

The kdm Handbook

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Abstract

This document describes kdm the KDE Display Manager. kdm is also known as the 'Login Manager'.

Chapter 1

Introduction

kdm provides a graphical interface that allows you to log in to a system. It prompts for login (username) and password, authenticates the user and starts a 'session'. kdm is superior to xdm, the X Display Manager, in a number of ways.

Chapter 2

Quick Start Guide

This is a quick start guide for users who fit the following pattern:

- X is configured and works with the command **startx** from the commandline.
- Each user will generally only use a single window manager or desktop environment, and does not change this choice very often, or is comfortable editing a single text file in order to change their choice.

This scenario will be sufficient for many environments where a single user or several users normally boot the computer and log into their preferred environment.

1. Create or open the file `/.xinitrc` If you already have a working `/.xinitrc`, go to the next step
2. If one does not already exist, add a line to the `/.xinitrc` to start your preferred window manager or desktop environment. For KDE you should enter:

```
startkde
```

For other window managers or desktop environments, you should look in their documentation for the correct command.

3. Make a link as follows:

```
ln -s ~/.xinitrc ~/.xsession
```

At this point, typing **startx** on the commandline should start X, with a KDE session. The next task is to try kdm.

As **root**, type **kdm** at the prompt.

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You should see a login window, which is described more fully in chapter 3.

Typing your normal username and password in the fields provided, and leaving `default` selected as the session type should now open a KDE session for your user.

If you have other users to configure, you should repeat the procedure above for each of them.

NOTE

This is a quick guide to getting up and running only. You probably will want to customize kdm further, for example, to hide the names of the system accounts, to allow further sessions, and much more. Please read through the rest of this manual to find out how to do these things.

Chapter 3

The Login Window

The user interface to kdm consists of two dialog boxes. The main dialog box has these controls:

- A Username: field for you to enter your username.
- A Password: field for you to enter your password.
- (Optionally) a graphical image of each user (for example, a digitized photograph). Clicking on an image is equivalent to typing the associated username into the Username: field. (This feature is an imitation of the login box on IRIX®).
- A Menu drop down box that allows kdm to be used to start sessions with various different window managers or desktop environments installed on the system.
- (Optionally) a region to the right of the Username:, Password: and Session Type: fields which can be used to display either a static image or an analog clock.
- A Login button that validates the username/password combination and attempts to start a session of the selected type.
- A Clear button that clears the text from the Login and Pass fields.
- A Menu button that opens an action menu with the following items:
 - (On local displays) A Restart X Server item that terminates the currently running X-Server, starts a new one and displays the login dialog again. You can use this if the display content seems to be broken somehow.
 - (On remote displays) A Close Connection item that closes the connection to the XDMCP server you are currently connected to. If you got to this server through a host chooser, this will bring you back to the chooser, otherwise it will only reset the X-Server and bring up the login dialog again.

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- (Optionally on local displays) A Console Mode item that terminates the currently running X-Server and leaves you alone with a console login. kdm will resume the graphical login if nobody is logged in at the console for some time.
- (Optionally) A Shutdown button that displays the Shutdown dialog box.

The Shutdown dialog box presents a set of radio buttons that allow one of these options to be selected:

Shutdown Shut the system down in a controlled manner, ready for power-down.

Restart Shut the system down and reboot. For systems that use Lilo, an optional drop down box allows you to select a particular operating-system kernel to be used for the reboot.

Restart X Server Stop and then restart the X-server. Typically, you might need to use this option if you have changed your X11 configuration in some way.

Console Mode Stop the X-Server and return the system to console mode. This is achieved by bringing the system down to runlevel 3. Typically, the system manager might need to use this option before upgrading or re-configuring X11 software.

Pressing the OK button initiates the selected action; pressing the Cancel button returns to the main kdm dialog box.

Chapter 4

Configuring kdm

This chapter assumes that kdm is already up and running on your system, and that you simply want to change its behavior in some way.

When kdm starts up, it reads its configuration from the folder `$KDEDIR/share/config/kdm/` (this may be `/etc/kde3/kdm/` or something else on your system).

The main configuration file is `kdmrc`; all other files are referenced from there and could be stored under any name anywhere on the system - but usually that would not make much sense for obvious reasons (one particular exception is referencing configuration files of an already installed xdm - however when a new kdm is installed, it will import settings from those files if it finds an already installed xdm).

Since kdm must run before any user is logged in, it is not associated with any particular user. Therefore, it is not possible to have user-specific configuration files; all users share the common `kdmrc`. It follows from this that the configuration of kdm can only be altered by those users that have write access to `$KDEDIR/share/config/kdm/kdmrc` (normally restricted to system administrators logged in as `root`).

You can view the `kdmrc` file currently in use on your system, and you can configure kdm by editing this file. Alternatively, you can use the graphical configuration tool provided by the KDE Control Center (under System Administration → Login Manager), which is described in [the KDE Control Center help files](#).

The remainder of this chapter describes configuration of kdm via the KDE Control Center module, and the [next chapter](#) describes the options available in `kdmrc` itself. If you only need to configure for local users, the KDE Control Center module should be sufficient for your needs. If you need to configure remote logins, or have multiple kdm sessions running, you will need to read on.

4.1 The Login Manager KDE Control Center Module

Using this module, you can configure the KDE graphical login manager, kdm. You can change how the login screen looks, who has access using the login manager and who can shutdown the computer.

NOTE

All settings will be written to the configuration file `kdmrc`, which in its original state has many comments to help you configure kdm. Using this KDE Control Center module will strip these comments from the file. All available options in `kdmrc` are covered in chapter 5.

The options listed in this chapter are cross referenced with their equivalents in `kdmrc`. All options available in the KControl module are also available directly in `kdmrc` but the reverse is not true.

In order to organize all of these options, this module is divided into several sections: [Appearance](#), [Font](#), [Background](#), [Shutdown](#), [Users](#) and [Convenience](#).

You can switch between the sections using the tabs at the top of the window.

NOTE

If you are not currently logged in as a superuser, you will need to click the Administrator Mode... Button. You will then be asked for a superuser password. Entering a correct password will allow you to modify the settings of this module.

4.1.1 Appearance

From this page you can change the visual appearance of kdm, KDE's graphical login manager.

The Greeting: is the title of the login screen. Setting this is especially useful if you have many servers users may log in to. You may use various placeholders, which are described along with the corresponding key `GreetString` in `kdmrc`.

You can then choose to show either the current system time, a logo or nothing special in the login box. Make your choice in the radio buttons labeled Logo area:. This corresponds to `LogoArea` in `kdmrc`

If you chose Show logo you can now choose a logo:

- Drop an image file on the image button.
- Click on the image button and select a new image from the image chooser dialog.

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If you do not specify a logo the default `$KDEDIR/share/apps/kdm/pics/kdelogo.xpm` will be displayed.

Normally the login box is centered on the screen. Use the `Position:` options if you want it to appear elsewhere on the screen. You can specify the relative position (percentage of the screen size) for the center of the login window, relative to the top left of the display, in the fields labeled `X:` and `Y:` respectively. These correspond to the key `GreeterPos` in `kdmrc`.

While KDE's style depends on the settings of the user logged in, the style used by kdm can be configured using the `GUI Style:` and `Color Scheme:` options. These correspond to the keys `GUIStyle` and `ColorScheme` in `kdmrc` respectively.

Below that, you have a drop down box to choose the language for your login box, corresponding to setting `Language` in `kdmrc`.

4.1.2 Font

From this section of the module you can change the fonts used in the login window. Only fonts available to all users are available here, not fonts you have installed on a per user basis.

You can select three different font styles from the drop down box (`General:`, `Failures:`, `Greeting:`). When you click on the `Choose...` button a dialog appears from which you can select the new characteristics for the font style.

- The `General:` font is used in all other places in the login window.
- The `Failures:` font is used when a login fails.
- The `Greeting:` font is the font used for the title (`Greeting String`).

You can also check the box labeled `Use anti-aliasing for fonts` if you want smoothed fonts in the login dialog.

