

Lightning Extend Online™
Lightning Extend Instant™
Lightning DEDB™
Lightning X™
Lightning Reclaim™

product overview

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product overview

Product Overview

By definition, IMS Fast Path databases provide high-performance, fast data access, and continuous availability. Unfortunately, space considerations and I/O impacts from high transaction volumes can degrade Fast Path performance and reduce availability. Fast Path systems support business applications that cannot afford an outage—credit card processing, automated teller machines, and airline reservations. If these systems are not available, even for a short amount of time, the cost to your business can be excessive.

The NEON Lightning Utilities increase database availability by providing space management and optimization solutions to expand capacity and increase the time between reorganizations for Fast Path Data Entry Databases (DEDBs).

By providing secondary indexes for DEDBs, Lightning X allows an alternate access path to high-volume, high availability databases. With no impact on the current database, and with a simple implementation, Lightning X improves performance for transactions that use secondary access paths to DEDBs.

By optimizing independent overflow (IOVF) free-space searches, Lightning DEDB extends the amount of time between Fast Path DEDB database reorganizations, making databases more available and improving performance. When you can't afford to take the database offline, every extra minute of data availability can mean cash in your pocket.

By delivering the capability to quickly increase the size of your database, Lightning Extend Online and Lightning Extend Instant reduce business risk by responding immediately to capacity problems so that applications remain available at all times.

- Maximize performance by ensuring that serious outages do not occur.
- Buy the time needed to more fully address capacity changes.

By delivering the capability to reclaim IOVF free-space, Lightning Reclaim minimizes resource contention and avoids the overhead associated with frequent searches of full space maps (SMAPs).

Improving Data Access

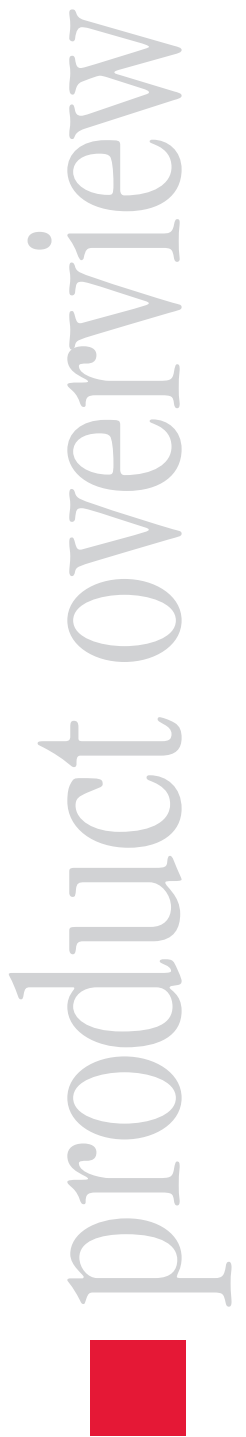
IMS Fast Path DEDB databases are designed for fast retrieval of data in a high-volume, high availability environment. The primary access paths for these databases are structured to ensure high performance for your most critical applications. When new applications require DEDB access that differs from the primary applications, they can experience significant I/O counts and long response time. An alternate access path, secondary indexes are not natively supported for DEDBs.

