

ABB Robotics December 2014

RobotWare 6

External Presentation

Differentiated Value Proposition

RobotWare 6



RobotWare raises the bar in robot control by improving flexibility while maintaining its world-class performance. It's open and future-proof design improves productivity and enables new application functionality in a feature rich and familiar environment.

- Open controller architecture
- Smartphone simplicity
- All features from RW5 and a lot more...

RobotWare Overview

Software for ABB embedded industrial robot controllers

Features

- State-of-the-art motion control
- State-of-the art I/O system
- Modular programming language
- Advanced networking & connectivity
- Large selection of HMI devices
- PC based configuration tools (RobotStudio®)

Architecture

- Modularized design
- Fully parameterized configuration
- Scriptable behavior
- Advanced Simulation support

Features

User-interface going forward



**Standard tablets for
commissioning**

**Motion sensing jogging
device**

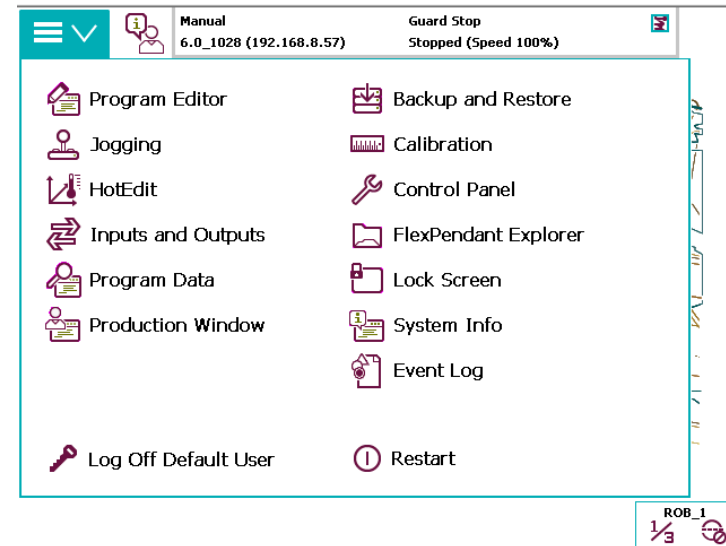
**ABB CP 600 operator
panels**

Benefits

- Intuitive and standardized tools
- Improved and enhanced functionality
- Based on commercially available hardware and software standards

