KUKA

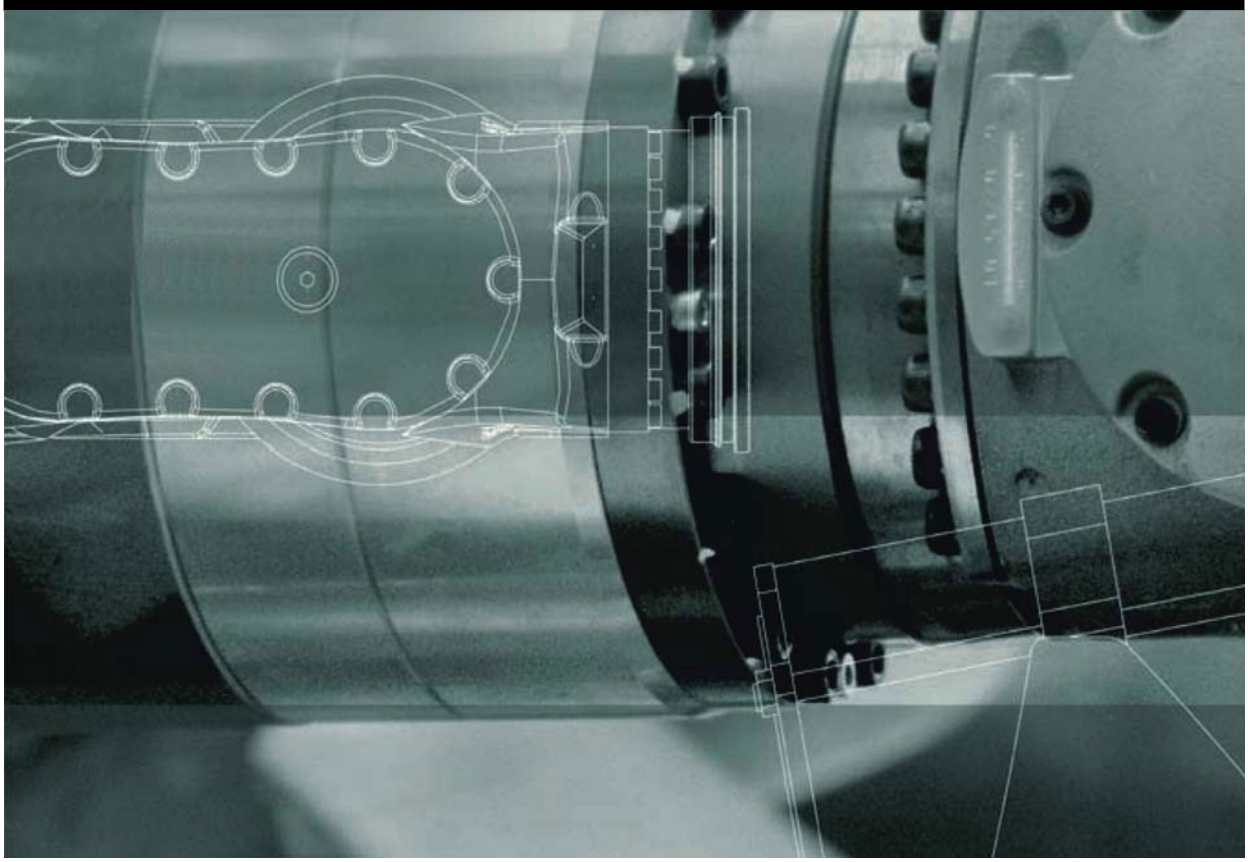
KUKA System Technology

KUKA Roboter GmbH

KUKA.OfficeLite 8.2

For KUKA System Software 8.2

For VW System Software 8.2



Issued: 21.11.2011

Version: KUKA.OfficeLite 8.2 V4 en

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Other functions not described in this documentation may be operable in the controller. The user has no claims to these functions, however, in the case of a replacement or service work.

We have checked the content of this documentation for conformity with the hardware and software described. Nevertheless, discrepancies cannot be precluded, for which reason we are not able to guarantee total conformity. The information in this documentation is checked on a regular basis, however, and necessary corrections will be incorporated in the subsequent edition.

Subject to technical alterations without an effect on the function.

Translation of the original documentation

KIM-PS5-DOC

Publication:	Pub KUKA.OfficeLite 8.2 (PDF) en
Bookstructure:	KUKA.OfficeLite 8.2 V3.2
Version:	KUKA.OfficeLite 8.2 V4 en

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

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 physical injury **will** occur, if no precautions are taken.

WARNING These warnings mean that death or severe physical injury **may** occur, if no precautions are taken.

CAUTION These warnings mean that minor physical 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.

Hints

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
KRL	KUKA Robot Language
KLI	Line bus for the integration of the system in the customer network (KUKA Line Interface)
KUKA smartHMI	User interface of the KUKA System Software (KUKA smart Human-Machine Interface)
KUKA smartPAD	Teach pendant for the industrial robot
MAC address	Media Access Control address Hardware address of a network card for unambiguous identification of the device in a computer network
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
VxWorks	Real-time operating system

1.5 Trademarks

NTFS is a trademark of Microsoft Corporation.

