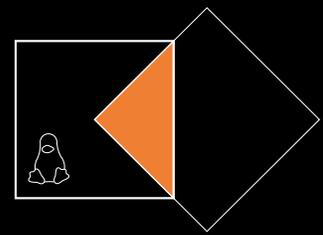


# IBM LinuxONE Emperor 4

## Flexible Capacity for Cyber Resiliency

*Frequently Asked Questions*



### Table of Contents

IBM Flexible Capacity for Cyber Resiliency .....	2
Installation and Set Up .....	3
Interoperability.....	5
Automation .....	7
Ordering .....	8
Monitoring.....	9

## IBM Flexible Capacity for Cyber Resiliency

IBM Flexible Capacity for Cyber Resiliency is a new Capacity on Demand offering available on IBM LinuxONE Emperor 4™ servers. It enables you to shift capacity between participating IBM LinuxONE Emperor 4 machines at different sites and use the target configuration for up to one year.

### Greater Flexibility

Dynamically shift production capacity between IBM LinuxONE Emperor 4 systems in different sites.

Flexibility and elasticity for proactive outage avoidance, facility maintenance, compliance, and disaster recovery scenarios.

Works in conjunction with other temporary record types.

### Complete Client Control

Remotely transfer capacity – no on-site personnel (IBM or client) required after initial setup.

Flexibility over duration of capacity transfer.

Fully automatable using scripts or software solutions.

### Improved Compliance for Disaster Recovery (DR)

Simplify compliance and improve confidence both for testing and real DR scenarios.

Closer mapping between test and production scenarios.

## Which use cases are covered with IBM Flexible Capacity for Cyber Resiliency?

IBM Flexible Capacity for Cyber Resiliency supports a broad range of use case scenarios: DR and DR Testing, compliance, facility maintenance, and pro-active avoidance.

### Disaster Recovery and Testing

Transfer the capacity you need at your DR site to continue to run your business workloads. Automate and test recovery procedures for unplanned outages, including cyber attacks to provide near-continuous availability and disaster recovery.

### Frictionless Compliance

Meet the ever-evolving stringent requirements of global regulators, allowing a highly automated and fast process to demonstrate a production site swap.

### Facility Maintenance

Run your production workload from your alternate site while you perform maintenance at your primary site with the capacity you need.

### Pro-active Avoidance

Protect your critical business services from natural disasters. Avoid rolling power outages. Migrate your critical workloads to an alternate site before your business gets impacted and stay there for up to one year.

# Installation and Set Up

## What are IBM Flexible Capacity for Cyber Resiliency pre-requirements?

The IBM LinuxONE Emperor 4 systems must be installed in different locations. Necessary resiliency technology must be enabled, such as System Managed CF Structure Duplexing, Sysplex failure management and Capacity Provisioning Manager.

## How is installation done for IBM Flexible Capacity for Cyber Resiliency?

To accommodate the capacity shift, a new temporary capacity record, called **Flexible Capacity Record**, is introduced. The record will be installed on both, the IBM LinuxONE Emperor 4 source and the IBM LinuxONE Emperor 4 target systems.

On the IBM LinuxONE Emperor 4 source system, the permanent capacity is unassigned to the base level. The new Flexible Capacity Record is installed and activated on the IBM LinuxONE Emperor 4 source system to restore capacity back to the purchased level. On the IBM LinuxONE Emperor 4 target system(s) the new Flexible Capacity record allows to bring the capacity up to the level of the production system when activated. The Flexible Capacity record remains inactive until capacity is shifted from the base system to the target system(s).

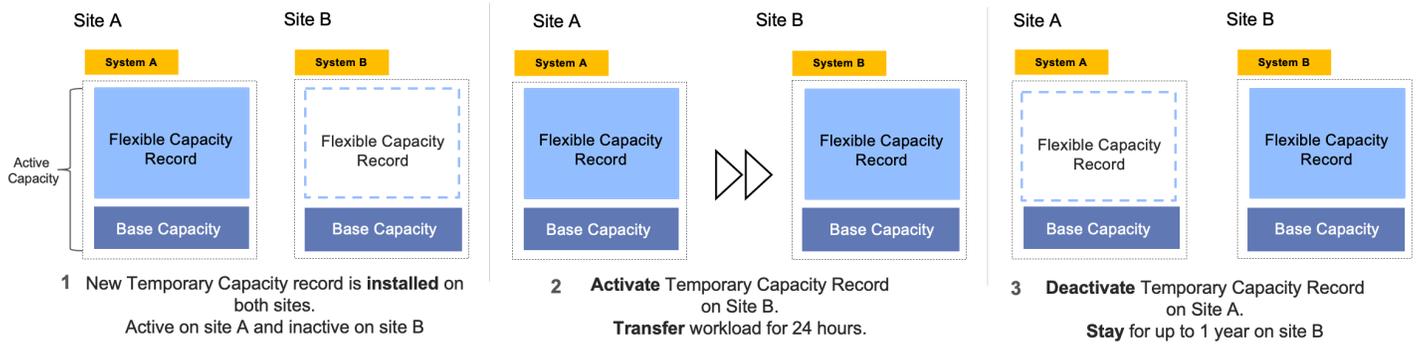
## Does the installation affect the production workloads?

