



Program Product newsletter

FOCUS ON: FDR/UPSTREAM'S ONLINE DATABASE SOLUTIONS

*Features and support
at a glance...*

User Experience

ORACLE[®]

*My company's Oracle DBA said,
"I love UPSTREAM as it
works so well with RMAN."
FDR/UPSTREAM offers several
methods to back up your Oracle
databases that will help you
succeed in today's business
environment.*

See pages 1 & 2 for details



*FDR/UPSTREAM improves perform-
ance and simplifies an Exchange
administrator recovery operation
with support for individual objects,
mailboxes and folders that can be
backed up as a hierarchy of individual
entities that can then be restored
either individually or as a group.*

See page 5 for details



*UPSTREAM provides extensive
support for Notes including R4 &
R5 and OS/390 UNIX!*

See page 2 for details

Pre- & Post-Processing

*UPSTREAM facilities that provide
seamless operation and integration
between OS/390 server and data-
base management.*

See page 5 for details

*Large Database and mail applications for
distributed computing continue to grow
exponentially. FDR[®]/UPSTREAM[®]'s non-disruptive
online agents work hard so you don't have to!*

Whether your business is as old as the hills or as new as E-commerce, databases and messaging systems have now become business critical, and the need for an effective backup and recovery solution have become apparent for many corporations.

Keeping database applications online, in production and more aligned with 24 x 7 operation will help the organization's bottom line. Not having to shut the database or messaging system down to perform backups seems like a sound business model and with FDR/UPSTREAM's database and messaging systems "agents", the model can be a reality!

UPSTREAM provides the ability to quiesce databases, (if required), execute scripts with pre- and post-backup conditional processing that provides a totally automated solution. The UPSTREAM agents provide non-disruptive "HOT BACKUP" to back up large amounts of data within your scheduled backup window. The agents provide a solution to common database administration problems, for example, limited backup window with transparency to end users. In addition to non-disruptive backup, an incremental backup capability is provided which increases efficiency and dramatically reduces media usage.

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FDR/UPSTREAM offers several methods to back up your Oracle databases that will help you succeed in today's business environment. The UPSTREAM solutions help you reduce downtime and enable you to keep the database online with database aware backup technologies but will still get the backup done.

FDR/UPSTREAM provides a variety of backup techniques including file level or logical volume backups, RMAN or EBU support, the Upstream Oracle Management Suite, and SQL-BackTrack support. UPSTREAM can even be used to restore the Oracle application as well as the databases.

Innovation's membership in Oracle's Backup Solution Provider (BSP) program allows FDR/UPSTREAM to operate as an Oracle Media Manager Library product and to use the power of Oracle Recovery Manager; RMAN in Oracle 8i and Oracle 9i. The Oracle Recovery Manager is an extremely full featured backup facility and can be used with FDR/UPSTREAM to perform online and offline, full, incremental and tablespace backups of databases, tablespaces and data files. Some of the features supported include multi-channel backups, backup sets, image copies, stored scripts, Recovery Manager reports, tags, integrity checking and more. All of the powerful features of Recovery manager are available to UPSTREAM users under both local and host control.



Multi-Channel Support

Performance is very important and FDR/UPSTREAM's support for Oracle databases is extremely efficient with its multi-channel support for backups and restores! This feature supports multiple simultaneous backups running in parallel. UPSTREAM will transparently manage the backups by splitting the backup into separate backup profiles under the covers with no administrator intervention required. This powerful enhancement will significantly reduce the runtime for backups and restores.

If you wish to avoid the complexity of Oracle's Recovery Manager but need more control and flexibility than simple file backups of Oracle databases, the **FDR/UPSTREAM Backup Management Suite for Oracle** databases may be your solution of choice. The FDR/UPSTREAM Oracle Management Suite specially designed for Oracle databases features an easy-to-use GUI Management interface as well as command line and a sophisticated scheduling utility. The FDR/UPSTREAM backup management suite for Oracle databases primarily targets databases running in ARCHIVELOG mode and can take full advantage of FDR/UPSTREAM backup suite options, like ONLINE (hot) backups, incremental backups of REDO logs, and perform full database and tablespace media recovery. Even if your database operates in NOARCHIVELOG mode, UPSTREAM can still perform full offline backups.



Lotus .domino notes

FDR/UPSTREAM provides a robust, integrated solution for the protection of critical Notes and Domino information, enabling online backups of Lotus Notes and **Domino R5** without disrupting user productivity. FDR/UPSTREAM supports Notes R5 databases using the Lotus Notes backup API for Windows NT/2000, AIX, Solaris, Linux and OS/390 UNIX System Services. This means that UPSTREAM can perform online full backups of databases (even if in use) as well as incremental backups by backing up Notes transaction logs—which is essential if you are using transaction logging.

