

# ePages -Flex

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# Introduction

ePages Flex means fast and easy provision of an ePages installation on a dedicated server. These servers (FlexStore servers) are set up in a virtual environment and contain the store database and all further functionalities for running a shop. All FlexStore servers are controlled from a single central site DB server.

In addition, an automatic update function is available for these FlexStore servers. Once a new version is available, the Shop Administrator is notified and can request the update in the Shop Administration at the click of a button; the update is then performed as a scheduled event for the shop.

This enables providers to offer their customers shops that are not subject to the limitations of a hosting environment, such as restricted feature sets, sharing performance with other stores, non-availability of Web services, slow update rhythm.

For the provider, this has the following advantages, amongst others:

- Fast installation
- Simple back-up/recovery using snapshots of the virtual machines (VM)
- Simple configuration expansion as performance demand increases
- Simple update using an automated patch process
- The virtualisation solution makes it more cost-efficient and faster than using “hardware servers”

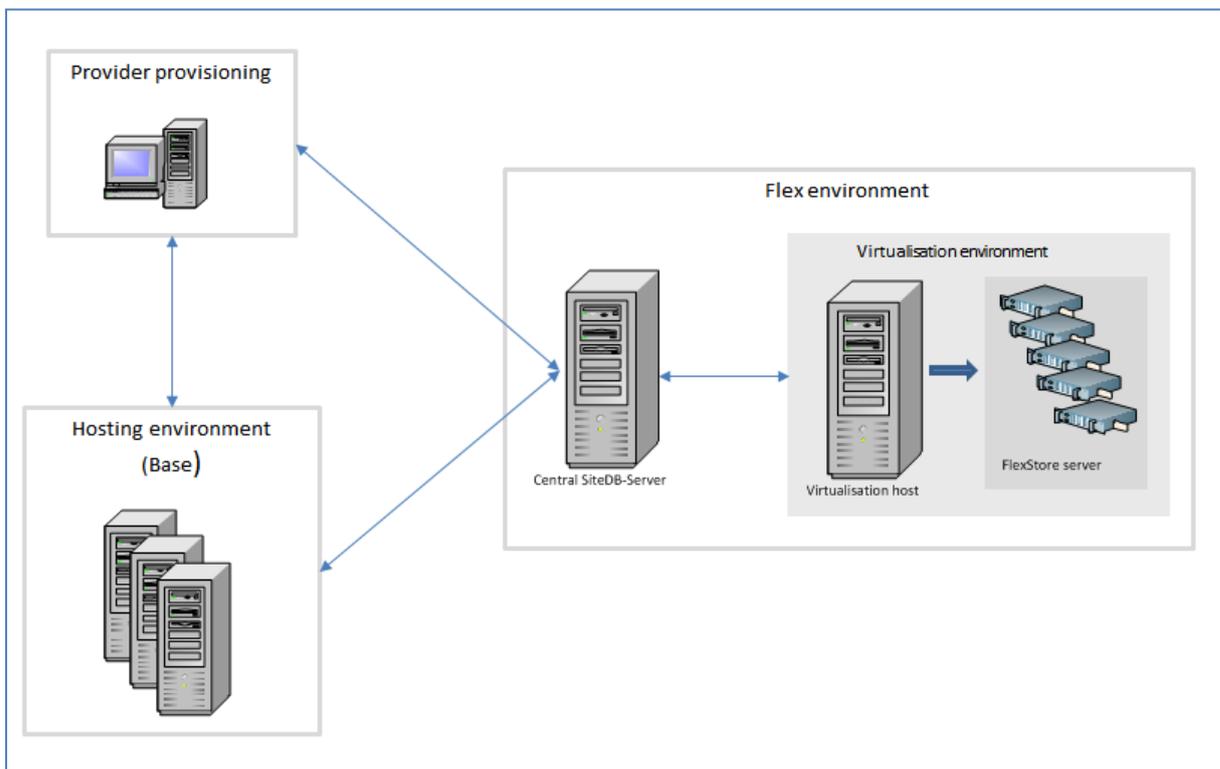
For the retailer, this has the following advantages, amongst others:

- Own environment
- Full features and Web services
- Release cycle can be self-selected, with optional updates
- Simple expandability/adaptability of the installation, e.g. for peak loads

The provider can either set up new shops for its customers on the FlexStore servers, or alternatively transfer shops from the hosting environment. The switch is ideal for customers who need a dedicated server but do not want to operate an enterprise solution.

