Administration Runtime Expert



17/05/2021

ADMINISTRATION RUNTIME EXPERT (ARE)

guida rapida¹

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Marco Riva

Introduzione

Administration Runtime Expert (prima della versione 3.2.6 si chiamava Application Runtime Expert) è un interessante prodotto IBM che aiuta a controllare e capire meglio lo stato di "salute" di un sistema IBM i e delle applicazioni su di esso installate.

Il prodotto è disponibile da IBM i 6.1. Introdotto circa nel 2010 come strumento di diagnostica usato dagli sviluppatori e dal servizio assistenza di IBM per controllare i problemi segnalati dai clienti. Inizialmente era un prodotto a pagamento, dal 2016 invece è gratuito².

ARE rivoluziona il modo di pensare l'assistenza e la determinazione dei problemi su IBM i.

ARE consente di creare un processo automatico e ripetibile per determinare cosa è cambiato in un sistema rispetto ad un modello di riferimento funzionante.

Una volta individuate le differenze tra il modello e la situazione reale del sistema si può consultare un report, inviarlo per email ed eventualmente intraprendere le azioni correttive direttamente dalla console web di ARE.

Il prodotto è composto da 3 parti:

- editor dei template
- i template
- ARE runtime

Di fatto il prodotto 5733ARE è il template editor.

ARE runtime (il core) è già parte del sistema operativo e non del prodotto 5733ARE. Questo significa che dopo essere stato costruito (build) il template può essere utilizzato su qualunque sistema anche dove non è installato ARE.

IBM mette a disposizione alcuni template già pronti all'uso come parte del sistema operativo (cfr. par. Template predefiniti).

¹ La guida si riferisce alla versione di IBM ARE Deployment Editor 3.2.7 e alla versione ARE core 1.6.20 su IBM i 7.3

² Vedi IBM Announcement number 316-187 del 11-ott-2016 Price Change(s):Price Decrease On Select IBM i Licensed Programs







Figura 1

Glossario

- **Collections**: un gruppo logico di attributi
- Deployment: un insieme di attributi e impostazioni di ambiente
- **Template**: un insieme di deployment
- **Plugin**: componenti utilizzati per verificare gli attributi o le impostazioni di ambiente

Prerequisiti

- IBM i V5R4 o superiori (per il componente core)
- IBM i 6.1 o superiori (per il componente GUI ovvero il prodotto 5733ARE)

	IBM i 6.1	IBM i 7.1	IBM i 7.2	IBM i 7.3
Prodotti	5761SS1 opz. 3 Extended Base Directory Support 5761SS1 opz. 12 Host ser- vers 5761SS1 opz. 30 QShell 5761SS1 opz. 33 PASE 5761JV1 opz. 11 J2SE 6 32 bit 5761DG1 HTTP server for IBM i	5770SS1 opz. 3 Extended Ba 5770SS1 opz. 12 Host server 5770SS1 opz. 30 QShell 5770SS1 opz. 33 PASE 5761JV1 opz. 11 J2SE 6 32 b 5770DG1 HTTP server for IBI	ise Directory Support s bit M i	
РТF	SF99115 liv. 14 HTTP group SF99562 liv. 10 Java group	SF99368 liv. 2 HTTP group SF99572 liv. 2 Java group		
Browse Moz	er per eseguire l'interf illa Firefox 3.5 o supe	accia di ARE: riori		



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- Internet Explorer 7 o superiori
- Google Chrome

Download¹

Il prodotto può essere scaricato dal sito ESS di IBM: <u>https://www.ibm.com/servers/eser-ver/ess/index.wss</u>.

Molto probabilmente reperire l'immagine iso (poco più di 20 Mb) per l'installazione del prodotto potrebbe essere una delle operazioni più "difficili". Riporto un'utile indicazione scritta in System i Developer blog l'11-ott-2016 da Tim Rowe:

Software Licensing²

There is a nice change to how some of the software on IBM i is licensed. It helps simplify things and make life easier for both you and us. A number of products that were priced separately, are now going to be automatically included with all operating system orders and upgrades. Existing IBM i 7.2 and 7.3 clients who are registered on the ESS website can download the selected LPPs and IBM i feature either under their existing 5770-SS1 entitlement, or under 5770-SS1 in the "**IBM i evaluation and NLV download**" selection. The following products and feature are included in this delivery simplification:

- IBM Administration Runtime Expert (formerly called "Application Runtime Expert") 1.1 (5733- ARE)
- IBM Facsimile Support for i, 5.8 (5798-FAX)
- IBM System Manager for i, 7.2 and 7.3 (5770-SM1)
- IBM CICS Transaction Server for i, 7.2 and 7.3 (5770-DFH)
- IBM Managed System Services for i, 7.2 and 7.3 (5770-MG1)
- IBM i Option 23, OptiConnect 7.2 and 7.3 (5770-SS1)

Note: For the selected products and feature, the IBM i 7.1 ordering and delivery remain the same and the physical media charges still apply; however, there will be no software license charge for the LPPs and IBM i feature.

One of the key items on this list ARE is something that could easily be leveraged by everyone to help you keep a better understanding of your system.

Da 7.4 il prodotto è già incluso nel DVD etichettato B_GROUP_x_03.

Installazione³

Il prodotto 5733ARE v. 1.1.0 si installa tramite il comando RSTLICPGM LICPGM(5733ARE) DEV(OPTVRT01) OPTION(*BASE) RSTOBJ(*ALL).

¹ Guru: How To Acquire The IBM i Administration Runtime Expert Product And PTFs, di Dawn May, 17-mag-2021: https://www.itjungle.com/2021/05/17/guru-how-to-acquire-the-ibm-i-administration-runtime-expert-product-and-ptfs/

² <u>https://systemideveloper.com/blogs/ibm-i-7-3-tr1-ibm-i-7-2-tr5-latest-and-greatest/</u>

³ Per ulteriori informazioni sull'utilizzo di un catalogo di immagini cfr. <u>https://www.ibm.com/support/knowledgecen-ter/it/ssw_ibm_i_73/rzahc/scenarioprepareimagecatalog.htm</u>

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Administration Runtime Expert Restore Licensed Program (RSTLICPGM) Type choices, press Enter 5733ARE Product Character value OPTVRT01 Name, *SAVF Device . + for more values > *BASE *BASE, 1, 2, 3, 4, 5, Optional part to be restored . *ALL, *PGM, *LNG AALL Type of object to be restored Language for licensed program *PRIMARY Character value, *PRIMARY. *NONE *NONE, *PRINT Output . Release *FIRST Character value, *FIRST Replace release *ONLY Character value, *ONLY, *NO

***MOUNTED**

REWIND

Figura 2 – installazione ARE

*REWIND, *LEAVE, *UNLOAD

🔁 🖶 🕶 🖼 Azioni 💌						
Visualizzato 1 di 1 elementi. Cancella filtro						
	ID prodotto	Opzioni prodotto	Rilascia	Descrizione		
	🛃 5733ARE	0000	V1R1M0	IBM Application Runtime Expert for i		

Figura 3

Dopo l'installazione occorre reinstallare l'ultimo cumulativo di PTF IBM.

Aggiornamenti

Prodotti installati

Le seguenti PTF portano l'interfaccia web alla versione 3.2.6 e aggiornano formalmente il nome del prodotto in Administration Runtime Expert:

7.1: SI63571, SI63562

Volume identifier

End of media option C. .

+ for more values

- 7.2: SI63571, SI63563
- 7.3: SI63571, SI63564
- E' consigliabile installare anche le seguenti PTF:
- 7.2: SI68759 (5733ARE), SI68965 (5770SS1)
- 7.3: SI68759 (5733ARE), SI68966 (5770SS1)

Novità in IBM i 7.4

Dal documento *"IBM i 7.4 and IBM i Portfolio give strong foundation for continuing innovation"* del 23-apr-2019:

Administration Runtime Expert is used by system administrators to enhance the abilities to manage the systems in their environment. In IBM i 7.4, Administration Runtime Expert has made significant enhancements to the product. PTF management now includes the ability to manage PTFs with preconditions as well as handling delayed PTFs. With the ability of Administration Runtime Expert to compare and manage PTFs across multiple systems, this provides more usability. Additional enhancements are:

- The dashboard interface has been updated to handle an independent workset for every user to easily allow the dashboard to be used for a call center environment.
- Result history now shows the formatted view instead of just the text view.
- Support for case-sensitive template rename.

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- Attach the zip file of a verification result to the notification mail.
- Restrict user's access by the role. If a user's role is "operator", the user has access only to console and has no ability to edit groups and systems

Dal white paper "IBM i A platform for innovators, by innovators - An executive guide to the strategy and roadmap for the IBM i integrated operating environment for Power Systems" (POW03177USEN-01) del 2019:

For those enterprises with multiple IBM i systems, the IBM Administration Runtime Expert product helps to compare environments between systems, including such things as job execution parameters, job description information or PTF levels. Systems administrators can use this information to assist with debugging of incorrect execution or to manage the distribution and installation of fix levels from location to location.

Avvio del servizio

ARE è basato su un'interfaccia di configurazione fruibile da browser, quindi occorre avviare l'istanza HTTP IBMARE:

STRTCPSVR SERVER (*HTTP) HTTPSVR (IBMARE)

Controllare nel sottosistema QHTTPSVR che sia attiva l'istanza IBMARE: WRKACTJOB SBS (QHTTPSVR) JOB (IBMARE)

0'	Utente				0'
Sottosis/Lav	corrente	Tipo	% CPU	Funzione	Stato
IBMARE	QTMHHTTP	BCH	Θ,Θ	PGM-QZHBMAIN	SIGW
IBMARE	QTMHHTTP	BCI	0,0	PGM-QZSRLOG	SIGW
IBMARE	QTMHHTTP	BCI	Θ,Θ	PGM-QZSRHTTP	SIGW
IBMARE	QWEBADMIN	BCI	0,0	JVM-/qibm/prod	THDW

Il server viene eseguito con l'utente QLWISVR.

Figura 4 – istanza HTTP IBMARE

La porta TCP utilizzata di default è la **12401**. Si può verificare che il servizio sia in ascolto su questa porta con il comando

NETSTAT *CNN

Ind.	Porta	Porta		
remoto	rem.	loc.	T. inat.	Stato
ж	ж	12401	013:21:14	In ascolto

Figura 5 – netstat *cnn

Arresto del servizio

Per interrompere il servizio ARE occorre chiudere l'istanza HTTP IBMARE: ENDTCPSVR SERVER (*HTTP) HTTPSVR (IBMARE)

Interfaccia utente web

Per	accedere	all'interfaccia	di	ARE	aprire	da	un	browser ¹	l'indirizzo
http	://[hostna	ame]:12401/a	re/.						

¹ Con Chrome a volte sorgono dei problemi. Di solito è meglio usare Firefox

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L'interfaccia consiste di due applicazioni:

- Deployment template editor: permette di creare, modificare costruire e testare i template
- Launch console: consente di eseguire le verifiche o di impostare la schedulazione automatica¹

Autorizzazioni utente

- Il profilo utente che crea/modifica il template deve avere autorizzazione special *ALLOBJ
- Il profilo utente che esegue un template può anche non avere l'autorizzazione speciale *ALLOBJ, ma deve avere comunque autorizzazioni sufficiente per poter eseguire i controlli configurati nel template.

Creazione di un nuovo template

Dall'interfaccia web di ARE si possono creare o modificare i templates utilizzando II **Deployment template editor**.

IBM Administration Runt	ime Expert for i		IBM.
Deployment Tem	plate Editor		
The Deployment Template templates. The editor enab edited using this editor can Learn more Manage templates: Name	Editor allows users to create, edit, impor les users to customize their templates. T be used to verify systems using the 'Lar Actions	rt and export deployment Templates created, imported, or unch console' button below. (?) Last built by	For Business
			V 3.2.7

Figure 1 – Deployment template editor

Per creare un nuovo template cliccare su Create quindi assegnare un nome.

N.B. non usare spazi o caratteri speciali nel nome del template. Il nome del template verrà utilizzato come nome della cartella di IFS in cui verranno scritti i file con la definizione del template e per assegnare il nome al file jar risultato dell'operazione di building del template.

¹ La schedulazione è disponibile da IBM i 7.1 TR7. Il supporto per la schedulazione è parte dell'istanza HTTP IBMARE

www.markonetools.it	MarkOne To
Administration Runtime Expert	17/05/202
Manage templates: Name Rete Create Import Actions Create Name MyTemplate1 Create	
Figure 2 – cr	eate template

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Nella finestra successiva viene visualizzato il **Plugin selection and customization** che consente di definire tutti i controlli che si desidera eseguire.