4.1.3 Background

Here you can change the desktop background which will be displayed before a user logs in. You can have a single color or an image as a background. If you have an image as the background and select `center`, the selected background color will be used around the image if it is not large enough to cover the entire desktop.

The background colors and effects are controlled by the options on the tab labeled `Background` and you select a background image and its placement from the options on the tab labeled `Wallpaper`.

To change the default background color(s) simply click either of the color buttons and select a new color.

The drop down box above the color buttons provides you with several different blend effects. Choose one from the list, and it will be previewed on the small monitor at the top of the window. Your choices are:

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Flat By choosing this mode, you select one color (using the color button labeled Color 1), and the entire background is covered with this one color.

Pattern By choosing this mode, you select two colors (using both color buttons).

You then select a pattern by clicking Setup. This opens a new dialog window, which gives you the opportunity to select a pattern. Simply click once on the pattern of your choice, then click on OK, and KDE will render the pattern you selected using the two colors you selected. For more on patterns, see the section [Background: Adding, Removing and Modifying Patterns](#).

Background Program By selecting this option, you can have KDE use an external program to determine the background. This can be any program of your choosing. For more information on this option, see the section entitled [Background: Using an external program](#).

Horizontal Gradient By choosing this mode, you select two colors (using both color buttons). KDE will then start with the color selected by Color 1 on the left edge of the screen, and slowly transform into the color selected by Color 2 by the time it gets to the right edge of the screen.

Vertical Gradient By choosing this mode, you select two colors (using both color buttons). KDE will then start with the color selected by Color 1 on the top edge of the screen, and slowly transform into the color selected by Color 2 as it moves to the bottom of the screen.

Pyramid Gradient By choosing this mode, you select two colors (using both color buttons). KDE will then start with the color selected by Color 1 in each corner of the screen, and slowly transform into the color selected by Color 2 as it moves to the center of the screen.

Pipecross Gradient By choosing this mode, you select two colors (using both color buttons). KDE will then start with the color selected by Color 1 in each corner of the screen, and slowly transform into the color selected by Color 2 as it moves to the center of the screen. The 'shape' of this gradient is different than the pyramid gradient.

Elliptic Gradient By choosing this mode, you select two colors (using both color buttons). KDE will then start with the color selected by Color 2 in the center of the screen, and slowly transform into the color selected by Color 1 as it moves to the edges, in an elliptical pattern.

The setup button is only needed for if you select Background program or Patterns. In these instances, another window will appear to configure the specifics.

Wallpaper

To select a new background image first, click on the Wallpapers tab, then you can either select an image from the drop down list labeled Wallpaper or select Browse... and select an image file from a file selector.

The image can be displayed in six different ways:

No wallpaper No image is displayed. Just the background colors.

Centered The image will be centered on the screen. The background colors will be present anywhere the image does not cover.

Tiled The image will be duplicated until it fills the entire desktop. The first image will be placed in the upper left corner of the screen, and duplicated downward and to the right.

Center Tiled The image will be duplicated until it fills the entire desktop. The first image will be placed in the center of the screen, and duplicated upward, downward to the right, and to the left.

Centered Maxpect The image will be placed in the center of the screen. It will be scaled to fit the desktop, but it will not change the aspect ratio of the original image. This will provide you with an image that is not distorted.

Scaled The image will be scaled to fit the desktop. It will be stretched to fit all four corners.

4.1.4 Shutdown

Allow Shutdown

Use this drop down box to choose who is allowed to shut down:

- **Nobody:** No one can shutdown the computer using kdm. You must be logged in, and execute a command.
- **Everybody:** Everyone can shutdown the computer using kdm.
- **Only Root:** kdm requires that the `root` password be entered before shutting down the computer.

You can independently configure who is allowed to issue a shutdown command for the Local: and Remote: users.

Commands

Use these text fields to define the exact shutdown command.

The Halt: command defaults to `/sbin/halt`. The Restart: command defaults to `/sbin/reboot`.

When Show boot options is enabled, kdm will on reboot offer you options for the lilo boot manager. For this feature to work, you will need to supply the correct paths to your `lilo` command and to lilo's map file. Note that this option is not available on all operating systems.

4.1.5 Users

From here you can change the way users are represented in the login window.

You may disable the user list in kdm entirely in the Show Users section. You can choose from:

Show List Only show users you have specifically enabled in the list alongside

If you do not check this box, no list will be shown. This is the most secure setting, since an attacker would then have to guess a valid login name as well as a password. It's also the preferred option if you have more than a handful of users to list, or the list itself would become unwieldy.

Inverse selection Allows you to instead select a list of users that should *not* be shown, and all other users will be listed.

Independently of the users you specify by name, you can use the System UIDs to specify a range of valid UIDs that are shown in the list. By default user id's under 1000, which are often system or daemon users, and user id's over 65000, are not shown.

You can also enable the Sort users checkbox, to have the user list sorted alphabetically. If this is disabled, users will appear in the order they are listed in the password file. kdm will also autocomplete user names if you enable the Autocompletion option.

If you choose to show users, then the login window will show images (which you select), of a list of users. When someone is ready to login, they may select their user name/image, enter their password, and they are granted access.

If you permit a user image, then you can configure the source for those images.

You can configure the admin picture here, for each user on the system. Depending on the order selected above, users may be able to override your selection.

If you choose not to show users, then the login window will be more traditional. Users will need to type their username and password to gain entrance. This is the preferred way if you have many users on this terminal.

4.1.6 Convenience

In the convenience tab you can configure some options that make life easier for lazy people, like automatic login or disabling passwords.

IMPORTANT

Please think more than twice before using these options. Every option in the Convenience tab is well-suited to seriously compromise your system security. Practically, these options are only to be used in a completely non-critical environment, e.g. a private computer at home.

4.1.6.1 Automatic Login

Automatic login will give anyone access to a certain account on your system without doing any authentication. You can enable it using the option Enable Auto-login.

You can choose the account to be used for automatic login from the list labeled User:.

4.1.6.2 Password-Less Login

Using this feature, you can allow certain users to login without having to provide their password. Enable this feature using the Enable Password-less logins option.

Below this option you'll see a list of users on the system. Enable password-less login for specific users by checking the checkbox next to the login names. By default, this feature is disabled for all users.

IMPORTANT

Again, this option should only be used in a safe environment. If you enable it on a rather public system you should take care that only users with heavy access restrictions are granted password-less login, e.g. `guest`.

You can also choose which user is 'preselected' when kdm starts. The default is None, but you can choose Previous to have kdm default to the last successfully logged in user, or you can Specify a particular user to always be selected from the list. You can also have kdm set the focus to the password field, so that when you reach the kdm login screen, you can type the password immediately.

The Automatically login after X server crash option allows you to skip the authentication procedure when your X server accidentally crashed.

Chapter 5

The Files kdm Uses for Configuration

This chapter documents the files that control kdm's behavior. Some of this can be also controlled from the KControl module, but not all.

5.1 `kdmrc` - The kdm master configuration file

The basic format of the file is 'INI-like'. Options are key/value pairs, placed in sections. Everything in the file is case sensitive. Syntactic errors and unrecognized key/section identifiers cause kdm to issue non-fatal error messages.

Lines beginning with # are comments; empty lines are ignored as well.

Sections are denoted by `[Name of Section]`.

You can configure every X-display individually.

Every display has a display name, which consists of a host name (which is empty for local displays specified in `StaticServers` or `ReserveServers`), a colon, and a display number. Additionally, a display belongs to a display class (which can be ignored in most cases).

Sections with display-specific settings have the formal syntax `[X- host [: number [_ class]] - sub-section]`

All sections with the same `sub-section` make up a section class.

You can use the wildcard * (match any) for `host`, `number`, and `class`. You may omit trailing components; they are assumed to be * then. The host part may be a domain specification like `.inf.tu-dresden.de` or the wildcard + (match non-empty).

