VIRTEL Kix Suite

User's Guide

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1. Trademarks

1.1. Open Source Software

The current VIRTEL Web Access product uses the following open source software:

jQuery

> Under MIT license
> https://jquery.org/license/.

StoreJson

> Under MIT license
> https://github.com/marcuswestin/store.js/commit/baf3d41b7092f0bacd441b768a77650199c25fa7.

jQuery_UI

> Under MIT license
> http://en.wikipedia.org/wiki/JQuery_UI.

2. Introduction

2.1. Introduction

2.1.1. VIRTEL KIX Suite (VKS)

VIRTEL KIX Suite, formerly known as VKS, is a set of functions which enable to extend CICS application to self-service web portals.

The suite includes the following products:

- VIRTEL Transaction Gateway (VTG)
- VIRTEL Transaction Accelerator (VTA)
- VIRTEL Transaction Server (VTS)

VTG is a high-performance RESTful (HTTP and JSON) connector beetween CICS transactions and the web.

VTA is intended for CICS transaction that are threadsafe and have a COMMAREA interface. It substitue its own web access middleware and PE-based task management for CICS's web access middleware and ECB-based task management. Transaction programs continue to run under CICS, unaware of - and not impacted by - the changes.

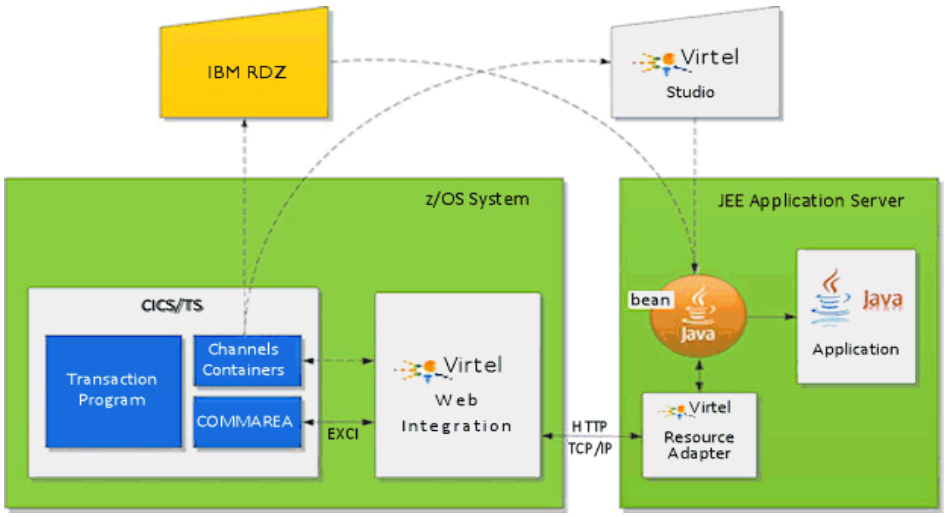
VTS is intended for CICS transaction that already have a COMMAREA interface. It provides an alternate execution path for high-volume - oftentimes query only - CICS transaction. The programs' business logic remains unchanged, but their interface with the transaction server must be changed from CICS/TS to VTS. The changes can be implemented either in the program istself, or through the insertion (link-edit) of dedicated interface conversion programs between the programs and VTS.

2.2. VIRTEL Transaction Gateway (VTG)

2.2.1. VIRTEL Transaction Gateway (VTG)

Virtel Transaction Gateway (VTG) is a light REST connector that extends CICS applications to JEE application servers. VTG has 3 components:

- VIRTEL Web Integration (VWI) running on z/OS
- VIRTEL Ressource Adapter running on JEE application server
- VIRTEL Studio running as an Eclipse IDE



2.2.1.1. VIRTEL Web Integration

The mainframe component runs on host as z/OS started task (STC) and interfaces with the Web via a light REST connection. It communicates with CICS transaction via COMMAREA or CHANNELS CONTAINERS using a VTG specific scenario and support time-out management. It can be configured to support any web (RESTful, SOAP, XML, JSON and more) or message (MQ Series) services.

Because VTG doesn't use Java on host there is no need to synchronize Java levels between host and servers which simplifies support.

2.2.1.2. VIRTEL Resource Adapter

VIRTEL Resource Adapter runs on any JEE application servers: WebSphere, Weblogic and more, and interfaces with the Web via a light RESST connection. It complies with Standard Java Connection Architecture (JCA) and interfaces with JEE application components (JSP, servlets, EJB , and web services) via J2C beans, either pre-existing (e.g. developed with IBM Rational Developer for system z) or new (e.g. developed with Virtel Studio or Virtel command lines). The communication between the JEE application server and the CICS environment is managed by the VIRTEL runtime. The communication between the JEE application server and the VIRTEL runtime is performed through the HTTP protocol.

2.2.1.3. VIRTEL Studio

VIRTEL Studio is an Eclipse IDE that generates J2C beans from COMMAREA of CICS transaction programs. J2C beans serve as interface to JEE application components (JSP, servlet, EJB, Web services)

2.2.2. VTG installation

Installation of VTG is a two steps process. First, install z/OS part of VTG, then install VTG on your development machine.

2.2.2.1. Installation of VTG on z/OS

In order to work, VTG requires that your Virtel instance contains some VTG specific definitions. These definitions are terrminals, line, entry point, directory and transactions. There are two different ways to add those definitions in your Virtel configuration. The first one is to use the ARBOLOAD JCL provided in the VIRT454.SAMPLIB, the second one is to manually add the definitions through the Virtel Web administration interface.

2.2.2.1.1. Installation using ARBOLOAD

To install VTG using VIRCONF, you must modify the ARBOLOAD JCL provided in the VIRT454.SAMPLIB, SET the VTG parameter to YES and then run the job.