# Concept

The ePages-Flex concept is set out in overview in the diagram below:



The constituent parts of the full system are:

- The Flex environment

The Flex environment consists of a server for the site database (Site-DB) and a virtual environment in which the individual FlexStore servers run. For each FlexStore server there is a VM with its own IP. Expansions are undertaken as part of this VM arrangement.

The Site-DB server controls the FlexStore servers. Information and status from the FlexStore servers is requested and server installation, update and configuration launched from the Site-DB server.

- The hosting environment (base)

The hosting environment is the basis for the shop transfer. This is where the shop data export is performed.

- **The provider's provisioning system**

**Depending on capacity, the provider's provisioning system can take over the control function when applying for, creating or transferring shops.**

The concept is geared to running Flex shops in a virtualization environment, in order to exploit its advantages:

- Each shop with a dedicated virtual machine with Store-DB
- Simple expandability as required to CPU, RAM or disk capacity, whilst still keeping everything on the one machine
- Simple back-up and recovery using snapshots
- Greater reliability

- Rapid installation using store template snapshots

The choice of virtualisation solution is left to the provider. The servers need to run with the required O/S in order to guarantee communication between the individual components of the overall system.

The machine for the Site-DB does not have to be a virtual server.

One advantage of the virtualisation solution is the use of store templates for fast installation. A store template (preconfigured ePages instance) in this sense is a copy of a generalised ePages installation. Templates of this kind are created for the versions on which shops were set up or transferred. This means that preparing the shop set-up only requires creating a copy of the template. As a result, the time and effort needed for installation is reduced to a minimum.

Configuration of the individual FlexStore servers is carried out via the ePages ConfigService (eCS). This is a service on every ePages-Flex installation via which, on request from the Site-DB server, various settings can be requested and changed (e.g. setting the IP address, changing passwords, altering feature settings). Port 4000 is used for communications and needs to be unlocked accordingly.

## Set-up and operation in principle:

1. The Flex provider provides a system with a central Site-DB and a virtual environment for the shop installations.
2. Corresponding store templates for the VM are created for the anticipated shop installation.
3. This allows customers to be offered shops in a dedicated environment.
4. The customer applies for set-up of a new shop or porting his shop onto a FlexStore server.
5. Following the customer application, the Flex provider creates a virtual server for the customer with a matching ePages installation, on the basis of a store template.
6. In the case of a new shop, this is created and configured. An existing shop is exported to the hosting environment. The data is transferred and imported onto the FlexStore server.
7. After this, the customer has full features and Web services available in his administration, together with an individual update function.
8. On request from the customer, the shop is updated to new versions.

For more detail on the full procedure and the individual stages, consult the chapters below.

## Conditions for shop transfer

The following conditions must be satisfied for shop transfer:

- Operating system, ePages version and patch level on the FlexStore server must match those of the hosting environment from which the shop is being transferred.
- The same shop type must be created on the Flex environment, with the same name (in Site-DB and **then in the shop's Store-DB**)
- RPM packages must be installed to
- No adapted cartridges must be installed on the hosting environment. Only ePages standard installation is supported.

# Installation

Installation in this sense comprises all preparatory stages and tasks to prepare and set up the system in such a way that shops can be created or transferred onto FlexStore servers.

## Setting up the Flex environment

The Site-DB server must be configured for the Flex environment and the virtualisation environment set up.

### Setting up the virtualisation environment

- Provision of hardware and installing the virtualisation solution
- Creating a back-up/recovery concept

### Setting up the Site-DB server and connections

The Site-DB server is the central database of the Flex environment and must therefore be fail-safe/redundant. It must be a constituent part of a back-up strategy.