FDR/UPSTREAM provides a comprehensive solution for file systems as well as databases. UPSTREAM file system support can be used to recover the Notes application. UPSTREAM can be used to recover a database in a disaster recovery and as well as a point-in-time recovery. UPSTREAM can be scheduled using the Domino Scheduler, the UPSTREAM provided scheduler, CRON or the OS/390 Scheduler.

The FDR/UPSTREAM support is extensive as it includes databases, transaction logs, and templates, and also automatically backups important non-database data, such as Notes ID files, and notes ini files. The UPSTREAM agent does this via the easy-to-use PlugIn method (see page 4).

UPSTREAM is extremely efficient and can perform multiple simultaneous backup or restore operations. UPSTREAM will recognize if a new database is added, and will back it up even if you are performing a file based incremental backup. Thus your data is protected making UPSTREAM an administrative friendly product and the administrator more efficient and productive.

User Experience

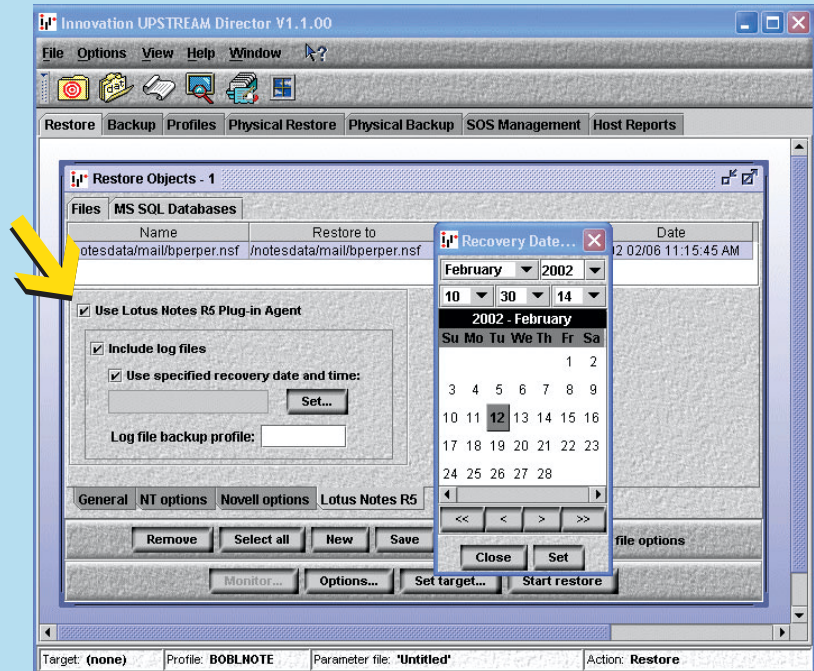
Lotus Notes Domino

Several years ago we switched our NT Lotus Notes e-mail server backup to UPSTREAM and implemented usage of the UPSTREAM Lotus Notes R5 agent PlugIn. This gave us the flexibility to restore mail databases to a specific date and time. It also reduced our daily backup time from 4 hours to about 1 hour because we started running incremental backups instead of full backups daily. Since implementing the R5 PlugIn the size of our mail server has more than doubled so now the daily time savings are even greater.

The UPSTREAM support for Lotus Notes Domino is extensive and includes:

- Command line and Explorer like GUI “Director” administrative interface
- Full backup of online databases (.nsf) and templates (.ntf)
- Restore database to a specific point-in-time or to another Domino Server
- Restore any backup version of a database and apply changes since the last backup from transaction logs
- Restore individually active and archived transaction logs
- Expire database backups automatically based on version limit and retention period

FDR/UPSTREAM also provides the ability to perform an incremental backup of Lotus Notes R4 databases by extracting only the changed Notes in a Notes or Domino Database using an UPSTREAM program. With FDR/UPSTREAM only those modified notes (records) are included in the backup. UPSTREAM also provides a command line option which allows you to migrate old data notes. This can be useful, for example, in generically migrating old email messages to a separate Notes database which can be migrated using UPSTREAM migration.



GroupWise

FDR/UPSTREAM now provides an agent that performs online database support for Novell GroupWise 6. The agent was written especially for Novell GroupWise and uses a GroupWise specific API. This support uses the GroupWise Target Service Agent (GWTSa) – the backup agent supplied with Novell GroupWise 6. The agent provides reliable backups of a running GroupWise system by successfully backing up open files and locked files, without having to shut the database down, rather than skipping them as a file-level backup facility would.

