KUKA

KUKA System Technology
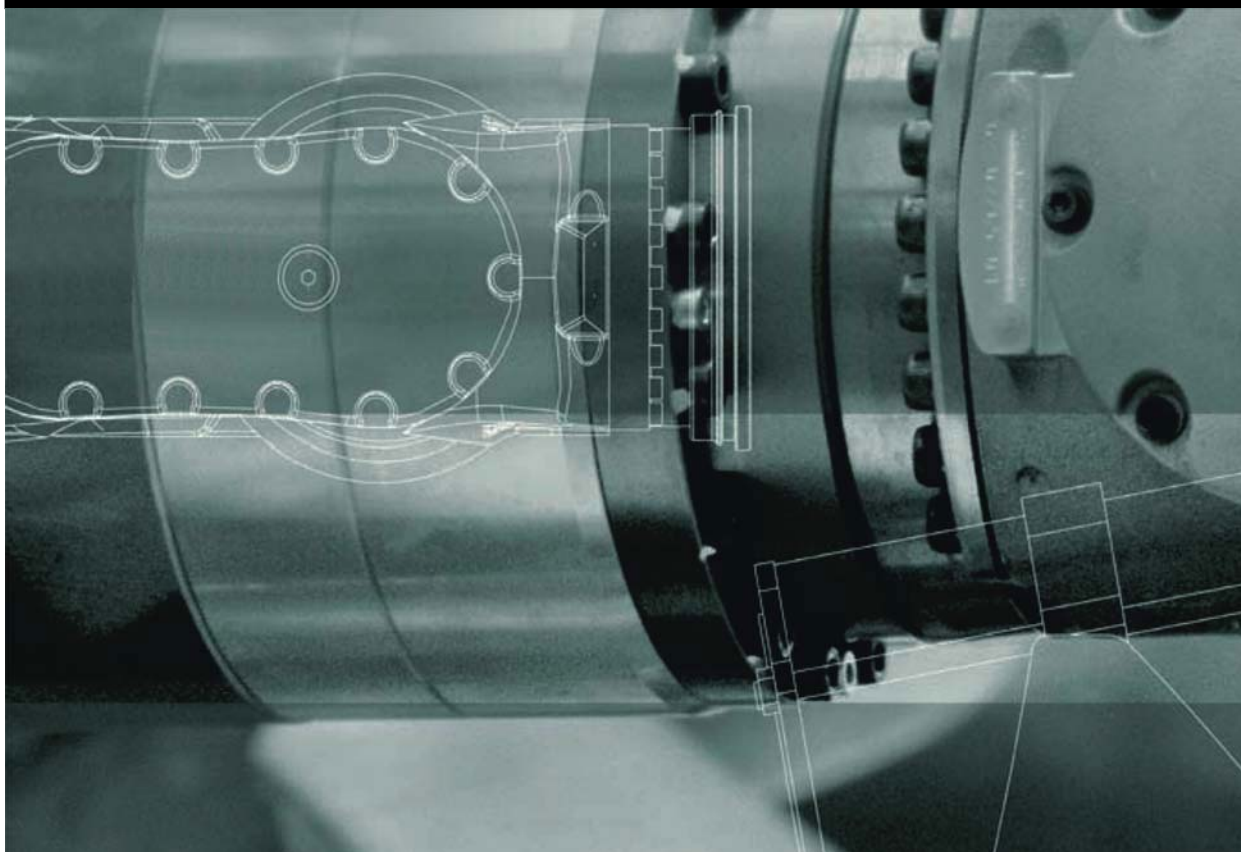
KUKA Roboter GmbH

KUKA.OfficeLite 8.3

For KUKA System Software 8.3

For VW System Software 8.3

Issued: 15.07.2013

Version: KUKA.OfficeLite 8.3 V2 en (PDF)

Contents

1 Introduction

1.1 Target group

This documentation is aimed at users with the following knowledge and skills:

- Basic knowledge of KRL programming
- Knowledge of the robot controller system
- Basic knowledge of the Windows operating system

> **i** For optimal use of our products, we recommend that our customers take part in a course of training at KUKA College. Information about the training program can be found at www.kuka.com or can be obtained directly from our subsidiaries.

1.2 Industrial robot documentation

The industrial robot documentation consists of the following parts:

- Documentation for the manipulator
- Documentation for the robot controller
- Operating and programming instructions for the KUKA System Software
- Documentation relating to options and accessories
- Parts catalog on storage medium

Each of these sets of instructions is a separate document.

1.3 Representation of warnings and notes

Safety   These warnings are relevant to safety and **must** be observed.

> **⚠ DANGER** These warnings mean that it is certain or highly probable that death or severe injuries **will** occur, if no precautions are taken.

> **⚠ WARNING** These warnings mean that death or severe injuries **may** occur, if no precautions are taken.

> **⚠ CAUTION** These warnings mean that minor injuries **may** occur, if no precautions are taken.

> **NOTICE** These warnings mean that damage to property **may** occur, if no precautions are taken.

> **⚠** These warnings contain references to safety-relevant information or general safety measures.
> These warnings do not refer to individual hazards or individual precautionary measures.

This warning draws attention to procedures which serve to prevent or remedy emergencies or malfunctions:

> **SAFETY INSTRUCTIONS** Procedures marked with this warning **must** be followed exactly.

Notes   These hints serve to make your work easier or contain references to further information.

| | Tip to make your work easier or reference to further information. |

1.4 Terms used

Term	Description
EMD	Electronic Mastering Device
KRL	KUKA Robot Language
KLI	Line bus for the integration of the system in the customer network (KUKA Line Interface)
KPP	KUKA Power Pack (drive power supply with drive controller)
KSP	KUKA Servo Pack (drive controller)
KUKA smartHMI	User interface of the KUKA System Software (KUKA smart Human-Machine Interface)
KUKA smartPAD	Teach pendant for the industrial robot
NTFS	File system for the Windows operating system (New Technology File System)
VMware software	Software with which virtual machines can be created and run
VRC	Interface for KUKA.Sim Pro

1.5 Trademarks

NTFS is a trademark of Microsoft Corporation.

