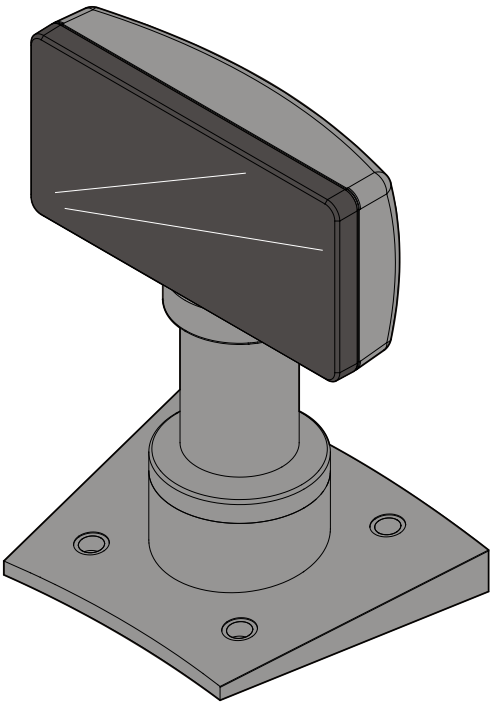
NCR RealPOS 5976–1xxx
2x20 Customer Display

Release 1.0

User Guide



B005–0000–2049

Issue D

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Preface

Audience

This book is written for hardware installers/service personnel, system integrators, and field engineers.

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Safety Requirements

The NCR 5976 conforms to all applicable legal requirements. To view the compliance statements see the *NCR RealPOS Peripherals Safety and Regulatory Statements* (B005–0000–1701).

5975 Drop–in Replacement/ Compatibility Model

The NCR 5976 provides drop–in replacement feature for the older model NCR 5975 display device. The Compatibility Mode enables the 5976 features to be compatible with the installed software on the previous 5975.

References

- *NCR 5976 Parts Identification Manual* (B005–0000–2048)
- *Customer Display Post Mount Kit Instructions* (5975–K833–836)
- *Customer Display Post Mount Kit Instructions* (5976–K837–838)

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Revision Record

Issue	Date	Remarks
A	December 2011	First issue
B	April 2012	Added Retail Platform Software information
		Modified installation procedures of Software Utilities and Service Support Utility
		Added Device Firmware section
C	July 2012	New PIDs (Compatibility Support)
		Updated Firmware and Version numbers
	Sept 2012	Added sections Character Scrolling Rate, Replacing Default Code Pages, Brightness Level Adjustment, Shift Firmware to Compatibility Mode, Shift Firmware to Native Mode
		Updated Firmware and Version numbers
D	June 2014	Added new PIDs
		Updated Hardware Installation Instructions
		Updated Firmware and Version numbers

Chapter 1: Product Overview

Models

The NCR RealPOS 5976–1xxx Customer Display is a 2–line x 20–character Liquid Crystal Display (LCD), which can display any downloadable code page of single byte characters. The 5976 supports both RS–232 and USB interfaces.

- **5976–1100–9090 Customer Display** — 2x20 LCD — 5976 — Beige
- **5976–1200–9090 Customer Display** — 2x20 LCD — 5976 — Charcoal Gray
- **5976–1300–9090 Customer Display** — 2x20 LCD — 5976 — Black
- **5976–1175–9090 Customer Display** — 2x20 LCD — 5976 —Beige (5975 Compatibility Model)
- **5976–1275–9090 Customer Display** — 2x20 LCD — 5976 — Charcoal Gray (5975 Compatibility Model)
- **5976–1375–9090 Customer Display** — 2x20 LCD — 5976 — Black (5975 Compatibility Model)

Intended Users of the Product IDs

Depending on the specific needs of the user, the 5976 provides different configurations: three configurations contain the latest versions of the firmware and software of the 5976 while the other two configurations comply with the software components of its 5975 predecessor.

5976 Full Feature Models

The full feature 5976 models are intended for users who want to install a line display to their POS system. After installing the 5976 display, users need to download and install new software and utilities.

Product ID	Installation Overview	Reference Chapters
5976–1100–9090	1. Install the new 5976.	Chapter 3: Hardware Installation
5976–1200–9090	2. Configure the software.	Chapter 6: Retail Platform Software
5976–1300–9090		Chapter 7: Software Utilities
		Chapter 8: Service Support Utility.

5975 Compatibility Models

The 5975 Compatibility Product IDs are intended for users who want to replace their 5975 line displays with the new 5976. Users only have to replace their old 5975 display with the new 5976, no other procedure required. The device works immediately during start–up.

Product ID	Installation Overview	Reference Chapters
5976–1175–9090 5976–1275–9090	1. Remove the old 5975 from the POS system.	
5976–1375–9090	2. Install the new 5976.	Chapter 3: Hardware Installation

RoHS Compliant

The 5976 display products are RoHS (Restrictions of Hazardous Substances) compliant.

Hardware Features

- Display
  - 2X20 Character Liquid Crystal Display (LCD)
  - LCD Technology: Advance/ Extended Black Nematic
  - 7x9 pixel characters
  - Character height
    - Minimum – 9.5mm
    - Maximum – 10.5mm
  - LED backlight: 120K hour minimum backlight life at 40% rated luminance (default)
  - Luminance: 200–500 nits
- PCB
  - Built–in microcontroller and SPI Serial Flash Memory
  - RS–232 Interface support
  - HID USB 2.0 Interface support
- Cabinet
  - UV Stable Material
  - Available in NCR Beige (G11), NCR Charcoal Gray (CG1), and Black
- Connectors
  - 10p10c Modular Jack
  - USB + Power
- Cables
  - Powered RS–232
  - USB + Power Cable
  - Unpowered RS–232 Cable with Y–Connection for Power Brick
  - Unpowered USB Cable with Y–Connection for Power Brick
  - 1m and 4m Lengths
- Power Supply
  - Universal Power Supply (12V, 12W output) with cable attachment
  - 8 pin Molex Connector

- RS–232 or USB 2.0 I/F support
  - The components for both interfaces are populated on a single printed circuit board. Both interfaces are active, though only one interface can be physically connected at a time. The display communicates through the interface connected to it.
- Mounting Options
  - Table Mount, 4–in. Post
  - Table Mount, 8–in. Post
  - Table Mount, 12–in. Post
  - Table Mount, 16–in. Post
  - Integrated Mount for NCR 7456, 7457, 7458

Software Requirements for the 5976 Hardware

The NCR 5976 uses software applications that enable user to perform software updates and configurations on the 5976 hardware device.

Retail Platform Software

NCR provides the Retail Platform Software (RPS) for Windows and Linux that includes support for underlying architecture of the platform products like terminal configurations, gold drives, peripherals, and so forth.

Note: For more information on download and installation procedures, refer to Chapter 6, "Retail Platform Software."

5976 Line Display 2x20 Utility

Unlike the Retail Platform Software (RPS), the 5976 Software Utilities are specially designed for the 5976. These utilities provide maintenance support to the software functionalities of the 5976.

- **ROM Flasher**—enables user to display and update the firmware version of the 5976 device
- **Code Page Utility**—enables user to load, add, and replace character sets in the 5976 display

Unlike the ROM Flasher, the 5976 Code Page Utility is designed solely for the 5976 2x20 LCD Line Display.

Note: For more information on these software utilities, refer to Chapter 7, "Software Utility."

Service Support Utility

The Service Support Utility configures the settings of the device firmware and code pages that currently exist in the 5976 display. The configuration settings of the device are automatically activated in the background upon terminal start–up. But you can control the behavior of this utility by changing the settings through your user interface.

Note: For more information on this software utility, refer to Chapter 8, "Service Support Utility."

Character Sets

- Support for 20 character sets
- 2 Mbit Flash Memory for support of not less than 20 character sets
- 3 Character sets in base unit

Note: For more information on character sets, refer to the "Character Sets" section in Chapter 5, "Programming."

Chapter 2: Site Preparation

This chapter describes the installation process including site considerations, operating conditions, mounting options, and connections.

Physical Environment

The working range, storage, and transit environments are presented in the following tables:

Working Range

Condition	Range
Temperature	5°C to 45°C (41°F to 113°F)
Temperature Change	10°C (18°F) / Hour
Humidity Range	10% to 90% (No Condensation)
Humidity Change	10% / hour
Barometric Pressure	105,000 Pa to 69000 Pa

Note: Condensation may occur when equipment is transferred from cold to warm areas during shipment. The equipment design shall permit operation after flash condensation has occurred, provided a drying out process has been accomplished, and the equipment stabilized to the operating environment.

Storage Environment

For periods up to three months:

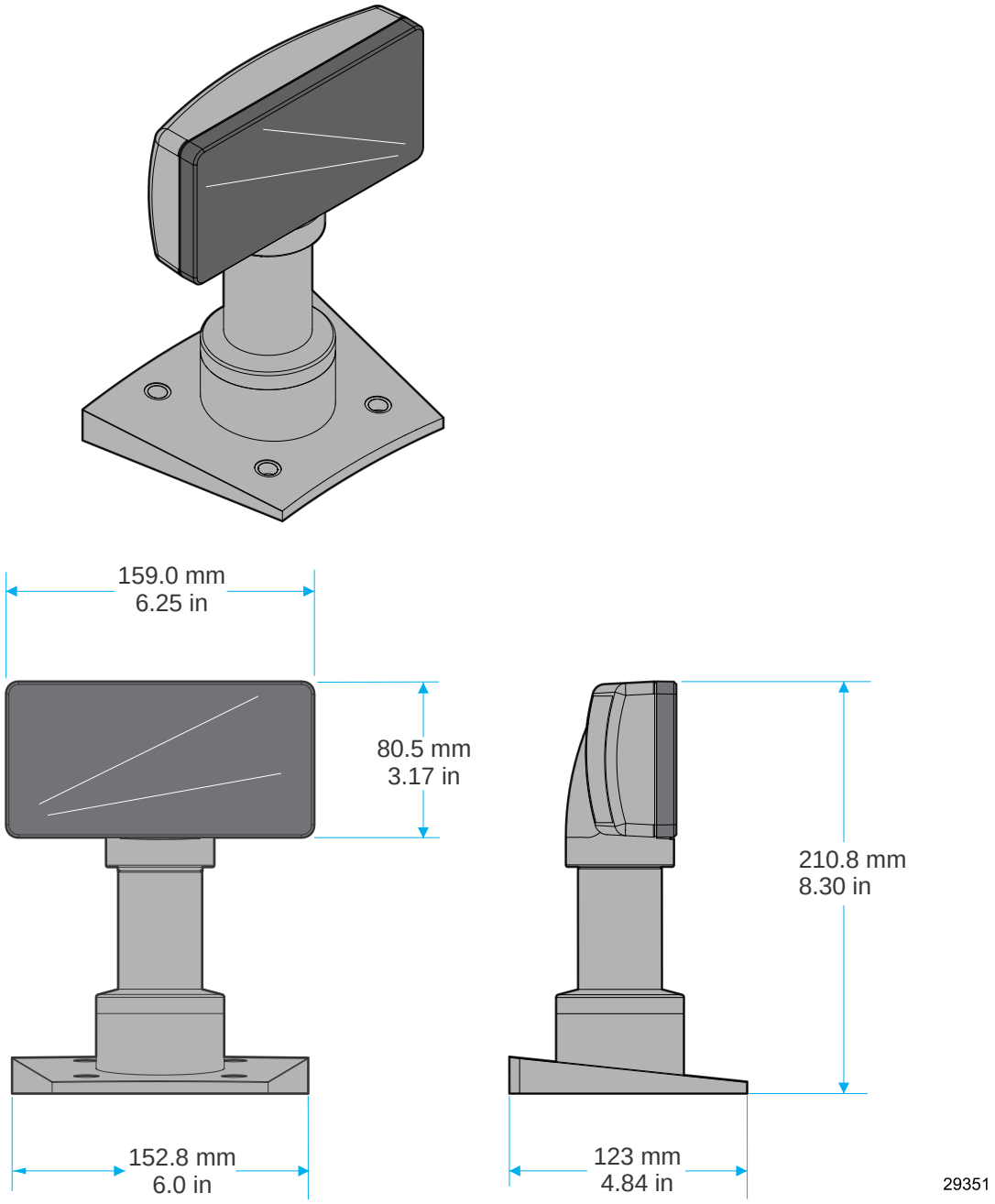
Condition	Range
Temperature	–10°C to 50°C (–4°F to 122°F)
Humidity	10% to 90% RH
Barometric Pressure	105,000 to 70,000 Pa

Transit Environment

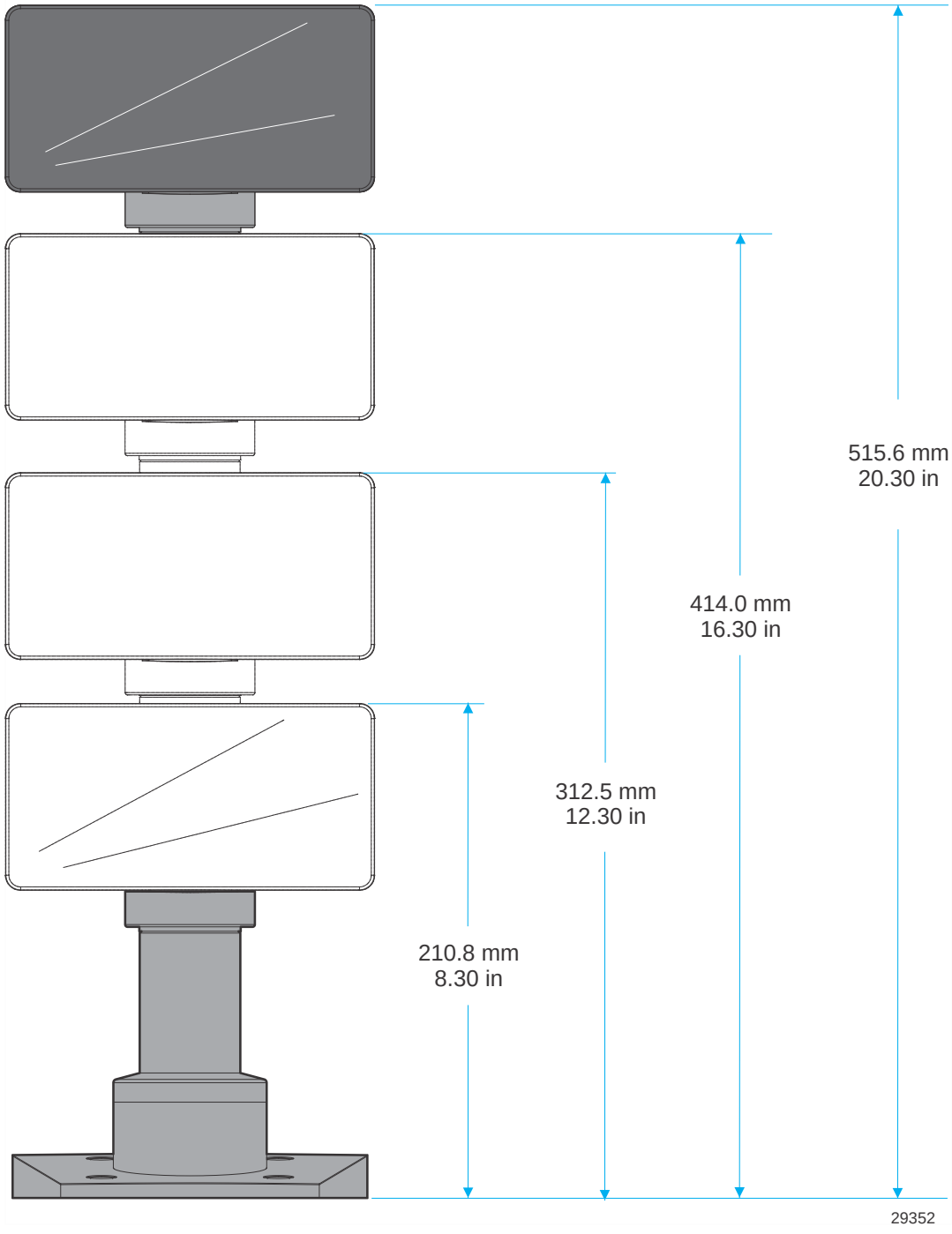
For periods up to one week:

Condition	Range
Temperature	–40°C to 60°C (–40°F to 140°F)
Humidity	5% to 95% RH
Barometric Pressure	105,000 to 70,000 Pa

Dimensions

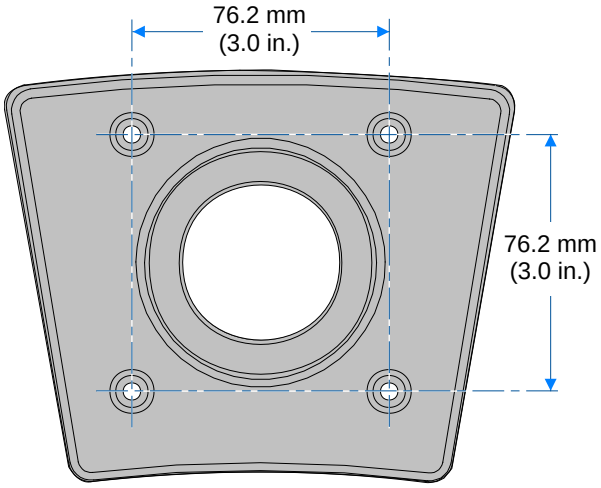

159.0 mm
6.25 in
80.5 mm
3.17 in
210.8 mm
8.30 in
152.8 mm
6.0 in
123 mm
4.84 in
29351

There are four different length posts available, in four inch increments.



Note: Heights greater than 215 mm (8.5 in.) should be screwed to the counter top.

Base Plate Mounting Hole Dimensions



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Electrical Environment

AC Power Requirements

- 120 VAC, 60 Hz (US, Canada, and others) through a wall mount power supply
- 90 – 264 VAC, 50 – 60 Hz through a Universal Input power supply

DC Power Requirements

- 10 VDC to 14 VDC (1.0 A max. at 12 VDC)

Operational Environment

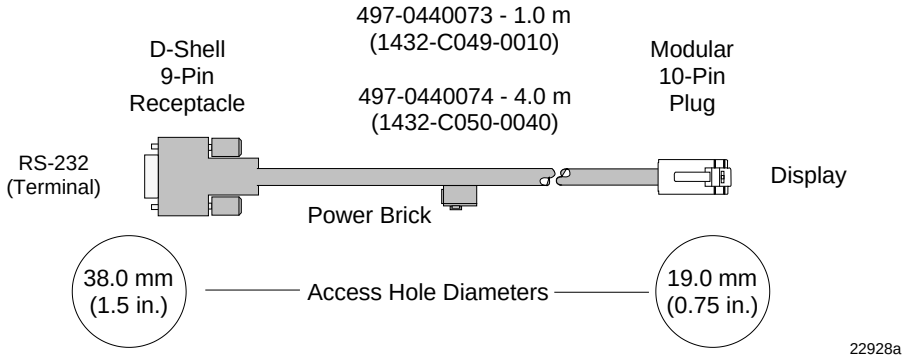
System Configuration

The 5976 Display device communicates with the host through a USB 2.0 port or RS–232 serial port of the host. The display does not need to know which cable it is connected to. However, only one interface can be connected to the unit at a time.

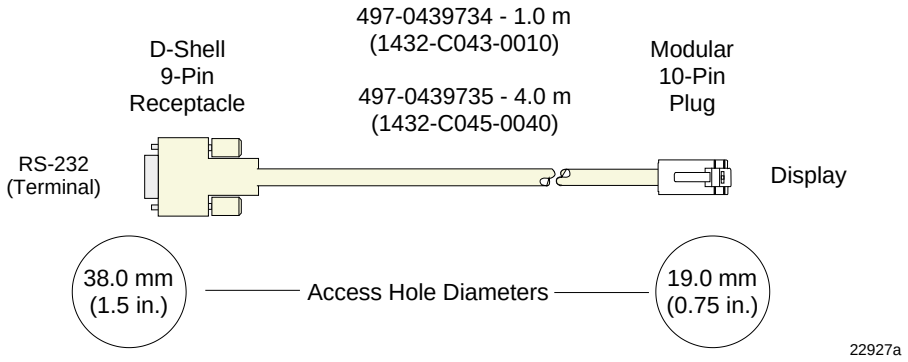
Cable Hole Dimensions

The hole dimensions for routing cables from the Customer Display to a host terminal are explained as follows.

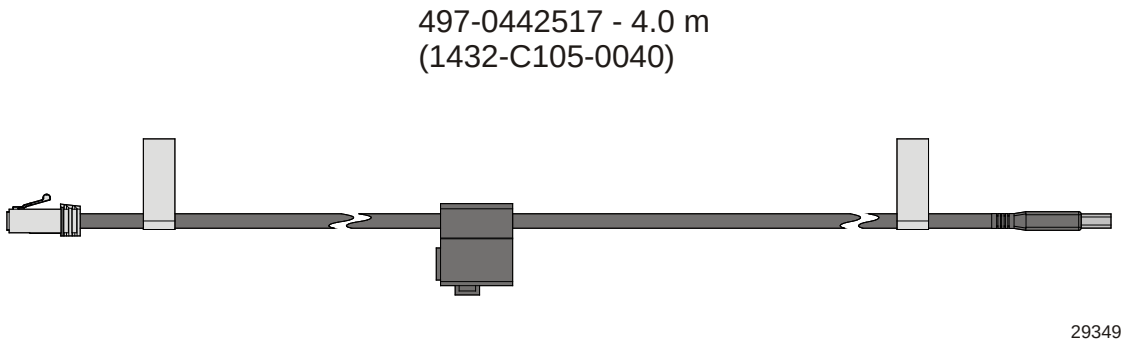
RS–232 Interface Cable (with Power Connector)



RS–232 Interface Cable (Com Power)



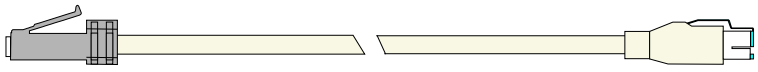
USB Type A with Power Connector



USB + Power (12V)

497-0476857 - 1.0 m
(1432-C432-0010)

497-0445077 - 4.0 M
(1432-C156-0040)



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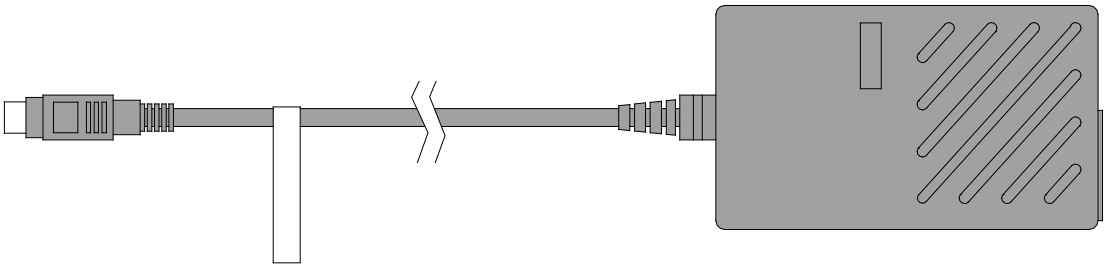
Stand Alone Power Adaptor

The Power Adaptor (497–0505462, alias 5967–K101–V001) is used with the RS–232 Interface Cable (with Power Connector) or with the USB Interface Cable (non–powered). The Adaptor cable is 6 ft in length.



(Used with cables 497-0440073, 497-0440074 & 497-0442517)

23182

Input	100–240 VAC, 63Hz
Output	12VDC, 2.5A

Chapter 3: Hardware Installation

Introduction

The NCR 5976 LCD device is designed to replace the NCR 5975 Display which uses the Vacuum–Fluorescent Display (VFD) technology. For more information on the NCR 5975 Display device, refer to *NCR 5975–1xxx 2x20 Customer Display User Guide* (B005–0000–1672) and *NCR 5975–2xxx Graphical VFD Customer Display User Guide* (B005–0000–1673).

The goal for installing the NCR 5976 Customer Display is for a reasonably trained operator or store manager to fully install the terminal in less than 30 minutes.

To qualify as *reasonably trained,* an installer or store manager must be fluent with the terminology and basic technology of PC hardware and software. This level of knowledge can typically be found in an individual who has installed several PC systems, and who routinely uses a PC for personal or business computing. No special tools are required for installation.

