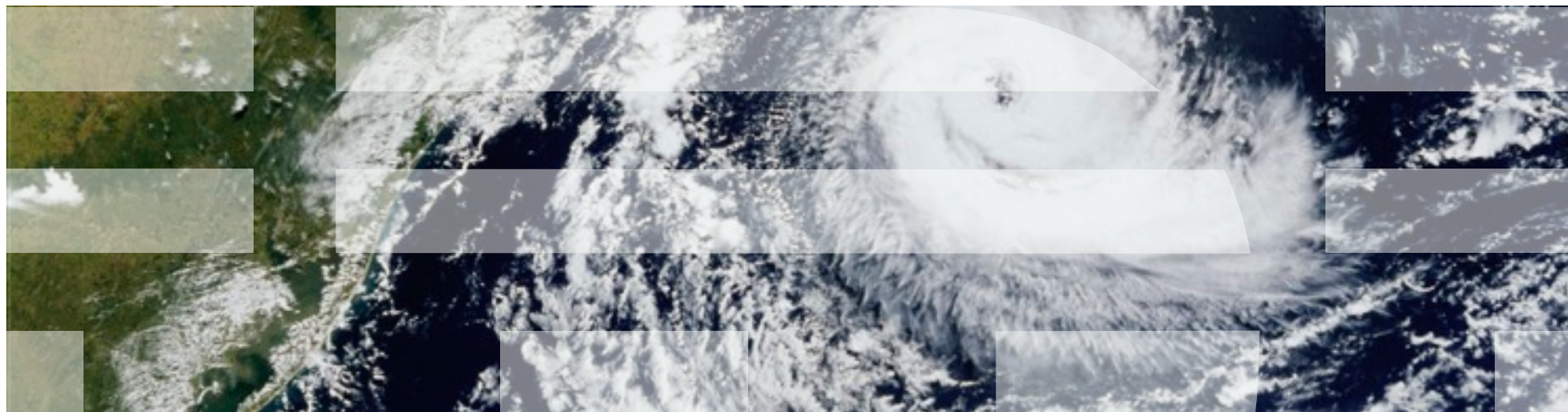


Troubleshooting Notes C&S

Prepared for AdminCamp 2012



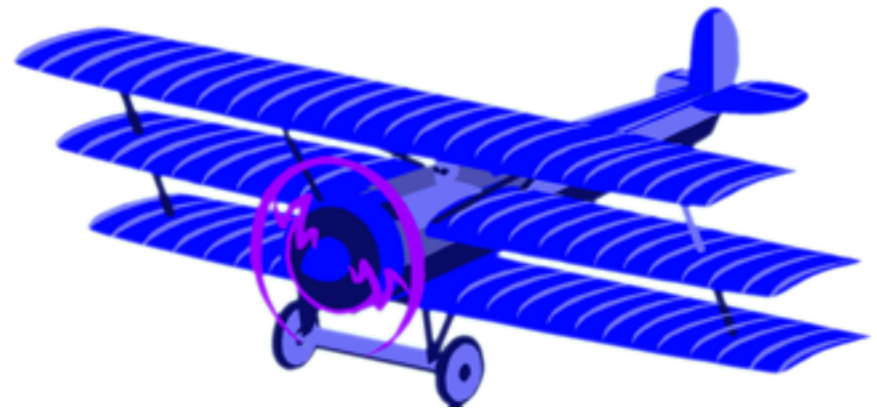
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Systems Overview in IBM Lotus Domino and Notes

- Tools we use at IBM
- Busytime
- Calendaring & Scheduling (C&S)
- Rooms & Resources (R&R)



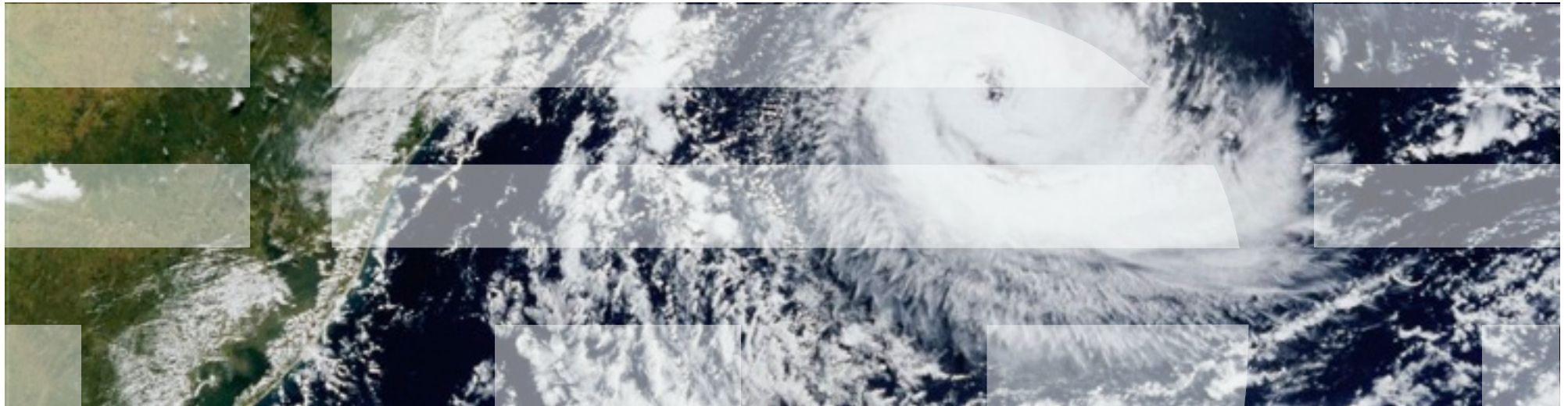
Listing the tools we use

- Available in Technotes
 - Notespeek
 - http://www-10.lotus.com/ldd/dominowiki.nsf/dx/Using_NotesPeek
 - Admin_Tools_V1.1
 - All-in-one Admin Tool for agent-based troubleshooting & problem solving
 - <http://www.ibm.com/support/docview.wss?uid=swg21459332>
- Available from support
 - Cnsdiag
 - Repairs some repeating meetings
 - Fixauto
 - Re-sets autoprocessing database header bit
 - Various agents
 - Add fields that have been lost
 - Repair failed name changes

Listing the common problems

- Free time search shows the wrong results
 - My time shows me busy all the time
 - There are meetings on my calendar but people book me for those times
 - Rooms show as not available when they are
 - Rooms are double booked
- Problems with repeating meetings
 - Meetings cannot be rescheduled
 - Duplicate meetings
 - Missing Meetings
- Rooms and Resources
 - Rep/Save conflicts
 - Cannot book a room
 - Room name changes failed
 - Ownership issues
- Problems with Internet sent or received meetings (iCalendar)
 - They come in as an attachment
 - The wrong buttons are showing
 - Updates don't get delivered (or received)

Busytime / “Free Time”



Busytime

- Required for user's calendars and rooms/resources
 - If it's broken, nothing works
- Many problems that look like other problems in C&S originate here
- Only two processes create or maintain this system
 - Schedule Manager (Sched) and Rooms and Resource Manager (RnRMgr)
- Each task monitors the server for any documents containing \$busyname fields
 - This includes new resources or users
 - Also new or changed calendar entries
- All scheduled time is stored in busytime.nsf or clubusy.nsf (if clustered)
 - You can't see it, but its there
 - If we added more views, the lookups would be slower
 - We will show you commands to view all the information stored here

Busytime (cont.)

- There is only one record per user / room / resource
 - Updates occur nearly instantaneously
 - Checks the full hierarchical name
- Data stored chronologically
 - “Old” records purged nightly
- Users’ busytime is only updated on their Home Server
 - If the user’s Home Server down, no updates happen
 - Lookups will “work” when the Home Server down in a cluster
 - But the data will not be current
- R&R can be updated on multiple (two) servers
 - RnRMgr updates when processing requests

How Busytime Updates

- The criteria: “Is this the right replica on the right server”
- Targeted scan of the server
 - Occurs two ways
 - At server or task startup
 - At the 2:00 AM sweep by the tasks
 - R&R also “as needed” if clustered

Updating Busyttime (cont.)

- Scan / “Right replica” criteria:
 - Database “Has Calendar”
 - There is a bit on the database viewable with Notespeek
 - There is an app on the Internet called nocal.exe that can un-set this if you want to do that
 - Check the Calendar Profile name
 - This must be fully hierarchical
 - Older databases can still have other names
 - If necessary, check name on Calendar entries
 - In one instance an app was using users’ common names to schedule wellness exams
 - This placed a second name or the user in busyttime
 - » This caused bad lookups

Updating Busytime (cont.)

