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# DataFax 5.0 What's Coming

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## Focus is New Backend

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- Client tools stay largely the same
- Migration path from 3.8.1+
- Transitional tools

## Motivation

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- Modern platform for future
- Increase in limits
- Single source of setup information
- Much faster audit history
- Better concurrency
- Full transactional capability
- Better integrity
- CDISC compatibility

## SQL database

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- PostgreSQL
- Fully transactional
- Referential integrity
- Multithreaded
- Enterprise features like Replication
- Everything moves into the database (images, setup, data)
- Each study lives in its own schema

## Benefits

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- No more resorting at server shutdown
- Data is always in sorted state
  - faster searches
- Hyper-normalized data structure removes need for database restructuring
- Uncommitted changes are automatically rolled back in event of a crash
- Backups can be done with a consistent view of the database

## SQL Permissions

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- SQL database enforces Read/Modify/Delete permissions at Table level
- Admin can create customized views into data and grant permission on tables for 3<sup>rd</sup> party tools
- DataFax triggers prevent unauthorized modification or deletion of audit trail data
- DataFax provided functions for evaluating read/modify/write permissions at record level for SQL views

## Audit Trail

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- Data, Setup, User/Role information is audited
- Records timestamp as well as session that made change
- Each record stores when it became current and when it ceased to be current
- Easy to generate a view of what the database contained at an arbitrary point in time


## Hyper-normalized Data

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- Each data field is a row in database
  - vs. existing records being all fields on plate
- Rapid record history
- Each data field is attributed to who changed it and when
- No plate restructuring necessary
  - Plates assembled in real-time
  - No performance impact in testing to date

## Example

KEYREF	ITEMID	EFF_TIME	EFF_SESS	EXP_TIME	EXP_SESS	VALUE
1234	29	2012/03/07 13:32:05.56	A892-1232-4	Infinity		DEF
1234	29	2011/12/22 09:31:47.81	F751-9521-A	2012/03/07 13:32:05.56	A892-1232-4	ABC
1234	35	2012/03/07 13:32:05.56	A892-1232-4	Infinity		Headache
9451	29	2011/12/29 15:11:09.11	8A7D-881A-0	Infinity		GHI



SESSION	USERID	LOGIN	LOGOFF	TOOL	LOCATION
F751-9521-A	martin	2011/12/22 08:37:32.21	2011/12/22 17:03:56.61	iDataFax	192.168.3.1
8A7D-881A-0	david	2011/12/29 09:08:41.41	2011/12/29 18:01:38.01	iDataFax	192.168.2.10
A892-1232-4	martin	2012/03/07 13:29:01.39		iDataFax	192.168.3.9

## New Keys

- Addition of Visit repetitions and Plate repetitions
- Visit repetitions can be used instead of visit ranges
- CDISC related



## Modules

- Each module gets a name
- Define fields for Condition, Yes/No, Duration, Treatment and Resolved
- The module can then be placed on the plate multiple times

	Condition		→	Duration Years & Months		Currently on Treatment		Resolved and/or Controlled	
	No	Yes			No	Yes	No	Yes	
1. Hypertension	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Edit Check Changes

- Variable names (e.g. DURATION) refer to fields in the current module by default
- References to fields in other modules require addition of module notation
  - MEDHIST[1].DURATION

## Limits

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- Number of studies increased
- Number of visits increased
- Number of plates increased

## Barcode

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- Existing barcode limited to 255 studies, 511 plates and 511 visits
- Investigating using 2-D barcode like QR codes which can encode much more data
- Includes error correction features





## Images and other Media

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- **Secondary records completely gone**
  - We still keep track of previous images
  - Duplicate primaries no longer possible
- **MEDIA table tracks images and other types of information (audio, video, documents)**

## API

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- **Currently DataFax is connection based**
  - Locks are held by the connection
  - Network connection remains open for the duration of the client tool session
- **Will move to session based**
  - Client tool opens/closes network sessions as required
- **Allows for Web interfaces, mobile clients**
- **Move to XML or JSON based API**
- **Foundation to build on**