Step 7 are trademarks of Siemens AG.

VMware is a trademark of VMware Corporation.

VxWorks is a trademark of Wind River Systems Inc.

Windows is a trademark of Microsoft Corporation.

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.

> 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
- Operation of field buses, e.g. DeviceNet, EthernetIP, Interbus, PROFIBUS, PROFINET
- Load data determination
- Network connection via the KLI

> 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 installed:

- KUKA.SafeOperation
- KUKA.SafeRangeMonitoring
- KUKA.RoboTeam
- KUKA.ServoGun FC
- KUKA.ConveyorTech
- KUKA.EqualizingTech

> 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 pro-

gram 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 or VW System Software
- Windows XPe 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.

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, 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.

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

WorkVisual

Projects created with WorkVisual can be transferred to the system software image, e.g. in order to simulate programs created in WorkVisual.

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

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

3 Installation and licensing

Several versions of KUKA.OfficeLite may be installed on one host computer. In order to work with KUKA.OfficeLite, the application must only be started once. All other OfficeLite applications must be closed.

3.1 System requirements

Hardware

Minimum requirements

- PC with dual-core processor (2 real cores – no hyper-threading)
- 2 GB RAM
- 5 GB free hard disk space

Software

- VMware software, e.g.:
  - VMware Player ≥ 3.1
  - VMware Workstation ≥ 7.1
- Operating system for VMware: Windows XP (32-bit) or Windows 7 (32-bit or 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 type

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

- **License File**

  The license is valid for a specific PC. The MAC address of the virtual network card in the VMware image is required for the license request.

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

  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.

3.2.1 Starting KUKA.OfficeLite and requesting a license key

A license key is required for licensing KUKA.OfficeLite and KUKA VRC Interface.

Precondition

- VMware software is installed.
- The **KUKA Software license** form has been filled out completely (order data, contact data, host ID for single PC license and host name for server license).

  This form is supplied together with KUKA.OfficeLite.

Procedure

1. Start the VMware software and click on **Open a Virtual Machine**.
2. In the Navigator, 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 and the **Cloning** window is opened.
4. Enter a unique and easily identifiable computer name for the virtual PC. Click **OK** to confirm.
5. Windows is automatically rebooted. Then KUKA.OfficeLite is started and the activation wizard **FLEXnet License Finder** is opened.

   Click on **Cancel** to close the activation wizard and acknowledge the error message with **OK**.
6. In the virtual machine, start the program **lmtools.exe** in the directory C:\KRC\UTIL\FLEXLM. The **LMTOOLS** window is opened.
7. On the **System Settings** tab, click on the button **Save HOSTID Info to a File**.
8. In the Navigator, select the storage location, e.g. network drive or USB stick.

> If the data is 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 with the virtual machine.
> (>>> 4.2 "Manually connecting a USB drive with the virtual machine" Page 15)

9. Enter a name for the license request and click on **Save**. The license request *Name* is created.
10. Send the license request *Name* together with the **KUKA Software license** form to the following address: simulation@kuka-roboter.de

    The license key is requested.

The license file *Name*.LIC will be sent to you by KUKA Roboter.

3.2.2 Activating KUKA.OfficeLite

Precondition

- VMware software is installed.
- If a single PC license is used:
  - The license file *Name*.LIC is present.
  - The virtual network card with the MAC address from the license file *Name*.LIC is activated.
- If a server license is used:
  - Network connection to the license server on which the license file *Name*.LIC is saved.

  (>>> 6.4 "Starting up the license server for KUKA.OfficeLite" Page 25)

Procedure

1. Start the VMware software and click on **Open a Virtual Machine**.
2. In the Navigator, 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**. KUKA.OfficeLite is started and the activation wizard **FLEXnet License Finder** is opened.
4. If a single PC license is used, save the license file *Name*.LIC in the virtual machine.
5. Select the license type **License File** or **License Server**. Click **Next >** to proceed.

6. If **License Server** is selected, enter the server name. Click **Next >** to proceed. The license server automatically assigns a license from its license pool. Continue with step 8.
7. Enter the location and name of the license file *Name*.LIC or use **Browse** to search for the license file *Name*.LIC and load it. Click **Next >** to proceed.
8. Confirm the licensing with **Finish**.

   KUKA.OfficeLite is now licensed and will be activated. KUKA VRC Interface is also licensed and can be installed.

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.

3.3 Installing KUKA VRC Interface

KUKA VRC Interface must be installed on the virtual image on which KUKA.OfficeLite is installed.

Precondition

- KUKA.OfficeLite is started.
- “Expert” user group

Procedure

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

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

LOG file

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

3.4 Uninstalling KUKA VRC Interface

Precondition

- Expert user group

Procedure

1. In the main menu, select **Start-up** > **Install additional software**. All additional programs installed are displayed.
2. Select the entry **VRC Interface** and click on **Uninstall**. 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.

3.5 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.)