- Replica Check:
 - Read the record from Domino Directory
 - \$users view
 - If name not found, declare it a “wrong replica”
 - If > 1 match, use the first one (and warn)
 - If the 'type' is not what we want, declare “wrong replica”
 - If the user has a Forwarding Address, declare “wrong replica”
 - If the Calendar Domain != current domain, declare “wrong replica”
 - If the Mail Server != current server, declare “wrong replica”
 - It may be the right replica over on the clustermate
 - If Mail File name != the database being checked, declare “wrong replica”
 - The user may have gotten a backup file
 - Otherwise declare “right replica”
 - Add to busytime

Why Busytime Can Appear “Off”

- Local vs server replicas
 - Make sure changes appear in the server replica
- Home Server is down
 - No updates are happening while down
 - Cluster failover can mask this
- Sched / CalConn not running
 - Tasks should always be running
 - Disabling / Stopping and forgetting to restart can happen
- Wrong server replica
 - Make sure user is working in the replica the Domino Directory says is their mail file
 - Make sure 'backup' replicas on a server are kept to a minimum
- Rep/Save conflicts in clubusy
 - Caused sometimes by server crashes
 - Usually caused by a helpful Administrator backing up the database
 - Clubusy never needs a backup copy
 - Never needs to be backed up to tape
 - Its is a real-time database that is rebuilt upon deletion

Why Busytime Can Appear “Off” (cont.)

- Anniversaries / All Day Events / Holidays
 - Users often overlook these entries
 - All Day Events & Holidays default to “Busy”
- Out of Office
 - Shows user as busy even if they change their mind
- Domino Directory issues
 - Manual edits in user or Rooms documents
 - Stale View Indexes
 - We use \$Users view for all lookups
 - Non-working configurations (e.g. Misconfigured Directory Assistance)
- Bad Location setting
 - Mail Addressing must be **Local then Server**
 - Home Server must be specified

Triaging Busytime – First Steps

- Scheduler UI
 - Left mouse click

The screenshot displays the Scheduler UI for Wednesday, January 18, 2012. The interface is organized into several sections:

- Invitees:** A list of invitees with checkboxes for selection. The selected invitees are:
 - All people
 - Samantha Darren/Acme
 - Required
 - John Doe/HQ/Iris
- Scheduled Rooms:** A calendar view showing room availability. A green bar indicates a room is available from 1 pm to 2 pm.
- Scheduled Resources:** A calendar view showing resource availability. A green bar indicates a resource is available from 1 pm to 2 pm.

A legend at the bottom of the interface defines the colors used in the calendar:

- Available (white)
- Already Scheduled (red)
- Unavailable (grey)

Below the legend, there are three error messages displayed in a light blue box:

- John Doe/HQ/Iris: User name in scheduling request not found in Name and Address Book
- John Doe/HQ/Iris: Can't find domain document in Domino Directory for the scheduling request
- John Doe/HQ/Iris: No Message Queue with that name.

Triaging Busytime – First Steps (cont.)

- Console commands:
 - Tell Sched List <FullNotesName>
 - Displays Calendar Profile data
 - Example: Tell Sched List Samantha Daryn/Acme

```
tell sched list Samantha Daryn/Acme
SchedMgr: Profile for sanantha daryn/acme (Busytime restricted: No, Details restricted: No, Opt out details: No, Profile last updated: 01/12/2012 11:37:55 AM)
SchedMgr: 12/12/2011 10:00:00 AM (Monday) - 12/12/2011 06:00:00 PM. (Monday)
SchedMgr: 12/13/2011 10:00:00 AM (Tuesday) - 12/13/2011 06:00:00 PM. (Tuesday)
SchedMgr: 12/14/2011 10:00:00 AM (Wednesday) - 12/14/2011 06:00:00 PM. (Wednesday)
SchedMgr: 12/15/2011 10:00:00 AM (Thursday) - 12/15/2011 06:00:00 PM. (Thursday)
SchedMgr: 12/16/2011 10:00:00 AM (Friday) - 12/16/2011 06:00:00 PM. (Friday)
SchedMgr: Done listing schedule entries
```

- Check dates/times for mismatch (client vs server)
- Tell Sched Show <FullNotesName>
 - Displays Calendar entry data
 - Shows 'Penciled-in' / Tentative entries
 - The UI does not
 - “Old” data kept short time (Default = 7 days)

```
tell sched show Samantha Daryn/Acme
12/19/2011 12:34:14 PM SchedMgr: sanantha daryn/acme is busy from 12/16/2011 02:00:00 AM to 01/03/2012 02:00:00 AM
12/19/2011 12:34:14 PM SchedMgr: sanantha daryn/acme is in a repeating entry from 01/02/2012 07:30:00 PM to 01/02/2012 08:30:00 PM
12/19/2011 12:34:14 PM SchedMgr: sanantha daryn/acme is busy from 01/04/2012 08:00:00 AM to 01/04/2012 10:00:00 AM
12/19/2011 12:34:14 PM SchedMgr: sanantha daryn/acme is penciled in from 01/04/2012 09:00:00 AM to 01/04/2012 09:30:00 AM
```

Triaging Busytime – First Steps (cont.)

- Console commands (cont.):
 - Tell Sched Check <FullNotesName>
 - Compares busytime to Calendar contents
 - Corrects busytime as needed
 - Its the only way to find 'missed' deletions
 - Tell Sched Check does what you think you're doing with Tell Sched Val

First pass repair - unofficial, but it works

- If tell sched list does not show what is in the calendar profile UI
 - Remove the calendar profile
 - Use the Admin tools database
 - Then tell sched check for the user
- If tell sched check does not fix the issue
 - **USE THIS FOR USERS ONLY! NEVER ROOMS**
 - Delete the user from busytime or clubusy
 - Issue tell sched validate user name/OU
 - This places the record back in the db
 - Issue tell sched check for the users
 - This adds the existing records to the user name

A Very Easy Troubleshooting Tip #1

- If there's a gray line where there should be events showing
 - Touch the grayish line and look at the Status Bar
 - The message usually tells you what's wrong
 - In this case, Atom has set his availability to "No one"
 - Info Restricted

The screenshot shows a meeting scheduling application window. At the top, there are tabs for 'Description' and 'Find Available Times'. Below this is a section for 'Select Invitees to find free time for just those individuals.' with 'Summary' and 'Details' buttons. The main area is a calendar grid for Tuesday, with columns for 2 pm, 3 pm, 4 pm, 7 am, 8 am, 9 am, and 10 am. Under the 'Invitees' section, several names are listed with checkboxes: 'All people', 'Notes Admin Blossom', 'Required', 'Atom Moore Blossom', 'Susan Admin Blossom', and 'Todd SysAdmin Blossom'. A green vertical bar is present from 2 pm to 3 pm. A gray vertical bar is at 4 pm, with a mouse cursor hovering over it. Below the calendar, there are sections for 'Scheduled Rooms' (Beta Room Baker Street) and 'Scheduled Resources', both showing a green bar from 2 pm to 3 pm. At the bottom, a legend indicates 'Available' (white), 'Already Scheduled' (red), and 'Ur' (light red). A status bar at the very bottom shows the error message: 'Atom Moore/Blossom: You are not authorized to perform that operation'.

June 17, 2012

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A Very Easy Troubleshooting Tip #2

- When a user shows busy when there is no meeting
 - Create a new meeting and invite the problematic user
 - Select Find Available Times Tab
 - Locate the wrong information
 - Right click and select “Open entry for...”

- This will:
 - Open the entry which is breaking freetime (Delete it!)
 - Often an out of office doc
 - Return an error stating link doc cannot be found
 - Tell sched check username/ou/o will usually fix this

The screenshot shows a calendar application interface. At the top, there is a tab labeled "Find Available Times" with a green arrow pointing to it from the right. Below the tab is a search bar with the text "es to find free time for just those individuals." and a "Details" button. The main area is a calendar grid for "Tuesday, December 20, 2011". The grid shows time slots from 3 pm to 4 pm. There are several red blocks representing busy times for different users: "ple", "Smith/TestOrg", "ired", and "User/TestOrg". A context menu is open over the 3:15 PM - 4:15 PM slot, with a green arrow pointing to the option "Open entry for 03:15 PM - 04:15 PM". The menu also includes "Open Calendar" and "Details of entry for 03:15 PM - 04:15 PM".

Repairing the Busytime database

- There are times you really need to rebuild clubusy or busytime
- Steps to rebuild
 - Stop Sched, CalConn, RnRMgr tasks
 - Issue dbcacheflush several times
 - Delete busytime.nsf
 - Or clubusy.nsf from all clustermates
 - Restart the tasks
 - Or restart the server
 - Wait for the system to rebuild

How to rebuild clubusy.nsf

- It is important to rebuild clubusy properly.
 - All copies on all servers in a cluster must be replaced simultaneously
 - There is a specific order of steps to follow

 - Begin by ensuring that no 'other' copies of busytime or clubusy exist
 - clubusyold.nsf, oldclubusy.nsf, etc
 - Delete these old copies if they exist on any server within the cluster
 - Clubusy is a 'throwaway' database – it is rebuilt from data that exists elsewhere
 - There is never any value in keeping old copies
 - Unless you're sending them in to IBM Support

How to rebuild clubusy.nsf (con't)

- Use Technote as reference
 - How to recreate the busytime.nsf and clubusy.nsf databases on a Domino
 - <http://www.ibm.com/support/docview.wss?uid=swg21086471>
- Stop all related tasks using the server console on the Domino Administrator client.
- Issue dbcacheflush several times
- Delete clubusy.nsf from all clustermates
 - Or busytime.nsf if not clustered
 - Double check at the OS level to make sure the db is really gone!
- Restart the tasks on all cluster server simultaneously
- Wait for the system to rebuild
- Check to make sure the rebuild is correct
 - All documents must show the same created date