Please note that you may update the provided file, given the fact that the port used is 41005 and that the TCP/IP address on wich the VTG line will listen is not provided. So you may have to change the LOCADDR parameter content. (see “Definition of a VTG line” in the VIRTEL Connectivity User Guide).

```
*
(EN)* Ressources definition fot VTG support
(FR)* Défintion de ressources pour le support de VTG
*
      LINE     ID=VTG-HTTP,
               NAME=HTTP-VTG,
               LOCADDR=:41005,
           (EN) DESC='HTTP line for VTG (entry point VTGWHOST)',
           (FR) DESC='Connexions en mode HTTP (VTGWHOST)',
               TERMINAL=VTG,
               ENTRY=VTGWHOST,
               TYPE=TCP1,
               INOUT=1,
               PROTOCOL=VIRHTTP,
               TIMEOUT=0000,
               ACTION=0,
               WINSZ=0000,
               PKTSZ=0000,
               RETRY=0010
      TERMINAL ID=VTGLO000,
           (EN) DESC='VTG terminals (no relay)',
           (FR) DESC='Terminaux pour VTG (sans relais)',
               TYPE=3,
               COMPRESS=2,
               INOUT=3,
               STATS=26,
               REPEAT=0050
      SUBDIR   ID=VTG-DIR,
           (EN) DESC='Pages for VTGWHOST',
           (FR) DESC='Pages de VTGWHOST',
               DDNAME=HTMLTRSF,
               KEY=VTG-KEY,
               NAMELEN=0064,
               AUTHUP=X,
               AUTHDOWN=X,
               AUTHDEL=X
      ENTRY    ID=VTGWHOST,
           (EN) DESC='Entry point for VTGWHOST',
           (FR) DESC="Point d'entrée pour VTGWHOST",
               TRANSACT=VTG,
               TIMEOUT=0035,
               ACTION=0,
               EMUL=HTML,
               SIGNON=VIR0020H,
               MENU=VIR0021A,
               EXTCOLOR=E,
               SCENDIR=VTG-DIR
      TRANSACT ID=VTG-00,
           (EN) DESC='HTML pages (VTG-DIR directory)',
           (FR) DESC='Pges HTML (répertoire VTG-DIR)',
               NAME=VTGWHOST,
               APPL=VTG-DIR,
               TYPE=4,
               TERMINAL=VTGLO
      TRANSACT ID=VTG-01,
           (EN) DESC='VTG scenario',
           (FR) DESC='Scénario VTG',
               NAME=VTG01,
               APPL=$NONE$,
```

```
              PASSTCKT=0,
              TYPE=2,
              TERMINAL=VTGLO,
              STARTUP=1,
              SECURITY=0,
              TIOASTA='&/S &/T',
              EXITMSGI=SCENVTG
      TRANSACT ID=W2H-84V,
              NAME='uplvtg',
          (EN) DESC='Upload HTML pages (VTG-DIR directory)',
          (FR) DESC='Chargement des pages HTML (répertoire VTG-DIR)',
              APPL=VIR0041C,
              PASSTCKT=0,
              TYPE=2,
              TERMINAL=DELOC,
              STARTUP=2,
              SECURITY=1,
              LOGMSG=VTG-DIR
```

Input definition used in ARBOLOAD for VTG support

2.2.2.1.2. Installation using web administration interface

To install VTG using VIRTEL web administration interface, you must define a line and a terminal sub-pool as shown below. Then, you must define a directory, an entry-point and 3 transactions based on the above JCL defintion.

2.2.3. Definition of a VTG line

When a VTG line is started, VIRTEL becomes the partner of a Virtel Ressource Adapter running on an Application server, authorising connections to CICS applications using EXCI. Activation of this type of line is subject to the presence of the TCP1 parameter in the VIRTCT, as well as to a definition providing linkage to a directory containing SCENVTG scenario.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRVTG  13:19:39

 Internal name ===> V-HTTP                1st character is line code
 External name ===> HTTP-VTG              External entity name
 Remote ident  ===>                       Remote VTAM LU or TCP/IP address
 Local ident   ===> :41005                Local VTAM LU or TCP/IP address
 Description   ===> VTG HTTP line (entry point VTGWHOST
 Prefix        ===> VTG                    Prefix for terminals
 Pool          ===>                       Pool for terminals
 Pool          ===>                       Pool for terminals
 Entry Point   ===> VTGWHOST              Default Entry Point on this line
 Rule Set      ===> V-HTTP                Rules to choose an entry point
 Line type     ===> TCP1                  Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 1        0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> VIRHTTP  Dialog manager
 Security program           ===>          Non standard security
 Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
 Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

Definition of a VTG line

Remote ident

Always blank.

Local ident

This is the VIRTEL IP address and port number which calling application must specify in order to connect to VIRTEL. If the port number is omitted then the default is port 80. See the description of the “Local ident” field under the heading “Parameters of the line”, page 1 for more details about how to code this field.

Prefix

Terminal name prefix (see below).

Entry Point

When defining a VTG line, it is obligatory to define a default entry point. This entry point will be used for all incoming calls which do not match any of the rules of the line. The entry point contains a list of transactions, and these transactions determine which scenario must be used to process the requests.

Each transaction must refer to the local terminal sub-groups associated with the VTG line (see ”VTG terminals” below).

For type 2 (Virtel) or type 4 (Page) transactions

The prefix will be that of the terminal sub-group without an associated relay.

Line type

One of the TCP/IP protocols defined in the VIRTCT, for example TCP1.

Possible calls

Specify 1 (incoming calls only) to indicate that this line represents a listening port where VIRTEL is acting as an HTTP server.

Protocol

VIRHTTP.

Window

Always 0.

Packet

Always 0.

Pad

Always blank.

Tran

Always blank.

Retry

10 or more.

2.2.3.1. VTG terminals

A VTG line uses only one sub-groups of terminals having a common prefix (in this case VTG). Each terminal in this sub-group represents one session between the client application and VIRTEL; no relay is configured for this sub-group.