Cable Requirements

The display supports RS–232 and USB interfaces, however only one type can be connected at a time. Cable choices are:

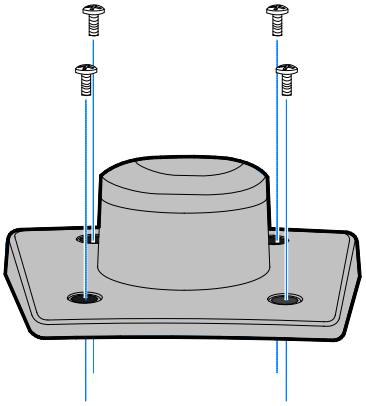
- RS–232 Interface (Powered)
- RS–232 Interface (Non–Powered)
- USB Interface (Powered)
- USB Interface (Non–Powered)

Power Supply Choices

- No Power Supply for terminal powered configurations
- Universal Input Power Supply Adapter; 90–264 VAC, 50–60 Hz;

Installation Procedures

1. Locate the Display Mount within 4 meters (13 ft.) of the host terminal.
2. Determine if the cable should be routed down through the mounting surface or if it should be run on top of the surface. Drill a hole if necessary.
3. If you are installing with a post greater than 215 mm (8.5 in.) secure the Base Plate with screws (4) that are appropriate for the mounting surface.



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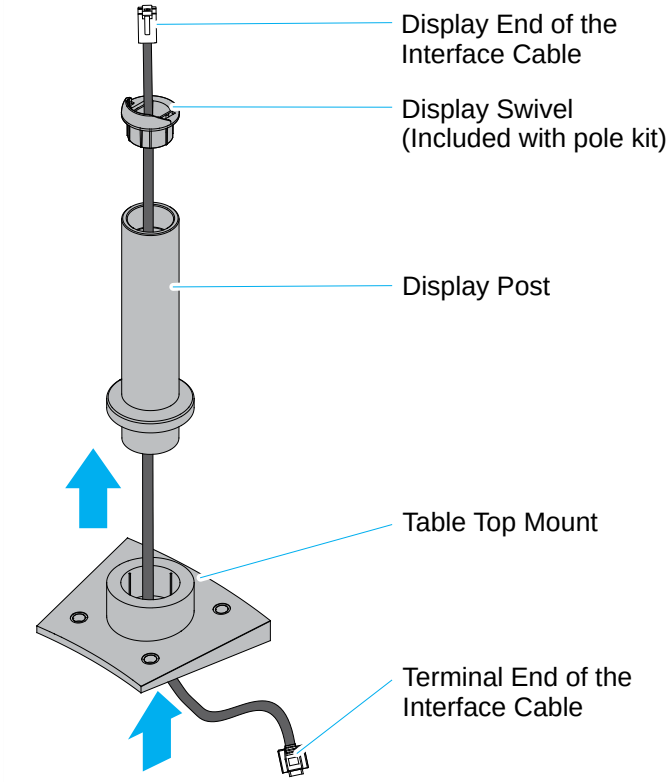
4. Route the display end of the Interface Cable through the Table–Top Mount, the Display Post, and the Display Swivel.

   Note: The terminal end of the Interface Cable is too large to fit down through the post.



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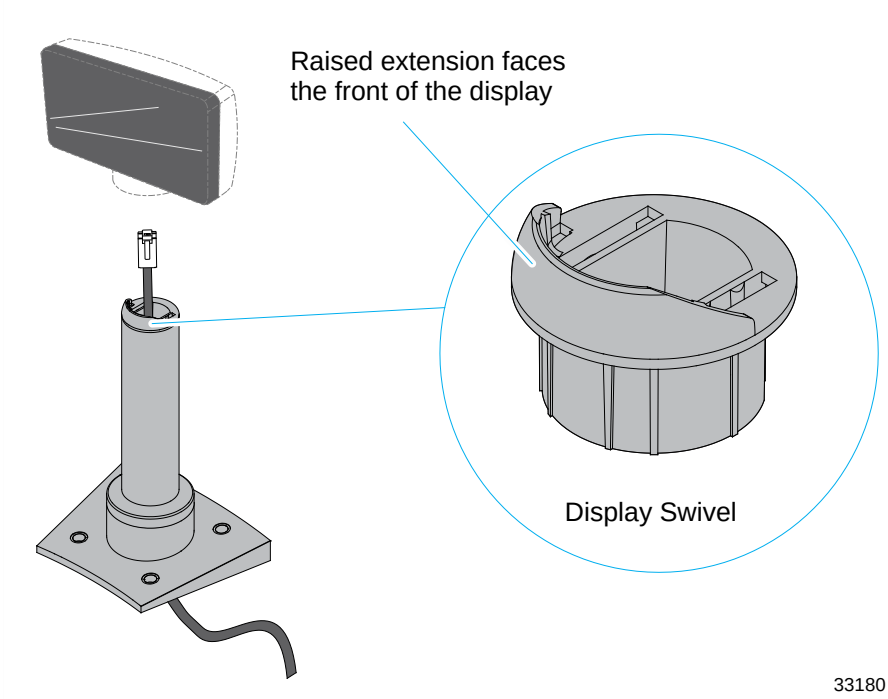
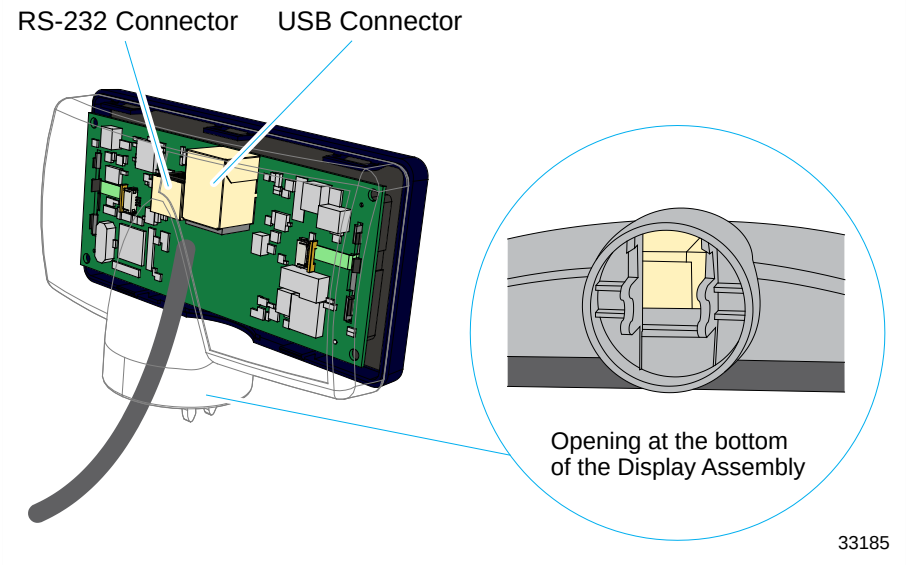
5. Assemble the post components.

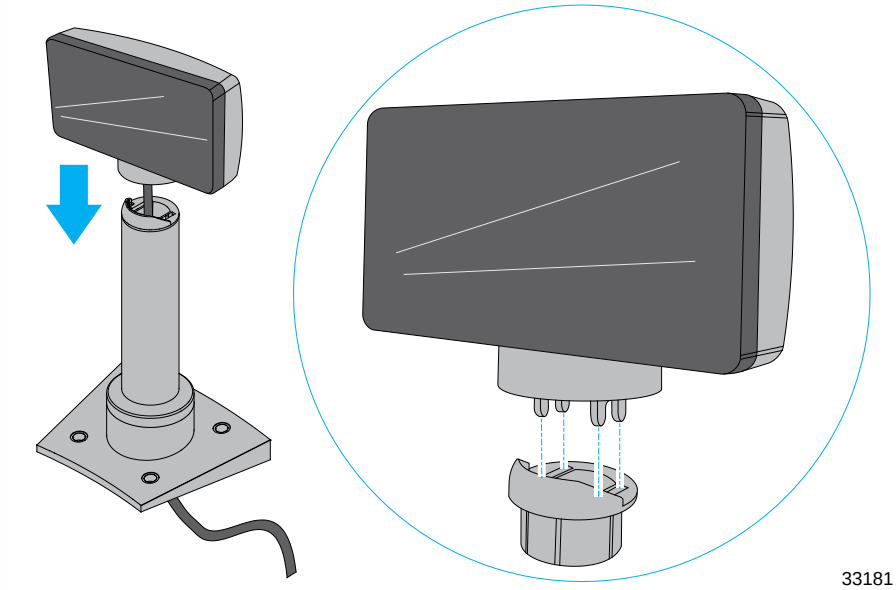
   Note: The raised extension of the Display Swivel is oriented toward the front of the unit, which permits the Display to be tilted to the rear.



6. Connect the Interface Cable to the Display Module by inserting the Interface Cable through the opening at the bottom of the Display Assembly and to the designated connector on the Display Module.



7. Connect the display to the post assembly



8. Connect the terminal end of the Display Cable to the host terminal.

- **RS–232 Interface (Powered)**

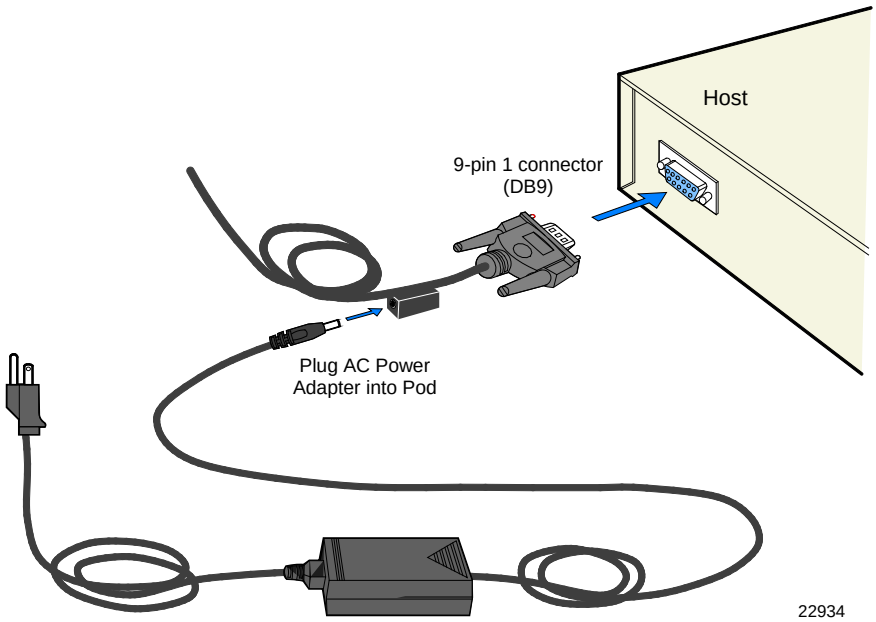
  Connect the I/F cable to a powered RS–232 connector on the terminal.

- **RS–232 Interface (Non–Powered)**

  Connect the I/F cable to a non–powered RS–232 connector on the terminal. Connect a Power Brick to the I/F cable and an AC outlet.

  Configure the terminal serial port as follows:

  `9600 baud, 8 data bits, 1 start bit, 1 stop bit, No parity`



- **USB Interface (Powered)**

  Connect the I/F cable to a powered 12V USB + Power connector on the terminal.

- **USB Interface (Non–Powered)**

  Connect the I/F cable to a non–powered USB connector on the terminal. Connect a Power Brick to the I/F cable and an AC outlet.

Diagnostics

The 5976 Customer Display has internal Power Up Diagnostics that occur soon after power–up or if a Reset Display command is received from the host software.

When the hardware is powered down, all registers and memory are lost. No recovery is possible.

The Power Up Diagnostics include the following tests:

- Microcontroller test
- External Memory Character test
- Display test

External Memory Character Test

A test is performed every loading of character set from the external Flash to the Microcontroller memory. The calculated checksum value of the stored character set is compared to the checksum found on the character set header information. If an error is discovered, the Microcontroller will erase the character set on its memory.

Display Test

If the display is not connected to a host through a serial lines or USB, it runs an extra test that turns on all pixels on the display (character cells) for about four seconds. This permits a user to examine the display for any pixel failure, but doesn't require him to execute this test on every power up. The unit does not have the capability to determine if the Display Test passed. Once diagnostic testing is completed, line states are returned to normal and the firmware branches to its idle routine.

The host is able to detect a Retail Display failure by detecting exception conditions on the RTS or Busy lines for at least three seconds.

Note: When the I/F receives a Reset command, only the Microcontroller Test and External Memory Test Character are executed. The Display Test is not executed.

Chapter 4: Hardware Service

Safety Requirements

Carefully follow these safety requirements before servicing the Retail Display:

Warning: This device does not contain any user serviceable parts and should only be serviced by a qualified service technician.

Caution: Before servicing the display, disconnect the AC power cord from the retail terminal or PC to which the display is connected. Also disconnect the cables from the PC/terminal to the display.

Caution: The power supply cord is used as the main disconnect device. Ensure that the socket outlet is located/installed near the equipment and is easily accessible.

Le cordon d'alimentation est utilisé comme interrupteur général. La prise de courant doit être située ou installée a proximite du matériel et être facile d'accés.

Caution: This device should only be powered by a (SELV) Safety Extra Low Voltage power supply source with an available power level of 5 amperes or less, and suitable for the country of installation. The power source must be certified by the appropriate safety agency for the country of installation.

Le matériel doit être reliés electriquement au circuit å Très Basse Tension de Sécurité (TBTS) ayant une limite de 5 ampères correspondant de façon satisfaisante et acceptable dans le pays où le matériel doit être installé. Le source d'alimentation doit être approvée par une agence de normalisation appropriée et acceptable dans le pays où le matériel doit être installe.

Servicing the Display

Warning: Before servicing the equipment plug your safety strap into a proper grounding outlet. Failure to do so could damage the equipment.

Normal Operation

On power–up, the unit displays the firmware part number for 2 seconds, then lights all pixels for 2 seconds, then goes blank and awaits commands from the host.

Troubleshooting Procedures

The NCR 5976 Customer Display requires minimal maintenance. Should the display malfunction, adhere to the procedures in the following troubleshooting chart.

Symptom	Probable Cause	Solution
Blank screen on power–up	No power to unit	Check for faulty connections Check power source to power supply Check for damaged cables Check connections
On power–up unit lights but does not communicate with host	Bad cable connections to host port	Check connections
	Misconfigured host	Verify host configuration

Servicing the 5976 Customer Display

If the unit does not perform properly, you need to replace it. It contains no serviceable parts and must be replaced as a whole display unit.

Cleaning the Display

Remove power from the unit before cleaning.

When cleaning is required, a soft cloth dipped in a mild detergent can be used to clean the cabinet. Only a damp cloth is required so that no moisture can enter the cabinet. Never spray the cleaner directly onto the unit. Care should be taken not to scratch the lens during cleaning.

No preventive maintenance is required to meet the Service Calls per Machine per Year requirement.

Chapter 5: Programming

Host/Retail Display Command Interface

The Retail Display accepts two types of data: display data and command data.

- If a byte received from the host is any character except the ESC (0x1B) character, it is processed as a character and displayed on the Retail Display.
- If an ESC character (0x1B) is received, the subsequent byte(s) is processed as a command. If the subsequent byte is an invalid command, it is ignored. If an ESC is received, but no command byte is received immediately, the firmware ignores the ESC command.

Note: Each command consists of at least two bytes. The first byte (0x1B) is a command identifier indicating the next byte(s) is a command byte. The command byte may be followed by parameter or data bytes depending on the command. Also note that the ESC character can be displayed by using the Display ESC Character command.

Character Scrolling Rate

The recommended scrolling rate is at minimum of approximately 350 ms (milliseconds) interval for this LCD display. Residual images may appear if scrolled at a faster interval (lesser than 350 ms).

Retail Display Commands

The following table describes the Retail Display commands supported:

Command	Function
1B 01	Reset Display
1B 02	Erase Display
1B 03	Invalid Command
1B 04	Set Diagnostic State
1B 05	Set Display State On
1B 06	Set Low Power State On **(Default)**
1B 07	Enable Cursor
1B 08	Disable Cursor **(Default)**
1B 09	Set Screen Save Blank **(Default)**
1B 0A	Set Screen Save Walk
1B 0B	Turn On Screen Save
1B 0C	Disable Screen Save Feature
1B 0D	Enable Character Blink
1B 0E	Disable Character Blink **(Default)**
1B 0F	Move Cursor Left
1B 10	Move Cursor Right
1B 11	Move Cursor Up
1B 12	Move Cursor Down
1B 13	Set Cursor Position
1B 14	Query All Character Set Code Name
1B 17	Brightness Adjustment **(Default = 2)**
1B 18	Read Display ID
1B 19	Read Display ID String
1B 1B	Display ESC Character
1B 20	Select Character Set 1 **(Default)**
1B 21	Select Character Set 2
1B 22	Select Character Set 3

Command	Function
1B 23	Select Character Set 4 (External Memory required)
1B 24	Select Character Set 5 (External Memory required)
1B 25	Select Character Set 6 (External Memory required)
1B 26	Select Character Set 7 (External Memory required)
1B 27	Select Character Set 8 (External Memory required)
1B 28	Select Character Set 9 (External Memory required)
1B 29	Select Character Set 10 (External Memory required)
1B 2A	Select Character Set 11 (External Memory required)
1B 2B	Select Character Set 12 (External Memory required)
1B 2C	Select Character Set 13 (External Memory required)
1B 2D	Select Character Set 14 (External Memory required)
1B 2E	Select Character Set 15 (External Memory required)
1B 2F	Select Character Set 16 (External Memory required)
1B 30	Select Character Set 17 (External Memory required)
1B 31	Select Character Set 18 (External Memory required)
1B 32	Select Character Set 19 (External Memory required)
1B 33	Select Character Set 20 (External Memory required)
1B 8A	Read Display Serial Number

Reset Display

Format	1B 01
Returns	xx yy zz
	xx=microcontroller status 00=OK If failure occurs, the firmware performs a loop forever.
	yy=Flash status 00=Ok, present 01=Not present FF=Failure
	zz=number (in hexadecimal) of character sets available in the Flash 00=10

Description

This command executes the power–down power–up diagnostic sequence. The communication lines (RTS for serial, BUSY for parallel) are placed in an exception condition (*see* the "Diagnostics" section). The microcontroller test consists of a sum–check test on the ROM and a write/read test on the RAM. A check–sum test is also performed on the FLASH that holds any user defined character sets. After executing the command, the three status bytes (see above) are sent to the host, the display screen is cleared, the cursor moves to the 0 position, communication line exception conditions are cleared, and all registers and variables are initialized. Note that the screen is cleared during this command. If a host needs previous data redisplayed, the host must resend the previous data after this command has completed. Since true bi–directional communications are not available for the parallel interface, a unique interface utilizing the Strobe line as a clock line and the Ack line as a data line is used.

Erase Display

Format	1B 02

Description

This command clears all of the displayed characters by writing a space to each display position. A space is defined as character 0x20 of the current character set. The cursor moves to the 0 position.

Invalid Command

Format	1B 03

Description
This is now an invalid command.

Set Diagnostic State

Format	1B 04

Description
This state is exclusive from the On and Low Power states. This command causes the firmware to display the current NCR firmware part number of the device (for example, the current firmware part number for the device is 497–0408199) for five seconds and then step through each installed 256–character set (default and user defined) displaying one character at a time on all 40 display positions at a rate of about one character per second. Start with the currently selected character set and then display all of the characters from the other sets the same way. This continues until one of the other state commands is performed.

Set Display State On

Format	1B 05

Description
This state is used for normal run–time conditions. This operation instructs the firmware to leave one of the other states and begin performing normal refresh operations. There may be a slight delay before the display reaches the specified brightness setting when exiting the Low Power State. This delay should not exceed 1 second from the time the command is received until the time the display reaches the specified brightness.

Highest priority is given to refresh operations and a lower priority is given to host communications. Host communications still work, but if a large amount of data is to be programmed in a very short time frame, it would work faster if the Blank State was programmed prior to the information transfer.

The Screen Save feature may be in force during the Display On state. This means that after about five minutes of no new display activity, the Screen Save feature could take over and cause the display to go blank or begin walking from right to left.

Set Low Power State On

Format	1B 06

Description

This state is used to reduce Retail Display power consumption and extend the life of the Retail Display. Power is only removed from the display and the display is not refreshed. The Retail Display controller is still fully operational and continues to accept commands. This command causes the firmware to blank or turn off the Retail Display. Display data can be processed while the display is in the Low Power state, but it does not appear until the Low Power state is changed. The displayed character's state is preserved so that upon leaving the Low Power State the display is restored. To leave the Low Power State, one of the other state commands must be received. This is the default state for the Retail Display after power–up.

Enable Cursor

Format	1B 07

Description

This command causes a flashing cursor to be used whenever the Display On state is in force. When the cursor is enabled, the firmware shows a visible flashing cursor at the current cursor position. The flashing cursor should be visible for one second and then the character at the cursor position should be visible for one second. The effect is to alternate between the character and the cursor. The cursor is defined as character 095 of whatever character set is currently chosen. For the three supported character sets, the cursor is the bottom row of pixels turned on. For a user–defined character set, the cursor becomes whatever is defined as character 095 of the character set. When the cursor is enabled, it overwrites the character at the cursor position. If the cursor is disabled, the character at the cursor position is left visible.

Disable Cursor

Format	1B 08

Description

This command causes the cursor to be turned off. This is the default state for the cursor after power–up. A disabled cursor does not overwrite a displayed character.

Set Screen Save Blank

Format	1B 09

Description

This command is intended to preserve the life of the display hardware unit. The firmware maintains a five–minute timer that triggers this feature. The Screen Save feature can be disabled through a command from the host software. When the feature is not disabled, two specific options exist. The Set Screen Save Blank operation causes the display to go blank when the timer expires. When the firmware receives the command code, the Screen Save mode is canceled and the five–minute timer is established. Screen Save Blank removes power from the Retail Display and does not refresh the display in the same manner as the Set Low Power On command. At power up, the timer is established at five minutes and Screen Save Blank is established as a default. The five minute timer is not reset by any invalid or incorrect command.

Set Screen Save Walk

Format	1B 0A

Description

This command causes the visible display to walk right to left when the Screen Save timer expires (five minutes). The characters on the 5976 display appear to walk across the corresponding display row from right to left. The two lines in the 2x20 Display walk in parallel completely off the left side of the display and then the two lines appear to come back from the right. If the display is space filled, then no effect is perceived even though the walking is taking place. The Screen Save Blank mode is the default mode after power up.

Turn on Screen Save feature

Format	1B 0B

Description

This command causes the one of the screen save functions (Set Screen Save Blank or Set Screen Save Walk) to activate immediately rather than waiting for the screen save timer to expire. If the Disable Screen Save Option command is in effect when this command is issued, it is canceled and the screen saver is enabled and activated immediately.

Disable Screen Save option

Format	1B 0C

Description

The firmware ceases to keep time for the screen save activity from the host software and the display neither goes blank nor begins to walk due to inactivity from the host. This command can be canceled by the Turn on Screen Save, Set Screen Save Blank, and Set Screen Save Walk commands.

Enable Character Blink

Format	1B 0D

Description

The blink attribute is the only modifier which is supported for the display character positions. The attribute itself is not necessarily programmed with each new character code. Rather, each time a new character is received, the current setting of the character blink operator is adopted as the working attribute for the new character. If a new character is received while character blink is enabled, the new character blinks. This makes it possible to have a display with both blinking and non–blinking characters. The blink period is one second on and one second off. All characters that are blink enabled, blink at the same time. The only way to cause an existing character to start or stop blinking is to set up the character blink operator, locate the cursor to the correct character, and resend the individual character code.

Disable Character Blink (Default)

Format	1B 0E

Description

This command counteracts the Enable Character Blink. The firmware implements all new character codes with an on and holding character presentation. On power up, the character blink modifier is defaulted to disabled.

Move Cursor Left

Format	1B 0F

Description

This moves the cursor one position to the left. When the cursor is at the left end of the upper line, it moves to the right end of the lower line. When the cursor is at the left end of the lower line, it moves to the right end of the upper line. The cursor location always indicates the position of the next character to be displayed, whether the cursor is enabled and blinking or not. After each character is displayed, the firmware performs a logical Move Cursor Right command.