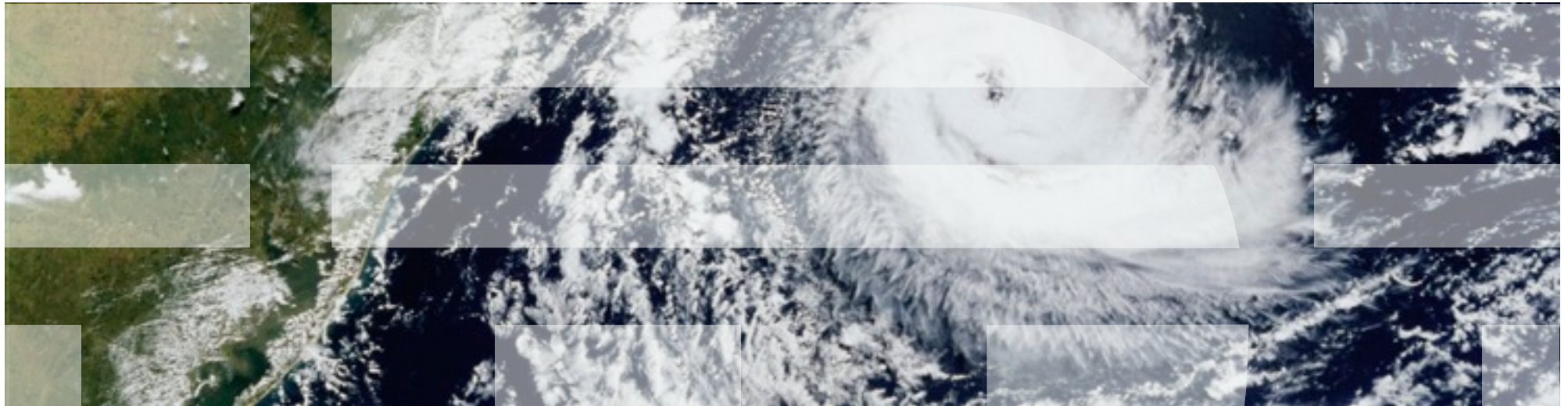
Server side INIs

- If you want to debug the server yourself
- `DEBUG_SCHED_ALL=1`
 - Main lookup debug setting
 - Gives a complete trace of all busytime lookup activity on a server
 - Dynamic
 - Can be verbose
 - Use with `DEBUG_OUTFILE`

Schedule Manager INI

- **DEBUG_SCHEDULE**
 - Used to monitor Schedule Manager's actions
 - NOT Dynamic prior to 8.5.3
 - Values are additive:
 - 1 = Basic debugging messages
 - 2 = Internal busytime cache info
 - 4 = Log Caveats / Warnings
 - 8 = Trace subroutine entry/exits
 - 16 = Log Database scanning for docs
 - 32 = Detail harvesting/processing related work
 - 64 = Cluster related logging (can be chatty)
 - 32768 = "R5 behavior", very verbose
 - Recommendation: Start with 31 and adjust as needed

Calendaring & Scheduling



Calendaring & Scheduling

- Based in users mail file
- One parent document is repeating
 - One document for 'runs' of repeating meetings
 - If the meeting is never rescheduled, there are only 2 documents
- Workflow via email
 - Every UI 'action' has distinct workflow message
 - Tracked in \$CSTrack field
 - All workflow goes 'through' the Chair
 - Notes items or iCalendar (SMTP)

Calendaring & Scheduling (cont.)

- Involves many cooperating parts:
 - Template
 - Script libraries
 - Design elements
 - Views (some hidden)
 - Calendar Profiles
 - Calendar entries
 - Code
 - Client
 - Server

- Schema published:
 - A “MUST READ” for anyone customizing or building on C&S (or R&R)
 - http://www-10.lotus.com/ldd/ddwiki.nsf/dx/cs_schema_toc
 - Sample workflow messages & item descriptions
 - Questions to ndinfo@us.ibm.com with "C&S Schema" in the Subject
 - A mail-in database so responses may not be immediate
 - Actually, I get copied

Calendar Profiles

- Exist for users as well as rooms and resources
 - One per user mail file
- Store all C&S related preferences
 - Calendar “settings” stored on different profile doc (1 per user accessing a database)
 - Stores info like last calendar view seen (e.g. One Day) and whether summarized or not
 - Federated Calendars
 - Signature file settings
- Contain many important items
 - \$BusyName item
 - Identifies whom the profile is for
 - “Available hours”
 - Names of who can see what data for the user / resource
- Not exposed in any view
 - You can use NotesPeek
 - Or Panagenda’s Marvel Client
 - Or NoteMan from MartinScott

Calendar Entries

- 2 types of documents:
 - Non-workflow docs:
 - Represent actual entries on the Calendar (e.g. Meetings, Appointments, Reminders)
 - Workflow docs:
 - Represent 'actions' on entries (e.g. Accept, Cancel)
- Non-workflow docs contain many important items:
 - \$BusyName
 - Identifies whom the entry is for
 - CalendarDateTime
 - Date/time the entry should appear on the Calendar
 - \$BusyPriority
 - Specifies if the entry is “busy” or not

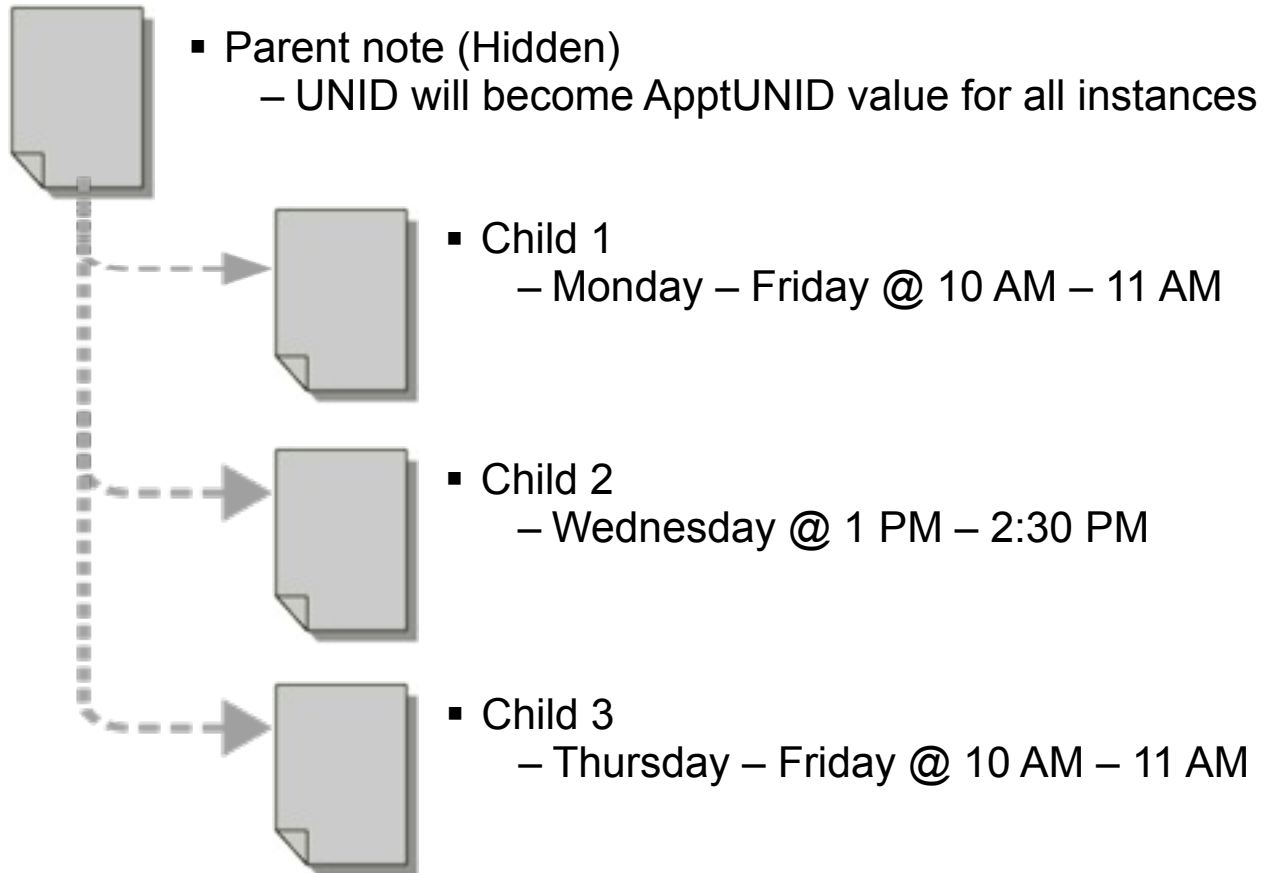
Important note items

- ApptUNID
 - Uniquely identifies a meeting or series of meetings (and all related docs)
 - Text value of the UNID on the Chairs Calendar
- \$CSTrack
 - Diagnostic log of actions done to the entry
- StartDateTime
 - Entry starting date & time
- EndDateTime
 - Entry ending date & time
- RepeatInstanceDates
 - Repeating entries only
 - Original starting date/time of the entry/entries

