

- **Limit Downtime**
- **Allow for database file conversions to be performed offline**
- **Transactions can be rolled in and also converted offline**

Chronological Database

- **Append Only**
- **Reliable**
- **Natural complete historical audit**

FOCUS Database


```
{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|iatrics||{iatrics|}||iatrics|Iatrics,User}|{|||1}}}
```

FOCUS Database

```
{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}}}
```

Initial Entry 5/22/07

```
{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}}}
```

Edit on 7/23/07

```
{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|iatrics||{iatrics|}||iatrics|Iatrics,User}|{|||1}}}
```

Edit on 9/13/07

Application Design Tools

Abstraction – Application tools enforce abstraction

- Screen Design can allow for web-based display and data entry
- Database file distribution design allows for scalability
- User Interface enforces consistency
- Modern look and feel

IMPROVEMENTS

Improvements

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

Improvements

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

REPORT WRITER

Report Writing in FOCUS

- **Good News!! There is a Report Writer!!**
- **Terminology has changed a little…**
  - **DPMs are now called Objects**
  - **Segments are now called Records**
  - **Data elements are now called Fields**
- **No fragments, macros or *current* ability to use FS code inside computed fields**

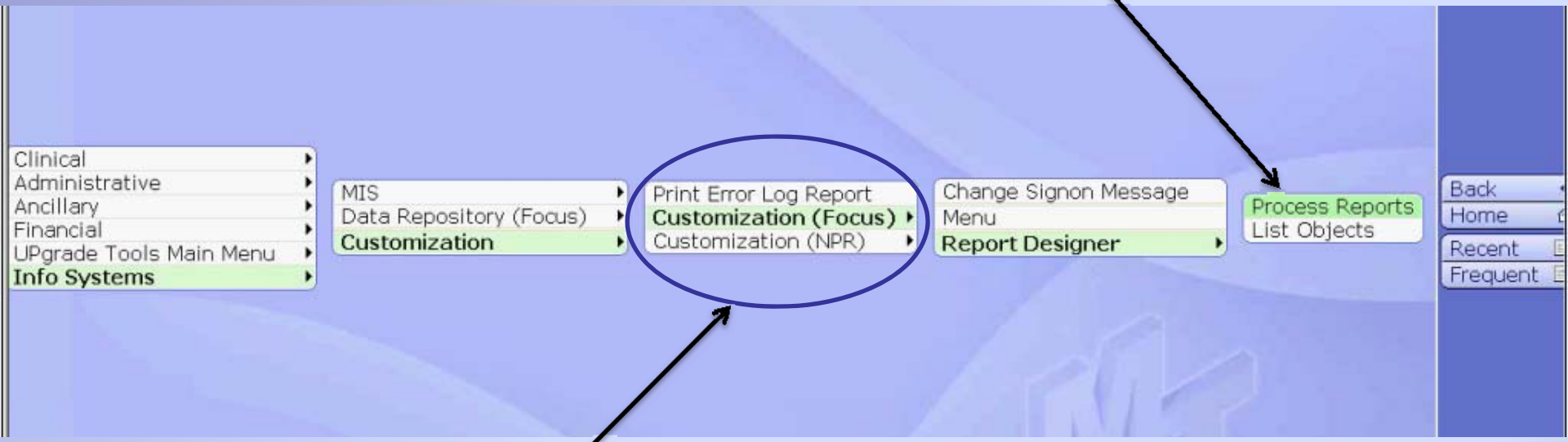
Report Writing in FOCUS

- **Rule Editor / Wizard *may* eliminate need for code**
- **No abbreviations (e.g GE, LE, EQ)**
- **All FOCUS application data is available with no special “tricks” needed**
- **No current plan to allow FOCUS to get NPR data**
- **Output is via “Frames” – one per region**

SNEAK PREVIEW… shhh!