The borrow time for licenses is limited by default to 90 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. On the **Utilities** tab, make the following settings to enable the early return of borrowed licenses.
   - Under **Vendor Name**, enter LM_LICENSE_FILE.
   - Under **Path**, enter the path @*Server name* to the license server, e.g. @Server01.

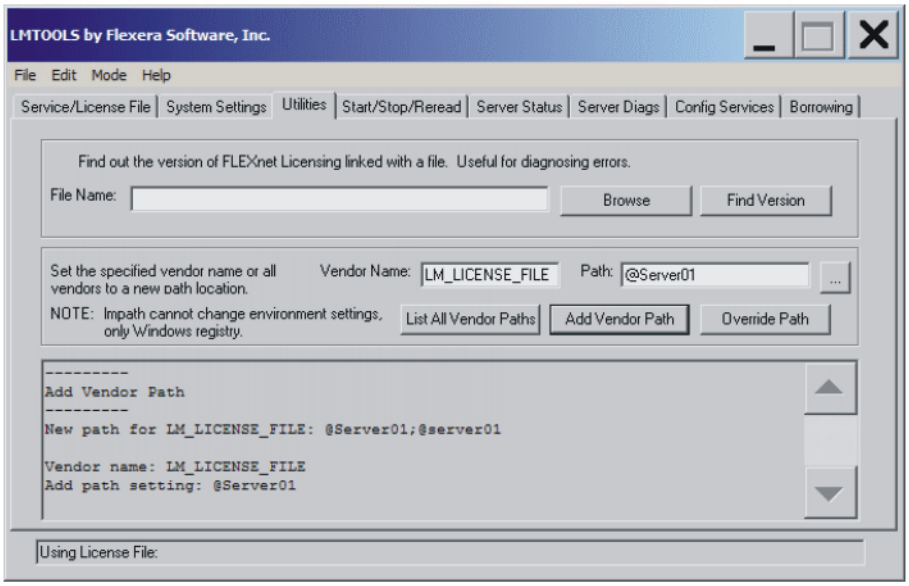

Fig. 3-1: LMTOOLS – Utilities

3. Click on **Add Vendor Path** to save the settings for the early return of borrowed licenses.
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.

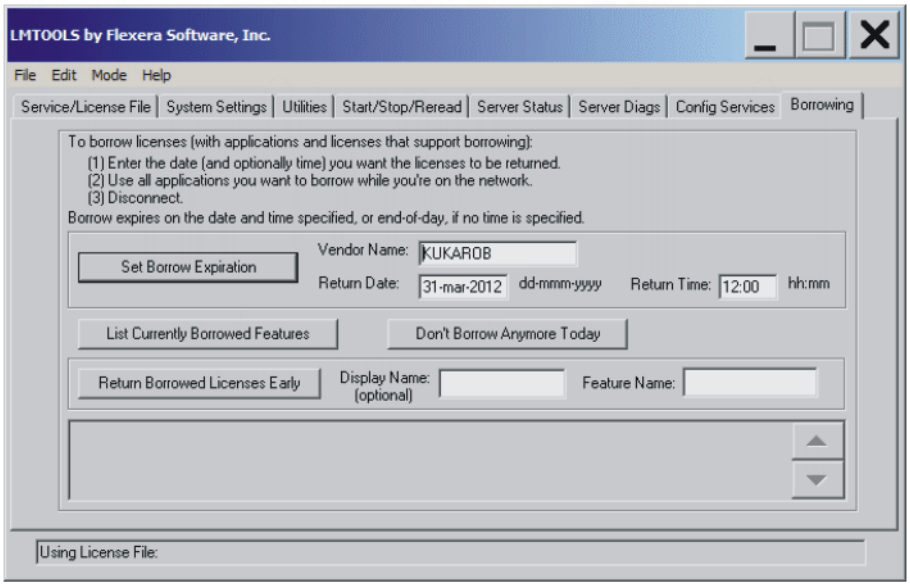

Fig. 3-2: LMTOOLS – Borrowing

5. Start KUKA.OfficeLite.
6. Start KUKA VRC Manager if required for connecting to KUKA.SimPro.
7. The PC can be disconnected from the license server: remove the network cable.
8. 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