The Site-DB server is installed as follows:

1. Prepare the machine for Site-DB with supported Linux O/S (for supported Linux systems, see helpcenter:  
[http://helpcenter.epages.com/Doc/current/epages/Manual/en/Supported\\_Operating\\_Systems\\_For\\_ePages\\_Installations.html](http://helpcenter.epages.com/Doc/current/epages/Manual/en/Supported_Operating_Systems_For_ePages_Installations.html) )
2. Select the desired version of ePages to be installed on the Site-DB (`$EPAGES_INSTALL_VERSION` must be at least 6.14.0 or 'latest')

```
export EPAGES_INSTALL_VERSION=latest
```

3. Notify the ePages repository for the computer

```
curl http://epages.com/RPMS/rpmify/rpmify-epages.sh | sh
```

4. Adapt the configuration file `/etc/sysconfig/epages6` for Site-DB server installation (`$LANGUAGE_KEY` is the key provided by ePages for installation of additional languages)

```
cat >>/etc/sysconfig/epages6 <<HERE
export EPAGES_INSTALL_BUSINESS_UNITS=Site
export EPAGES_INSTALL_IGNORE_DEMOSHOP=1
export EPAGES_INSTALL_MAKE_ARGS='STORE_TYPE=FlexStore SITE_TYPE=FlexSite \
    EPAGES_BUSINESS_UNITS=FlexSite'
export EPAGES_INSTALL_VERSION=$EPAGES_INSTALL_VERSION
export EPAGES_LANG_KEY='$LANGUAGE_KEY'
HERE
```

5. Installing ePages

```
Red Hat:    yum -y groupinstall epages
SuSE:      zypper install -y epages
```

### Preparing connection to provisioning – Site-DB

The provider's provisioning system must be able to communicate the necessary information and check conditions via Web service. It should be possible to perform the following functions:

- Initiating configuration of the FlexStore server
- Requesting the installation status (success/failure) of the FlexStore server

- Closing the shop in the hosting environment
- Marking the shop in the hosting environment for export
- Initiating the shop move (export, transfer, data import)
- Checking the status (success/failure) of the move
- Carrying out upgrades to the shop type

When including a provisioning system, the necessary Web service clients must be programmed and configured. The corresponding Web services are available.

## Setting up the store template

The store template is a snapshot of a VM containing a generalised ePages installation for a shop with a Store-DB on a supported Linux O/S; see also *store template*.

Installing a store template is performed in principle in exactly the same way as installing the Site-DB:

1. Install a supported Linux O/S for target version on a VM ([http://helpcenter.epages.com/Doc/current/epages/Manual/en/Supported\\_Operating\\_Systems\\_For\\_ePages\\_Installations.html](http://helpcenter.epages.com/Doc/current/epages/Manual/en/Supported_Operating_Systems_For_ePages_Installations.html))
2. Select the desired ePages version to be installed on the store template (*\$EPAGES\_INSTALL\_VERSION* must be at least 6.14.0 and may not be higher than the version installed on the Site-DB)

```
export EPAGES_INSTALL_VERSION=latest
```

3. Notify the ePages repository for the computer

```
curl http://epages.com/RPMS/rpmify/rpmify-epages.sh | sh
```

4. Adapt the configuration file */etc/sysconfig/epages6* for Site-DB server installation (*\$LANGUAGE\_KEY* is the key provided by ePages for installation of additional languages)

```
cat >>/etc/sysconfig/epages6 <<HERE
export EPAGES_INSTALL_BUSINESS_UNITS=Store
export EPAGES_INSTALL_IGNORE_DEMOSHOP=1
export EPAGES_INSTALL_MAKE_ARGS='STORE_TYPE=FlexStore SITE_TYPE=FlexSite \
    EPAGES_BUSINESS_UNITS=FlexStore'
export EPAGES_INSTALL_VERSION=$EPAGES_INSTALL_VERSION
export EPAGES_LANG_KEY='$LANGUAGE_KEY'
HERE
```

5. Installing ePages

```
Red Hat:    yum -y groupinstall epages
SuSE:      zypper install -y epages
```

6. Shut down the VM and save the snapshot.

# Operation

Operating the Flex environment mainly means filling the shop templates created in the previous stage with shop data, and installing new ePages versions. In addition, the current shops are monitored and, if necessary, configured (e.g. expanding the number of applications servers).