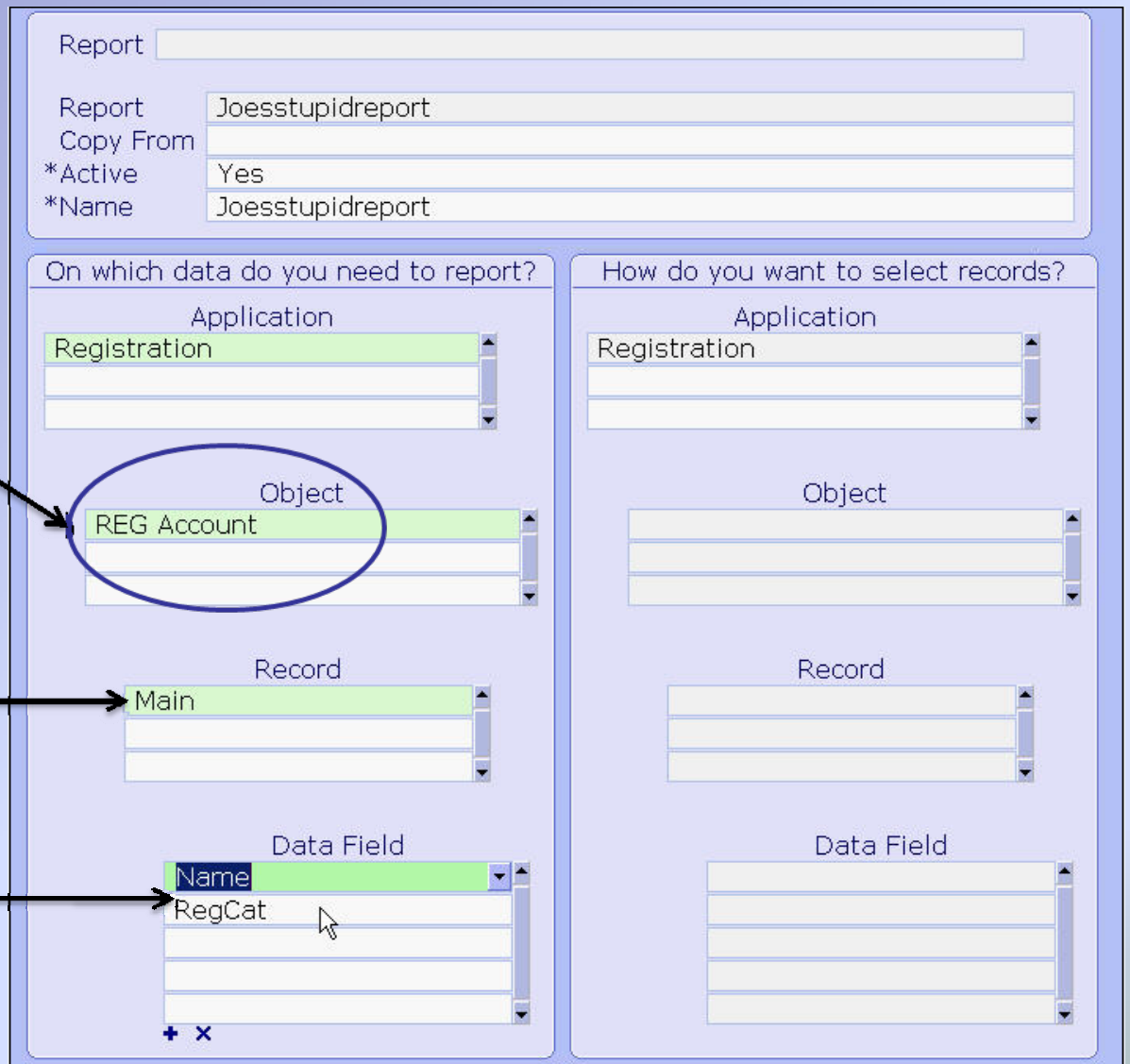
Report Writing in FOCUS

Familiar “Process Reports” Menu



Two Report Writer Options

Report Writing in FOCUS



The new "ADM.PAT"

a.k.a. main "segment"

"Basic" Report Mode

Report Writing in FOCUS

*Title Line 1	Joesstupidreport
Title Line 2	
Title Line 3	

*Orientation	Portrait
Default Font Type	VariableSansSerif
Default Font Size	2
Include Outside Border	Yes
Include Standard Banner	Yes
Banner Type	HCIS
Compress Banner after page 1	Yes