IBM Administration Runtime Expert for i
Home > Plugin Selection and Customization
Plugin Selection and Customization
Select and Customize Plugins For Template
Template name: MyTemplate1 ⑦ Learn more
Files and Directories
Software Requirements
Network
System Environment
Advanced
Build template Cancel Template build options

Figure 3 – Create template: plugin selection and customization

Una volta definiti i controlli desiderati cliccare sul pulsante **Build template**. Viene mostrata la finestra riassuntiva dei controlli impostati, quindi cliccare su **Confirm**.



Administration Runtime Expert IBM Administration Runtime Expert for i Home > Plugin Selection and Customization > Summary Summary Deployment Template Build Summary Template Summary Network Configuration Generated template file name: /QIBM/UserData/ARE/workspace/templates/MyTemplate1/MyTemplate1.jar Version: 1.0.1 Description: Template created by the IBM Administration Runtime Expert for i. Runtime core version must be at or higher than: 1.4.0 Features enabled: Capability to fix detected problems Build integrated template: • No - (The template requires ARE core PTF on the target system to run) Confirm Cancel

Figure 4 – Create template: summary for build

Al termine viene presentato il messaggio di completamento

IBM Administration Runtime Expert for i	BM.
Start building template: MvTemplate1	
Saving plugin configuration: Network Configuration	
Formalizing template Creating template	
Total time: 00:00:02 Finish building template. The build was successful.	
	



Prima di cliccare sul pulsante Build, se si desidera personalizzare il processo di creazione si può cliccare su **Template build options**:



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Home > Plugin Sele	ection and Customization > Template Build Options	
Template Bu	uild Options	
Edit the Template	Configuration	
Template details	⑦ Learn more	
Name:	MyTemplate1	
Description	: Template created by the IBM Administration Runtime Expert for i.	
Version:	1.0.1 V Auto increment	
Build options	D Learn more	
Built using	deployment template editor version: 3.2.6	
Administra	tion Runtime Expert core considerations	
•	Build template without runtime core. Runtime will be on remote system by default.	
	Runtime core version must be at or higher than: 1.4.0	
() E	suild template including the runtime core. The remote runtime will not be used.	
	Administration Runtime Expert core version to integrate: 1.6.20	
Template b	uild options	
Bu	uild template that has been modified. This is the default option for template build.	
0 Se	elect and rebuild plugins based on the contents of this system.	

Figura 6 – Create template: template build options

Il processo di building memorizza in file XML tutti i controlli definiti e li impacchetta in un file jar (il cui nome corrisponde al nome del template). Il file jar è il deployment template.

A lato di "Runtime core version must be..." viene indicato la versione minima di ARE core che deve essere presente sul sistema di destinazione.

E' possibile effettuare il building del template *includendo il runtime core*, in modo da rendere autosufficiente l'esecuzione del template (detto **template integrato**) anche su un altro sistema senza che venga usato il componente ARE core del sistema di destinazione. Se si include il runtime core la dimensione del file jar del template è circa 1 Mb più grande.

Per eseguire un template integrato occorre eseguire un comando Java invece dello script runAre.sh (cfr. par. Esecuzione di un template tramite QShell).

Come mostrato in Figura 1 nel momento in cui si crea il template i parametri controllati nel template devono essere in "buono" stato, in quanto vengono memorizzati come modello per essere confrontati successivamente durante l'esecuzione della verifica.

L'opzione selezionata per default è **Build template that has been modified...** che esegue il build ovviamente solo del template appena creato o modificato.

L'altra opzione **Select and rebuild plugins based on the contents of this system** serve per ricreare tutti i template basati sulle informazioni del sistema corrente. Alcuni esempi di template sono illustrati nel par. Esempi.

Log creazione template

E' possibile consultare il log dell'operazione di Build del template anche successivamente. Dal Deployment Template Editor selezionare il template, quindi dal pulsante Actions scegliere la voce View Log.



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File Viewer	
File: /QIBM/UserData/ARE/workspace/templates/Rete/buildLog.txt	
Start building template: Rete	
 [INFO] Saving plugin configuration: File and Directory Attributes [INFO] Saving collection Istanze_HTTP [INFO] Building list of directories and files [INFO] Files processed: 2 [INFO] Files processed: 3 [INFO] Files processed: 4 [INFO] Saving collection Istanze_HTTP_www [INFO] Saving collection Istanze_HTTP_www [INFO] Files processed: 1 [INFO] Files processed: 3 [INFO] Files processed: 3 [INFO] Files processed: 4 [INFO] Files processed: 4 [INFO] Files processed: 4 [INFO] Files processed: 3 [INFO] Files processed: 4 [INFO] Files processed: 5 [INFO] Files processed: 6 [INFO] Files processed: 6 	
[INFO] Skipping plugin configuration that was not modified: Network Configuration	
[INFO] Skipping plugin configuration that was not modified: Ports	
[INFO] Saving plugin configuration: SQL Query Verifier [INFO] Saving collection Interfacce_Rete	
Formalizing template [WARNING] Required core version has been updated from 1.4.0 to 1.6.15 or higher, because one or more selected plugins make use of features supported from that core version. Plu Creating template	ugin: File and Directory Attributes
Total time: 00:00:01 Finish building template. The build was successful.	
Figura 7 – Log buil	ld template

Modifica di un template

Sempre utilizzando l'interfaccia web del Deployment Template Editor si può selezionare un template dalla lista e tramite il pulsante **Actions** scegliere la voce **Edit**.

IBM Administration Runtime	Expert for i	
Deployment Templa	te Editor	
The Deployment Template Edito customize their templates. Temp console' button below. ⑦ Lear	r allows users to create, edit, import a lates created, imported, or edited usi n more	and export deployment templates. The editor enables users to ing this editor can be used to verify systems using the 'Launch
Manage templates:		
Name MyTemplate1		Last built by
 Rete 		INSTA
Create Import Launch console	Actions ▼ Copy Delete Edit Export Rename Test View log	template



Dopo aver modificato un template bisogna eseguire nuovamente l'operazione di **Build tem**plate.



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Modifica avanzata di un template

I template vengono memorizzati in file XML, quindi è possibile anche modificare direttamente il file XML cliccando il pulsante **Edit XML** dalla pagina di modifica del plugin (non per tutti i pluging è disponibile il pulsante Edit XML).

Per default il file XML viene aperto in modalità di sola visualizzazione. Per abilitare la modifica bisogna cliccare sul pulsante **Edit view**.

Dopo aver modificato il file XML potrebbe venire visualizzato questo messaggio

8	The XML content cannot changes to the XML are s to proceed?	be fully represented b saved, future updates	y this plugin's Gl can only be mad	JI configuration page. Once the le using the XML editor. Do you want
		ОК	Cancel	

Figura 9

Significa che le modifiche apportate al documento XML non sono compatibili con l'interfaccia grafica del Deployment Editor. Quindi tutte le successive modifiche dovranno essere apportate direttamente nel file XML.

A meno che non sia strettamente necessario si sconsiglia di modificare direttamente il file XML. E' sempre preferibile utilizzare l'interfaccia grafica del Deployment Template Editor.

Test di un template

Dopo aver costruito un template è possibile eseguirlo subito sul sistema dove lo si è generato.

Dal Deployment Template Editor, selezionare il template e dal pulsante Actions scegliere la voce Test.

Il template viene eseguito e viene mostrata la finestra con il dettaglio dell'esito e i link per visualizzare i report.



0 N .		
 Non sicuro 	12401/are/launchHc.jsp?pluginClassName=_entireTemplate&cor	ifigFileNam
Administration F	Runtime Expert	
Running commar /usr/bin/qsh -c /Q /QIBM/UserData/ /QIBM/UserData/	nd: IBM/ProdData/OS/OSGi/healthcheck/bin/runARE.sh -template ARE/workspace/templates/Rete/Rete.jar -outFile ARE/workspace/templates/Rete/temp/areReport.txt	
Öx∼Öx∼Öx∼Öx∼Öx Öx∼Öx∼Öx∼Öx∼ ¦â(□ Administration Ru Version 1.6.20 Tue Jan 29 15:14 Searching for elei Using template: fi Number of runtim Running with use User ₩⊆TA has ²	, Őx∼Őx∼Őx∼Őx∼ Őx∼Őx∼ Őx∼Őx∼ /Őx∼OpŐx∼Őx∼Sys/ ./PrŐx∼Őx∼DaŐx∼Őx∼/JaŐx∼Őx∼Őx∼Őx∼Őx∼Őx∼Őx∼Őx∼Őx∼Zbit untime Expert for i ::46 CET 2019 ments le:/qibm/userdata/are/workspace/templates/rete/rete.jar (1.0.9) e elements: 25 r: ALLOBJ authority	
Running plugin N	etwork Verifier	
Running plugin N	etwork Configuration Checker	
Running plugin P	ort Verifier	
Running plugin S	QL Query Verifier	
Running plugin Fi	ile Attribute Verifier	
Error occurred. R	eturn code = 60	
Summary Report Detailed Report XML Report Runtime Log		
Close window		
	Figura 10 – Templ	ate test ri

Esecuzione di un template

Dopo aver costruito un template è possibile eseguirlo dall'interfaccia web oppure da QShell su un qualsiasi sistema che abbia installato almeno IBM i V5R4.

Esecuzione di un template da interfaccia web

Dalla pagina principale dell'interfaccia web cliccare su Launch console.



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Deployment Temp	late Editor		
The Deployment Template Ec The editor enables users to c	ator allows users to create, edit, in ustomize their templates. Template	port and export deployment templates.	
this editor can be used to ver	ify systems using the 'Launch cons	ole' button below. (?) Learn more	
Manage templates:			i
Manage templates:		Last built by	for Business
Manage templates: Name MyTemplate1		Last built by	for Business
Manage templates: Name MyTemplate1 Rete		Last built by	for Business
Manage templates: Name MyTemplate1 Rete	Asiana	Last built by	for Business
Manage templates: Name MyTemplate1 Rete Create V Import V	Actions •	Last built by	for Business
Manage templates: Name MyTemplate1 Rete Create Import	Actions •	Last built by	for Business

L'esecuzione del template può essere eseguita sul sistema locale oppure su uno o più sistemi remoti¹.

I sistemi da controllare devono essere inseriti in un gruppo. Il gruppo Default esiste già in ARE.

Una volta definita una collezione di sistemi/template da verificare cliccare su Verify systems.

N.B. la collezione di sistemi/template presenti nella Launch console è memorizzata per profilo utente

Console				
The IBM Administ deployment temple	ration Runtime Expert for i is capable of ver ate editor. ⑦ Learn more	ifying multiple IBM i syster	ms using a deployme	nt template created or imported u
Groups:				
🐚 SelfTest ቕ	Systems to verify:	Licer ID	Paceword	Tomplato
-	System name	Oser ID	Fassword	Rete V
Operations •	Add Domovia Select		Duntimo pre	partias
	Add Remove Select	Deselect all	Runtime pro	perties
	Note: Only colocted systems are verified	d. Schodulo rupo oply if IP		Cohodula
	Note. Only selected systems are verned	a. Schedule fulls only if IB	MARE IS running.	Every day, 06
	Verify systems View previous	results		Passwords n

Figura 12 – ARE console: verify systems

¹ I sistemi remoti devono essere raggiungibili in rete dal sistema da cui si sta eseguendo ARE console. Se i sistemi non sono raggiungibili bisogna esportare il template (cfr. par. Esportazione di un template) e copiarlo sul sistema di destinazione ed eseguirlo direttamente da lì (cfr. par. Esecuzione di un template tramite QShell)



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(Console > Result				
(Console				
	System verification s	tatus:	0/1 complete	Refresh	
	System name	Template	Status	Result	
	83.221 116.228	Rete	2 Checking template vers	ion	

Figura 13 – ARE console: running verify

C	Console > Result							
C	Console							
5	System verification s	tatus:		1/1 complete	star in the second s	Refresh		
	System name	Template	Status	Result				
	85.221 116.228	Rete	Complete	0 error(s), 2	warning(s), 1 info	<u>o(s)</u>		
						Summary Report		
						Detailed Report		Export all report
	Rook Stop oll					XML Report		N.6
	Dack Stop all					Download Archive		view console serve
							-	
						Runtime Log		
						Remote runtime log	g	
						Remote stdout		
						Remote stderr		

Figura 14 – ARE console: system verification status

Se uno o più sistemi di destinazione da controllare non rispettano i prerequisiti minimi per eseguire il template si riceverà un messaggio "*Remote system does not meet requirement*". Dalla pagina con il riepilogo delle verifiche eseguite per sistema/template è possibile visualizzare i vari **report** disponibili (summary, detailed, XML, runtime log).