Features

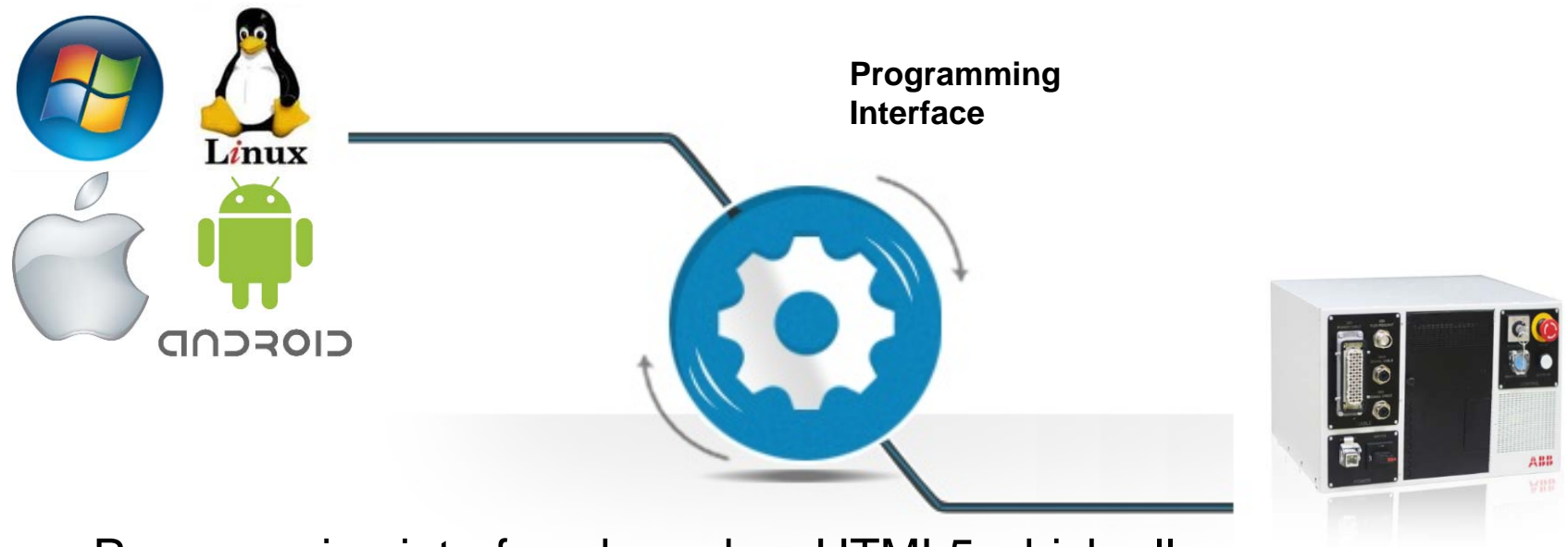
New look and feel



- Simple outlined icons that are clean and easily understood.
- RobotWare, RobotStudio and RobotStudio Online in harmony, looks like a family

Features

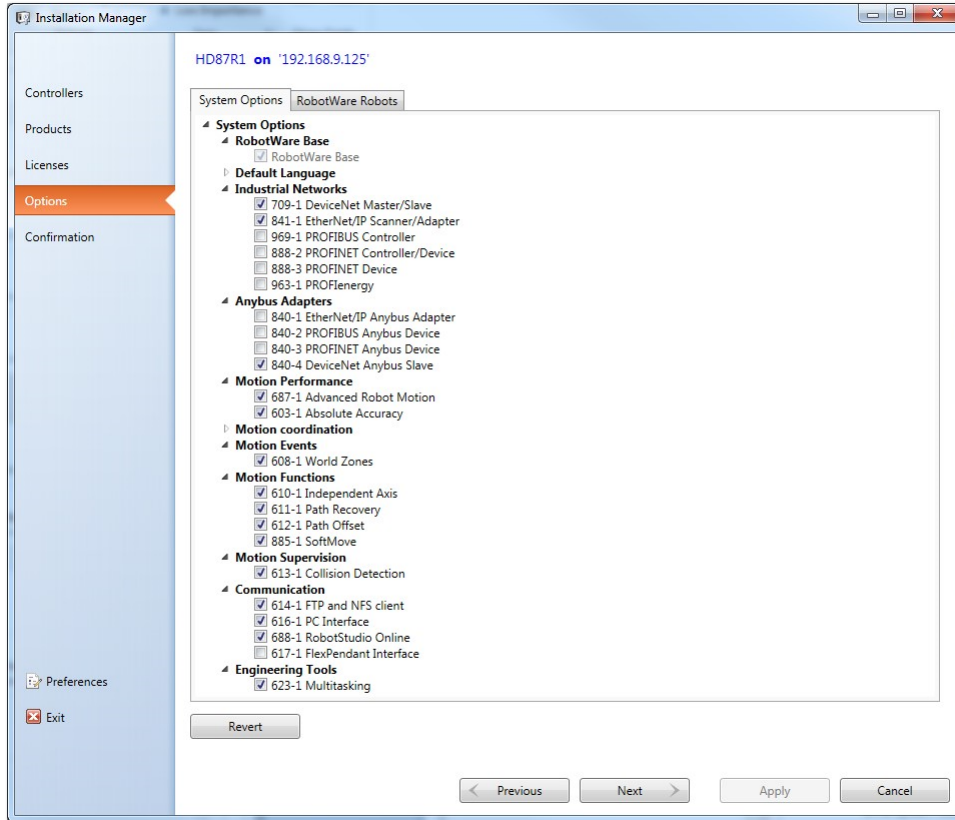
Robot web services



- Programming interface based on HTML5 which allows connect from any device, regardless of operating system
- Enables application developers to easily create custom applications interacting with IRC5
- No client side installation necessary, run from any web-browser
- Free of charge, no option needed