3.6 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

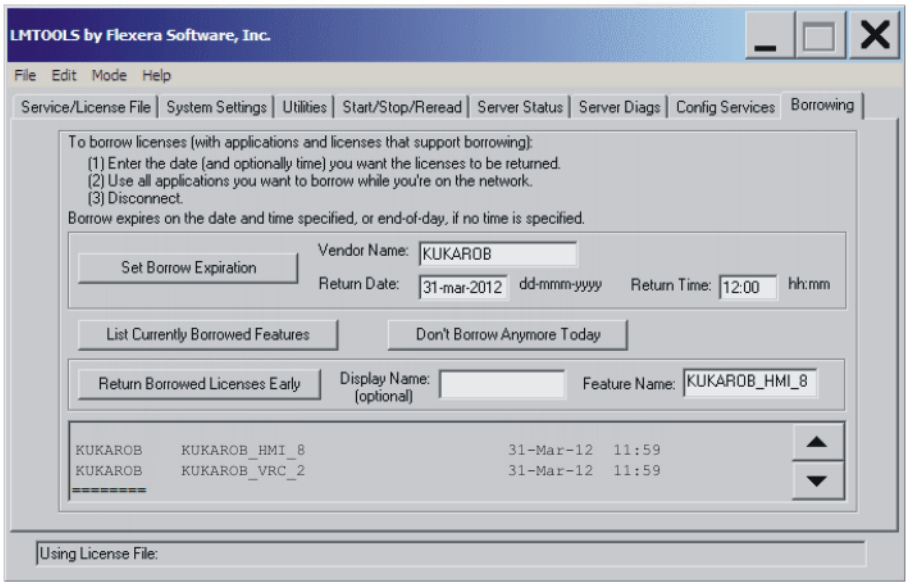

Fig. 3-3: LMTOOLS – Borrowing (returning licenses)

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 VMware settings and operating instructions

4.1 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 (= MAC address of the virtual network card) will also change. The old license will no longer be valid. A new license must then be requested.

(>>> 6.3 "Transferring licenses" Page 24)

Keyboard assignment

The Windows language in VMware and the input scheme for the keyboard assignment is English by default. To switch the keyboard assignment permanently to German, the language must be changed in the Windows Control Panel of the virtual machine:

1. In the virtual machine, select **Start** > **Control Panel** > **Regional and Language Options**. The window **Regional and Language Options** is opened.
2. On the **Languages** tab, double-click on **Details…**. The window **Text Services und Input Languages** is opened.
3. On the **Settings** tab, select **German …** under **Default input language**.
4. Close the window with **OK** and restart Windows in the virtual machine (**Shut Down** button in the Windows Start menu).

4.2 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: **Virtual Machine** > **Removable Devices** > **Swissbit xxx** > **Connect (Disconnect from host)**
2. Confirm two user prompts with **OK**.

4.3 Configuring network settings

Description

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

- **Bridged**: Default setting. This setting is required if the host computer is integrated into a network. To ensure error-free operation, the check box **Replicate physical network connection state** must be activated (set check mark).

  A user can access the virtual machine from the network, and the network can be accessed from the virtual machine.
- **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: **Virtual Machine** > **Virtual Machine Settings…**

2. On the **Hardware** tab, select the **Network Adapter**.
3. Set the required connection under **Network connection**.

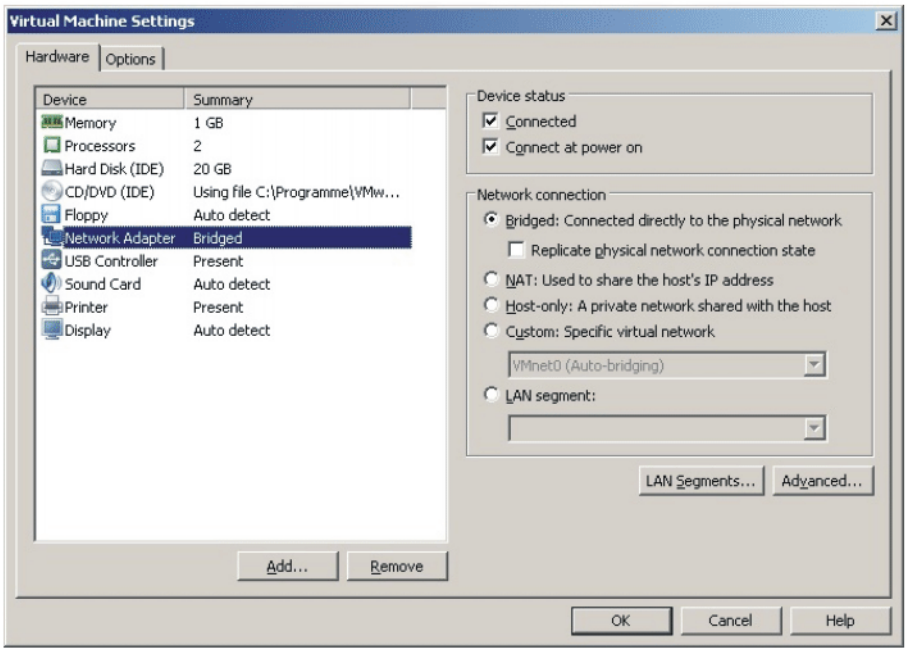

Fig. 4-1: Network settings – example: VMware Workstation

4. If **Bridged** was set, activate the check box **Replicate physical network connection state** (set check mark).
5. Only with VMware Workstation and if **Bridged** was set:

   Select the menu sequence **Edit** > **Virtual Network Editor** and select the physical network adapter used for the network communication, e.g. Intel or Broadcom. Click on **OK** to confirm.

