Title: MK Express User's Manual (English)
Project: MK Express 2017
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Author: Tony Cooper

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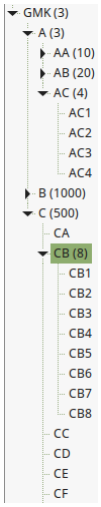
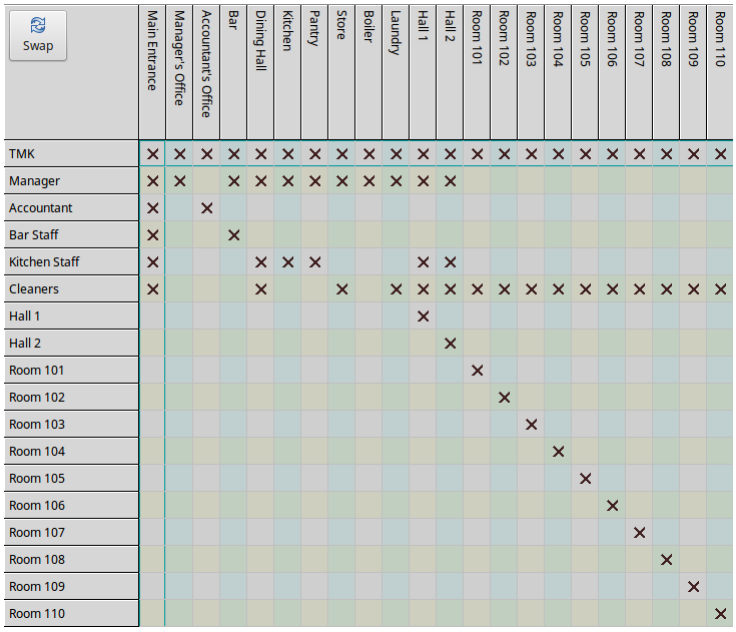
Product Overview

MK Express is a cross platform desktop application that simplifies the generation and expansion of complex, asymmetrical, cross keyed Master Key Systems. (So that's a mouth full…)

Lets try that again, MK Express:



- Is a computer program which runs on your PC or laptop… Something with a keyboard and a screen bigger than my foot. For the techies, that is at least 800x600 pixels @ 92dpi. It is NOT going to run on your phone or tablet. (unless it is running ubuntu touch or windows 10, and your reading glasses are spot on)
- Will run on most desktop versions of Windows, Linux and Mac. AND on request, I can give you a version that will run a Raspberry PI 2 or 3. *(Raspberry PI = full, robust PC for $80 or less, look it up)*
- Will create master key systems that look like a spear or a cobweb. (it should be noted that the neater the cobweb, the more possibilities will be available)
- Will allow you to enter in the cuts of an existing system, and as long as the existing system does not have phantoms , MK Express will be able to find ways to expand.



Installing MK Express

Your Registration Key

When you purchase MK Express you'll get a Registration Key, which will look something like `57881-38377-12817-14327`. Keep this Registration in a save place as it allows you to complete the installation process, and can be used on the https://mkexpress.com/Registration.php page to view your payment details and download link.

Downloading

It is best to use the download link on https://mkexpress.com/Registration.php to find the version of MK Express you have purchased, but you can also download from https://mkexpress.com/download-master-keying-software.php

Currently you can install on Windows, Linux and Mac. The download page will attempt to present the correct installer for your operating system. Download the installer to your machine and run it.

Installing

The installer is quite standard and should not need any special IT skills. The one thing that might cause problems would be an over active anti-virus...

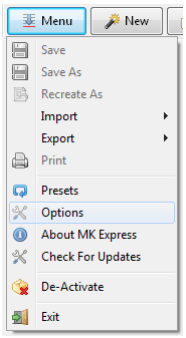
Activation

The first time you run MK Express, it will ask you for the Registration Key. After you have entered the Registration Key, which you kept in a safe place like I told you, MK Express should automatically activate, and you are ready to go.

But sometimes, if the machine running MK Express has no internet access, the automatic activation will fail and you'll get this dialogue:

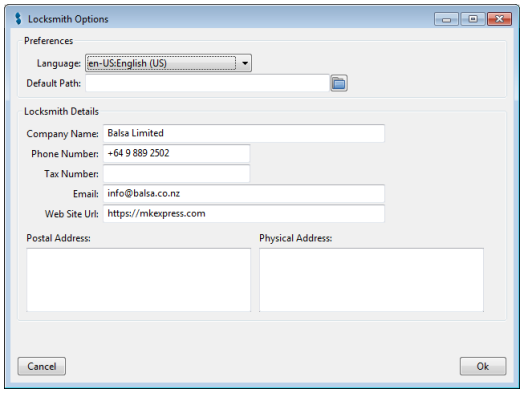
You can phone us or enter the "Activation Request Code" from the first edit box into https://mkexpress.com/activate-master-key.php on another machine's browser, which will generate the "Activation Response Code" for you to enter into the second edit box.