From which section a setting is actually taken is determined by these rules:

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- An exact match takes precedence over a partial match (for the host part), which in turn takes precedence over a wildcard (+ taking precedence over *).
- Precedence decreases from left to right for equally exact matches.
- Example: display name 'myhost.foo:0', class 'dpy'
 - [X-myhost.foo:0_dpy] precedes
 - [X-myhost.foo:0_*] (same as [X-myhost.foo:0]) precedes
 - [X-myhost.foo:*_dpy] precedes
 - [X-myhost.foo:*_*] (same as [X-myhost.foo]) precedes
 - [X-.foo:*_*] (same as [X-.foo]) precedes
 - [X-+:0_dpy] precedes
 - [X-*:0_dpy] precedes
 - [X-*:0_*] (same as [X-*:0]) precedes
 - [X-:*_*] (same as [X-*]).
 - These sections do *not* match this display:
[X-hishost], [X-myhost.foo:0_dec], [X-*:1], [X-:*]

Common sections are [X-*] (all displays), [X-:*] (all local displays) and [X-:0] (the first local display).

The format for all keys is *key = value*. Keys are only valid in the section class they are defined for. Some keys do not apply to particular displays, in which case they are ignored.

If a setting is not found in any matching section, the default is used.

Special characters need to be backslash-escaped (leading and trailing spaces (\s), tab (\t), linefeed (\n), carriage return (\r) and the backslash itself (\\)).

In lists, fields are separated with commas without whitespace in between.

Some command strings are subject to simplified sh-style word splitting: single quotes (') and double quotes (") have the usual meaning; the backslash quotes everything (not only special characters). Note that the backslashes need to be doubled because of the two levels of quoting.

NOTE

A pristine `kdmrc` is very thoroughly commented. All comments will be lost if you change this file with the `kcontrol` frontend.

5.1.1 The [General] section of `kdmrc`

This section contains global options that do not fit into any specific section.

ConfigVersion This option exists solely for the purpose of clean automatic upgrades. *Do not* change it, you may interfere with future upgrades and this could result in kdm failing to run.

StaticServers List of displays (X-Servers) permanently managed by kdm. Displays with a hostname are foreign displays which are expected to be already running, the others are local displays for which kdm starts an own X-Server; see `ServerCmd`. Each display may belong to a display class; append it to the display name separated by an underscore. See Section 5.2 for the details.
The default is `':0'`.

ReserveServers List of on-demand displays. See `StaticServers` for syntax.
Empty by default.

ServerVTs List of Virtual Terminals to allocate to X-Servers. For negative numbers the absolute value is used, and the VT will be allocated only if the kernel says it is free. If kdm exhausts this list, it will allocate free VTs greater than the absolute value of the last entry in this list. Currently Linux only.
Empty by default.

ConsoleTTYs This option is for operating systems (OSs) with support for virtual terminals (VTs), by both kdm and the OSs itself. Currently this applies only to Linux.
When kdm switches to console mode, it starts monitoring all TTY lines listed here (without the leading `/dev/`). If none of them is active for some time, kdm switches back to the X login.
Empty by default.

PidFile The filename specified will be created to contain an ASCII representation of the process ID of the main kdm process; the PID will not be stored if the filename is empty.
Empty by default.

LockPidFile This option controls whether kdm uses file locking to keep multiple display managers from running onto each other.
The default is `'true'`.

AuthDir This names a directory under which kdm stores X-Server authorization files while initializing the session. kdm expects the system to clean up this directory from stale files on reboot.
The authorization file to be used for a particular display can be specified with the `AuthFile` option in `[X-*-Core]`.
The default is `'/var/run/xauth'`.

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AutoRescan This boolean controls whether kdm automatically re-reads its configuration files if it finds them to have changed.

The default is 'true'.

ExportList Additional environment variables kdm should pass on to all programs it runs. `LD_LIBRARY_PATH` and `XCURSOR_THEME` are good candidates; otherwise, it should not be necessary very often.

Empty by default.

RandomFile If the system has no native entropy source like `/dev/urandom` (see `RandomDevice`) and no entropy daemon like EGD (see `PrngdSocket` and `PrngdPort`) is running, kdm will fall back to its own pseudo-random number generator that will, among other things, successively checksum parts of this file (which, obviously, should change frequently).

This option does not exist on Linux and various BSDs.

The default is `'/dev/mem'`.

PrngdSocket If the system has no native entropy source like `/dev/urandom` (see `RandomDevice`), read random data from a Pseudo-Random Number Generator Daemon, like EGD (<http://egd.sourceforge.net>) via this UNIX domain socket.

This option does not exist on Linux and various BSDs.

Empty by default.

PrngdPort Same as `PrngdSocket`, only use a TCP socket on localhost.

RandomDevice The path to a character device which kdm should read random data from. Empty means to use the system's preferred entropy device if there is one.

This option does not exist on OpenBSD, as it uses the `arc4_random` function instead.

Empty by default.

FifoDir The directory in which the command FiFos should be created; make it empty to disable them.

The default is `'/var/run/xdmctl'`.

FifoGroup The group to which the global command FiFo should belong; can be either a name or a numerical ID.

DataDir The directory in which kdm should store persistent working data; such data is, for example, the previous user that logged in on a particular display.

The default is `'/var/lib/kdm'`.

DmrcDir The directory in which kdm should store users' `.dmrc` files. This is only needed if the home directories are not readable before actually logging in (like with AFS).

Empty by default.

5.1.2 The [Xdmcp] section of `kdmrc`

This section contains options that control kdm's handling of XDMCP requests.

Enable Whether kdm should listen to incoming XDMCP requests.

The default is 'true'.

Port This indicates the UDP port number which kdm uses to listen for incoming XDMCP requests. Unless you need to debug the system, leave this with its default value.

The default is '177'.

KeyFile XDM-AUTHENTICATION-1 style XDMCP authentication requires a private key to be shared between kdm and the terminal. This option specifies the file containing those values. Each entry in the file consists of a display name and the shared key.

Empty by default.

Xaccess To prevent unauthorized XDMCP service and to allow forwarding of XDMCP IndirectQuery requests, this file contains a database of host-names which are either allowed direct access to this machine, or have a list of hosts to which queries should be forwarded to. The format of this file is described in Section 5.3.

The default is ``${kde_confdir}/kdm/Xaccess``.

ChoiceTimeout Number of seconds to wait for the display to respond after the user has selected a host from the chooser. If the display sends an XDMCP IndirectQuery within this time, the request is forwarded to the chosen host; otherwise, it is assumed to be from a new session and the chooser is offered again.

The default is '15'.

RemoveDomainname When computing the display name for XDMCP clients, the name resolver will typically create a fully qualified host name for the terminal. As this is sometimes confusing, kdm will remove the domain name portion of the host name if it is the same as the domain name of the local host when this option is enabled.

The default is 'true'.

SourceAddress Use the numeric IP address of the incoming connection on multihomed hosts instead of the host name. This is to avoid trying to connect on the wrong interface which might be down at this time.

The default is 'false'.

Willing This specifies a program which is run (as `root`) when an XDMCP DirectQuery or BroadcastQuery is received and this host is configured to offer XDMCP display management. The output of this program may be displayed in a chooser window. If no program is specified, the string 'Willing to manage' is sent.

Empty by default.

5.1.3 The [Shutdown] section of `kdmrc`

This section contains global options concerning system shutdown.

HaltCmd The command (subject to word splitting) to run to halt/poweroff the system.

The default is something reasonable for the system on which kdm was built, like `/sbin/shutdown -h now`.

RebootCmd The command (subject to word splitting) to run to reboot the system.

The default is something reasonable for the system kdm on which was built, like `/sbin/shutdown -r now`.

AllowFifo Whether it is allowed to shut down the system via the global command FiFo.

The default is 'false'.

AllowFifoNow Whether it is allowed to abort active sessions when shutting down the system via the global command FiFo.

This will have no effect unless `AllowFifo` is enabled.

The default is 'true'.

BootManager The boot manager kdm should use for offering boot options in the shutdown dialog.

None no boot manager

Grub Grub boot manager

Lilo Lilo boot manager (Linux on i386 & x86-64 only)

The default is 'None'.

5.1.4 The [X*-Core] section class of `kdmrc`

This section class contains options concerning the configuration of the kdm backend (core).

OpenDelay See `OpenRepeat`.

The default is '15'.

OpenTimeout See `OpenRepeat`.

The default is '120'.

