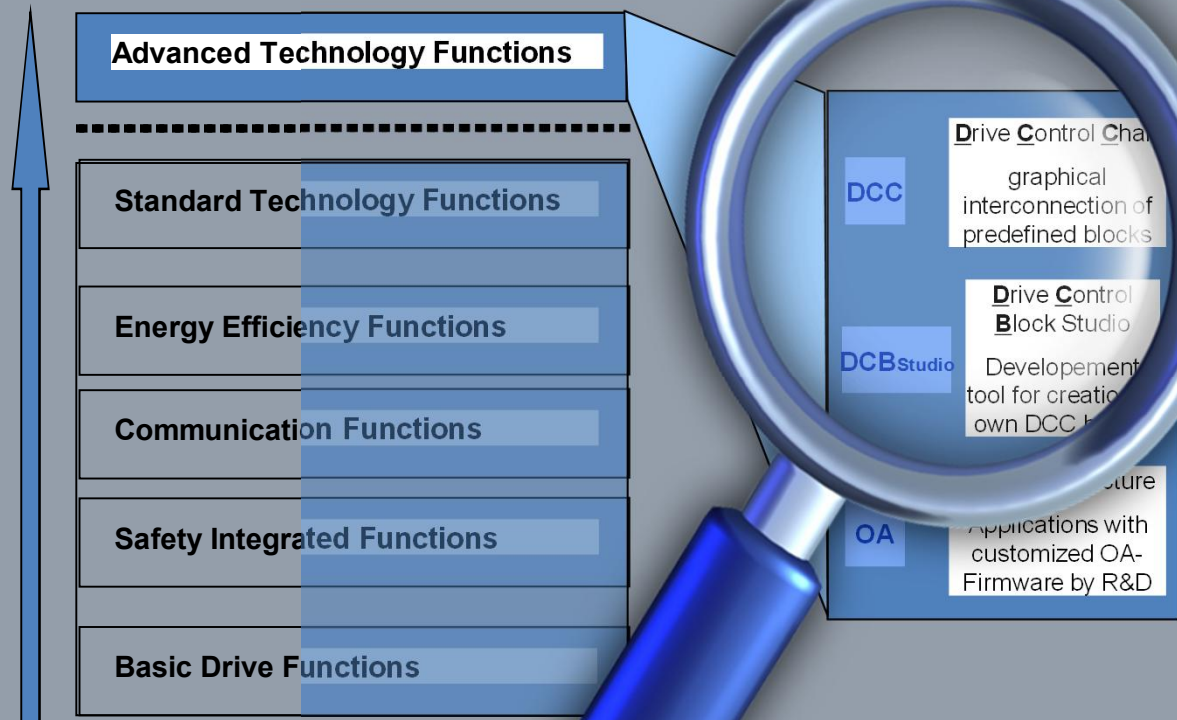


# SINAMICS S120 Family

## New functions in firmware V4.6 and STARTER V4.3 SP2



# SINAMICS S120 Family

## New functions in firmware V4.6 and STARTER V4.3 SP2

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- **Introduction / Highlights**
- New functions of FW V4.6
- New functions of STARTER V4.3 SP2

# New in FW V4.6 and STARTER V4.3 SP2

## Introduction and Highlights

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**In firmware version V4.6 the SINAMICS S120 was extended in functionality concentrating on efficient diagnostics, protection of know how as well as technological leadership.**

### Description

- The integrated webserver:  
For efficient diagnostics and maintenance – at any time, from any place
- Know How- and Copy protection:  
Including association to specified hardware and safe transport of the configuration via email.

### Customer benefits

- Local and remote diagnostics and maintenance are possible, taking into account the appropriate security measures (e. g. firewall). An up-to-date Internet browser is sufficient for access.
- Association with the serial numbers of CF-card and Control Unit prevents undesired duplication of the configuration. Safe transport of the configuration as ZIP file also possible via email, e.g. for spare part exchange.