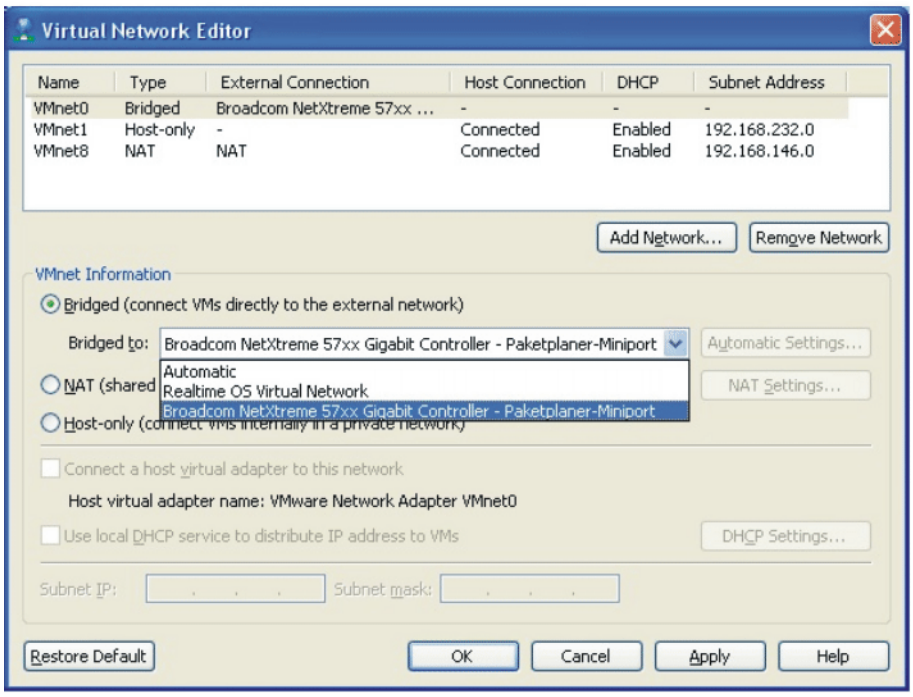

Fig. 4-2: Selecting the network adapter – VMware Workstation

6. To initialize the network settings, open **Network Connections** in the Windows Start menu of the virtual machine.
7. Right-click on **Local Area Connection** with the device name **VMware Accelerated…** and select **Disable**.
8. Right-click again on **Local Area Connection** with the device name **VMware Accelerated…** and select **Enable**.

4.4 Deactivating VMware Bridge Protocol in a virtual network adapter

Description

Several virtual network adapters may be active on a host computer. This is the case, for example, if one or more previous versions of OfficeLite are installed on the host computer, e.g. KUKA.OfficeLite 5.6.

The VMware Bridge Protocol must only be used by the LAN connection which is routed to the company network. The VMware Bridge Protocol must be deactivated in the network settings of the virtual network adapters. Otherwise, the virtual machine cannot connect to the network of the host computer. A connection to the license server or to KUKA.Sim Pro is then no longer possible.

> The procedure is described using the example of Windows XP. The procedure may differ if a different Windows operating system is used, e.g. Windows 7.

Procedure

1. Open the network connections in the Windows Control Panel of the host computer – not in the virtual machine.
2. Right-click on the network connection used by a virtual network adapter and select **Properties**. The **Properties** window is opened, here e.g. the window **LAN Connection 3 Properties**.

   As shown in the figure, LAN Connection 3 uses the virtual network adapter **Realtime OS Virtual Network**.

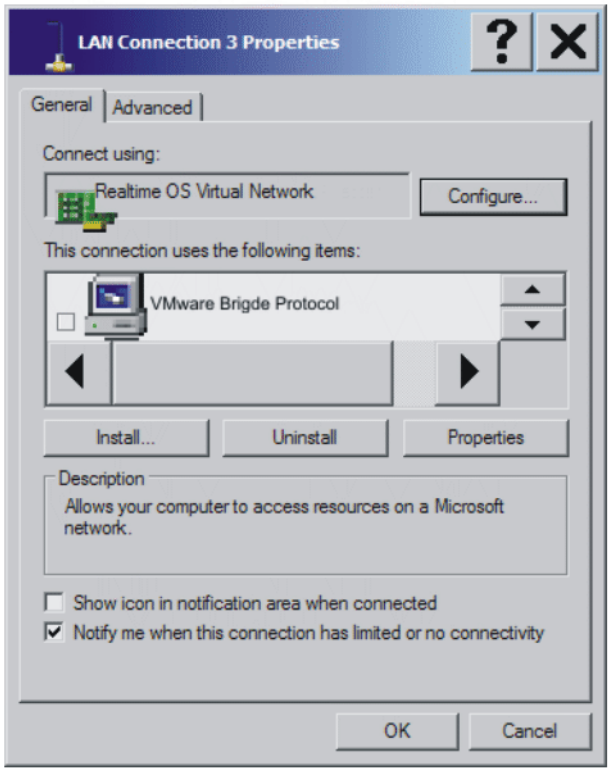

Fig. 4-3: Deactivating the VMware Bridge Protocol (example)

3. If the network connection uses the VMware Bridge Protocol, deactivate the check box **VMware Bridge Protocol** (remove check mark).

4. Confirm the properties with **OK**.
5. Repeat steps 2 to 4 for all other network connections that use a virtual network adapter.
6. Restart the virtual machine and host computer.

4.5 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. In the Windows Start menu of the virtual machine, select **Run…**, enter the command **cmd** and confirm with **OK**. The Windows command prompt is opened.
2. Enter the command **Ping***computer_name* and confirm with the Enter key.