Console > Result > Summary						
Summary Report						
System name:	128					
Remote core version: 1.6.2	20					
Template: Rete						
User ID:						
Summary details 🕐 Learn	n more					
Plugin name	Attributes verified	Error	Warning	Info	Fix actions	
File Attribute Verifier	48	0	0	0	None	
Network Configuration	Checker 0	0	2	1	None	
Description						
	appears to be unavailable on the network. Cher	ck to make sure it is a valid address				
An unreachab	le DNS server can cause DNS lookup timeouts, which can d	legrade performance for applications that perform ma	ny network operations			
DNS Server An unreachab DNS Server An unreachab	le DNS server can cause DNS lookup timeouts, which can o appears to be unavailable on the network. Cher le DNS server can cause DNS lookup timeouts, which can o	legrade performance for applications that perform ma ck to make sure it is a valid address legrade performance for applications that perform ma	ny network operations			
DNS Server An unreachab DNS Server An unreachab Host name in i CFGTCP optic This naming ir	le DNS server can cause DNS lookup timeouts, which can c appears to be unavailable on the network. Che INS server can cause DNS lookup timeouts, which can c CFGTCP option 12 does not match System Name in the Ne n 12 system name= Network Attributes system an consistency is reported only for informational purposes	legrade performance for applications that perform ma k to make sure it is a valid address legrade performance for applications that perform ma twork Attributes me value=	ny network operations			
DNS Server An unreachab DNS Server An unreachab Host name in CFGTCP optic This naming in Vetwork Verifier	le DNS server can cause DNS lookup timeouts, which can o appears to be unavailable on the network. Che le DNS server can cause DNS lookup timeouts, which can o CFGTC Popton 12 does not match system Name in the OT 2 system name — Network Atthbudes system consistency is reported only for informational purposes 0	legrade performance for applications that perform ma k to make sure it is a valia defress legrade performance for applications that perform ma twork Attributes me value=	ny network operations	0	None	
DNS Server An unreachab DNS Server Host name in i CFGTCP optit This naming in Network Verifier Port Verifier	le DNS server can cause DNS lookup timeouts, which can appears to be unavailable on the network Che- le DNS server can cause DNS lookup timeouts, which can c CFGTCP option 12 does not match System Name in the be of 12 system name Network Atthbutes system na consistency is reported only for informational purposes 0 33	legrade performance for applications that perform ma ick to make sure it is a valid address legrade performance for applications that perform ma twork Attributes me value = 0 0 0	ny network operations ny network operations 0 0 0	0	None None	
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Summary Report				
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IBM Administration Runtime Expe	ert for i			
Version 1.6.20 Wed Jan 30 00:44:08 CET 2019				
Using template: file:template.jar (1.	.0.9)			
Number of runtime elements: 25 Running with user:				
User has *ALLOBJ authori	ty			
Running plugin Network Verifier				
Running plugin Network Configura	ation Checker			
Warning: DNS Server	appears to be un	available on the network. Check to mak	e sure it is a valid address	
Details: An unreachable DNS serve	er can cause DNS	lookup timeouts, which can degrade pe	rformance for applications that perfo	orm many network opera
Details: An unreachable DNS server	appears to be un er can cause DNS	lookup timeouts, which can degrade be	rformance for applications that perfo	orm many network opera
Info: Host name in CFGTCP option	n 12 does not mat	ch System Name in the Network Attribu	ites	
Details: CFGTCP option 12 system Details: This naming inconsistency	name= : is reported only	Network Attributes system name value= for informational purposes	1.10.1010	
Running plugin Port Verifier		r - r		
> Total number of port items che	ecked: 33			
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> Total number of SQL items che	ecked: 2			
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Administration Runtime Expert con	npleted with:			
Plugins run: 5 Itama abaalaadi 82				
Error: 0				
Error: 0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
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Figura 17 – detailed report

Δ



Administration Runtime Expert

Oppure è possibile scegliere la voce **Download archive** che scarica in un unico file zip tutti i report e i dati eventualmente raccolti nella modalità Collector mode.

Se invece si clicca sulla voce **Export all report files** viene scaricato un unico zip contenente oltre ai report di ARE anche i log di runtime e stdout e stderr.

Dall'interfaccia web si consiglia di utilizzare il summary report.

Ogni verifica effettuata da ARE può avere 3 stati di esito:

- Error
- Warning
- Info

Oltre ai 3 report ARE fornisce anche i seguenti log:

- Runtime log
- Remote runtime log
- Remote stdout
- Remote stderr

Ed anche cliccando su View console server logs:

Message log

Dal summary report alcuni dei problemi identificati possono essere risolti direttamente dall'interfaccia web di ARE cliccando su **Fix actions**.

L'XML report contiene tutte le informazioni dettagliate come il detailed report ed include anche le informazioni che ARE userà per eseguire le operazioni di risoluzione del problema cliccando su Fix actions.

ystem name: 9.5 roblems found by	.168.119 : Authority Verifier
Select Description	1
User C Expect	DESADM data authorities to object /QSYS.LIB/QDB2TX.LIB/DB2TX.PGM is not what we expect ad: *RWXDA Actual: *WXDA
Processed probl	ems
Result	Description

N.B. dopo aver corretto un problema cliccando su Fix actions il report di ARE NON viene aggiornato, in quanto si tratta di un report statico. Per vedere un report aggiornato bisogna eseguire nuovamente il template sul sistema di destinazione.

Runtime properties

Dalla Launch console di ARE cliccando sul pulsante **Runtime properties** si possono impostare alcune proprietà utilizzate durante la verifica dei sistemi.



Administration Runtime Expert

IBM A	dministra	tion Runtime E	Expert for i					
	Consol	e						
	The IBM Ad	ministration Puntimo	Export for i is capable of verifyin	a multiple IRM i systems u	sing a daplouma	nt tomplato creato	d or imported using the deploym	ont tomplato oditor (2) Loorn moro
	The IBM Ad	ministration Runtime i	Expert for this capable of verifyin	ig multiple ibivi i systems u	sing a deployme	ni tempiate create	ed of imported using the deploym	ent template editor. Tream more
	Groups:							
	🕒 SelfTe	est 👼 Systems to ve	erify:					
			System name	User ID	Password	Template		
	Operation	S 🔻	116.228	INISTA	•	Rete	Y	
		Add Re	emove Select all	Deselect all	Runtime pro	operties		
		Note: Only o	colocted systems are verified.	shedule runs only if IPMAP	E is supping		Sebedule	
		Note: Only s	selected systems are vernied. S	chequie runs only in IbiMAN	E is futitility.	676	Every day, 06:30	
		Verify sys	stems View previous resu	ults			21019 449, 00100	
	Launch d	eployment template	editor Import and view re	port				
					Figu	ra 10	ADE concolos y	orify systems
					rigui	a 19	ARE CONSOLE. V	erny systems
Console F	Runtime Propert	ies						*
Default us	ser ID		S.					
🖾 St	se default user I) and passwords (ems					
Number o	of systems to veri	fy at the same time: 10						
Logging le	evel: WARNIN	G 🔻						
Input prop	perties for the Ad	ministration Runtime Exper	t					
				4				
Properties Example:	s specified here a my.property.key	are provided as input to the =myValue	Administration Runtime Expert when it i	s run to verify each system using	the specified deployr	nent template. Each p	roperty should be in the format key=value	and only one property can be specified per line.
Fre Fre	able email notific	ations		7				
*SMTF	server name:	0 17 95 211						
Port:	2	5						
*From:		nia@doespert.com						
*To:		nna@ano a.t	(use commo to concerte ad-					
-10:			(use comma to separate addresses)					
Send o	on:	Error 🔻						
Send	d test email							
				ОК	Cancel			
						Fic	iura 20 – runtii	me nronerties

- Default user ID: consente di specificare un utente/password per ogni sistema oppure uno solo che verrà usato su tutti i sistemi
- **Logging level**: specifica il livello di log da registrare
- Input properties for the Administration Runtime Expert: cfr. par. Variabili sostitutive (replacement variables)
- Enable email notifications: consente di specificare i parametri affinché ARE invii un'email a uno o più destinatari con il risultato della verifica. Cliccando sul pulsante Send test email si può verificare che i parametri siano corretti.

www.ma	rkonetoo	ols.it



	Ad	ministration Runt	time Expert		
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	Greetings from ARE.	email notifications setup for IBN	••••••••••••••••••••••••••••••••••••••	**************************************	
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	Greetings from ARE. This is a test note to verify e Group: Default Smtp server name: Smtp server port: 2 From: <u>areusr@</u>	email notifications setup for IBM SMTPSERVER	**************	ntime Expert for i (ARE):	
	Greetings from ARE. This is a test note to verify e Group: Default Smtp server name: Smtp server port: 2 From: areusr@ To:	email notifications setup for IBN SMTPSERVER	••••••••••••••••••••••••••••••••••••••	ntime Expert for i (ARE):	

Figura 21 – esempio e-mail di test

Suggerimento per configurazione email

Se su IBM i è già stato configurato il servizio SMTP con abilitato il relay si può impostare come server SMTP l'IBM i stesso ovvero l'indirizzo LOOPBACK.

NOTA PER CONFIGURAZIONE SMTP

Per attivare il relay nel servizio SMTP di IBM i autorizzando l'indirizzo di loopback (127.0.0.1) si può procedere in questo modo:

- 1) CHGSMTPA ALWRLY(*LIST)
- 2) ADDSMTPLE TYPE(*ACCEPT) INTNETADR('127.0.0.1')
- 3) riavviare il servizio SMTP

Oppure (ma sconsigliato) per attivare indistintamente il relay:

- 1) CHGSMTPA ALWRLY(*ALL)
- 2) riavviare il servizio SMTP

Schedulazione della verifica

Cliccando sul link **Schedule** è possibile definire i parametri per la schedulazione automatica della verifica.

IBM A	Administration I	Runtime Expert for i					
	Console The IBM Administra Groups:	tion Runtime Expert for i is capable of verifyin	ig multiple IBM i syste	ems using a deployme	nt template created	d or imported using the deployment	template editor. ⑦ Learn more
	Serriest a	Systems to verify: System name	User ID	Password	Template		
	Operations 💌	✓ #1.224 (***).22*	INISTA		Rete	•	
		Add Remove Select all Note: Only selected systems are verified. So Verify systems View previous rest	Deselect all chedule runs only if IE	Runtime pro		Schedule Every day, 06:30	
	Launch deploym	ent template editor Import and view re	port				

Figura 22 – ARE console: scheduling

19	www.markonetools.it		MarkOne Tools	
[[Administration Runtime Expert		17/05/2021	
	Schedule Setting	×		
	^I © No schedule © Daily Every day at 6 ▼ : 30 ▼			
	- Weekly Monthly			
	Note: Only selected systems are verified. Schedule runs only if IBMARE is running. (?) Learn more			
	OK Cancel			
	Fig	ura 23 – schedul	e setting	

La schedulazione è fornita dal prodotto ARE e affinché venga eseguita deve essere attiva l'istanza HTTP IBMARE

Affinché la schedulazione possa funzionare è necessario digitare la password dell'utente di runtime o per ogni riga di template inserito nella griglia del gruppo oppure – se si specifica *DFTUSER - digitando utente e password nelle **Runtime properties**.

Problema noto: dopo aver impostato nella Launch console l'utente e password necessari ad eseguire nel processo schedulato i template, può capitare che chiudendo il browser e riaprendo la console ARE venga mostrato il messaggio "Passwords not set". In realtà la password è rimasta memorizzata e quindi il lavoro schedulato partirà regolarmente.

ATTENZIONE: se però lavorando sulla Launch console si modificano altre proprietà nel Runtime properties o gli orari di schedulazione, bisogna riscrivere la password altrimenti viene persa per davvero.

ATTENZIONE n. 2: se si chiude l'istanza HTTP di IBMARE la password memorizzata viene persa e quindi dopo aver riavviato l'istanza bisogna digitarla nuovamente nella Launch console.¹

Esecuzione di un template tramite QShell

Se non si ha la possibilità di eseguire un template tramite la console web di ARE, si può copiare il file jar del template sul sistema di destinazione ed eseguirlo tramite uno script da QShell.

Ricordiamo che il componente ARE core (necessario ad eseguire un template) è già compreso nel sistema operativo a partire da IBM i V5R4.