Options

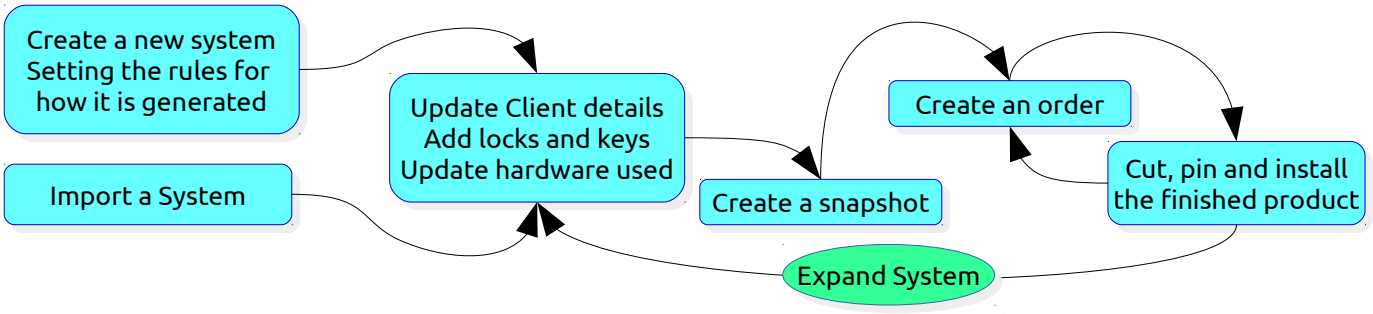


Selecting “Options” from the main menu will open a form in which you can enter details about your company and select the language you want MK Express to display.

Some of these values will appear on printouts and some exports.



Typical Project Life Cycle



The Snapshot

After you have created your system and you want to manufacture the keys and locks, it is extremely important to create a Snapshot. A snapshot will prevent changes to the existing Locks and Keys so that later you can safely expand the system. So first you create/import a system, then you create a snapshot and then you can add new stuff without messing with what is already there.

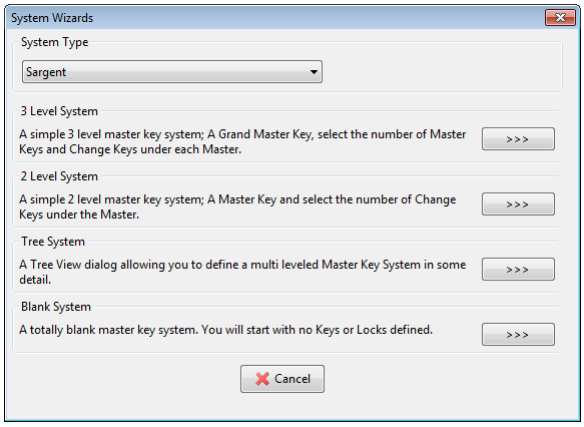
The Order

MK Express will record how many Locks and Keys have been ordered. This can be used to generate unique stamping for the items produced. The Order will also give you a bill of quantities to the pin.

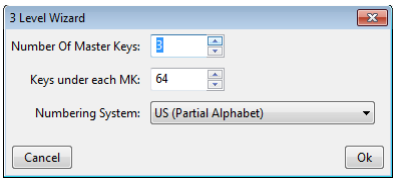
Starting a Master Key System

MK Express has a number of Wizards to populate the structure quickly. To get started press the “New” button

on the top of the screen. This will open a dialogue ask you to select the hardware / System Type and the wizard to use. It is important that you select the System Type best representing the hardware you will be installing on site.



The “3 Level System” Wizard



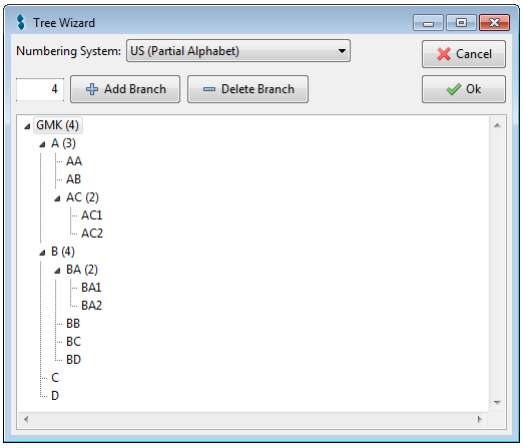
This will populate the system with locks and keys for a 3 level system… That is to say, there will be a Top Master Key, under which will be a number of Master Keys, which in turn will have a number of Change Keys under them. This form allows you to specify how many Master Keys and Change Keys.

The resulting structure will be neat and symmetrical *(spear shape)*. This structure will be familiar to locksmiths who have created Master Key Systems on paper.

The “2 Level System” Wizard

A simpler version of the “3 Level System” wizard that creates the given number of Change Keys directly under the Top Master Key with no Master Keys.

The “Tree System” Wizard



This wizard will allow you to specify a large asymmetrical system quickly. It can generate up to 4 levels. The Wizard uses a tree view control to create a hierarchical structure with uneven branches. This can be handy when you need a large number of small buildings mix with a small number of large buildings in one Master Key System.

This wizard can generate a large, neat structure quickly and is worth experimenting with when considering a new system.

The “Blank System” Wizard

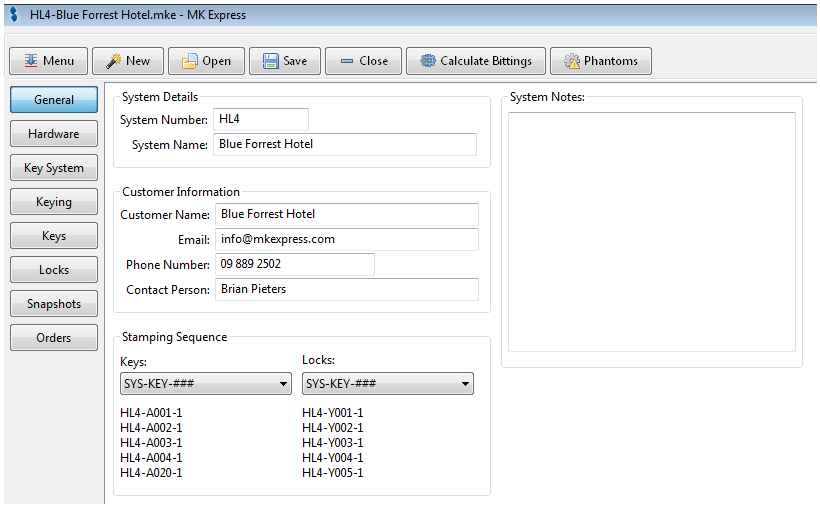
This one does nothing. You get a structure with no Keys or Locks in it. If your client has provided you with a this Key open that Lock grid/matrix, then this is where you’d want to start. It is also the Wizard I use in my Blue Forest Inn tutorial videos. Most cobweb looking systems start here.