OpenRepeat These options control the behavior of kdm when attempting to open a connection to an X-Server. `OpenDelay` is the length of the pause (in seconds) between successive attempts, `OpenRepeat` is the number of attempts to make and `OpenTimeout` is the amount of time to spend on a connection attempt. After `OpenRepeat` attempts have been made, or if `OpenTimeout` seconds elapse in any particular connection attempt, the start attempt is considered failed.

The default is '5'.

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StartAttempts How many times kdm should attempt to start a foreign display listed in `StaticServers` before giving up and disabling it. Local displays are attempted only once, and XDMCP displays are retried indefinitely by the client (unless the option `-once` was given to the X-Server).

The default is '4'.

ServerAttempts How many times kdm should attempt to start up a local X-Server. Starting up includes executing it and waiting for it to come up.

The default is '1'.

ServerTimeout How many seconds kdm should wait for a local X-Server to come up.

The default is '15'.

ServerCmd The command line to start the X-Server, without display number and VT spec. This string is subject to word splitting.

The default is something reasonable for the system on which kdm was built, like `/usr/X11R6/bin/X`.

ServerArgsLocal Additional arguments for the X-Servers for local sessions. This string is subject to word splitting.

Empty by default.

ServerArgsRemote Additional arguments for the X-Servers for remote sessions. This string is subject to word splitting.

Empty by default.

ServerVT The VT the X-Server should run on. `ServerVTs` should be used instead of this option. Leave it zero to let kdm assign a VT automatically. Set it to -1 to avoid assigning a VT altogether - this is required for setups with multiple physical consoles. Currently Linux only.

ServerTTY This option is for OSs without support for VTs, either by kdm or the OS itself. Currently this applies to all OSs but Linux.

When kdm switches to console mode, it starts monitoring this TTY line (specified without the leading `/dev/`) for activity. If the line is not used for some time, kdm switches back to the X login.

Empty by default.

PingInterval See `PingTimeout`.

The default is '5'.

PingTimeout To discover when *remote* displays disappear, kdm regularly pings them. `PingInterval` specifies the time (in minutes) between the pings and `PingTimeout` specifies the maximum amount of time (in minutes) to wait for the terminal to respond to the request. If the terminal does not respond, the session is declared dead and terminated.

If you frequently use X terminals which can become isolated from the managing host, you may wish to increase the timeout. The only worry is

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that sessions will continue to exist after the terminal has been accidentally disabled.

The default is '5'.

TerminateServer Whether kdm should restart the local X-Server after session exit instead of resetting it. Use this if the X-Server leaks memory or crashes the system on reset attempts.

The default is 'false'.

ResetSignal The signal number to use to reset the local X-Server.

The default is '1 (SIGHUP)'.

TermSignal The signal number to use to terminate the local X-Server.

The default is '15 (SIGTERM)'.

Authorize Controls whether kdm generates and uses authorization for *local* X-Server connections. For XDMCP displays the authorization requested by the display is used; foreign non-XDMCP displays do not support authorization at all.

The default is 'true'.

AuthNames If *Authorize* is true, use the authorization mechanisms listed herein. The MIT-MAGIC-COOKIE-1 authorization is always available; XDM-AUTHORIZATION-1, SUN-DES-1 and MIT-KERBEROS-5 might be available as well, depending on the build configuration.

The default is 'DEF_AUTH_NAME'.

ResetForAuth Some *old* X-Servers re-read the authorization file at X-Server reset time, instead of when checking the initial connection. As kdm generates the authorization information just before connecting to the display, an old X-Server would not get up-to-date authorization information. This option causes kdm to send SIGHUP to the X-Server after setting up the file, causing an additional X-Server reset to occur, during which time the new authorization information will be read.

The default is 'false'.

AuthFile This file is used to communicate the authorization data from kdm to the X-Server, using the `-auth` X-Server command line option. It should be kept in a directory which is not world-writable as it could easily be removed, disabling the authorization mechanism in the X-Server. If not specified, a random name is generated from `AuthDir` and the name of the display.

Empty by default.

Resources This option specifies the name of the file to be loaded by `xrdb` as the resource database onto the root window of screen 0 of the display. KDE programs generally do not use X-resources, so this option is only needed if the `Setup` program needs some X-resources.

Empty by default.

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Xrdb The `xrdb` program to use to read the X-resources file specified in `Recoures`. The command is subject to word splitting.

The default is `'${x_bindir}/xrdb'`.

Setup This string is subject to word splitting. It specifies a program which is run (as `root`) before offering the greeter window. This may be used to change the appearance of the screen around the greeter window or to put up other windows (e.g., you may want to run `xconsole` here). The conventional name for a program used here is `Xsetup`. See Section 5.4.1.

Empty by default.

Startup This string is subject to word splitting. It specifies a program which is run (as `root`) after the user authentication process succeeds. The conventional name for a program used here is `Xstartup`. See Section 5.4.2.

Empty by default.

Reset This string is subject to word splitting. It specifies a program which is run (as `root`) after the session terminates. The conventional name for a program used here is `Xreset`. See Section 5.4.4.

Empty by default.

Session This string is subject to word splitting. It specifies the session program to be executed (as the user owning the session). The conventional name for a program used here is `Xsession`. See Section 5.4.3.

The default is `'${x_bindir}erm -ls -T'`.

FailSafeClient If the `Session` program fails to execute, `kdm` will fall back to this program. This program is executed with no arguments, but executes using the same environment variables as the session would have had (see Section 5.4.3).

The default is `'${x_bindir}erm'`.

UserPath The `PATH` environment variable for non-root Sessions.

The default depends on the system `kdm` was built on.

SystemPath The `PATH` environment variable for all programs but non-root Sessions. Note that it is good practice not to include `.` (the current directory) into this entry.

The default depends on the system `kdm` was built on.

SystemShell The `SHELL` environment variable for all programs but the Session.

The default is `'/bin/sh'`.

UserAuthDir When `kdm` is unable to write to the usual user authorization file (`$HOME/.Xauthority`), it creates a unique file name in this directory and points the environment variable `XAUTHORITY` at the created file.

The default is `'/tmp'`.

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AutoReLogin If enabled, kdm will automatically restart a session after an X-Server crash (or if it is killed by Alt-Ctrl-BackSpace). Note that enabling this feature opens a security hole: a secured display lock can be circumvented (unless KDE's built-in screen locker is used).

The default is 'false'.

AllowRootLogin If disabled, do not allow `root` (and any other user with `UID = 0`) to log in directly.

The default is 'true'.

AllowNullPasswd If disabled, only users that have passwords assigned can log in.

The default is 'true'.

AllowShutdown Who is allowed to shut down the system. This applies both to the greeter and to the command `FiFo`.

None no Shutdown... menu entry is shown at all

Root the `root` password must be entered to shut down

All everybody can shut down the machine

The default is 'All'.

AllowSdForceNow Who is allowed to abort active sessions when shutting down.

None no forced shutdown is allowed at all

Root the `root` password must be entered to shut down forcibly

All everybody can shut down the machine forcibly

The default is 'All'.

DefaultSdMode The default choice for the shutdown condition/timing.

Schedule shut down after all active sessions exit (possibly at once)

TryNow shut down, if no active sessions are open; otherwise, do nothing

ForceNow shut down unconditionally

The default is 'Schedule'.

ScheduledSd How to offer shutdown scheduling options:

Never not at all

Optional as a button in the simple shutdown dialogs

Always instead of the simple shutdown dialogs

The default is 'Never'.

NoPassEnable Enable password-less logins on this display. *Use with extreme care!*

The default is 'false'.

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NoPassUsers The users that do not need to provide a password to log in. Items which are prefixed with @ represent all users in the user group named by that item. * means all users but root (and any other user with UID = 0). *Never* list root.
Empty by default.

AutoLoginEnable Enable automatic login. *Use with extreme care!*
The default is 'false'.

AutoLoginAgain If true, auto-login after logout. If false, auto-login is performed only when a display session starts up.
The default is 'false'.

AutoLoginDelay The delay in seconds before automatic login kicks in. This is also known as 'Timed Login'.