It may, depending on what the current base capacity and production workload are. The recommendation is to perform the setup either on initial install or when the site is acting as the backup/secondary site, so as to not impact your production workload.

## What is a minimum Base Capacity?

The minimum is 1 processor core active. Typically, the base capacity on the source system will be equal to the base capacity on the target system. So, you will set your base capacity to the level needed to run your day-to-day workload when operating as the disaster recovery system.

## How the capacity can be swapped with IBM Flexible Capacity for Cyber Resiliency?



After installation of Temporary Capacity record on participating sites, it is active on the source machine and inactive on target (1).

To shift the capacity, Flexible Capacity Record should be activated on the target machine as well (2). You have up to 24 hours to transfer your workload from one data center to another.

When the workload is transferred, Flexible Capacity Record will be deactivated on the source site (3). IBM Z Flexible Capacity for Cyber Resiliency allows to stay at the target machine for up to 12 months after the Flexible Capacity Record activation on the target machine.

The capacity active via Flexible Capacity Transfer records on the target system(s) should not exceed the capacity active on the source system(s) before the shift.

### **Can the capacity from more than 1 source machines be transferred to one target?**

Yes, after completing the transfer, the total amount of capacity active on both source and target machines should not be higher than the amount of capacity that is owned.

### **How often can the capacity be shifted with IBM Flexible Capacity for Cyber Resiliency?**

Capacity of any engine type can be shifted up to 12 times a year.

### **What is a capacity shift?**

A capacity shift is any change in the capacity activated by the Flexible Capacity Record.

### **What is a capacity swap?**

A capacity swap is the movement of capacity from a source system to a target system. It requires an up shift in capacity on the target system, followed by a down shift in capacity on the source system.

### **After a shift, is there a minimum amount of time I must leave the capacity there?**

No.

### **If I stop using Flexible Capacity, how do I restore my capacity on the source machine?**

When the source machine is setup, the amount of capacity owned on the machine is not changed, only the amount of active capacity. If you stop using Flexible Capacity, the capacity, then you can restore the machine back to the original capacity levels via an MES upgrade to reactivate the unassigned capacity. As long as the capacity levels, for each engine type, do not exceed the originally purchased levels, this upgrade has no cost.

### Can I use IBM Flexible Capacity for Cyber Resiliency with other temporary capacity upgrades?

Yes, IBM Flexible Capacity for Cyber Resiliency is fully operational with all existing temporary capacity offerings.

### What about On/Off Capacity on Demand?

For users of On/Off Capacity on Demand (On/Off CoD), IBM will provide a modified On/Off CoD record called the Flexible On/Off CoD record. This record is specifically designed to work in conjunction with the Flexible Capacity record. It differs from a traditional On/Off CoD record in two key ways:

1. The Flexible Capacity record allows you to reactivate unassigned capacity, so the Flexible On/Off CoD record does not.
2. When determining processor limits for model capacity, the Flexible On/Off CoD record takes into account your currently active capacity and any model capacity activated by your Flexible Capacity record when deciding your activation limits. That means then when you have Flexible Capacity active, your model capacity On/Off CoD limit will also increase.

### Are there prepaid and post-paid versions of the Flexible On/Off CoD record?

Yes. Both prepaid and post-paid version of the Flexible On/Off CoD record can be used. There is a separate Flexible On/Off CoD test record for use with Flexible Capacity. The On/Off CoD administrative test will work in both Flexible Capacity environments and environments without Flexible Capacity installed.

### What if I am using On/Off CoD on my system and add Flexible Capacity?

After you add Flexible Capacity to a system that already has On/Off CoD, you will be asked to download new Flexible On/Off CoD records from IBM Resource Link®, and remove your old records. Once Resource Link detects a Flexible Capacity record on your machine, Resource Link will only deliver Flexible On/Off CoD records.

### What if I have Flexible Capacity active on my system and do a permanent capacity upgrade?

In most cases, the amount of Flexible Capacity active on the system will decrease by the amount of capacity added by the permanent upgrade. If for example, you had 3 cores active with Flexible Capacity, and then added 2 additional active permanent cores, the total IFL count active would remain the same, and 2 cores from the Flexible Capacity record would be converted to permanent engines. There are instances where the conversion is not possible. Check the Capacity on Demand User's guide for details.

## Does IBM Flexible Capacity for Cyber Resiliency work with Banked MIPS?

Banking capacity sets the machine's owned capacity level, or "High Water Mark" to a higher level than the permanent active capacity. The Flexible Capacity record will allow the customer to activate up to that capacity level but does not require it. A customer can decide to include the banked MIPS as a part of the TER record.

## Does Flexible Capacity for Cyber Resiliency work with MIPS Banks?

MIPS Banks cannot become a part of the TER record.