Saving Files

MK Express is designed to be as simple to use as possible. To this end there is no central database engine to install. Each master key system is saved to its’ own file, with the extension “.MKE”. This is a lot like a word document or spreadsheet. These .MKE files can be emailed, backed up, shared on file servers or distributed using services like Drop Box, just like any other file.

This same rules apply as with a spreadsheet program, so your changes are not written to disk unless you press the Save button. You can save the current system to a different file name using the Save As button. You need to back up these files.

The General Screen



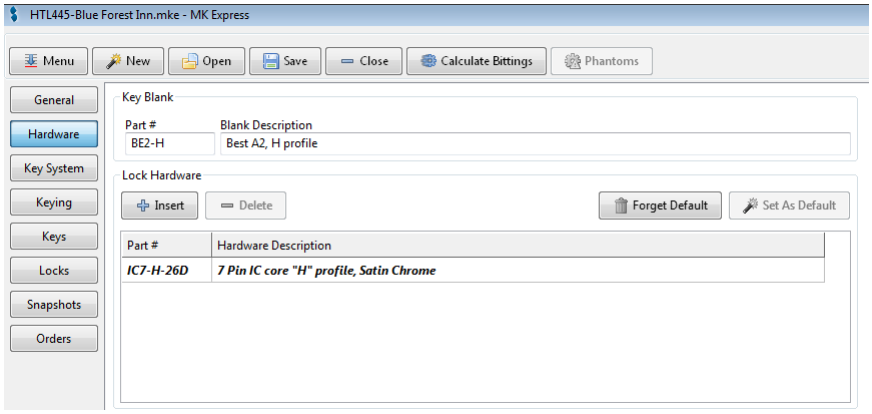
This screen/tab allows you to capture information about the system, like who the client is.

The System Number should be unique across all your Master Key systems, and can be used in the automatic generation of stamping for Locks and Keys produced in Orders later.

Here you can also select how you want the automatic stamping numbers to be generated. MK Express will attempt to issue each Key and Lock ordered a unique number based on this.

It should be noted that the information on this screen can appear on printouts and exports, so be polite.

The Hardware Screen

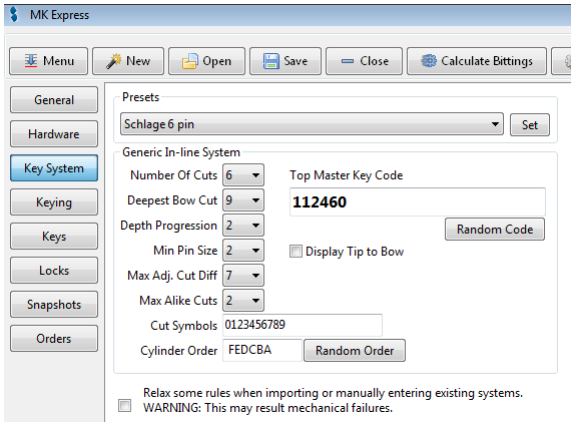


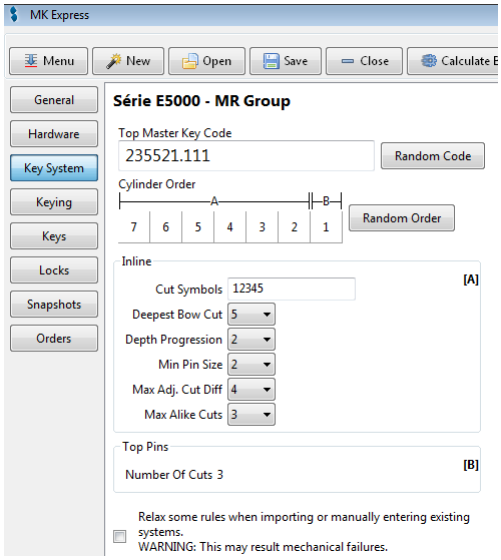
When creating an order, MK Express records the hardware selected for each cylinder/lock. So upfront it needs to know what part numbers are going to be used. This screen allows you to list the part numbers and descriptions of the hardware you'll be installing.

You can only enter in one value for the key blanks, but you can have a number of lock types in the system, one of which should be selected as the default.

Later you can set the default part number of any lock in the system, or switch it for something else while capturing an Order. The hardware totals are used in the Order printout to give you a bill of inventory required for the manufacture.

The Key System Screen





This screen changes depending on the System type you are using. These are the rules that are used when calculating a Master Key system…

Most of the In-line and Small Form Interchangeable Core types can be modified to match hardware that is not specifically mentioned in the presets.

Number Of Cuts

For In-line systems, this is simply the number of the cuts that can be made on a key. Also know as the number of chambers.

Deepest Bow Cut

Many key blanks have issues if the first cut is too deep, as the key might snap when the customer tries to turn it and the key is not all the way into the lock. This rule limits how often this happens by ensuring the first cut leaves enough steel to deal with the attempt to open the lock.