Step 7 is a trademark of Siemens AG.

VMware is a trademark of VMware Corporation.

Windows is a trademark of Microsoft Corporation.

WinZip is a trademark of WinZip International LLC.

2 Product description

2.1 Overview of KUKA.OfficeLite

KUKA.OfficeLite is a work environment which allows users to practice handling the KUKA oder VW System Software on a PC. For this, an image of the system software is run in a virtual machine.

> **i** KUKA.OfficeLite does not support any other virtual systems except VMware.

Functions

The following functions of the system software are supported:

- Creation and simulation of programs
- Copying of machine data with a plausibility check
- Simulation of physical inputs
- Installation of technology packages
- Updating the system software

Constraints

KUKA.OfficeLite cannot be used to operate a robot.

The following functions of the system software are not supported:

- Diagnosis of the safety circuits
- Diagnosis of hardware modules, e.g. KPP, KSP, EMD on the Controller Bus
- Safety controller
- Operation of field buses, e.g. DeviceNet, EthernetIP, Interbus, PROFIBUS, PROFINET
- Integration of a smartPAD
- Load data determination
- Torque mode and force control
- Brake test
- EMD mastering
- Fast Measurement
- Network connection via the KLI

> **i** A network connection can be established by Windows via the virtual network card.

Technology packages can only be installed on the system software image if these run completely within the virtual machine and do not require any external communication.

The following technology packages cannot be used with OfficeLite:

- KUKA.SafeOperation
- KUKA.SafeRangeMonitoring
- KUKA.RoboTeam
- KUKA.ServoGun FC
- KUKA.ServoGun TC
- KUKA.RobotSensorInterface
- KUKA.TouchSense
- KUKA.ConveyorTech
- KUKA.EqualizingTech
- KUKA.LoadDataDetermination

> ℹ The list refers to the technology packages available at the time of documentation. Further technology packages may be added in the future which may also be incompatible with installation on the system software image. It is therefore advisable to install technology packages only after consultation with KUKA Roboter GmbH.

Performance

By default, KUKA.OfficeLite does not execute processes in real time, but slightly more slowly than a real robot controller. The process time depends on the host system on which OfficeLite is installed and the utilization of the host system.

This does not affect the cycle time analysis. For example, a robot program simulated with OfficeLite runs more slowly than on a robot controller. The program run time measured with $TIMER is identical to the program run time on a robot controller, however.

Example: The simulation of a robot program in OfficeLite takes 3.5 minutes and a duration of 3 minutes is displayed in OfficeLite. On a robot controller, the execution of the program would take 3 minutes.

Software components

The following components are included in the scope of supply of KUKA.OfficeLite:

- KUKA System Software 8.3 or VW System Software 8.3
- Windows Embedded Standard 7 operating system on NTFS
- KUKA VRC Interface

The virtual system for running the software image is not included in the scope of supply of KUKA.OfficeLite. Only virtual systems from VMware may be used, e.g. VMware Player or VMware Workstation. It is the user's responsibility to check which VMware software is suitable for use in the user's company.

> ℹ The VMware software can be obtained from http://www.vmware.com/de/. The license conditions must be observed, in particular the chapter "End User License Agreement" (EULA) governing the commercial use of VMware software.

KUKA.Sim Pro

In combination with KUKA.Sim Pro 2.2, KUKA.OfficeLite can be used as a virtual robot controller, e.g. for carrying out robot simulations and cycle time measurements. For the connection with KUKA.Sim Pro, KUKA VRC Interface must be installed on the virtual image on which KUKA.OfficeLite is installed.

KUKA.Sim Pro can be installed on the same host computer as KUKA.OfficeLite but not on the same virtual image as KUKA.OfficeLite. The connection is always established from KUKA.Sim Pro.

WorkVisual

Projects created with WorkVisual 3.0 can be transferred to the system software image, e.g. in order to simulate programs created in WorkVisual or configure the desired robot type.

WorkVisual can be installed on the same host computer as KUKA.OfficeLite but not on the same virtual image as KUKA.OfficeLite.

> ℹ Further information about KUKA.OfficeLite in combination with KUKA.Sim Pro can be found in the **KUKA.Sim Pro** documentation.

> ℹ Further information about transferring and activating WorkVisual projects is contained in the **WorkVisual** documentation and in the "Operating and Programming Instructions for System Integrators".

2.2 Intended use

Use

KUKA.OfficeLite is exclusively intended for creating an image of the KUKA or VW System Software on a virtual system (VMware).

KUKA.OfficeLite may only be installed on a PC that meets the specified system requirements. This PC must not be a real robot controller.

Misuse

Any use or application deviating from the intended use is deemed to be impermissible misuse. The manufacturer cannot be held liable for any damage resulting from such use. The risk lies entirely with the user.

Examples of such misuse include:

- Installation of the software on a real robot controller
- Using a virtual system other than VMware

3 Installation and licensing

3.1 System requirements

Hardware **Minimum requirements**
- PC with dual-core processor (2 real cores – no hyper-threading)
- 4 GB RAM
- 15 GB free hard disk space

Software
- VMware software, e.g.:
  - VMware Player ≥ 5.0
  - VMware Workstation ≥ 8.0
- Operating system for VMware: Windows 7 (64-bit)

Compatibility
- The PLC software STEP 7 must not be installed on the virtual image on which KUKA.OfficeLite is installed.

Recommendation Power save mode may interfere with the correct running of KUKA.OfficeLite. It is therefore advisable to deactivate the power save mode.

3.2 License types

The following license types are available for KUKA.OfficeLite and KUKA VRC Interface:

- **Single PC license**

  The license is valid for a specific PC. The license cannot be transferred to a different PC.