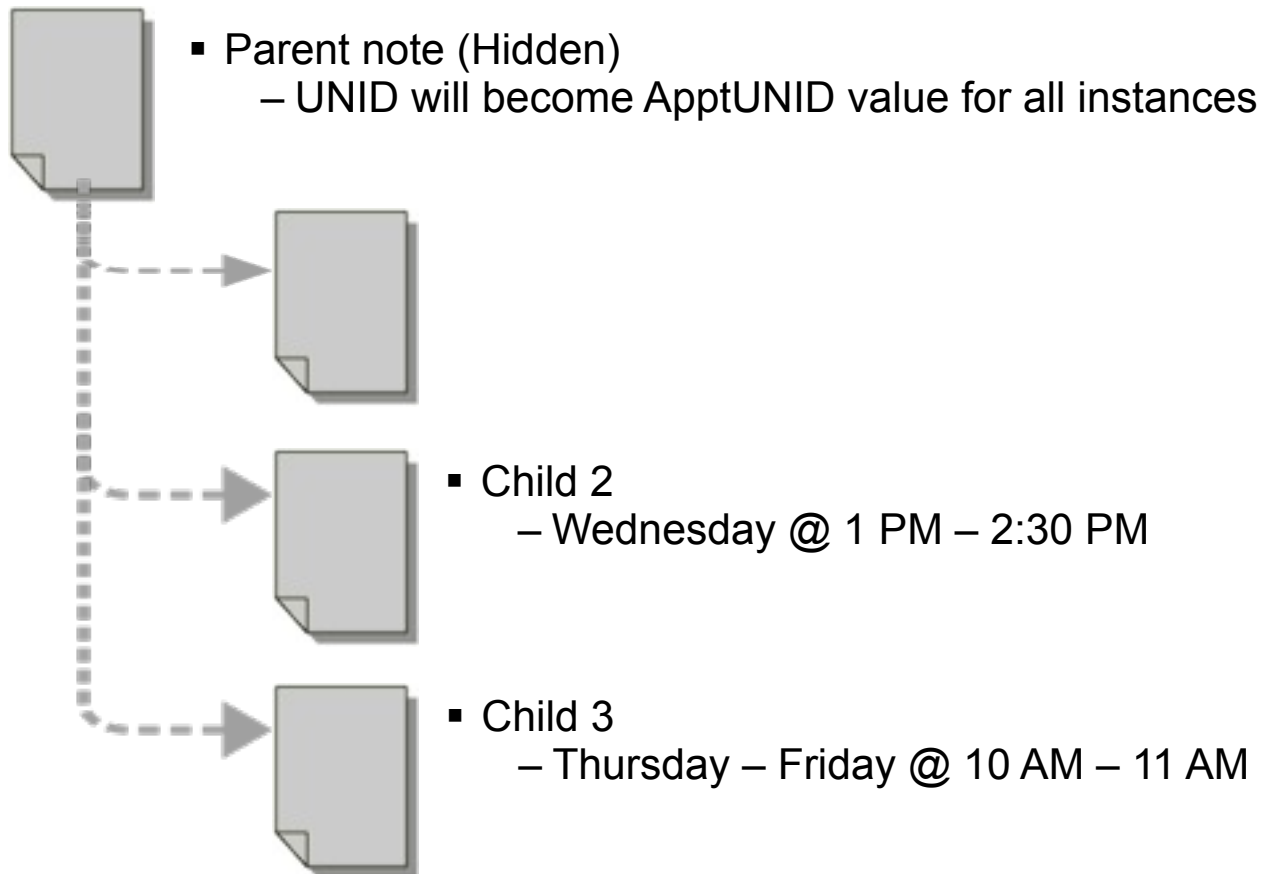
Repeating Meetings (cont.)

- Parent doc
 - Rarely updated after the set has been created
 - And should only be updated by Notes or Domino code
 - Contains some items useful to create proper workflow
 - Never shows on the graphical Calendar (no CalendarDateTime field on them)
- Parallel lists
 - Several items form a 'group' of items that contain related data
 - Groups MUST be kept in sync size wise!
 - Messing up 1 doc can affect multiple instances
 - Examples:
 - StartDateTime, EndDateTime, RepeatInstanceDates
 - RequiredAttendees, AltRequiredNames, InetRequiredNames, INetSendTo

Repeating Meetings (cont.)



Repeating Meetings (cont.)



- Repeating entries are a minimum of two documents
 - Both use the Appointment form
 - One is a child of the other
 - The children are tied to the parent by the \$Ref item
 - When the parent document is created ...
 - The UNID of that note is converted to text
 - It is saved as the ApptUNID
 - The ApptUNID item is copied to each of the children
 - This helps tie all the repeating documents together

Bonus: The ApptUNID is the same for that meeting in everybody's mail file. You'll use this field when things go wrong.

- The child documents have CalendarDateTime fields
 - This makes them appear in the calendar view
 - Repeat instances are the same document displayed multiple times
 - The parent document has no CalendarDateTime field
 - It can be seen only in the All Entries views of the calendars
- The parent document contains two important fields that are unique to repeating
 - RepeatInstanceDates
 - Always a list of the original datetimes of the meetings
 - RepeatDates
 - A corresponding list of the current datetimes of the meetings

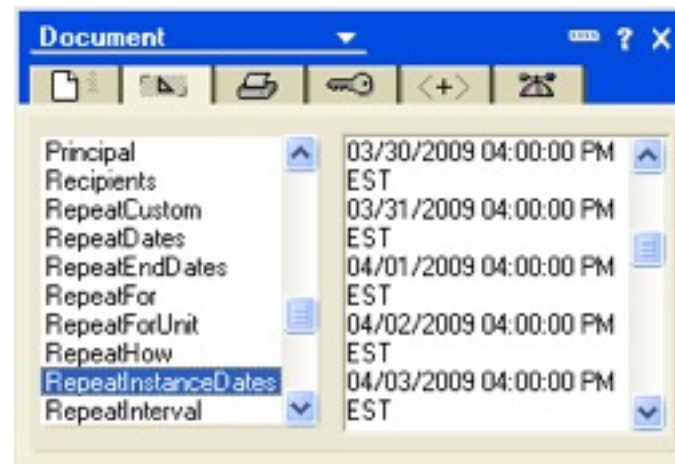
- The position of the elements of these two lists cannot change
 - Even if one of the meeting's dates is cancelled, the item is not removed from these lists
- The number of items in both fields must match at all times
 - This is where repeating meetings usually break down
 - And seriously, it's almost never plain vanilla usage that causes it

Any time a repeating meeting goes outside Notes and comes back into Notes, data is at risk

- One child document is created for each run of consecutive days
 - Where all the items of the meeting are the same
 - The RepeatInstanceDates field of each child document has just the consecutive initial meeting dates for this run
 - The StartDateTime item has the current meeting start dates and times for this run
 - The EndDateTime item has the current meeting end date times
- Other settings on parent/child documents
 - Parent documents have the \$CSFlags field set to “c”
 - Child documents contain \$CSFlags = “i”
 - Workflow items such as Updates or Confirmations are noted with \$CSFlags = “w”
- These fields may help you determine which document is which

- An example or two may help
 - A repeating meeting parent, one child
 - The RepeatInstanceDates match and look like this

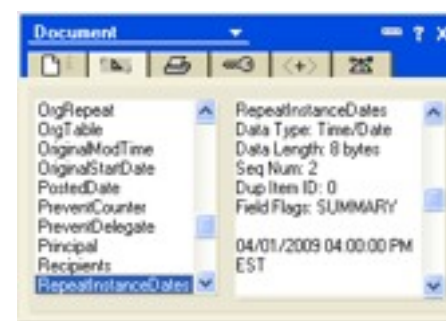
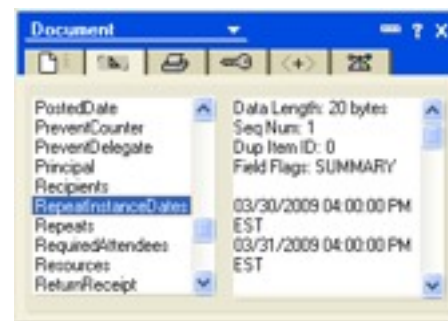
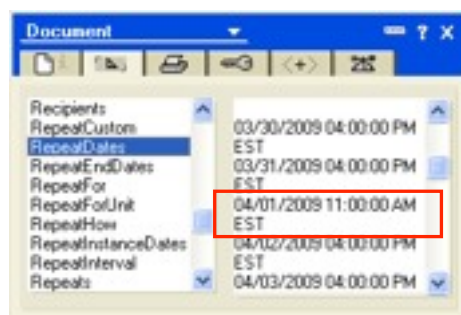
▼		02/09/2009 09:00 AM	Accepted: Meeting	Mariska Hargitay
		Meeting (02/09/2009 09:00:00 AM), Meeting (02/10/2009 09:00:00 AM), Meeting (02/11/2009 09:00:00 AM), Meeting (02/12/2009 09:00:00 AM), Meeting (02/13/2009 09:00:00 AM)		
▼		03/30/2009 04:00 PM	Repeat Meeting	Susan Rules
		Repeat Meeting (03/30/2009 04:00:00 PM), Repeat Meeting (03/31/2009 04:00:00 PM), Repeat Meeting (04/01/2009 04:00:00 PM), Repeat Meeting (04/02/2009 04:00:00 PM), Repeat Meeting (04/03/2009 04:00:00 PM), Repeat Meeting		



Repeating Workflow Basics (cont.)

