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# IBM XIV Storage System Product Guide
## IBM Redbooks Product Guide

### XIV Storage System Gen3 with XIV Software v11.5.1

The IBM XIV Storage System is a high-end flash optimized, fully scalable enterprise disk storage system that is based on a grid of standard, off-the-shelf hardware components. The enterprise-class business enabler is wrapped around self-healing, data protected cloud centric foundation ideal for public, private, or hybrid clouds. XIV's cloud economics provide world-class business continuity for applications requiring zero tolerance downtime. Its predictable, consistent, high performance design allow organizations to take control of their storage, and gain business insights from their data. The architecture of the system is designed to deliver performance, scalability, and ease of management while harnessing the high capacity and cost benefits of Serial attached SCSI (SAS) drives. Figure 1 shows the front view of the XIV Gen3 system.



Figure 1 - XIV Storage System Gen3

# Ibm Xiv Manual

**Bert Dufrasne,Dietmar Dausner,Roger Eriksson,Roman Fridli,Itzhack Goldberg,Markus Oscheka,Stephen Solewin,IBM Redbooks**

**Ibm Xiv Manual:**

   IBM XIV Storage System: IBM Hyper-Scale Mobility Overview and Usage Bertrand Dufrasne,Christian Burns,Guenter Rebmann,Hank Sautter,Jim Sedgwick,IBM Redbooks,2013-06-24 IBM Hyper Scale introduces two major new technologies both implemented in the IBM XIV Storage System Gen3 models The first is IBM Hyper Scale Manager a flexible consolidated multi system management application that was originally released in October 2012 as Multi System Manager IBM Hyper Scale Manager is based on and seamlessly integrated with the XIV GUI and spans multiple XIV systems The second new technology IBM Hyper Scale Mobility is the topic of this publication It is a powerful function for moving volumes between storage containers transparently with no disruption to host applications IBM Hyper Scale helps you easily overcome provisioning scenarios that normally challenge traditional systems IBM Hyper Scale can accommodate several critical customer scenarios for data mobility load balancing over provisioning and storage system repurposing This IBM RedpaperTM publication provides a broad understanding of the IBM Hyper Scale Mobility feature The paper describes the IBM Hyper Scale architecture and includes detailed step by step scenarios that illustrate the online volume migration process both from the XIV GUI and the XIV Command Line Interface XCLI This publication is intended for XIV customers and users who want a practical understanding of IBM Hyper Scale Mobility concepts and usage     *IBM XIV Storage System Architecture and Implementation* Bertrand Dufrasne,Roger Eriksson,Lisa Martinez,Wenzel Kalabza s,IBM Redbooks,2017-11-03 Not a new version included warning for self signed X509 certificates see section 5 2 This IBM Redbooks publication describes the concepts architecture and implementation of the IBM XIV Storage System The XIV Storage System is a scalable enterprise storage system that is based on a grid array of hardware components It can attach to both Fibre Channel Protocol FCP and IP network Small Computer System Interface iSCSI capable hosts This system is a good fit for clients who want to be able to grow capacity without managing multiple tiers of storage The XIV Storage System is suited for mixed or random access workloads including online transaction processing video streamings images email and emerging workload areas such as Web 2 0 and cloud storage The focus of this edition is on the XIV Gen3 running Version 11 5 x of the XIV system software which brings enhanced value for the XIV Storage System in cloud environments It offers multitenancy support VMware vCloud Suite integration more discrete performance classes and RESTful API enhancements that expand cloud automation integration Version 11 5 introduces support for three site mirroring to provide high availability and disaster recovery It also enables capacity planning through the Hyper Scale Manager mobile push notifications for real time alerts and enhanced security Version 11 5 1 supports 6TB drives and VMware vSphere Virtual Volumes VVOL In the first few chapters of this book we describe many of the unique and powerful concepts that form the basis of the XIV Storage System logical and physical architecture We explain how the system eliminates direct dependencies between the hardware elements and the software that governs the system In subsequent chapters we explain the planning and preparation tasks that are required to deploy