The UPSTREAM agent backs up standard GroupWise directories and files and is inherently simple to use. A full-system backup method only requires a single file spec to specify a backup of an entire GroupWise database system. UPSTREAM makes the GroupWise system appear as separate volumes for the domain database, the post office and the Document Management Services library. Within each “volume” are the files that comprise each of the facilities. This allows you to restore the entire GroupWise system, or any component down to just a single user’s mailbox!



The FDR/UPSTREAM support for IBM DB2 Universal Server (UDB) is full-featured, providing a backup agent that includes a user exit and supports Windows NT, OS/2, AIX, HP-UX and Solaris systems. The FDR/UPSTREAM UDB agent features:

- Policy based
- Flexible scheduling from either client or OS/390 scheduler
- Online and offline support that provide full and incremental backup
- Tablespace level backups and restores
- Interacts with DB2 scripts for seamless operation and reduced training costs
- Includes a user exit for system generated incrementals if running in archive log mode
- The user exit supports roll-forwards from user exit backups facility
- Supports full backups as a “vendor DLL”
- Support for DB2 “load utility”
- Automatic notification of user exit failure
- Archive and auto recall of transaction logs
- **The database can be recreated directly from FDR/UPSTREAM backups!**



FDR/UPSTREAM supplies an agent for backing up Oracle-based SAP R/3 databases. Systems supported include: Windows NT, Windows 2000, AIX, Solaris and HP-UX.

Backups and restores are requested using SAP utilities (sapdba, brbackup, brarchive, etc.). These utilities will drive the FDR/UPSTREAM SAP backup agent to perform the actual backups and restores. Virtually the entire extended UPSTREAM functionality can be used including reporting, FDR/UPSTREAM/SOS local backups, etc.

SQL-BackTrack™

FDR/UPSTREAM provides support for BMC’s DataTool SQL-BackTrack for a number of their environments including Sybase, Informix and Oracle databases.

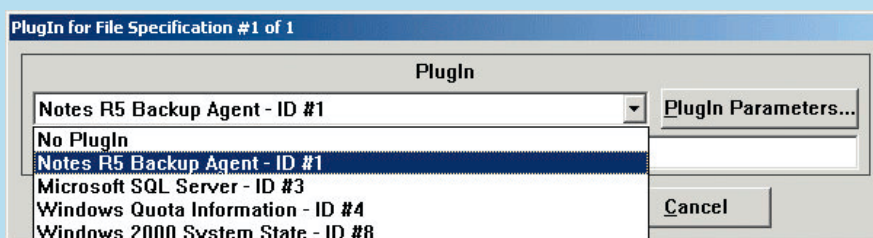
SQL-BackTrack is a BMC product providing complete backup and recovery of your databases. This includes issuing the appropriate commands to the database system, tracking backups, automatic restoration and more.

SQL-BackTrack provides the user interface including automation and tracks the data. Products that are written to their Open Backup Stream Interface (OBSI) then provide the backup storage. FDR/UPSTREAM is supplied with an OBSI interface program that can be used in conjunction with SQL-BackTrack to back up and restore your databases.

PlugIn

A PlugIn is a very simple easy-to-use shared library which is loaded into UPSTREAM when needed and extends UPSTREAM’s capabilities without the use of an external program. A PlugIn is highly integrated with UPSTREAM allowing a DBA to define a database backup as simply and as easily as any file system backup.

- From an administrative perspective, simply select the PlugIn pull down menu and choose the database agent desired and that's it!





FDR/UPSTREAM for Exchange provides powerful online database agents. The UPSTREAM specialized agents overcome the problem that normal file system solutions have with trying to backup the databases, as they are always open and access to them is denied. A result of the agent support is that the protection of your database is assured, while getting the optimal performance. The result of this process is a reliable and consistent backup process.

Some of the benefits of the FDR/UPSTREAM agents are:

- Use of Microsoft APIs for all backup and recovery functions
- Complete backup and restore of an entire email system including the individual mailboxes including individual folders
- Incremental and full backup processing capabilities
- Folders and subfolders automatically recreated during restore with UPSTREAM file level support

FDR/UPSTREAM provides a Microsoft Exchange agent for Exchange 5.5, which exploits the Microsoft Exchange Client API for performing backups and restores. This is the method that Microsoft provides backup vendors to use and is based on the idea that DS (directory database) and MDB (Information Store) will be backed up and restored in their entirety. The UPSTREAM agent provides full and incremental backups and allows you to decide on using circular logging or not. To provide the best performance UPSTREAM allows the DS and MDB to be backed up in parallel. When recovery is required, UPSTREAM provides ability for restores to automatically maintain, use and rename, and clean up previous logs files.

