



Quick start guide

Quick reference for the DS4700 and DS4200

Sections 2, 3, and 4 also for installing the EXP810 and EXP420



(P) IBM PN: 44E5422



GC27-2147-00

1 Before you begin



1.1 Exception to using the Quick start guide:

If you plan to use the DC-powered models of the DS4700 and EXP810, refer to the *DS4700 Express and EXP810 Installation, User's, and Maintenance Guides* for setup instructions.

Management methods are specific to the installation steps found in Sections 5 and 8.

1.2 Learn about management methods:

In-band management – Management using the I/O connections between the host and the storage subsystem. Note that the host must still have network capabilities.

Out-of-band management – Management directly through the Ethernet connections on each controller, using one of the network configurations from the list below:

- DHCP Server
- Default Ethernet port 1 IP address:
 - Controller A: 192.168.128.101
 - Controller B: 192.168.128.102
 - Subnet Mask: 255.255.255.0

•Static IP: Detailed setup information for this setting can be found in the *DS4700 Express Storage Subsystem Installation, User's and Maintenance Guide*.

1.3 What you need for assembly:

DS4700/DS4200 ship group:

- One 3-U DS4700/DS4200 Storage Subsystem (1814)
- Two power cords
- CD with software, firmware (for backup only), and documentation
- One rack-mounting hardware kit, including:
 - Two rails (right and left assemblies)
 - Twelve M5 black, hex-head screws
 - Four Phillips head screws
 - Eight washers
- SFP modules (4 included with Model 70; 6 included with Model 72)

EXP810 or EXP420 ship group (optional, not required for DS4700/DS4200 installation):

- One 3-U EXP810 or EXP 420 Drive Expansion Enclosure (1812)
- One rack-mounting hardware kit

Options:

- Disk Drive Modules (two minimum per enclosure)
- Two SFP modules for each fiber optic cable, (only one SFP required for direct attachment to host HBA). The DS4700, DS4200, EXP810, and EXP420 ship groups include some SFP modules
- Two fibre-optic cables for each host connection (direct connection) or two fibre-optic cables for each redundant switch connection (fabric connection)
- Two fibre-optic cables for each EXP810 or EXP420 connection
- Two host bus adapters (HBAs) installed in each host
- Two installed switches (fabric connection only)
- Two Ethernet cables, one per controller (out-of-band management only)

Tools:

- Internet connection
- #2 Phillips screwdriver and 5/16 hex nut driver

2 Install the support rails

- For proper weight distribution, install the rails from the DS4700/DS4200 in the lower portion of the rack cabinet.
- Allow room above and below the DS4700/DS4200 for drive expansion enclosures, as required.
- Use the three-unit enclosure guide (rack mounting template in this Section) to locate the correct rail mounting holes.

For more detailed installation steps, see the DS4000 documentation CD.

2.1 Starting with the left rail, use a #2 Phillips screwdriver to loosen the two rail adjustment screws. Hold the front of the rail against the inside of the front rack-mounting flange, and then extend the rear of the support rail until it makes contact with the rear rack-mounting flange. The alignment pins at the rear of the rail should slide into the holes at the rear of the rack.

1 Front of rack
2 Rear of rack

1 Front enclosure assembly
① Front rail assembly - install first
2 Rear rail assembly

2.2 From the front of the rack, with the rail-mounting flanges inside of the front rack-mounting flange, use the 5/16 (8mm) hex nut driver to tighten the two front M5 screws.

Note: Make sure you use a washer when installing an M5 screw through a square hole on the rack-mounting flange.