AutoLoginUser The user to log in automatically. *Never* specify root!
Empty by default.

AutoLoginPass The password for the user to log in automatically. This is *not* required unless the user is logged into a NIS or Kerberos domain. If you use this option, you should **chmod 600 kdmrc** for obvious reasons.
Empty by default.

AutoLoginLocked Immediately lock the automatically started session. This works only with KDE sessions.
The default is 'false'.

SessionsDirs A list of directories containing session type definitions.
The default is '\${kde_datadir}/kdm/sessions'.

ClientLogFile The file (relative to the user's home directory) to redirect the session output to. One occurrence of %s in this string will be substituted with the display name. Use %% to obtain a literal %.
The default is '.xsession-errors'.

UseSessReg Specify whether kdm's built-in utmp/wtmp/lastlog registration should be used. If it is not, the tool **sessreg** should be used in the **Startup** and **Reset** scripts, or, alternatively, the pam_lastlog module should be used on PAM-enabled systems.
The default is 'true'.

5.1.5 The [X-*-Greeter] section class of kdmrc

This section class contains options concerning the configuration of the kdm frontend (greeter).

GUIStyle Specify the widget style for the greeter. Empty means to use the built-in default which currently is Plastik.
Empty by default.

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ColorScheme Specify the widget color scheme for the greeter. Empty means to use the built-in default which currently is yellowish grey with some light blue and yellow elements.

Empty by default.

LogoArea What should be shown in the greeter righthand of the input lines (if `UserList` is disabled) or above them (if `UserList` is enabled):

None nothing

Logo the image specified by `LogoPixmap`

Clock a neat analog clock

The default is 'Clock'.

LogoPixmap The image to show in the greeter if `LogoArea` is `Logo`.

Empty by default.

GreeterPos The relative coordinates (percentages of the screen size; X,Y) at which the center of the greeter is put. kdm aligns the greeter to the edges of the screen it would cross otherwise.

The default is '50,50'.

GreeterScreen The screen the greeter should be displayed on in multi-headed and Xinerama setups. The numbering starts with 0. For Xinerama, it corresponds to the listing order in the active `ServerLayout` section of `XF86Config`; -1 means to use the upper-left screen, -2 means to use the upper-right screen.

GreetString The headline in the greeter. An empty greeting means none at all.

The following character pairs are replaced by their value:

%d name of the current display

%h local host name, possibly with the domain name

%n local node name, most probably the host name without the domain name

%s operating system

%r operating system version

%m machine (hardware) type

%% a single %

The default is 'Welcome to %s at %n'.

AntiAliasing Whether the fonts used in the greeter should be antialiased.

The default is 'false'.

GreetFont The font for the greeter headline.

The default is 'Serif,20,bold'.

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StdFont The normal font used in the greeter.

The default is 'Sans Serif,10'.

FailFont The font used for the 'Login Failed' message.

The default is 'Sans Serif,10,bold'.

NumLock What to do with the Num Lock modifier for the time the greeter is running:

Off turn off

On turn on

Keep do not change the state

The default is 'Keep'.

Language Language and locale to use in the greeter, encoded like `$LC_LANG`.

The default is 'en_US'.

UserCompletion Enable autocompletion in the username line edit.

The default is 'false'.

UserList Show a user list with unix login names, real names, and images in the greeter.

The default is 'true'.

ShowUsers This option controls which users will be shown in the user view (`UserList`) and/or offered for autocompletion (`UserCompletion`). If it is `Selected`, `SelectedUsers` contains the final list of users. If it is `NotHidden`, the initial user list contains all users found on the system. Users contained in `HiddenUsers` are removed from the list, just like all users with a UID greater than specified in `MaxShowUID` and users with a non-zero UID less than specified in `MinShowUID`. Items in `SelectedUsers` and `HiddenUsers` which are prefixed with `@` represent all users in the user group named by that item. Finally, the user list will be sorted alphabetically, if `SortUsers` is enabled.

The default is 'NotHidden'.

SelectedUsers See `ShowUsers`.

Empty by default.

HiddenUsers See `ShowUsers`.

Empty by default.

MinShowUID See `ShowUsers`.

MaxShowUID See `ShowUsers`.

The default is '65535'.

SortUsers See `ShowUsers`.

The default is 'true'.

FaceSource If `UserList` is enabled, this specifies where kdm gets the images from:

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AdminOnly from `<FaceDir>/$USER.face[.icon]`
PreferAdmin prefer `<FaceDir>`, fallback on `$HOME`
PreferUser ... and the other way round
UserOnly from the user's `$HOME/.face[.icon]`

The images can be in any format Qt recognizes, but the filename must match kdm's expectations: `.face.icon` should be a 48x48 icon, while `.-face` should be a 300x300 image. Currently the big image is used only as a fallback and is scaled down, but in the future it might be displayed full-size in the logo area or a tooltip.

The default is 'AdminOnly'.

FaceDir See `FaceSource`.

The default is `${kde_datadir}/kdm/faces'`.

PreselectUser Specify, if/which user should be preselected for log in:

None do not preselect any user
Previous the user which successfully logged in last time
Default the user specified in the `DefaultUser` option

If `FocusPasswd` is enabled and a user was preselected, the cursor is placed in the password input field automatically.

NOTE

Enabling user preselection can be considered a security hole, as it presents a valid login name to a potential attacker, so he 'only' needs to guess the password. On the other hand, one could set `DefaultUser` to a fake login name.

The default is 'None'.

DefaultUser See `PreselectUser`.

Empty by default.

FocusPasswd See `PreselectUser`.

The default is 'false'.

EchoMode The password input fields cloak the typed in text. Specify, how to do it:

OneStar * is shown for every typed character
ThreeStars *** is shown for every typed character
NoEcho nothing is shown at all, the cursor does not move

The default is 'OneStar'.

UseBackground If enabled, kdm will automatically start the `krootimage` program to set up the background; otherwise, the `Setup` program is responsible for the background.

The default is 'true'.

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BackgroundCfg The configuration file to be used by **krootimage**. It contains a section named `[Desktop0]` like `kdesktoprc` does. Its options are not described herein; guess their meanings or use the control center.

The default is `'${kde_confdir}/kdm/backgroundrc'`.

GrabServer To improve security, the greeter grabs the X-Server and then the keyboard when it starts up. This option specifies if the X-Server grab should be held for the duration of the name/password reading. When disabled, the X-Server is ungrabbed after the keyboard grab succeeds; otherwise, the X-Server is grabbed until just before the session begins.

NOTE

Enabling this option disables `UseBackground` and `Setup`.

The default is `'false'`.

GrabTimeout This option specifies the maximum time kdm will wait for the grabs to succeed. A grab may fail if some other X-client has the X-Server or the keyboard grabbed, or possibly if the network latencies are very high. You should be cautious when raising the timeout, as a user can be spoofed by a look-alike window on the display. If a grab fails, kdm kills and restarts the X-Server (if possible) and the session.

The default is `'3'`.

AuthComplain Warn, if a display has no X-authorization. This will be the case if

- the authorization file for a local X-Server could not be created,
- a remote display from XDMCP did not request any authorization or
- the display is a 'foreign' display specified in `StaticServers`.

The default is `'true'`.

LoginMode Specify whether the greeter of local displays should start up in host chooser (remote) or login (local) mode and whether it is allowed to switch to the other mode.

LocalOnly only local login possible

DefaultLocal start up in local mode, but allow switching to remote mode

DefaultRemote ... and the other way round

RemoteOnly only choice of remote host possible

The default is `'LocalOnly'`.

ChooserHosts A list of hosts to be automatically added to the remote login menu. The special name `*` means broadcast. Has no effect if `LoginMode` is `LocalOnly`.

The default is `'*'`.

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ForgingSeed Use this number as a random seed when forging saved session types, etc. of unknown users. This is used to avoid telling an attacker about existing users by reverse conclusion. This value should be random but constant across the login domain.

ShowLog Enable kdm's built-in **xconsole**. Note that this can be enabled for only one display at a time. This option is available only if kdm was **configured** with `--enable-kdm-xconsole`.

The default is 'false'.