the system in your environment by using the intuitive yet powerful XIV Storage Manager GUI or the XIV command line interface We also describe the performance characteristics of the XIV Storage System and present options for alerting and monitoring including enhanced secure remote support This book is for IT professionals who want an understanding of the XIV Storage System It is also for readers who need detailed advice on how to configure and use the system **IBM XIV Security with Data-at-Rest Encryption** Bert Dufrasne,Dietmar Dausner,Roger Eriksson,Roman Fridli,Itzhack Goldberg,Markus Oscheka,Stephen Solewin,IBM Redbooks,2014-08-11 With the ever growing landscape of national state and local regulations industry requirements and increased security threats ensuring the protection of an organization s information is a key part of operating a successful business Encrypting data at rest is a key element when addressing these concerns Most storage products offer encryption at an additional cost As with all of its features the IBM XIV Storage System provides data at rest encryption at no charge This gives clients the opportunity to take advantage of encryption and still enjoy the lower total cost of ownership that XIV offers This IBM RedpaperTM publication explains the architecture and design of the XIV encryption solution and how it must be configured and implemented It can help clients and Storage Administrators who want to enable data encryption on XIV storage systems IBM XIV Storage System with the Virtual I/O Server and IBM i Bertrand Dufrasne,Roger Eriksson,Jana Jamsek,IBM Redbooks,2012-02-20 This IBM RedpaperTM publication explains how you can connect the IBM XIV Storage System server to the IBM i operating system through the Virtual I O Server VIOS A connection through the VIOS is especially of interest to IT centers that have many small IBM i partitions When using the VIOS the Fibre Channel host adapters can be installed in the VIOS and shared by many IBM i clients by using virtual connectivity to the VIOS This paper also includes guidance for sizing XIV logical unit numbers LUNs when attached to the IBM i client IBM System Storage Solutions Handbook Ezgi Coskun,Mikael Lindström,Maciej Olejniczak,Oliver Stark,Megan Gilge,IBM Redbooks,2016-07-15 The IBM System Storage Solutions Handbook helps you solve your current and future data storage business requirements It helps you achieve enhanced storage efficiency by design to allow managed cost capacity of growth greater mobility and stronger control over storage performance and management It describes the most current IBM storage products including the IBM SpectrumTM family IBM FlashSystem disk and tape as well as virtualized solutions such IBM Storage Cloud This IBM Redbooks publication provides overviews and information about the most current IBM System Storage products It shows how IBM delivers the right mix of products for nearly every aspect of business continuance and business efficiency IBM storage products can help you store safeguard retrieve and share your data This book is intended as a reference for basic and comprehensive information about the IBM Storage products portfolio It provides a starting point for establishing your own enterprise storage environment This book describes the IBM Storage products as of March 2016 **Solid-State Drive Caching in the IBM XIV Storage System** Bertrand Dufrasne,In Kyu Park,Francesco Perillo,Hank Sautter,Stephen Solewin,Anthony Vattathil,IBM Redbooks,2012-05-10 This IBM

RedpaperTM publication provides information about the implementation and use of solid state drives SSDs in IBM XIV Storage System XIV Generation 3 Gen3 running XIV software version 11 1 0 or later In the XIV system SSDs are used to increase the read cache capacity of the existing DRAM memory cache and are not used for persistent storage This paper begins with a high level overview of the SSD implementation in XIV and a brief review of the SSD technology with focus on the XIV system It explains the SSD Caching design and implementation in XIV Then it examines typical workloads that can benefit from the SSD Caching extension and introduces the tools and utilities to help you analyze and understand the workload In particular it highlights the block tracing facility that was designed and developed by IBM Research Then this paper explains the process that authorized IBM services representatives use to install SSD Caching It reviews the changes made to the XIV GUI and the XCLI to support SSD Caching Finally this paper provides a listing of the new alert generating events and monitoring options that are provided for SSD support This paper is intended for users who want an insight into the XIV SSD Caching implementation and architecture its capabilities and usage For more information about the IBM XIV Storage System see the IBM Redbooks publication IBM XIV Storage System Architecture Implementation and Usage SG24 7659      IBM Information Infrastructure Solutions Handbook Sangam Racherla,Vikas Bajaj,Emile Knebel,Glenn Korn,Anna Kutepova,Gary Newell,Sebastian Szumczyk,IBM Redbooks,2010-07-11 An information infrastructure is comprised of software servers storage and networks integrated and optimized to deliver timely secure and trusted information throughout the organization and to its clients and partners With the explosive growth in data and information coupled with demands for projects with rapid ROI IT infrastructures and storage administrators are reaching a breaking point IBM can help with the changes needed to manage information availability security and regulatory and compliance requirements on a tighter budget And because the health of any business often depends on its ability to take advantage of information in real time a sound intelligent information infrastructure becomes critical to supporting new growth initiatives IBM offers an innovative approach to help you manage information growth more effectively and mitigate risks with a dynamic infrastructure that efficiently and securely stores and protects information and optimizes information access You can control protect manage and gain new intelligence from your information with the IBM leading edge Information Infrastructure products services and integrated solutions supported by world class expertise and access to top experts from around the world This IBM Redbooks publication provides an overview of the IBM Information Infrastructure solutions that are designed to help you manage the information explosion and address challenges of information compliance availability retention and security This will lead your company toward improved productivity service delivery and reduced risk while streamlining costs      *Using XIV in OpenStack Environments* Bertrand Dufrasne,Roger Eriksson,Wenzel Kalabza,Lisa Martinez,IBM Redbooks,2015-02-27 This IBM RedpaperTM publication provides a brief overview of OpenStack and IBM Cloud Manager with OpenStack It focuses on the use of OpenStack with the IBM XIV Storage System Gen3 The illustration scenario in the paper uses the OpenStack

