Orange Apps

ExtensionPack 1.0

For KUKA KRC4 robot

User documentation

As of 6/28/2013

Document version: 1.0

© Copyright 2013

Orange Apps GmbH
Arnikaweg 1
87471 Durach
Germany
www.orangeapps.de

History of document versions

Version	Date	Author	Change Reason / Comment
1.0	06/28/2013	Christian Mayer	First release

Content

1 Introduction

1.1 Target group

This documentation is intended for users with the following skills:

- Knowledge of robot programming
- Knowledge in the robot programming language KRL

1.2 Representation of information

These notes indicate that death or severe personal injury will be safe or very likely to occur if precautions are not taken.

These notes indicate that death or serious bodily injury could occur if precautions are not taken.

These notes indicate that minor personal injury can result if precautions are not taken.

These notes indicate that damage may occur if precautions are not taken.

This manual contains useful tips or special information for the current topic.

1.3 Terminology used

Notion	Description
KRL	KUKA Robot Language
KXR	KUKA XML resource

Table 1-1 terms used

2   Product Description

The software tool Extension Pack provides KRL commands to get the current user level (eg expert, user, etc.) and the current language of the robot system.

Features

- Calling the functions from the KRL program
- Return of the currently set user levels
- Return of the current user
- Return of the currently set system language

3   Installation

The installation is done via the additional software option. These can be found in the main menu under start-up.

3.1   System requirements for running

Minimum Requirements Software

- KUKA System Software 8.2

3.2   Install extension pack or update to new version

Requirement

- User group Expert

For installation on the three systems, real Robot, Office Lite and Office PC follow these steps:

Method

1. Extract the .Zip file

2. Copy the installation folder *OrangeApps.ExtensionPack* containing the setup files to a USB stick or directly to a drive on the target system (for example, d: \).

3. If you are already in possession of a valid license file, copy it to the files in the installation folder. The license file is automatically detected and installed during setup. Alternatively, you can manually install the license file after installation.

1. When installing from a USB stick, connect this to the controlling PC or the SmartPad.

2. Choose *Start-up→ Additional software* from the main menu.

3. Click the button *New software*.

4. You'll get a list of available software for installation. If there's no entry *OrangeApps.ExtensionPack* in the list, click *Refresh*. If now the entry appears, go to step 10

5. If the entry does not appear, the drive from where to install must be configured first. To do this, choose *Configuration*. In the new window you now have the option to select the path where to find the folder *OrangeApps.ExtensionPack.*

6. Select an empty cell in the *installation paths for options* and click *path selection*. The available drives are displayed. Select the drive on which the folder *OrangeApps.ExtensionPack* is located and save your selection with *Save*. The window closes. *OrangeApps.ExtensionPack* should now appear as an entry in the list. If this is not the case, press *Refresh* and/or repeat steps 7 to 8

7. Highlight the entry *OrangeApps.ExtensionPack* and press *Install*. Confirm the security prompt with *Yes*.

8. Read the license agreement carefully. Explain your agreement to the license terms by clicking *I Accept* and continue the installation by clicking *Continue*. If you do not agree with the license terms, please cancel the installation by clicking *Cancel*.

9. The installation will be prepared now. To perform the final installation the control PC has to be restarted. This can immediately be executed by clicking *Reboot Control PC now* or later by clicking *later*.

10. If you select *later*, the window is closed. In order finalize the installation proceed with step 14. If you select *Reboot Control PC now*, a restart of the control PC will be performed. Step 15 is then executed.

11. Perform a shutdown of the control PC by clicking *shutdown* in the main menu.

12. During reboot of the control PC ExtensionPack will be installed on the computer.

13. Remove the USB stick from the PC.

3.3   Uninstall Extension Pack

Requirement

- ▪   User group Expert

Method

1. Choose *commissioning→ Additional software* from the main menu.

2. Highlight the *OrangeApps.ExtensionPack* and click *Uninstall*. Answer the security prompt with *Yes*. The uninstallation is prepared. After completion of the preparatory work, a message box appears. To perform the final installation the control PC has to be restarted. To perform the final installation the control PC has to be restarted. This can immediately be executed by clicking *Reboot Control PC now* or later by clicking *later.*

3. If you select *later*, the window is closed. In order finalize the uninstallation proceed with step 4. If you select *Reboot Control PC now*, a restart of the control PC will be performed. Step 5 is then executed.

4. Perform a shutdown of the control PC by clicking *shutdown* in the main menu.

5. During reboot of the control PC ExtensionPack will be uninstalled from the computer.

4   Licensing

ExtensionPack is subject to licensing. Licensing is done by a license file or a USB dongle. Visit our website www.orangeapps.de for more information on licensing.