Move Cursor Right

Format	1B 10

Description

This command moves the cursor one position to the right. When the cursor is at the right end of the upper line, it moves to the left end of the lower line. When the cursor is at the right end of the lower line, it moves to the left end of the upper line. The cursor location always indicates the position of the next character to be displayed, whether the cursor is enabled and blinking or not. After each character is displayed, the firmware performs a logical Move Cursor Right command. When the cursor is at the right end of the lower line, it moves to the left end of the upper line and operates in an Overwrite Mode (i.e.: The next character sent to the display overwrites the character in the left end of the upper line).

Move Cursor Up

Format	1B 11

Description

This command moves the cursor up one line. When the cursor is on the upper line, the cursor is moved to the same column on the lower line. The cursor location always indicates the position of the next character to be displayed, whether the cursor is enabled and blinking or not. After each character is displayed, the firmware performs a logical Move Cursor Right command.

Move Cursor Down

Format	1B 12

Description

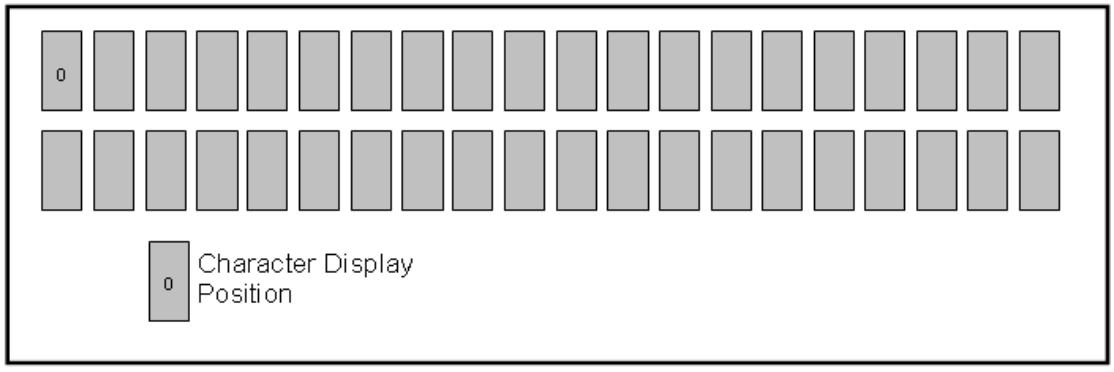
This command moves the cursor down one line. When the cursor is on the lower line, the cursor is moved to the same column on the upper line. The cursor location always indicates the position of the next character to be displayed, whether the cursor is enabled and blinking or not. After each character is displayed, the firmware performs a logical Move Cursor Right command.

Move to Specified Position (or Set Cursor Position)

Format	1B 13 *nn*
Range	00 ≤ *nn* ≤ 27 (Hex)

Description

This command moves the cursor to the specified position. Position 0 is the upper leftmost position and position 27 is the lower rightmost position. Any value outside this range is discarded, the command is ignored, and the cursor is not moved. The cursor location always indicates the position of the next character to be displayed, whether the cursor is enabled and blinking or not. After each character is displayed, the firmware performs a logical Move Cursor Right command. The character positions are shown below.



Query All Character Set Code Name

Format	1B 14
Returns	All character set codename in HEX format padded by 0x2C

Description

This command is a request for the Retail Display to return all the available character set codes stored in its memory. Maximum of 20 character set codes to be returned which are separated by comma (0x2C).

Brightness Adjustment (Default = 2)

Format	1B 17 *nn*
Range	01 ≤ *nn* ≤ 05 (Hex)

Description

This command adjusts the brightness of the entire display. Individual characters or display positions are not adjusted. On power up, the default brightness setting is 2 (40%).

Note: To change the brightness level, refer to Chapter 8, "Service Support Utility" for instructions.

nn	Brightness
01	20%
02	40%
03	60%
04	80%
05	100%

Read Display ID Byte

Format	1B 18
Returns	0x8A

Description

This command is a request for the Retail Display to return a identifier. The Retail Display returns one byte (0x8A) that identifies the Retail Display as a 2x20 with 7x9 dot matrix. Since true bi–directional communications are not available for the parallel interface, a unique interface utilizing the Strobe line as a clock line and the Ack line as a data line is used.

Read Display ID String

Format	1B 19
Returns	"NCR 5976, 497-0478048,V1.13.01,<S/N:(11 bytes)>" in Hex format **Note:** The quotation marks "" are not part of the string and are not returned.

Description

This command is a request for the Retail Display to return an ASCII string with detailed product information. Since true bi–directional communications are not available for the parallel interface, a unique interface utilizing the Strobe line as a clock line and the Ack line as a data line is be used.

Display ESC Character

Format	1B 1B

Description

This command is a request for the ESC character to be displayed to the current cursor position.

Select Character Set n (Default = 1)

Format	1B 20 – 1B 33

Description

This set of commands chooses one of the six supported internal character sets or, if an external character set is present, one of not less than 20 character sets.

- Character set 1 is defined as PC Code Page 858 (International).
- Character set 2 is defined as Katakana (Japanese).
- Character set 3 is defined as Cyrillic (Eastern European).
- Character set 4 is defined as Baltic.
- Character set 5 is defined as Polish.
- Character set 6 is defined as Multilingual Latin with the € symbol.

Note: The function where *n* is set to between 7 and 20 requires an External Memory.

Character sets 7 through 20 are only valid if extra character sets are present. Character set selection is dynamic. Host software can switch between character sets at any time. Switching between sets does not erase or change the display. This means characters from multiple character sets may be on a display. The default character set is number 1, PC Code Page 858 (International).

Read Serial Number

Format	1B 8A
Returns	xx yy • where xx = 01: no serial number available • where xx > 01: length of the serial number in HEX • where yy(*xx* bytes) is the serial number data

Description

This command is a request for the Retail Display to return the serial number data.

Character Sets

There are three (3) character sets installed.

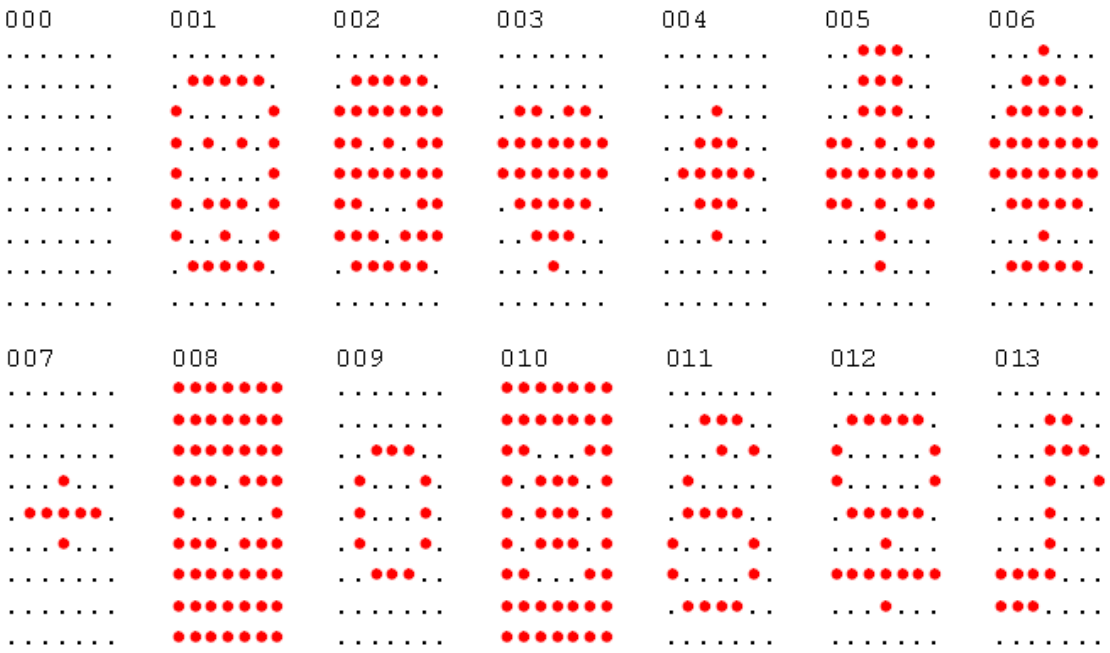
- **Default**
  - Code 858 (International) (VFD and LCD)
  - Code 101 (Katakana)
  - Code 866 (Cyrillic)

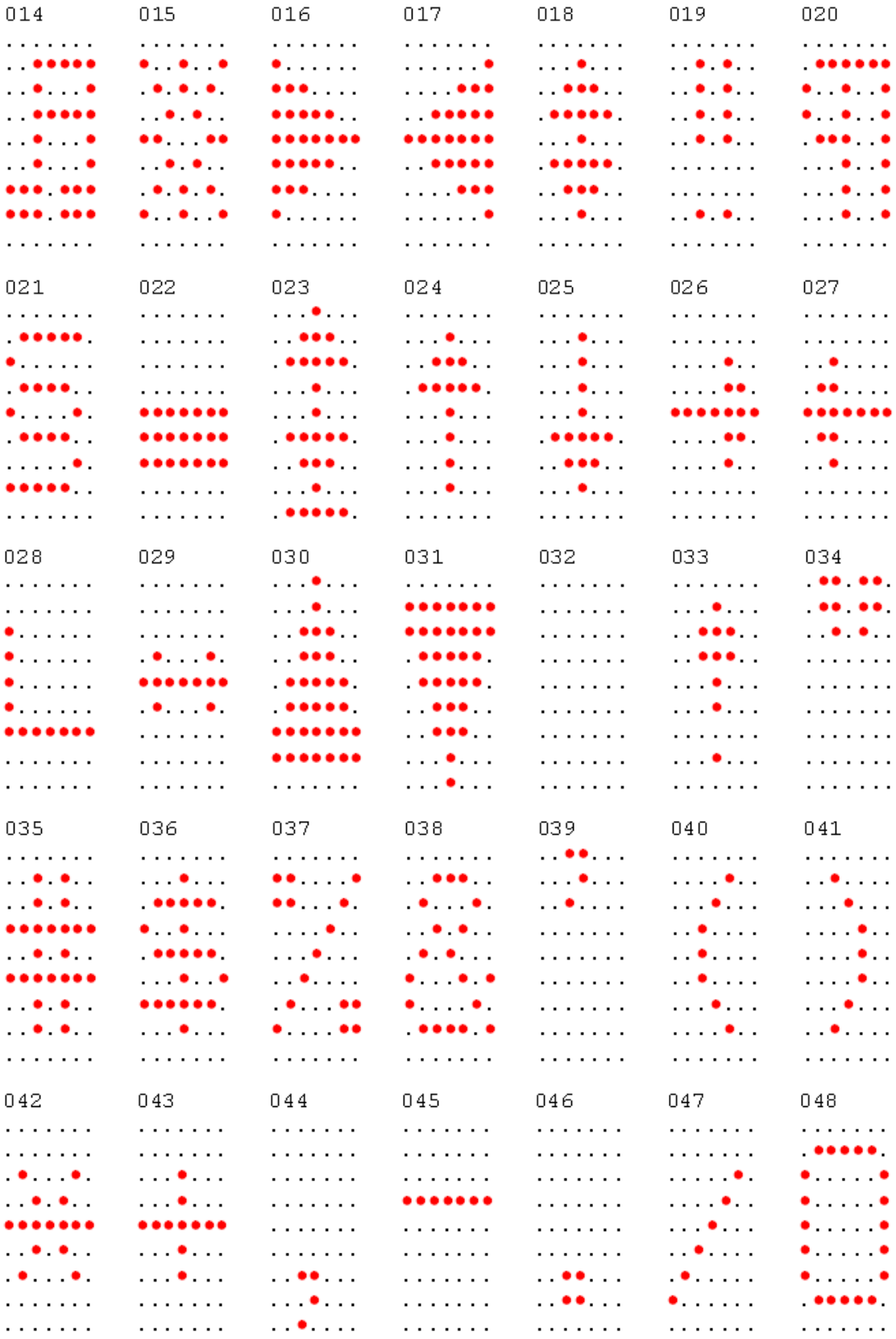
- **Currently Downloadable**
  - Code 775 (Baltic)
  - Code 852 (Polish)
  - Code 853 (Multilingual Latin with € symbol)

Note: To download other code pages, *see* the NCR website: *http://www5.ncr.com/support/support_drivers_patches.asp.* If your code page requirements are not included in the website, please file for a SCER request.

The LCD supports not less than 20 characters sets of 256 characters each. These character sets are inside a PROM that plugs into a socket on the PCB. All of the characters sets are stored in non–volatile memory.

Code Page 858 (International)

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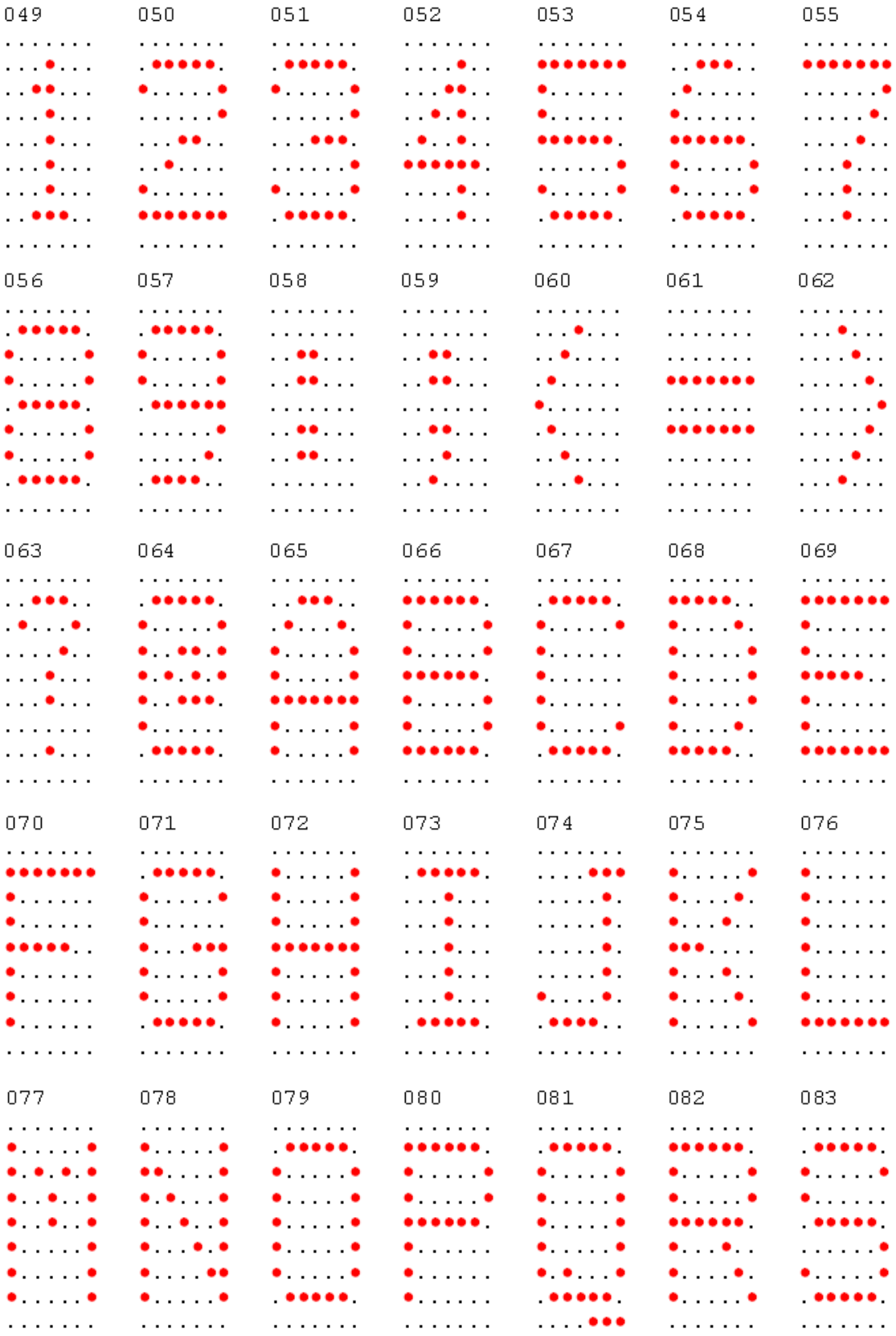
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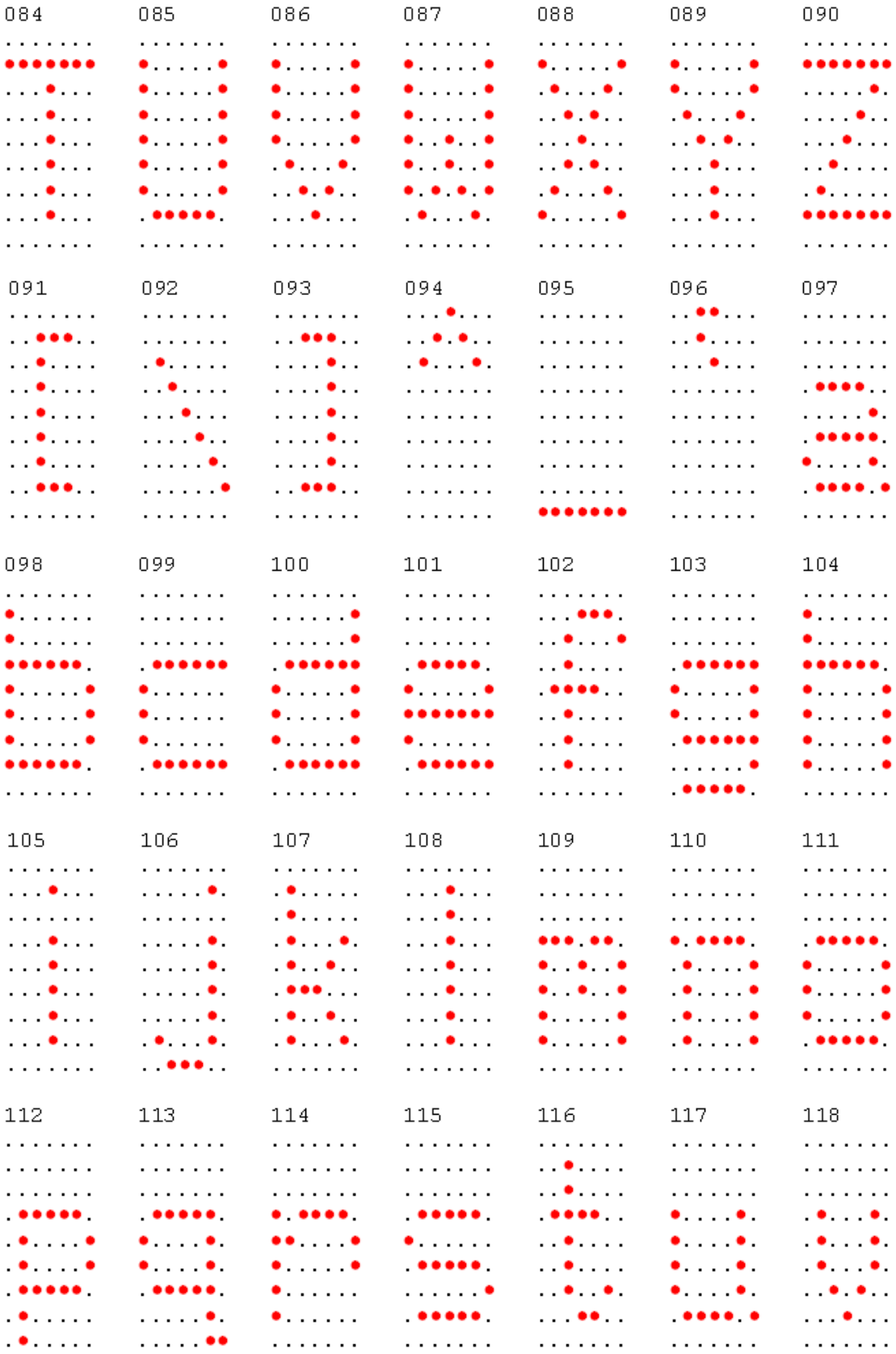
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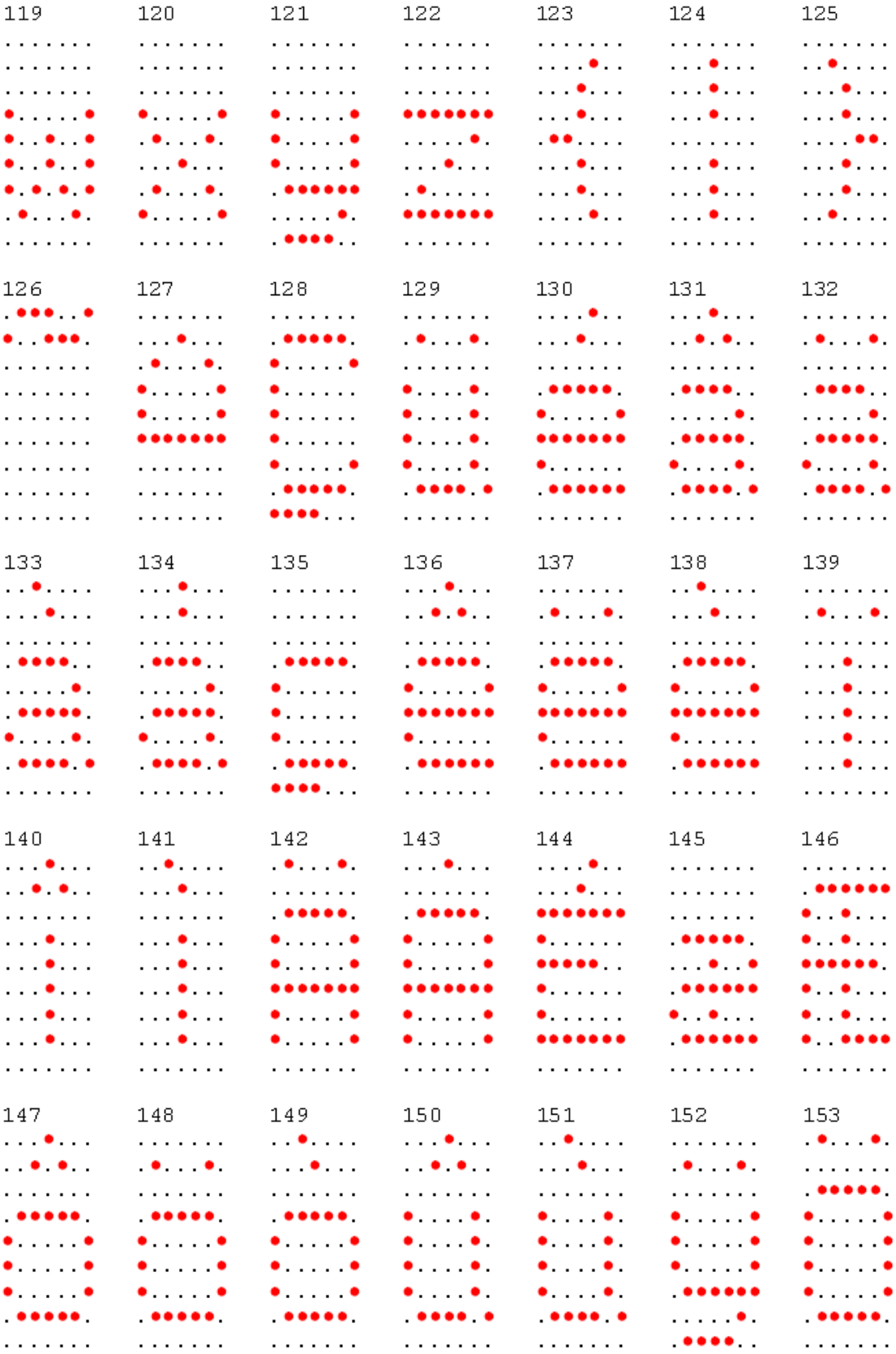
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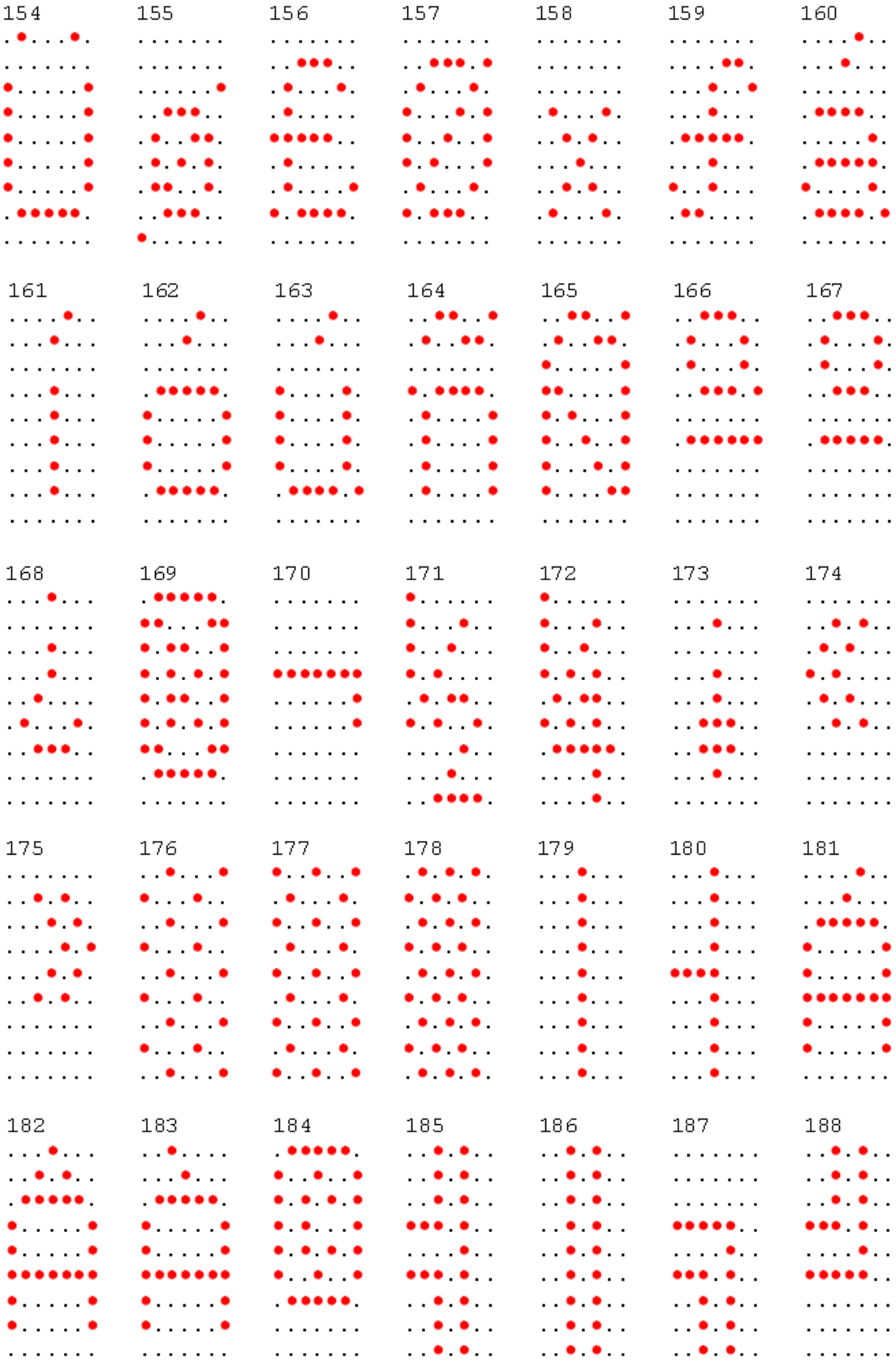
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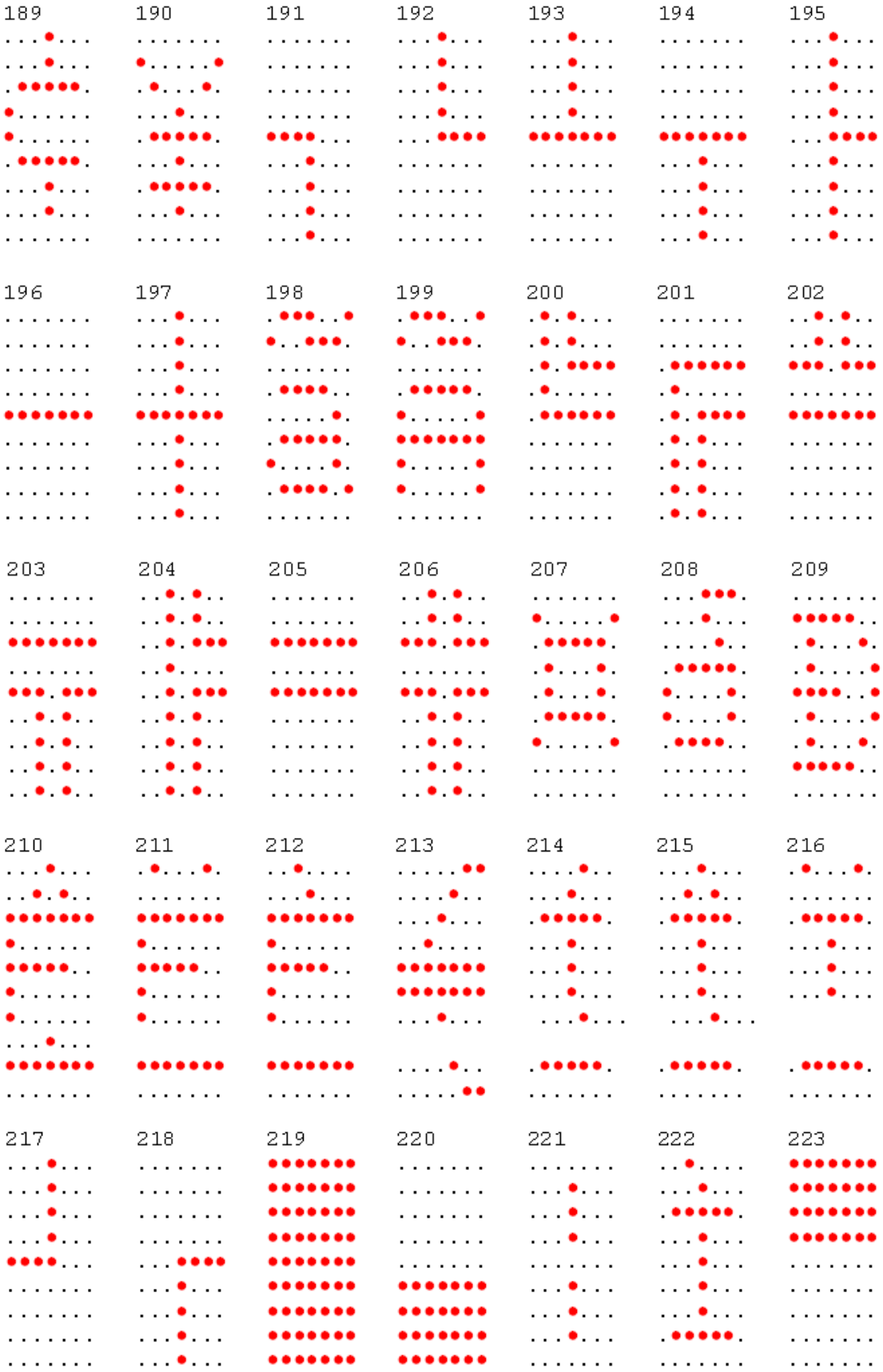
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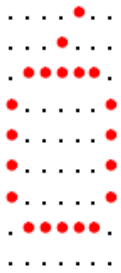