2.3 From the back of the rack, tighten the two back M5 screws using the 5/16 (8mm) hex nut driver.

2.4 Tighten the two rail adjustment screws.

2.5 Repeat steps 2.1 through 2.4 with the right side rail.

3 Install the enclosure

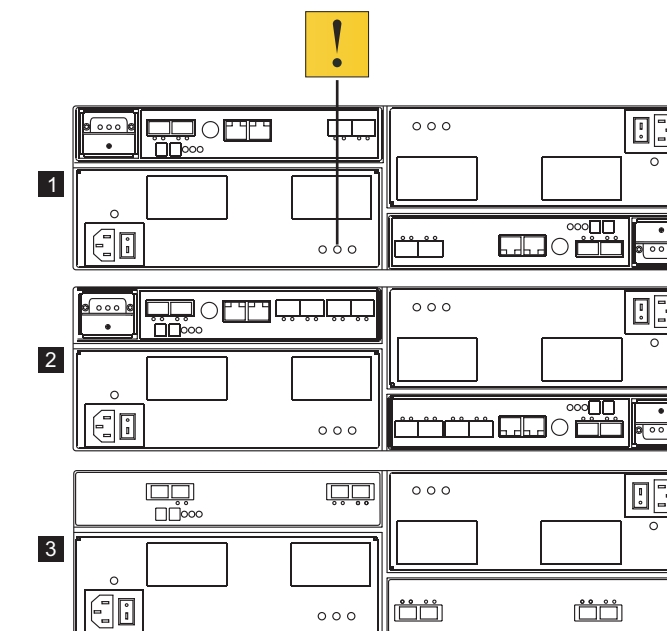


CAUTION: Use safe practices when lifting.

≥ 18 kg (39.7 lb)	≥ 32 kg (70.5 lb)	≥ 55 kg (121.2 lb)

Unit	Empty	Maximum	Shipping
DS4700/DS4200	16.4 kg (36.1 lb)	40 kg (88 lb)	52.2 kg (115 lb)
EXP810/EXP420	16.4 kg (36.1 lb)	38.1 kg (84 lb)	50.5 kg (111 lb)

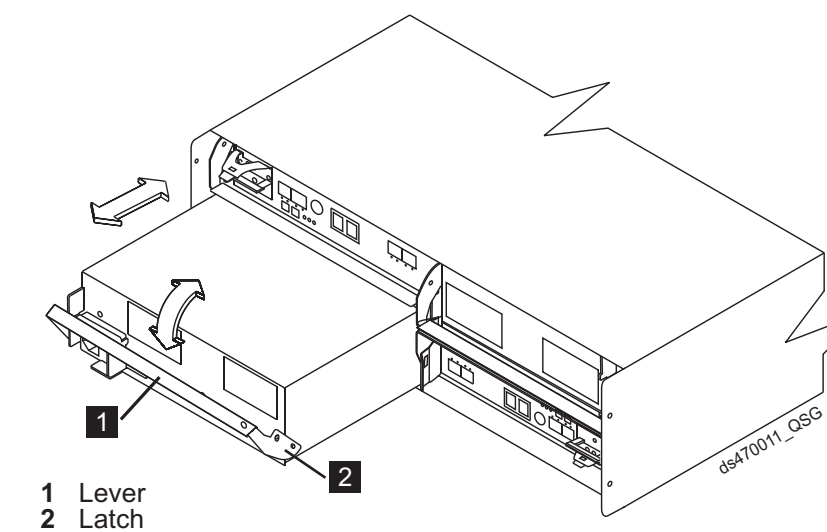
3.1 Look on the rear of the storage subsystem to identify your controller module and drive expansion enclosures.



- 1 DS4200/DS4700 Model 70
 - 2 DS4700 Model 72
 - 3 EXP810/EXP420
- Attention LED

This section describes how to remove the CRUs to minimize the weight of the storage subsystem before you install it in the rack.

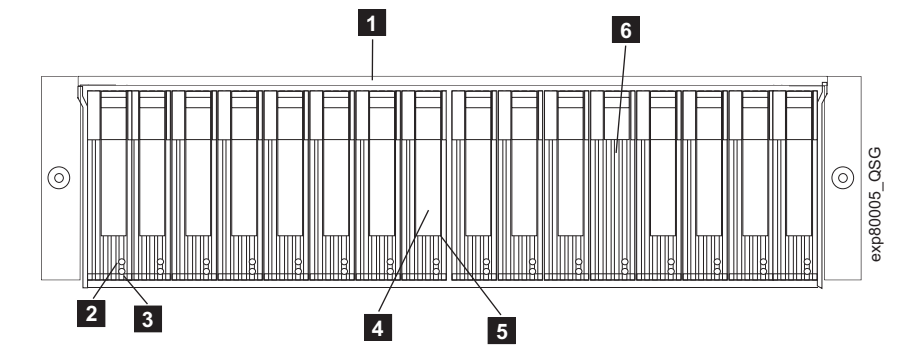
3.2 Each component in the back of the DS4700, DS4200, EXP810, and EXP420 including power supplies, controllers, and ESMs, is held in place by a lever that has a locking latch.