# SINAMICS S120 Family

## New functions in firmware V4.6 and STARTER V4.3 SP2

**SIEMENS**



- Introduction / Highlights
- **New functions of FW V4.6**
- New functions of STARTER V4.3 SP2

# New in FW V4.6 and STARTER V4.3 SP2

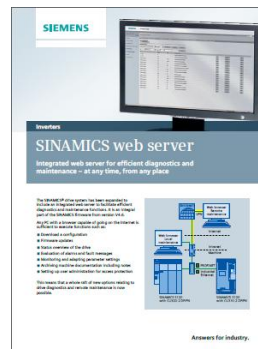
## Integrated web server in S120

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### Description

- Web server for all CU3xx-2
- The web server can be accessed per browser via all Ethernet and PROFINET interfaces.
- It is used for:
  - Identification
  - Diagnostics
  - Parameter assignment
  - FW update
  - Project update
  - Document archiving

- Info flyer available  
[Link to SINAMICS S120 Flyer "Webserver"](#)



### Customer benefits

- Special commissioning tool NO LONGER required
- Diagnostics using standard Internet browsers
  - Microsoft IE from V7.0
  - Opera from V10.5
  - Mozilla FireFox from v3.5
- Utilize website also on smartphones/tablets (not optimized for such use however)

A screenshot of the SINAMICS S120 web interface. The page title is 'SIEMENS SINAMICS S120'. The user is logged in as 'SINAMICS'. The page shows a 'Diagnostics - Service overview' section with a table of device information. The table has columns for 'DO', 'DO-Name', 'DO-Type/View', 'Fault', and 'State'. There are two rows of data. The first row shows 'CU\_S\_125' with a fault status of 'Betriebsbereit (10)'. The second row shows 'SERVO\_02' with a fault status of 'Einschaltbereit - "EINIAUST" = "011" setzen (p0840) (31)'. There are navigation links for 'Home', 'Device Info', 'Diagnostics', 'Messages and Logs', 'Parameter', 'Manage config', and 'Files'. At the bottom of the screenshot, there is a white box with a blue link: 'Direct Link to Demo Rack in Erlangen F80'. Below the link, the 'Username: SINAMICS' and 'Password: (please keep free)' are displayed.

DO	DO-Name	DO-Type/View	Fault	State
1	CU_S_125	SINAMICS S	✓	Betriebsbereit (10)
2	SERVO_02	SERVO	✓	Einschaltbereit - "EINIAUST" = "011" setzen (p0840) (31)

# New in FW V4.6 and STARTER V4.3 SP2

## Copy protection: Encrypted saving to file

### Description

- Project/device parameterization can be encrypted and saved with the STARTER  
**(not available for the SINAMICS G120 family)**
- A distinction can be made between
  - purely know-how protection
- Know-how protection with added copy protection

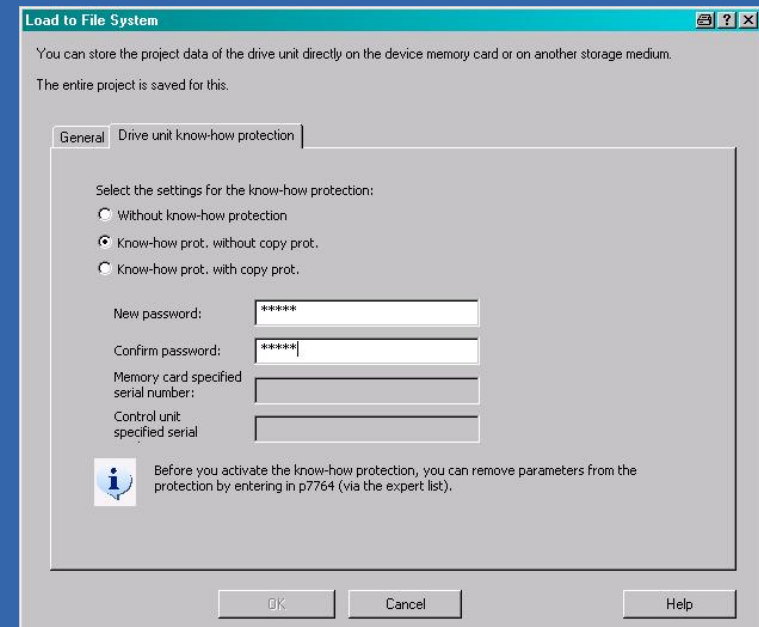
Only the parameterization is encrypted in this case. It can be transferred to any memory card and any CU, i.e. also copied / duplicated.

The encrypted data also include the serial numbers of the (target) memory card and CU.

Parameterization is only available on the specified HW.