Press [PF4] at the VTG line detail definition screen to display the list of associated terminals whose prefix matches the prefix specified in the line definition. If the list is empty, either the terminals have not been cretaed, or the pool itself may have a different prefix and will therefore not be displayed. In this case you can press [PF2] at the Configuration Menu to display a list of all terminals.

The example below shows the terminals for a VTG lines.

```
LIST of TERMINALS --------------------------------- Applid: SPVIRVTG  13:35:58

Terminal  Repeated Relay     Entry        Type   I/O  Pool     2nd Relay
```

```
VTGLO000  0050                          3      3




P1=Update          P2=Delete             P3=Return          P6=1st Page
P7=Page-1          P8=Page+1             P12=Details
```

Definition of terminals associated with a VTG line

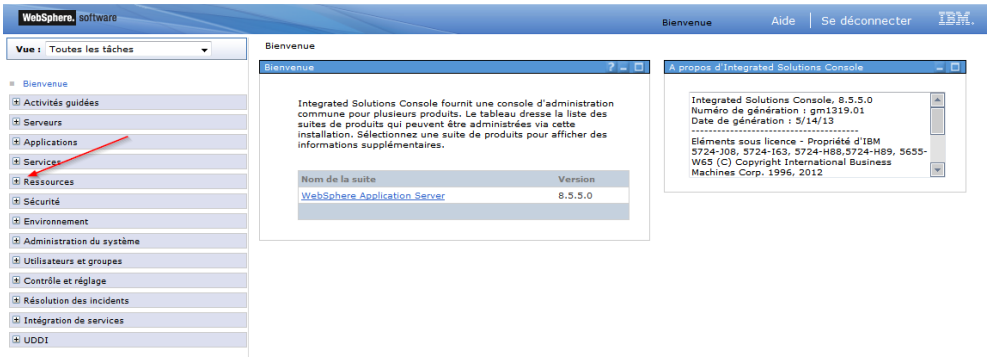
```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  13:54:50

Terminal           ===> VTGLO000       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===>                Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===>                Pool where to put this terminal
Description        ===> VTG terminals (no relay)

Entry Point        ===>                Enforced Entry Point
2nd relay          ===>                Possible 2nd relay (Printer)
Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 2              0, 1, 2 or 3 : compression type
Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===> 2              1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0050           Number of generated terminals

P1=Update                          P3=Return                     Enter=Add
                                                                 P12=Server
```

Definition of VTG terminals without relay

2.2.4. Deployement on IBM® Websphere Application Server

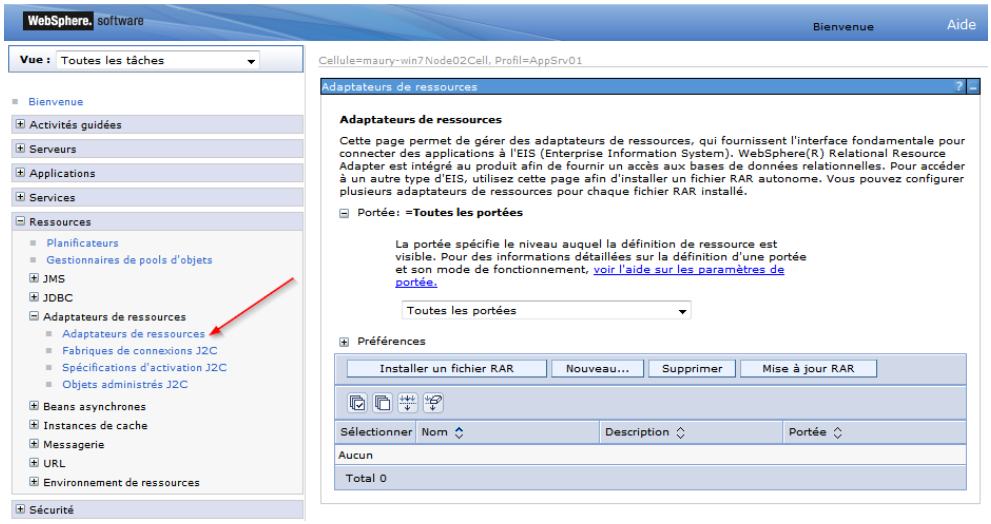
2.2.4.1. Installing the resource adapter

Launch IBM® Websphere Application Server, and log on to the administration console (the default URL should be http://localhost:9060/ibm/console). Once you've logged on, you should see the following screen:

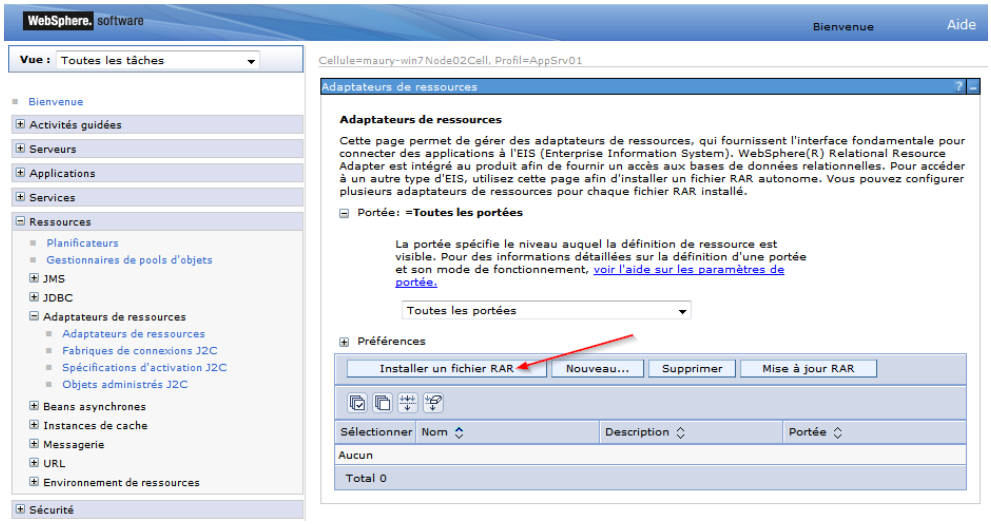


In the left panel, click on the + sign next to the **Resources** menu item, you should see the following screen:

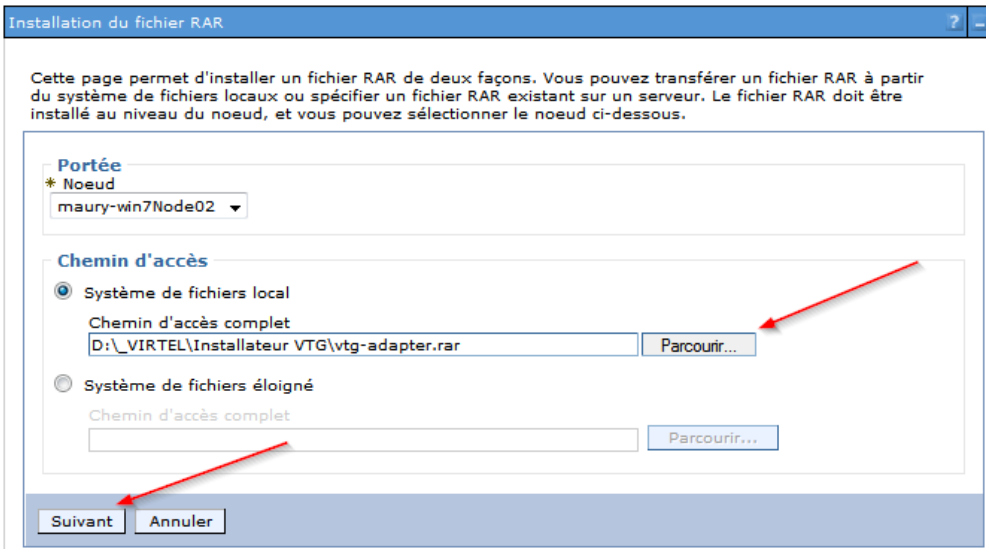
In the left panel, click on the + sign next to the **Resource Adapters** menu item, located under the **Resources** menu item, you should see the following screen:



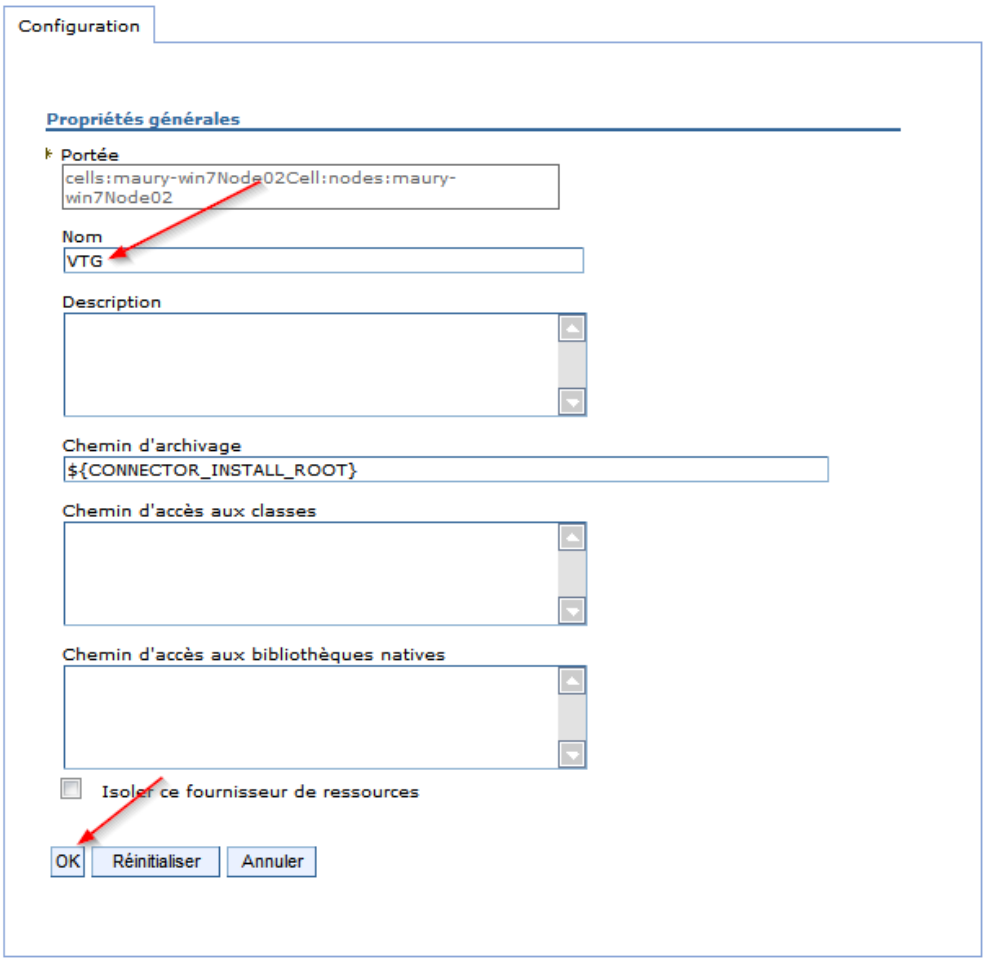
Now, click on the **Resource Adapters** link located under the **Resource Adapters** menu item, you should see the following screen:



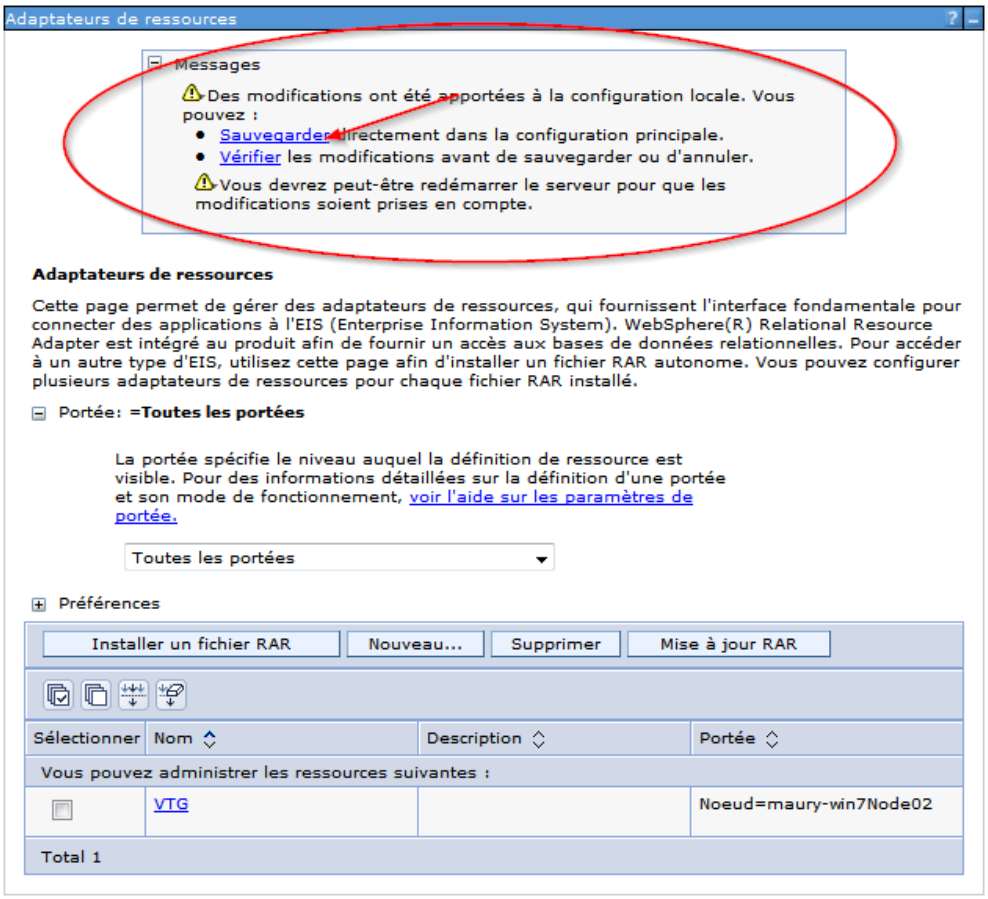
In the right panel, click on the **Install RAR** button, you should see the following screen:



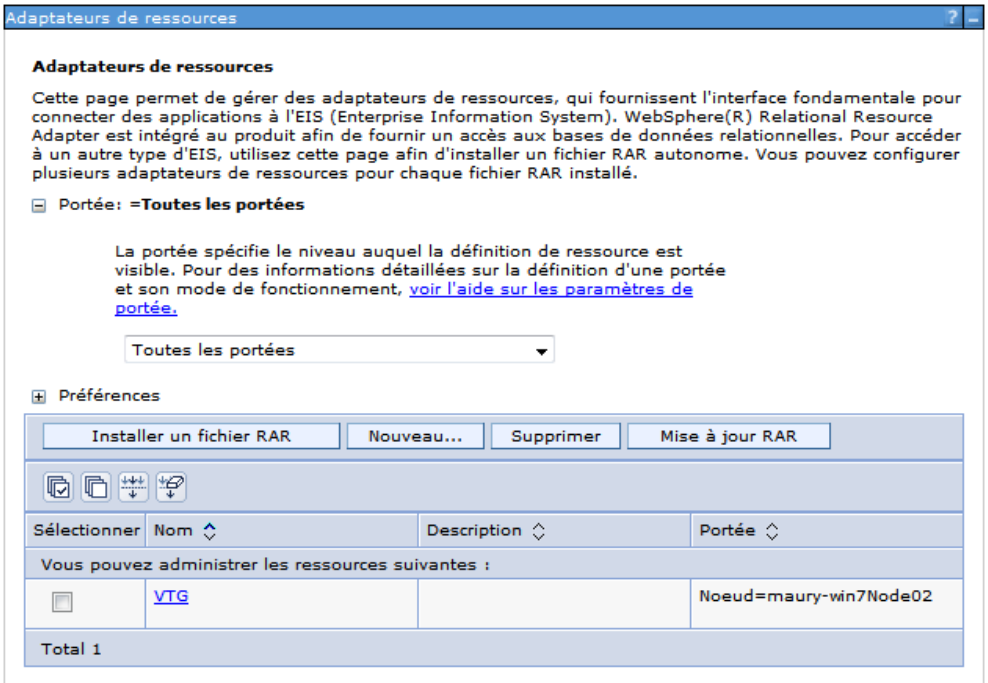
Click on the **Choose file** button, and using the desktop file chooser dialog, select the **VTG resource adapter file**. This file starts with the **vtg-adapter** prefix, ends with the **rar** extension, and should be located in the **lib** folder of the installation. Once you've selected the file, click on the **Next** button, you should see the following screen:



Once on this screen, you just need to fill the name field. You can choose whatever the name you want, as **VTG** for example. Once you've entered the field, click on the **OK** button, you should see the following screen:



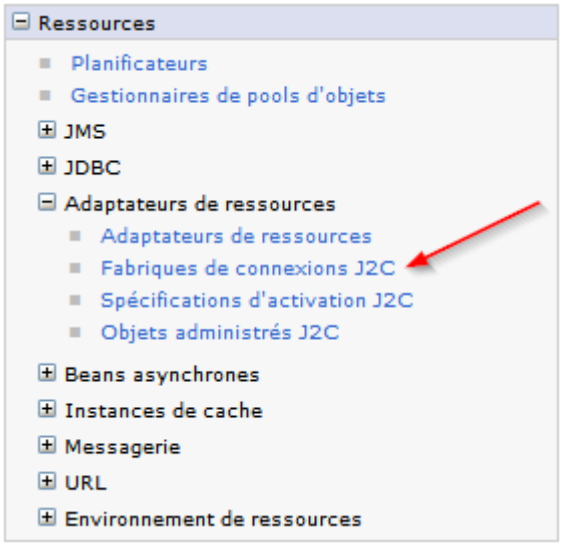
As the Websphere configuration has been modified, you should notice a messages panel at the top of the right panel. Click on the **Save** link inside this panel in order to synchronize the Websphere configuration, you should see the following screen (the messages panel should have been dismissed):