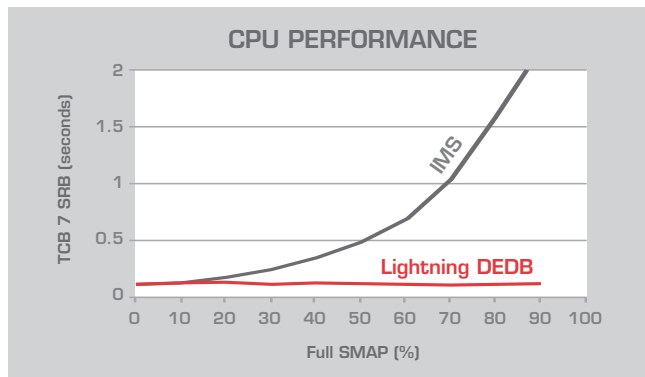
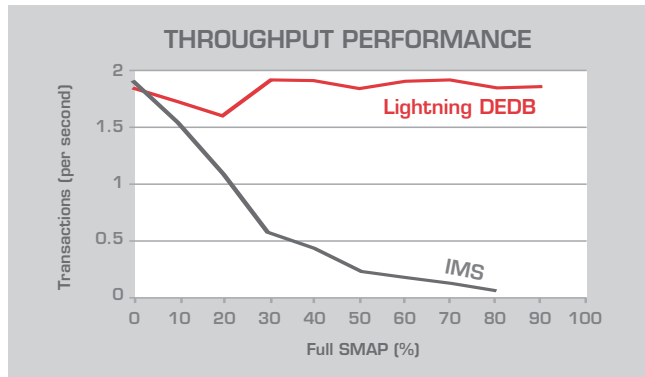
Lightning X lets you create secondary indexes for your DEDBs by providing a set of easy to use utilities to build, verify, and manage the secondary indexes.

Extending DEDB Performance and Availability

The performance benefits of Fast Path DEDBs can be jeopardized with inefficient use of the independent overflow area (IOVF). Performance suffers because IMS searches space maps (SMAPs) for free space without regard to where the space is most likely to occur. Searching a number of full SMAPs takes time, enough time to degrade database performance. And when performance suffers, the usual response is to reorganize the database, even if there might be free space available.

Lightning DEDB minimizes DEDB reorganizations required from performance-related issues associated with IOVF, while preserving transaction throughput and CPU performance. By improving the IOVF free-space search routine, Lightning DEDB makes finding IOVF free space as efficient as preallocating DOVF.



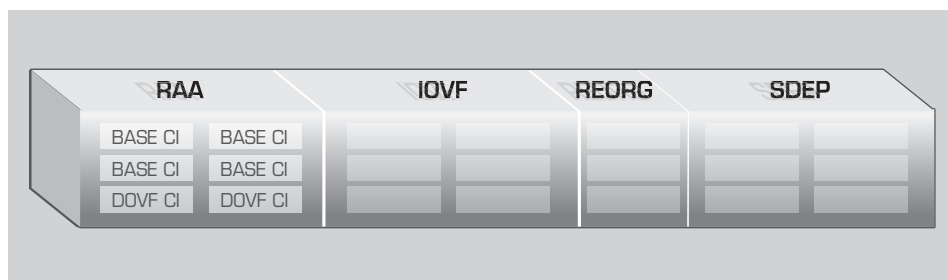


Dynamic DEDB Extension

Fast Path DEDBs have a fixed architecture that does not natively support the extension of area data sets. The storage space in an area is divided into fixed-size parts: root addressable area (RAA), independent overflow (IOVF), and sequential dependent (SDEP). The RAA is subdivided into units of work (UOWs) consisting of base sections and dependent overflow (DOVF).

When an application inserts a database record, its segments are tied to a UOW. If there is insufficient space in the RAA base or DOVF to store segments, they are stored in the IOVF. Over time, as applications continue to insert data, the area can become full, creating the potential for an expensive outage.

Lightning Extend Online and Lightning Extend Instant prevent outages by dynamically extending portions of area data sets to meet the changes in demand.