### Customer benefits

- Safe transport of the configuration as ZIP file also possible per email
- The association with the serial number prevents undesired duplication of the configuration



# New in FW V4.6 and STARTER V4.3 SP2 DCB Studio and DCB Extension



## Description

- If the scope of the function block in the DCC is not sufficient, it is possible to create separate DCC blocks using the DCB Studio.
- SINAMICS DCB Extension :
  - Support of DCB libraries generated from the SINAMICS DCB Studio
  - Additional "DCB Extension" license required, so that these DCB libraries created using the DCB Studio can be utilized in SINAMICS.
  - Licensing is performed for the whole drive CU (not for every axis separately)
  - A warning is issued if a license is missing.

## Customer benefits

- Further enhancement for greater flexibility compared to the DCC standard library
- Encapsulated know-how in separate modules
- **Library creator:**  
Only the creator of add-on libraries requires the **DCB Studio**.
- **Library user:**  
All users of add-on libraries created with DCB Studio need only one **RunTime-License "DCB Extension"** for each drive CU

# New in FW V4.6 and STARTER V4.3 SP2 SSP provided on the memory cards

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## Description

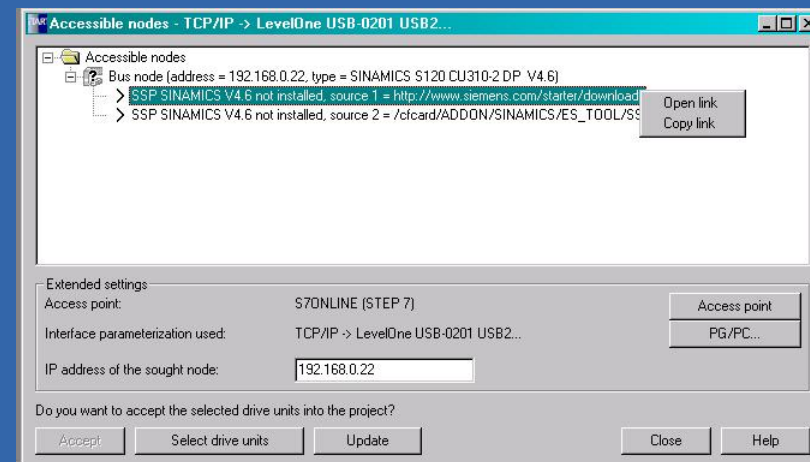
- To provide a STARTER/SCOUT (from V4.3 SP1) with the required SSP SINAMICS Vx.y for post installation despite the lack of an Internet access, the corresponding SSP is stored on the memory card.
- From STARTER V4.3 SP2, the user is also informed that SSPs are missing when searching for "Accessible nodes", with information where these are to be found of the memory card.
- As of STARTER V4.3 SP1, devices in the G120 family already support upward compatibility to newer FW versions in the devices.

Drive in the STARTER project has FW version < FW version in the drive (starting CUs with V4.4 in STARTER project)

- It is possible to go online
- Download is possible
- In the STARTER, only the functions of the older FW version can be parameterized

## Customer benefits

- The SSP SINAMICS V4.6 can also be used with a STARTER/SCOUT V4.3 SP1.
- The SSP SINAMICS to match the FW version is therefore always available even without Internet access





# New in FW V4.6 and STARTER V4.3 SP2

## Non-volatile updates with 2 GB CF card



### Description

- FW V4.6 introduces new 2 GB CF cards.
- The 2 GB cards also provide the function "non-volatile updates".
- The 2 GB cards have a dual-partition design.
  - During FIRST startup of the CU, the contents of the active partition are copied to the parallel partition. This means that the FIRST startup, after changes have been made to the firmware or to the project, takes much longer.
  - Should the active partition become damaged due to a power failure or disruption in communication while downloading firmware and/or project data, startup is carried out from the parallel partition.

### Customer benefits

- The drive always remains fully functional.
- More robust to prevent data loss
- Important for remote downloads of firmware and/or project data via the web server
- Important for remote downloads (Teleservice) of project data using the STARTER
  - because during remote operations the danger of unexpected voltage drops effecting the control units is likely higher

# New in FW V4.6 and STARTER V4.3 SP2

## Multi-trace with storage on the CF card



### Description

- It is possible to configure the trace so that the last 5 traces are written in a FiFo buffer to the memory card
- when the trigger condition (e.g. "fault") occurs.
- STARTER support for configuration and evaluation will not be included until STARTER V4.3 SP3 (M/2013)

### Customer benefits

- Sporadic faults can be located better even without permanent connection of the STARTER

# New in FW V4.6 and STARTER V4.3 SP2 Support for new HW (2)

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## Description

- New PM240-2 power modules
  - The new PM240-2 power modules can now be configured in frame sizes A-C in the FW and in the STARTER.
- Extension of the motor spectrum
  - New types/axis heights have been added to the 1FK7 and 1PH8 series.
  - The 1LE motors are now also stored with their motor data in the FW and can be selected directly via code numbers.