To release the lever:

- Squeeze the latch and pull the lever open 90 degrees (so that the lever is horizontal). The latch is a coral-colored tab on the lever.
- Slowly pull the lever away from the chassis to remove the module. Label each controller and ESM. Controller/ESM A is in the upper left slot and controller/ESM B is in the lower right slot.

3.3 Storage subsystems might be received with Enhanced Disk Drive Modules (E-DDMs) installed.



- 1 Bezel
- 2 Activity LED
- 3 Fault LED
- 4 Tray handle
- 5 Latch
- 6 Blank tray

To remove the E-DDMs:

- Record the location of and identify your E-DDMs, to enable replacement in the original order.
- Release the latch on the E-DDM CRU by pressing on the inside of the bottom of the tray handle.
- Lift the closed latch to its open position. The latch is at a 90 degree angle to the front of the E-DDM, when open.
- Pull the E-DDM out of the bay.

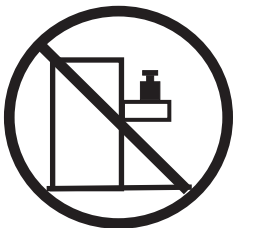
3.4 Remove the empty storage subsystem from the shipping box. With the help of another person, place the back of the storage subsystem on the support rails, and slide the unit into the rack.

Note: If you remove the components before installation, you can lift the enclosure into the rack with the help of one other person. If you do not remove the components, you should have at least two other people available to help you lift the enclosure into the rack.

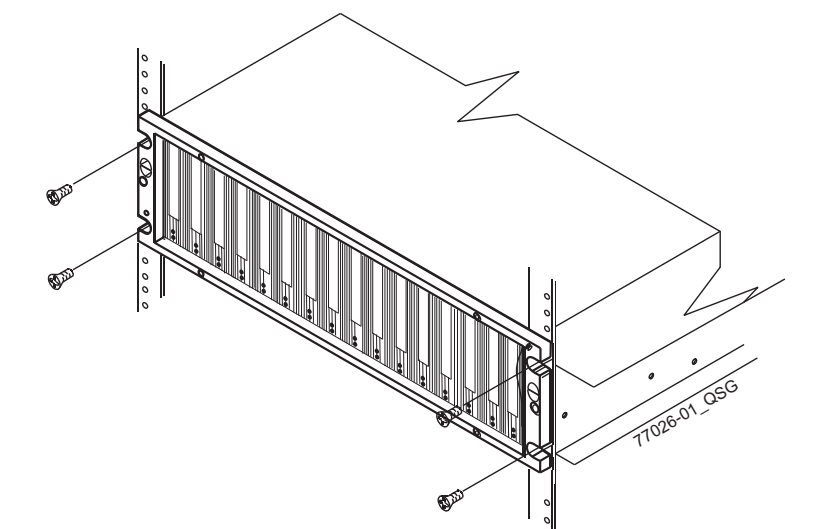
4 Secure the enclosure



CAUTION: Do not place any object on top of rack-mounted devices.



4.1 Align the front mounting holes on each side of the storage subsystem with the mounting holes on the front of the support rails.



4.2 Use the four Phillips head screws provided in the rack-mounting hardware kit to secure the sides in the back of the storage subsystem to the rack rails.

4.3 Using the 5/16 (8mm) hex nut driver, secure the front of the storage subsystem with the four M5 screws.

4.4 Replace the power supplies, controllers, ESMs, and E-DDMs.

Note: The left and right power supplies, controller, and ESMs are seated in the chassis in opposite orientations.

5 Install the cables

Statement 3

CAUTION:

When laser products (such as CD-ROMs, DVD drives, fiber optic devices, or transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

DANGER

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following:

- Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

Do not bend or loop the cables to a diameter of less than 76 mm (3 in.) or a radius of less than 38 mm (1.5 in.).

Host cables

5.1 If not already installed, insert an SFP module into the required host ports on both controllers. Remove any extra SFPs from the host ports that won't be used.