  This option is only supported in the case of PCs with a Windows operating system.

- **Server license**

  The license is accessed from a server with a certain number of (floating) licenses. A corresponding license server must be available to manage the licenses provided by KUKA Roboter.

  A user can call licenses on any client PC that has access via the network to the license server. It is also possible to borrow licenses for a limited time, so that OfficeLite can be used without a connection to the license server.

  This option is only supported in the case of PCs with a Windows operating system.

3.3 Starting KUKA.OfficeLite for the first time

Description A license key is required for licensing KUKA.OfficeLite and KUKA VRC Interface. In order to be able to create the license request, the VMware image must be started by OfficeLite.

Preparation
- Unzip the ZIP archive with the VMware image from the double-layer DVD into the desired target directory on the host computer, e.g. with WinZip or 7-Zip.

Precondition
- VMware software is installed.

Procedure 1. Start the VMware software and click on **Open a Virtual Machine**.

2. Navigate to the directory into which the VMware image was unzipped. Select the OfficeLite file **KR C, V**_OL_RELEASE_**.vmx** and click on **Open** to load it in the virtual machine.

3. Click on **Play virtual machine**. Windows is started.

4. The Windows start-up may take several minutes. The system software installation wizard is then opened.

   a. Select the desired language. Confirm with **Next>**.

   b. Information about the installation and copyright is displayed. Confirm with **Next>**.

   c. The system suggests a robot type. Confirm with **Next>**.

   Or: If the suggested type does not correspond to the desired type, select a different type. Then confirm with **Next>**.

   d. A summary of the setup settings is displayed. Confirm with **Next>**.

5. The virtual machine is automatically restarted and the activation wizard **FLEXnet License Finder** is opened.

   ■ If a server license is to be used and a license server already exists:

   Continue with **Next>** and enter the server name. Continue with **Next>** and confirm with **Finish**.

   If there is a server license available, it is possible to start using OfficeLite directly.

   ■ If a single PC license is to be used or if there is not yet a license server available:

   Click on **Cancel** to close the activation wizard and acknowledge the error message with **OK**.

6. Do not yet exit VMware. The subsequent procedure for licensing OfficeLite depends on whether a single PC license or server license is to be used.

   (>>> 3.4 "Using KUKA.OfficeLite with a single PC license" Page 12)

   (>>> 3.5 "Using KUKA.OfficeLite with a server license" Page 13)

3.4 Using KUKA.OfficeLite with a single PC license

3.4.1 Requesting a single PC license

Procedure

1. In the virtual machine, start the program **FingerprintCreator.exe** in the directory C:\KRC\UTIL\FLEXLM. **KUKA Fingerprint Creator** opens.

2. Enter the path for saving the fingerprint in the **Select Output File** box, or use the **...** button to select the file location.

> **i** If the data are being saved to a USB stick, the virtual machine must be active when the stick is connected. If no USB drive is displayed in the virtual machine, it must be connected manually to the virtual machine.
>
> (>>> 5.2 "Manually connecting a USB drive with the virtual machine" Page 21)

3. Click on the **Create** button. The KUKA Fingerprint *.KFP is created in the specified location.

4. Send the fingerprint file *.KFP with the following information by e-mail to simulation@kuka-roboter.de:

   ■ KUKA reference number for the purchased software (found under **Supplier Ref. No.** on the Order Confirmation from KUKA)

The license key is requested. The license file *.LIC will be sent to you by KUKA Roboter.

3.4.2 Activating KUKA.OfficeLite with a single PC license

Precondition
- The license file *.LIC is present.
- The virtual network cards are activated.

Procedure
1. Start the VMware software and select the image **KR C, V***OL_RELEASE* in the navigator of the virtual machine.
2. Click on **Play virtual machine**. KUKA.OfficeLite is started and the activation wizard **FLEXnet License Finder** is opened.
3. Save the license file *.LIC in the virtual machine.
4. Select the license type **Specify the License File**. Click **Next>** to proceed.
5. Enter the location and name of the license file *.LIC or use **Browse** to search for the license file *.LIC and load it. Click **Next>** to proceed.
6. Confirm the licensing with **Finish**.

   KUKA.OfficeLite is now licensed and activated.

> **i** The smartHMI is closed in the event of a licensing error, e.g. if an incorrect license file has been used.
> To repeat the licensing, execute the program C:\KRC\SmartHMI\SmartHMI.exe in the virtual machine. The activation wizard **FLEXnet License Finder** is opened again.

3.5 Using KUKA.OfficeLite with a server license

3.5.1 Requesting a server license

Procedure
1. In the virtual machine, copy the folder FLEXLM in the directory C:\KRC\UTIL.
2. Save the folder FLEXLM on the license server. VMware can now be exited.
3. On the license server, start the program **lmtools.exe** in the folder FLEXLM. The **LMTOOLS** window is opened.
4. On the **System Settings** tab, click on the button **Save HOSTID Info to a File**.
5. Select the file location and enter a name for the license request file. Click on **Save**. The license request file is created.
6. Send the license request file with the following information by e-mail to simulation@kuka-roboter.de:
   - KUKA reference number for the purchased software (found under **Supplier Ref. No.** on the Order Confirmation from KUKA)

   The license key is requested. The license file *.LIC will be sent to you by KUKA Roboter.

3.5.2 Starting up the license server for KUKA.OfficeLite

Precondition
- The license file *.LIC is present.

Procedure
1. Save the license file *.LIC on the license server.
2. On the license server, start the program **lmtools.exe** in the folder FLEXLM. The **LMTOOLS** window is opened.
3. Select the **Config Services** tab.
4. Under **Service Name**, enter the name of the new service, e.g. OL Service.
5. Under **Path to the lmgrd.exe file**, enter the path to the lmgrd.exe file, or use the **Browse** button to search for and load the file.

6. Under **Path to the license file**, enter the path to the license file *.LIC or use the **Browse** button to search for and load the file.