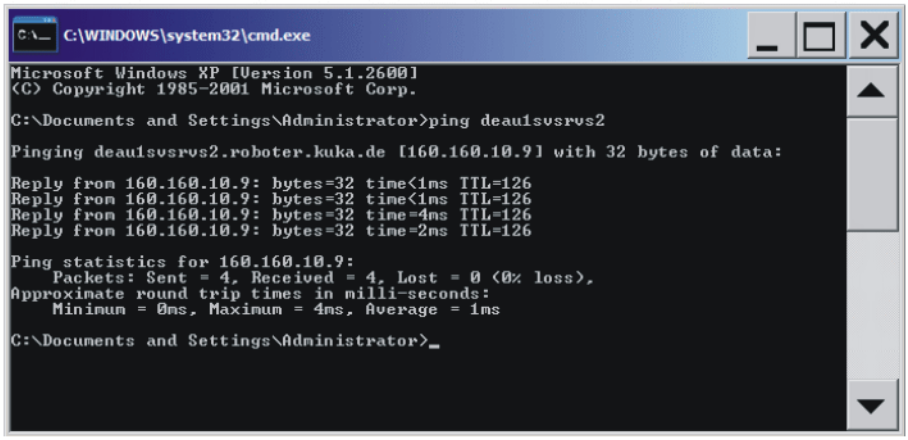

Fig. 4-4: Send ping

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

5 Operation, KUKA.OfficeLite

5.1 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.

By default, the user interface is displayed in English when KUKA.OfficeLite is started for the first time. If desired, a different language can be set from the main menu. The same languages are available as in the System Software.

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

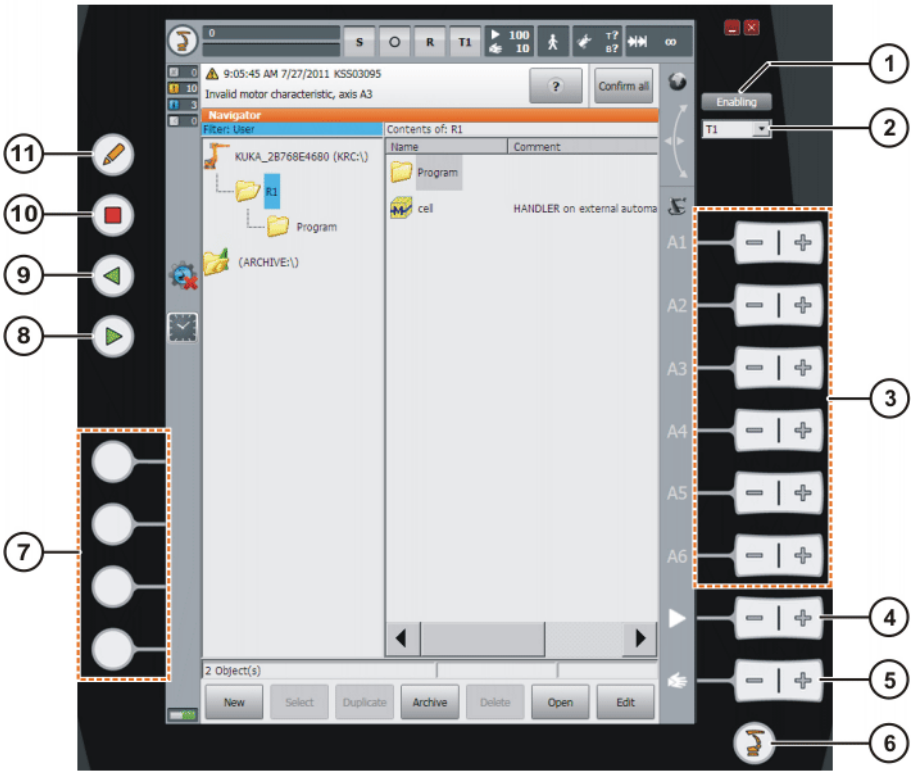

Fig. 5-1: Overview of the graphical user interface

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.

5.2 Copying machine data

Description

KUKA.OfficeLite can be used to copy machine data. Only machine data that are compatible with the system software version may be copied. Compatible machine data are available in the following directory:
D:*KRC_Release*\INTERNAT\MADA\KRC4

If necessary, it is also possible to use machine data created by the user, or machine data transferred from a real robot controller.

Precondition

- Expert user group

Procedure

1. In the main menu, select **Start-up** > **Copy machine data**. A directory structure is displayed.
2. Navigate to the directory with the machine data and select the desired directory.
3. Press **Copy**. The machine data are copied.
   When copying of the machine data is complete, this is indicated by a message.

The following icons are displayed in the directory structure:

Icon	Description
	Red check mark All directories containing valid data that can be copied are labeled with a red check mark.
	Green arrow If a directory is labeled with a red check mark, the icon changes to a green arrow. Furthermore, the complete path of the selected directory is displayed underneath the directory structure. This directory can now be copied using the **Copy** button.