5.2 Choose the host connection configuration.

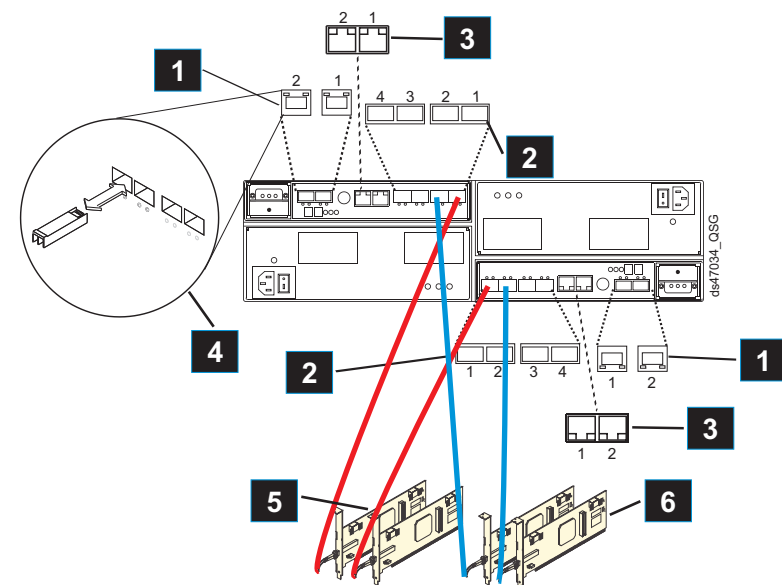
Direct connection: Connect the fiber optic cable from the host port on the controller to an HBA port on the host.

Fabric connection: Connect the fiber optic cable from the host port on the controller to a port on the switch and ensure that the HBA and the controller are in the same zone at the fabric switch.

5.3 Repeat for each controller-to-host connection.

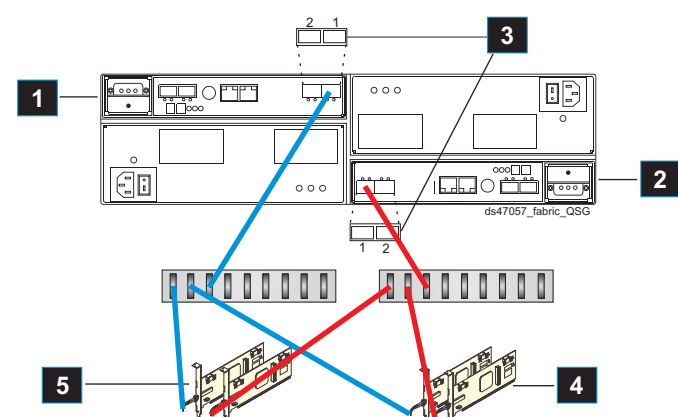
5.4 When finished, label each cable with to/from information.

Direct connection



- 1 Drive ports
- 2 Host ports
- 3 Ethernet ports
- 4 SFP
- 5 Host 1, host adapters 1 and 2
- 6 Host 2, host adapters 1 and 2

Fabric connection



- 1 DS4700/DS4200 Controller A
- 2 DS4700/DS4200 Controller B
- 3 Host ports
- 4 Host 2, host adapters 1 and 2
- 5 Host 1, host adapters 1 and 2

DS4000 EXP810/EXP420 Drive Expansion Cabling

Notes:

- If not already installed, insert an SFP module into the required DS4700/DS4200 and EXP810/EXP420 drive ports. Remove any extra SFPs from drive ports that won't be used.
- Install a minimum of two drives per enclosure. Start with the left hand slot.

Steps to connect one EXP810/EXP420 storage expansion enclosure:

5.5 Starting with the DS4700/DS4200, connect the fibre optic cable from drive port 2 (drive channel 1) of controller A to the 1B port on the left ESM board of the first storage expansion enclosure.