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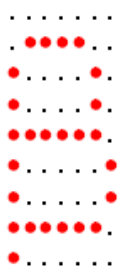

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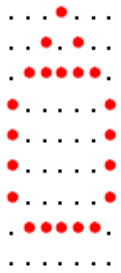

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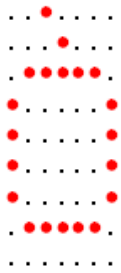

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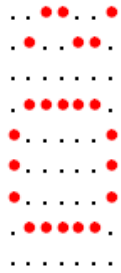

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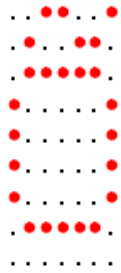

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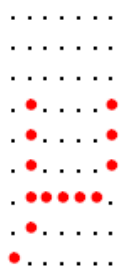

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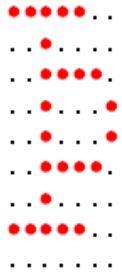

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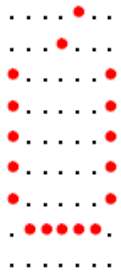

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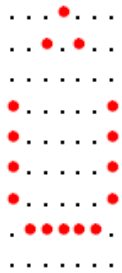

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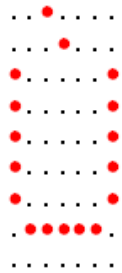

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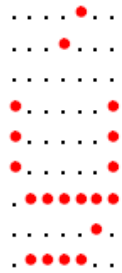

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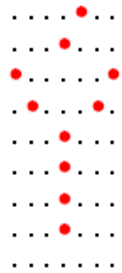

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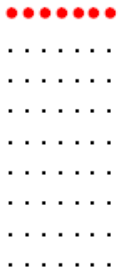

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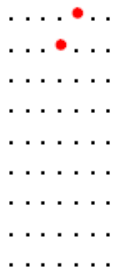

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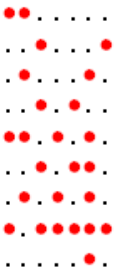

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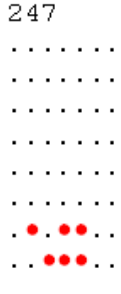

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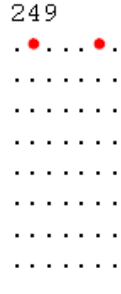

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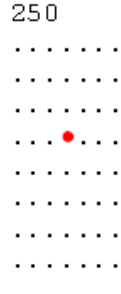

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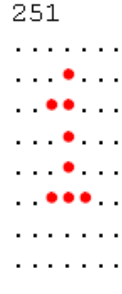