Icehouse release which is installed on RedHat Linux servers and the IBM Storage Driver for OpenStack This paper is intended for clients and cloud administrators who look forward to integrating IBM XIV Storage Systems in OpenStack and using IBM Cloud Manager with OpenStack environments The paper provides guidance in setting up an environment by using XIV as the back end storage in an OpenStack cloud environment This paper is not an official support document     IBM XIV Storage System: Host Attachment and Interoperability Bertrand Dufrasne,Bruce Allworth,Desire Brival,Mark Kremkus,Markus Oscheka,Thomas Peralto,IBM Redbooks,2014-04-14 This IBM Redbooks publication provides information for attaching the IBM XIV Storage System to various host operating system platforms including IBM i The book provides information and references for combining the XIV Storage System with other storage platforms host servers or gateways including IBM N Series and IBM ProtecTIER It is intended for administrators and architects of enterprise storage systems The book also addresses using the XIV storage with databases and other storage oriented application software that include IBM DB2 VMware ESX Microsoft HyperV SAP The goal is to give an overview of the versatility and compatibility of the XIV Storage System with various platforms and environments The information that is presented here is not meant as a replacement or substitute for the Host Attachment kit publications It is meant as a complement and to provide readers with usage guidance and practical illustrations     Guide to IBM PowerHA SystemMirror for AIX Version 7.1.3 Dino Quintero,Alex Abderrazag,Bernhard Buehler,Primitivo Cervantes,Bharathraj Keshavamurthy,Kunal Langer,Luciano Martins,Ashish Nainwal,Minh Pham,Katharina Probst,Matt Radford,Bjorn Roden,Michael Schmut,Isac Silva,Yefei Song,Ben Swinney,Ashraf Ali Thajudeen,Marian Tomescu,Sascha Wycisk,IBM Redbooks,2015-06-16 This IBM Redbooks publication for IBM Power SystemsTM with IBM PowerHA SystemMirror Standard and Enterprise Editions hardware software practices reference architectures and tools documents a well defined deployment model within an IBM Power Systems environment It guides you through a planned foundation for a dynamic infrastructure for your enterprise applications This information is for technical consultants technical support staff IT architects and IT specialists who are responsible for providing high availability and support for the IBM PowerHA SystemMirror Standard and Enterprise Editions on IBM POWER systems     **Data-at-rest Encryption for the IBM Spectrum Accelerate Family** Bert Dufrasne,Roman Fridli,Andrew Greenfield,IBM Redbooks,2019-04-05 With the ever growing landscape of national state and local regulations industry requirements and increased security threats ensuring the protection of an organization s information is a key part of operating a successful business Encrypting data at rest is a key element when addressing these concerns Most storage products offer encryption at an additional cost The IBM Spectrum Accelerate family which includes IBM XIV Storage System IBM FlashSystem A9000 IBM FlashSystem A9000R system s and IBM SpectrumTM Accelerate Software provides data at rest encryption at no charge Clients can take advantage of encryption and still benefit from the lower total cost of ownership TCO that the IBM Spectrum AccelerateTM family offers For IBM FlashSystem A9000 and A9000R clients now have a choice between an external key