Quando si esegue un template tramite script da QShell, viene eseguito sotto il profilo utente con cui si è collegati, che deve possedere quindi tutte le autorizzazioni necessarie per poter eseguire i controlli. Si raccomanda quindi di utilizzare un profilo utente con autorizzazione speciale *ALLOBJ.

Gli script ARE non inviano un output direttamente alla console QShell, ma in un file di output. Eccezion fatta per l'opzione -h che mostra l'help dello script.

¹ RFE 133283: <u>https://www.ibm.com/developerworks/rfe/execute?use_case=viewRfe&CR_ID=133283</u>



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Tutti gli script sono nella cartella /QIBM/ProdData/OS/OSGi/healthcheck/bin/, quindi prima di eseguire lo script bisogna posizionarsi in questo percorso con il comando cd:

cd /QIBM/ProdData/OS/OSGi/healthcheck/bin/

oppure eseguire lo script qualificandolo con il percorso completo.

I template sono memorizzati nella cartella

/QIBM/UserData/are/workspace/templates. Ogni template ha una sottocartella il cui nome corrisponde al nome del template. All'interno di essa si trova il file jar [nome_template].jar.

Suggerimento:

Si possono creare un link simbolico a questi percorsi assegnando un nome più semplice. P.es.

ADDLNK OBJ('/QIBM/ProdData/OS/OSGi/healthcheck/bin') NEWLNK('/ARE-Script')

ADDLNK OBJ('/QIBM/UserData/are/workspace/templates') NEWLNK('/ARE-Templates')

in modo da utilizzare tale percorso più breve per qualificare lo script runARE.sh e i template.

Eseguendo lo script da QShell bisogna sempre specificare il percorso assoluto completo del file jar.

runARE.sh: esegue un template

runARE.sh -template template_name -outFile|zipFile outfile_name
[-elementPath element_path] [-outXML xml_outfile_name] [-outSummary
summary_outfile_name] [-property prop_key_value] [-version]

- -template template_name: il nome del template da eseguire ovvero il nome del file jar (percorso completo). E' un parametro obbligatorio.
- -outFile outfile_name: il nome del file di output del report di ARE. ARE produrrà
 3 file basati sul nome specificato in questo parametro: outfile_name, outfile name.summary.txt, outfile name.xml.
- -zipFile out_zip_file_name: il nome del file zip di output che conterrà tutti i report di ARE. L'uso di questo parametro attiva il Collector mode.
- Almeno uno dei due parametri -outFile o -zipFile deve essere specificato. Se viene specificato solo il nome del file vengono creati nella cartella di work corrente, altrimenti è possibile specificare il nome del file comprensivo del percorso.
- -outXML xml_outfile_name: il nome del file XML di output invece del nome standard outfile_name.xml. Parametro facoltativo da usare solo se specificato -outFile.
- -outSummary summary_outfile_name: il nome del file riepilogativo di output invece del nome standard outfile_name.summary.txt. Parametro facoltativo da usare solo se specificato -outFile.
- -property prop_key_and_value: specifica una proprietà Java che viene passata alla JVM. P.es. -property my.prop.key=propValue.
- -elementPath element_path: specifica eventuali jars che è necessario aggiungere al path. P.es. -elementPath /tmp/lib1.jar:/tmp/lib2.jar:/tmp/lib3.jar.
- -version: visualizza la versione di ARE core installata
- Exit code: lo script restituisce un exit code che aiuta a determinare l'esito.
 - **0**: nessun problema rilevato



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- 5: errore provando ad eseguire ARE core
- 6: errore durante l'avvio di ARE core
- 7: errore in un argomento non supportato o non riconosciuto
- 8: errore nell'avvio di un servizio definito come autostart
- 9: non trovato il prodotto o il sw necessario ad eseguire il controllo
- 10: non trovato il prodotto o il sw necessario ad eseguire ARE core
- 49: errore durante la chiusura di ARE core
- 50: uno o più problemi rilevati di tipo INFO
- 60: uno o più problemi rilevati di tipo WARNING
- 70: uno o più problemi rilevati di tipo ERROR
- 255: eccezione imprevista in ARE core
- Esempi:
 - /QIBM/ProdData/OS/OSGi/healthcheck/bin/runARE.sh -version
 - /QIBM/ProdData/OS/OSGi/healthcheck/bin/runARE.sh -template /tmp/MyTemplate1.jar -outFile verify.out
 - /QIBM/ProdData/OS/OSGi/healthcheck/bin/runARE.sh -template /tmp/MyTemplate1.jar -zipFile /my/dir/areReport.zip
- Esempio output sessione QShell

/arescript/runARE.sh -template /Aretemplates/rete/rete.jar	-zipfile	
/home/MK1Sample/arereport.zip		
JAVA_HOME set to /QOpenSys/QIBM/ProdData/JavaVM/jdk80/32bit		
IBM Administration Runtime Expert for i		
Version 1.6.20		
Wed May 15 23:48:25 CEST 2019		
Searching for elements		
Using template: file:/aretemplates/rete/rete.jar (1.0.10)		
Number of runtime elements: 25		
Running with user: AREUSR		
User AREUSR has *ALLOBJ authority		
Running plugin Network Verifier		
Running plugin Network Configuration Checker		
Running plugin Port Verifier		
Running plugin SQL Query Verifier		
Running plugin File Attribute Verifier		
\$ 🐥 🖄		

- N.B. Un template integrato non può essere eseguito con questo script (cfr. par. Creazione di un nuovo template). Bisogna eseguirlo come una normale applicazione Java. P.es.:
 - java -jar /tmp/MyTemplate1_Int.jar -outFile verify.out
 - Se nell'ambiente QShell non è già impostata la proprietà Java home corretta bisogna prima di eseguire il template impostare p.es.:

export JAVA_HOME=/QOpenSys/QIBM/ProdData/JavaVM/jdk50/32bit

arePlugin.sh: esegue un singolo plugin allo scopo principale di eseguire un test prima di integrarlo in un template.

arePlugin.sh -pluginName plugin_name -elementPath element_path [property prop_key_value]

areService.sh: esegue un singolo servizio allo scopo principale di eseguire un test prima di integrarlo in un template

areService.sh -serviceName service_name -elementPath element_path
[-property prop_key_value]



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areFix.sh: questo script viene utilizzato per correggere i problemi trovati durante il processo di verifica. Lo script elabora solo i problemi che possono essere corretti automaticamente.

areFix.sh -report xml_report_filename [-silent] [-elementPath
element_path] [-property prop_key_value]

runAreLauncher.sh e **areCommonCode.sh**: sono script usati solo da altri script.

Esportazione di un template

Dopo aver costruito un template è possibile esportare il file jar per copiarlo manualmente su un sistema di destinazione sui cui eseguirlo.

Dal Deployment Template Editor selezionare il template, quindi dal pulsante Actions scegliere la voce Export.

he Deployment Tem	plate Editor allows users to create
ustomize their temp	lates. Templates created, imported
onsole' button belov	v. 🥐 Learn more
Manage templates:	
Name	
ObjAuth	
PTF	
 Rete 	
 Utenti 	
ValoriSistema	
Create	Actions -
	Сору
Launch console	Delete
Eddition controlle	Edit
	Rename
	Test
	View log

Figura 24 – esportazione di un template

Nota per la protezione del template

Il template contiene molte informazioni vitali e critiche relative alla configurazione e gestione sicurezza del sistema IBM i. Per questo i file con la configurazione del template andrebbero memorizzati su IFS in una cartella (per default /QIBM/UserData/are/workspace/templates) con autorizzazione *PUBLIC di tipo *EXCLUDE.

Quando si copia manualmente un template da un sistema ad un altro bisogna porre attenzione a copiarlo in una cartella con adeguate autorizzazioni.



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Template predefiniti

I templates descritti in questo paragrafo vengono forniti già pronti per essere utilizzati, come parte del sistema operativo.

OS based templates

/QIBM/ProdData/OS/OSGi/templates/bin/areVerify.sh

Si può eseguire da QShell. Usage: areVerify.sh <parameter> Valid parameter: -network: Verify network configuration and status -iasserver server name: Verify the 'server name' IAS server -precheck: Verify software products that are necessary to use the IBM Application Runtime Expert for i -hostservers: Verify the host servers are active -storage: Damage Object Detection Disponibile da IBM i V5R4 (PTF SF99114 liv. 33) e IBM i 6.1 (SF99115 liv. 27) e IBM i 7.1 (SF99368 liv. 15).

Per esempio:

/QIBM/ProdData/OS/OSGi/templates/bin/areVerify.sh -network

Precheck

Lo script areVerify.sh -precheck produce un output simile a:





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```
CPC2206: È stata modificata la proprietà dell'oggetto QHCRJLUS in QTEMP di tipo *USRSPC.
CPIAC55: Elaborazione verifica avviata.
CPI35A9: Convalida requisiti PTF completata per il prodotto 5770JV1.
CPC2206: È stata modificata la proprietà dell'oggetto QHCRJLUS in QTEMP di tipo *USRSPC.
CPC2206: È stata modificata la proprietà dell'oggetto HCRPRECHK in QTEMP di tipo *USRSPC.
CPC2206: È stata modificata la proprietà dell'oggetto QZSHSYSTEM in QTEMP di tipo *USRSPC.
S
```

Verifica host servers

>	areVerify.sh -hostservers		
	JAVA HOME set to /QOpenSys/QIBM/ProdData/Java	VM/jdk80/32bit	
	Checking host servers		
	Successfully connected to server application:	as-file	
	Successfully connected to server application:	as-netprt	
	Successfully connected to server application:	as-rmtcmd	
	Successfully connected to server application:	as-dtaq	
	Successfully connected to server application:	as-database	
	Successfully connected to server application:	as-ddm	
	Successfully connected to server application:	as-central	
	Successfully connected to server application:	as-signon	
	Result = true		
	\$		

Esempio 2 - areVerify.sh -hostservers

Esempio 1 - areVerify.sh -precheck

Controllo oggetti danneggiati

Controllo di tutte le unità

/QIBM/ProdData/OS/OSGi/templates/bin/areVerify.sh -storage diskUnits=*ALL

Controllo solo di alcune unità:

/QIBM/ProdData/OS/OSGi/templates/bin/areVerify.sh -storage diskUnits=1,2,4

Durante l'esecuzione di questa verifica verranno sottomessi diversi job QSCDIR* nel sottosistema QCTL.

II report generato sarà: /tmp/areDodReport.txt.

Questo controllo verifica solo il tipo di danneggiamento *data check*, non tutte le possibili cause di oggetti danneggiati.

Ovvero viene eseguito un controllo di ogni settore del disco per individuare *data section* che contengono un *data check*. Un data check si verifica quando la scrittura dei dati fallisce per diversi motivi.

Una volta che viene individuato un data check in un settore del disco il tool di verifica cerca di risalire all'oggetto associato a quel settore.





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Figura 25 – controllo oggetti danneggiati

E' disponibile in 7.1 con la PTF SI50374 (inclusa nel gruppo PTF HTTP SF99368 liv. 21), in 6.1 con la PTF SI45499.

Per eseguire la verifica bisogna essere collegati con un profilo di classe *SECOFR oppure con autorizzazione speciale *ALLOBJ.

Ulteriori dettagli sui parametri per eseguire la verifica:

- diskUnits=<comma separated numbers>: specifica quali unità controllare. Per esempio diskUnits=1,2,4 oppure diskUnits=*ALL.
- checkSegment=<hexValue>: specifica quale segmento specifico di disco controllare

Uno dei due parametri diskUnits o checkSegment deve essere obbligatoriamente specificato. I parametri seguenti sono facoltativi.

- skipDirDump=<bool>: Se viene specificato skipDirDump=true il directory dump non viene eseguito.
- dbName=<temp DB name for dirdump data>: specifica il nome della libreria temporanea dove vengono memorizzati i dati del directory dump. Il valore di default è QTM-PAREDDD
- dirType=[P|I|T]: identifica il tipo di directory dump. T = temporary, P = sysbase permanent e user ASPs, I = independent ASP
- IASP=<number>: identifica il numero di IASP se è stato specificato il parametro dirType=I.
- jobQueue=<name>, jobQueueLib=<name>: specificano il nome e libreria della coda lavori che verrà usata per eseguire i job di controllo
- jobCount=<number>: specifica il numero di lavori che saranno utilizzati per eseguire il controllo. Valore di default è 30.
- skipPageVerification=<bool>: specifica se verrà eseguita la fase di Page Verification



- threadCount=<number>: specifica il conteggio dei thread per la fase di Page Verification. Deve essere un numero compreso tra 1 e 100
- op=[check|clear]: check = vengono controllati i segmenti in errore. Clear = vengono puliti i flag di errore nelle porzioni libere del disco. Se si specifica questa opzione, viene controllata solo la prima unità disco.
- statusUpdateInterval=<number>: specifica l'intervallo in minuti di aggiornamento dello stato. Deve essere un numero tra 1 e 1440. Valore di default: 10.
- outputFile=<IFSFileName>: percorso e nome del file di log. Valore di default: /tmp/areDodReport.txt.
- confirm=<boolean>: Se true non viene visualizzata la richiesta di conferma di avvio del controllo. Valore di default: false
- version: visualizza la versione del tool

Annotazioni

- Il job non deve avere CCSID 65535
- Il profilo utente usato dal job che esegue la JVM non deve avere CCSID 65535
- La fase di Directory Dump crea una libreria temporanea la cui dimensione è circa 5/1000 dello spazio totale utilizzato. La libreria di default è QTMPAREDDD e non viene cancellata automaticamente

Esempi

Controllare l'esistenza e lo stato attivo di un profilo utente

In questo esempio vediamo come controllare su un sistema se esiste un profilo utente e se è abilitato.

1. Creare un template



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2. Espandere la sezione System Environment > User IDs

Home > Plugin Selection	on and Customization
Plugin Selection	on and Customization
Select and Customize	Plugins For Template
Template name: Utenti	⑦ Learn more
Files and	l Directories
Software	Requirements
Network	
System	Environment
	System Values and Network Attributes
	Verify the settings of system values and network attributes.
	Environment Variables
	Verify the existence and values of system-wide environment variables.
- 2	User IDs
	Verify attributes of IBM i user IDs.
	Scripts and Commands
	Specify scripts and commands to run and verify on the remote system.

 Assegnare un Collection name. Dall'elenco utenti nella combolist a sinistra selezionare uno o più utenti e cliccare sul pulsante > per aggiungerli nell'elenco a destra.
 Nella sezione Attributes to verify, cliccare il pulsante Customize





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 Dall'elenco a destra degli Attributes to verify cliccare sul pulsante << per rimuoverli tutti. Dall'elenco a sinistra Attributes available selezionare Status e cliccare sul pulsante >.

Attributes to verify Status
Status
ır

6. A questo punto nel plugin User IDs si troverà in elenco la collezione appena creata

IBM Administration Runtime Expert for i
Home > Plugin Selection and Customization > User IDs
User IDs
Create Collections of User IDs
User IDs to collect information ⑦ Learn more
Collection name
UtentiSched
Add Remove Update Edit XML Test
OK Cancel

Fare clic su OK

7. Eseguire il build del template

Per eseguire il template cfr. par. Esecuzione di un template

Dopo la verifica ARE può consentire anche di risolvere il problema: per esempio se il profilo utente è disabilitato, si può scegliere l'opzione per riabilitarlo cliccando sulla voce Fix actions.

Dalla finestra con l'esito della verifica scegliere di visualizzare il summary report

www.mar	konetools	s.it
	1011010010	



Figura 27

Console > Result				
Console				
System verification	status:		1/1 complete	Refresh
System name	Template	e Status	Result	
83.221.116.228	Utenti	Complete	🔕 1 error(s), 0 w	varning(s), 0 info(s)
				Summary Report
				Detailed Report
Rock Stop	JI			XML Report
Dack Stop a				Download Archive
				Runtime Log
				Remote runtime log
				Remote stdout

Viene visualizzato il summary report. Espandere la voce **User Profile Verifier**, dove viene mostrato quale dei profili utenti da controllare è in stato *DISABLED.

IBM A	dministration Runtime Expert for i				
	Console > Result > Summary Report Summary Report				
	System name: Remote core version: 1.6.20 Template: Utenti User ID:				
	Summary details (7) Learn more	Error	Warning	Info	Fix actions
		1	0	0	Fix actions (1)
	Description Value for the field Status of user profile Comparison Actual value for Status is "DISABLED				

E' possibile cliccare sul link **Fix actions** per far eseguire ad ARE la risoluzione del problema.



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M	Administration	Runtime	Expe	ert for i	
				E: D 11	

Console > Result > Summary Report > Fix Problems							
Fix Problems							
System name: Problems found by: User Profile Verifier							
Select Description							
Value for the field Status of user profile does not match its expected value Sexpected Status to equal *ENABLED Actual value for Status is *DISABLED	Je						
Select all Deselect all							
Result	Description						
		This table is empty.					
Fix Back							

Dall'elenco dei problemi risolvibili da ARE selezionare quelli per i quali si desidera eseguire l'azione correttiva, quindi cliccare sul pulsante Fix. Α

Al termine viene mostrato l'esito delle azioni corrett
--

RM Administration Puntimo Export fo

00113010 - 110.	ult > Summary Report > Fix Problems				
Fix Problems					
System name Problems fou	:				
Select Descr	ption				
		This table is			
Select all	Deselect all				
Processed p	roblems				
Result	Description				
	Value for the field Status of user profile does not match its expected value Expected Status to equal *ENABLED				

Figura 29

Figura 28



Controllare lo stato di aggiornamento delle PTF¹

Ipotizziamo di avere su un sistema IBM i centrale (CS) i cataloghi delle immagini delle PTF aggiornate. Anche di più release (7.1, 7.2 e 7.3 per es.).

Utilizzando un template ARE si può controllare che una collezione di sistemi periferici (ES) sia aggiornato allo stesso livello di PTF presenti sul sistema centrale.

¹ Template già pronto all'uso: PTF.jar



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Oppure si può creare un template che controlla un singolo sistema confrontando lo stato di aggiornamento delle PTF su PSP website.

Una volta confrontato lo stato di aggiornamento del sistema è possibile intraprendere l'azione correttiva e installare le PTF mancanti.

Per l'installazione delle PTF bisogna preventivamente creare il device QIBMAREPTF.

I savf delle PTF vengono creati in QGPL con nome Q<ptf id> o Q<group ptf id>. I savf delle PTF specifiche non vengono cancellati dopo l'installazione, invece i savf delle PTF di gruppo vengono cancellati automaticamente dopo l'installazione.

Per controllare lo stato di aggiornamento delle PTF bisogna utilizzare il plugin PTFs nella sezione Software requirements

IBM Administration Runtime Expert for i	
Home > Plugin Selection and Customization	
Plugin Selection and Customization	
Select and Customize Plugins For Template	
Template name: PTF ⑦ Learn more	
Files and Directories	
Software Requirements	
IBM i Products	
Verify the install status and state of IBM i products.	
PTFs	
Verify the existence and status of individual and group PTFs.	
	Figura

Per verificare lo stato di aggiornamento delle PTF confrontando con le PTF disponibili sul sito IBM cliccare sul pulsante Add e scegliere Groups from Preventive Service Planning (PSP)



Figura 32

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Home > Plugin Selection and	Customization > PTFs	
PTFs		
Create Collections of PTFs	to be Run and Verifie	əd
PTF verifier collection information	ation ⑦ Learn more.	
Collection name		Verification against
Click the	e Add button to add a	collection.
Add Verification against: Groups from Preven PTFs or groups insta A list of specific PTF OK	tive Service Planning alled on central system s or groups	(PSP) n

Dall'elenco delle PTF da controllare selezionare All PTF group e assegnare un nome alla collezione.

Preventive Service Planning (PSP) Select PTF groups to verify on target system against IBM PSI	P. Internet connection requ	ired.		
All PTF groups:				
Select PTF groups to verify:		PTE groups to vorify	2 Loam more	
PTF groupDescription SF99255 IBM OPEN SOURCE SOLUTIONS FOR I SF992562 CONTENT MANAGER ONDEMAND FOR I - 57 SF99333 DB2 WEB QUERY FOR I V2.2.0 SF994733 DB2 WEB QUERY FOR I V2.2.1 SF995703 DB2 FOR IBM I SF99773 DB2 FOR IBM I SF99724 IBM HTTP SERVER FOR I SF99725 PERFORMANCE TOOLS SF99726 ROLP RECOVERY SOLUTIONS SF99727 TECHNOLOGY REFRESH SF99728 GROUP SECURITY SF99729 GROUP HIPER SF99730 ULL PTF GROUPS EXCEPT CUMULATIVE PT SF99723 BACKUP RECOVERY SOLUTIONS SF99724 BACKUP RECOVERY SOLUTIONS SF99727 GROUP SECURITY SF99730 CUMULATIVE PTF PACKAGE C8242730 SF99731 ALL PTF GROUPS EXCEPT CUMULATIVE PT SF99731 ALL PTF GROUPS EXCEPT CUMULATIVE PT	770-RD1 7.3	PTF group	Description	Ad

Dopo aver eseguito la verifica sul sistema visualizzare il summary report. Espandere la voce PTF verifier per visualizzare quali gruppi di PTF risultano da aggiornare.



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17/05/2021

Administ	ration Runtime Expert for i					
Conceler	Result > Summary Papart					
Console >	Nesur > Summary Report					
Summ	ary Report					
System n	ame:					
Remote c	core version: 1.6.20					
Template	: PTF					
User ID:	NETA					
Summary	details (?) Learn more		-			-
Plugin na CO PTF	Verifier 41		7	o vvarning	0	Fix actions
	Description					- 00
	Group PTF SF99433 - SF99433 730	Db2 Web Query for i V2.2.1 lev	el does not meet group level. Group le	vel: 5 Current level: 4		
	Group PTF SF99703 - SF99703 730	DB2 for IBM i level does not me	eet group level. Group level: 13 Curren	t level: 12		
	Sroup PTF SF99722 - SF99722 730	IBM HTTP Server for i level do	es not meet group level. Group level: 1	7 Current level: 16		
	Group PTF SF99724 - SF99724 730	Backup Recovery Solutions lev	el does not meet group level. Group le	vel: 26 Current level: 23		