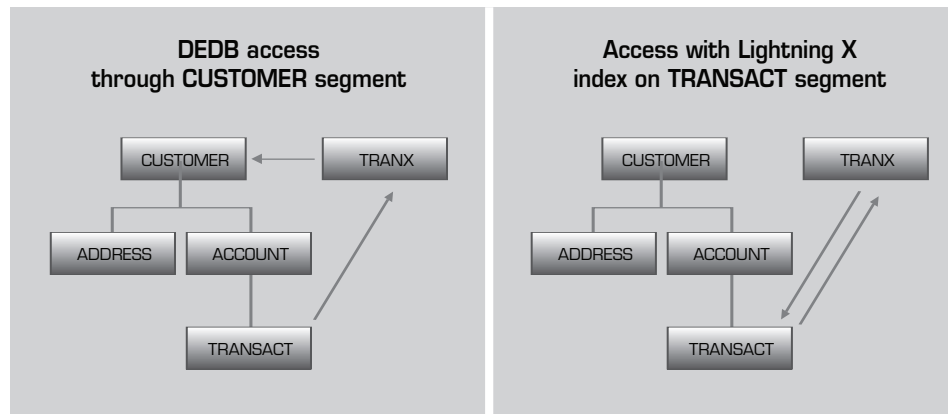
Because Lightning Extend Instant and Lightning Extend Online extend online Fast Path databases, availability is not compromised. If an impending capacity problem is detected, Lightning Extend Online can be used to immediately increase the space in your Fast Path databases. Lightning Extend Instant both detects space problems and automatically extends Fast Path databases. Both products give you the power to take control by extending online Fast Path databases, before out-of-space conditions occur.

Product Descriptions

The following sections describe the features and functions of the Fast Path performance utilities available from NEON Enterprise Software. In addition, the Eclipse Reorganization Utilities provide Fast Path support for database reorganizations and maintenance. See “NEON Enterprise Software Products” on page 9 for more information about the Eclipse Reorganization Utilities.

Lightning X

Lightning X provides an alternate access method for less frequently run transactions by allowing you to create secondary indexes for DEDB databases, improving transaction response time. Indexes can be in HISAM, SHISAM, and DEDB format.



Additional features of Lightning X are:

- For HISAM and SHISAM databases larger than 4 GB, Lightning X supports partitioned indexes. A partition selection exit routine provides a simple way to partition by index key.
- Easily implemented with familiar control statements. The Lightning X commands and keywords are designed to be similar to those used for creating full function database indexes.
- Indexes can be built with the database online or offline.
- Indexes are automatically maintained when the DEDB is updated.
- Sparse indexing is supported to allow index processing of a subset of the database.
- Includes the Eclipse iBuild™ and Eclipse iCheck® Eclipse Reorganization Utilities. The utilities build secondary indexes and thoroughly validate the Lightning X secondary indexes and their DEDBs.
- Easy migration for existing DEDB indexes. Lightning X is compatible with the BMC Fast Path Indexer/EP product, allowing you to migrate any existing indexes.
- Includes a convenient utility that quickly disassembles the DBDs and ACBs for DEDBs.

The secondary indexes are defined in the DEDB DBD using statements that are similar to DL/I index DBD statements and compatible with the BMC Fast Path Indexer/EP. No additional steps or data sets are required. The index definition from the DBD is stored in the DEDB member in ACBLIB during ACB generation. The ACBGEN is the only update required to implement the secondary index.

Database PCBs with update intent are also added to the PSB library as part of the index definition. During ACBGEN, IMS uses the added PSBs to update the secondary index.

Lightning DEDB

Lightning DEDB provides an improved IOVF free-space search routine, minimizing performance-related reorganizations and preserving transaction throughput and database performance. While the IMS free-space search routine can process filled IOVF space maps multiple times, Lightning DEDB goes directly to the SMAP that has available space, reducing search I/O. Key features include:

- Minimal customization occurs during installation, and then Lightning DEDB handles all eligible IOVF free-space searches, without manual intervention.
- The ability to set cache memory type for search operations: Extended Common, Extended Private, or data space.
- Automatic notification of IOVF depletion and the rate of depletion. The levels that trigger notification are customizable according to your site requirements.
- Support for multiple area data sets, VSO environments, and block-level sharing

Lightning Extend Products

Lightning Extend Online performs online extensions when out-of-space conditions occurs. If a database fills up quicker than projected, Lightning Extend Online quickly increases capacity, application availability, and buys the time needed to analyze and resolve capacity problems as a part of regular database maintenance. Lightning Extend Online features a single EXTEND command and a simple set of keywords to complete the job.