7. Under **Path to the debug log file**, enter the path to the license server LOG file, or use the **Browse** button to search for and load the file.
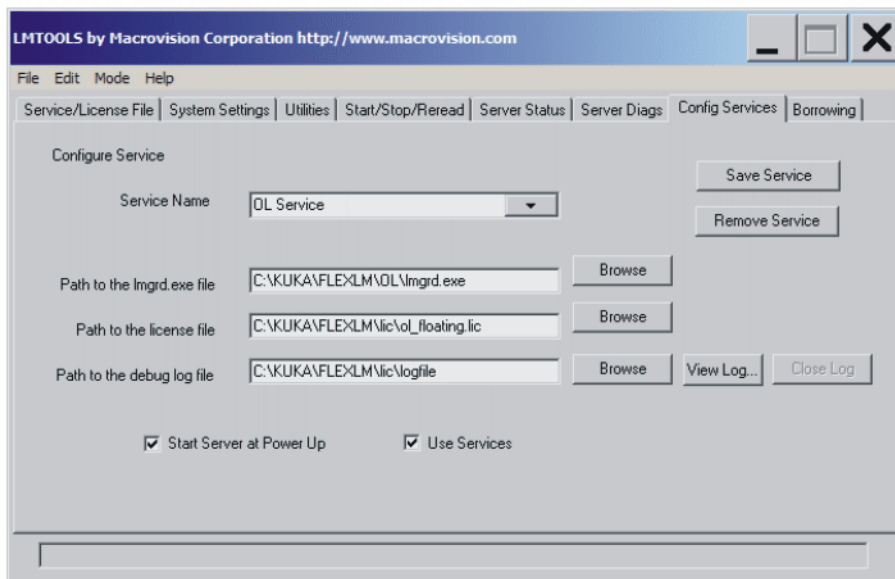
Fig. 3-1: LMTOOLS – Config Services

8. Activate the **Use Services** check box (set the check mark).

9. If necessary, activate the **Start Server at Power Up** check box (set the check mark).

    The option **Start Server at Power Up** has the effect that the FLEXlm license manager is automatically started when the computer is rebooted.

10. Click on **Save Service**. OL Service is saved.

    On the **Start/Stop/Reread** tab, OL Service can be started and stopped, or the server license file can be reloaded.
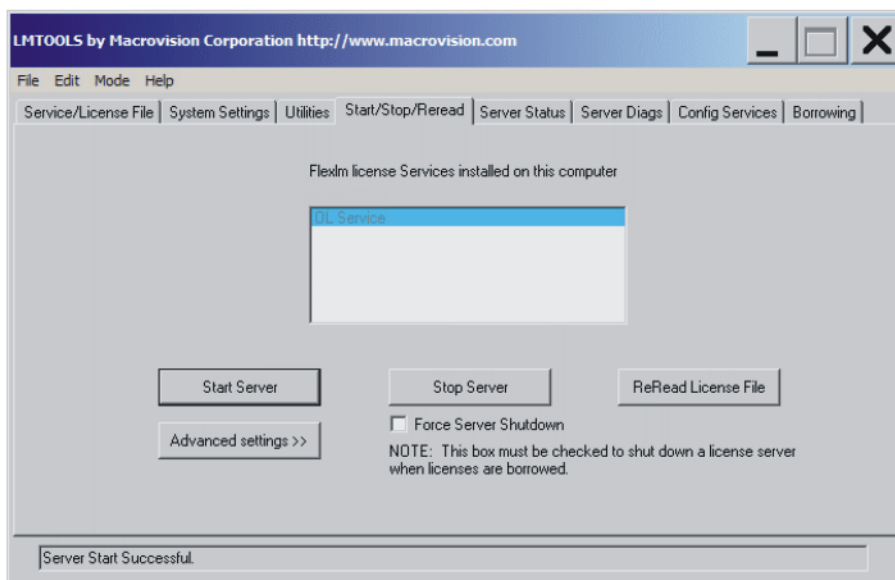
Fig. 3-2: LMTOOLS – Start/Stop/Reread

3.5.3 Activating KUKA.OfficeLite with a server license

Precondition
- Network connection to the license server on which the license file *.LIC is saved.

Procedure
1. Start the VMware software and select the image **KR C, V***OL_RELEASE* in the navigator of the virtual machine.
2. Click on **Play virtual machine**. KUKA.OfficeLite is started and the activation wizard **FLEXnet License Finder** is opened.
3. Select the license type **Specify the License Server System**. Click **Next>** to proceed.
4. Enter the name of the license server. Click **Next>** to proceed. The license server automatically assigns a license from its license pool.
5. Confirm the licensing with **Finish**.

   KUKA.OfficeLite is now licensed and activated.

> The smartHMI is closed in the event of a licensing error, e.g. if an incorrect license file has been used.
> To repeat the licensing, execute the program C:\KRC\SmartHMI\SmartHMI.exe in the virtual machine. The activation wizard **FLEXnet License Finder** is opened again.

3.6 Installing KUKA VRC Interface

For the connection with KUKA.Sim Pro, KUKA VRC Interface must be installed on the virtual image on which KUKA.OfficeLite is installed. KUKA VRC Interface is only licensed in conjunction with KUKA.Sim Pro.

Precondition
- KUKA.OfficeLite is started.
- "Expert" user group

Procedure
1. In the main menu, select **Start-up** > **Additional software**. All additional programs installed are displayed.
2. Click on the **New software** button.
3. Select the entry **VRC Interface** and click on the **Install** button. Reply to the request for confirmation with **Yes**. Installation is prepared.
4. Confirm the reboot prompt with **OK**.
5. Reboot Windows in the virtual machine by selecting **Shut Down** > **Restart** in the Windows Start menu. Installation is resumed and completed.
6. Once Windows has booted, the smartHMI is no longer automatically started.

   To start smartHMI, select **All Programs** > **KUKA** > **StartKRC** in the Windows Start menu of the virtual machine.