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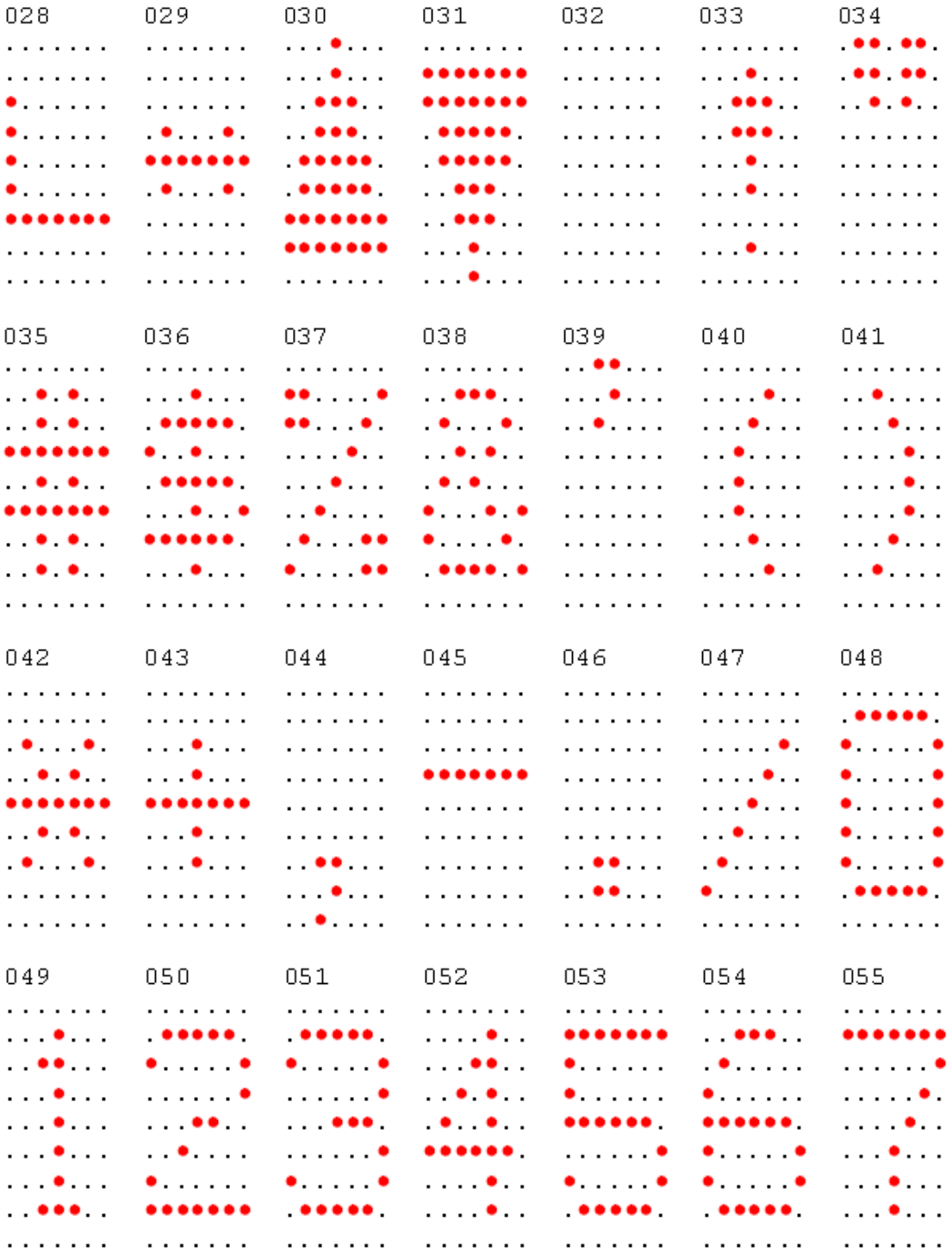
Code Page 101 Katakana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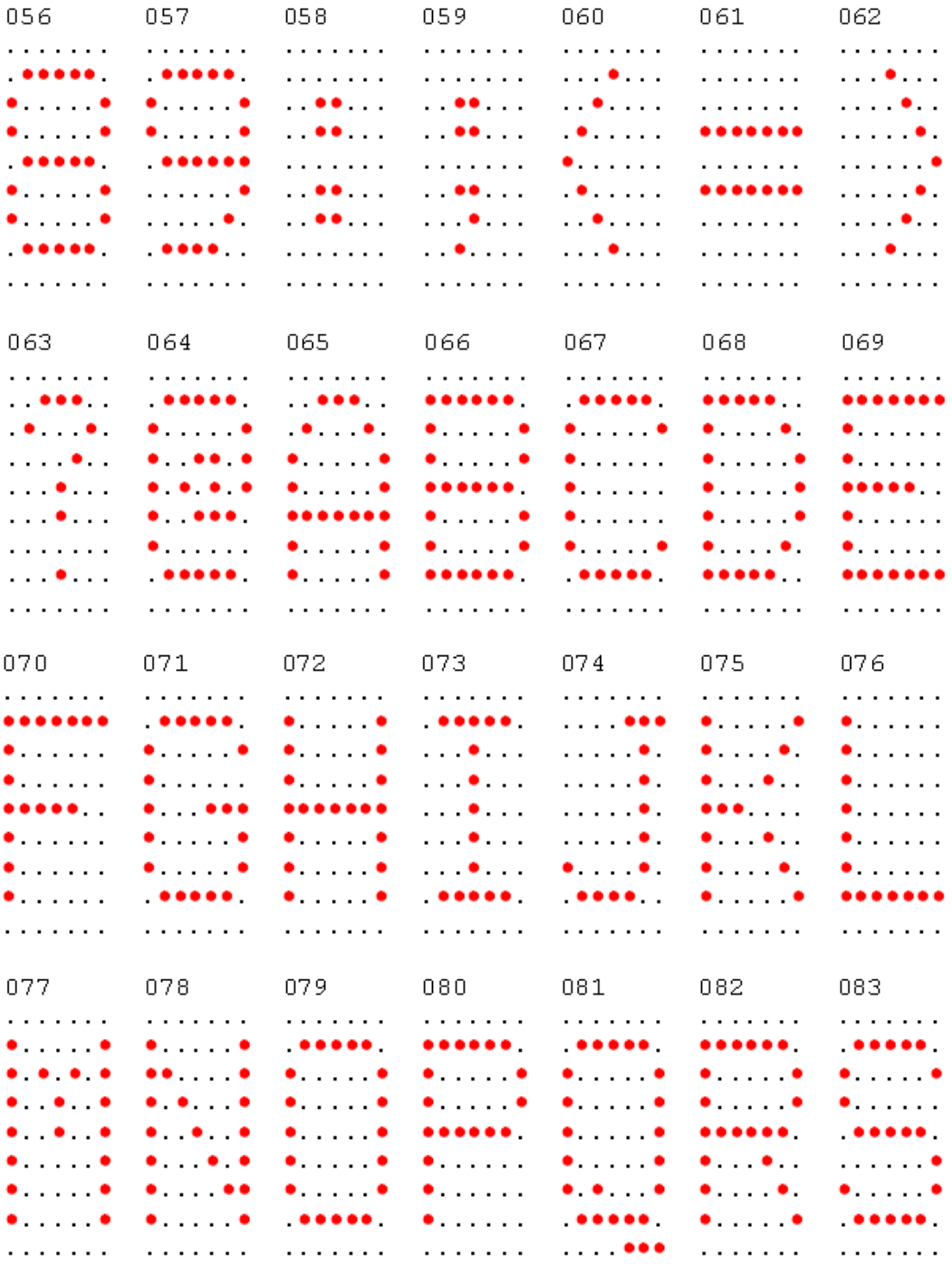
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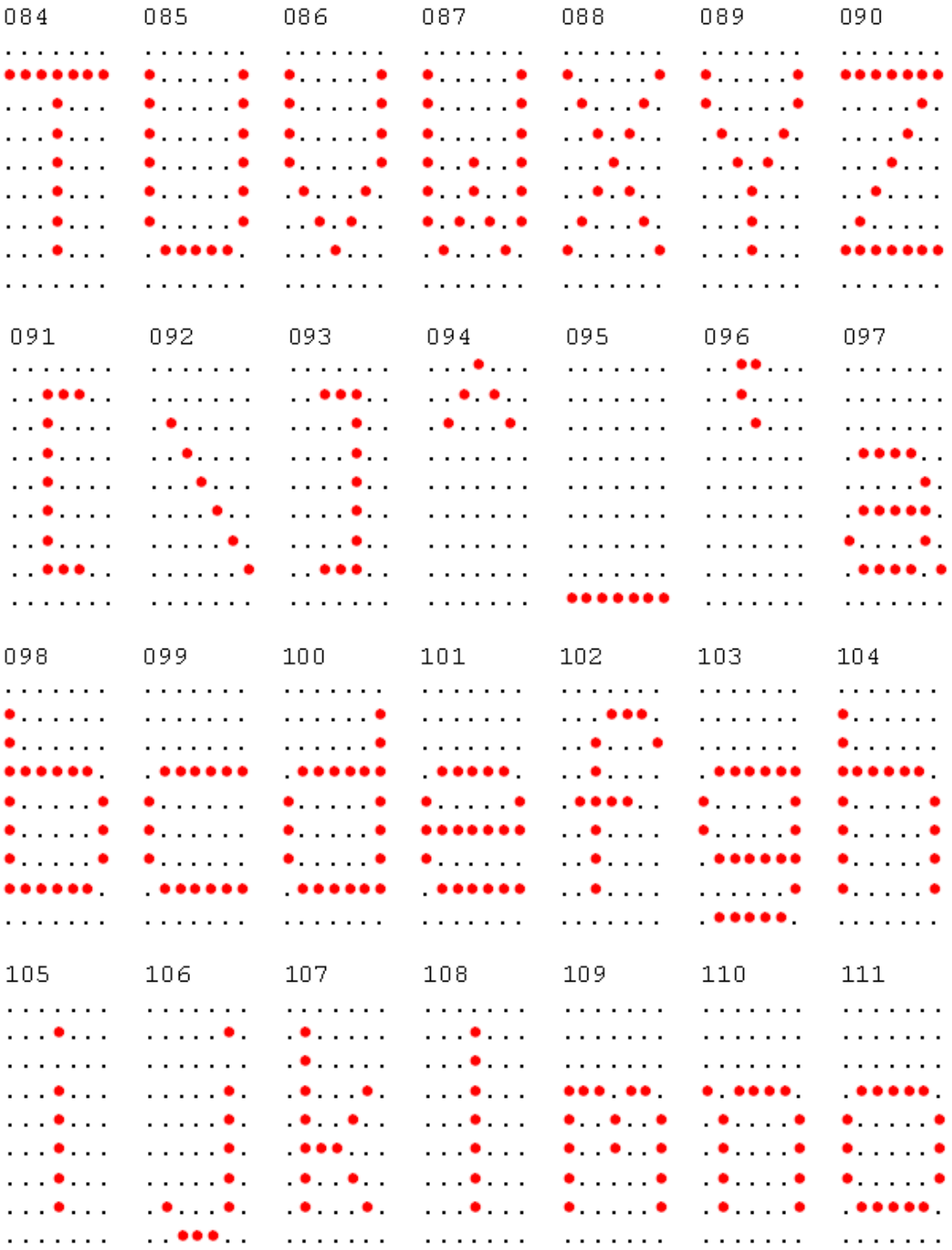
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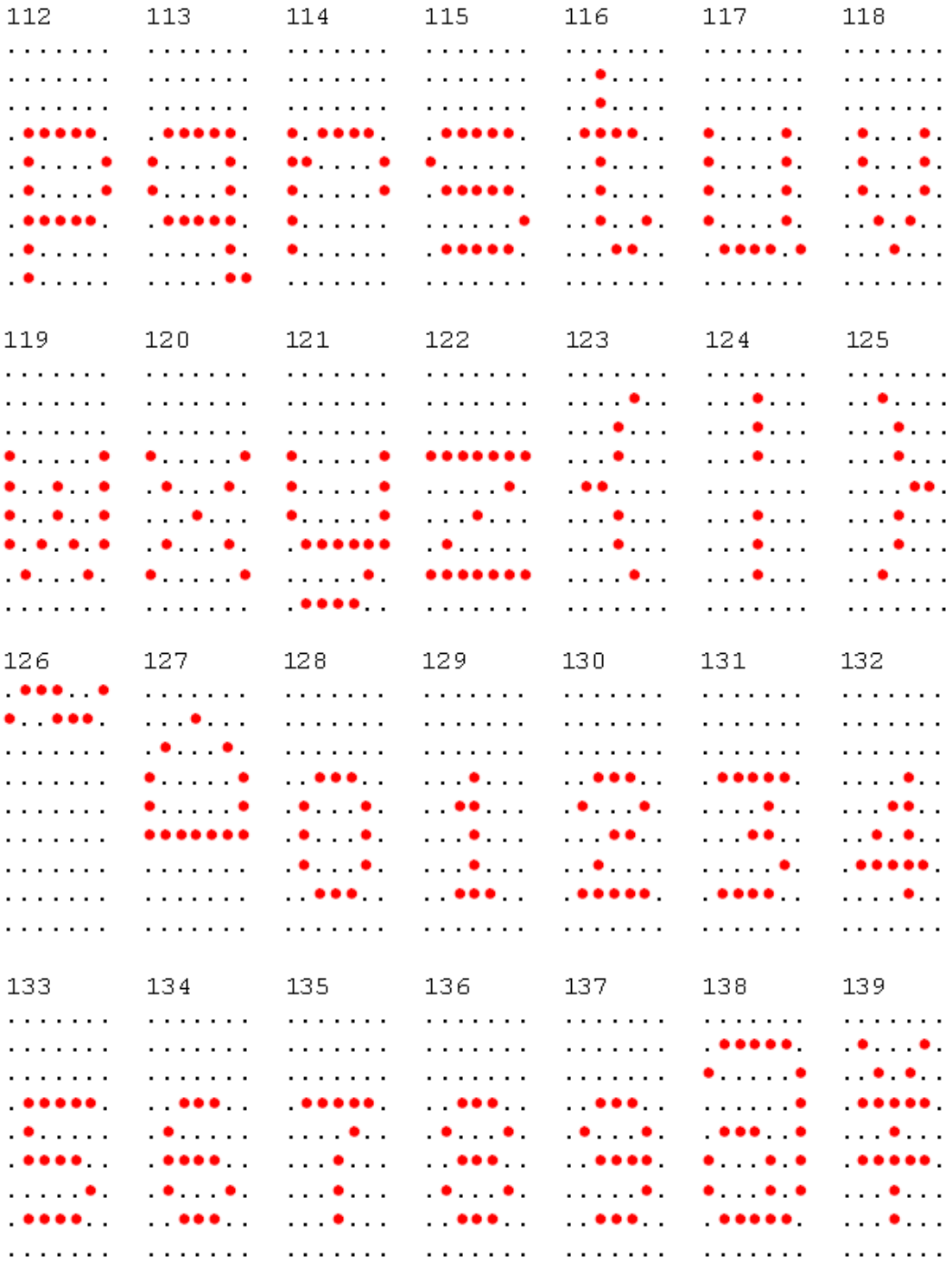
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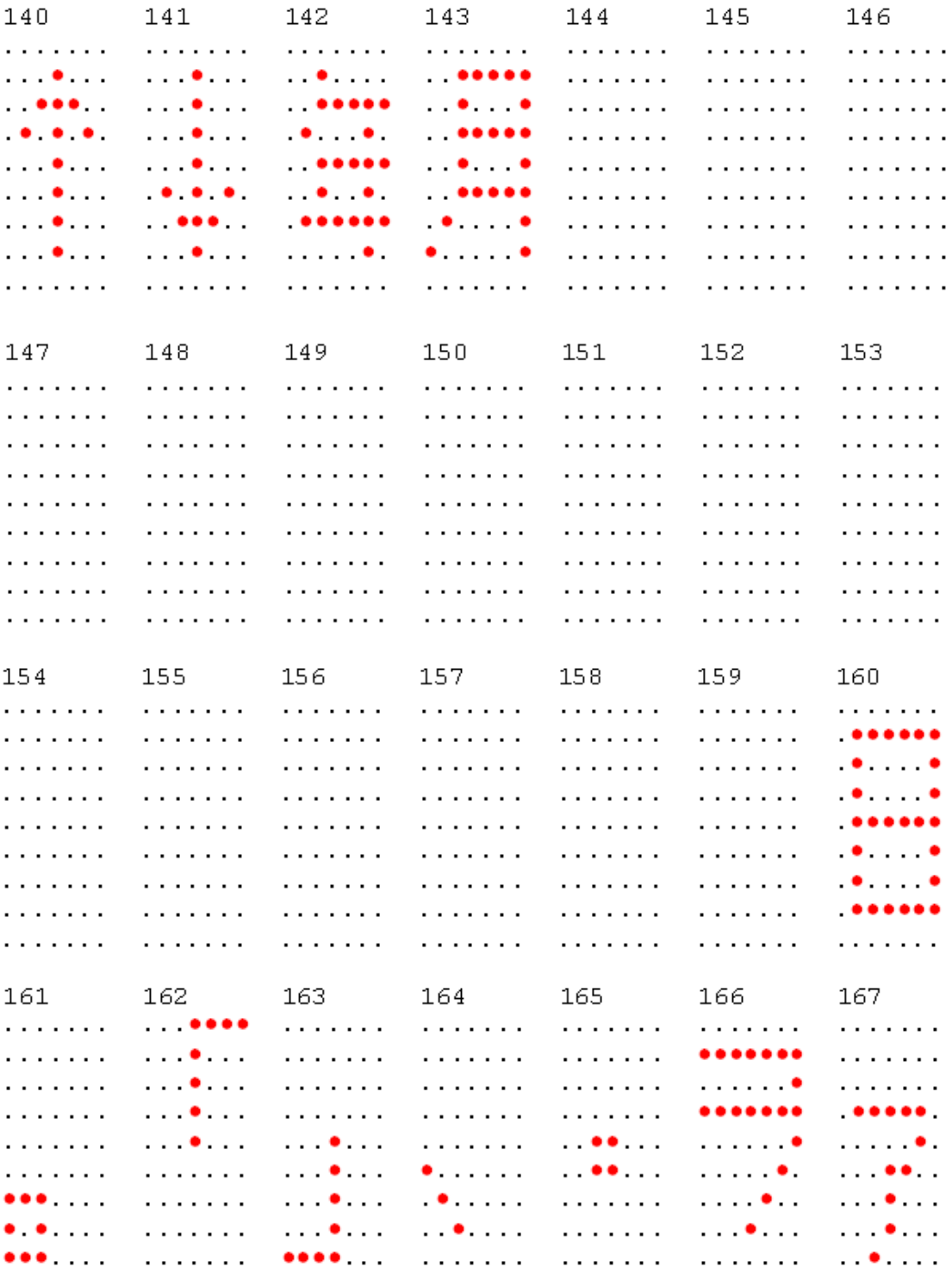
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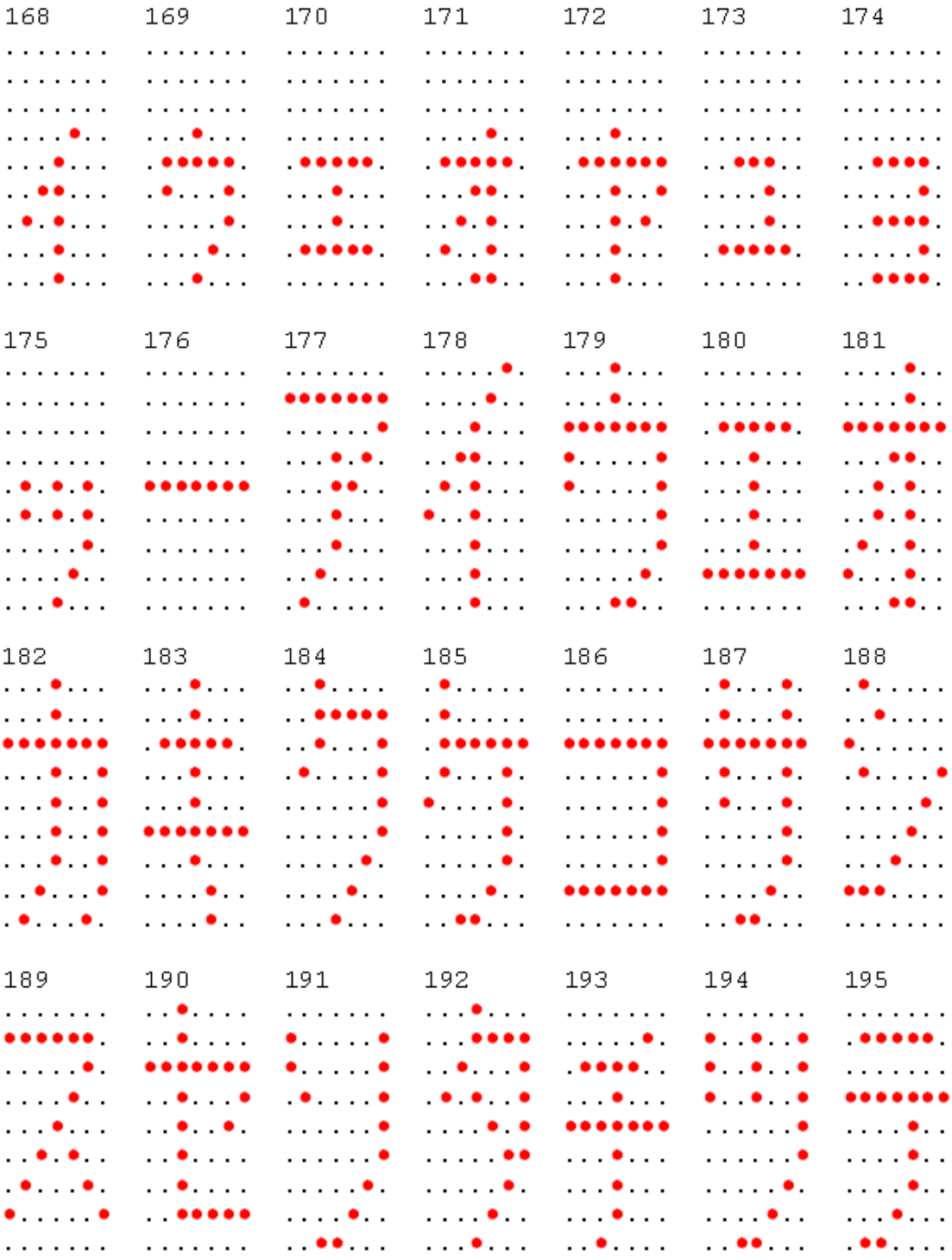
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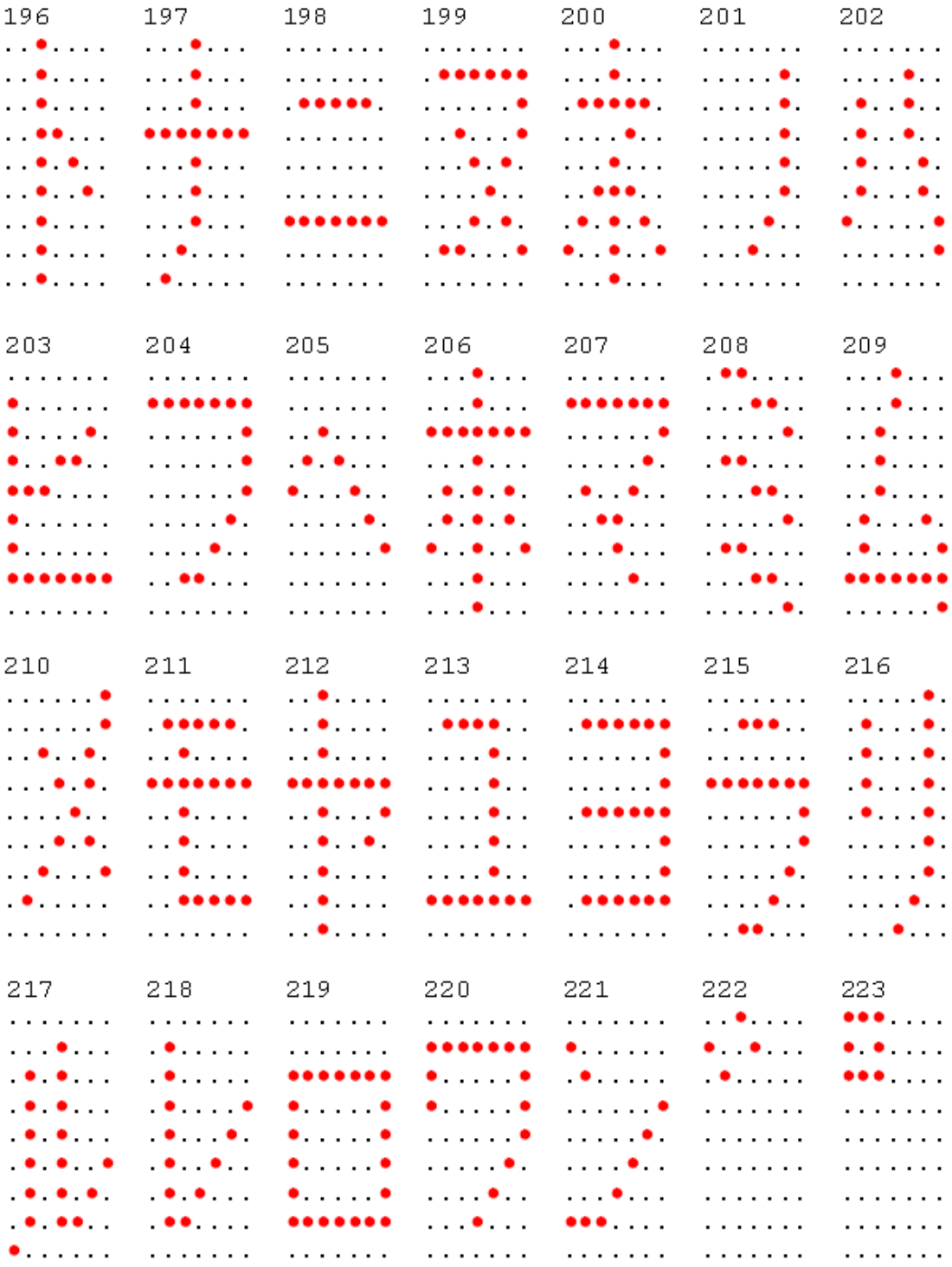
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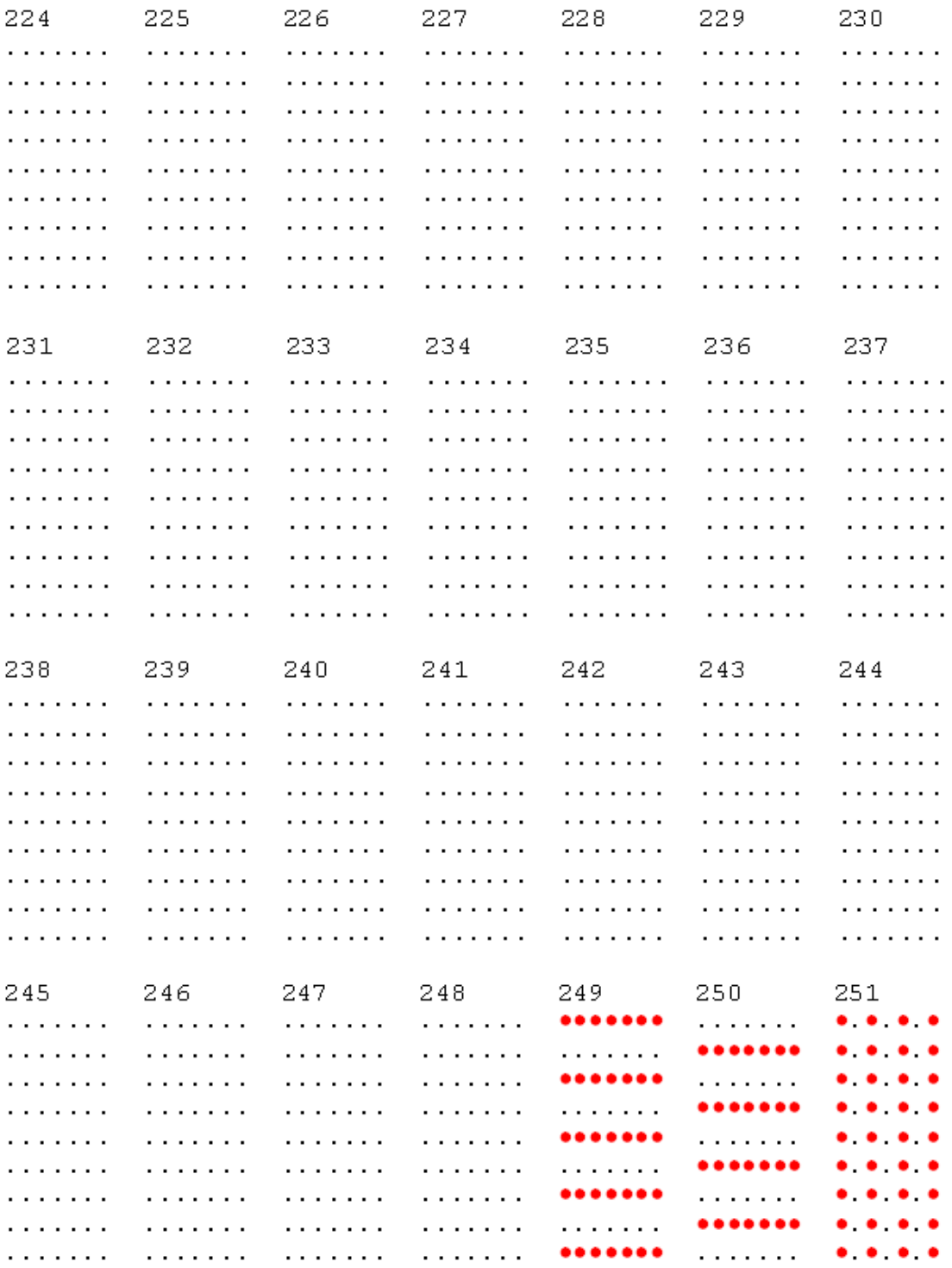
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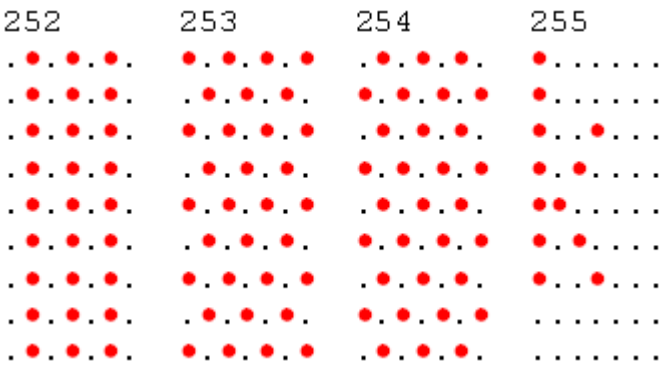
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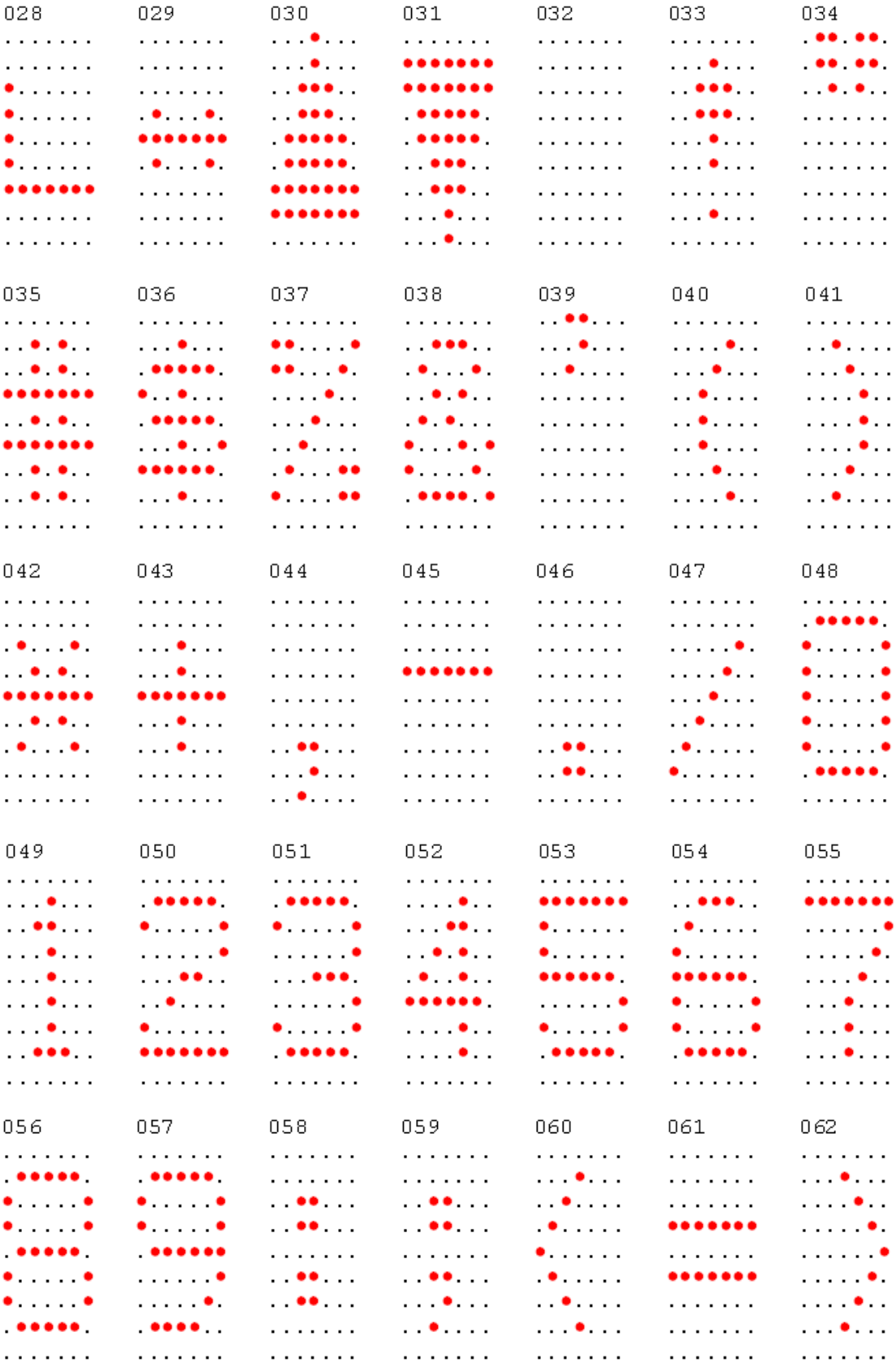
Code Page 866 (Cyrillic)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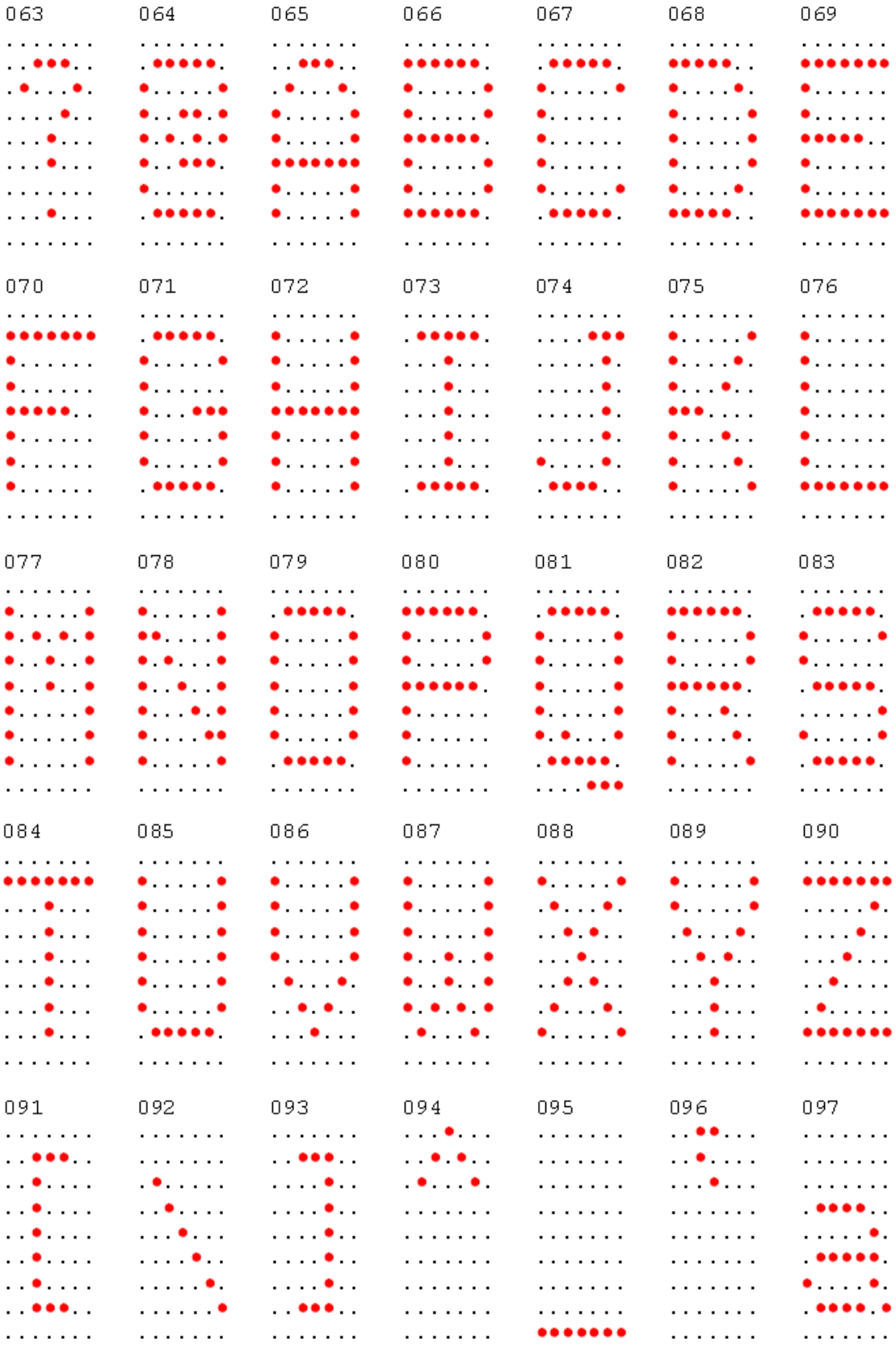
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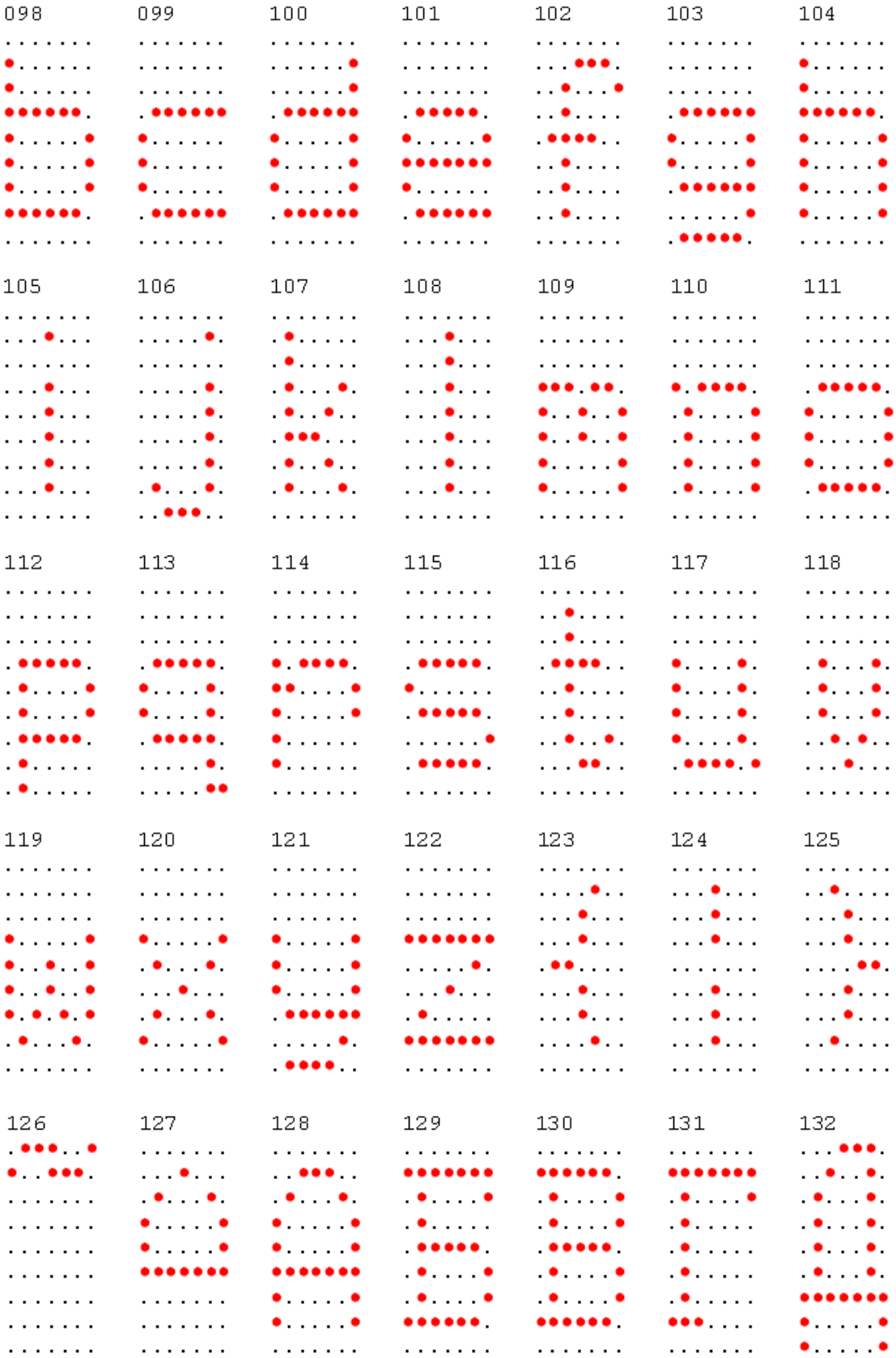
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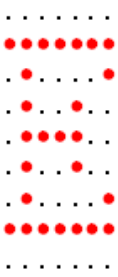