	Oroup PTF SF99725 - SF99725 730 .	Java level does not meet group	e level. Group level: 11 Current level: 1	0		
	Oroup PTF SF99728 - SF99728 730	Group Security level does not r	meet group level. Group level: 38 Curre	ent level: 36		
	Sroup PTF SF99729 - SF99729 730	Group Hiper level does not me	et group level. Group level: 76 Current	level: 72		
Back						
					Fi	aura 33
						guiù 33
	mercoledi 30/01/2019 19:42					
	mercoledi 30/01/2019 19:42					
	APE potification for group [5	SelfTect				
	ARE notification for group [S	SelfTest]				
	ARE notification for group [S	SelfTest]				
nessaggio d	ARE notification for group [S	SelfTest]				
nessaggio o	ARE notification for group [S	SelfTest] o.				
nessaggio d	ARE notification for group [S contiene interruzioni di riga in eccesso	SelfTest] o. (5 KB)				
nessaggio d	ARE notification for group [S contiene interruzioni di riga in eccesso arercReport.zip	SelfTest] o. (5 KB)				
nessaggio d essaggio	ARE notification for group [S contiene interruzioni di riga in eccesso arercReport.zip	SelfTest] o. (5 KB)				
nessaggio d essaggio	ARE notification for group [S contiene interruzioni di riga in eccesso arercReport.zip .arercReport.zip	SelfTest] o. (5 KB)				
essaggio d essaggio is a comp lies to the	ARE notification for group [S contiene interruzioni di riga in eccesso arercReport.zip] .arercReport.zip] .outer generated note. e note are not monitored.	SelfTest] o. (5 KB)	*****			
essaggio d essaggio is a comp lies to the	ARE notification for group [S contiene interruzioni di riga in eccesso arercReport.zip i puter generated note. e note are not monitored.	SelfTest] o. (5 KB)				
essaggio o essaggio is is a comp lies to the	ARE notification for group [S contiene interruzioni di riga in eccesso arercReport.zip] .arercReport.zip] .puter generated note. e note are not monitored.	SelfTest] o. (5 KB)				
etings fro	ARE notification for group [S contiene interruzioni di riga in eccesso arercReport.zip puter generated note. e note are not monitored. m ARE. pelow is gathered from ARE run of	SelfTest] o. (5 KB)	GROUP for group [SelfTest]			
etings fro	ARE notification for group [S contiene interruzioni di riga in eccesso arercReport.zip puter generated note. e note are not monitored. m ARE. pelow is gathered from ARE run o	SelfTest] o. (5 KB)	GROUP for group [SelfTest]			
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Figura 34 – Esempio email report di verifica

Controllare le autorizzazioni sugli oggetti In questo esempio controlliamo le autorizzazioni su alcuni oggetti 1. Creare un template



Administration Runtime Expert

2. Espandere la sezione Files and Directories e scegliere File and Directory Authorties

IBM	Administration Rur	time Expert for i			
	Home > Plugin Selection	n and Customization			
	Plugin Selectio	n and Customization			
	Select and Customize P	lugins For Template			
	Template name: ObjAut	h 🕐 Learn more			
	Files and	Directories			
	<u>_</u>	File and Directory Attributes	🥒 Edit	🗙 Remove	② Learn more
		Verify attributes such as existence, creation date, size, and more, for files and directories in IFS and objects in the L	ibrary file sy	stem.	
		File and Directory Authorities	🥖 Edit	💢 Remove	 Learn more
		Verify authorities such as owner, authorization list, and private authorities for files and directories in IFS and objects	in the Librar	ry file system.	
		Configuration Files	🥒 Edit	💢 Remove	② Learn more
		Verify the contents of configuration files.			
	Ç.	Resource Collector	🥒 Edit	💢 Remove	 Learn more
		Specify files, libraries, objects and savf files to include into a archive file to allow additional detailed verification.			

3. Cliccare sul pulsante Add libraries

IBM A	dministration Runtime Expert for i			
	Hame & Diugia Selection and Customination & File	and Dire	etem. Authorities	
	Home > Plugin Selection and Customization > File	and Dire	ectory Authorities	
	File and Directory Authorities			
	Create Collections of Files. Directories. and Lil	braries		
	, , ,	~		
	Files, directories, and libraries to collect informatio	n (?)	Learn more	
	Collection name		Data authority	Object authority
		Click o	one of the following	buttons to add a
	Add files/directories Add libraries			
	OK Canaal			
	OK Cancer			
_		_		



Administration Runtime Expert

4. Selezionare la libreria (p.es. QUSRSYS) e il o i file da controllare (p.es. QAEZDISK) e gli attributi da controllare (p.es. Object authority)

Home > Plugin Selection and Customization	in > File and Directory Authorities > Select Library Obje	cts
Select Library Objects		
Select Objects in Libraries to Include in	the Collection	
Library view	ASP: /QSYS.LIB V 🗲 Collection only view	Legend
Specify library		The entire library is selected
		Only the library is selected
💽 🔄 🚞 QATMHINST. FILE	*	The library and/or some objects within it are selected
💽 📄 🚞 QATMHINSTA.FILE		Library is not selected
📥 🖃 📰 QATMHINSTC.FILE		
💽 🔄 🚞 QATMHTTP.FILE		Collection name: HTTP_Instance
🛨 🔄 🚞 QATMHTTPA.FILE		
💽 📄 🚞 QATMIFCLST.FILE		Attributes (?) Learn more
🔹 🔄 🚞 QATMIP6ADR.FILE		Data authority
🛨 🔄 🚞 QATMIP6IFC.FILE		🖌 Object authority 🔺
🔹 🔄 🚞 QATMLPD.FILE		Owner
		Primary group
QATMRXC.FILE		Authorization list
QATMSCLTUS.FILE		
🖬 🔲 🚞 QATMSMTLA.FILE		Filters: (?) Learn more
QATMSMTP.FILE		Include:
QATMSMTPA.FILE		
		Exclude:
		Example: *.USRPRF; *USXA* Advan

5. Dopo aver eseguito il template viene evidenziato se gli oggetti hanno autorizzazioni diverse da quelle che erano impostate sugli oggetti al momento della costruzione del template

dministration Runt	ime Expert for i			
Console > Result > Summ	ary Report			
Summary Repor	t			
System name:	6.228			
Remote core version: 1	6.20			
Template: ObjAuth				
Liser ID:				
Oser ID.				
Summany details 🧿 Le	arn more			
Plugin name At	tributes verified	Error	Warning	Info Fix action
Authority Verifier 6		2	0	0 🦾 Fix acti
Be a sector of the sec				
Expected: 7	NONE Actual: "OBJOPR			
Deals				
DACK				





Admini	stration Runtime Expert for i
Consol	le > Result > Summary Report > Fix Problems
Fix F	Problems
Syster Proble	n name: ims found by: Authority Verifier
Select	t Description
	User *PUBLIC object authorities to /QSYS.LIB/QUSRSYS.LIB/QAEZDISK.FILE are not what is expected Expected: *NONE Actual: *OBJOPR
	User *PUBLIC object authorities to /QSYS.LIB/QUSRSYS.LIB/QAEZDISK.FILE/QCURRENT.MBR are not what is expected Expected: *NONE Actual: *OBJOPR
Sele	ct all Deselect all
 Proc 	essed problems
Resul	τ Description This table is empty.
Fix	Back

Controllare i valori di sistema

Creare un template e scegliere il plugin System values and Network attributes dalla sezione System Environment

IBM Administration Run	time Expert for i		
Home > Plugin Selection	and Customization		
Plugin Selectio	n and Customization		
Select and Customize P	ugins For Template		
Template name: Valori S	istema 🕐 Learn more		
Files and	Directories		
Software	Requirements		
Network			
System E	nvironment		
	System Values and Network Attributes Verify the settings of system values and net	work attributes.	
	Environment Variables		
E	Verify the existence and values of system-w	vide environment variables.	I
E E			Figura 35



17/05/2021



Administration Runtime Expert

Dall'elenco a sinistra System values and network attributes selezionare i valori da controllare e cliccare sul pulsante >.

Per ogni valore scelto cliccando sul link **Edit** è possibile definire il tipo di controllo da effettuare:

Home > Plugin Selection and Customization	on > System Values and Network Attributes
System Values and Netwo	ork Attributes
Select System Values or Network Attri	ibutes to Verify
System values and network attributes	② Learn more Values to verify ③ Learn more
	QPFRADJ Edi
ALRDFTFP	
ALRLOGSTS	>
	<
ALRSTS	
ALWADDCLU	>>
ALWANTINET	<<
ALWVRTAPPN	
DEMACC	
Previous Next	1/13
OK Cancel	
OK Cancel	F
OK Cancel	000 000 F 400 F
OK Cancel	50 50 F
OK Cancel	000 000 F
OK Cancel	00 00 F
OK Cancel Expected Value RADJ eport only erify this value ① Learn more te type: String * Comparison: Equals	F Description
OK Cancel	▼ Description Equals
OK Cancel	Description Equals The actual value must equal the expected value
OK Cancel	✓ Description Equals The actual value must equal the expected value.
OK Cancel	Description Equals The actual value must equal the expected value. Examples Actual value 2 conservices 5 constrained on the 2 constrain
OK Cancel Expected Value RADJ eport only erify this value Image: Comparison: Equals e type: String * Comparison: Equals ected value: String *	Description Equals The actual value must equal the expected value. Examples Actual value Comparison Expected value Resu mystring Equals mystring True
OK Cancel Expected Value RADJ eport only erify this value Image: Comparison: Equals e type: String * Comparison: Equals ected value: Image: Comparison:	Description Equals The actual value must equal the expected value. Examples Actual value Comparison Expected value Resu mystring Equals mystring True mystring Equals somestring False
OK Cancel Expected Value RADJ eport only erify this value ① Learn more e type: String ▼ Comparison: Equals ected value:	Description Equals The actual value must equal the expected value. Examples Actual value Comparison Expected value Resumptring Equals mystring True mystring Equals somestring False
OK Cancel Expected Value RADJ eport only erify this value ⑦ Learn more te type: String ▼ Comparison: Equals ected value: Comparison:	Description Equals The actual value must equal the expected value. Examples Actual value Comparison Expected value Resu mystring Equals mystring True mystring Equals somestring False
OK Cancel Expected Value RADJ eport only erify this value ② Learn more te type: String * Comparison: Equals ected value: Comparison:	Description Equals The actual value must equal the expected value. Examples Actual value Comparison Expected value Resumptring Equals mystring Equals somestring False
OK Cancel Expected Value RADJ erify this value ② Learn more te type: String * Comparison: Equals ected value: String *	 Description Equals The actual value must equal the expected value. Examples Actual value Comparison Expected value Resumptring Equals mystring True mystring Equals somestring False
OK Cancel Expected Value RADJ eport only erify this value Image: Learn more e type: String * Comparison: Equals ected value: Other string * erity: Error Match case	▼ Description Equals The actual value must equal the expected value. Examples Actual value Comparison Expected value Resumpting Equals mystring True mystring Equals somestring False

Dopo aver eseguito la verifica sul sistema dal summary report viene evidenziato se il valore di sistema non corrisponde a quanto desiderato



Administration Runtime Expert IBM Administration Runtime Expert for i Console > Result > Summary Report Summary Report System name: Remote core version: 1620 Template: ValoriSistema User ID: Summary details (?) Learn more. Plugin name Attributes verified System Value Verifier 1 Description System value "QPFRADJ" does not match its expected value Expected QPFRADJ to equal 1 Actual value for QPFRADJ is 0 Back Figura 38

SQL Query Verifier plugin

ARE ha la possibilità di accedere al database utilizzando SQL. Il plugin SQL Query Verifier può verificare il contenuto delle informazioni nel database eseguendo istruzioni SQL.

Il risultato dell'istruzione SQL può essere verificato in base al numero di record restituito o al contenuto dei record restituiti. L'intero resultset può essere allegato nel report ARE.

Nell'esempio in Figura 39 viene eseguita una query per restituire l'elenco delle interfacce di rete attive. Si desidera verificare che le interfacce attive siano 4 ovvero che la query restituisca 4 record. Inoltre si verifica che tra i risultati della guery la colonna Internet_Address contenga gli indirizzi specificati in Expected value. Se non vengono trovati guesti indirizzi nel risultato la verifica avrà esito Error (come specificato nella colonna Error).

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	tration Runtime Expe	rt for i						
Home >	Plugin Selection and Customiza	ation > SQL Quer	y Verifier > Customize SC	2L Query Verifier				
Custo	omize SQL Query Ve	erifier						
Specify	the SQL Query and Verificati	ions Details						
Collect	ion name: Interfacce Rete							
6 .1								
Exa	ample: SELECT * FROM myDB.	.myTable						
Print th	e result set of SQL querv to th	he verification re	eport: Yes 🔻					
_								
(*)								
Chi	eck the number of records ret	turned for the SC	QL query 🕜 Learn more	2				
Ch ₁ Ex	eck the number of records ret spect value: 4	turned for the SC	QL query 🕜 Learn more	ə				
Ch Ex Co	eck the number of records ret spect value: 4 omparison: Equals	turned for the SC	QL query (?) Learn more	<u>3</u>				
✓ Ch Ex Co Se	eck the number of records ret spect value: 4 pomparison: Equals everity: Error •	turned for the SC	QL query (?) Learn more	3				
Ch Ex Cc Se Columr	eck the number of records ret spect value: 4 comparison: Equals everity: Error • n value verification conditions	vurned for the SC ▼ © Learn more	ධL query ⑦ Learn more	3				
Ch Ex Cc Se Columr	eck the number of records ret spect value: 4 bomparison: Equals everity: Error • n value verification conditions Column name	verned for the SC vernet for th	2L query ⑦ Learn more	2 Comparison	Result typ	pe Match case	e Severity	Description
Ch Ex Cc Se Columr	eck the number of records ret spect value: 4 mparison: Equals verity: Error • n value verification conditions Column name le id	v v v v v v v v v v v v v v v v v v v	2L query ⑦ Learn more	Comparison Equals	Result ty	pe Match case False	e Severity Error	Description All ids should equal to 6