Depth Progression

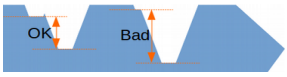
This is a hard one; in the days of making Master Key systems on paper, you'd use a depth progression of 2 on a Schlage system (and most others) so that you did not have to pin up a lock with a #1 master pin, which has never existed… Currently, you can get far more codes out of a system by using a Depth Progression of 1 **but only as long as there are no Cross Keys.**

In general you would set the Depth Progression to the smallest size pin the manufacture will sell you, as this will allow you far greater flexibility with cross keying.

Min Pin Size (Minimum Pin Size)

Simply put, this is the smallest pin the manufacture will sell you. If you could get a #1 pin for a classic in-line system, it would jam. When MK Express assigns cuts to a key, it considers how the effected locks would be pinned up. This setting will reject keys that result in locks having pins that violate this rule.

Max Adj. Cut Diff (Max Adjacent Cut Difference)



Also know as “MACS”, this is the maximum difference between two adjacent cuts. The angle at which the cutter cuts into a key determines the MACS. The goal is to avoid one cut chipping away at another… A shallow cut next to a really deep cut may be eroded and the key can not work the lock.

Max Alike Cuts

This is here to prevent those long flat sections on a key when 3 or more cuts are the same. For example here is a key with too many 3 cuts in a row:

.

This is purely for aesthetics, and can be effectively disabled by setting this value to the same number as total cuts.

Cut Symbols

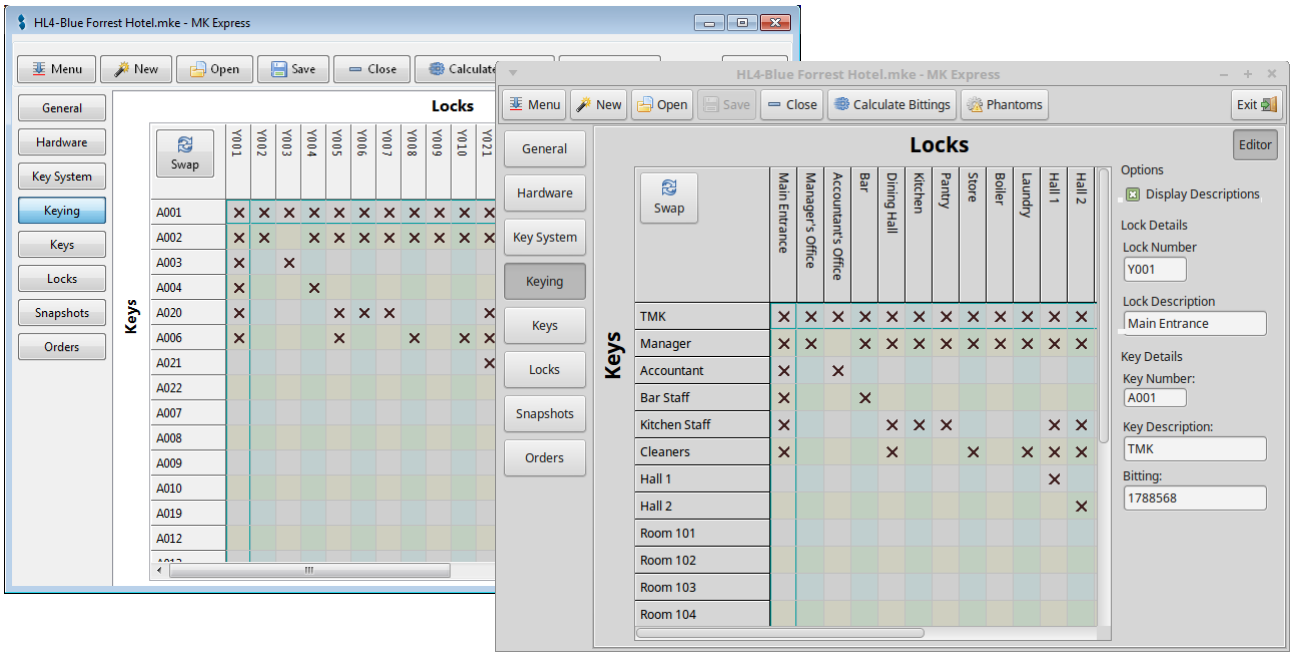
These are the symbols used by the hardware from shallowest to deepest. As a result the number of symbols is the number of cuts. While most systems start at 0 or 1, some like Ruko/Assa 600 start at 9 and go to 1 as the deepest cut. Some system types also use Letters.

Cylinder Order

When MK Express progresses the system, it will involve one cylinder at a time in the calculations. This order will allow you to select which chambers are used first. In many cases, locksmiths prefer to adjust the order so the busiest chambers are closest the tip of the key to minimise wear and tear on the lock.

The Keying Screen or Keying Matrix

The main roll of this screen is to select which keys open which locks. Secondary to that you can update the Description and Number of the Keys and Locks, along with manually specifying the key cuts. The order in which the Lock and Keys are displayed can be changed by dragging them around.



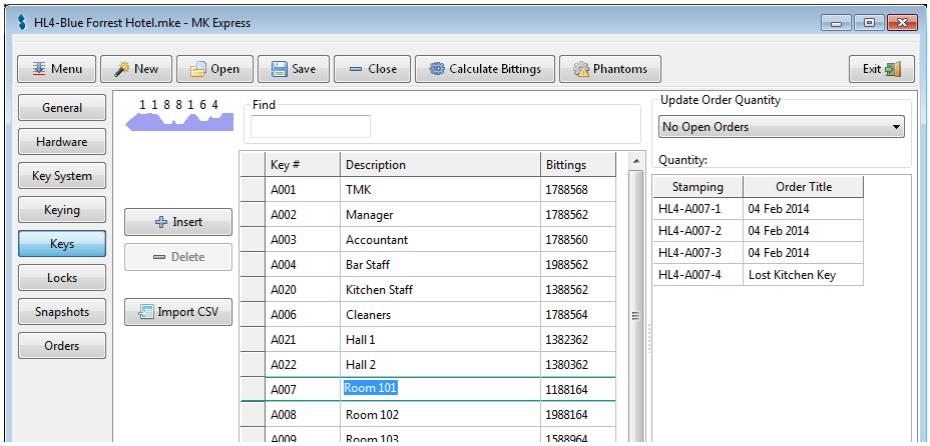
Colour Codes

Key cuts and the Key numbers may be displayed a number of colours to indicate if the cuts can be change.