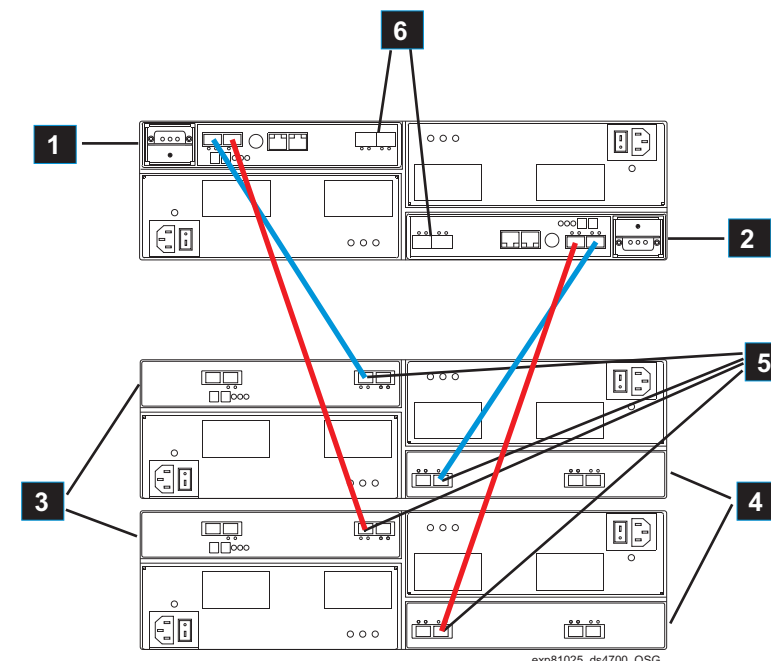
5.6 From the DS4700/DS4200, connect the fibre optic cable from drive port 1 (drive channel 2) of controller B to the 1B port on the right ESM board of the first storage expansion enclosure.

Note: The EXP810 can only attach to a DS4700, and the EXP420 can only attach to a DS4200.

Steps to connect a second EXP810/EXP420 storage expansion enclosure:

5.7 Starting with the DS4700/DS4200, connect the fibre optic cable from drive port 1 (drive channel 1) of controller A to the 1B port on the left ESM board of the second storage expansion enclosure.

5.8 From the DS4700/DS4200, connect the fibre optic cable from drive port 2 (drive channel 2) of controller B to the 1B port on the right ESM board of the second storage expansion enclosure.



- 1 DS4700/DS4200 Controller A
- 2 DS4700/DS4200 Controller B
- 3 EXP810/EXP420 left ESMs
- 4 EXP810/EXP420 right ESMs
- 5 ESM 1B ports
- 6 Controller drive ports

Ethernet Cables - Out-of-Band Management Only

Steps to connect:

5.9 Connect one end of the Ethernet cable to the Ethernet port 1 connector on Controller A. (To locate the Ethernet ports, see the illustration in 5.4.)

5.10 Connect the other end of the Ethernet cable to the appropriate network connection.

5.11 Repeat for controller B.

6 Turn on the storage subsystem

Statement 5

CAUTION:

The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.



- 2 [Power Button]
- 1 [Power Button]

IMPORTANT:

You must follow the power sequence in the order provided below. To establish power redundancy for enclosures with two power supplies, use at least two different power distribution units (PDUs) in the rack cabinet. Split the power connections from each enclosure into the separate PDUs. Then connect the PDUs to external power receptacles that are on different circuits.

6.1 Connect a power cable to each power supply in the storage subsystem, and then connect the other end to the rack cabinet power receptacle.

6.2 Turn on the power to fabric devices, if applicable.

6.3 Turn on both power switches of all attached EXP810s/EXP420s, and wait 60 seconds.

6.4 Turn on both power switches of the DS4700/DS4200.

6.5 If amber lights are visible (see illustration in 3.1), use the storage management software to diagnose potential issues.

Note: When powering down the storage subsystem, power down in the reverse order; first the DS4700/DS4200 and then the drive enclosures.

7 Install the software

7.1 At this time, check your current Fibre-Channel Host Bus Adapters (HBAs) BIOS and device driver versions, and if necessary, update before proceeding. For IBM HBAs, the BIOS and device drivers are located in the HostAdapter directory on the DS4000 Storage Manager CD. For the latest IBM HBA BIOS and Drivers use the step in Section 9. Refer to the HBA readmes for installation instructions.

Note: For Windows installations, install the StorPort device driver.