Lightning Extend Instant detects an out-of-space condition and automatically extends the database while it is online. If a database fills up suddenly due to unexpected capacity demands, Lightning Extend Instant responds before an outage occurs and incrementally increases IOVF space, allowing transaction processing to continue. After the extension is performed, Lightning Extend Instant issues a message so that changes in capacity can be given immediate attention. Lightning Extend Instant features a simple setup that enables automatic online extensions during product installation and customization.

Lightning Extend Online and Lightning Extend Instant have the following common features:

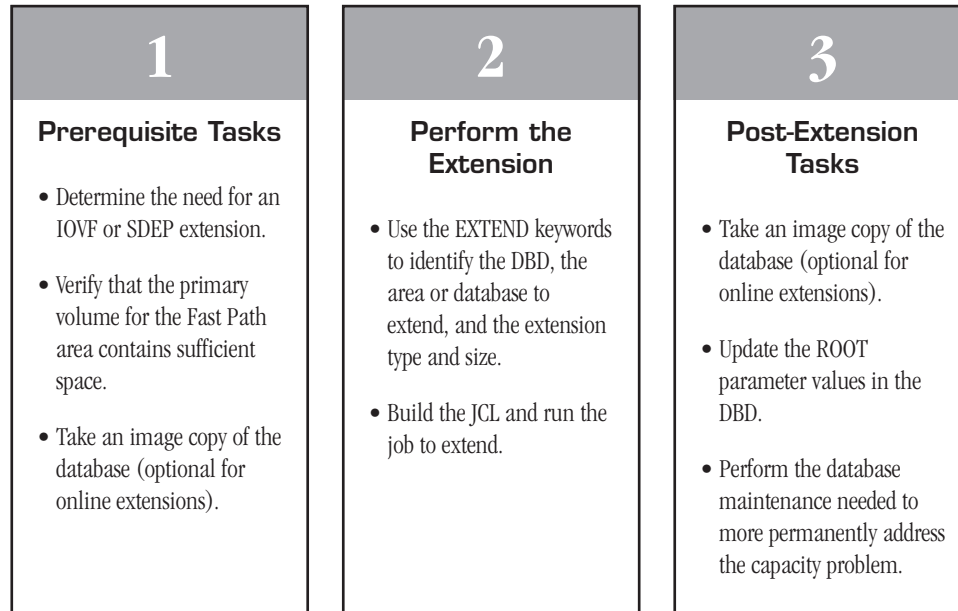
- Dynamically increase the portions of areas in Fast Path databases to prevent out-of-space conditions
- Quickly and efficiently perform the extensions while the Fast Path databases are online and available
- Provide choices that meet Fast Path DEDB database requirements and business needs
- Safeguard data integrity by using IMS locking and logging services
- Minimize online contention for system resources by using a CI-level locking scheme
- Do not require the creation of a shadow data set thereby minimizing DASD requirements and avoiding increased demand for CPU and I/O resources

Lightning Extend Online Features

If applications require continuous availability, consider Lightning Extend Online. With Lightning Extend Online, Fast Path DEDB databases remain online and available to your applications while the database is extended. Business processing is not interrupted. The Lightning Extend Online product:

- Provides the flexibility to control the extension process
- Supports two types of area extensions: SDEPs and IOVF with no defined SDEPs.
- Extends areas or entire Fast Path databases
- Provides for recovery by logging database updates, so that image copies before and after an extend can be omitted
- Integrates with Eclipse iCopy so that an image copy, hash pointer check, and extension occur concurrently
- Integrates with Mission Control so that space utilization monitoring, identification of capacity constraints, and issuing of notification using email or paging is automated