- **Green**: These cuts have been calculated by MK Express and may change the next time the Calculate button is pressed.
- **Blue**: These cuts have been manually entered or imported, MK Express will make no attempt to change them… MK Express will try to calculate other cuts around these with out creating phantoms.
- **Black**: These cuts have been saved in a Snapshot and can not be changed.

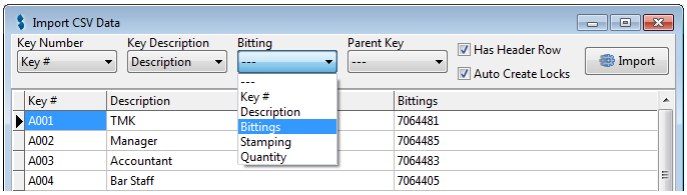
The Keys Screen

The main roll of this screen is to Add or Delete Keys along with setting the Key's number, description and even cuts.



The order in which the keys are displayed can be changed by dragging them.

Importing Key from CSV



This screen also allows you to import a list of keys from a CSV file. If you have the parent key number in the CSV too, then MK Express can use this information to create locks for each change key and link them up on the Keying Matrix automatically.

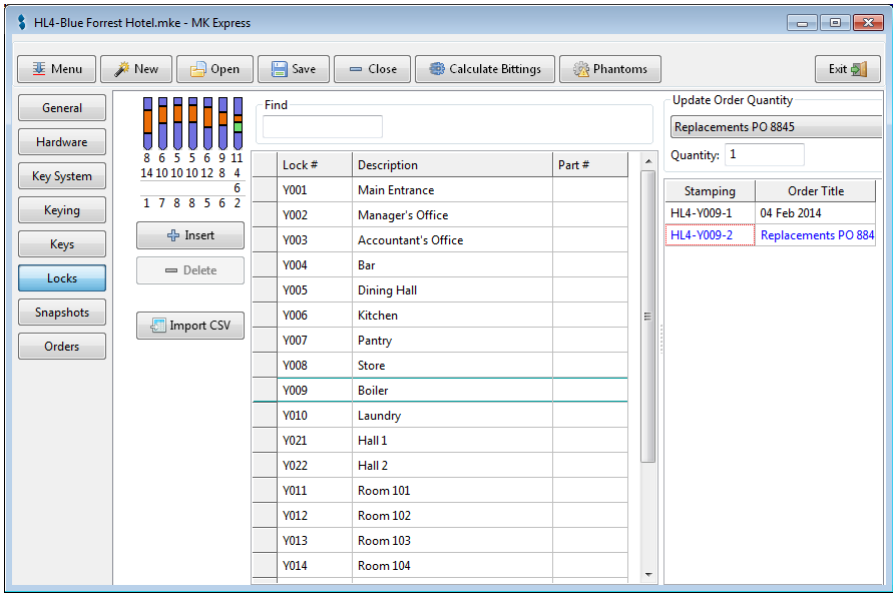
Updating Keys to be Ordered

This screen provides the ability to change the number of a Key involved in an open order.

The stamping of the individual key to be produced can be edited within the Orders screen.

The Locks Screen

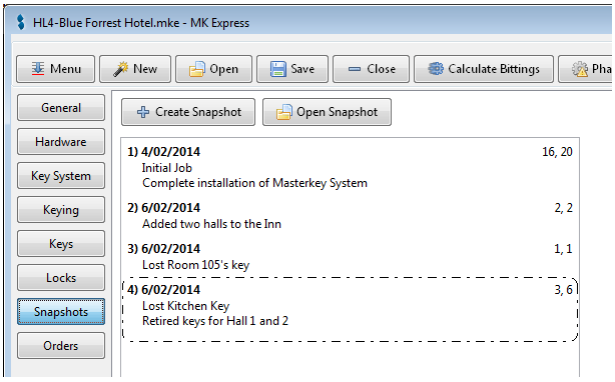
The main roll of this screen is to Add and Remove Locks while setting their Number, Description and Part Number.



Like the Keys Screen, a list of Locks can be imported from CSV and the Quantity of locks to be produced for a current order can be set here too. The order that the Locks are displayed in can be changed by dragging them to a new position.

Setting the part number on a lock should be seen as the default part number, but the part number actually produced can be change in the order itself.

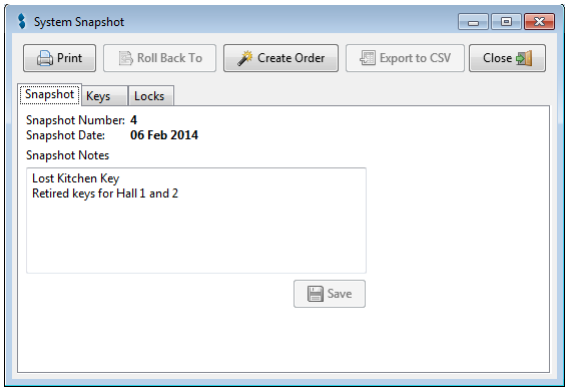
The Snapshots Screen



This is a simple screen containing a list of points there the system's coding was frozen to prevent corruption. Before physically manufacturing any of the Locks or Keys, you should make a Snapshot to prevent changes to the items you are about to pin up and cut.