## Customer benefits

- Standardized power module for S and G family reduce stockholding

Order no.	Type	Voltage	Power
6SL3210-1PC22-8ULx	PM240-2 IP20	200V - 240V	7,5kW
6SL3210-1PE22-7ULx	PM240-2 IP20	380V - 480V	11kW
6SL3210-1PE22-7ALx	PM240-2 IP20	380V - 480V	11kW
6SL3210-1PE23-3ULx	PM240-2 IP20	380V - 480V	15kW
6SL3210-1PE23-3ALx	PM240-2 IP20	380V - 480V	15kW
6SL3211-1PB13-8ALx	PM240-2 PT	200V - 240V	0,75kW
6SL3211-1PB13-8ULx	PM240-2 PT	200V - 240V	0,75kW
6SL3211-1PE16-1ALx	PM240-2 PT	380V - 480V	2,2kW
6SL3211-1PB21-0ULx	PM240-2 PT	200V - 240V	2,2kW
6SL3211-1PB21-0ALx	PM240-2 PT	200V - 240V	2,2kW
6SL3211-1PE18-0ULx	PM240-2 PT	380V - 480V	2,2kW

Select standard motor from list  
 Enter motor data

[0] No motor  
[0] No motor  
[1] Induction motor (rotating)  
[2] Synchronous motor (rotating, permanent-magnet)  
[10] 1LE1 standard induction motor series  
[13] 1LG6 standard induction motor series  
[17] 1LA7 standard induction motor series  
[19] 1LA9 standard induction motor series  
[100] 1LE1 standard induction motor  
[104] 1PH4 induction motor  
[107] 1PH7 induction motor  
[108] 1PH8 induction motor

- Input of motor data no longer required during commissioning.

# New in FW V4.6 and STARTER V4.3 SP2

## Adaption to new UL standard UL508C



### Description

- Changes to the motor thermal protection feature according to the revised requirement of UL508C.
  - For motor temperature monitoring **without temperature sensor**, when switching off, the model temperature is saved in a non-volatile fashion. When switching on, the same value (reduced by P614) is taken into account in the model calculation.
  - As a consequence, the UL508C specification is fulfilled.
- The parameter P610 was extended by the additional parameter value „12“. This is the new factory setting.
- The reaction behavior of the SINAMICS is basically the same as for previous FW-versions, but now observing as well the better motor thermal model calculation.

### Customer benefits

- New standard UL508C is fully complied.
- Background:  
On 9th November 2010 Underwriters Laboratories Inc.(UL) revised the standard for “safety of power conversion equipment”.

**These changes in the standard become effective from the 9th of May 2013.**

The changes relate to the performance of the software motor protection offered by the inverter, in that when the inverter is power-cycled it must now retain the motor temperature data for use when power is reapplied.

# New in FW V4.6 and STARTER V4.3 SP2

## Triple overload for S120 Booksize up to 18 A

**SIEMENS**

### Description

- For consistent utilization (i.e. online and offline configuration) of the triple overload capability, the following HW and FW functionality must be available.
- Hardware:
  - Motor Modules with 50mm:  
3A, 5A, 9A, 18A, 2x3A, 2x5A, 2x9A
  - MLFBs: 6SL312x-xxxxx-xxx4
- FW Version from V4.6
- STARTER version from V4.3 SP2
- Application:
  - Load cycles as for Motor Modules boosize Compact (3 x I<sub>rated</sub> for 250 msec)
  - Primarily for high-dynamic applications for MTS and PMA applications

### Customer benefits

- Smaller power unit, compact design, lower costs
- 100% compatible with spare parts; substitutes today's Motor Modules (6SL312x-xxxxx-xxx3)
- No increase in delivery price
- Planned delivery release for hardware approx. 2nd Q/2013

# New in FW V4.6 and STARTER V4.3 SP2

## Safety Integrated



### Description

- Safe Brake test (SBT)
- Safety Info Channel (SIC) expansions:  
Transfer of the status of the Safety Integrated functions to the PLC that executes the process
- Extended Safety with HTL encoders:  
The solution is based on the use of 2 HTL/TTL encoders.