3.7 Uninstalling KUKA VRC Interface

Precondition
- "Expert" user group

Procedure
1. In the main menu, select **Start-up** > **Additional software**. All additional programs installed are displayed.
2. Select the entry **VRC Interface** and click on the **Uninstall** button. Reply to the request for confirmation with **Yes**. KUKA VRC Interface is uninstalled.

LOG file
A LOG file is created under C:\KRC\ROBOTER\LOG.

4 License management and use of server licenses

> **i** Detailed information about license management can be found in the **License Administration Guide** for FLEXlm. This guide is included in the scope of supply for KUKA.OfficeLite.

4.1 Borrowing licenses

Precondition
- KUKA.OfficeLite is not running.
- KUKA VRC Manager is not running.
- Network connection to the license server
- The maximum borrow time for licenses is known. (Can be requested from the server administrator.)

> **i** The borrow time for licenses is limited by default to 30 days by KUKA. If there is only a limited number of licenses available on the license server, it is possible that the server administrator may further reduce the maximum borrow time.

Procedure
1. In the virtual machine, start the program **lmtools.exe** in the directory C:\KRC\UTIL\FLEXLM. The **LMTOOLS** window is opened.
2. Make the following settings on the **Utilities** tab:
   - Under **Vendor Name**, enter LM_LICENSE_FILE.
   - Under **Path**, enter the path @*Server name* to the license server, e.g. @Server01.
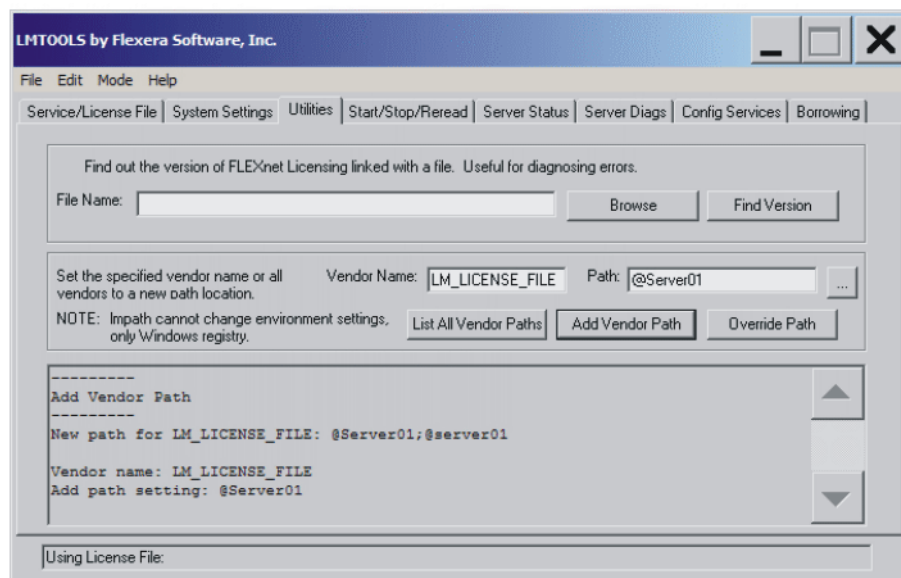
Fig. 4-1: LMTOOLS – Utilities

3. Click on **Add Vendor Path** to save the settings on the **Utilities** tab.
4. Make the following settings on the **Borrowing** tab:
   - Enter KUKAROB under **Vendor Name**.
   - Under **Return Date**, enter the date the license is required until, e.g. 31-mar-2012 (31st March 2012; always enter the first 3 letters of the name of the month in English). The date must be within the maximum borrowing period.
   - Under **Return Time**, enter the time the license is required until, e.g. 12:00.
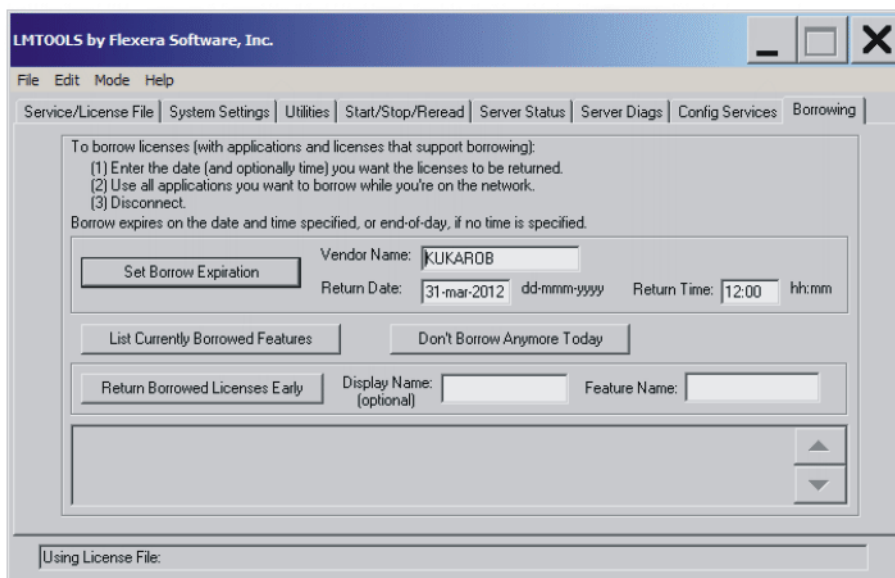
Fig. 4-2: LMTOOLS – Borrowing

5. Click on **Set Borrow Expiration** to save the settings on the **Borrowing** tab.

6. Start KUKA.OfficeLite.

7. Start KUKA VRC Manager if required for connecting to KUKA.SimPro.

8. The PC can be disconnected from the license server: remove the network cable.

9. Click on **List Currently Borrowed Features** to check whether licensing was successful.

   The licensed applications are displayed:

   - KUKAROB_HMI_8 for KUKA.OfficeLite
   - KUKAROB_VRC_2 for KUKA VRC Interface

4.2 Returning borrowed licenses early

Precondition
   - KUKA.OfficeLite is not running.
   - KUKA VRC Manager is not running.
   - Network connection to the license server

Procedure
1. In the virtual machine, start the program **lmtools.exe** in the directory C:\KRC\UTIL\FLEXLM. The **LMTOOLS** window is opened.

