
Update - FDR/UPSTREAM v3.1.7

FDR/UPSTREAM Workstation/Server v3.1.7 is a major release containing a number of new features and problem resolutions.

New features include:

- UPSTREAM/SOS Local Backup Restore
- Improved UPSTREAM configurator for Windows
- Multi-session DB2 agent
- Multi-session SAP agent
- Windows 2000 Terminal Services licensing database
- SAP multi-channel backups

UPSTREAM/SOS Restores

The speed and the reduced network overhead of UPSTREAM/SOS is now available for restores as well as backups. By specifying the local backup disk for your restore in the same way that you do for your backups, the local backup disk will automatically be used as a transfer device for your restores.

If you do not specify local backup and the disk to be used, the entire restore will be through the network.

You can force the restore to use the network for data not already stored on the local backup disk if you wish by specifying the parameter **LOCALRESTORE N**. This parameter is also available in the Local UPSTREAM local backup restore dialog as a checkbox **UPSTREAM/SOS restore** and in the Director in the Local Backup dialog as **Use disk for restore to transfer data**. In both cases the default is checked to use the local backup disk.

UPSTREAM will allocate a data area on the local backup disk using the smaller of the mainframe estimate of the size of the restore or the **MAXBACKUPSIZE** defined for the backup profile on the local backup disk in the same way as for backups. If this estimate is too small (and it will be for a number of UPSTREAM database agent restores including SQL-BackTrack, DB2 and Oracle), there will be excessive wraps through this area and thus a reduction in performance. You can use the **DASDOVERRIDE** to increase the size of the transfer area and thus reduce the number of wraps. As for backups, the **upstream.log** file logs the space allocated for the local backup and the number of wraps which were used.

UPSTREAM will allocate a new “backup” for the restore. If you are currently retaining backups on your local backup disk to speed your restores, this will cause an extra backup to roll-off if you exceed the **MAXBACKUPS** value specified for your backup profile on the local backup disk. You may need to account for this and update the **MAXBACKUPS** value or specify **LOCALRESTORE N** to not create a new transfer area on the local backup disk.

Improved Windows Configurator

The UPSTREAM Configurator for Windows (USCFG.EXE) has been improved in a number of significant ways. Some of these include:

- Simplified setup for Windows. The mainframe IP address is all that most users will have to enter to completely setup UPSTREAM on Windows. UPSTREAM registration, service definitions for Windows NT/2000/XP and the most common defaults are setup automatically.
- A tabbed, easy to use advanced dialog with context sensitive help containing all of the options of the current configurator.
- Integrated Novell Profile configuration. You no longer need to run the SETNOV.EXE program to add, modify or delete Novell login profiles - it's now integrated into the configurator.
- Vastly simplified cluster server configuration which, from one configurator session, sets up UPSTREAM completely throughout your cluster.

Full documentation for the new configurator is available in the latest UPSTREAM client user's guide.

Multi-Session DB2 Agent

The UPSTREAM DB2 (UDB) agent, usudb and the user exit db2uext2 now support multiple, simultaneous backups and restores as well as the multi-session DB2 operations. In previous versions you could only backup or restore a single database at a time - with the new version you can now backup or restore as many databases as you wish.

Multi-session DB2 backups and restores allow a single database to be backed up in parallel which may improve performance for large database backups.

The new agent replaces the existing agent. Your current scripts can still be used. If you are using the existing agent there are a few modifications you must make to your existing environment:

- The new agent now requests UPSTREAM functions using the UPSTREAM service or daemon rather than starting a new copy from the command line. This means that you must have an UPSTREAM v3.1.5 or later service (Windows) or daemon (UNIX) running at the time you perform the backup or restore request.
- The agent reads the UPSTREAM configuration file, running as the DB2 user. If you configured UPSTREAM as a user which would restrict access of the DB2 user to the configuration file, UPSTREAM will use defaults to access the daemon (which will work for most users). We recommend that you either allow the DB2 user access to the config file (in UNIX you would enter: *chmod 666 upstream.cfg*), or create and configure a usudb.cfg file as the DB2 user.

To use the multi-session support for your backups or restores, UPSTREAM will use a backup profile of the database name or alias name (if specified in usudb.prf) for the first session. For subsequent sessions, the numbers from 1-9 are appended, and then A-Z. Thus up to 36 sessions are supported. To use this facility, you must not specify more than 7 characters for your backup profile name to allow this extra character to be added and you may need to configure each of the backup profiles in UPSTREAM/MVS. Single session backups or restores can still use the full 8 characters for the backup profile name.

Within your jobs, you specify the backup with the extra qualifier **open xx sessions**. For example, to perform a backup with three sessions, enter:

```
db2 backup database sample online load c:\upstream\usudb.dll open 3 sessions
```

Note that if your backup is to tape, you will need three tape drives at the time of the backup as the backups will run all at the same time.