The following buttons are available:

Button	Description
Refresh	Refreshes the directory structure.
Copy	Copies the selected directory. Precondition: the selected directory is labeled with the green arrow.

5.3 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

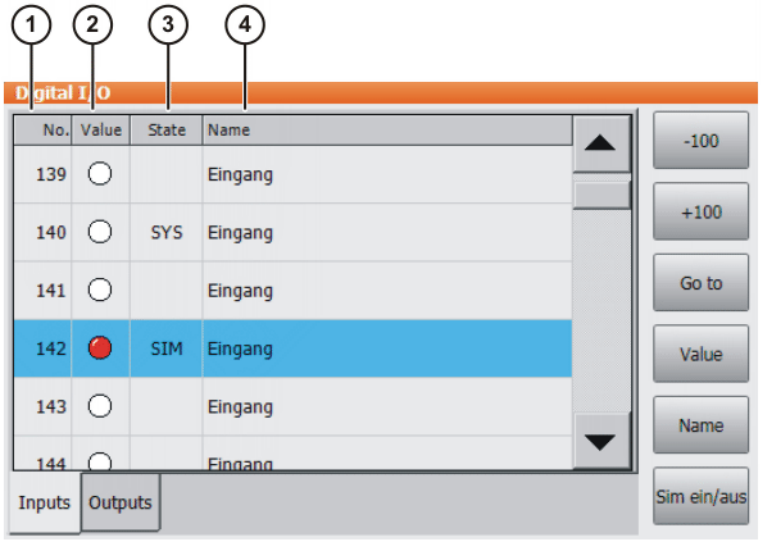

Fig. 5-2: Digital inputs

Item	Description
1	Number of the input
2	Value of the input. The icon is red 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.
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.

5.4 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.

5.5 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.
   (>>> 4.2 "Manually connecting a USB drive with the virtual machine" Page 15)
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**.

6 License management

The most important information about the management of the licenses required for the operation of OfficeLite is summarized here.

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.

6.1 Requesting a license for KUKA.OfficeLite

Procedure

1. Create a license request.
   (>>> 3.2.1 "Starting KUKA.OfficeLite and requesting a license key" Page 9)
2. Enter the necessary license information in the **KUKA Software license** form:
   - Contact data
   - KUKA order data for the software purchased
   - Host ID (= MAC address of the virtual network adapter)
   - Only for server licenses: computer name of the host computer
3. Send the license request and the completed form to the following address: simulation@kuka-roboter.de

6.2 License files

Description

After receiving and checking the license request together with the **KUKA Software license** form, KUKA Roboter returns the license file *.LIC. The license file contains all the information required to activate and manage licenses with the FLEXlm license mechanism.

Example

Example of a license file *.LIC for a server license:

```
SERVER DEAU1NBCAD22 d067e531c2ee
USE_SERVER
VENDOR KUKAROB
FEATURE KUKAROB_HMI_8 KUKAROB 2.0 30-jun-2012 300 HOSTID=ANY \
      DUP_GROUP=H BORROW=8700 TS_OK SIGN="00A0 D681 A9CE 77D3 D13C \
      D819 7703 8100 1F9E DC5A 8389 405F 9C81 188E 2842"
FEATURE KUKAROB_VRC_2 KUKAROB 0.0 30-jun-2012 300 HOSTID=ANY \
      DUP_GROUP=H BORROW=8700 TS_OK SIGN="004B 178F 1D23 174B 1C10 \
      D24F 23CE AB00 F379 E37C 58A6 7AE4 45D1 AA35 C861"
#
# When activating this license file the KUKA Software-license-Terms
are aggreed.
# Company:       KUKA Roboter gmbH
# Hostname:      deau1nbcad22
# Username:      Appel
# Creation Date: 17.09.2011 12:46:09
# KUKA_Ref_No:   379998
# KUKA_LIC_ID:   878
```

A license file contains the following information:

Information	Description / example
SERVER	Name of the host computer (only for server licenses)
USE_SERVER	Identifies the file as a server license file
VENDOR	Name of provider: ■ KUKAROB

Information	Description / example
FEATURE	Software version: ■ KUKAROB_HMI_8 ■ KUKAROB_VRC_2
	Name of provider: ■ KUKAROB
	Expiry date of license file: ■ 30-jun-2012
HOSTID	■ MAC address of the virtual network adapter for single PC licenses ■ ANY: For server licenses
DUP_GROUP=H BORROW	Number of licenses on the license server: ■ 8700
TS_OK SIGN	License key as alphanumeric combination
Comment	Additional information, not checked by the FLEXlm license mechanism, such as host name, user name, creation date, etc.