- Reschedule the third instance
 - A repeating meeting parent, three children
 - The RepeatInstanceDates are unchanged in the parent, but
 - The Repeat Date reflects a new time for instance #3
 - And the children have the RepeatInstanceDates changed

▼		03/30/2009 04:00 PM	Repeat Meeting	Susan Rules
		Repeat Meeting (03/30/2009 04:00:00 PM),Repeat Meeting (03/31/2009 04:00:00 PM)		
		Repeat Meeting (04/01/2009 11:00:00 AM)		
		Repeat Meeting (04/02/2009 04:00:00 PM),Repeat Meeting (04/03/2009 04:00:00 PM),Repeat Meeting (04/04/2009 04:00:00 PM),Repeat Meeting (04/05/2009 04:00:00 PM),Repeat Meeting (04/06/2009 04:00:00 PM),Repeat Meeting		



Troubleshoot from this View

- The best tip you've gotten all day
 - Grouped Entries view
 - Shows all activity about a Meeting

The screenshot shows the IBM Notes Admin interface. On the left, there is a calendar for December 2011, with the 16th highlighted. Below the calendar is a 'Views' section with options: One Day, Two Days, One Work Week, One Week, One Month, Lists, Entries by Category, Entries and Notices, Calendar Entries, and Grouped Entries (which is selected). The main area displays a list of meeting entries in the 'Grouped Entries' view. The list has columns for Meeting Time, Subject, and Chair. The entries are grouped by meeting time, with each group expanded to show related activities.

Meeting Time	Subject	Chair
12/16/2011 11:00 AM	Tech Test Meeting	Notes Admin
12/19/2011 11:00 AM	Tech Test Meeting	Notes Admin
	Alpha Room has been reserved	
	Cat Furr can meet at the suggested time	
	Katleen S Awesome can meet at the suggested time	
	Calendar Assistant will not be attending	
12/20/2011 11:00 AM	Tech Test Meeting	Notes Admin
	Gamma Room has been reserved	
	Cat Furr can meet at the suggested time	
	Katleen S Awesome can meet at the suggested time	
	Calendar Assistant can meet at the suggested time	
12/26/2011 01:45 PM	Tech Test Meeting	Notes Admin
12/28/2011 02:00 PM	Test Meeting	Notes Admin
01/05/2012 09:00 AM	Accepted: Team Meeting	Katleen S Awesome
	Team Meeting (01/05/2012 09:00:00 AM), Team Meeting (01/12/2012 09:00:00 AM), Team Meeting (01/19/2012 09:00:00 AM), Team Meeting (01/26/2012 09:00:00 AM), Team Meeting (02/09/2012 09:00:00 AM), Team Meeting (02/16/2012 09:00:00 AM), Team Meeting (02/23/2012 09:00:00 AM), Team Meeting (03/01/2012 09:00:00 AM)	
01/11/2012 09:00 AM	Team Meeting	Notes Admin
01/17/2012 11:00 AM	1 on 1 with Dawg	Notes Admin
02/22/2012 08:00 AM	All Hands	Notes Admin
	Delta Room has been reserved	
	Atom Moore can meet at the suggested time	
	Calendar Assistant can meet at the suggested time	

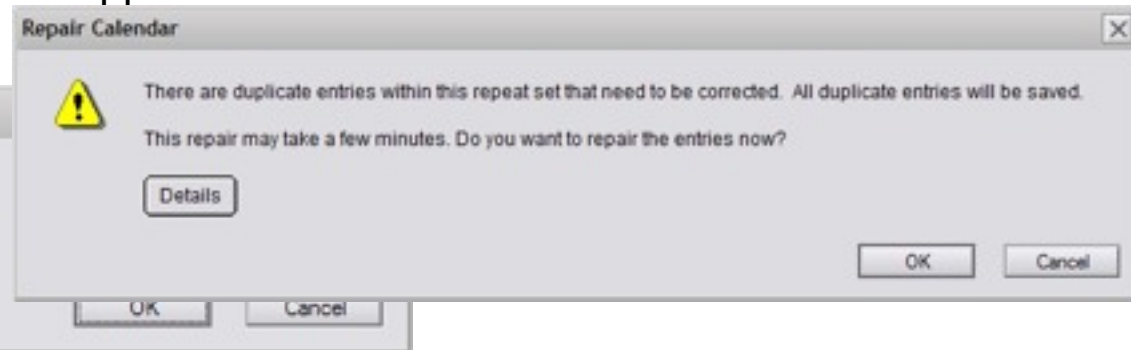
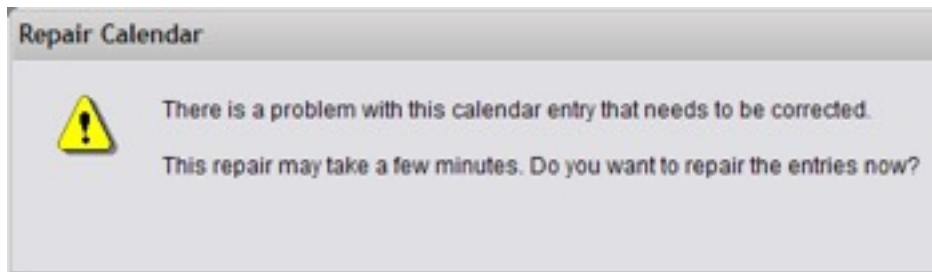
Another great view for Troubleshooting

- \$Apptunid – Hidden view
 - Note the Parent/Child documents

ApptUNID	DocUNID	\$Ref	Meeting Time	Subject
1442269BF99C29AC8525796700789EC8	1442269BF99C29AC8525796700789EC8		12/20/2011 11:00 AM	Tech Test Meeting
1442269BF99C29AC8525796700789EC8	8726B7731EFF2DAB852579670078B060	1442269	12/20/2011 11:00 AM	Accepted: Tech Test Meeting
1442269BF99C29AC8525796700789EC8	3CB5312D516167FD85257967007901F8	1442269	12/20/2011 11:00 AM	Accepted: Tech Test Meeting
1442269BF99C29AC8525796700789EC8	D13B0AEF8A4FCDB852579670079A7EC	1442269	12/20/2011 11:00 AM	Accepted: Tech Test Meeting
1442269BF99C29AC8525796700789EC8	F80EF9F0189DB58B852579680064D237	1442269	12/20/2011 11:00 AM	Accepted: Tech Test Meeting
35A12BF86CF9AC8B85257967007309D8	35A12BF86CF9AC8B85257967007309D8		01/05/2012 09:00 AM	Team Meeting
35A12BF86CF9AC8B85257967007309D8	8BB5B41278FC7BD785257967007688BD	35A12	01/05/2012 09:00 AM, 01/12/2012 09:00 AM,	Team Meeting
44063476CC0F67FA852579670077ED63	44063476CC0F67FA852579670077ED63		12/19/2011 11:00 AM	Tech Test Meeting
44063476CC0F67FA852579670077ED63	FB8F88C3634759D1852579670077F6B7	44063	12/19/2011 11:00 AM	Accepted: Tech Test Meeting
44063476CC0F67FA852579670077ED63	F215742A9779A78D852579670078EFC5	44063	12/19/2011 11:00 AM	Accepted: Tech Test Meeting
44063476CC0F67FA852579670077ED63	44CD82B95FD9AFB3852579670079A40C	44063	12/19/2011 11:00 AM	Accepted: Tech Test Meeting
44063476CC0F67FA852579670077ED63	F6D26DD2FFB4F158852579680064CE2E	44063	12/19/2011 11:00 AM	Declined: Tech Test Meeting
7237B850C9A7351C8525796800643D1E	7237B850C9A7351C8525796800643D1E		02/22/2012 08:00 AM	All Hands
7237B850C9A7351C8525796800643D1E	88B7E074E28127CB85257968006462A7	7237B	02/22/2012 08:00 AM, 03/28/2012 08:00 AM,	All Hands
7237B850C9A7351C8525796800643D1E	1960177750F3EEF18525796800646425	7237B	02/22/2012 08:00 AM	Accepted: All Hands
7237B850C9A7351C8525796800643D1E	94B730B4DBDA8BA4852579680064A3D7	7237B	02/22/2012 08:00 AM	Accepted: All Hands
7237B850C9A7351C8525796800643D1E	A689D5F5407C106E852579680064DA69	7237B	02/22/2012 08:00 AM	Accepted: All Hands
7237B850C9A7351C8525796800643D1E	C0206A6084520B92852579680064E440	7237B	02/22/2012 08:00 AM	Accepted: All Hands
79773C2CE0284AEC85257967007802DE	79773C2CE0284AEC85257967007802DE		01/11/2012 09:00 AM	Team Meeting

Problem Detection and Fixing

- Calendar Repair
 - Added in Lotus Notes 8.5
 - Does not detect / fix all known issues
 - Lotus Notes will detect a “broken” calendar entry and attempt to fix it
 - Looks for duplicate entries
 - 'Losing' doc still exists in mail file
 - With the CalendarDateTime fields stripped out
 - And a Doctor's bag beside it



How C&S Can Run Into Problems

- Local vs server replicas
 - Check which replicas were changed
 - Make sure replication has been done
- Mobile devices
 - Not all mobile devices/software understands the schema
 - Were any used (or potentially used)?
 - Look for device fingerprints (and check server logs)
 - Always enable server logs for mobile devices
- Managed Calendars
 - Someone has an assistant working in their calendar
 - And the owner also ‘works’ in the calendar
- Many Tickets open right now involve all of these
 - Very Important Person
 - Works on a local replica of their mail when using a laptop
 - Owns a mobile device and uses it to add/change/delete meetings
 - Assistant works in the server copy of the mail
 - Sometimes on a cluster copy (if it has failed over)
 - Cannot reproduce the problem

About mobile devices

- Fields are sometimes inserted by mobile vendors
 - RIMCstrack
 - Records device and server activity
 - Unless its done with an API call
 - ILNT_xxxx
 - Inserted by Traveler server
 - Records what Traveler did
 - Many others make no record
 - API calls to the calendar are not logged by Domino by name
 - This makes troubleshooting difficult
- Be diligent in inquiring about other products in use
 - It really does help in solving problems

How C&S Can Run Into Problems (cont.)