This is a bit like saving a version of the system, and forms the bases of later expansion. The numbers on the right of each listed item indicates the Keys and Locks changed in the snapshot.

Open or Create a Snapshot to view the form in which the details are displayed. Here you can enter a note describing why the system was changed/expanded, and you can view the Key and Locks effected.

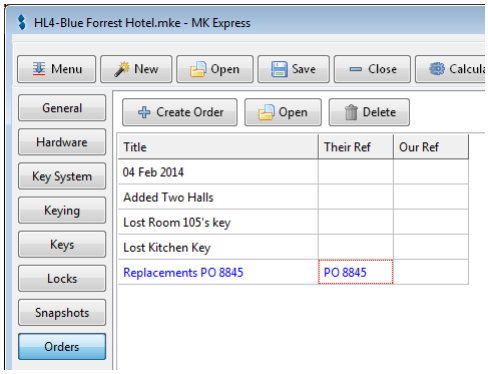


This form also allows you to print the details of the Snapshot, which only prints the Keys and Locks effected by the change.

The Keys and Locks effected by the change can also be exported to CSV or used as the bases for a new Order.

The Orders Screen

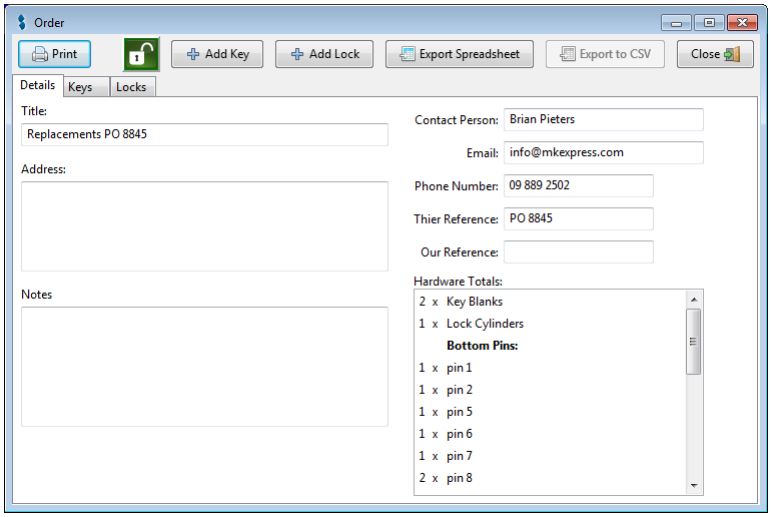
This screen displays a list of Orders created… Items in blue have not been finalised and can still be edited. Opening an existing order or pressing the “Create Order” button will open the Order form.



Pressing will finalise the Order preventing further changes. The Order form has three tabs into which details and quantities can be captured.

Details Tab

This tab retains some general information about the Order, which is displayed on the printout of the Order. This tab also displays the hardware totals involved in completing the order.

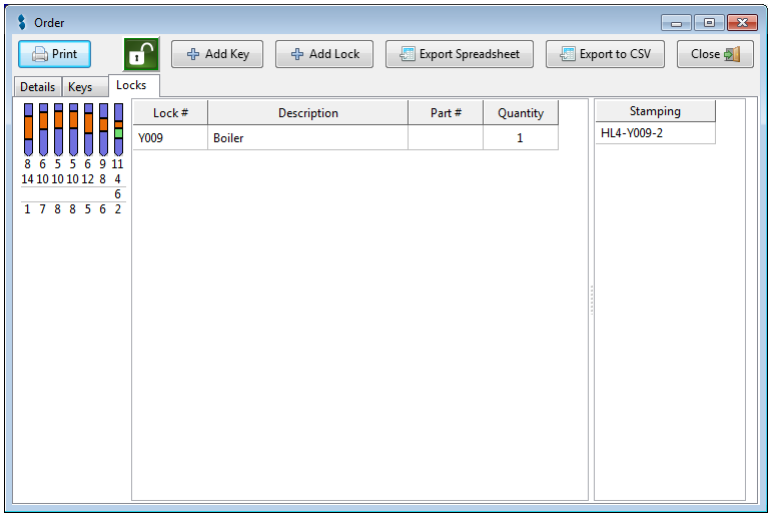


Keys Tab

The Keys tab allows you to select the quantity of each key to be cut along with the stamping to give each key.

The Locks Tab

Like the Keys tab, the Locks tab allows you to select the quantities and stamping. But this tab also allows to select the part number of the cylinder or lock.

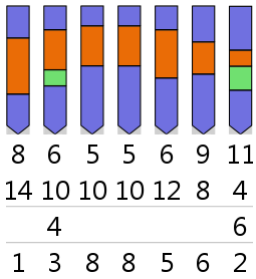


Note: MK Express will generate stamping automatically based on the setting in the General Screen, but can be manually changed.

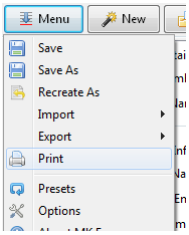
Printing

There are three printouts; the entire system, the items changed in the current snapshot and the items involved in an order. The last also contains hardware totals and the Quantities to be manufactured.

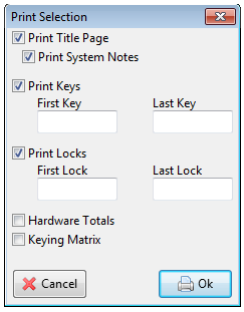
These printouts include the images displayed in MK Express for the Keys and Locks. The purpose is to provide the locksmiths cutting and pinning with a visual reference.