### Customer benefits

- A brake test serves to verify the required holding torque of the brake (operating or holding brake). In the positive case, the axis motion remains within a parameterized tolerance. If an axis motion is determined via the encoder actual values, it must be assumed that the braking force is reduced and maintenance is necessary.
- Also non F-PLCs can react properly to the controlled safety functions
- Commercially available HTL/TTL encoders may be used.
- The encoders may be combined via the SMC or onboard encoder interfaces.

# New in FW V4.6 and STARTER V4.3 SP2 Communication



## Description

- CAN extensions for new CAN open objects
  - CAN Velocity
  - ProfilTorque
  - SDO channel for each axis for multiple axes (S120)
  - Suppresses ErrorPassiv warning
- Diagnostic alarms for PROFIBUS DP (system incorporation SIMATIC S7)

## Customer benefits

- The additional CAN Open objects allow additional standard-compliant commands from CAN open controllers
- It rounds off the integrated system diagnostics also for drives with DP connection.

# SINAMICS S120 Family

## New functions in firmware V4.6 and STARTER V4.3 SP2

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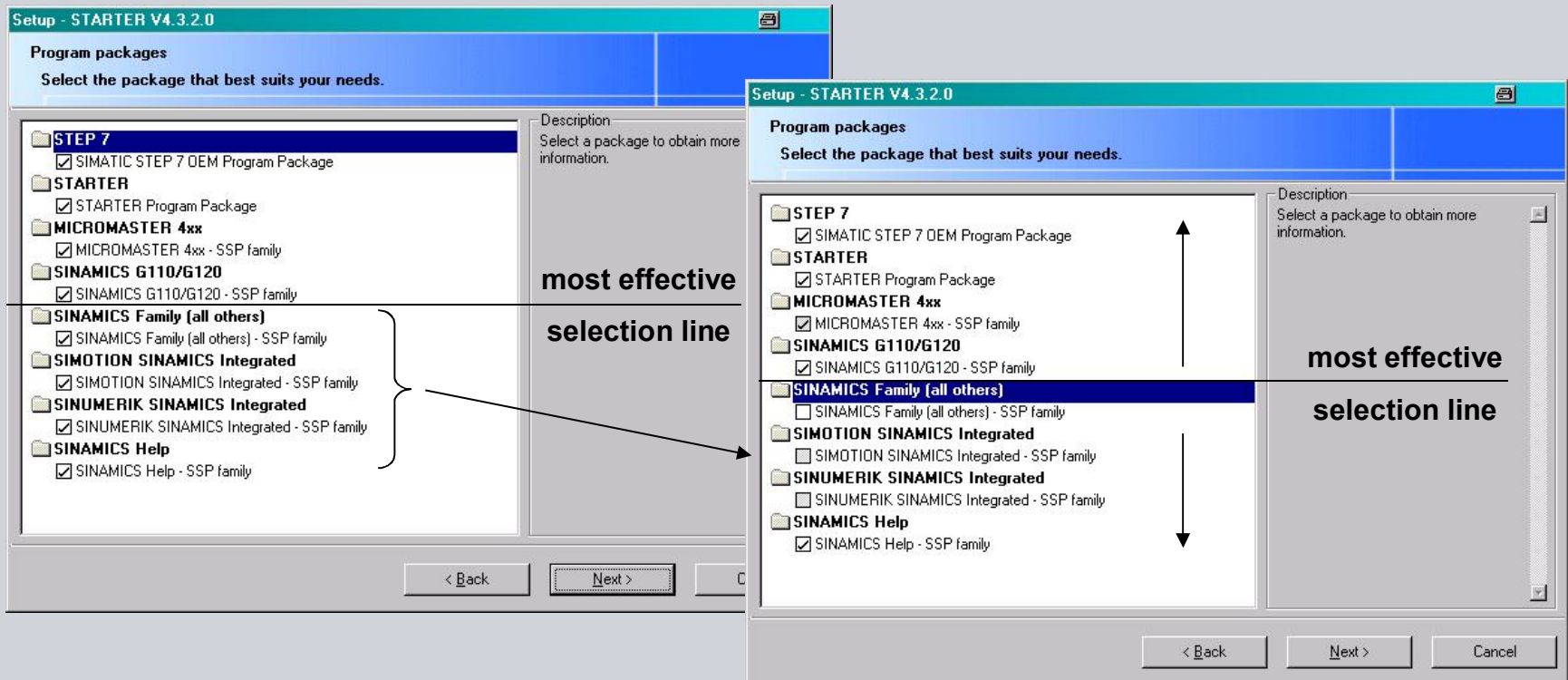
- Introduction / Highlights
- New functions of FW V4.6
- **New functions of STARTER V4.3 SP2**