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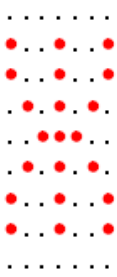

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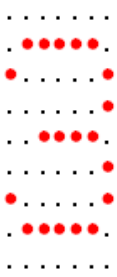

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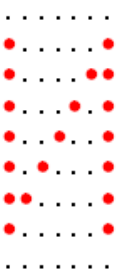

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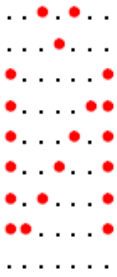

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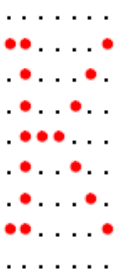

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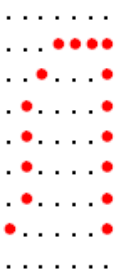

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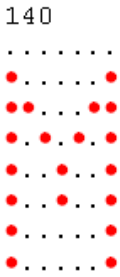

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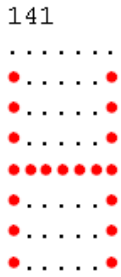

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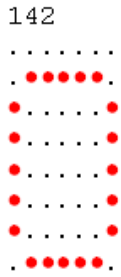

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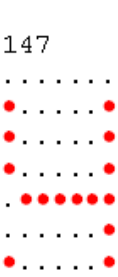

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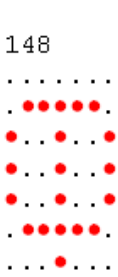

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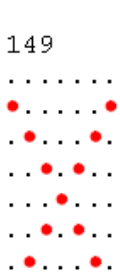

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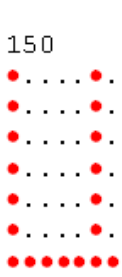

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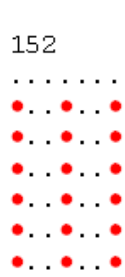

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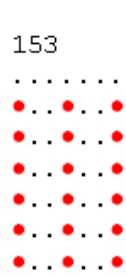

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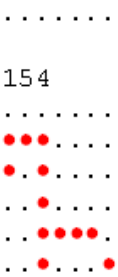

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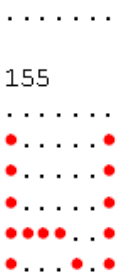

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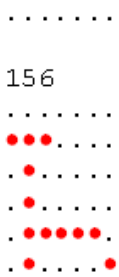

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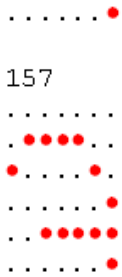

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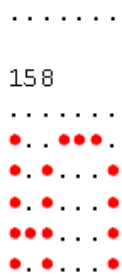

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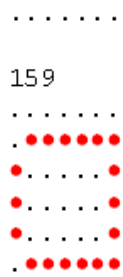

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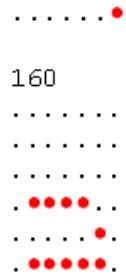

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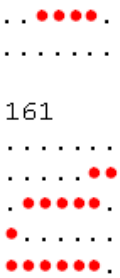

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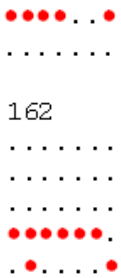

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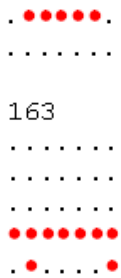

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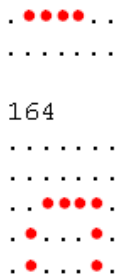

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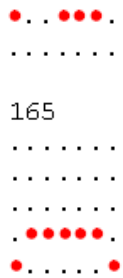

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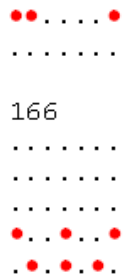

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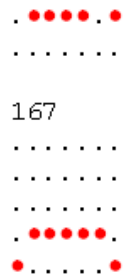

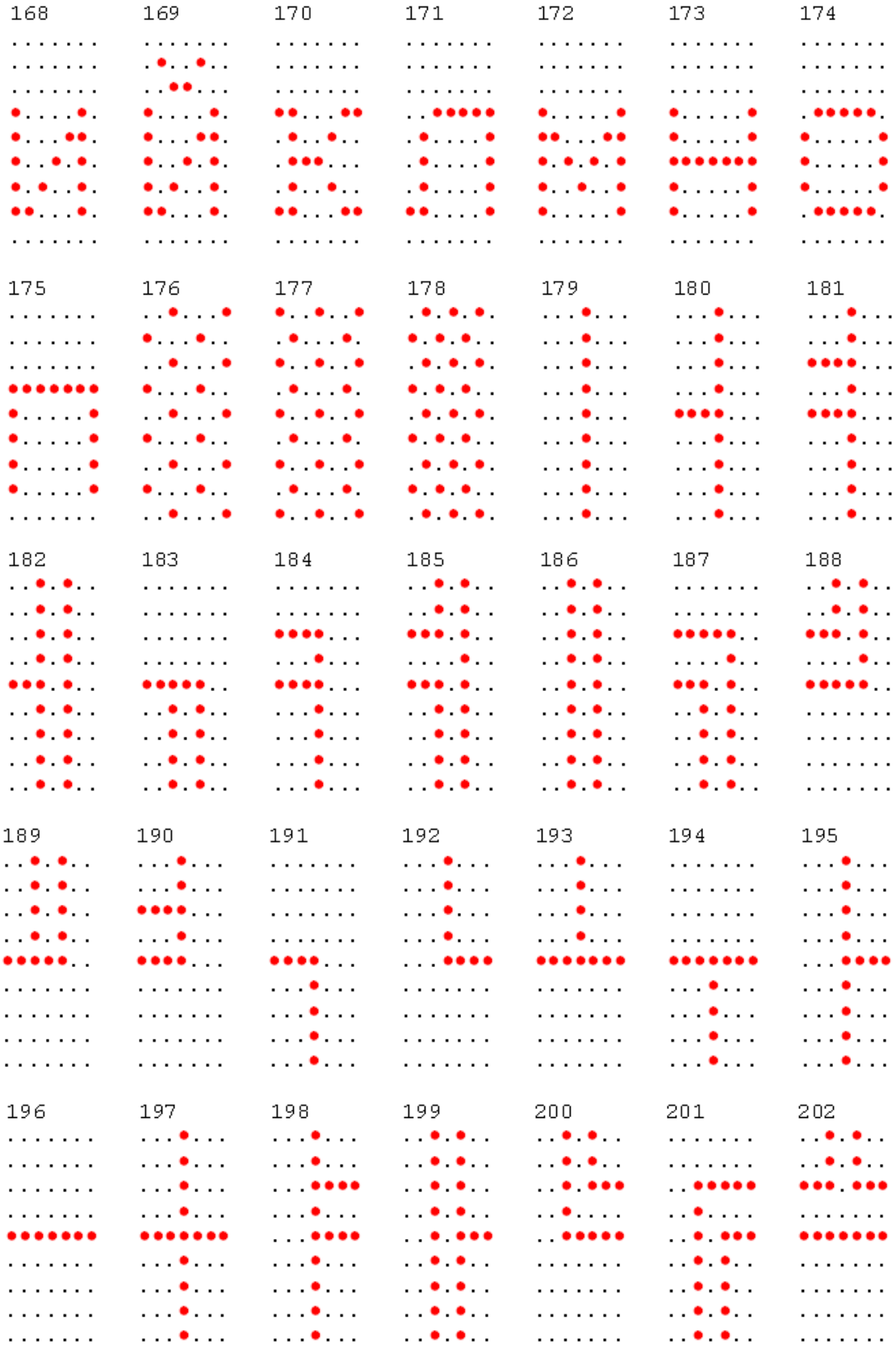
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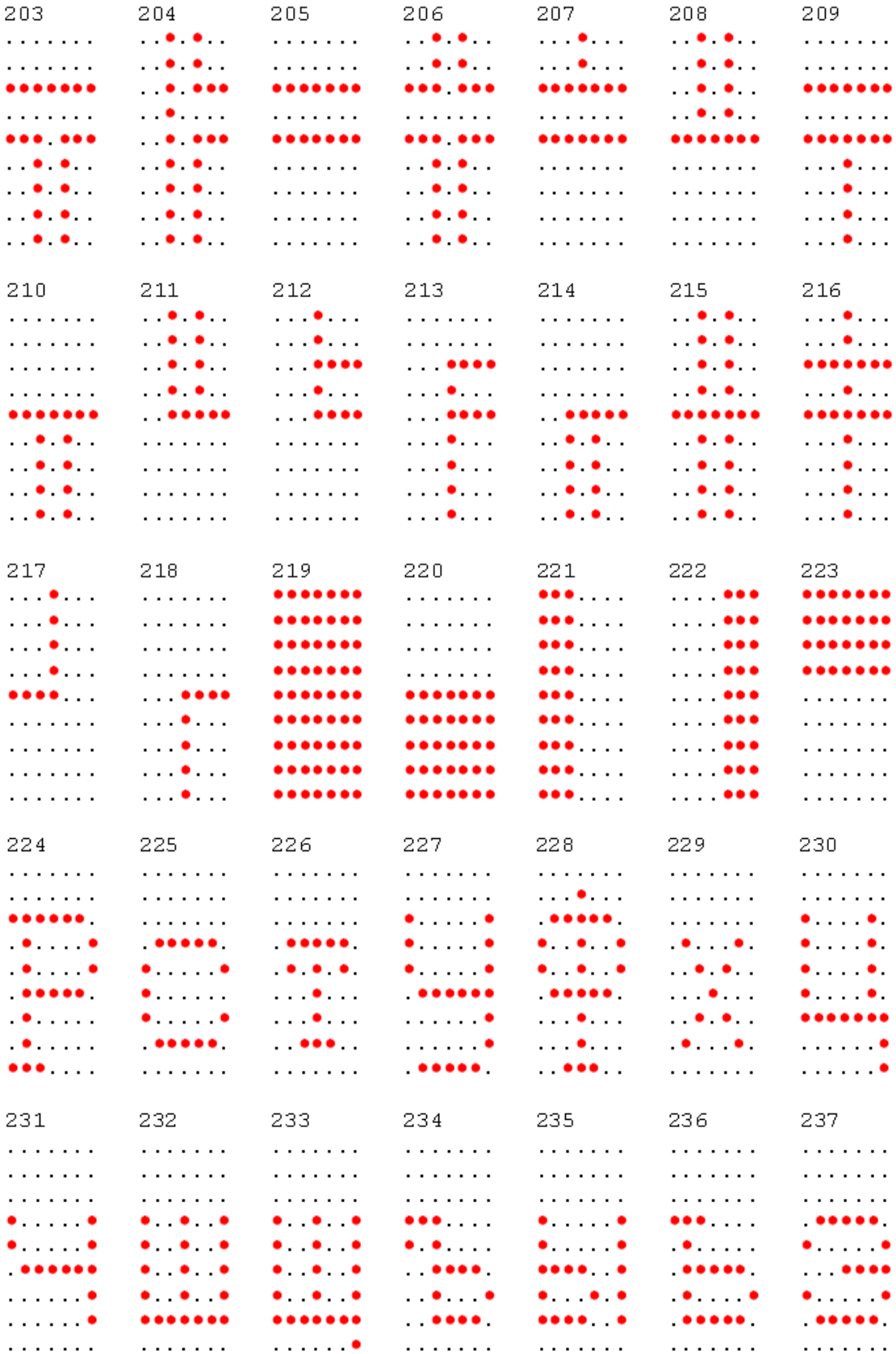
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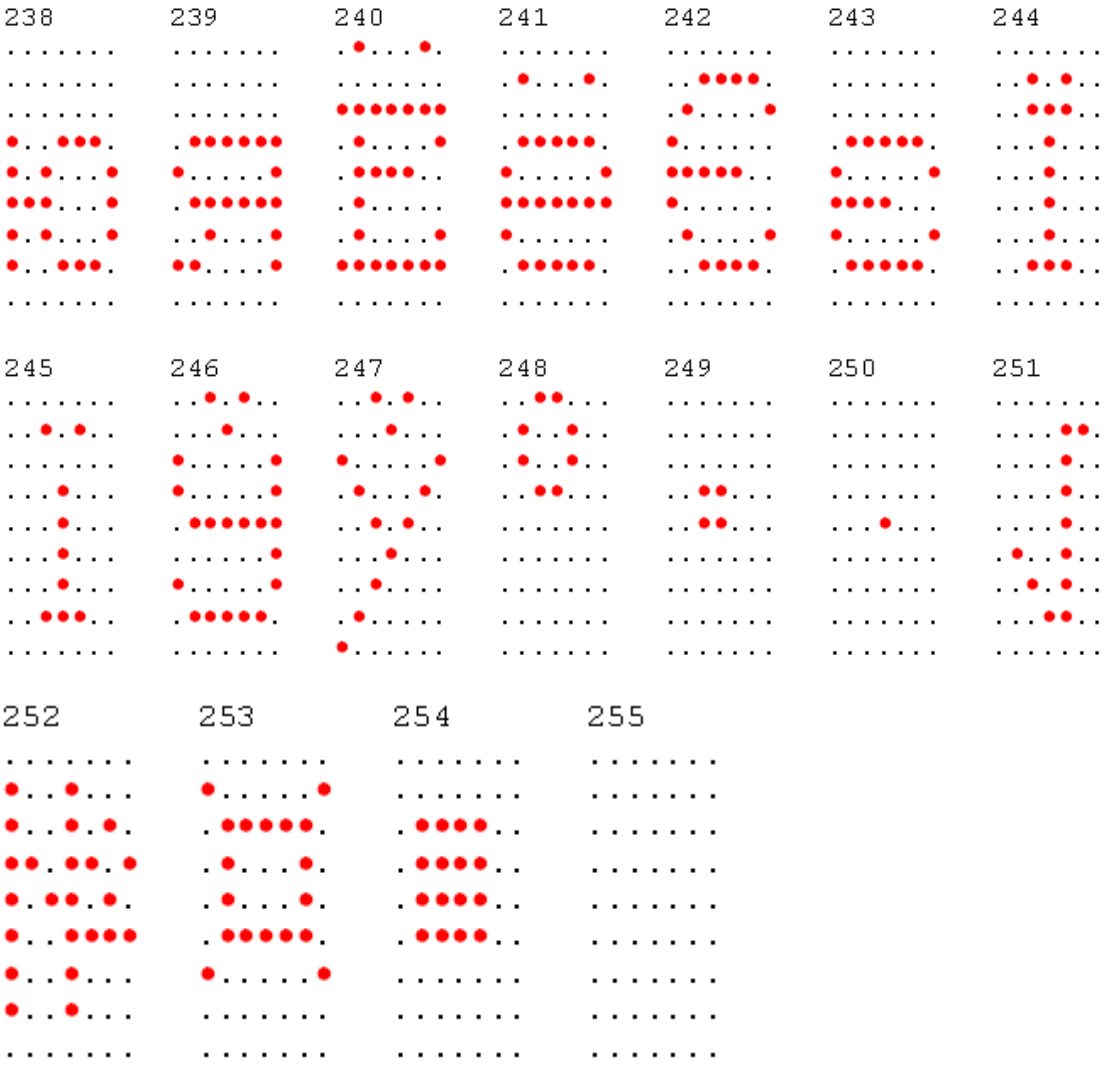
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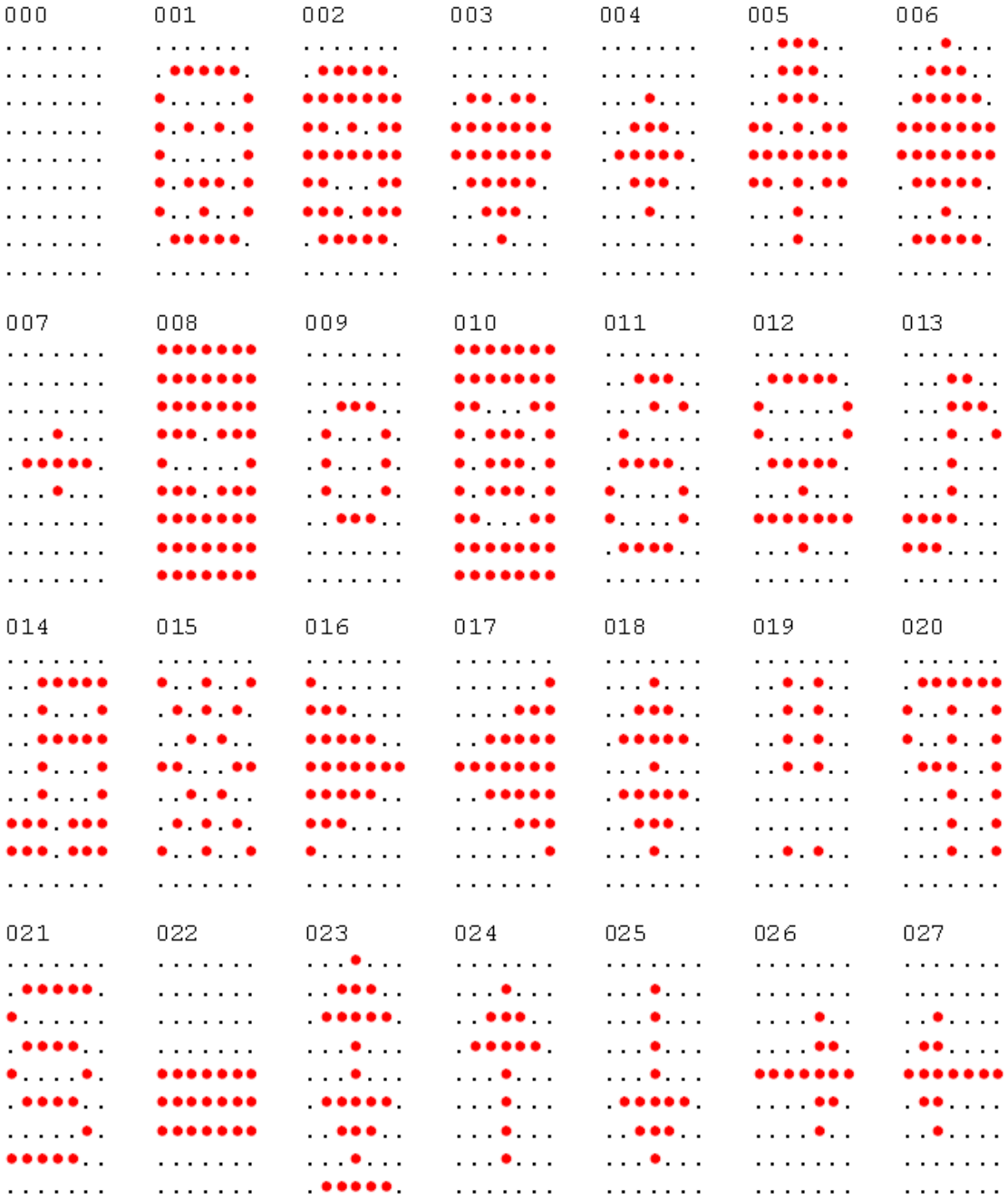