Ch Ex Cc Se Column Examp Examp	eck the number of records ret (pect value: 4 omparison: Equals everity: Error • n value verification conditions Column name le id le name INTERVET ADDRESS	Check class Numeric String	2L query ⑦ Learn more	Comparison Equals Contains substring	Result ty: All Any	pe Match case False True	Severity Error Error	Description All ids should equal to 6 Names returned should contain 'Jo
Ch Ex Cc Se Columr Examp Examp	eck the number of records ret (pect value: 4 omparison: Equals everity: Error • n value verification conditions Column name Column name ile id ile name INTERNET_ADDRESS	Check class Numeric String String	2L query ⑦ Learn more	Comparison Equals Contains substring Equals	Result ty: All Any Any •	pe Match case False True False ▼	e Severity Error Error Error	Description All ids should equal to 6 Names returned should contain Ve interfaccia pubblica
Ch Ex Cc Se Columr Examp. Examp. Z	eck the number of records ret (pect value: 4 comparison: Equals everity: Error • n value verification conditions Column name le id le name INTERNET_ADDRESS INTERNET_ADDRESS	vurned for the SC v v check class Numeric String String v String v	2L query ⑦ Learn more	Comparison Equals Contains substring Equals • Equals •	Result typ All Any Any • Any •	False ▼ False ▼ False ▼ False ▼	e Severity Error Error Error Error	Description All ids should equal to 6 Names returned should contain 'Je Interfaccia pubblica Interfaccia MPLS
Ch Ex Cc Se Columr Examp. Examp. C X Columr	eck the number of records ret (pect value: 4 omparison: Equals everity: Error • n value verification conditions Column name le id le name INTERNET_ADDRESS INTERNET_ADDRESS Remove	The second	2L query ⑦ Learn more	Comparison Equals Contains substring Equals v Equals v	Result ty; All Any Any ▼ Any ▼	Pe Match case False True False ▼ False ▼	e Severity Error Error Error Error	Description All ids should equal to 6 Names returned should contain 'Ju' interfaccia pubblica interfaccia MPLS
Ch Ex Cc Se Columr Examp Examp Columr Examp Add	eck the number of records ret (spect value: 4 omparison: Equals everity: Error • n value verification conditions Column name le id ile name INTERNET_ADDRESS INTERNET_ADDRESS Remove Cancel	v v v v v v v v v v v v v v v v v v v	2L query ⑦ Learn more	Comparison Equals Contains substring Equals ¥ Equals ¥	Result ty All Any Any	Pe Match case False True False ▼ False ▼	e Severity Error Error Error Error	Description All ids should equal to 6 Names returned should contain Ju (interfaccia pubblica) (interfaccia MPLS)

Le istruzioni SQL consentite sono solo di tipo SELECT.

L'opzione **Print the result set of SQL query to the verification report** è per default impostata a Yes e fa in modo che l'intero risultato dell'istruzione select sia inserita nel report di ARE.

Il controllo più semplice sul risultato dell'istruzione select è offerto selezionando l'opzione **Check the number of records returned for the SQL query** e quindi compilando i parametri Expect value, Comparison e Severity.

Print the result set of SQL query to the verification report:	Yes	~
---	-----	---

Check the num	iber of records i	returned for	r the SQL qu	iery 🕐 Learn r	nore
Expect value:					
Comparison:	Equals	*			
Severity:	Error 💙				
					Figura 40

Controlli più complessi possono essere effettuati sul contenuto dei record restituiti:

Column name	Check class	Expected value	Comparison	Result ty	e Match cas	e Severity	Description
Example id	Numeric	6	Equals	All	False	Error	All ids should equal to 6
xample name	String	John	Contains substring	Any	True	Error	Names returned should contain 'Joh
~	String V		Fouals	Y Any Y	True	Frror	~
Add Remove							
Add Remove							
Add Remove Add a new column check							Figura 41
Add Remove Add a new column check					y.		Figura 41
Add Remove Add a new column check		¥ E	H H H				Figura 41

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Variabili sostitutive (replacement variables)

Le replacement variables (o path variables) possono essere usate nei template per sostituire valori statici con valori dinamici che vengono sostituiti a runtime.

N.B. tutte le variabili sono di tipo globale e non specifiche di un singolo plug-in

Vediamo un esempio di utilizzo di una variabile per un percorso IFS. Nel plugin **File and Directory Authorities** clicchiamo sulla voce **Edit**. Dopo aver creato una collezione selezionando un percorso di IFS clicchiamo sul pulsante **Advanced**. Viene mostrata questa finestra di dialogo che consente di definire la variabile.

Advanced		8
Follow symbolic lin	ks 💿 Learn more	
Configure path varial	ble 🕐 Learn more	
Exmaple: /www/_\${var Exmaple: /www/INTAP	Name}\$_ PSVR/conf/_\${varName}\$properti	es
PatternThis table is empty.AddRemove]	
(OK Cancel	

Figura 42

Il segnaposto per la variabile ha la sintassi $\${nomevariabile}$.

- A runtime il valore da sostituire alla variabile può essere assegnato:
- Tramite la proprietà di input: dalla console di esecuzione dei template tramite il pulsante Runtime properties. Nella casella di testo "Input properties" digitare le coppie nomevariabile=valore.

Console Runtime Properties Number of systems to verify at the same time: 10 Logging level: INFO Input properties for the Application Runtime Expert: Server.name=MYSERVER			
Number of systems to verify at the same time: 10 Logging level: INFO Input properties for the Application Runtime Expert: Server.name=MYSERVER Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format key=value and only one property can be specified per line. Example: my.property.key=myValue OK	onsole Runtin	ne Properties	(
Number of systems to verify at the same time: 10 Logging level: INFO Input properties for the Application Runtime Expert: server.name=MYSERVER Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format <i>key=value</i> and only one property can be specified per line. Example: <i>my.property.key=myValue</i> OK			
Logging level: INFO Input properties for the Application Runtime Expert: Server.name=MYSERVER Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format <i>key=value</i> and only one property can be specified per line. Example: <i>my.property.key=myValue</i> OK	Number of syste	ams to verify at the same time: 10	
Input properties for the Application Runtime Expert: server.name=MYSERVER Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format <i>key=value</i> and only one property can be specified per line. Example: <i>my.property.key=myValue</i> OK	Logging level:	INFO 🗸	
Server.name=MYSERVER Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format <i>key=value</i> and only one property can be specified per line. Example: <i>my.property.key=myValue</i> OK	Input properties	for the Application Runtime Expert:	
Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format <i>key=value</i> and only one property can be specified per line. Example: <i>my.property.key=myValue</i> OK	server.nam	e=MYSERVER	
Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format <i>key=value</i> and only one property can be specified per line. Example: <i>my.property.key=myValue</i> OK			
Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format <i>key=value</i> and only one property can be specified per line. Example: <i>my.property.key=myValue</i>			
Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format <i>key=value</i> and only one property can be specified per line. Example: <i>my.property.key=myValue</i> OK			
Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format <i>key=value</i> and only one property can be specified per line. Example: <i>my.property.key=myValue</i> OK			
Properties specified here are provided as input to the Application Runtime Expert when it is run to verify each system using the specified deployment template. Each property should be in the format <i>key=value</i> and only one property can be specified per line. Example: <i>my.property.key=myValue</i> OK			
Expert when it is fun to verify each system using the specified deployment template. Each property should be in the format key=value and only one property can be specified per line. Example: my.property.key=myValue OK	Properties spec	ified here are provided as input to the Applic	
property can be specified per line. Example: my.property.key=myValue	Even and verbage it i	a with the travities and attacks to have the analytic state	ation Runtime
Example: my.property.key=myValue	Expert when it i	s run to verify each system using the specific	ation Runtime d deployment
OK	Expert when it i template. Each	s run to verify each system using the specific property should be in the format key=value a	ation Runtime d deployment and only one
OK	Expert when it i template. Each property can be Example: <i>my p</i>	s run to verify each system using the specifie property should be in the format key=value a specified per line. party key=myValue	ation Runtime d deployment and only one
	Expert when it i template. Each property can be Example: <i>my.pr</i>	s run to verify each system using the specifie property should be in the format key=value a specified per line. operty.key=myValue	ation Runtime of deployment and only one

Oppure passando il valore come parametro sulla linea comando dello script runARE.sh.

Tramite programma: all'avvio di ARE si può aggiungere del codice Java scritto appositamente per assegnare il valore alla variabile. Per fare ciò si utilizza un Service. Che non è nient'altro che una classe Java riconosciuta da ARE. In maniera simile alla scrittura di un plugin. Dopo aver scritto il codice del servizio bisogna compilarlo; è necessario includere nella classpath il jar core



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di ARE (/QIBM/ProdData/OS/OSGi/healthcheck/lib/arecore.jar). Una volta compilato va aggiunto al proprio template. Dalla pagina di modifica del template scegliere Advanced > Other resources.

Nell'Esempio 3 viene mostrato come eseguire la sostituzione della variabile MYSERVER. Il metodo che interessa analizzare nell'esempio è startImpl dove effettivamente è presente il codice per la sostituzione della variabile. Questo codice viene eseguito automaticamente in quanto il servizio implementa l'interfaccia AutoStartSingletonService. Questa interfaccia informa il core ARE che questo servizio deve venire automaticamente avviato prima di qualsiasi altro plugin e quando si avvia il metodo startImpl() è eseguito.

/*				
****	****	*****		
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* duplication or disclosur * ADP Schedule Contract wi	th TBM Corp			
*	corp.			
* Status: Version 1 Releas	e 0			
* <end_copyright></end_copyright>				
*/				
package com.ibm.are.samp	ple;			
<pre>import java.util.List;</pre>				
import com.ibm.are.commo	on.Version;	. 告.		
import com.ibm.are.servi	ice.AutoStartSingle	etonService;		
import com.ibm.are.servi	ice.BaseSingletonSe	ervice;		
import com.ibm.are.xml.1	franslator;			
public close TritDerlas		nda Dago Ginnist	Sorrigo	
implements AutoStartS	inglotonSorrigo (ands Basesingleton	iservice	
Imprements Aucoscarts	Ingreconservice (
protected woid startIm	1 (List startArgs)			
	(Hist Startings)			
// This is where you can s	et your replacement v	variable's value. Th	e value you set is global	
// in the entire ARE core	environment, which is	s why it is importan	t to make your replacement	
<pre>// variable name somewhat</pre>	unique. Because this	class implements th	e AutoStartSingletonService	
// interface, the code in	this method is guarar	the replacement and	the AKE core *before*	
// any prugins are run. Th // possible usage of that	replacement variable	by a plugin	Table 2 value prior to any	
//		-l a bradru.		
// Replacement variables a	ire managed by a class	s in the ARE core er	vironment called a Translator.	
<pre>// The Translator maintain</pre>	is a single, global ma	ap of replacement va	riable names and	
<pre>// their associated values //</pre>				
// This means that once we	is set the replacement	variable value i+	is available for use by	
// every plugin that is ru	in during a system ver	rification.	. TO AVAILADIE TOT USE DY	
//	·			
// Set the replacement var	iable to its desired	value here. Any spe	cific processing needed	



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U,D				
<pre>// to determine</pre>	the value for the replacen	ment variable can be d	one here as well.	
//				
Translator	.setReplacementVariable	("server.name", "MY	SERVER");	
}				
protected void	d stopImpl(List stopArg	s) {		
1 5				
-b_				
public String	getCommonName()			
public Sciing	tialize Poplacement War	ishles".		
iecuin ini	cialize Replacement Val	lables ,		
3				
public String	getDescription() {			
return "A se	ervice to set the value	for one or more re	placement variables";	
}				
public Version	n getVersion() {			
return new Ve	ersion(1, 0, 0);			
				Ecompio 3

Esempio 3

Script and command plugin

Questo plugin consente di estendere e personalizzare i controlli standard esistenti in ARE senza scrivere un proprio plugin.

Le condizioni di verifica sono personalizzabili attraverso exit code, messaggi di errore e il contenuto del file stdout.

Prima di tutto bisogna specificare lo script QShell o il comando CL da eseguire

Program to run and verify (?) Learn more Script command to run in QShell	
Example: /QIBM/ProdData/OS/OSGi/templates/bin/areVerify.sh -network	