2. On the **Borrowing** tab under **Feature Name**, enter the name of the application for which the license is to be returned to the license server earlier than originally planned:
   - KUKAROB_HMI_8 for KUKA.OfficeLite
   - KUKAROB_VRC_2 for KUKA VRC Interface

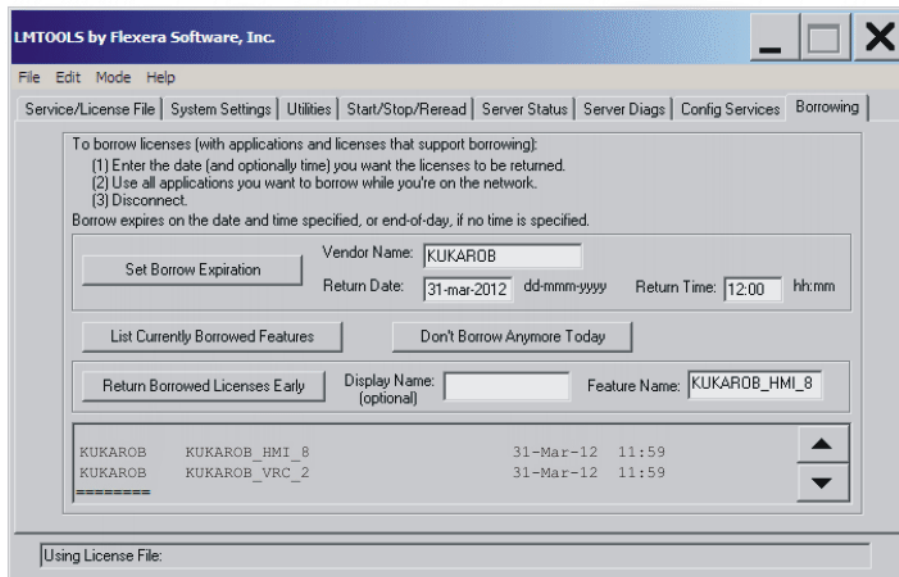**Fig. 4-3: LMTOOLS – Borrowing (returning licenses)**

3. Click on **Return Borrowed Licenses Early** to return the license for the application specified unter **Feature Name**.

4. Start the application (KUKA.OfficeLite or KUKA VRC Manager). The license is returned to the license server only after the application has been started.

5. Click on **List Currently Borrowed Features** to check that the borrowed license has been successfully returned. The application is no longer shown in the list of licensed applications.

4.3   Transferring licenses

Overview   A new license must be requested in the following cases:

Case	License transfer
After the host computer has been exchanged, the old license is no longer valid on the new computer (only relevant for single PC license). If the current license no longer matches the computer, this is indicated by FLEXlm (Error Code -9: Invalid host).	Create a new fingerprint file *.KFP and send it together with the old license file to the following address: simulation@kuka-roboter.de.
Licenses are valid for 12 months. If a license has expired, it can be renewed. If a license has expired, this is indicated by FLEXlm (Error Code -10: Feature has expired).	Send the old license file to the following address: simulation@kuka-roboter.de
After a software update, i.e. if a new build of KUKA.OfficeLite is installed, the host ID is changed. The old license will no longer be valid.	Send the old license file together with the order number for the software update or software maintenance agreement to the following address: simulation@kuka-roboter.de
Modification of the number of server licenses on the license server	Send the old server license file together with the desired number of server licenses to the following address: simulation@kuka-roboter.de
Modification of the maximum possible borrow time of server licenses on the license server By default, server licenses can be borrowed for a maximum of 30 days (= 720 hours).	Send the old server license file together with the desired number of hours to the following address: simulation@kuka-roboter.de

5 VMware settings and operating instructions

5.1 Operating instructions for VMware

License transfer If a new build of KUKA.OfficeLite is installed or if the OfficeLite image is moved to a different folder, the host ID will also change. The old license will no longer be valid. A new license must then be requested.

(>>> 4.3 "Transferring licenses" Page 19)

Keyboard assignment The Windows language in VMware is English by default. The input scheme for the keyboard assignment is German by default.

The keyboard assignment can be set to English in the Windows Control Panel of the virtual machine:

1. Select **Clock, Language, and Region** > **Region and Language** in the Windows Control Panel. The **Region and Language** window is opened.
2. Select the **Keyboards and Languages** tab and double-click on **Change keyboards…**. The window **Text Services and Input Languages** is opened.
3. On the **General** tab, select **English …** under **Default input language**.
4. Close the window by clicking on **OK**.
5. Restart Windows in the virtual machine. To do so, select **Shut Down** > **Restart** in the Windows Start menu.

5.2 Manually connecting a USB drive with the virtual machine

Description The virtual machine must be active in order for a USB stick to be automatically assigned a drive in the virtual machine on connecting the stick. By default, this is the E:\ drive

If the host computer is active instead of the virtual machine, no USB drive is displayed in the virtual machine. In this case, the drive must be connected manually to the virtual machine.

Procedure 1. Select the following menu sequence in the virtual machine:
- VMware Workstation: **VM** > **Removable Devices** > **Swissbit xxx** > **Connect (Disconnect from host)**
- VMware Player: **Player** > **Removable Devices** > **Swissbit xxx** > **Connect (Disconnect from host)**
2. Answer the request for confirmation with **OK**.

5.3 Configuring network settings

Description The following network settings are available in VMware for the operation of KUKA.OfficeLite:

- **Bridged**: This is the default setting. Required if the host computer is integrated into a network. The user can then access the virtual machine from the network, and the network can be accessed from the virtual machine.