- Customized Templates
 - Reproducible with stock templates?
 - Check for “Prohibit Design Replace”
- Quotas
 - Is the user at / near their quota limit?
 - Consider using DAOS

Additional Triaging C&S Tips

- \$CSTrack
 - Use to confirm what was done to the entry
 - Sometimes will contain error codes/messages
- Reproduce using debug INIs
- Tools provided by Technical Support
 - L2 Technical Support is your friend
 - Have many tools to help analyze different issues

Useful INIs

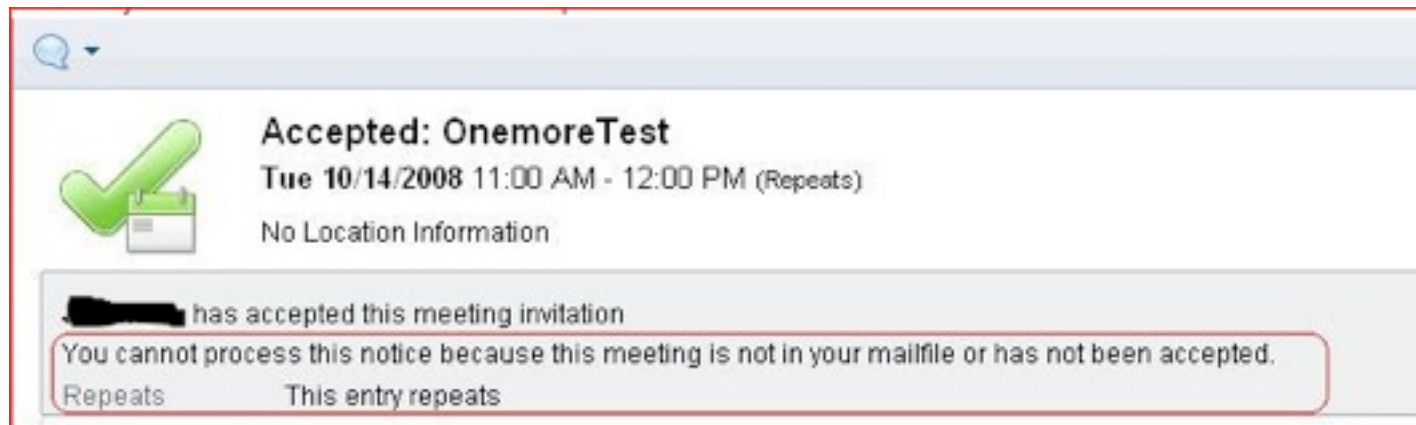
- All C&S INIs are dynamic
- CSLogAutoprocess=1
 - Logs helpful info during autoprocessing
 - Server side
- CSReportErrors=1
 - Logs detailed info about errors
 - Useful for both autoprocessing and manual processing
 - Client & server side

Problem Determination for Repeating Meetings

- It is important to analyze both the Chair's and Invitee's calendar
 - Often the problem is identified when the \$REF field of the Invitee's copy of the invitation does not match with the ApptUNID, or
 - ApptUNID does not match with the \$REF on the reschedule notice
 - When this happens the meeting workflow is broken

Common Errors

- "Error trying to open document: The repeating instance document corresponding to this notice cannot be located"
- "The repeating instance document corresponding to this notice cannot be located"
 - When opening the document, the user may also see the following:



Common Errors (cont'd)

- Causes

- Mismatched values in either the RepeatInstanceDates or StartDateTime fields
 - Parent doc vs. response docs
 - Child docs vs. update notices
- Referenced meeting document has been deleted
 - Identified by the RepeatInstanceDate in the responding meeting update document

- Solutions

- For problems with mismatched values between the documents, try running the CNSDiag tool
- Create an agent to update the incorrect values
 - Can be very difficult and may not fix unforeseen problems
 - Recreate the meeting

Common Errors (cont'd)

- Example:
 - In one case, the chair received the referenced errors on an accept notice from an invitee
 - Parent doc contained:

```
STARTDATETIME: <10/22/2008 04:00:00 PM>
EndDateTime: <10/22/2008 05:00:00 PM>
RepeatDates: <10/23/2008 04:00:00 PM>
              <10/30/2008 04:00:00 PM>
              <11/06/2008 04:00:00 PM>
              <11/13/2008 04:00:00 PM>
              <11/20/2008 04:00:00 PM>
```

- Invite sent out with:

```
STARTDATETIME: <10/22/2008 04:00:00 PM>
EndDateTime: <10/22/2008 05:00:00 PM>
RepeatDates: <10/23/2008 04:00:00 PM>
              <10/30/2008 04:00:00 PM>
              <11/06/2008 04:00:00 PM>
              <11/13/2008 04:00:00 PM>
              <11/20/2008 04:00:00 PM>
```

- Error is caused because no child doc exists for the 10/22 instances

```
STARTDATETIME: <10/23/2008 04:00:00 PM>
              <10/30/2008 04:00:00 PM>
              <11/06/2008 04:00:00 PM>
              <11/13/2008 04:00:00 PM>
              <11/20/2008 04:00:00 PM>
```

A Little Q&A About Repeating Meetings

- Is there a limit to the number of meetings I can schedule?
 - Answer: Technically no, but ...
 - There are limits to the amount of data that can be stored in a date field — 64 K
 - This happens at 1,200 dates (or before)

- The (\$ApptUNID) view
 - Notice the ApptUNID column and the \$Ref column
 - Also note the rep/save conflicts (this is my mail file)

Search in View 'ApptUNID' Indexed ?				
Search for <input type="text"/>		<input type="button" value="Search"/>	Search tips	More
ApptUNID	DocUNID	\$Ref	Meeting Time	St
0046DBEA197621EE852573E9007760D0	0046DBEA197621EE852573E9007760D0		02/13/2008 09:45 AM	Cl
0046DBEA197621EE852573E9007760D0	BA8D713BC775728B852573E9007940AA	0046D	02/13/2008 09:45 AM	Re EM
0122761B8C00740485256711005DB530	AFAF160A707DDC0E8525745F005A8B41	01227	03/17/2002 04:00 AM, 03/17/2003 04:00 AM, [Replication or Save Conflict] [Replication or Save Conflict] [Replication or Save Conflict]	St
02050922ADF75207852574F60052C28A	02050922ADF75207852574F60052C28A		11/18/2008 09:30 AM	Ar
024FE75FF55DACF8852573B1000AACF3	024FE75FF55DACF8852573B1000AACF3		01/07/2008 12:00 PM	Lc
02C64716FB67C577852574F70076C6A8	02C64716FB67C577852574F70076C6A8		11/05/2008 12:30 PM	Re
02C64716FB67C577852574F70076C6A8	6D7D0B9645F760E2852574F8005F2EB6	02C64	11/05/2008 12:30 PM	Cl
04743DB0BEE0F97385257573001F0AE5	04743DB0BEE0F97385257573001F0AE5		03/08/2009 01:15 PM	Ed
04743DB0BEE0F97385257573001F0AE5	510D0D7A6C6C86FA85257573005A9796	04743	03/08/2009 01:15 PM	Re EE

- The (\$Alarms) folder
 - Ctrl + Shift then Go To ... and find (\$Alarms) folder
 - It shows entries with Alarms in a view that shows the CalendarDateTime field
 - And I found a problem

ERROR: Incorrect data type	-30	Lotus SWC
ERROR: Incorrect data type	-30	Lotus SWC
ERROR: Incorrect data type	-30	Lotus SWC
ERROR: Incorrect data type	-30	Lotus SWC
ERROR: Incorrect data type	-30	Lotus SWC
ERROR: Incorrect data type	-30	Lotus SWC
ERROR: Incorrect data type	-30	Lotus SWC
ERROR: Incorrect data type	-30	N/D Desigi
04/21/2008 04:00:00 AM	04/26/2008 04:00:00 AM,04-7200	Joan Harre
04/27/2008 12:00:00 AM	05/04/2008 12:00:00 AM,05-10080	Katie Jami
02/19/2009 12:30:00 PM	02/19/2009 01:00:00 PM,02-30	Weekly Es
02/26/2009 12:30:00 PM	02/19/2009 01:00:00 PM,02-30	Weekly Es