Printing the entire system



From the Main Menu select Print.
After select the printer, you will be asking which parts of the system you would like to print. Here the you can select the sections and the range of Keys and Locks to print.



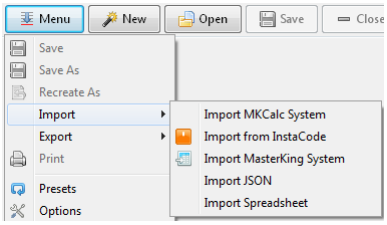
Printing a Snapshot

This is generally not that useful unless you want a paper record of what changed in a system after it was expanded or lost key have been dealt with. This printout will only include the items that have been changed since the last snapshot.

Printing an Order

MK Express will record the Quantities of Key and locks ordered by the Client along with their stamping. This printout is limited to the items being ordered and can include hardware totals like the number of blanks, cylinders and each size of pin.

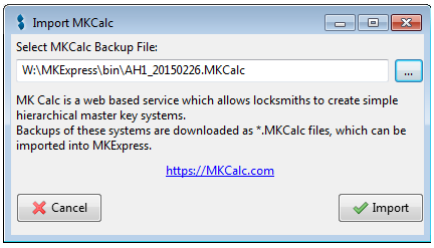
Importing



MK Express can import a variety of existing systems in a number of ways.

On the Main Menu there is a section called “Import”. This contains a sub menu with different ways of importing data into MK Express.

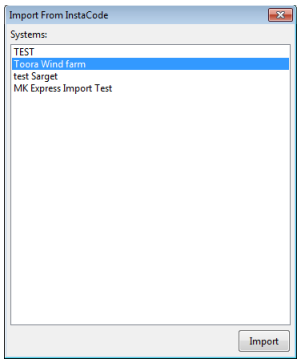
Import MKCalc System



MK Calc is a web site which generates very simple Master Key systems. These systems can be downloaded as a file with the extension .mkcalc as a backup.

MK Express will import all the keys and their cuts which have been assigned a description, while creating the locks/key sets along with calculating the pinning charts. Most of the Client details and notes are also imported.

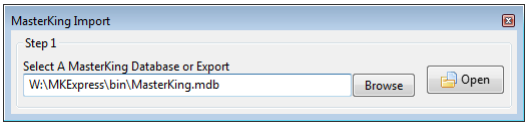
Import from InstaCode `Windows Only`



InstaCode can have a module that allows for the creation of a simple master key system. **Note**: InstaCode must be installed with the Master Key module.

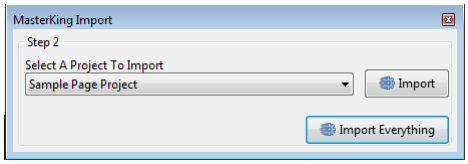
Selecting this function will run InstaCode in a special mode and you will be asked to select one of the systems within the database. Once you have selected a system, only the keys. which have been assigned descriptions will be imported along with their cuts and pinning charts.

Import from MasterKing `Windows Only`



This function will allow you to import systems from the MasterKing database file. You will have to ensure that you have the access database engine installed, and you will have to know where the database file is on your hard drive. This is a file which normally ends in .mk or .mdb.

The next window is going to allow you to select a system to import, or attempt a batch import of everything into a folder you choose.



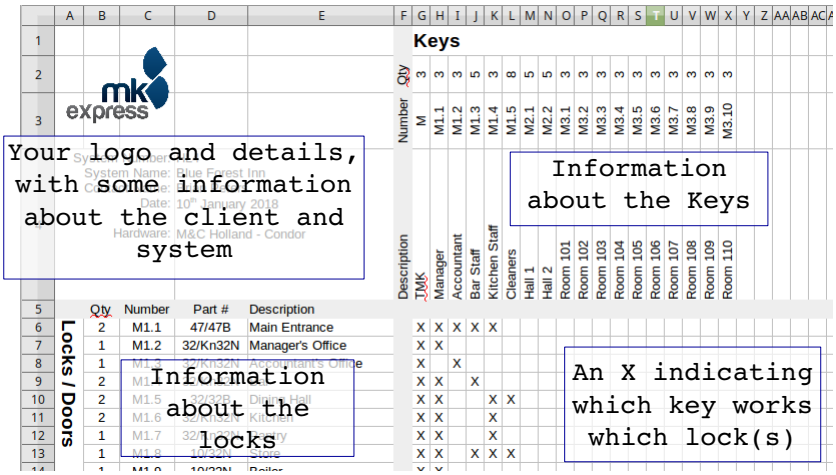
Import from JSON

JSON or (Java Script Object Notation) is a way of simply storing information that is quite popular with web developers. MK Express has a formal JSON file structure which provides a way for software developers to pump data into MK Express. The nature of the format is a discussion best undertaken between propeller heads, but if you are looking the provide your end clients with a way to design their own systems, this is something your software developers will want to know about.

Importing from Spreadsheet

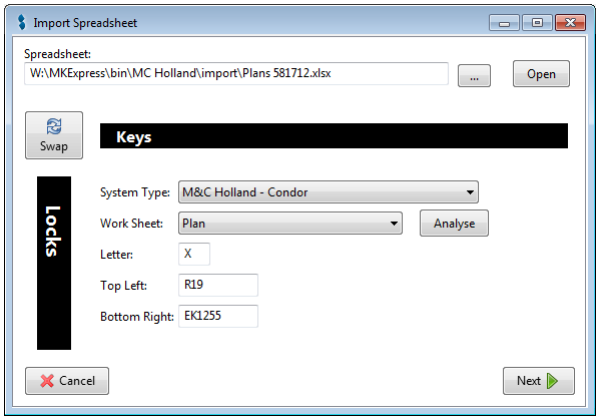
This function will allow you import a spreadsheet containing the Keys, Locks, Hardware, Quantities to order and which key works which lock as a matrix.