  If **Bridged** is used, the check box **Replicate physical network connection state** must be activated (check mark set).
- **NAT**: This setting is required if the host computer is not integrated into a network.
- **Host-only**: Not required.

Procedure 1. Select the following menu sequence in the virtual machine:

- VMware Workstation: **VM** > **Settings…**
- VMware Player: **Player** > **Manage** > **Virtual Machine Settings…**

The **Virtual Machine Settings** window is opened.

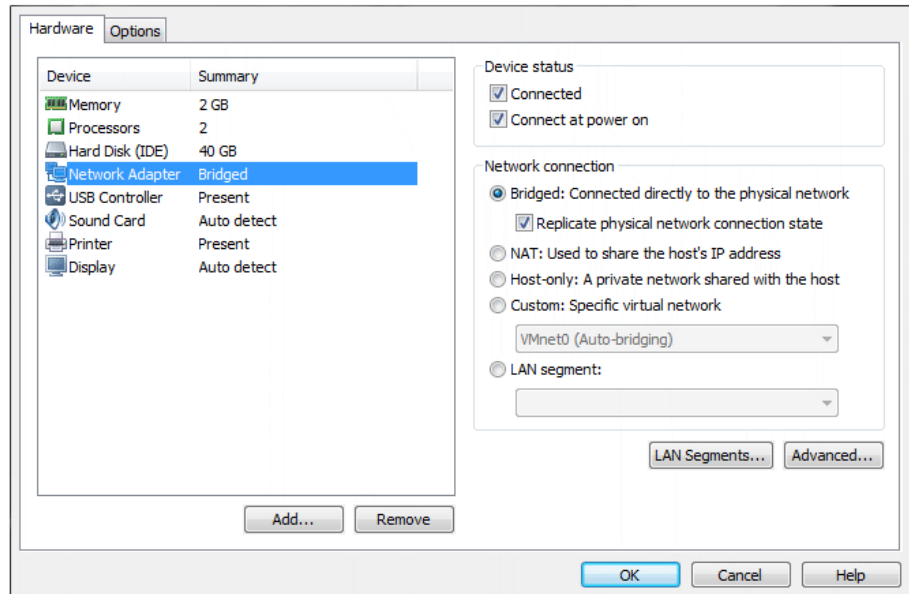2. On the **Hardware** tab, select the device **Network Adapter**.

Fig. 5-1: Network Adapter Bridged (default)

3. If the host computer is integrated into a network, use the default setting in the **Network connection** box:
   - **Bridged** option
     - Check box **Replicate physical network connection state** (check mark set)
4. If the host computer is not integrated into a network, select the option **NAT** in the **Network connection** box.
5. Restart VMware to initialize the modified network settings.
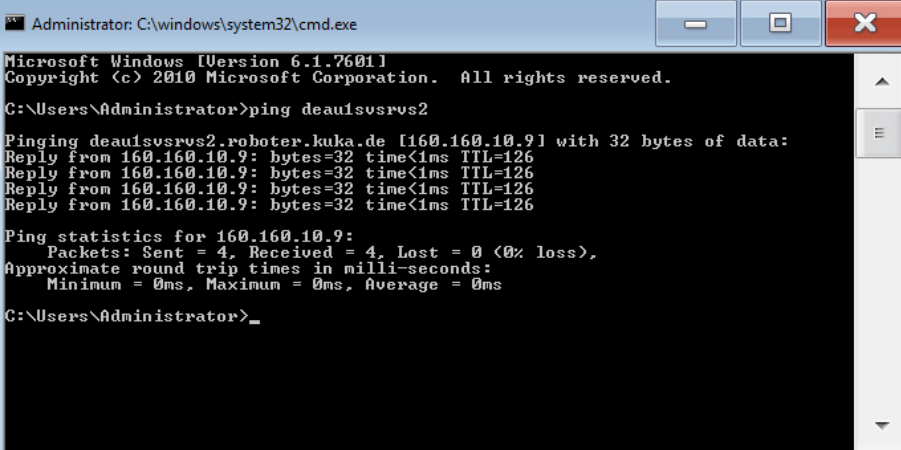
5.4 Checking a network connection

Description

If it is not possible to access an external system, e.g. the license server, from the virtual machine, it is recommended to check whether the corresponding computer can be pinged.

Procedure

1. Open the Windows command prompt in the virtual machine by entering the command **cmd** in the Windows Start menu and confirming with the Enter key.
2. Enter the command **ping** *computer_name* and confirm with the Enter key.

Fig. 5-2: Send ping

3. If the pinged computer does not respond, contact the network administrator to check the network or domain settings.

6 Operation, KUKA.OfficeLite

6.1 Overview of the graphical user interface

The KUKA.OfficeLite user interface is largely identical to the KUKA smartHMI. The operator control elements of the KUKA smartPAD that are required for programming are made available as additional buttons.

The user interface is displayed in the language that was selected during installation of the software. If desired, a different language can be set again from the main menu.

> Further information about the KUKA smartHMI is contained in the operating and programming instructions for the System Software.

Fig. 6-1: Overview of the graphical user interface

Item	Description
1	Button for the enabling switch
2	List box for selecting the operating mode
3	Buttons for manual motion (jog keys)
4	Button for setting the program override
5	Button for setting the jog override
6	This button is used to display the menu items on the user interface (Main menu key).
7	Buttons for the status keys. Status keys are used primarily for setting parameters in technology packages. Their exact function depends on the technology packages installed.
8	This button is used to start a program (Start key).

Item	Description
9	This button is used to start a program backwards (Start backwards key).
10	This button is used to stop a program that is running (STOP key).
11	Button for displaying the keyboard (Keyboard key) It is generally not necessary to press this key to display the keyboard, as the user interface detects when keyboard input is required and displays the keyboard automatically.