Features

Installation Manager



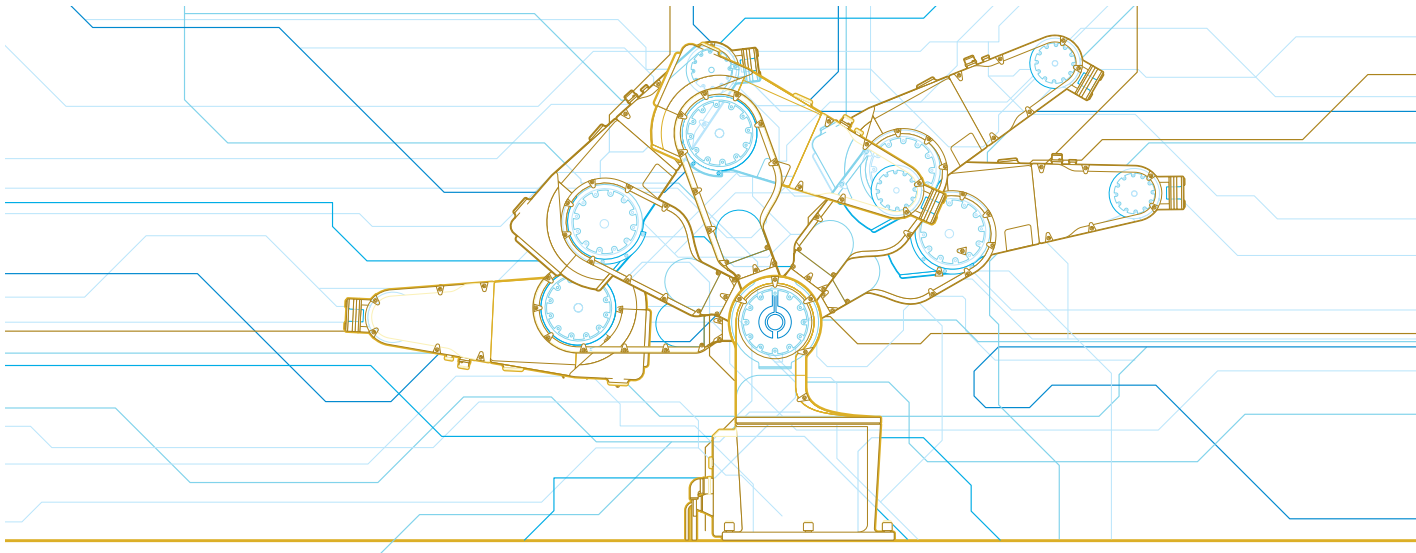
- Makes software installation and the addition of new options hassle free and easy.
- Designed to vastly improve robot set up time and system reconfiguration thanks to a flexible licensing mechanism
- New intuitive user interface.
- RobotWare and additional software (RW Add-in) can be installed and updated independently.

Features

RobotWare add-ins

- RobotWare Add-ins is installable additional software packages that extends the capabilities of RobotWare
- RobotWare add-ins is the recommended way for 3rd party developers to add new features to RobotWare.
- Benefits
 - Version handling of the add-in packages.
 - Easy upgrade of the software on the controller without complete re-installation of the system.
 - Digital signing and pre-packaging to deliver a tamper proof distribution of the add-in.
 - Improved license management.
 - Possibility to specify dependencies between options in an add-in and between products, for instance, between an add-in and options in RobotWare.

Improved productivity Faster



- The restart time will be significantly improved
- The jogging will be made more responsive*
- The installation time will be shortened

*beta version RW6.0; complete RW6.01

Improved productivity Improved process modes



- Optimize robot behavior based on application needs.
- Select motion process mode
 - Optimal cycle time (default)
 - High accuracy
 - Stiff mode
 - Candidate: Energy mode, future release
- Two versions
 - Static, mode change requires restart (free)
 - Dynamic, run-time mode change from RAPID (option 602-1)

Improved productivity

Singularity avoidance



- When an 6 axis robot is used as palletizer robot motion can be disturbed by singularities
- Singularity occurs when axis 5 is at 0 degrees
- RW6 will enable wrist singularity avoidance
- It will be possible to turn the movement mode on and off from Rapid.