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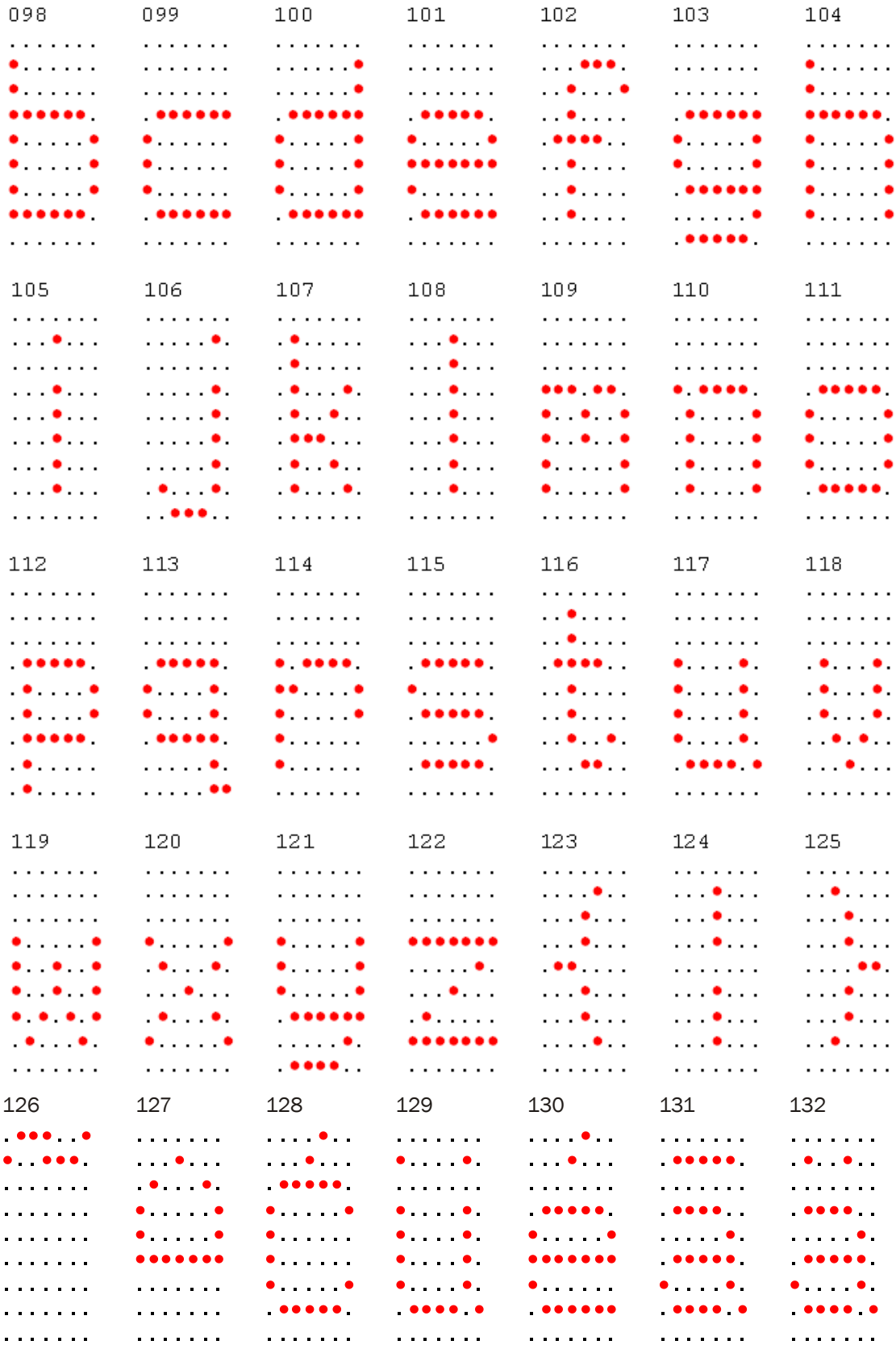
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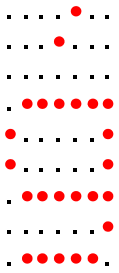

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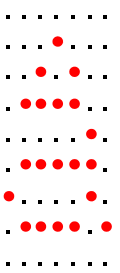

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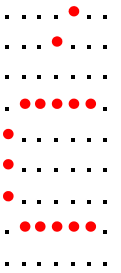

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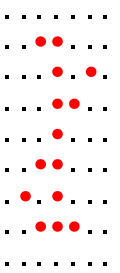

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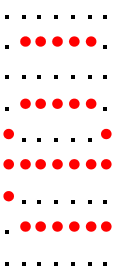

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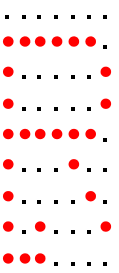

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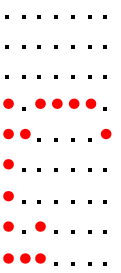

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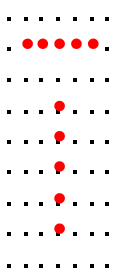

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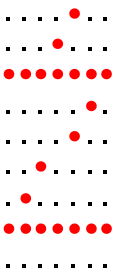

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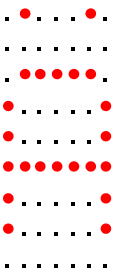

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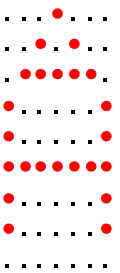

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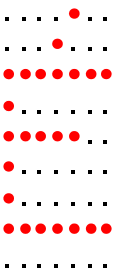

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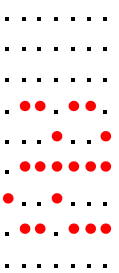

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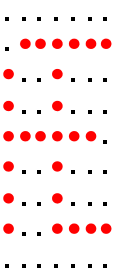

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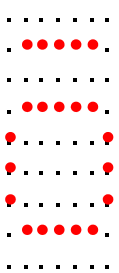

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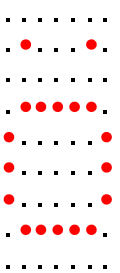

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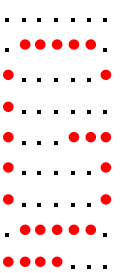

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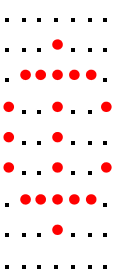

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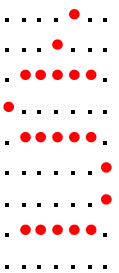

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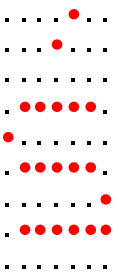

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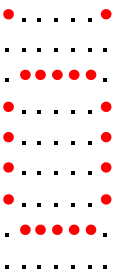

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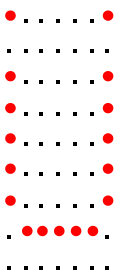

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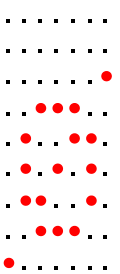

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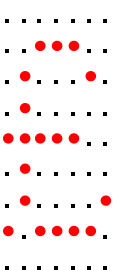

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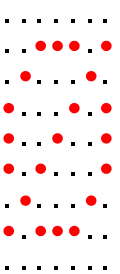

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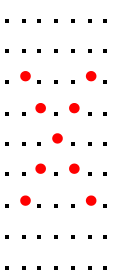

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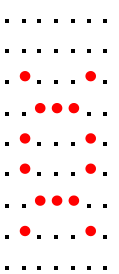

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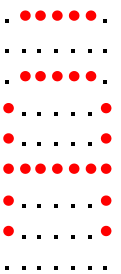

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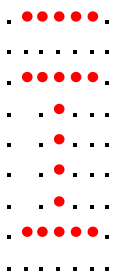

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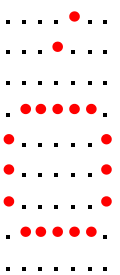

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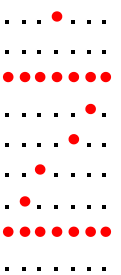

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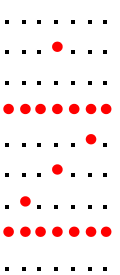

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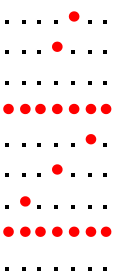

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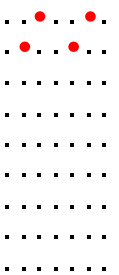

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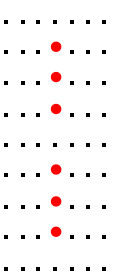

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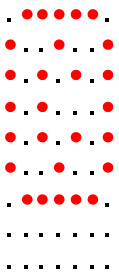

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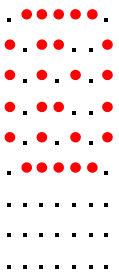

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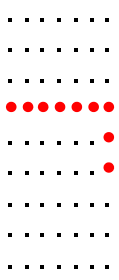

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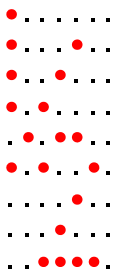

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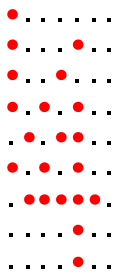

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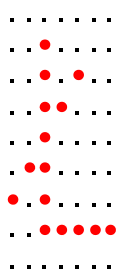

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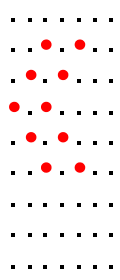

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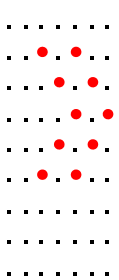

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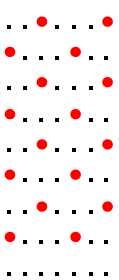

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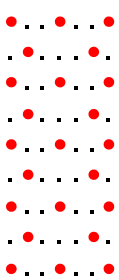

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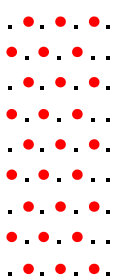

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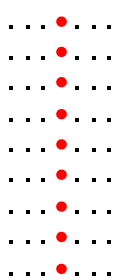

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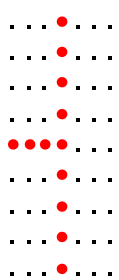

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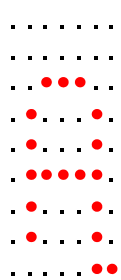

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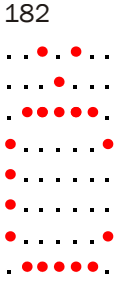

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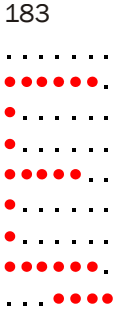

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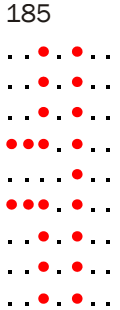

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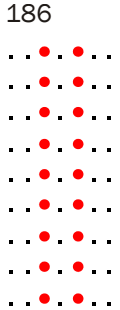

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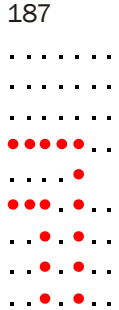

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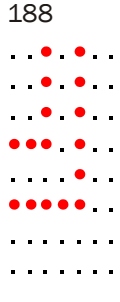

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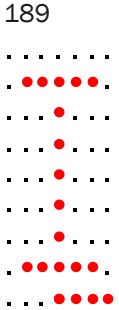

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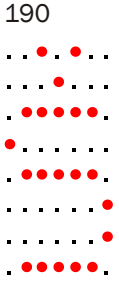

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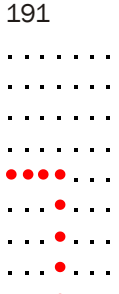

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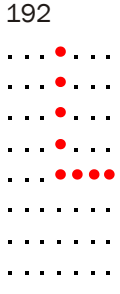

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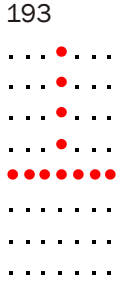

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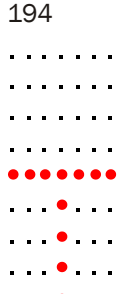

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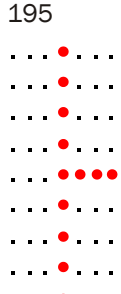

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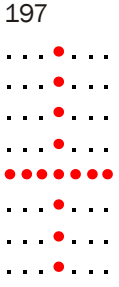

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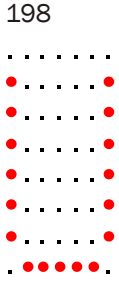

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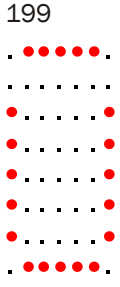

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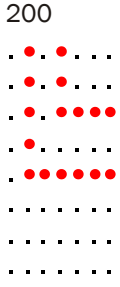

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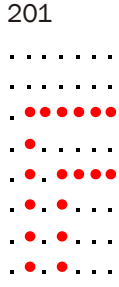

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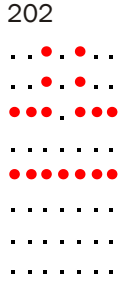

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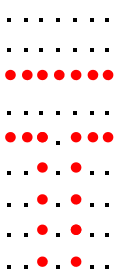

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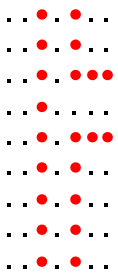

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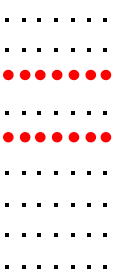

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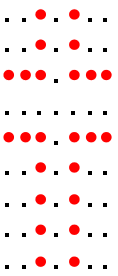

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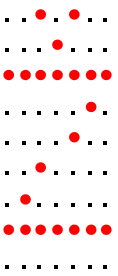

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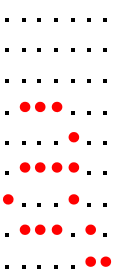

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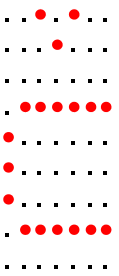

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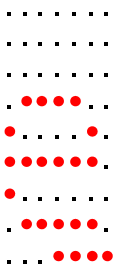

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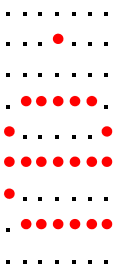

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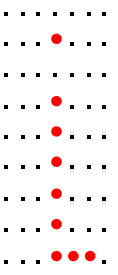

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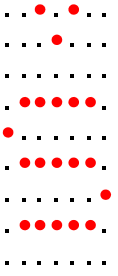

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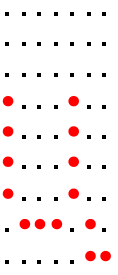

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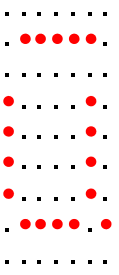

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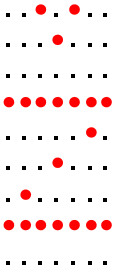

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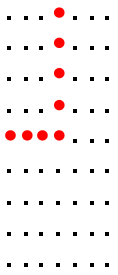

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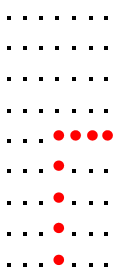

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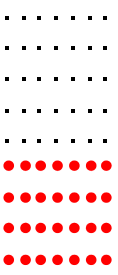

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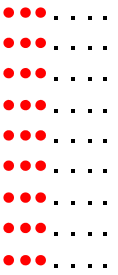

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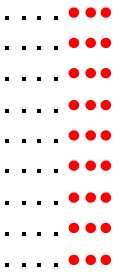

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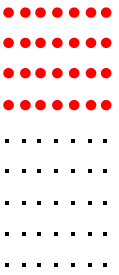

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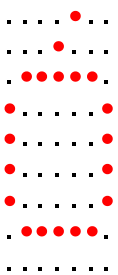

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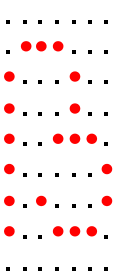

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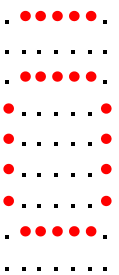

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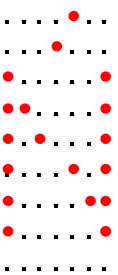

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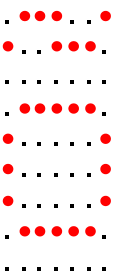

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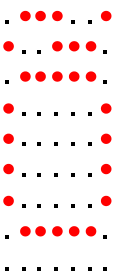

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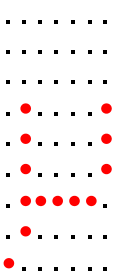

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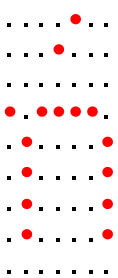

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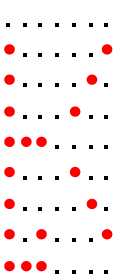

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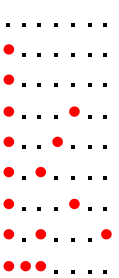

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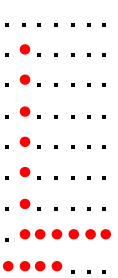

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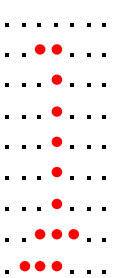

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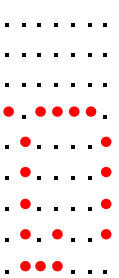

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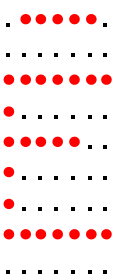

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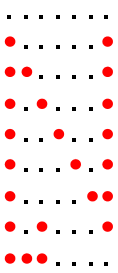

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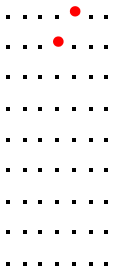

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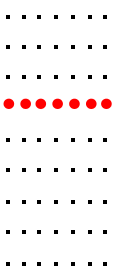

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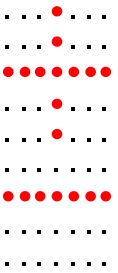

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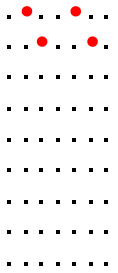

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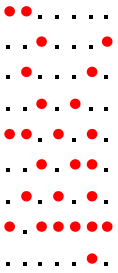

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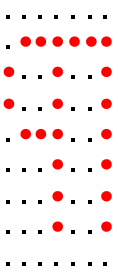

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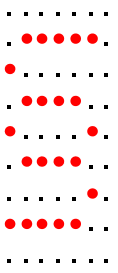

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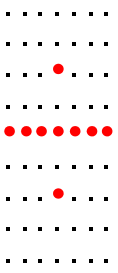

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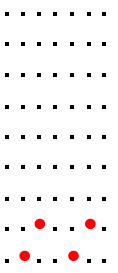

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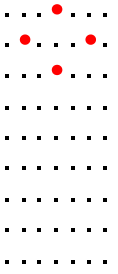

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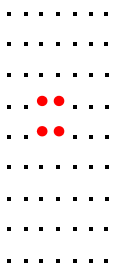

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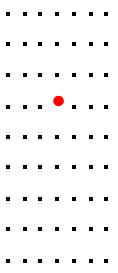

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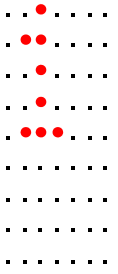

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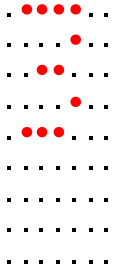

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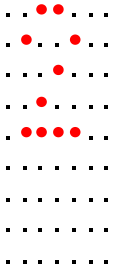

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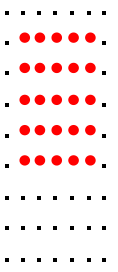

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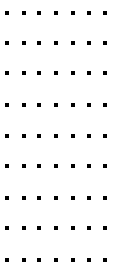

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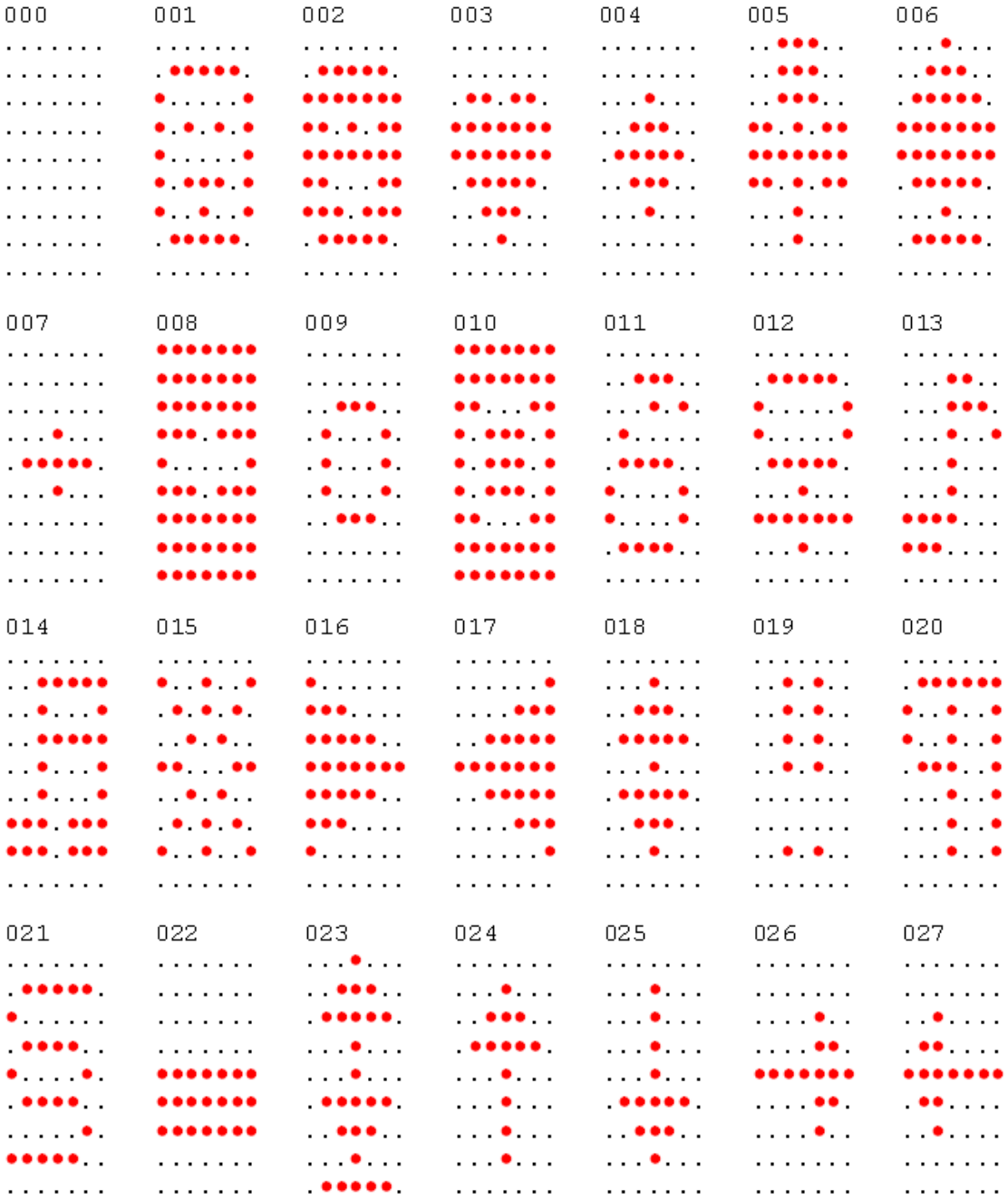