6.2 Simulating inputs

KUKA.OfficeLite can be used to simulate physical inputs. Some inputs are write-protected and cannot be simulated.

Procedure

Setting a simulated input:

1. In the main menu, select **Display** > **Inputs/outputs** > **Digital I/O**.
2. Click on **Go to** and enter the number of the desired input via the keyboard. The display jumps to the input with this number.
3. Click on **Sim on/off**. Simulation is activated.
4. Click on **Value**. The input is set to TRUE and simulated.

Description
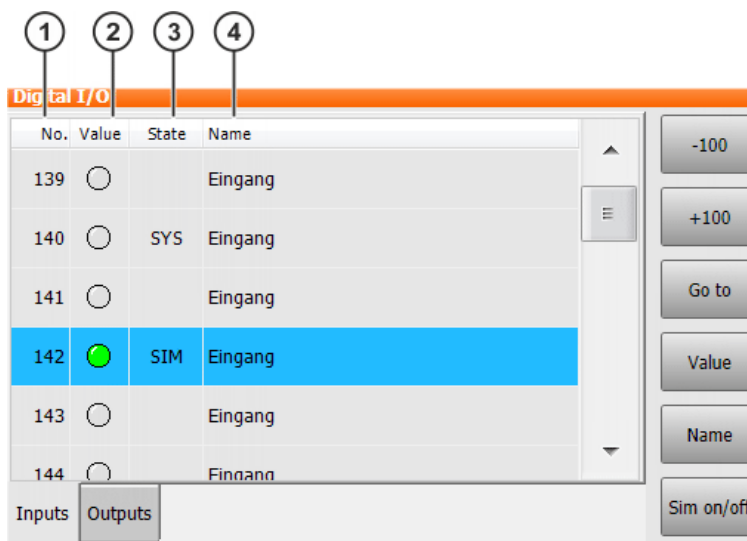
Fig. 6-2: Digital inputs

Item	Description
1	Input number
2	Value of the input. The icon is green if an input is TRUE.
3	SIM entry: The input is simulated. SYS entry: The value of the input is saved in a system variable. This input is write-protected and cannot be simulated.
4	Name of the input

The following buttons are available:

Button	Description
-100	Toggles back 100 inputs in the display.
+100	Toggles forward 100 inputs in the display.

Button	Description
Go to	The number of the input being searched for can be entered.
Value	Toggles the selected input between TRUE and FALSE. This button is not available when simulation is switched off and in AUT and AUT EXT modes.
Name	The name of the selected input can be modified.
Sim on/off	Switches simulation on or off.

6.3 Signal exchange via VRC Interface – note on programming

Description   KUKA.OfficeLite can be used together with KUKA.Sim Pro in order to simulate e.g. the signal exchange between a sensor and a robot. A signal is only transmitted when an edge change is detected.

To ensure that an edge change occurs from FALSE to TRUE when an output is set, the I/Os used must be set to FALSE at the beginning of the program.

6.4 Changing the user group in VW System Software

Precondition
- To switch to a higher user group than that which is currently selected:

  A USB stick with a key file for the desired user groups is present. The key file can be generated using the KUKA.UserKey software.

Procedure
1. Place the focus on the virtual machine and connect the USB stick on the host computer. Confirm the notification message with **OK**.
2. Check that the USB drive is displayed in the virtual machine.
3. If no USB drive is displayed in the virtual machine, connect the drive manually to the virtual machine.

4. Select **Configuration** > **User group** in the main menu. The current user group is displayed.
5. To switch to the default user group: Press **Default**.

   To switch to a higher user group:
   - Press **Login...**. The user groups configured in the key file are displayed. Select the desired user group.
   - If prompted: Enter the password.
   - Confirm with **Log-on**.

7 Messages

7.1 Error messages during licensing

The following FLEXlm error messages occur most frequently during licensing:

No.	Description / cause	Remedy
-5	**No such feature exists.** The license file does not match the installed OfficeLite version.	Install the OfficeLite version for which the license file is valid, or request a new license file after a software update. For this, send the old license file together with the order number for the software update to the following address: simulation@kuka-roboter.de
-9	**Invalid host.** The current license file does not match the computer: ■ After exchanging the computer ■ The OfficeLite image has been moved to a different folder.	Request a new license file. To do so, send the old license file together with the following information to simulation@kuka-roboter.de: ■ Fingerprint file *.KFP in the case of a single PC license ■ Host ID and host name of the license server in the case of a server license **Note**: To reactivate OfficeLite, the old license file in the virtual machine or on the license server must be deleted.
-10	**Feature has expired.** The license file has expired.	Request a new license file. For this, send the old license file to the following address: simulation@kuka-roboter.de
-15	**Cannot connect to license server system.** No connection can be established to the license server: ■ The license server is not running. ■ The wrong license file is being used. ■ The host ID or host name has been changed.	Contact the network administrator.
-88	**System clock has been set back** The Windows system clock in VMware differs too greatly from the current actual world time (UTC).	Adapt the Windows system clock and time zone in VMware to the current actual world time (UTC).

> **i** Other error messages which may occur during licensing are described in the chapter **Error Codes** in the **License Administration Guide** for FLEXlm. This guide is included in the scope of supply for KUKA.OfficeLite.

8 KUKA Service

8.1 Requesting support

Introduction   The KUKA Roboter GmbH documentation offers information on operation and provides assistance with troubleshooting. For further assistance, please contact your local KUKA subsidiary.

Information   The following information is required for processing a support request:

- Model and serial number of the manipulator
- Model and serial number of the controller
- Model and serial number of the linear unit (if applicable)
- Model and serial number of the energy supply system (if applicable)
- Version of the KUKA System Software
- Optional software or modifications
- Archive of the software
- Application used
- Any external axes used (if applicable)
- Description of the problem, duration and frequency of the fault

8.2 KUKA Customer Support

Availability   KUKA Customer Support is available in many countries. Please do not hesitate to contact us if you have any questions.

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