manager based implementation or a local key based encryption implementation The local key solution offers a simplified deployment of data at rest encryption This IBM RedpaperTM publication explains the architecture and design of the XIV and IBM FlashSystem A9000 and A9000R encryption solutions Details are provided for configuring and implementing both solutions **IBM XIV Storage System Business Continuity Functions** Bertrand Dufrasne,Christian Burns,Wenzel Kalabza,Sandor Lengyel,Patrick Schill,Christian Schoessler,IBM Redbooks,2018-08-07 The IBM XIV Storage System has a rich set of copy functions suited for various data protection scenarios that enable you to enhance your business continuance disaster recovery data migration and online backup solutions These functions allow point in time copies known as snapshots and full volume copies and also include remote copy capabilities in either synchronous or asynchronous mode A three site mirroring function is now available to further improve availability and disaster recovery capabilities These functions are included in the XIV software and all their features are available at no extra charge The various copy functions are reviewed in separate chapters which include detailed information about usage and practical illustrations The book also illustrates the use of IBM Tivoli Storage Productivity Center for Replication to manage XIV Copy Services This IBM Redbooks publication is intended for anyone who needs a detailed and practical understanding of the XIV copy functions IBM Spectrum Accelerate Deployment, Usage, and Maintenance Bertrand Dufrasne,Markus Oscheka,Grant Kabobel,Abilio Oliveira,IBM Redbooks,2017-07-19 This edition applies to IBM Spectrum Accelerate V11 5 4 IBM Spectrum AccelerateTM a member of IBM Spectrum StorageTM is an agile software defined storage solution for enterprise and cloud that builds on the customer proven and mature IBM XIV storage software The key characteristic of Spectrum Accelerate is that it can be easily deployed and run on purpose built or existing hardware that is chosen by the customer IBM Spectrum Accelerate enables rapid deployment of high performance and scalable block data storage infrastructure over commodity hardware on premises or off premises This IBM Redbooks publication provides a broad understanding of IBM Spectrum Accelerate The book introduces Spectrum Accelerate and describes planning and preparation that are essential for a successful deployment of the solution The deployment is described through a step by step approach by using a graphical user interface GUI based method or a simple command line interface CLI based procedure Chapters in this book describe the logical configuration of the system host support and business continuity functions and migration Although it makes many references to the XIV storage software the book also emphasizes where IBM Spectrum Accelerate differs from XIV Finally a substantial portion of the book is dedicated to maintenance and troubleshooting to provide detailed guidance for the customer support personnel **Deploying IBM Spectrum Accelerate on Cloud** Bert Dufrasne,Nancy Kinney,Donald Mathisen,Christopher Moore,Markus Oscheka,Ralf Wohlfarth,Eric Zhang,IBM Redbooks,2015-12-15 This IBM RedpaperTM publication provides information about IBM Spectrum AccelerateTM on Cloud IBM Spectrum Accelerate on Cloud supplies a smart storage solution using servers on SoftLayer cloud It enables you to consume storage as a service without the need to install or

maintain any hardware or software components IBM Spectrum Accelerate on Cloud enables users to replicate data in the cloud as an affordable disaster recovery DR solution The primary data can be either on IBM XIV Storage System devices or IBM Spectrum Accelerate on or off premises The initial deployment on SoftLayer is performed by engaging IBM Lab services This paper first describes the tasks performed by IBM Lab services explains the required customer preparation tasks followed by typical use case scenarios **The Mathematical-Function Computation Handbook** Nelson H.F. Beebe,2017-08-20 This highly comprehensive handbook provides a substantial advance in the computation of elementary and special functions of mathematics extending the function coverage of major programming languages well beyond their international standards including full support for decimal floating point arithmetic Written with clarity and focusing on the C language the work pays extensive attention to little understood aspects of floating point and integer arithmetic and to software portability as well as to important historical architectures It extends support to a future 256 bit floating point format offering 70 decimal digits of precision Select Topics and Features references an exceptionally useful author maintained MathCW website containing source code for the book s software compiled libraries for numerous systems pre built C compilers and other related materials offers a unique approach to covering mathematical function computation using decimal arithmetic provides extremely versatile appendices for interfaces to numerous other languages Ada C C Fortran Java and Pascal presupposes only basic familiarity with computer programming in a common language as well as early level algebra supplies a library that readily adapts for existing scripting languages with minimal effort supports both binary and decimal arithmetic in up to 10 different floating point formats covers a significant portion with highly accurate implementations of the U S National Institute of Standards and Technology s 10 year project to codify mathematical functions This highly practical text reference is an invaluable tool for advanced undergraduates recording many lessons of the intermingled history of computer hardw are and software numerical algorithms and mathematics In addition professional numerical analysts and others will find the handbook of real interest and utility because it builds on research by the mathematical software community over the last four decades **The Startup Owner's Manual** Steve Blank,Bob Dorf,2020-03-17 More than 100 000 entrepreneurs rely on this book The National Science Foundation pays hundreds of startup teams each year to follow the process outlined in the book and it s taught at Stanford Berkeley Columbia and more than 100 other leading universities worldwide Why The Startup Owner s Manual guides you step by step as you put the Customer Development process to work This method was created by renowned Silicon Valley startup expert Steve Blank co creator with Eric Ries of the Lean Startup movement and tested and refined by him for more than a decade This 608 page how to guide includes over 100 charts graphs and diagrams plus 77 valuable checklists that guide you as you drive your company toward profitability It will help you Avoid the 9 deadly sins that destroy startups chances for success Use the Customer Development method to bring your business idea to life Incorporate the Business Model Canvas as the organizing

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experienced systems storage and network administrators who want to integrate the IBM System Networking and Storage technology successfully into new and existing networks This book provides an overview of today s options for storage networking convergence It reviews the technology background for each of these options and then examines detailed scenarios for them by using IBM and IBM Business Partner convergence products

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**Table of Contents Ibm Xiv Manual**

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