LogSource The data source for kdm's built-in **xconsole**. If empty, a console log redirection is requested from `/dev/console`. Has no effect if **ShowLog** is disabled.

Empty by default.

PluginsLogin Specify conversation plugins for the login dialog; the first in the list is selected initially. Each plugin can be specified as a base name (which expands to `$kde_modulesdir/kgreet_base`) or as a full pathname.

Conversation plugins are modules for the greeter which obtain authentication data from the user. Currently only the **classic** plugin is shipped with KDE; it presents the well-known username and password form.

The default is 'classic'.

PluginsShutdown Same as **PluginsLogin**, but for the shutdown dialog.

The default is 'classic'.

PluginOptions A list of options of the form `Key=Value`. The conversation plugins can query these settings; it is up to them what possible keys are.

Empty by default.

AllowConsole Show the Console Login action in the greeter (if `ServerTTY/ConsoleTTYs` is configured).

The default is 'true'.

AllowClose Show the Restart X Server/Close Connection action in the greeter.

The default is 'true'.

Preloader A program to run while the greeter is visible. It is supposed to preload as much as possible of the session that is going to be started (most probably).

Empty by default.

UseTheme Whether the greeter should be themed.

The default is 'false'.

Theme The theme to use for the greeter. Can point to either a directory or an XML file.

Empty by default.

5.2 Specifying permanent X-Servers

Each entry in the `StaticServers` list indicates a display which should constantly be managed and which is not using XDMCP. This method is typically used only for local X-Servers that are started by kdm, but kdm can manage externally started ('foreign') X-Servers as well, may they run on the local machine or rather remotely.

The formal syntax of a specification is

```
display name [_display class]
```

for all X-Servers. 'Foreign' displays differ in having a host name in the display name, may it be `localhost`.

The *display name* must be something that can be passed in the `-display` option to an X program. This string is used to generate the display-specific section names, so be careful to match the names. The display name of XDMCP displays is derived from the display's address by reverse host name resolution. For configuration purposes, the `localhost` prefix from locally running XDMCP displays is *not* stripped to make them distinguishable from local X-Servers started by kdm.

The *display class* portion is also used in the display-specific sections. This is useful if you have a large collection of similar displays (such as a corral of X terminals) and would like to set options for groups of them. When using XDMCP, the display is required to specify the display class, so the manual for your particular X terminal should document the display class string for your device. If it does not, you can run kdm in debug mode and **grep** the log for 'class'.

The displays specified in `ReserveServers` will not be started when kdm starts up, but when it is explicitly requested via the command socket (or FiFo). If reserve displays are specified, the KDE menu will have a Start New Session item near the bottom; use that to activate a reserve display with a new login session. The monitor will switch to the new display, and you will have a minute to login. If there are no more reserve displays available, the menu item will be disabled.

When kdm starts a session, it sets up authorization data for the X-Server. For local servers, kdm passes `-auth filename` on the X-Server's command line to point it at its authorization data. For XDMCP displays, kdm passes the authorization data to the X-Server via the 'Accept' XDMCP message.

5.3 XDMCP access control

The file specified by the `AccessFile` option provides information which kdm uses to control access from displays requesting service via XDMCP. The file contains four types of entries: entries which control the response to 'Direct' and 'Broadcast' queries, entries which control the response to 'Indirect' queries,

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macro definitions for 'Indirect' entries, and entries which control on which network interfaces kdm listens for XDMCP queries. Blank lines are ignored, # is treated as a comment delimiter causing the rest of that line to be ignored, and \ causes an immediately following newline to be ignored, allowing indirect host lists to span multiple lines.

The format of the 'Direct' entries is simple, either a host name or a pattern, which is compared against the host name of the display device. Patterns are distinguished from host names by the inclusion of one or more meta characters; * matches any sequence of 0 or more characters, and ? matches any single character. If the entry is a host name, all comparisons are done using network addresses, so any name which converts to the correct network address may be used. Note that only the first network address returned for a host name is used. For patterns, only canonical host names are used in the comparison, so ensure that you do not attempt to match aliases. Host names from XDMCP queries always contain the local domain name even if the reverse lookup returns a short name, so you can use patterns for the local domain. Preceding the entry with a ! character causes hosts which match that entry to be excluded. To only respond to 'Direct' queries for a host or pattern, it can be followed by the optional NOBROADCAST keyword. This can be used to prevent a kdm server from appearing on menus based on 'Broadcast' queries.

An 'Indirect' entry also contains a host name or pattern, but follows it with a list of host names or macros to which the queries should be forwarded. 'Indirect' entries can be excluding as well, in which case a (valid) dummy host name must be supplied to make the entry distinguishable from a 'Direct' entry. If compiled with IPv6 support, multicast address groups may also be included in the list of addresses the queries are forwarded to. If the indirect host list contains the keyword CHOOSE, 'Indirect' queries are not forwarded, but instead a host chooser dialog is displayed by kdm. The chooser will send a 'Direct' query to each of the remaining host names in the list and offer a menu of all the hosts that respond. The host list may contain the keyword BROADCAST, to make the chooser send a 'Broadcast' query as well; note that on some operating systems, UDP packets cannot be broadcast, so this feature will not work.

When checking access for a particular display host, each entry is scanned in turn and the first matching entry determines the response. 'Direct' and 'Broadcast' entries are ignored when scanning for an 'Indirect' entry and vice-versa.

A macro definition contains a macro name and a list of host names and other macros that the macro expands to. To distinguish macros from hostnames, macro names start with a % character.

The last entry type is the LISTEN directive. The formal syntax is

```
LISTEN [interface [multicast list]]
```

If one or more LISTEN lines are specified, kdm listens for XDMCP requests only on the specified interfaces. *interface* may be a hostname or IP address representing a network interface on this machine, or the wildcard * to represent all available network interfaces. If multicast group addresses are listed on a LISTEN line, kdm joins the multicast groups on the given interface. For IPv6

multicasts, the IANA has assigned `ff0x:0:0:0:0:12b` as the permanently assigned range of multicast addresses for XDMCP. The `x` in the prefix may be replaced by any valid scope identifier, such as 1 for Node-Local, 2 for Link-Local, 5 for Site-Local, and so on (see IETF RFC 2373 or its replacement for further details and scope definitions). `kdm` defaults to listening on the Link-Local scope address `ff02:0:0:0:0:12b` to most closely match the IPv4 subnet broadcast behavior. If no `LISTEN` lines are given, `kdm` listens on all interfaces and joins the default XDMCP IPv6 multicast group (when compiled with IPv6 support). To disable listening for XDMCP requests altogether, a `LISTEN` line with no addresses may be specified, but using the `[Xdmcp] Enable` option is preferred.

5.4 Supplementary programs

The following programs are run by `kdm` at various stages of a session. They typically are shell scripts.

The `Setup`, `Startup` and `Reset` programs are run as `root`, so they should be careful about security. Their first argument is `auto` if the session results from an automatic login; otherwise, no arguments are passed to them.

5.4.1 Setup program

The `Xsetup` program is run after the X-Server is started or reset, but before the greeter is offered. This is the place to change the root background (if `UseBackground` is disabled) or bring up other windows that should appear on the screen along with the greeter.

In addition to any specified by `ExportList`, the following environment variables are passed:

DISPLAY the associated display name

PATH the value of `SystemPath`

SHELL the value of `SystemShell`

XAUTHORITY may be set to an authority file

DM_CONTROL the value of `FifoDir`

Note that since `kdm` grabs the keyboard, any other windows will not be able to receive keyboard input. They will be able to interact with the mouse, however; beware of potential security holes here. If `GrabServer` is set, `Xsetup` will not be able to connect to the display at all. Resources for this program can be put into the file named by `Resources`.

5.4.2 Startup program

The `Xstartup` program is run as `root` when the user logs in. This is the place to put commands which add entries to `utmp` (the `sessreg` program may be useful here), mount users' home directories from file servers, or abort the session if some requirements are not met (but note that on modern systems, many of these tasks are already taken care of by PAM modules).