DUPLICATE CALENDAR ENTRY

N/D Design Partner call (I)

Wed 03/11/2009 11:00 AM - 1:00 PM (Repeats)

Attendance is required for Susan I

Create Your Own View

- I like creating a view that I can use for many calendars
 - Make a copy of the (ApptUNID) view
 - Change the UNID column to reflect the CalendarDateTime value
 - Make the ApptUNID column sortable by clicking
 - Create a name like “Troubleshooting View”
 - Save the view
- Disclaimer: I use this for myself — The use of this view for any purposes other than Demo are at your own risk

Some Problems and Solutions

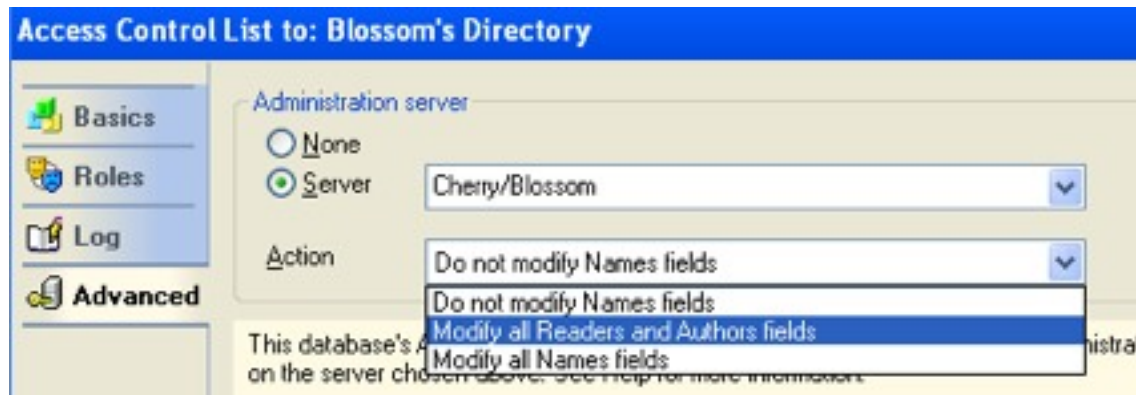
- Meetings don't appear on the Calendar
 - The CalendarDateTime field is missing or mal-formatted
 - You can create an agent to reset these safely
 - `@SetField("CalendarDateTime";@GetField("STARTDATETIME"));`
 - Troubleshooting Views can help you find these
 - This is happening a lot right now
 - And I don't know why
- Existing invitees can't see people added later
 - You'll find in 8.5.2 that the chair now has the option to update invitees when adding new invitees to meetings

Some Problems and Solutions (cont.)

- Users receive mail failures when rescheduling meetings
 - This usually happens after a user is renamed and you have the wrong setting in your Domino Directory ACL
 - What?
- If the ACL of your directory is set to Rename All Names Fields
 - The old names are removed
 - Notes doesn't know the old name, so mail fails
- Do not make this change to the ACL of your directory
 - Or any other system database

Some Problems and Solutions (cont.)

- Some organizations set this in the directory
 - It removes the old names from person docs during a name change
 - A Technote explains the issue
 - www.ibm.com/support/docview.wss?rs=899&uid=swg21245845
 - If it already happened, add the old name as an alias in the person doc
 - In 8.5.3, this setting is not needed to complete renames of calendar entries



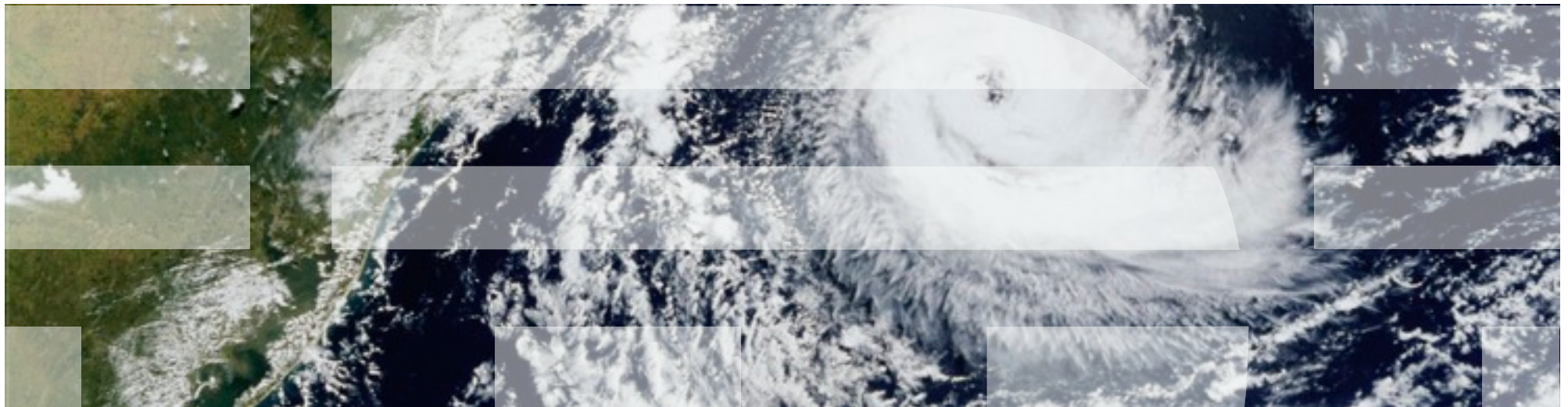
Useful INIs (cont.)

- CS_LOG_LEVEL
 - Sets the desired logging “level”
 - Values:
 - 1 = Errors only
 - 2 = Basic info
 - 3 = Lots of Note level info
- DisallowRelatediCalendarMIME=2
 - Dumbs down iCalendar data generated
 - MIME becomes just iCalendar and attachments
- DEBUG_CS_LEVEL
 - Debug info about different parts of the C&S “engine”
 - Not all values output in production builds
 - Values are additive (next slide)

(Most) DEBUG_CS_LEVEL Values

- 1 = Basic debug info
- 2 = Repeating entry info
- 8 = Autoprocessing info
- 32 = Alarm info
- 64 = "Action" handling info
- 1024 = R&R (lower level) info
- 4096 = Dump out C&S docs prior to saving
- 8192 = Info Update info
- 16384 = Repeat "Exception" info
- 32768 = Event repair info

Rooms & Resources



Rooms and Resource System Components

- Rooms and Resource Database (RRDB)
 - Contains resources
 - Contains reservations
 - Contains agents
 - Has calendar profile documents
- Rooms and Resource Manager (RnRMgr) server task
 - Manages busytime for RRDB
 - Processes requests
- Domino Directory
 - Has the mail-in documents

Basics of the Resource System

- The RnRMgr task manages the free/busy time of the system
 - So RnRMgr must run on any server that has an RRDB on it
 - But is not required on any other server
- The RRDB will only work correctly if all four of the scheduled agents are enabled
 - We will look at these shortly
- The RRDB is not upgraded automatically
 - You must upgrade it manually

RRDB Functionality

- The RRDB is a mail-in database
- The Rooms and Resources are mail-in database documents
 - These are created automatically by adminp
 - But can be edited
 - When moving the database to a new server, edits are necessary
 - Just be careful!
- The system does lookups to the Domino Directory
 - \$Users view
 - Keep it up to date
 - Load UPDALL names.nsf -t "(\$Users)" -R

RRDB Functionality (cont.)

- The dialog that users see is from elsewhere in the directory
 - \$Rooms
 - \$Resources
 - When choosing rooms for a meeting invitation
- All views used for lookups need to have the indexes up to date
 - Load updall names.nsf -t "(\$rooms)" -r
 - Load updall names.nsf -t "(\$resources)" -r
 - Problems with these views may be difficult to diagnose
 - But they are basically mail routing issues
 - In most cases
 - You'll troubleshoot as mail issues

Upgrading RRDB from Older Versions

- Upgrade the server before restarting after an upgrade
 - Upgrade the design of the database
 - `nconvert -d databasefilename * resrc8.ntf`
 - Or File → Application → Replace Design
 - With the Mail Router down
- Enable all four scheduled agents
 - Let's see briefly what they do

RRDB Agents and Implications

- Autorereminder
 - Sends reminders to room users
- Purge Documents
 - Cleans up old reservations safely
 - Removes runt calendar profiles
 - Default setting is 2 days of historical data
- RenameReservations and Send Notice
 - It makes your room renames work properly
 - Sends notification and button to existing chairs to update meetings
 - Renames reservations in the resource database
- Update Blocker Documents
 - This makes time limits on rooms work
 - \$ReservationBlockers view

AdminDelete Role

- New to 8.5
- Allows you to run an agent called "Delete User Reservations"
 - Running the action takes a name of a user and deletes the bookings of the particular user and frees up the rooms.
 - Deletes ALL reservations for specified user
 - Needed for when users leave a company but have outstanding reservations

Rooms & Resources (cont.)