# STARTER functions V4.3 SP2

## Installation according to device families

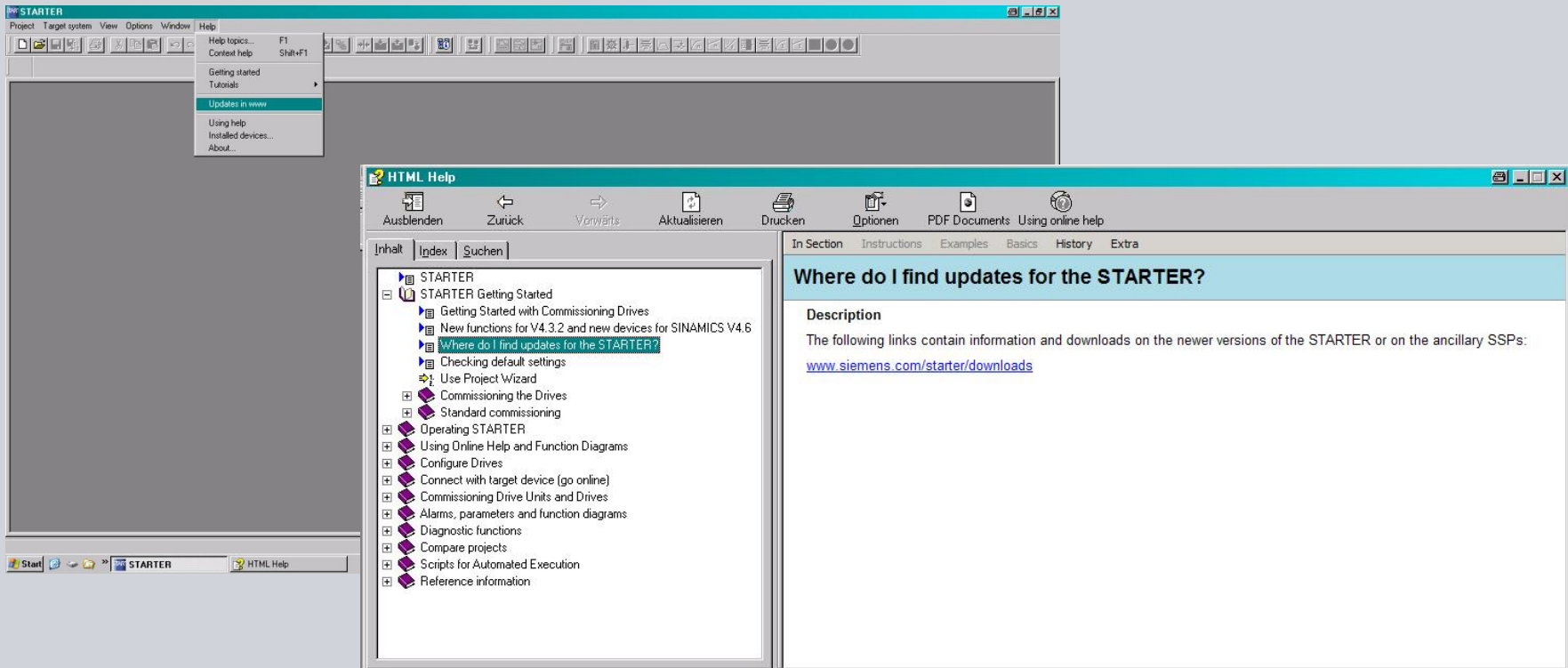
- Granular setup of drive families
  - Distinct savings in installation time and volume for purely G120 customers
  - Omission of "integrated platforms" where not required



# STARTER functions V4.3.2

## Obtain current STARTER updates

- Direct access to Internet to check for updates
  - Fixed URL "<http://siemens.com/starter/downloads>"
  - Direct call via help menu entry



# SINAMICS S120 Family

Thank you for your attention!

**SIEMENS**



Siemens AG

I DT Motion Control

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