In addition to any specified by `ExportList`, the following environment variables are passed:

DISPLAY the associated display name

HOME the initial working directory of the user

LOGNAME the username

USER the username

PATH the value of `SystemPath`

SHELL the value of `SystemShell`

XAUTHORITY may be set to an authority file

DM_CONTROL the value of `FifoDir`

kdm waits until this program exits before starting the user session. If the exit value of this program is non-zero, kdm discontinues the session and starts another authentication cycle.

5.4.3 Session program

The `Xsession` program is the command which is run as the user's session. It is run with the permissions of the authorized user. One of the keywords `failsafe`, `default` or `custom`, or a string to `eval` by a Bourne-compatible shell is passed as the first argument.

In addition to any specified by `ExportList`, the following environment variables are passed:

DISPLAY the associated display name

HOME the initial working directory of the user

LOGNAME the username

USER the username

PATH the value of `UserPath` (or `SystemPath` for `root` user sessions)

SHELL the user's default shell

XAUTHORITY may be set to a non-standard authority file

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KRBTKFILE may be set to a Kerberos4 credentials cache name

KRB5CCNAME may be set to a Kerberos5 credentials cache name

DM_CONTROL the value of `FifoDir`

XDM_MANAGED will contain a comma-separated list of parameters the session might find interesting, like the location of the command FIFO and its capabilities, and which conversation plugin was used for the login

DESKTOP_SESSION the name of the session the user has chosen to run

5.4.4 Reset program

Symmetrical with `Xstartup`, the `Xreset` program is run after the user session has terminated. Run as `root`, it should contain commands that undo the effects of commands in `Xstartup`, removing entries from `utmp` or unmounting directories from file servers.

The environment variables that were passed to `Xstartup` are also passed to `Xreset`.

Chapter 6

Configuring your system to use kdm

This chapter assumes that your system is already configured to run the X Window System®, and that you only need to reconfigure it to allow graphical login.

6.1 Setting up kdm

The fundamental thing that controls whether your computer boots to a terminal prompt (console mode) or a graphical login prompt is the default runlevel. The runlevel is set by the program `/sbin/init` under the control of the configuration file `/etc/inittab`. The default runlevels used by different UNIX® systems (and different Linux® distributions) vary, but if you look at `/etc/inittab` the start of it should be something like this:

```
# Default runlevel. The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)

id:3:initdefault:
```

All but the last line of this extract are comments. The comments show that runlevel 5 is used for X11 and that runlevel 3 is used for multi-user mode without X11 (console mode). The final line specifies that the default runlevel of the system is 3 (console mode). If your system currently uses graphical login (for

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example, using `xdm`) its default runlevel will match the runlevel specified for X11.

The runlevel with graphical login (`xdm`) for some common Linux® distributions is:

- 5 for Red Hat® 3.x and later, and for Mandrake™
- 4 for Slackware
- 3 for SuSE®. 4.x and 5.x

The first step in configuring your system is to ensure that you can start `kdm` from the command line. Once this is working, you can change your system configuration so that `kdm` starts automatically each time you reboot your system.

To test `kdm`, you must first bring your system to a runlevel that does not run `xdm`. To do so, issue a command like this:

```
/sbin/init 3
```

Instead of the number 3 you should specify the appropriate runlevel for console mode on your system.

If your system uses Pluggable Authentication Modules (PAM), which is normal with recent Linux® and Solaris™ systems, you should check that your PAM configuration permits login through the service named `kde`. If you previously used `xdm` successfully, you should not need to make any changes to your PAM configuration in order to use `kdm`. `/etc/pam.conf` or `/etc/pam.d/kde`. Information on configuring PAM is beyond the scope of this handbook, but PAM comes with comprehensive documentation (try looking in `/usr/share/doc/*pam*/html/`).

Now it's time for you to test `kdm` by issuing the following command:

```
kdm -nodaemon
```

If you get a `kdm` login dialog and you are able to log in, things are going well. The main thing that can go wrong here is that the run-time linker might not find the shared Qt™ or KDE libraries. If you have a binary distribution of the KDE libraries, make sure `kdm` is installed where the libraries believe KDE is installed and try setting some environment variables to point to your KDE and Qt™ libraries.

For example:

```
export
KDEDIR=/opt/kde
export
QTDIR=/usr/lib/qt2
export
PATH=$KDEDIR/bin:$QTDIR/bin:$PATH
export
LD_LIBRARY_PATH=$KDEDIR/lib:$QTDIR/lib
```

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If you are still unsuccessful, try starting `xdm` instead, to make sure that you are not suffering from a more serious X configuration problem.

When you are able to start `kdm` successfully, you can start to replace `xdm` by `kdm`. Again, this is distribution-dependent.

- For Red Hat®, edit `/etc/inittab`, look for this line:

```
x:5:respawn:/usr/X11/bin/xdm -nodaemon
```

and replace with:

```
x:5:respawn:/opt/kde/bin/kdm
```

This tells `init(8)` to respawn `kdm` when the system is in run level 5. Note that `kdm` does not need the `-nodaemon` option.

- For Mandrake™, the X11 runlevel in `/etc/inittab` invokes the shell script `/etc/X11/prefdm`, which is set up to select from amongst several display managers, including `kdm`. Make sure that all the paths are correct for your installation.
- For SuSE®, edit `/sbin/init.d/xdm` to add a first line:

```
. /etc/rc.config  
DISPLAYMANAGER=kdm  
export DISPLAYMANAGER
```

- For FreeBSD, edit `/etc/ttys` and find the line like this:

```
ttv8 "/usr/X11R6/bin/xdm -nodaemon" xterm off secure
```

and edit it to this:

```
ttv8 "/usr/local/bin/kdm" xterm on secure
```

- Most other distributions are a variation of one of these.

At this stage, you can test `kdm` again by bringing your system to the runlevel that should now run `kdm`. To do so, issue a command like this:

```
/sbin/init 5
```

Instead of the number 5 you should specify the appropriate runlevel for running X11 on your system.

The final step is to edit the `initdefault` entry in `/etc/inittab` to specify the appropriate runlevel for X11.

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WARNING

Before you make this change, ensure that you have a way to reboot your system if a problem occurs. This might be a 'rescue' floppy-disk provided by your operating system distribution or a specially-designed 'rescue' floppy-disk, such as `tomsrftbt`. Ignore this advice at your peril.

This usually involves changing the line:

```
id:3:initdefault:
```

to

```
id:5:initdefault:
```

When you reboot your system, you should end up with the graphical kdm login dialog.

If this step is unsuccessful the most likely problem is that the environment used at boot time differs from the environment that you used for testing at the command line. If you are trying to get two versions of KDE to co-exist, be particularly careful that the settings you use for your `PATH` and `LD_LIBRARY_PATH` environment variables are consistent, and that the startup scripts are not over-riding them in some way.

Chapter 7

Supporting multiple window managers

kdm detects most available window manager and desktop environments when it is run. Installing a new one should make it automatically available in the kdm main dialog Session Type:.

If you have a very new window manager, or something that kdm does not support, the first thing you should check is that the application to be run is in the `PATH` and has not been renamed during the install into something unexpected.

If the case is that the application is too new and not yet supported by kdm, you can quite simply add a new session.

The sessions are defined in `.desktop` files in `$KDEDIR/share/apps/kdm/sessions`. You can simply add an appropriately named `.desktop` file in this directory. The fields are:

```
[Desktop Entry]
Encoding=UTF-8 This is fixed to UTF-8 and
may be omitted
Type=XSession This is fixed to XSession and
may be omitted
Exec=executable name Passed to
eval exec in a Bourne shell
TryExec=executable name Supported
but not required
Name=name to show in the kdm session list
```

There are also three 'magic':

default The default session for kdm is normally KDE but can be configured by the system administrator.

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custom The Custom session will run the users `/.xsession` if it exists.

failsafe Failsafe will run a very plain session, and is useful only for debugging purposes.

To override a session type, copy the `.desktop` file from the data dir to the config dir and edit it at will. Removing the shipped session types can be accomplished by 'shadowing' them with `.desktop` files containing `Hidden=true`. For the magic session types no `.desktop` files exist by default, but kdm pretends they would, so you can override them like any other type. I guess you already know how to add a new session type by now. ;-)

Chapter 8

Using kdm for Remote Logins (XDMCP)

XDMCP is the Open Group standard, the 'X Display Manager Control Protocol'. This is used to set up connections between remote systems over the network.