FDR/UPSTREAM also provides another Microsoft Exchange agent that combines the hierarchical structures in the DS and MDB database into a single hierarchical structure and backs it up as though it were a file system. This new functionality allows the individual objects, mailboxes and folders to be backed up as a hierarchy of individual entities that can then be restored either individually or as a group. UPSTREAM also provides capability to select by object type what to backup and restore. And when its time to recover data, UPSTREAM provides objects back to full, forward recovery ability with the Object back to oldest option.

For Exchange 2000, UPSTREAM provides a backup agent compatible with the Microsoft Extensible Storage Engine (ESE98) which allows online full and transaction log backups of Microsoft Exchange 2000 databases. The UPSTREAM agent that uses the plugin feature, provides support for backing up and restoring individual database groups, and support includes Database Group and Information Store.

Pre- & Post-Processing...Run Jobs

Pre-process and Post-processing facilities are UPSTREAM methods for an administrator to prepare a database for some action. For some DBAs, it might mean quiesce a database, while for other DBAs it could mean to run a SQL script or do work with transaction logs.

The way this could work is by submitting an UPSTREAM OS/390 batch job, that contacts the UPSTREAM client, and executes the pre-process program, batch file or script file, resident on that machine, to be run immediately before the UPSTREAM function. Once that is successfully completed, the next step in the job could be to start the actual backup of the database. If the pre-process job fails (can't be run or returns a non-zero return code), the UPSTREAM function will not be performed, and the entire function will return a non-zero return code on the host. When the backup is completed the post-processing facility could then be automatically executed.

The result is a totally automated method to safely and securely backup your databases while providing information to both OS/390 and database administrators on the success or failure of the operation!

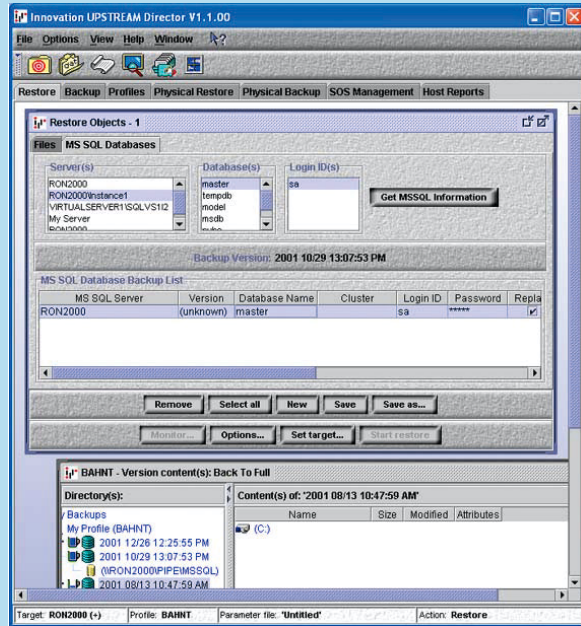
These are several examples of the coordinated and cohesive support UPSTREAM provides for large database applications that make the DBA and OS/390 storage administrator a team protecting the corporation's database assets.



FDR/UPSTREAM provides methods for managing backup and restore operations in an MS SQL Server environment which provide comprehensive data protection for SQL Server and SQL Databases. FDR/UPSTREAM using a Microsoft backup API includes a backup agent for Microsoft SQL Server that allows online full and transaction log backups of SQL Server databases.

Microsoft SQL Server provides a number of backup and restore options that provide Database Administrators the flexibility they need to plan their database recovery strategy. FDR/UPSTREAM contains features that take advantage of the backup and restore options in Microsoft SQL Server to aid in the automation of backups and restores.

The UPSTREAM method of backup of a SQL Server is using an UPSTREAM PlugIn. This is a simple easy-to-use shared library which is loaded into UPSTREAM when needed and extends UPSTREAM's capabilities without the use of an external program. A single backup can include files that may or may not use PlugIns and PlugIn types can be mixed. This will allow the DBA to intermix the backups of multiple Microsoft SQL Servers databases



together with the backups of other file system and non-file system backups in one backup operation. The UPSTREAM PlugIn also supports SQL Server 2000. UPSTREAM also provides support for SQL Server V6 or below.

User Experience

SQL & Exchange

We installed FDR/UPSTREAM/SOS and are performing backups of over 80 servers and systems. The servers and system that are included are Windows NT, some running Exchange and SQL. We now consider that we truly have an enterprise backup solution. We are able to perform our backup with great ease, giving our Operations staff full control of all our backup process. Now with FDR/UPSTREAM/SOS it is more like a plug and play utility, you set it up once and you're done.



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