O CL command to run	

Figura 43

Poi bisogna specificare la condizione di verifica del risultato aggiungendo un gruppo di "result verification".

Group	Severity	Source	Expected value	Comparison	Match case
			This table is empt	ty.	
Add					
					Figura
					riguru

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Cliccando sul pulsante Add si apre la finestra per la definizione:

Scripts and Commands

Add Results Verification Details - Step 1

You can verify various aspects of the results of running a command or script on the remote system. The verification group allows you to create a set of one or more conditions. Each condition is compared to ensure the program results match the expected values. The group type determines if all attributes need to be matched or of only 1 attribute is enough. The expected values are specific to the type of program being called, the expected results values for commands are different then scripts.

Result verification group	?	Learn	more
---------------------------	---	-------	------

Name:	MyGrou	up1	
Severity:	Error	*	

Type:

AND - All conditions in the group must be met for the verification to be successful
 OR - Only one of the conditions in the group must be met for the verification to be successful

Script verification conditions	(?)	Learn	more.
--------------------------------	-----	-------	-------

Source	Expected value	Comparison	Match case
Example Exit Code	0	Equals	
Example Standard Output	Some example	Contains	False
Exit code	*	Equals	*
Add Remove			
OK Cancal			
OK Gancer			

N.B. il nome del gruppo di verifica deve iniziare con un carattere alfabetico (non un numero). Può contenere caratteri alfanumerici e il simbolo . La lunghezza massima è 20 caratteri.

ntenere car	tenere caratteri alfanumerici e il simbolo La lunghezza massima è 20 car				

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sempio:			=			
semplo.						
Scripts and Co	mman	ds				
Specify the Script or C	Command	to be Run and Ve	rified		-	
Collection name: Colle	ection1					
Program to run and ve	rify 🧿 I	earn more				
 Script command to 	run in QSI	hell				
ls						
Evenela: /O/DM/	les d'O ata lO	0/000itemalateal	his local lasify als	hunde		
Example: /QIBM/F	ProdData/O	S/OSGi/templates/	bin/areVerify.sh -ne	etwork		
Example: /QIBM/F	ProdData/O	S/OSGi/templates/	bin/areVerify.sh -ne	etwork		
Example: /QIBM/F	ProdData/O In	S/OSGi/templates/	bin/areVerify.sh -ne	etwork		
Example: /QIBM/F	ProdData/O In	S/OSGi/templates/	bin/areVerify.sh -ne	etwork		
CL command to ru Result verification	ProdData/O In D Learn ma	S/OSGi/templates/ ore	bin/areVerify.sh -ne	etwork		
Example: /QIBM/F CL command to ru Result verification (Result verification deta Group	ProdData/O In D Learn mails Severity	S/OSGi/templates/ ore Source	bin/areVerify.sh -ne	etwork	Match case	
Example: /QIBM/F CL command to ru Result verification (Result verification deta Group MyGroup1(And)	ProdData/O In Learn me ails Severity Error	S/OSGi/templates/ ore Source Exit code	bin/areVerify.sh -ne Expected value 0	etwork Comparison Equals	Match case True	
Example: /Q/BM/F CL command to ru Result verification (Result verification deta Group MyGroup1(And)	ProdData/O In Learn mails Severity Error	S/OSGi/templates/ ore Source Exit code Standard output	bin/areVerify.sh -ne Expected value 0 home	etwork Comparison Equals Contains	Match case True True	
Example: /QIBM/F CL command to ru Result verification (Result verification deta Group MyGroup1(And) MyGroup2(And)	ProdData/O In Learn me ails Severity Error Error	S/OSGi/templates/ ore Source Exit code Standard output Standard output	bin/areVerify.sh -ne Expected value 0 home www	etwork Comparison Equals Contains Contains	Match case True True True True	
Example: /QIBM/F CL command to ru Result verification (Result verification deta Group MyGroup1(And) MyGroup2(And)	ProdData/O In Dearn mo ails Severity Error Error	S/OSGi/templates/ ore Source Exit code Standard output Standard output Standard output	bin/areVerify.sh -ne Expected value 0 home www QSYS.LIB	Comparison Equals Contains Contains Contains	Match case True True True True True	
Example: /QIBM/F CL command to ru Result verification (Result verification deta Group MyGroup1(And) MyGroup2(And)	ProdData/O In Learn mails Severity Error Error	S/OSGi/templates/ ore Source Exit code Standard output Standard output Standard output	bin/areVerify.sh -ne Expected value 0 home www QSYS.LIB	Comparison Equals Contains Contains Contains	Match case True True True True True	
Example: /QIBM/F CL command to ru Result verification (Result verification deta Group MyGroup1(And) MyGroup2(And) Add Remove	ProdData/O In D Learn me ails Severity Error Error Error	S/OSGi/templates/ ore Source Exit code Standard output Standard output Standard output	bin/areVerify.sh -ne Expected value 0 home www QSYS.LIB	etwork Comparison Equals Contains Contains Contains	Match case True True True True True	
Example: /QIBM/F CL command to ru Result verification (Result verification deta Group MyGroup1(And) MyGroup2(And) Add Remove	ProdData/O In Learn me ails Severity Error Error	S/OSGi/templates/ ore Source Exit code Standard output Standard output Standard output	bin/areVerify.sh -ne	etwork Comparison Equals Contains Contains Contains	Match case True True True True True	
Example: /QIBM/F CL command to ru Result verification (Result verification deta Group MyGroup1(And) MyGroup2(And) Add Remove OK Cancel	ProdData/O In D Learn mo ails Severity Error Error Error	S/OSGi/templates/ ore Source Exit code Standard output Standard output Standard output	bin/areVerify.sh -ne	Comparison Equals Contains Contains Contains	Match case True True True True	

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Oltre a controllare l'esito del comando si può allegare il log del comando al report prodotto da ARE. ARE consente di fare ciò eseguendo la verifica in Collector mode. In questa modalità l'output di ogni comando verrà registrato in un file separato che verrà poi inserito nel file zip finale. Per attivare l'esecuzione in Collector mode bisogna specificare -zipFile <zipFileName> invece di -outFile <fileName>. P.es. da QShell runARE.sh -template <templatePath> -zipFile <zipFileName>

Per catturare l'output di un commando CL interattivo (p.es. WRK* o DSP*) è necessario eseguirlo come script in QShell; per es.

system "WRKACTJOB"

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	Admi	inistration Runtime Ex	spert	17/05/2021
Scripts and	Commands			
Specify the Script	or Command to be	Run and Verified		-
Collection name:	Collection1			
Program to run an	d verify 🕜 Learn	more		
🖲 Script comma	nd to run in QShell			
system "W	RKACTJOB"			
Example: /QI.	BM/ProdData/OS/OS	Gi⁄templates/bin/areVerii	fy.sh-network	
C CL command	to run			
				Figura 47

Plugin personalizzati

Oltre ai plugin già esistenti in ARE è possibile creare dei plugin personalizzati per implementare controlli non previsti nel prodotto standard ARE.

Home > Plugin Selection and Customization > Custom Plugins						
Custom Plugins		***				
Manage Custom Plugins						
Custom plugins ⑦ Learn more						
Plugin name	Plugin class	Description				
SampleLoadResource	com.ibm.are.sample.SampleLoadResource	This plugin demonstrate using resource within template				
O SampleReport	com.ibm.are.sample.SampleReport	The sample plugin for using ARE reporting framework				
 Hello plugin 	com.ibm.are.sample.HelloWorld	The simplest plugin sample				
SampleParameter2	com.ibm.are.sample.SampleParameter2	The plugin shows how to configure plugin via template plugin configuration file.				
O SampleParameter	com.ibm.are.sample.SampleParameter	The plugin shows how to use additional parameter.				
SampleAutoFix2	com.ibm.are.sample.SampleAutoFix2	Sample of using Auto-Fix feature. In this demo, the fix action is an encapsulated class object.				
SampleAutoFix	com.ibm.are.sample.SampleAutoFix	The plugin shows how to use auto-fix feature. In this demo, the fix action is a simply static method.				
Add Remove Us	e these buttons to Add and	Remove Custom Plugins				
OK Cancel	OK Cancel					
		Figura 48				



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Per aggiungere un plugin personalizzato cliccare sul pulsante Add e scegliere il file jar memorizzato in una cartella di IFS; quindi scegliere uno o più plugin presenti all'interno del file jar.

Il plugin personalizzato potrebbe aver bisogno di altre risorse necessarie ad eseguire il controllo richiesto. Dalla sezione **Other resources** è possibile selezionare queste risorse aggiuntive (ovvero p.es. altri file jar), in modo che il tutto venga integrato correttamente nel template.

Home > Plugin Selection and Customization > Other Resources	
Other Resources	
Manage Other Resources	
Other resources 🕜 Learn more	
Resource name	
 com/ibm/are/sample/SampleAutoFix2\$MyFixAction.class 	
com/ibm/are/sample/SampleAutoFix\$MyObj.class	
Add Remove	
OK Cancel	
	Figura

In profondità

Configurazioni Launch console

Sono memorizzate nella cartella /qibm/UserData/ARE/workspace/console

- servers.conf@[nome_utente]: file XML che contiene le configurazioni della launch console. [nome_utente] corrisponde all'utente con cui ci si è loggati alla console

Templates

I template sono memorizzati nelle sottocartelle di /qibm/UserData/ARE/workspace/templates. Ogni template ha una sottocartella con il nome coincidente al nome del template. All'interno di ogni sottocartella si può trovare:

- BuildLog.txt: log dell'ultima creazione del template
- [nome_template].jar: pacchetto jar che contiene tutti gli oggetti necessari all'esecuzione del template
- Sottocartella Temp: i report dell'ultima esecuzione

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Bibliografia

- Application Runtime Expert Damaged object Detection, di Dawn May, 3-dic-2013, IBM Systems magazine, <u>http://ibmsystemsmag.com/blogs/i-can/archive/application-runtime-expert-damaged-object-detectio/</u>
- Application Runtime Expert Network Health Center, di Dawn May, 4-set-2013, IBM Systems magazine, <u>http://ibmsystemsmag.blogs.com/i_can/2013/09/application-runtime-expert-network-healthchecker.html</u>
- Application Runtime Expert Worth a look?, di Andy Youens, 20-dic-2016, <u>http://powerwire.eu/applica-tionruntimeexpertworthalook</u>
- Damage detection tool, di Tim Rowe, 15-giu-2014, <u>ftp://public.dhe.ibm.com/systems/i/are/sys-tems power ibmi are damage detection tool.pdf</u>
- Do You Need an Application Runtime Expert?, 6-lug-2010, IBM Systems Magazine, <u>http://ibmsy-stemsmag.blogs.com/idevelop/2010/07/do-you-need-an-application-runtime-expert.html</u>
- Guru: How To Acquire The IBM i Administration Runtime Expert Product And PTFs, di Dawn May, 17mag-2021, <u>https://www.itjungle.com/2021/05/17/guru-how-to-acquire-the-ibm-i-administration-</u> runtime-expert-product-and-ptfs/
- IBM Application Runtime Expert for i Creating you first template, <u>ftp://public.dhe.ibm.com/sys-tems/i/are/systems_i_are_creating_first_template.pdf</u>
- IBM Application Runtime Expert for i, Replacement Variables What They Are and How to Use Them, <u>ftp://public.dhe.ibm.com/systems/i/are/ibm_i_are_replacement_variables.pdf</u>
- IBM Application Runtime Expert for i, Using The Console to Verify a System, <u>ftp://public.dhe.ibm.com/sy-stems/i/are/systems_i_are_consoletoverifysystem.pdf</u>
- IBM Application Runtime Expert for i: managing PTFs, di Maryna Granquist, 21-set-2015, IBM Systems magazine, <u>http://ibmsystemsmag.com/blogs/i-can/september-2015/ibm-application-runtime-expert-for-i-managing-ptf/</u>
- Introducing Scripts and Commands Plugin, <u>ftp://public.dhe.ibm.com/systems/i/are/sys-tems_i_are_scripts_and_command.pdf</u>
- Introducing SQL Query Verifier Plugin v. 1.0, <u>ftp://public.dhe.ibm.com/systems/i/are/system_i_are_in-troducing_sql_verifier_plugin.pdf</u>
- Replacement variables what they are and how to use them, <u>ftp://public.dhe.ibm.com/sys-tems/i/are/ibm_i_are_replacement_variables.pdf</u>
- Revolutionize your application and product support An overview of the IBM Application Runtime Expert for i, di Mark Schroeder, 12-apr-2011, developerWorks, <u>https://www.ibm.com/developerworks/ibmi/library/i-applicationruntime/index.html</u>
- Schedule verification with Application Runtime Expert, di Dawn May, 8-ott-2013, IBM Systems magazine, <u>http://ibmsystemsmag.blogs.com/i_can/2013/09/application-runtime-expert-network-healthchecker.html</u>
- Script Interfaces to ARE v. 1.1, <u>ftp://public.dhe.ibm.com/systems/i/are/systems_i_are_script_inter-faces.pdf</u>
- Turning Big Problems Into Small Ones, di Tim Rowe e Mark Schroeder, giu-2010, IBM Systems Magazine, <u>http://www.ibmsystemsmag.com/ibmi/application_runtime_expert/33004p1.aspx</u>
- Uncovering Application Runtime Expert IBM I 7.1, redpaper REDP-4805-00, di Ahmed Mansour, Hernando Bedoya, 31-ott-2011, <u>http://www.redbooks.ibm.com/abstracts/redp4805.html?Open</u>
- Understand and track your applications with Application Runtime Expert, di Tim Rowe, presentazione 2015, <u>ftp://ftp.software.ibm.com/systems/power/community/aix/PowerVM_webinars/55_IBM_i_Application_Runtime_Expert.pdf</u>
- Understand you environment better: Application Runtime Expert, di Tim Rowe, 21-dic-2012, System I Network
- Understanding ARE reports, <u>ftp://public.dhe.ibm.com/systems/i/are/systems_i_are_understanding_reports.pdf</u>
- Using integrated template v. 1.07, <u>ftp://public.dhe.ibm.com/systems/i/are/system_i_are_using_inte-grated_template.pdf</u>