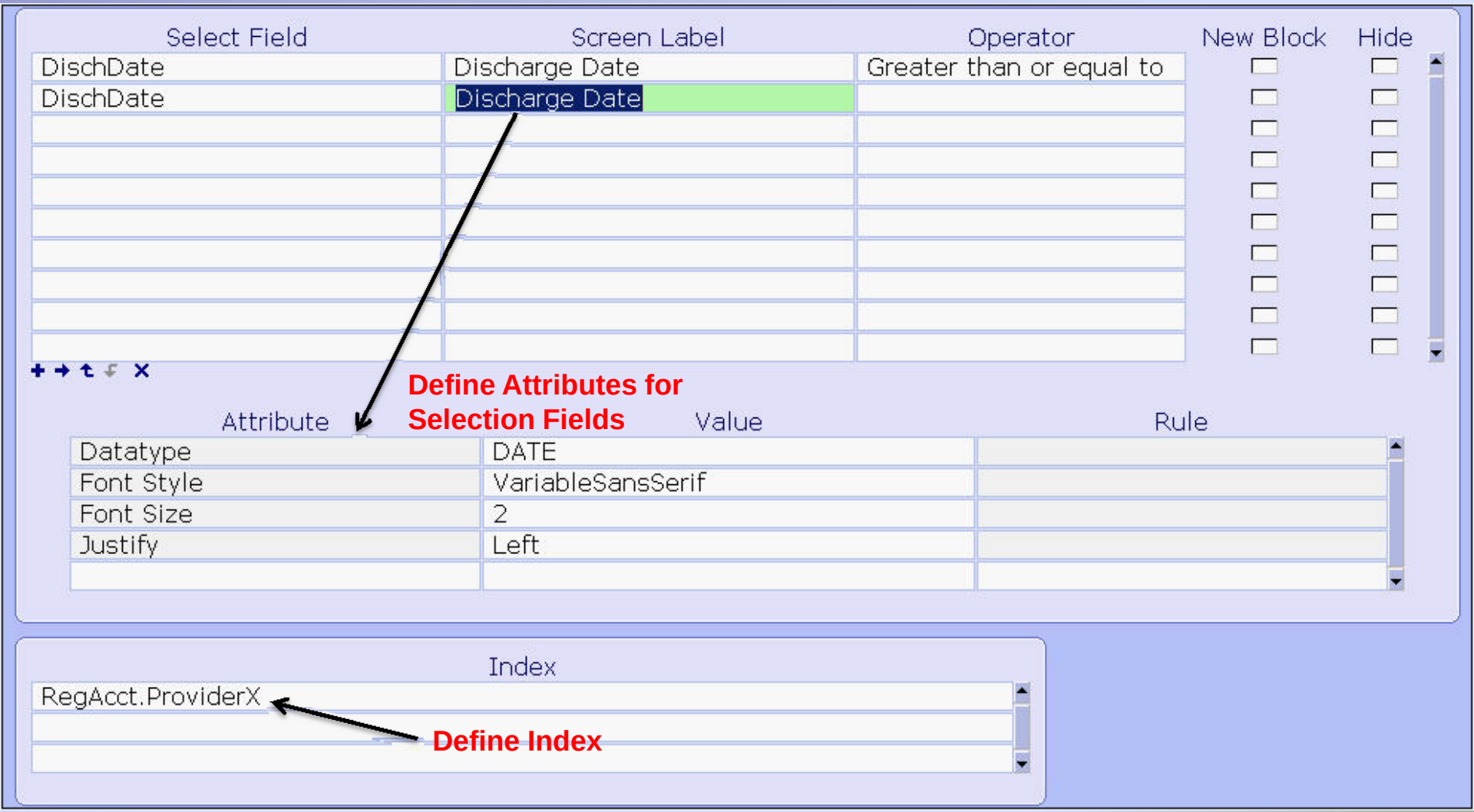
Paper Width (Inches)	8.5
Paper Height (Inches)	11
Top Margin (Inches)	0.5
Bottom Margin (Inches)	0.5
Left Margin (Inches)	0.5
Right Margin (Inches)	0.5
Lines Per Inch	6
Lines Per Page	60

*Detail Record	Primary
RegAcct.Main	☑
	☐
	☐

Define Main Record (aka “Segment”)