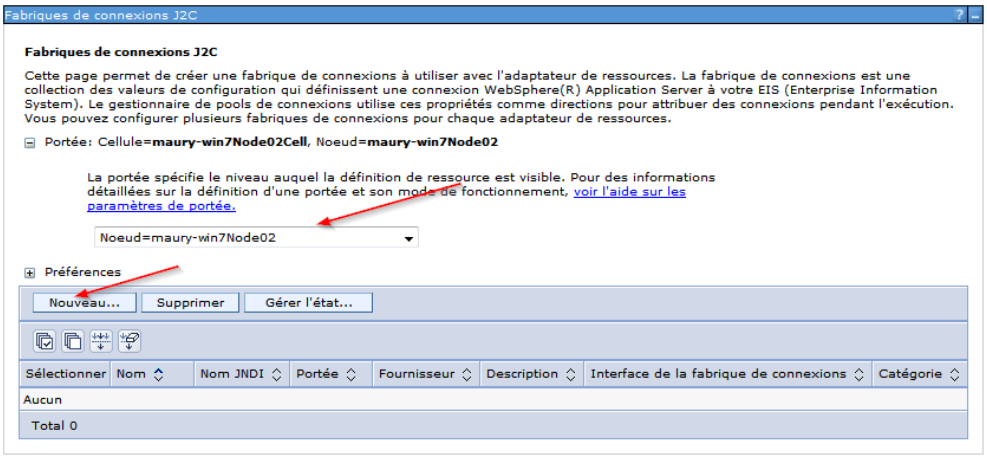
The VTG resource adapter is now installed onto IBM® Websphere, we're now ready to define connection factories.

2.2.4.2. Defining connection factories

In the left panel, click on the **J2C connection factories** link located under the **Resource Adapters** menu item, you should see the following screen:



The default scope is set for **All scopes** by default, but the resource adapter has been installed at the node level. So first, you need to change the scope. In order to do that, first change the scope using the scope list box and choose the one with the text **Node=machinenameNodeXX** where machinename is the name of the machine where IBM® Websphere is running and XX is a two digits number. You should see the following screen:



Click on the **New** button, a form for creating a new J2C connection factory should be displayed.

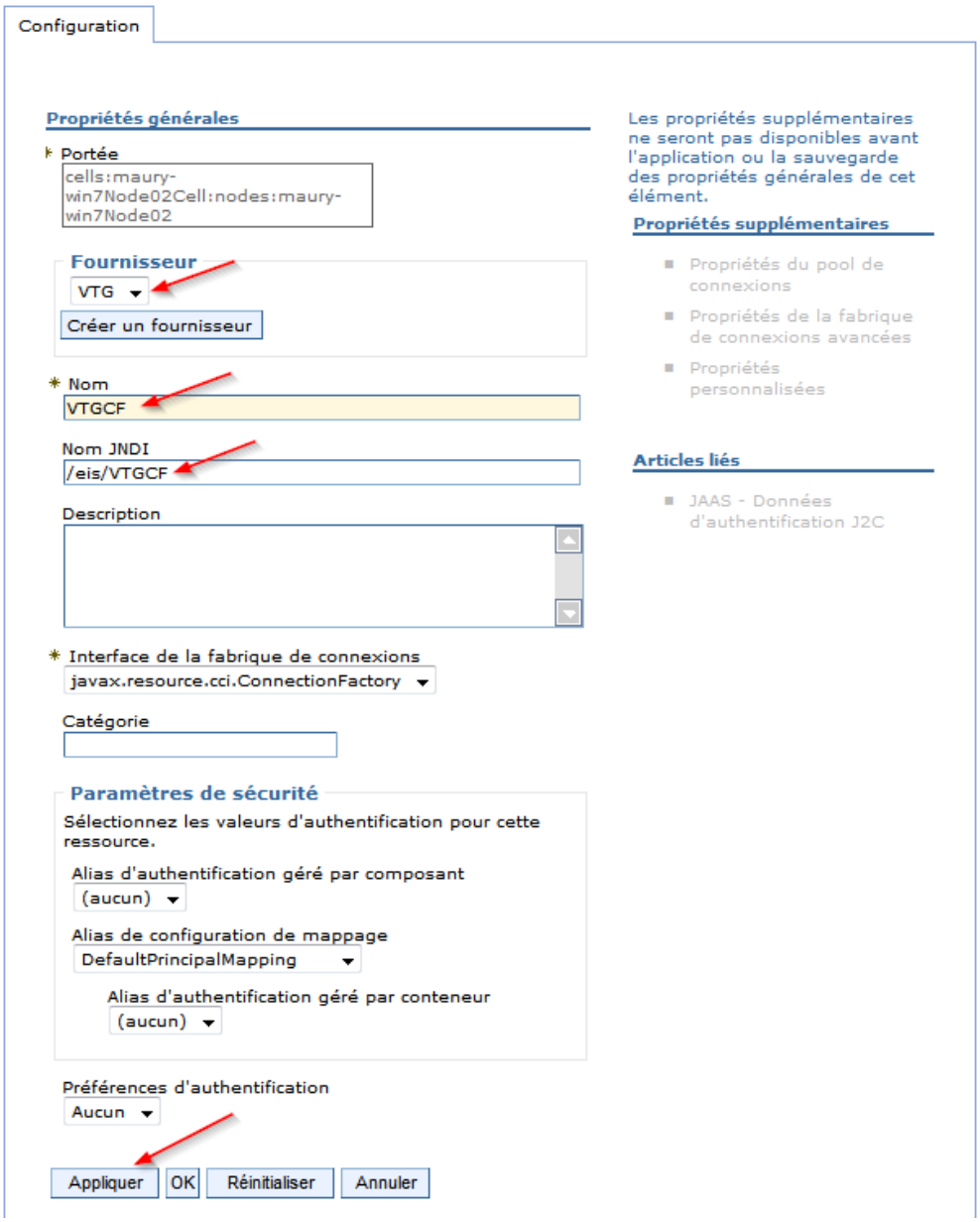
You need to select the provider (resource adapter) the connection factory will refer to. If you've just installed the VTG resource adapter on an empty IBM® Websphere installation, then you should see the name you've assigned to this resource adapter in the provider list box (VTG in our case).