The Spreadsheet will need to be formatted something like this:



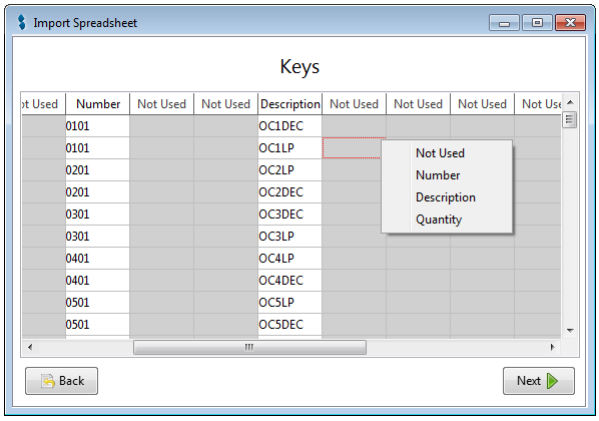
A tutorial video is available at:
http://mkexpress.com/Video/?fn=ImportSpreadsheet
And a example spreadsheet can be found at:
http://mkexpress.com/Video/ImportExample.ods

The first screen will ask you about the layout of the spread sheet. Most of these will be filled out if you follow these steps:



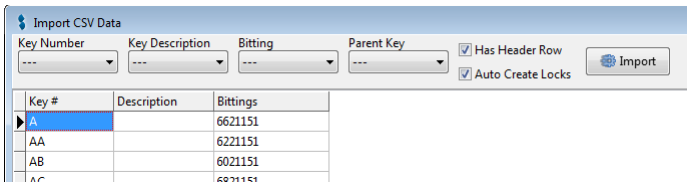
1. Select the file.
2. Press the Open button.
3. Select the work sheet
4. Press Analyse.

The next form will allow you to select the columns or rows containing the Key Number and Description along with the quantities to be included in the first order.



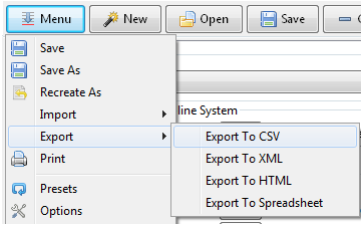
In the same way, the next form allows you to select the Lock Number, Description, Part Number and Quantity.

Importing Keys and Locks manually



While editing a system, you might need to import a number of locks and keys from a CSV file. Both the Locks and Keys screens have a “Import CSV” button to do this. Clicking “Import CSV” opens a dialogue asking for the CSV’s file name, after which you’ll be asked to select the columns.

Exporting



MK Express has a number of methods for getting the system data out into other formats. In the main menu there is an “Export” sub-menu containing these methods.

Export to CSV

This function will export the Keys, Locks or the Keying Matrix to a CSV file. This can then be imported into a database or spreadsheet.

Export to XML

This will simply export the systems in its’ current state to an XML file… This is normally of value to software developers who seek to import the details into other applications.

Export to HTML

This will create an HTML (web page) which includes the Keys, Locks the Keying Matrix. This file can be emailed to the client to view, or to the locksmith on site to handle the install. An example of this file can be found at: https://mkexpress.com/Video/HTL443-Blue Forest Inn.html

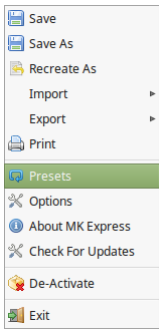
Export to Spreadsheet

This function creates a spread sheet containing general system information, the Key, Locks and Keying matrix, each on their own work sheet. The Keys include the cuts, and the Locks normally include a pinning chart.

Presets / User Defined System Types

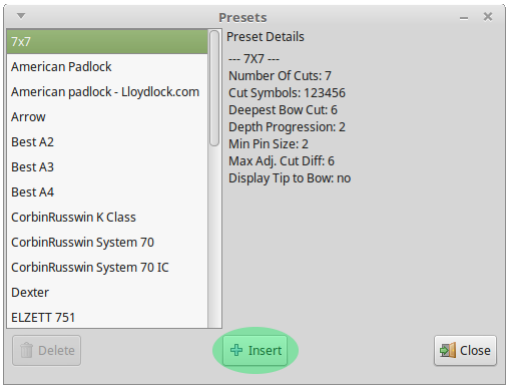
MK Express comes with a number of commonly used System Types like “Schlage 6 pin” and “Best A2” built in, but you can take any of the existing Systems Types and modify them to suit.

For example I could start a new system with “Schlage 6 pin” and change the MACS to 6, on the Key System screen, to make a “Weiser” System Type.



Next I can save this new System Type by selecting the Presets option from the main menu.

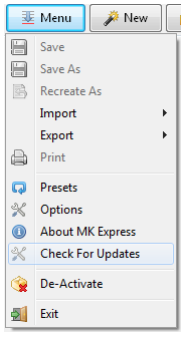
This will open a form containing all the built in presets along with any user defined ones. Clicking the Insert button at the bottom center of the form will pop-up a dialogue asking for the name of the new Preset / System Type.



After this, any time you start a new Master Key System, you can select your User Defined Preset from the list.

Some times I use this to retain customers rules, like a collage dorm where the smallest pin size is a #3, but the depth progression can be 1...

Software Updates



MK Express is designed to download and install updates as they become available. Generally MK Express will check for a new update once a day. But you can always force this check by selecting the “Check for Updates” from the main menu.

If there is a new update a button will appear next to the Exit button on the top right of the screen “Install Updates”. Pressing this will launch the installer, so it is best that you should save your work before pressing it.