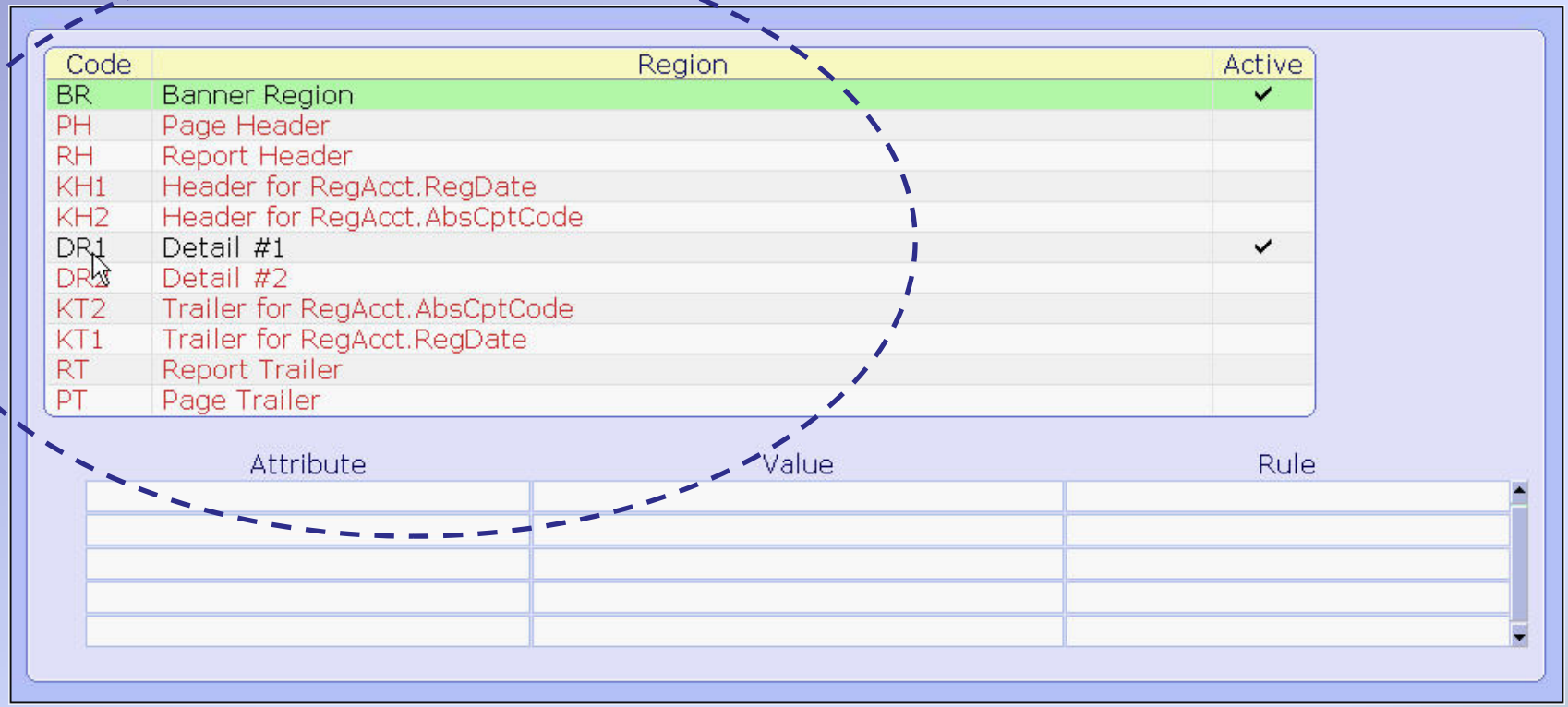
Attribute	Value	Rule

Report Writing in FOCUS



Report Writing in FOCUS

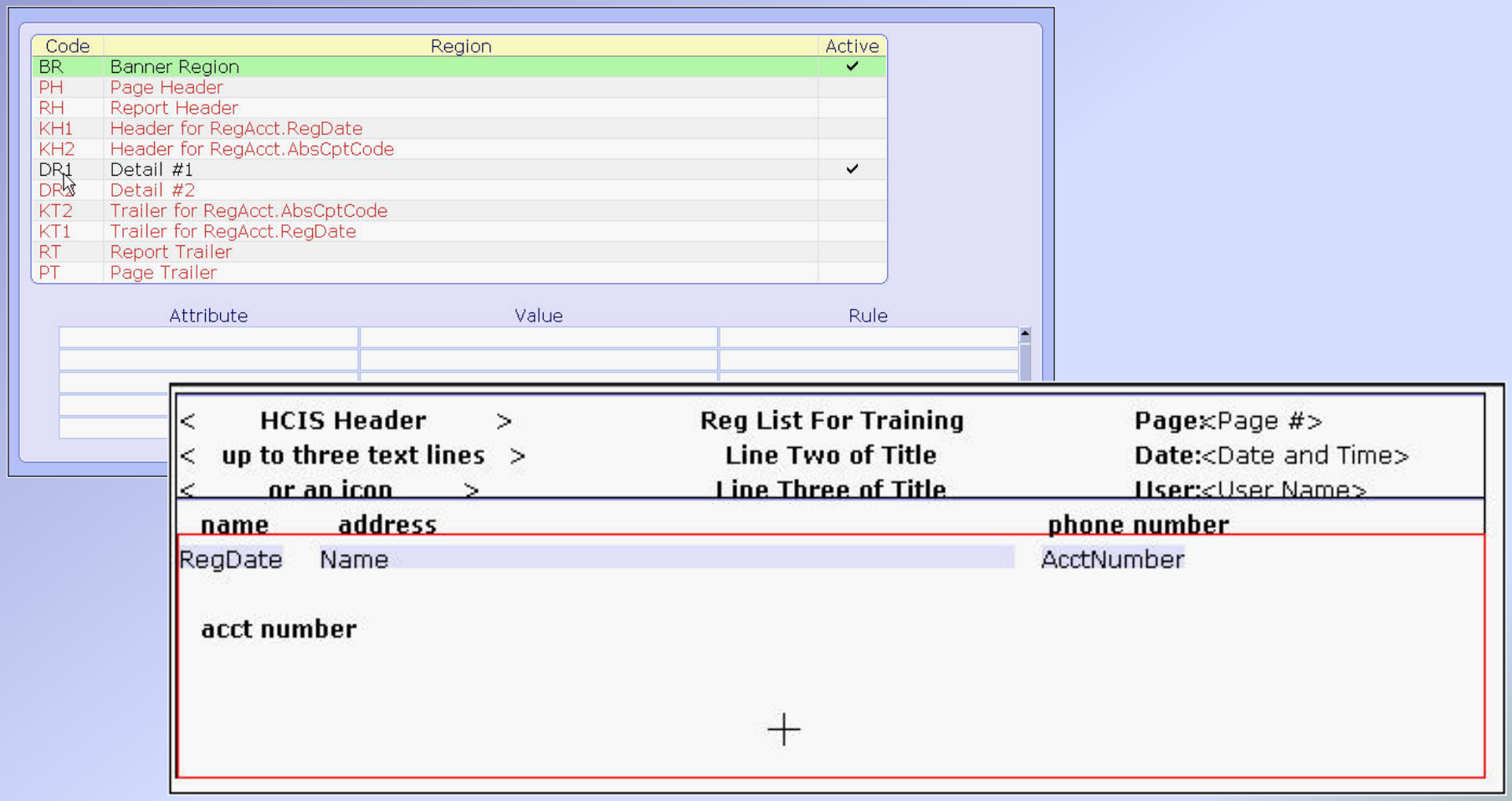
Define Output Regions



Code	Region	Active
BR	Banner Region	✔
PH	Page Header	
RH	Report Header	
KH1	Header for RegAcct.RegDate	
KH2	Header for RegAcct.AbsCptCode	
DR1	Detail #1	✔
DR2	Detail #2	
KT2	Trailer for RegAcct.AbsCptCode	
KT1	Trailer for RegAcct.RegDate	
RT	Report Trailer	
PT	Page Trailer	

Attribute	Value	Rule

Report Writing in FOCUS



THE FUTURE

Rumors, Future Possibilities…

- Phased approach for 6.x / FOCUS
- Scripting in 6.0 / FOCUS?
- Alternate Hardware Configurations?
- Greater use of web technologies?
- Habla espanol?

THANK YOU!!!!