- R&R follows Lotus Notes user name (mail) restrictions
 - Use of non-legal characters can produce undesirable results
 - And breaks the rooms completely if you use LDAP
 - As SmartCloud (LotusLive) does
 - Legal characters:
 - A-Z
 - a-z
 - 0-9
 - & (ampersand)
 - ' (apostrophe)
 - <space>
 - _ (underscore)
 - (hyphen)
 - . (period)
 - Note: Do not use more than 1 contiguous space!

Rooms & Resources (cont.)

- Name length limits
 - NSF internally has 100 character name length limits for named notes
 - Including named note prefix
 - Max visible characters = $68 - (\text{"# of '/' in name"} * 3)$
 - Example: 1234 – This is a big room/Acme
 - $68 - (1 * 3) = 68 - 3 = 65$ visible characters max (Safe - 30 visible characters)
 - Example: Mega Conference Room/Building 42A/1600 East Fishkill Road/Acme
 - $68 - (3 * 3) = 68 - 9 = 59$ visible characters max (**Unsafe** - 62 visible characters)
 - Resources typically shorter due to extra /OU= in resource names
 - No current warnings about too long a name

A quick checklist for your database

- Start your troubleshooting here
 - Is the database using the correct template
 - It should be the same as the server
 - Is the ACL set correctly
 - Is there an admin server
 - Is it the correct admin server
 - Is the Advanced ACL option “Modify all Readers and Authors” field set
 - Room renames can be incomplete if not
 - Are all four scheduled agents enabled
 - Rooms will stop being available at all
 - “Blocker document” agent never moves, blocking them forever
 - The database gets huge
 - No purge agent
 - Past reservations stuck in \$NLookup
 - Room Renames fail or partially work
 - No Rename agent enabled or signed by improper ID
 - Reminders don't work
 - The Reminder agent isn't enabled or signed by improper ID

Checklist continued

- Do the Sites reflect the proper domain
- Are there special characters in any of the names
- Are the names too long
 - 71 character limit on room names
 - Remember! The site name is also a part of the room name
 - TN URL: <http://www.ibm.com/support/docview.wss?uid=swg21422020>
- Are the Rooms unavailable at 8 AM and after 5 PM?
 - The default is 9 - 5
- Are the rooms in the Domino Directory but not the RRDB
- Are rooms listed as Mail-in Database Type instead of Room?
 - This can happen when you re-add a missing room

Rooms & Resources cluster

- Cluster failover added in Lotus Domino 7
 - Currently only support 1 Primary & 1 Secondary server
 - Primary is the Administration Server of the RRDB
 - Secondary is the first non-Primary in alphabetically sorted clustermate list
 - Failover is automatic when clustermate dies
 - 30 minute wait is hard coded
 - No automatic failback
- Total cluster failure / Cluster “Cold Start”
 - Requires all clustermates to be up before request processing will begin
 - Otherwise there is a chance for double bookings

Troubleshooting Clustered Databases

- Multiple copies of a resource database within a server or cluster can cause double bookings
 - And Rep/Save conflicts
 - And blown clubusy.nsf
- Make sure no spare copies are around!
- Make sure the server you THINK is running the show – is actually doing that
 - Our admin server Cherry/Blossom owns the database
 - Tell RnRMgr whoowns resource.nsf
 - This command only returns info if the server is clustered

```
tell rnrmgr whoowns resource.nsf
* [DACC:003E-0450] 12/15/2011 07:36:34 PM Remote console command issued by Notes Admin/Blossom: tell rnrmgr whoowns resource.nsf
[DACC:0005-0AD8] tell rnrmgr whoowns resource.nsf
* [0ED0:0002-0790] 12/15/2011 07:36:35 PM Database resource.nsf is currently under the control of server Cherry/Blossom (0)
```

Who is running the show

- Also can check the document properties in clbdir.nsf

The screenshot shows the 'Cluster Directory' application. On the left, there is a navigation pane with 'Databases by File Name' selected. The main area displays a table with columns 'File', 'ID', and 'Server'. A 'Document' properties window is open over the table, showing details for the 'TookControl' document.

File	ID	Server
reports.ntf	80257964:00808445	Lotus
resource.nsf	852565EF:004DC76E	Cherry
resource.nsf	852565EF:004DC76E	Lotus
resrc8.ntf	85257967:000BA1F4	Cherry
resrc8.ntf	85257967:000BA1F4	Lotus
roamingdata.ntf	85257243:00595DD6	Cherry
roamingdata.ntf	85257243:00595DD6	Lotus

Document Properties:

- Field Name: TookControl
- Data Type: Time/Date
- Data Length: 8 bytes
- Seq Num: 4
- Dup Item ID: 0
- Field Flags: SUMMARY
- Server: 12/15/2011 04:08:29 PM EST

- This is the server you'll be doing any console commands on

Usability Improvements (R8.x)

- Template handles bad character detection and enforcement better
- Owner Notification Controls Added
 - Only 1 Waiting for Approval notice sent per request per day
 - Controllable additional notifications
 - Count limit
 - Day control
 - Chairs only get 1 email notice
- 'Restricted' rooms do not get suggested if user not authorized
- Confirm room availability before sending workflow
- Improved iCalendar support

Usability Tips

- Group Calendars
 - Very handy way to quickly see the availability of any set of rooms
 - Use one Group Calendar per Site to make room finding quick and easy
 - Use right mouse click to quickly access specific reservations



Triaging Rooms & Resources – First Steps

- **DEBUG_RNRMGR:**
 - Values are additive
 - 1 = Basic debugging messages
 - 2 = Show internal task busytime cache debugging
 - 4 = Log caveats for Admins
 - 8 = Trace routine entry/exits
 - 16 = Log note and database scanning
 - 64 = Log cluster related activity (can be quite chatty)
 - Recommendation: Start with 31 at first and change as needed

- INI changes require RnRMgr task restart
 - Lotus Domino 8.5.3 or later do not require task restart

Triaging Rooms & Resources – First Steps (cont.)

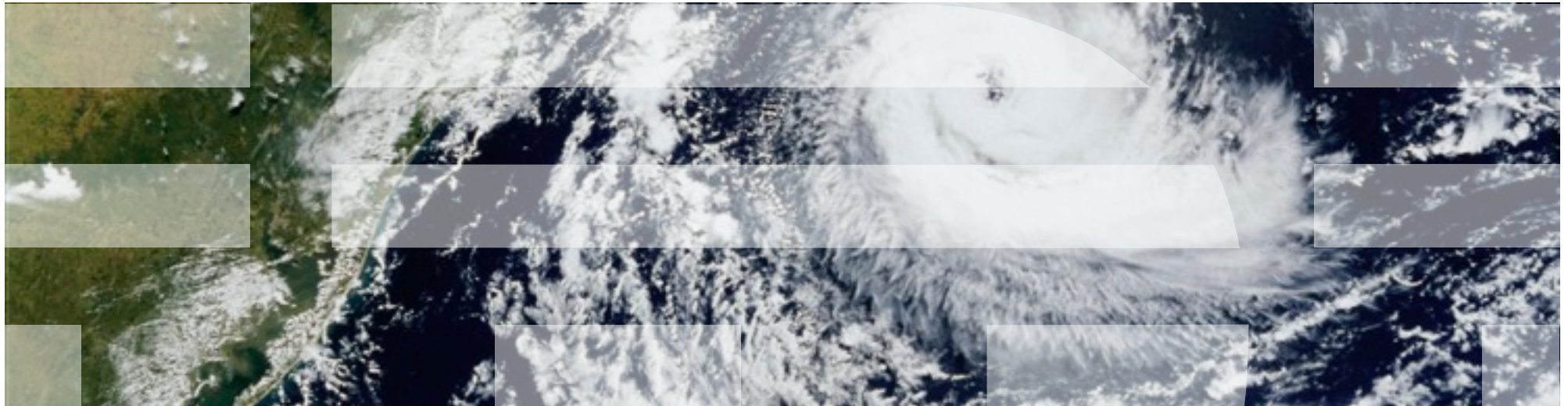
- Other helpful INI (dynamic) settings:
 - CSLogAutoprocess=1
 - CSReportErrors=1
 - CSShowRealError=1

- Debug output sent to DEBUG_OUTFILE
 - Not all debug output is sent to log.nsf

- \$CSTrack
 - Use to confirm what was done to the entry
 - Sometimes will contain error codes/messages

- Tools provided by Technical Support
 - L2 Technical Support is your friend
 - Have many tools to help analyze different issues

Additional Resources



Resources

- IBM Lotus Notes Calendaring & Scheduling Schema
 - www-10.lotus.com/ldd/ddwiki.nsf/dx/cs_schema_toc
- Repeating Meeting/Group ToDo structure in Notes/Domino 5.x/6.x/7.x Calendaring & Scheduling
 - www.ibm.com/support/docview.wss?rs=899&uid=swg21162558
- IBM Lotus Notes 8.5 iCalendar: Interoperability, implementation, and application
 - www.ibm.com/developerworks/lotus/library/notes85-icalendar/index.html?ca=drs-
- NotesPeek 1.53 tool for viewing Notes databases on Notes 6.x and higher
 - www.ibm.com/support/docview.wss?rs=899&uid=swg24005686
- Clustering the Resource Reservation Database in IBM Lotus Domino
 - www-10.lotus.com/ldd/dominowiki.nsf/dx/clustering-the-resource-reservation-database-in-ibm-lotus-domino

Questions?
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