MIPS Bank is a capacity purchased on a system, but held in reserve for future use on another system in the Enterprise. While the capacity is included in the HWM on the machine where purchased, this capacity is outside the normal Flexible capacity offering scope. The client is expected not to include the MIPS Bank MIPS when configuring or activating their Flexible Capacity.

## Automation

### Can capacity shifts be automated?

Yes, it is fully automatable using scripts or other third-party tools for automation purposes.

### Does it have to be automated?

No, automation is not required, but is recommended. You may use 3rd party automation tools or write your own automation via the HMC Web Services or SNMP/API interfaces.

### How can IBM Flexible Capacity for Cyber Resiliency be ordered?

IBM Z Flexible Capacity for Cyber Resiliency requires ordering of the following feature codes (FC).

- Flexible Capacity Authorization (9933)
- Flexible Capacity Transfer Record (0376)
- Flexible Capacity License (7805-7806)
- Billing feature codes (0317-0322, 0377-0386)

IBM Z Flexible Capacity for Cyber Resiliency may be ordered through normal Sales channels.

E-config will calculate and auto-add billing FCs for any delta capacity configured, if any, to support the capacity transfer. Flexible Capacity is a prepaid offering.

### How is IBM Flexible Capacity for Cyber Resiliency priced?

Hardware Pricing is based on flexible capacity units, including specialty engines, required by customer. Pricing has 2 options: a) one time acquisition, or b) 1 year term, up to 5 years in advance. The amount of capacity is based on technical requirements and resulting feature codes by HW serial number, which will then generate the price.

### Is there TSS Maintenance Pricing for IBM Flexible Capacity for Cyber Resiliency?

The measurement will be done per serial number, and we will have country specific rates. The calculation of the maintenance charge will be based on activated capacity. During the overlap period TSS maintenance charges apply to all participating systems in capacity transfer.

### How will IBM monitor my use of IBM Flexible Capacity for Cyber Resiliency?

You are required to identify all machines that are participating in the Flexible Capacity offering. IBM will monitor the configurations of these machines via data collected from the machines as part of their normal call-home data. If your machines do not, or cannot connect electronically to IBM, you will be asked to provide to IBM monthly snapshots of your Vital Product Data, by uploading the data to the IBM Resource Link web site.

### Will the monitoring reports be available to me?

Yes. IBM will provide you access to the reports for your machines.

### What will the reports show?

For each capacity movement across the machines, the reports will show the total capacity active across all of the machines, for all engine types, and the total capacity owned for those engine types. Where the active capacity exceeds the owned capacity it will be noted.

### How often will reports be made available?

Reports will be updated daily based on the latest information received from the machines.



©Copyright IBM Corporation 2022  
IBM Corporation  
New Orchard Road  
Armonk, NY 10504  
U.S.A.  
09/22

IBM, ibm.com, the IBM logo, IBM LinuxONE, IBM LinuxONE Emperor 4 and Resource Link are trademarks or registered trademarks of the International Business Machines Corporation.

A current list of IBM trademarks is available on the Web at <https://www.ibm.com/legal/us/en/copytrade.shtml>, and select third party trademarks that might be referenced in this document is available at [https://www.ibm.com/legal/us/en/copytrade.shtml#section\\_4](https://www.ibm.com/legal/us/en/copytrade.shtml#section_4).

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.

InfiniBand and InfiniBand Trade Association are registered trademarks of the InfiniBand Trade Association.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

The registered trademark Linux® is used pursuant to a sublicense from the Linux Foundation, the exclusive licensee of Linus Torvalds, owner of the mark on a worldwide basis.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

OpenStack is a trademark of OpenStack LLC. The OpenStack trademark policy is available on the [OpenStack website](#).

Red Hat®, JBoss®, OpenShift®, Fedora®, Hibernate®, Ansible®, CloudForms®, RHCA®, RHCE®, RHCSA®, Ceph®, and Gluster® are trademarks or registered trademarks of Red Hat, Inc. or its subsidiaries in the United States and other countries.

RStudio®, the RStudio logo and Shiny® are registered trademarks of RStudio, Inc.

TEALEAF is a registered trademark of Tealeaf, an IBM Company.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Worklight is a trademark or registered trademark of Worklight, an IBM Company.

Zowe™, the Zowe™ logo and the Open Mainframe Project™ are trademarks of The Linux Foundation.

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

The information contained in this documentation is provided for informational purposes only. While efforts were made to verify the completeness and accuracy of the information contained in this documentation, it is provided "as is" without warranty of any kind, express or implied. In addition, this information is based on IBM's current product plans and strategy, which are subject to change by IBM without notice. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, this documentation or any other documentation. Nothing contained in this documentation is intended to, nor shall have the effect of, creating any warranties or representations from IBM (or its suppliers or licensors), or altering the terms and conditions of the applicable license agreement governing the use of IBM software.

References in these materials to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates. Product release dates and/or capabilities referenced in these materials may change at any time at IBM's sole discretion based on market opportunities or other factors and are not intended to be a commitment to future product or feature availability in any way.