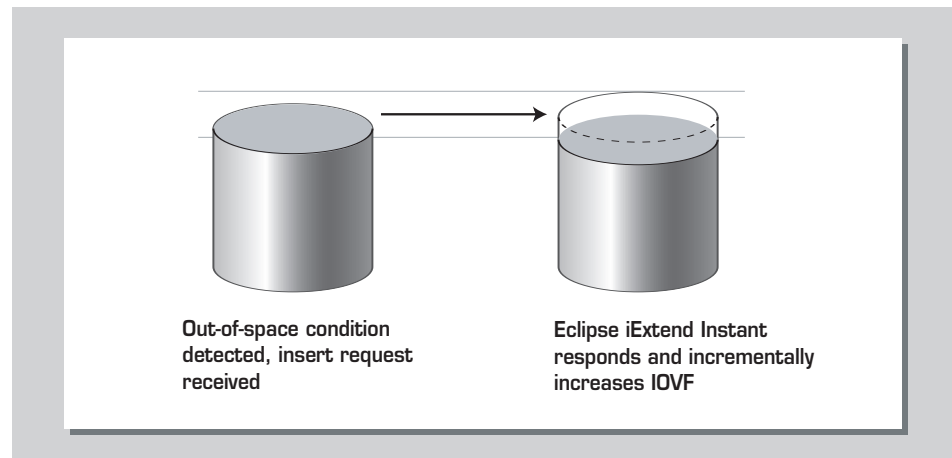
An online extension can be accomplished in three simple steps:



Lightning Extend Instant Features

Maximum availability. For many businesses this capability is vital. Eclipse iExtend Instant offers maximum performance and continuity by automatically increasing the size of a Fast Path database before an out-of-space condition causes an application outage. Lightning Extend Instant reduces risk by ensuring that applications will not suffer an unexpected outages caused by out-of-space conditions.

Lightning Extend Instant responds at the moment before an outage is about to occur and incrementally increases IOVF space, allowing transaction processing to continue and critical business applications to remain available. Lightning Extend Instant continues to detect out-of-space conditions and increase IOVF space in small increments until the maximum IOVF extension size is reached. After each incremental extension, notice is given so that actions are taken to resolve capacity problems and avoid future out-of-space conditions.



Lightning Extend Instant includes the following features:

- Automatically extends IOVF space—you don't have to build JCL and submit a job.
- Uses intelligent formatting to complete the extension as quickly as possible Is easy to implement—a simple two-step setup procedure for detecting out-of-space conditions in Fast Path database areas.



Lightning Extend Instant Setup

Using the Product Customization Facility during product installation:

1. Enable instant extensions.
2. Specify a default IOVF extension size.

Lightning Reclaim

Lightning Reclaim solves the issue of how to reclaim IOVF free-space in DEDBs while they are still online. Reclaiming IOVF free-space minimizes resource contention and avoids the overhead associated with frequent searches of full space maps (SMAPs). Lightning Reclaim's well thought out space reclaim capability for DEDBs gives your business-critical applications improved performance and availability.

Lightning Reclaim improves DEDB performance by performing selective IOVF free-space reclamation through a methodical analysis of UOWs using SMAP information.

- Identifies only those UOWs that extend into IOVF and then processes only those that yield sufficient return
- Works in online mode
- Provides support for multiple area data sets, VSO environments, and block-level sharing

Lightning Reclaim calculates the ROI to your system resources before performing any work, thus performing only those tasks that add value to the reclamation process.

Return on Investment

The worksheet in this section can be used to estimate return on investment (ROI) when you use the NEON Lightning Utilities for DEDB capacity management and IOVF free-space search optimization. For more information about pricing, contact your NEON Sales representative.

Worksheet for Estimating Lightning Utilities ROI

Cost of I/O associated with managing alternate access paths from applications.	\$ _____
Cost of outages of your Fast Path DEDB databases per year	\$ _____
Cost of lost business when database is unavailable	\$ _____
ROI value for NEON Lightning Utilities	\$ _____
Cost of missing SLA commitments	\$ _____
Cost of dependent overflow space that can be reclaimed with Lightning DEDB	\$ _____

NEON Enterprise Software Products

NEON Enterprise Software offers a variety of solutions to increase and maintain data availability for your mainframe enterprise. Every NEON Enterprise Software solution is architected to work smarter than other offerings, not just faster, providing the highest levels of control and availability for your applications and infrastructure.