## Preparing to adapt the ePages installation/store

First, the store template needs to be cloned and started with its own IP/hostname.

You require the following variables from the started FlexStore computer:

```
STOREDOMAIN=$(hostname --fqdn)
STORENAME=${STOREDOMAIN%%.*}
STOREIP=$(getent ahosts $STOREDOMAIN | grep -m 1 "RAW" | cut -d ' ' -f 1)
for i in DOMAIN NAME IP ; do
    eval echo STORE$i='${STORE}$i'
done
```

Site-DB and FlexStore communicate via the *ePagesConfigServer* service running on the FlexStore computer:

- Start (automatic on booting):  

```
/etc/init.d/ePagesConfigServer start
```
- Stop:  

```
/etc/init.d/ePagesConfigServer stop
```
- Display status:  

```
/etc/init.d/ePagesConfigServer status
```
- Start ePagesConfigServer in debug mode in the foreground:  

```
EPAGES_CS_OPTIONS=-debug /etc/init.d/ePagesConfigServer start
```

After starting the FlexStore computer, the store template is either filled with a new shop (create shop) or with an existing shop (transfer shop) from the Site-DB.

## Create a new shop

A new shop is created using the Perl script *Flex.pl*. The script has various parameters which you can display using the following command:

```
. /etc/default/epages6
$PERL $EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Scripts/Flex.pl
```

Most parameters have meaningful default settings, so that you don't need to use/change them.

1. First run the configuration on the Site-DB:

```
. /etc/default/epages6
$PERL $EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Scripts/Flex.pl -configure \  
-vmipaddress $STOREIP -vmstoredomainname $STOREDOMAIN \  
-storealias $STORENAME -getinfo
```

Complete the following variables with the values from the FlexStore computer:

- \* STOREIP is the IP of the VM on which the shop is configured.
- \* STOREDOMAIN is the domain name belonging to the StoreIP.
- \* STORENAME is the store alias as showing in the Site-DB.

2. Next, create the shop from the Site-DB:

```
. /etc/default/epages6
SHOPALIAS=TestShop
SHOPTYPE=Flex_<VERSION>
$PERL $EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Scripts/Flex.pl -createshop \
    -vmipaddress $STOREIP -shopalias $SHOPALIAS -shoprefalias $STORENAME \
    -shoptype $SHOPTYPE
```

Complete the following variables with the values from the store computer:

- \* STOREIP is the IP of the VM on which the shop is configured.
- \* STORENAME is the Shopref alias in the Site-DB.

and:

- \* SHOPALIAS is the Store alias as it should appear in the Store-DB.
- \* SHOPTYPE is the shop type as defined in the file

*\$EPAGES\_CARTRIDGES/DE\_EPAGES/FlexProvider/Database/XML/DistributorShopTypes.xml*

SHOPTYPE has the format *Flex\_<VERSION>*, where *<VERSION>* should match the ePages version of the store template. *<VERSION>* is not separated with a point (.), but with an underscore (\_). If, for example, you have used Version *6.14.0* when creating the store template, the SHOPTYPE should be *Flex\_6\_14\_0*

## Transferring a shop

Shop transfer here refers to moving a shop from the hosting environment (base) to a FlexStore server. In addition to the actual shop move, the following activities should be scheduled:

- Determine the time of the transfer
- Plan in the downtime
- Plan in time for the domain move (altering DNS entry, until the domain can be reached at the new IP)
- Allow for transfer time
- Prepare redirect
- Delete/disable shop on the hosting environment.

The following steps need to be performed for the shop transfer:

1. Export shop and system data to the hosting environment
3. Transfer files to the FlexStore server
4. Export system data to the FlexStore server
5. Convert shop data
6. Import shop

The precise procedure is described here:

*\$EPAGES\_CARTRIDGES/DE\_EPAGES/ShopTransfer/Documents/ShopTransfer\_linux.txt*  
Section *B - Transfer to a store with same alias on another system*

After the shop transfer, you still need to configure the shop from the Site-DB:

```
. /etc/default/epages6
$PERL $EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Scripts/Flex.pl -configure \
    -vmipaddress $STOREIP -vmstoredomainname $STOREDOMAIN -getinfo
```

Complete the following variables with the values from the FlexStore computer:

- \* STOREIP is the IP of the VM on which the shop is configured.
- \* STOREDOMAIN is the domain name belonging to the StoreIP.