Improved productivity

SaveMove Visualizer



- SafeMove Visualizer shows graphical representations of SafeMove configurations.
- The application perfectly illustrates safety zones for fast and precise analysis of a zone or axis violation.
- The SafeMove visualizer will be included in SafeMove option of RobotWare 6

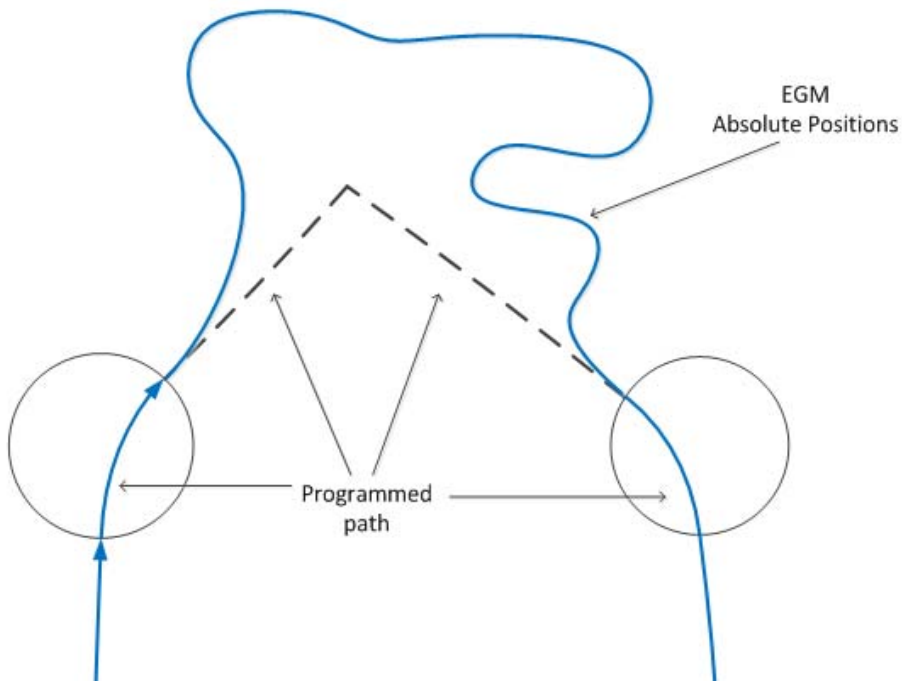
More robust Motion error handler

```
PROC main()  
  MoveJ p10, v200, fine, tool0;  
  MoveJ p20, v200, fine, tool0;  
  ERROR  
  TEST ERRNO  
  CASE ERR_COLL_STOP:  
    MoveJ p30, v200, fine, tool0;  
  ENDTST  
  StartMove;  
  RETRY;  
ENDPROC
```

- Sensor (vision) generated robot paths have become common
- These paths can not be verified and can cause production stops
- RW6 provide the possibility to recover from motion errors
 - Collisions
 - Out of reach

Options

External guided motion



- Many robot applications rely on sensors.
- EGM enables external sensors/computers to control the robot motion
- EGM provides ways to input absolute positions or even modify the path.
- Path can be updated every 4 ms with a controller lag of 8 to 20 ms

RobotWare 6

Upgrade and compatibility

- RobotWare 6.0 requires the new main computer
 - RAPID fully compatible except Spot configuration
 - Limited CFG changes (mostly fieldbus related)
 - License concept different
 - All RW5 options are supported in RW6
-
- Automatic tool for upgrade from RW5.15 to RW5.60 is available
 - Automatic tool for upgrade from RW5.60 to RW6.0 will be available

RobotWare 6 Training

- RobotWare 6 is a natural upgrade from RobotWare 5, all users will feel familiar.
- The existing IRC5 and RobotWare trainings are still fully relevant.
- New e-learnings will be offered for:
 - Installation manager and RobotWare Add-ins
 - Externally Guided Motion

RobotWare Summary

- RobotWare 6 improves productivity in a feature rich and familiar environment
 - New user interface concepts
 - Motion error handler
 - Singularity avoidance
 - SafeMove visualizer
- Improves flexibility while maintaining its world-class performance
 - Faster
 - Installation manager
 - Motion process modes
- The biggest release of RobotWare for developers since the introduction of IRC5
 - Robot Web Services
 - External guided motion

**Power and productivity
for a better world™**