Database Director™

Database Director enables online reorganizations of all types of IMS full function databases without requiring an application outage. In addition to the Database Director Batch product described in this document, Database Director Online and Database Director Persist products provide maximum data availability for online databases. While reorganizing an online database, Database Director can also perform other database tasks such as cloning, space allocation, tuning, restructuring, and facilitating hardware data compression.

Eclipse Backup and Recovery Utilities

The Eclipse Backup and Recovery Utilities provide a solution for all types of IMS database recovery: point-in-time, full database recovery, and disaster recovery.

Eclipse iExtract™

Eclipse iExtract is a powerful utility that quickly and efficiently extracts data from both IMS full-function and Fast Path databases. Because Eclipse iExtract directly accesses the database, its performance is unmatched.

Eclipse iLM™

Eclipse iLM provides an affordable, comprehensive set of tools for cleaning and maintaining IMS and CICS libraries, including ACB, DBD, PSB, and dynamic allocation libraries, DBRC, and the DFSDDIR member of MODBLKS. By verifying that IMS-related libraries are in sync with one another, Eclipse iLM ensures database integrity and availability.

Eclipse iRepair™

Eclipse iRepair is a powerful tool for viewing, analyzing and repairing IMS database data sets and other z/OS data sets. You can use iRepair to resolve pointer check errors or other types of data errors, reducing the amount of maintenance required to back out and restore problem database data sets.

Eclipse Reorganization Utilities™

The Eclipse Reorganization Utilities are the fastest IMS reorganization utilities available. These IMS database utilities include Eclipse iBuild, Eclipse iCheck, Eclipse iCopy, Eclipse iLoad, Eclipse iSurvey, and Eclipse iUnload, all of which can be used standalone or as an integrated solution.

HALO™

HALO is a powerful new solution that provides near-continuous availability for IMS database partitioning and other restructuring. Online outages are reduced from hours to just seconds, allowing you to partition or restructure even the most critical databases without suffering long application outages that affect your business.

Lightning Utilities

The Lightning Utilities offer a streamlined, effective solution for IMS Fast Path DEDB database capacity and performance. They include Lightning Extend Online, Lightning Extend Instant, and Lightning DEDB.

product overview



Mission Control™

Mission Control is an intelligent IMS data management console that allows you to monitor and control all of the IMS full function and Fast Path databases in your enterprise. Mission Control automates database monitoring and problem resolution, enabling service-level agreements to be easily met.

Online Reorganization Director™

If you are using IBM HP utilities, Online Reorganization Director provides 100% application availability during reorganizations—plus seamless integration with IMS High Performance utilities.

Partitioned Database Facility™

Partitioned Database Facility increases IMS database capacity and improves database performance and availability, providing a cost-effective method for growing your business without affecting business applications.

Prefix Update™

Prefix Update performs prefix resolution and prefix update operations in a single job step, making the process faster and more efficient than with other solutions.

DB2 Products

Partnering with Software Engineering GmbH, NEON Enterprise Software presents a comprehensive set of solutions to improve and maintain DB2 database and application performance. The following products are available to serve the DB2 enterprise. To fully explore how NEON Enterprise Software DB2 products can help you better control your DB2 environment and improve database availability, visit www.neonesoft.com/db2.shtm.

iServe™ Managed Services

iServe managed services for IMS gives you the opportunity to extend your IMS expertise by providing needed services to your organization. To fully explore how NEON Enterprise Software can supplement your IMS staff and expertise, visit www.neonesoft.com/ISV.shtm.

About NEON Enterprise Software

NEON Enterprise Software is the technology leader in enterprise data management software and services. As the rules of business change, our solutions let you efficiently control, protect, retain and manage data to comply with today's business and legal requirements. Founded in 1995, NEON Enterprise Software serves customers worldwide with its dedicated team of industry experts. For more information about NEON Enterprise Software, visit www.neonesoft.com or call 281.491.6366 or 888.338.6366.

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