Hint

- A license for each robot, office computer or Office Lite is required.
- Trial licenses can be obtained once for each evaluation system.
- Trial licenses are free of charge and limited in time.
- Date manipulations of the system are detected, ExtensionPack automatically disables the License

4.1   Generate license number

Trial licenses can be obtained directly at www.orangeapps.de. Runtime licenses are given after receipt of the license fee.

4.1.1   Robot License

To obtain a valid license, you will need the serial number of the robot. These can be found on the rating plate of the robot or in the control software in the Help menu→ *Info*→ *Robot* → *Serial number.*

4.1.2   License for KUKA OfficePC/OfficeLite

After installing and starting the software, a product ID is displayed. These ID you will need to obtain a valid license.

4.2   Installing a License

4.2.1   ExtensionPack is not installed yet

Before the installation of *ExtensionPack* copy the license file into the installation folder where the setup.exe is located.

4.2.2   ExtensionPack is already installed

Method 1

- Plug in a USB stick containing the license file to a USB port of the controller or SmartPad.
- Alternatively, copy the license file to the robots d: drive
- At startup of the software the license will be copied automatically into the license folder and then be enabled. Note: A run-time license in the license folder will not be overwritten by a trial license
- Remove the USB stick

Method 2

- Copy the obtained license in the folder c:\KRC\TP\ExtensionPack\Lic

5 Programming

5.1 Characters and fonts

In the descriptions of KRL instructions and functions following print types are used:

Element	Representation	Example
KRL code	▪ Courier New font, gray ▪ Upper / lower case	`GetUserLevel`
Elements that will be replaced by program-specific content	▪ Courier New font ▪ Italic ▪ Angle brackets	<value>

Table 5-1: Letters and Fonts

5.2 Query the currently set user levels

This function returns the currently logged in user's user level.

Function call in the KRL program

```
GetUserlevel ()
```

Return Value

INT

Example

```
DECL INT i
i = GetUserLevel ()
```

default user level of the KUKA controller

Return Value	User (German)	Users (English)
5	Bediener	Operator
10	Programmierer	Programmer
20	Experte	Expert
27	Sicherheitsinstandhalter	Safety Recovery
29	Sicherheitsinbetriebnehmer	Safety Maintenance
30	Administrator	Administrator

Table 5-2: Return values of the function GetUserLevel

Hint

▪ There can be more defined user levels on the control.

5.3   The currently set user query

This function returns the name of the currently logged in user.

Function call in the KRL program

```
GetUser ()
```

Return Value

Element of the enumeration type user

Example

```
DECL USERS actUser
actUser = GetUser()
```

Users of the enumeration type elements

Elements	User (German)	Users (English)	Userlevel
# Operator	Bediener	Operator	5
# Programmer	Programmierer	Programmer	10
# Expert	Experte	Expert	20
# Safety Recovery	Sicherheitsinstandhalter	Safety Recovery	27
# SafetyMaintenance	Sicherheitsinbetriebnehmer	Safety Maintenance	29
# Administrator	Administrator	Administrator	30
# Unknown	Unbekannter Benutzer	Unknown user	all other user level

Table 5-3: Elements of the enumeration type User

Hint

- The return value is given by the set user level. If the default values of user levels have been changed the return of the user level will not work correctly until the appropriate adjustment in the module ExtensionPack.src

Examples

- Currently logged in: **Expert** → Return value: **#Expert** (for expert users = Level 20)
- The user level of experts is changed to 22: Without adjustment in extensionpack.src the return value **#Unknown**.

5.4   Query the currently set language

This function returns the currently set language.

Function call in the KRL program

```
GetLanguage ()
```

Return Value

Element of the enumeration *Languages*

Example

```
DECL LANGUAGES actLanguage
actLanguage = GetLanguage()
```

Elements of the enumeration type Languages

Elements	Language	Elements	Language
# cs	Czech	# sk	Slovak
# da	Danish	# sl	Slovenian
# de	German	# fi	Finnish
# en	English	# sv	Swedish
# es	Spanish	# tr	Turkish
# fr	French	# el	Greek
# it	Italian	# ru	Russian
# hu	Hungarian	# ko	Korean
# nl	Dutch	# Zh	Chinese
# pl	Polish	# Yes	Japanese
# pt	Portuguese	# Unknown	Unknown language
# ro	Romanian		

Table 5-4: Elements of the enumeration type Languages

6 Messages

The following messages can be displayed in the message window

Notification	Description	Error type	Error number
Extension Pack is not completely installed! Module extension pack is missing.	The krl Module Extension Pack was not found.	Quit	1
No license for robot {serial number} available	The license file to operate the software in a production environment for these missing robot serial number	Status	101
License for robot {serial number} is invalid or expired	The license to operate the software in a production environment for these robot serial number expired or invalid	Status	102
x days left until license runs out	x (= number) days until the license expires.	Info	103

Table 6-1 Messages

7   Appendix

7.1   List of Tables