6.3 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 old license is used on the new computer, FLEXlm reports that the current host ID does not match the host ID in the license file (error code -9: Invalid host).	Send the old license file together with the current host ID (= MAC address of the virtual network adapter) to the following address: simulation@kuka-roboter.de
Licenses are automatically extended by one year approx. 4 weeks before the expiry date. The new license file is sent by KUKA Roboter by e-mail. By default, licenses are valid for 12 months. If the old license could not be successfully renewed, FLEXlm reports that the license has expired (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 floating licenses on the license server	Send the old server license file together with the desired number of floating licenses to the following address: simulation@kuka-roboter.de
Modification of the maximum possible borrow time of floating licenses on the license server By default, floating licenses can be borrowed for a maximum of 90 days (= 2160 hours).	Send the old server license file together with the desired number of hours to the following address: simulation@kuka-roboter.de

6.4 Starting up the license server for KUKA.OfficeLite

Procedure

1. On the license server, run the program **lmtools.exe** to start the FLEXlm license manager. The **LMTOOLS** window is opened.
2. Select the **Config Services** tab.
3. Under **Service Name**, enter the name of the new service, e.g. OL Service.
4. 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.
5. Under **Path to the license file**, enter the path to the server license file (*floating.lic), or use the **Browse** button to search for and load the file.
6. 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.

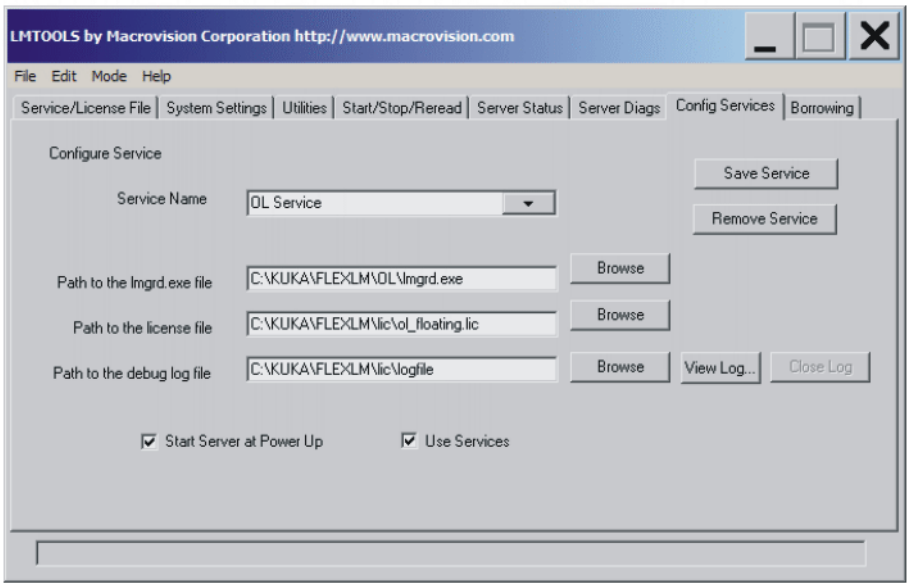

Fig. 6-1: LMTOOLS – Config Services

7. Activate the **Use Services** check box (set the check mark).
8. 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.
9. 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.

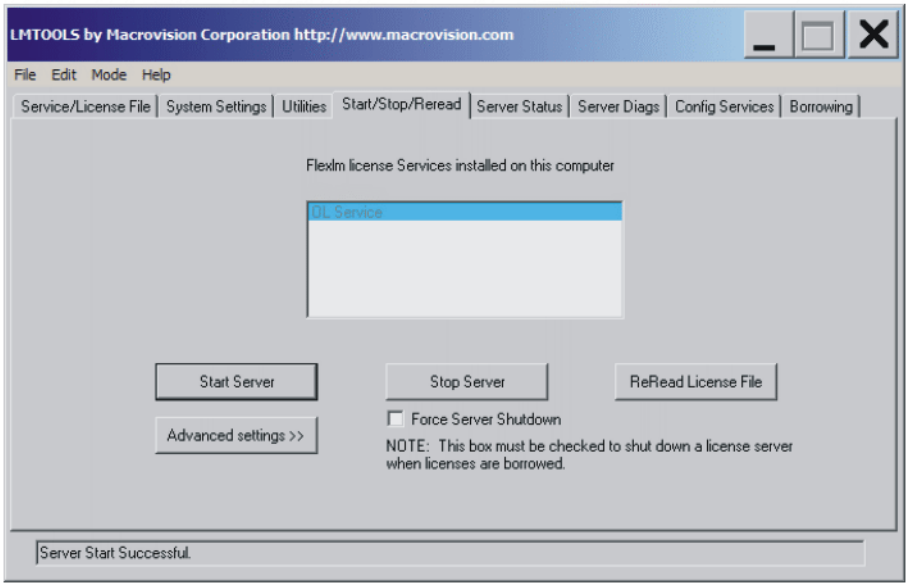

Fig. 6-2: LMTOOLS – Start/Stop/Reread

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 host ID does not match the host ID in the license file: ■ After exchanging the computer ■ The OfficeLite image has been moved to a different folder.	Request a new license file. For this, send the old license file together with the current host ID (= MAC address of the virtual network adapter) to the following address: simulation@kuka-roboter.de
-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.

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 robot
- Model and serial number of the controller
- Model and serial number of the linear unit (if applicable)
- Version of the KUKA System Software
- Optional software or modifications
- Archive of the software

  For KUKA System Software V8: instead of a conventional archive, generate the special data package for fault analysis (via **KrcDiag**).
- Application used
- Any external axes used
- 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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