XDMCP is useful in multiuser situations where there are users with workstations and a more powerful server that can provide the resources to run multiple X sessions. For example, XDMCP is a good way to reuse old computers - a Pentium or even 486 computer with 16 Mb RAM is sufficient to run X itself, and using XDMCP such a computer can run a full modern KDE session from a server. For the server part, once a single KDE (or other environment) session is running, running another one requires very few extra resources.

However, allowing another method of login to your machine obviously has security implications. You should run this service only if you need to allow remote X Servers to start login sessions on your system. Users with a single UNIX® computer should not need to run this.

Chapter 9

Advanced Topics

9.1 Command Sockets

This is a feature you can use to remote-control kdm. It's mostly intended for use by ksmserver and kdesktop from a running session, but other applications are possible as well.

The sockets are UNIX[®] domain sockets which live in subdirectories of the directory specified by `FifoDir=`. The subdir is the key to addressing and security; the sockets all have the file name `socket` and file permissions `rw-rw-rw-` (0666). This is because some systems don't care for the file permission of the socket files.

There are two types of sockets: the global one (`dmctl`) and the per-display ones (`dmctl-<display>`).

The global one's subdir is owned by root, the subdirs of the per-display ones' are owned by the user currently owning the session (root or the logged in user). Group ownership of the subdirs can be set via `FifoGroup=`, otherwise it is root. The file permissions of the subdirs are `rxr-x---` (0750).

The fields of a command are separated by tabs (`\t`), the fields of a list are separated by spaces, literal spaces in list fields are denoted by `\s`.

The command is terminated by a newline (`\n`).

The same applies to replies. The reply on success is `ok`, possibly followed by the requested information. The reply on error is an `errno`-style word (e.g. `perm`, `noent`, etc.) followed by a longer explanation.

GLOBAL COMMANDS:

login display (*now* | *schedule*) *user password* [*session_arguments*] login user at specified display. if *now* is specified, a possibly running session is killed, otherwise the login is done after the session exits. *session_arguments* are printf-like escaped contents for `.dmrc`. Unlisted keys will default to previously saved values.

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PER-DISPLAY COMMANDS:

lock The display is marked as locked. If the X-Server crashes in this state, no auto-relogin will be performed even if the option is on.

unlock Reverse the effect of **lock**, and re-enable auto-relogin.

suicide The currently running session is forcibly terminated. No auto-relogin is attempted, but a scheduled "login" command will be executed.

COMMANDS FOR ALL SOCKETS

caps Returns a list of this socket's capabilities:

kdm identifies kdm, in case some other DM implements this protocol, too

list, lock, suicide, login The respective command is supported

bootoptions The **listbootoptions** command and the = to **shutdown** are supported

shutdown <list> **shutdown** is supported and allowed for the listed users (a comma separated list.) * means all authenticated users.

nuke <list> Forced shutdown may be performed by the listed users.

nuke Forced shutdown may be performed by everybody

reserve <number> Reserve displays are configured, and number are available at this time

list [*all* | *alllocal*] Return a list of running sessions. By default all active sessions are listed. if *all* is specified, passive sessions are listed as well. If *alllocal* is specified, passive sessions are listed as well, but all incoming remote sessions are skipped.

Each session entry is a comma separated tuple of:

- Display or TTY name
- VT name for local sessions
- Logged in user's name, empty for passive sessions and outgoing remote sessions (local chooser mode)
- Session type or '<remote>' for outgoing remote sessions, empty for passive sessions.
- A Flag field:
 - * for the display belonging to the requesting socket.
 - ! for sessions that cannot be killed by the requesting socket.

New fields may be added in the future.

reserve [*timeout in seconds*] Start a reserve login screen. If nobody logs in within the specified amount of time (one minute by default), the display is removed again. When the session on the display exits, the display is removed, too.

Permitted only on sockets of local displays and the global socket.

activate (*vt* | *display*) Switch to a particular VT (virtual terminal). The VT may be specified either directly (e.g. *vt3*) or by a display using it (eg; *:2*).

Permitted only on sockets of local displays and the global socket.

listbootoptions List available boot options.

shutdown (*reboot* | *halt*) [=bootchoice] (*ask* | *trynow* | *forcenow* | *schedule* | *start* [-1] / *end* (*force* | *forcemy* | *cancel*))

Request a system shutdown, either a reboot or a halt/poweroff.

An OS choice for the next boot may be specified from the list returned by **listbootoptions**

Shutdowns requested from per-display sockets are executed when the current session on that display exits. Such a request may pop up a dialog asking for confirmation and/or authentication

start is the time for which the shutdown is scheduled. If it starts with a plus-sign, the current time is added. Zero means immediately.

end is the latest time at which the shutdown should be performed if active sessions are still running. If it starts with a plus-sign, the start time is added. -1 means wait infinitely. If *end* is through and active sessions are still running, kdm can do one of the following:

- *cancel* - give up the shutdown
- *force* - shut down nonetheless
- *forcemy* - shut down nonetheless if all active sessions belong to the requesting user. Only for per-display sockets.

start and *end* are specified in seconds since the UNIX® epoch.

trynow is a synonym for *0 0 cancel*, *forcenow* for *0 0 force* and *schedule* for *0 -1*.

ask attempts an immediate shutdown and interacts with the user if active sessions are still running. Only for per-display sockets.

shutdown cancel [*local* | *global*] Cancel a scheduled shutdown. The global socket always cancels the currently pending shutdown, while per-display sockets default to cancelling their queued request.

shutdown status Return a list with information about shutdowns.

The entries are a comma-separated tuples of:

- (global | local) - pending vs. queued shutdown. A local entry can be returned only by a per-display socket.
- (halt | reboot)
- start
- end
- ("ask" | "force" | "forcemy" | "cancel")
- Numeric user ID of the requesting user, -1 for the global socket.
- The next boot OS choice or "-" for none.

New fields might be added later

There are two ways of using the sockets:

- Connecting them directly. `FifoDir` is exported as `$DM_CONTROL`; the name of per-display sockets can be derived from `$DISPLAY`.

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- By using the **kdmctl** command (e.g. from within a shell script). Try **kdmctl -h** to find out more.

Here is an example bash script 'reboot into FreeBSD':

```
if kdmctl | grep -q shutdown; then
  IFS=$'\t'
  set -- `kdmctl listbootoptions`
  if [ "$1" = ok ]; then
    fbsd=$(echo "$2" | tr ' ' '\n' | sed -ne 's,\\s, ,g;/ ←
          freebsd/I{p;q}')
    if [ -n "$fbsd" ]; then
      kdmctl shutdown reboot "=$fbsd" ask > /dev/null
    else
      echo "FreeBSD boot unavailable."
    fi
  else
    echo "Boot options unavailable."
  fi
else
  echo "Cannot reboot system."
fi
```

Chapter 10

Other sources of information

Since kdm is descended from xdm, the [xdm man page](#) may provide useful background information. For X-related problems try the man pages [X](#) and [startx](#). If you have questions about kdm that are not answered by this handbook, take advantage of the fact the kdm is provided under the terms of the GNU General Public License: look at the source code.

Chapter 11

Credits and License

kdm is derived from, and includes code from, xdm (C) Keith Packard, MIT X Consortium.

kdm 0.1 was written by Matthias Ettrich. Later versions till KDE 2.0.x were written by Steffen Hansen. Some new features for KDE 2.1.x and a major rewrite for KDE 2.2.x made by Oswald Buddenhagen.

Other parts of the kdm code are copyright by the authors, and licensed under the terms of the [GNU GPL](#). Anyone is allowed to change kdm and redistribute the result as long as the names of the authors are mentioned.

kdm requires the Qt™ library, which is copyright Troll Tech AS.

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Chapter 12

Glossary

greeter The greeter is the login dialog, i.e. the part of kdm which the user sees.

entropy The entropy of a system is the measure of its unpredictability. This is used during the generation of random numbers.