By default, UPSTREAM will use usudb.dat (usudbi.dat if you have it defined for your incrementals) as template parameter files. For multi-sessions you can optionally have a template parameter file for each sequence number that UPSTREAM generates. These parameter files use a single character as part of the file name in the same way that backup profiles work (described above). Thus, use usudb.dat for the first session, usudb.1.dat for the second session, usudb.2.dat for the third session, ..., usudb.a.dat for the eleventh session, usudb.b.dat for the twelfth session, etc.

There are a number of additional changes to the DB2 agent:

- The location for the UPSTREAM DB2 log usudb.log can be user specified. Set the environment variable **USUDBLOG** or create a single line text file **USUDBLOG** with the fully qualified file name for the DB2 agent log. You must set this environment variable or place this file in the

default directory for DB2, which may be the root of the file system or the Windows SYSTEM32 directory.

- The UPSTREAM DB2 agent uses the DB2 database ID as the first part of the file name stored on the host. This ID is DB2 version specific and you may have problems performing restores after a DB2 upgrade. You can specify the ID by creating a single line text file **usudb.id** in the UPSTREAM directory which contains the database ID you wish to use.
- The UPSTREAM DB2 agent uses the DB2 instance as the second part of the file name stored on the host. If you are restoring a database to a different instance, you will need to specify the new instance to the agent. You do this by creating a single line text file <database name>.instance in the UPSTREAM directory which contains the instance you wish to use. For example, for database SAMPLE, if you wish to change the instance from DB2 to SECOND, create a file: SAMPLE.instance with the single line SECOND.

New Features for SAP

FDR/UPSTREAM agent for backing up Oracle based SAP R/3 databases **backint** is now capable of performing backups of Oracle database in parallel. To enable this feature you have to add a new parameter to `init%ORACLE_SID%.utl` file:

```
CHANNELS = n
```

This parameter specifies the number of backup channels. The list of files for backup will be spread over the specified number of channels, and they will be backed up in `n` parallel streams by `n` started FDR/UPSTREAM instances running in parallel. If it is a TAPE backup, make sure that there are `n` tape devices available for FDR/UPSTREAM on the mainframe side. If you specify `n` greater than 1, you have to configure your backup profile for SAP as a generic prefix profile, and it must be no more than 7 characters long to provide space for an additional character for the backup channel number. The maximum number of backup channels is 10. The default value is 1.

NOTE: In Windows environments there is still a limit of 1 channel.

The number of channels specified by CHANNELS defines only the number of parallel backup sessions.

All inquiries are performed through a single channel.

The number of channels for restore is defined dynamically based on the list of the files to restore:

- if files were spread over a number of channels during their backup we'll need to start as many restore channels as there were backup channels (backup profile names);
- if there were **backup_ids** specified, we may need to increase the number of channels even more to accommodate all backup profile – version date combinations.

As a result the number of channels may go over the limit of 10 channels. In this case those files that we are not able to restore within 10 channels will fail.

Two additional optional parameters were added to `init%ORACLE_SID%.utl` file:

```
STARTUSTO = t1
```

- the start FDR/UPSTREAM time-out value in seconds. If **backint** can't open communication with the started instance of FDR/UPSTREAM within this time-out, it fails the backup. The default value is 10 seconds.

```
READUSTO = t2
```

- the communication with FDR/UPSTREAM time-out in seconds. If FDR/UPSTREAM didn't report the end of the backup and didn't send any status information back to **backint** within this time-out, **backint** will consider UPSTREAM dead and fail the backup. The default value is 600 seconds (10 minutes). If you expect long waits for tape mounts, or very large files (takes more than 10 minutes to backup any single file) increase this value.

Minor Changes

Some of the minor changes in this release include:

- (Director) You can now do a search for a wildcarded file name without specifying or expanding the full path in the UPSTREAM Director. There is now a **Find** button in the Director restore, Version Contents window. If you highlight a starting directory and press it, a Find window is displayed, which will stay on top of the restore window. Enter the file name you wish to find (like “*.txt”) and press the Find button. The Version Contents window will expand to show all hits for the given file and the total number of hits will be displayed in the Find window. There is a **Subdirectories** checkbox, which allows you to search under the search start directory. If you highlight a different directory in the Version Contents window, the Search Start will change in the Find window. This feature does not have a prerequisite MVS or client version.
- (Director) You can specify the UPSTREAM/MVS system you wish to connect to on login. Either manually enter, or select from the list an IP address or host name, followed by a colon, followed by a port number of the UPSTREAM/MVS system you wish to connect to. For example: 192.168.75.253:1972.
- (Windows) The Terminal Services Licensing Server database will be backed up whenever you backup the \WINNT\SYSTEM32\LServer\Export directory, as a single file TLSLic.edb. The database is restored whenever you include this file in the restore. The database directory may vary from system to system, but can be found in the registry in the key HKLM\SYSTEM\CurrentControlSet\Services\TermServLicensing\Parameters.
- (Non-UNIX) You can now override the machine name that’s stored on the host for UNC names with the parameter **UNCMACHINEALIAS**. If specified with a UNC file spec, UPSTREAM will substitute the specified name for the real machine name in the spec sent to the host. This value must be the same size or smaller than the original machine name. This is particularly useful in Novell cluster environments - use the cluster name as the UNCMACHINEALIAS so that you can avoid first-time fulls if the cluster fails over.
- (Novell) You can use a dot “.” to indicate the default server name for file specs and destinations.
- (Novell) Innovation recommended procedures for full server recovery are in the full manual (v3.1.7).
- (OS/390 UNIX) You can disable the use of the opendir2/readdir2 searching API calls with the environment variable USNOOPENDIR2=Y; this gets around bugs in xFS.
- You can now fail a backup if a given file spec finds no files with the repeating parameter **FAILIFNOFILES**.

Technical Specifications

Previous version:

FDR/UPSTREAM PC version 3.1.7 is a production release updating production version 3.1.6b. v3.1.6c was beta release only.

Operating systems affected by this upgrade:

All

FDR/UPSTREAM MVS release prerequisites:

3.1.7 is recommended, particularly if you have UPSTREAM/SOS, but all prior releases of FDR/UPSTREAM MVS will operate. You must have v3.1.4 for 255 byte file name support.

Problem resolutions:

- (v3.1.6c) (Windows 2000/XP) If you have installed Windows on a drive other than C:, UPSTREAM will no longer backup the system state files twice; once as regular files and once in the system state. If you need to do a disaster recovery restore from a backup which had this problem, you must specifically exclude all of the regular files so that only the system state files are restored. Contact Innovation for assistance in setting up the restore.
- (v3.1.6c) (NLM) Migrations will now be accepted correctly. Fixes a bug introduced in v3.1.6b.
- (v3.1.6c) (Windows and OS/2) UPSTREAM will no longer cause the host to report "COMMUNICATIONS ERROR" when it reports multiple errors during backups.
- (v3.1.6c) (Windows) UPSTREAM will no longer report error #2073E error (backup file inconsistency) when it encounters an error reading the first block of a file.
- UPSTREAM will no longer attempt to access the agent if you are backing up a Windows NT machine from a Windows 2000 machine.
- (Windows 2000/XP) If you are not a member of the Administrators group, UPSTREAM will log fewer messages indicating errors with accessing the FDR/UPSTREAM Windows 2000 agent. Non Administrative users have limited rights for system backup/restore.

Who should upgrade:

Users who need one of the problem resolutions or enhancements.

New configuration parameters:

None.

New overall parameters:

<u>Name</u>	<u>Default</u>	<u>Required</u>	<u>Description</u>
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DASDOVERRIDE (New feature)	100%	No	If specified for a local backup restore, can be used to increase the space allocated for the restore - and thus decrease the number of wraps. Can only be specified as a hard number in this mode (+, -, % are disallowed)
LOCALRESTORE (UPSTREAM/SOS Restores)	Y	No	Y =UPSTREAM/SOS restores will flow entirely through the local backup disk, with little network overhead. This entails creating a new "backup" to hold the data which doesn't currently exist on the disk. N = UPSTREAM/SOS restores will use the data on the local backup disk if it currently is stored there - all other data will flow through the network.
SMSTARGETSERVICENAME (Novell SMS)	None	No	If specified, the SMS target service that UPSTREAM will use. To get a complete list, specify an invalid value and UPSTREAM will log all valid names.

New file spec parameters:

<u>Name</u>	<u>Default</u>	<u>Required</u>	<u>Description</u>
FAILIFNOFILES	N	No	If 'Y', and UPSTREAM finds no files for this file spec, the backup will fail.
UNCMACHINEALIAS (non-UNIX)	None	No	If specified with a UNC file spec, UPSTREAM will substitute the specified name for the real machine name in the spec sent to the host. This value must be the same size or smaller than the original machine name. This is particularly useful in Novell cluster environments - use the cluster name as the UNCMACHINEALIAS so that you can avoid first-time fulls if the cluster fails over.

New environment variables:

<u>Name</u>	<u>Default</u>	<u>Description</u>
USNOOPENDIR2 (OS/390 UNIX)	N	If set to Y, disables the use of the opendir2/readdir2 APIs which gets around bugs in xFS.

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