If you've installed several resource adapters, then make sure to select the VTG resource adapter in the provider list box before filling other properties.

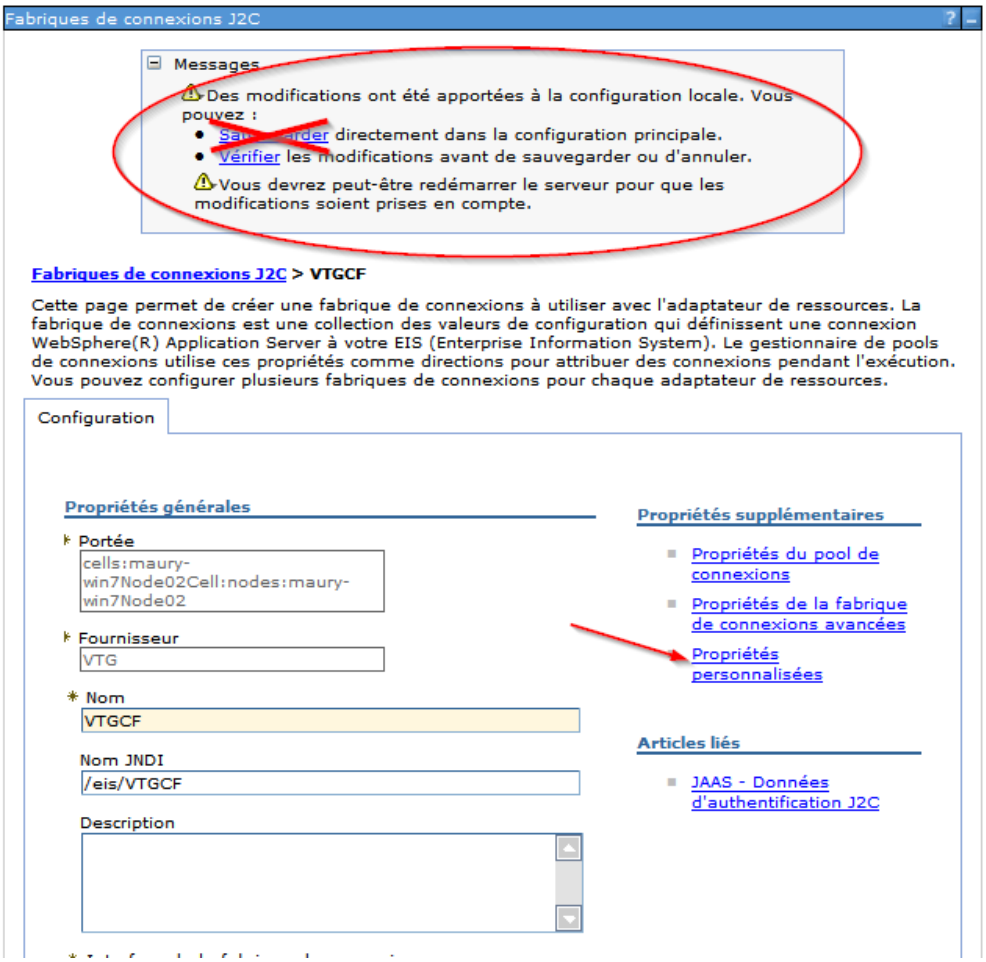
Then, in the **Name** field, enter a name for the connection factory. The name is just internal, so feel free to enter the name you want. We will choose the name **VTGCF**.

In the **JNDI name** field, enter the JNDI name for the connection factory. This is the name that is used by your applications to retrieve the connection factory through a JNDI lookup on that name. It is a good practice to prefix this name by the **/eis/** prefix. We will choose **/eis/VTGCF**.

Once you've filled these two parameters, you should see the following screen:



Click on the **Apply** button, you should see the following screen:



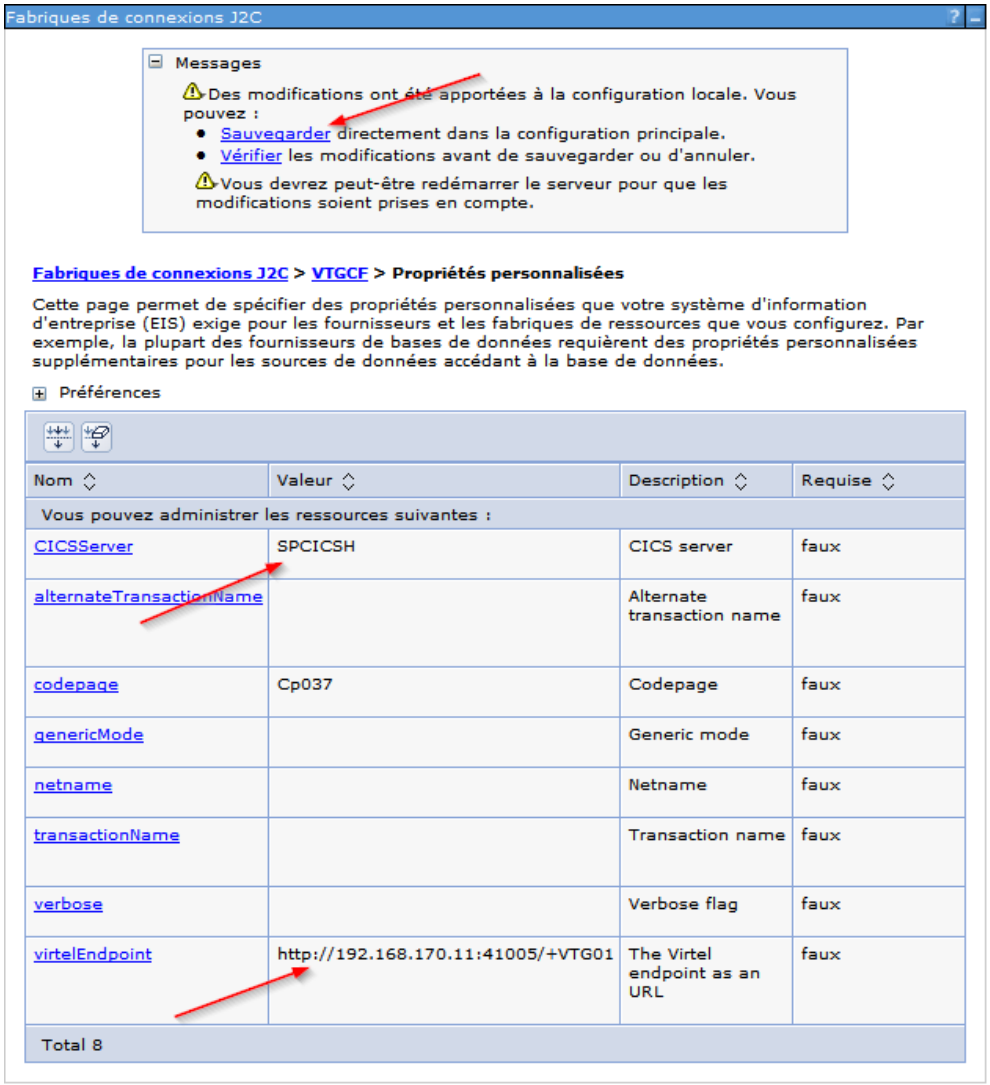
Although you should have noticed that the **Messages** panel appears, please don't click on **Save** link in that panel now because the configuration of the connection factory is not yet finished.

Instead, click on the **Custom properties** link. You should see a screen displaying the various properties for the VTG resource adapter.

Property	Explanation	Mandatory	Sample value
CICSServer	ame of the CICS server to communicate with	true	CICSA
codepage	Java codepage used to convert data sent by Virtel	false	Cp037
ctransactionName	JName of the CICS mirror transaction. If not set, CSMI is assumed	false	CSMI
verbose	Flag for getting Virtel to generate logging information in its SYSOUT	false	false or true
virtelEndpoint	EndpointURL of the Virtel VTG transaction. This is following the form http://host:port/+VTG01 where host is the host name of the Virtel machine and port is the TCP/IP port Virtel is listening to	true	http://virtel:41005

According to the previous table, you need to enter at least the **CICSServer** and **virtelEndpoint** properties. The other properties may be left unchanged.

Once you've setup the required values, you should see the following screen:



As the Websphere configuration has been modified, you should notice a messages panel at the top of the right panel. Click on the **Save** link inside this panel in order to synchronize the Websphere configuration, you should see the following screen (the messages panel should have been dismissed):

Fabriques de connexions J2C

Fabriques de connexions J2C > VTGCF > Propriétés personnalisées

Cette page permet de spécifier des propriétés personnalisées que votre système d'information d'entreprise (EIS) exige pour les fournisseurs et les fabriques de ressources que vous configurez. Par exemple, la plupart des fournisseurs de bases de données requièrent des propriétés personnalisées supplémentaires pour les sources de données accédant à la base de données.

Préférences

Nom	Valeur	Description	Requise
Vous pouvez administrer les ressources suivantes :			
CICSServer	SPCICSH	CICS server	faux
alternateTransactionName		Alternate transaction name	faux
codepage	Cp037	Codepage	faux
genericMode		Generic mode	faux
netname		Netname	faux
transactionName		Transaction name	faux
verbose		Verbose flag	faux
virtelEndpoint	http://192.168.170.11:41005/+VTG01	The Virtel endpoint as an URL	faux
Total 8			

The J2C connection factory is now defined onto IBM® Websphere. If you click on the **J2C connection factories** link located under the **Resource Adapters** menu item, you should see the following screen:

Fabriques de connexions J2C

Fabriques de connexions J2C

Cette page permet de créer une fabrique de connexions à utiliser avec l'adaptateur de ressources. La fabrique de connexions est une collection des valeurs de configuration qui définissent une connexion WebSphere(R) Application Server à votre EIS (Enterprise Information System). Le gestionnaire de pools de connexions utilise ces propriétés comme directions pour attribuer des connexions pendant l'exécution. Vous pouvez configurer plusieurs fabriques de connexions pour chaque adaptateur de ressources.

Portée: Cellule=**maury-win7Node02Cell**, Noeud=**maury-win7Node02**

La portée spécifie le niveau auquel la définition de ressource est visible. Pour des informations détaillées sur la définition d'une portée et son mode de fonctionnement, voir l'aide sur les paramètres de portée.

Noeud=maury-win7Node02

Préférences

Nouveau... Supprimer Gérer l'état...

Sélectionner	Nom	Nom JNDI	Portée	Fournisseur	Description	Interface de la fabrique de connexions	Catégorie
Vous pouvez administrer les ressources suivantes :							
☐	VTGCF	/eis/VTGCF	Noeud=maury-win7Node02	VTG		javax.resource.cci.ConnectionFactory	
Total 1							