7.2 On the DS4000 Storage Manager CD, locate the appropriate operating system directory (Win32, WS03_x86_32bit, WS03_IA64, WS03_x64, Linux, Linux_IA64, AIX, Solaris, HP-UX, or LoP). Before launching the SMIA executable file in the folder, verify that it is the latest DS4000 Storage Manager available. Use the steps in Section 9 to access IBM's download Web site for the latest software.

Which Computer?

- Every attached I/O host - All computers that are attached to the storage subsystem and will be sending I/O.
- Management Work Station - Computer(s) that you will use to manage the storage subsystem.

Notes:

- For Windows installations, select the MPIO multipath driver.
- Review the appropriate OS and Device Driver readmes included on the Storage Manager CD and refer to the DS4000 Storage Manager Installation Guide on the documentation CD for more detailed instructions.

7.3 Launch the SMIA executable file. Follow the wizard, and select the following installation methods:

- For one I/O host designated as a Monitor (for monitoring and sending alert notifications):
 - Choose Typical (full installation), and when prompted, click **Automatically Start Monitor**.
- For all other I/O hosts attached to the storage subsystem:
 - Choose Host.
- For the computers you will use to manage the storage subsystem:
 - Choose Management Station, and when prompted, click **Do Not Automatically Start the Monitor**.

8 Discover the storage subsystem

8.1 Start the Storage Manager software from your management workstation. The client software starts and displays the Enterprise Management window and the Confirm Initial Automatic Discovery window.

8.2 Select **Automatic Discovery** to discover the storage subsystem. After the initial automatic discovery is complete the Enterprise Management window displays all hosts and storage subsystem attached to the local sub network. (**Note:** To add storage subsystems outside the local subnet, use the Manual Discovery method. From the Enterprise Management window, select **View > Task Assistant > Add Storage Subsystems**.)

8.3 Click **Rename the Storage Subsystem**. (Use the DS4700/DS4200 serial number, separated by a space, as the first part of the subsystem name.)

8.4 Click **Locate the Storage Subsystem**. A blue LED will blink on the front of the selected storage subsystem. Then physically label each enclosure with its associated name. (If the storage subsystem is not discovered by automatic discovery, input the IP address by manually adding the storage subsystem.)

8.5 Highlight the storage subsystem, and select **Tools > Manage Storage Subsystem** to display the Subsystem Management window and the Task Assistant.

8.6 If the subsystem is not in Optimal state, click the **Recover from Failure** icon in the Task Assistant. Follow the steps in the Recovery Guru. If the subsystem is Optimal, close the Task Assistant.

8.7 From the Subsystem Management window, select **Storage Subsystem > View Profile**. By clicking the tabs, find the controller firmware, NVSRAM, ESM firmware, drive Product ID and firmware versions and record them. Close the Profile.

9 Accessing the IBM Support/Download Website

9.1 Go to <http://www-03.ibm.com/servers/storage/disk/>.

9.2 Click on **DS4700 Express** or **DS4200** to access the correct support page, then click **Product Support**.

9.3 Click on the **Download** tab, then click on **Storage Manager, firmware, HBA and tools (including readmes)**.

9.4 To view the latest download packages, select each tab as follows: **Storage Mgr; HBA; and Firmware** (look for both **Controller Current** and **ESM & HDD**).

9.5 For each package, click on the highlighted code version to access the readme and the code download page. Download and unzip the packages into a directory that you can point to later.

Note: For detailed information about driver and firmware versions, make sure that you read the readme files that are posted with each package.

10 Updating the storage subsystem firmware

Note: The Storage Manager host code and HBA BIOS/driver should be up-to-date, if you completed all the steps in Section 7.

10.1 From the Subsystem Management Window, select **Advanced > Maintenance > Download**. Select the following options in the order listed:

1. > **Controller firmware**
2. > **Controller NVSRAM**
3. > **ESM firmware**
4. > **Drive firmware**

11 Configure the storage subsystem

11.1 From the Subsystem Management Window, select **View > Task Assistant**. If the storage subsystem is Optimal, complete the following tasks in the order listed:

- 1 Configure storage subsystem
- 2 Define hosts
- 3 Create new storage partitions
- 4 Save configuration
- 5 Set/change password



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