## Installing new versions

The latest version must always be installed on the site. This means that the site must always be updated, even if no update request exists for the shops. No update can be offered for the shops so long as the site version is not higher than the shop version.

After updating the site, run the following script:

```
$PERL $EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Scripts/NewPatchAvailable.pl
```

Unless parameters are used, the site version is set as possible patch version for all stores. To display all available parameters, start:

```
$PERL $EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Scripts/NewPatchAvailable.pl \
    -help
```

After the script has been executed, a message appears in Shop Administration indicating that a new version is available. The Shop Administrator requests the update by marking the corresponding checkbox.

The scheduler *FlexDeliverOrderedPatches* running on the Site-DB (see *Scheduler.conf*) checks all shops for this set flag and automatically starts the script

```
$PERL $EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Scripts/DeliverOrderedPatches.pl
```

To display all available parameters, start:

```
$PERL $EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Scripts/DeliverOrderedPatches.pl \
    -help
```

The command runs through all shops and sees whether these are to be updated. If this is the case, installation of the new version is initiated. In this case, shops are updated one after another.

## Backup/Recovery

As the Flex provider, you are responsible for backups yourself. The patch itself does not create any back-up copies. You must create your own back-up concept (snapshots, etc.). However, the script *DeliverOrderedPatches.pl* supports incorporation of own backup and recovery functions to the extent that it requests various directories in the various stages and executes the scripts contained therein.

The following steps are performed:

### pre-patch

Performs on the Site-DB all scripts in  
*\$EPAGES\_CARTRIDGES/DE\_EPAGES/FlexProvider/bin/prePatch.d/*

### patch

Performs on the FlexStore all scripts in \$EPAGES\_CARTRIDGES/DE\_EPAGES/Flex/bin/runPatch.d/

#### **post-patch**

Performs on the Site-DB all scripts in  
\$EPAGES\_CARTRIDGES/DE\_EPAGES/FlexProvider/bin/postPatch.d/

#### **if pre-patch fails**

Performs all scripts in \$EPAGES\_CARTRIDGES/DE\_EPAGES/FlexProvider/bin/preRestore.d/

#### **if patch fails**

Performs all scripts in \$EPAGES\_CARTRIDGES/DE\_EPAGES/FlexProvider/bin/restorePatch.d/

#### **if post-patch fails**

Performs all scripts in \$EPAGES\_CARTRIDGES/DE\_EPAGES/FlexProvider/bin/postRestore.d/

If the patch has been successfully installed, the Shop Administrators are notified that a new version is available.

The directories mentioned are not present as standard. If you wish to use directories for actions, you must create them. Typically, each directory should contain one script, performing e.g. the following tasks:

#### **prePatch.d/**

Create a backup copy of the FlexStore server: Shutdown the VM, create a VM snapshots, reboot the VM

#### **postPatch.d/**

Delete the snapshot after a successful update

#### **restorePatch.d/**

Load the previous snapshots after a failed update

## **Expanding FlexStore server capacity**

With changed framework conditions, under some circumstances it is necessary to alter the capacity of the FlexStore server (e.g. with higher load, more applications servers and more memory is needed).

More resources, such as CPU, memory and disk space needs to be assigned by the virtualisation software.

The ePages configuration can be adjusted using the script *Flex.pl*:

```
$PERL $EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Scripts/Flex.pl -update \  
-vmipaddress StoreIP -updatevmtype VMtype
```

VM types are defined in the file:

```
$EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Data/Config/Container.conf
```

For the example:

```
$PERL $EPAGES_CARTRIDGES/DE_EPAGES/FlexProvider/Scripts/Flex.pl -update \  
-vmipaddress StoreIP -updatevmtype Advanced
```

This produces a number of 8 applications servers, each with a maximum memory of 250 Mbytes.