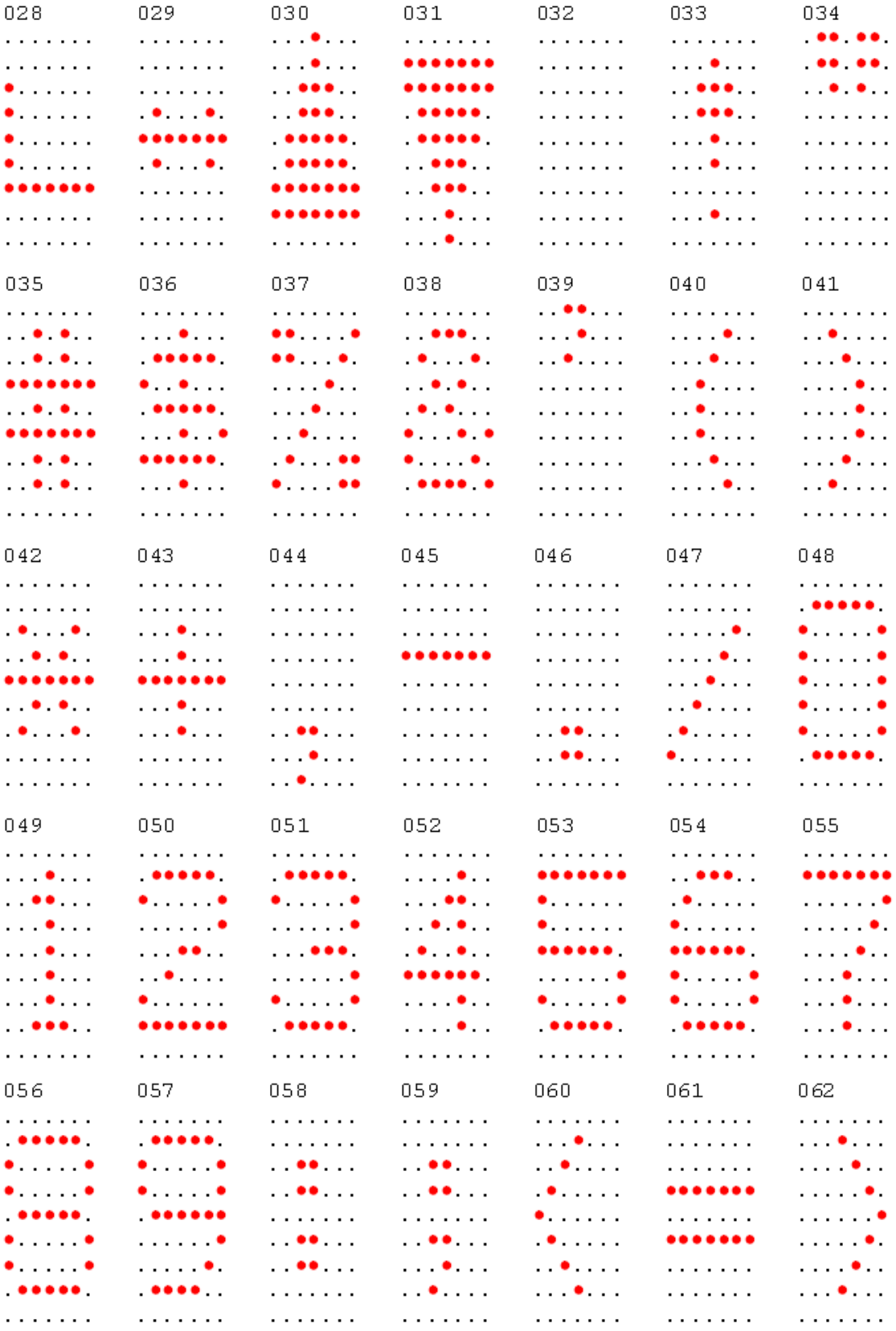
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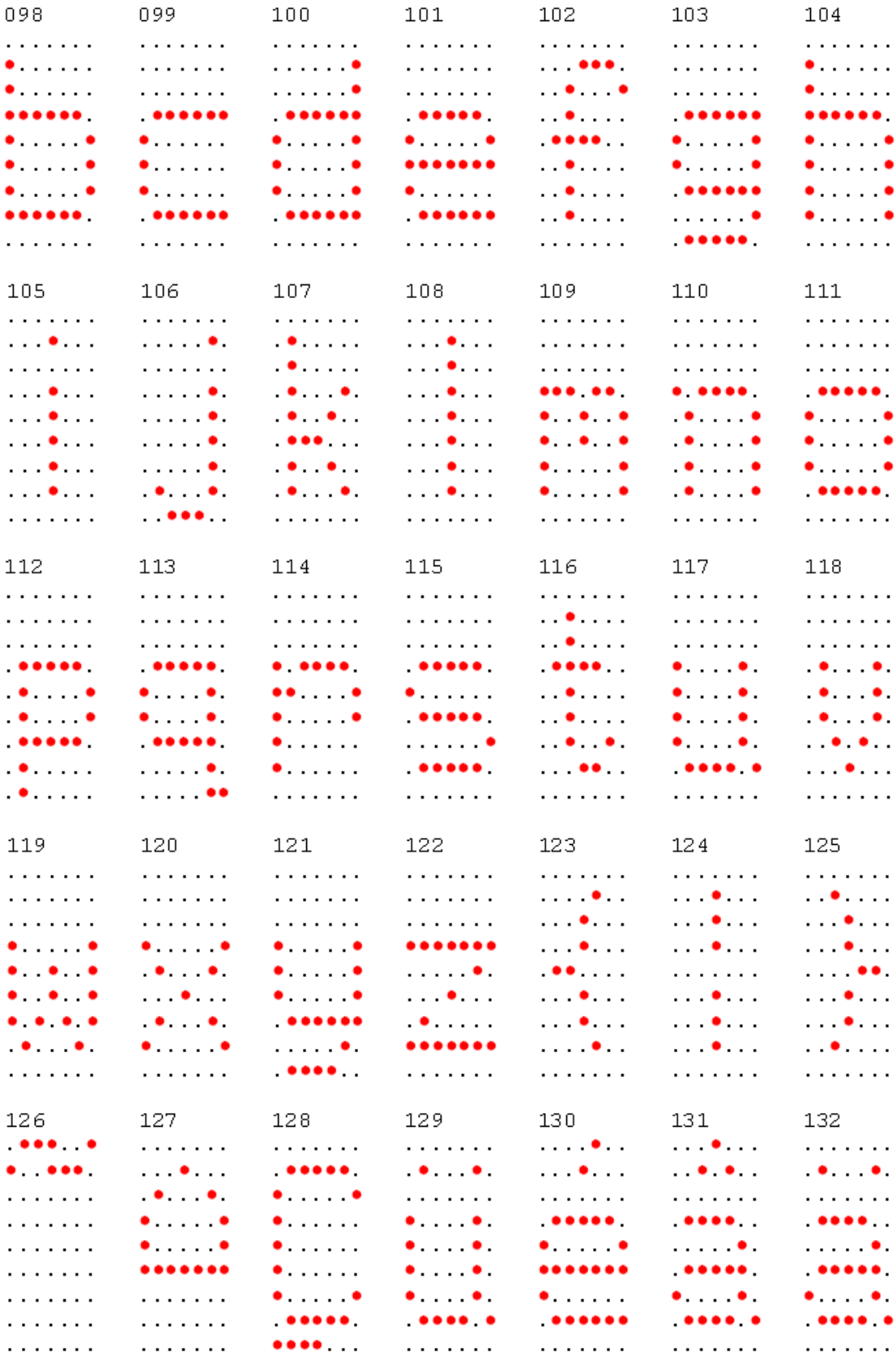
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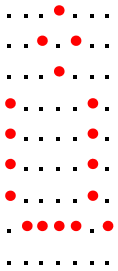

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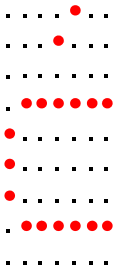

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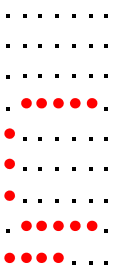

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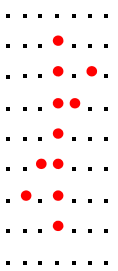

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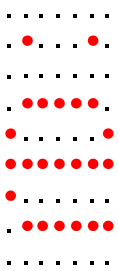

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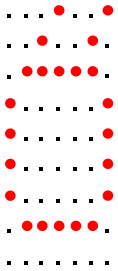

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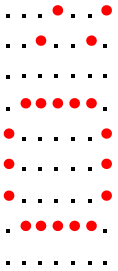

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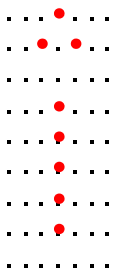

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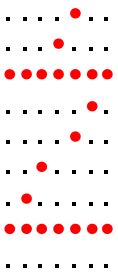

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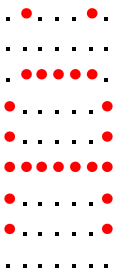

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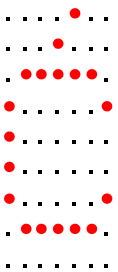

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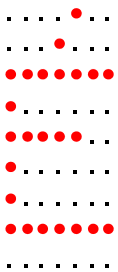

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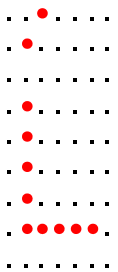

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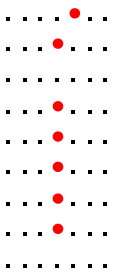

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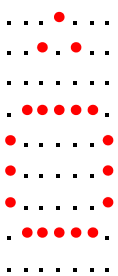

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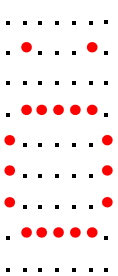

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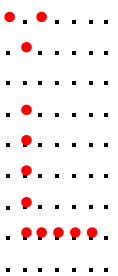

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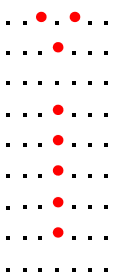

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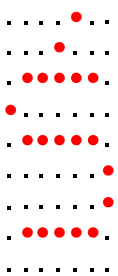

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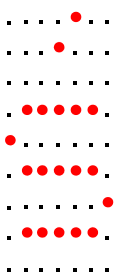

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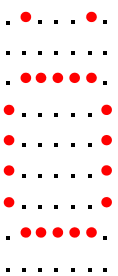

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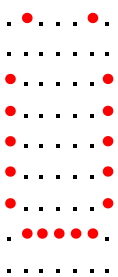

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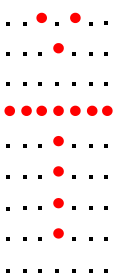

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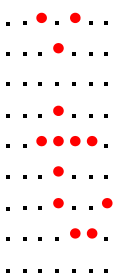

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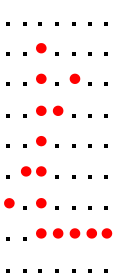

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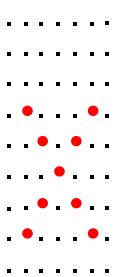

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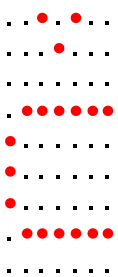

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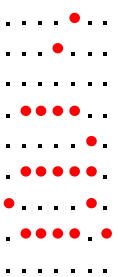

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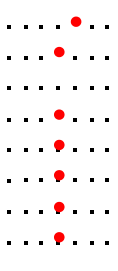

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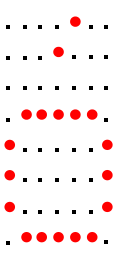

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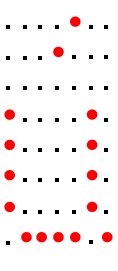

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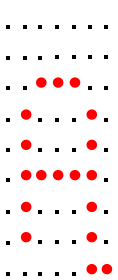

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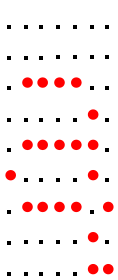

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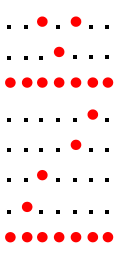

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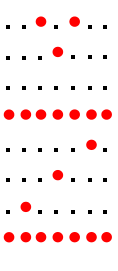

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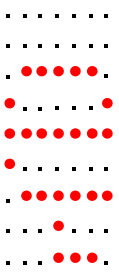

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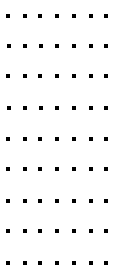

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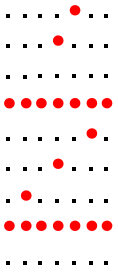

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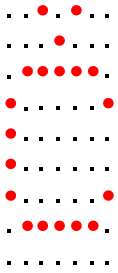

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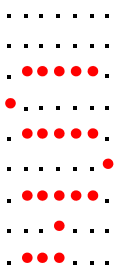

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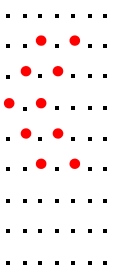

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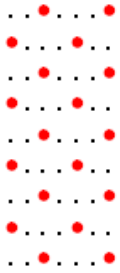

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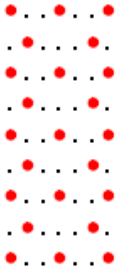

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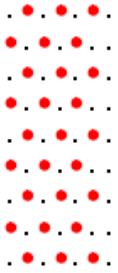

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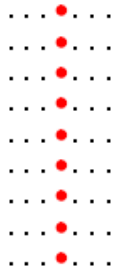

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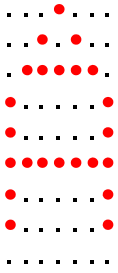

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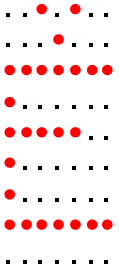

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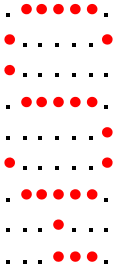

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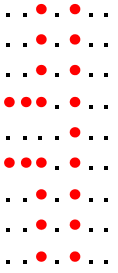

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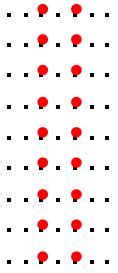

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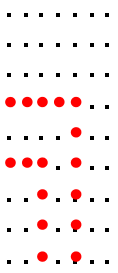

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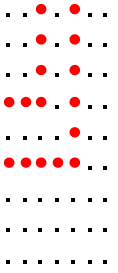

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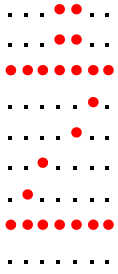

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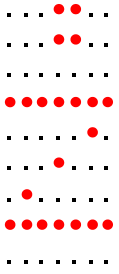

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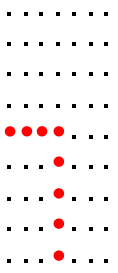

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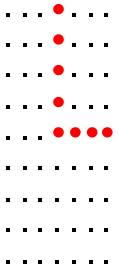

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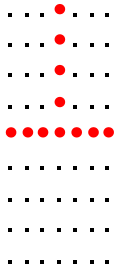

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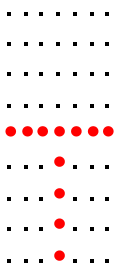

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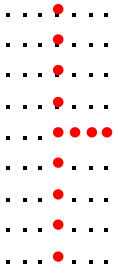

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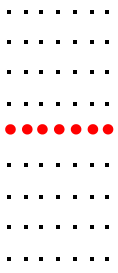

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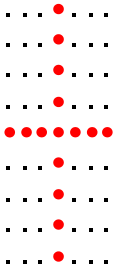

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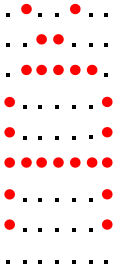

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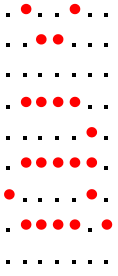

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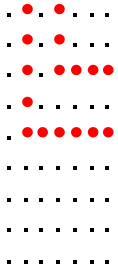

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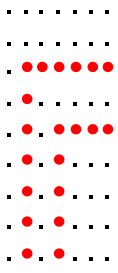

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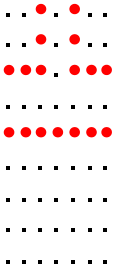

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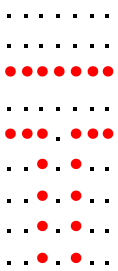

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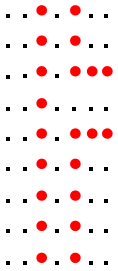

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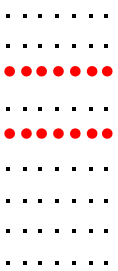

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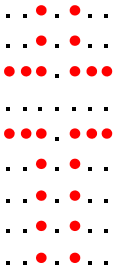

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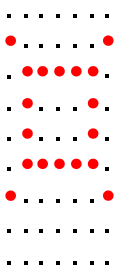

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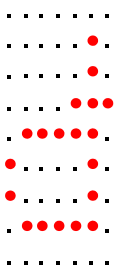

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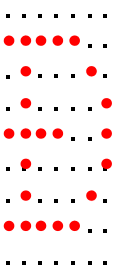

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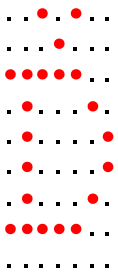

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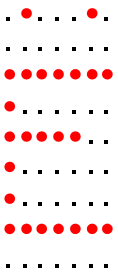

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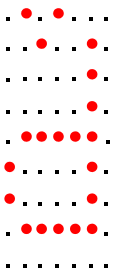

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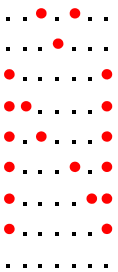

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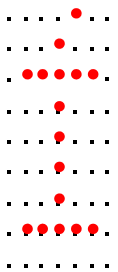

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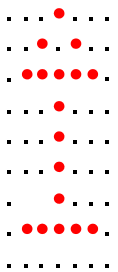

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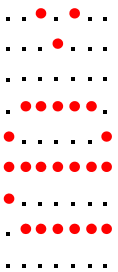

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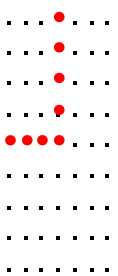

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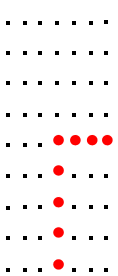

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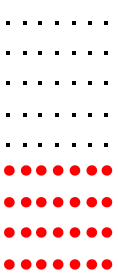

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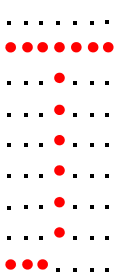

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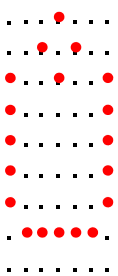

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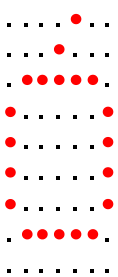

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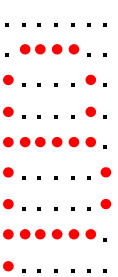

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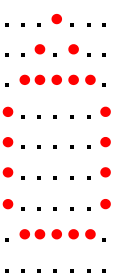

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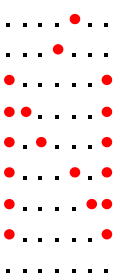

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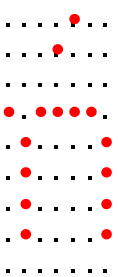

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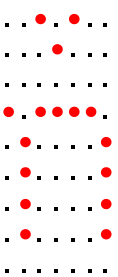

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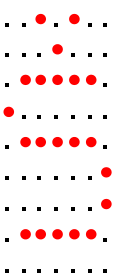

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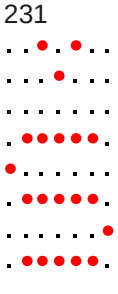

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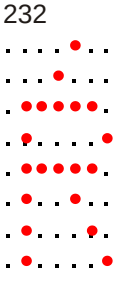

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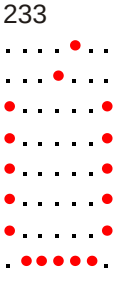

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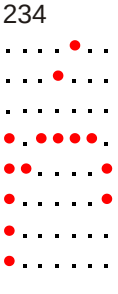

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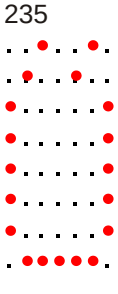

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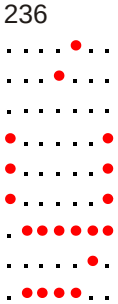

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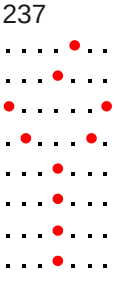

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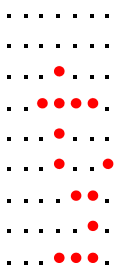

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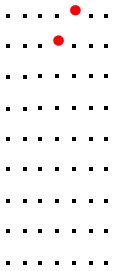

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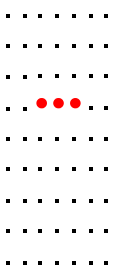

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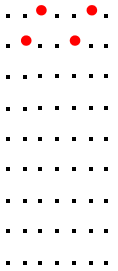

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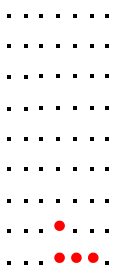

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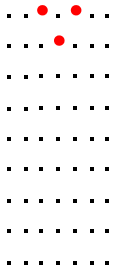

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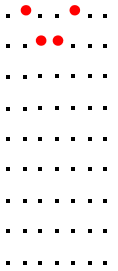

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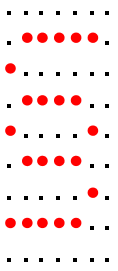

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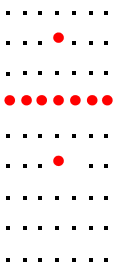

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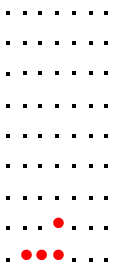

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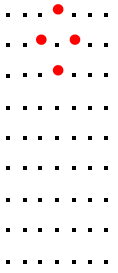

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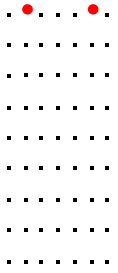

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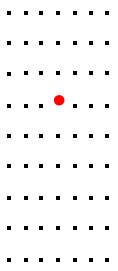

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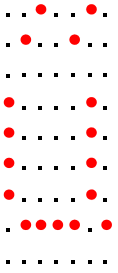

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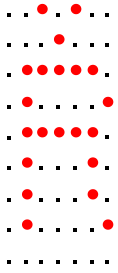

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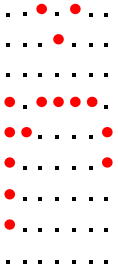

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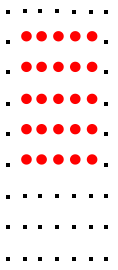

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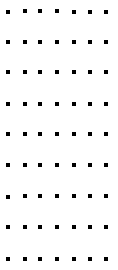

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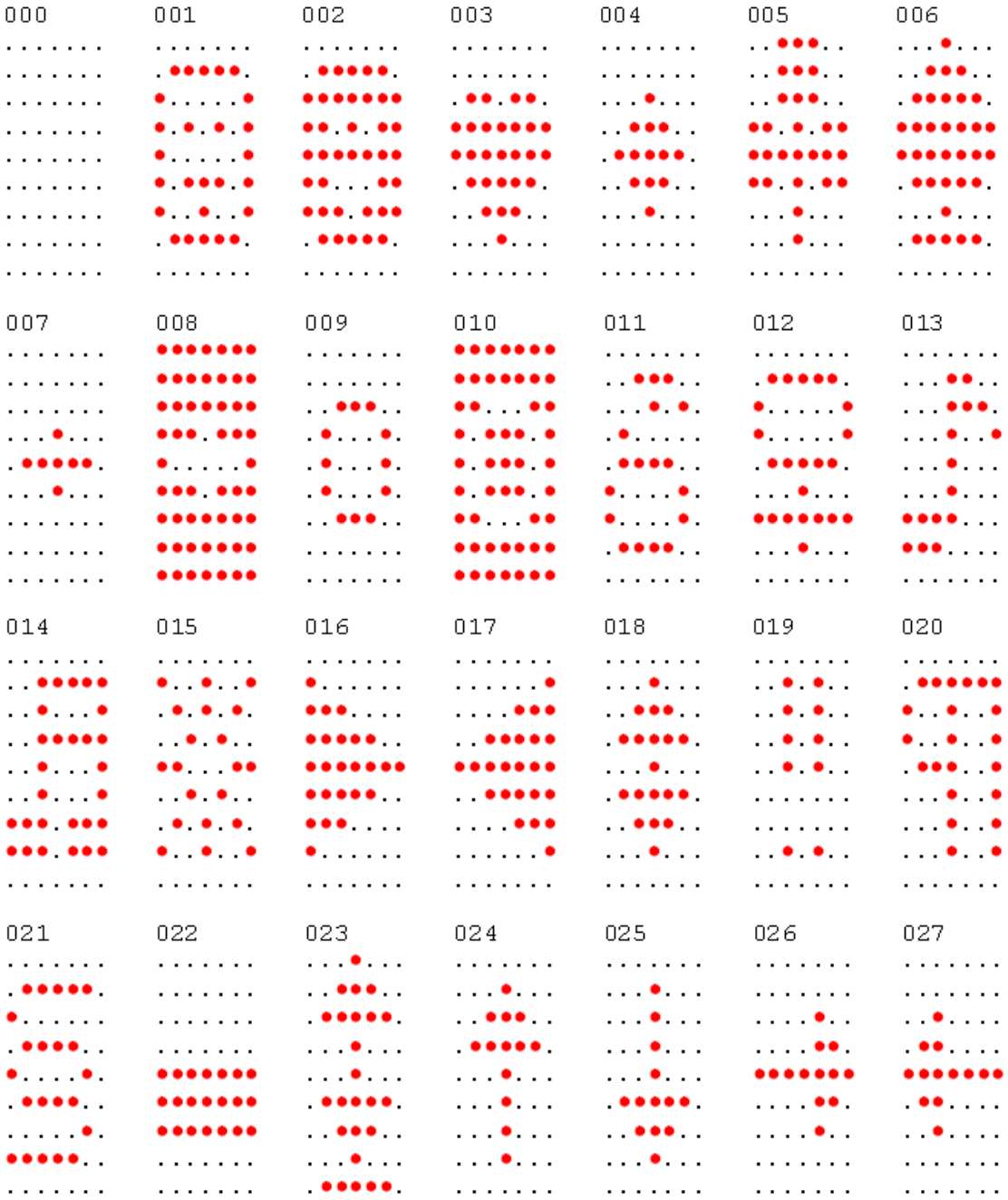

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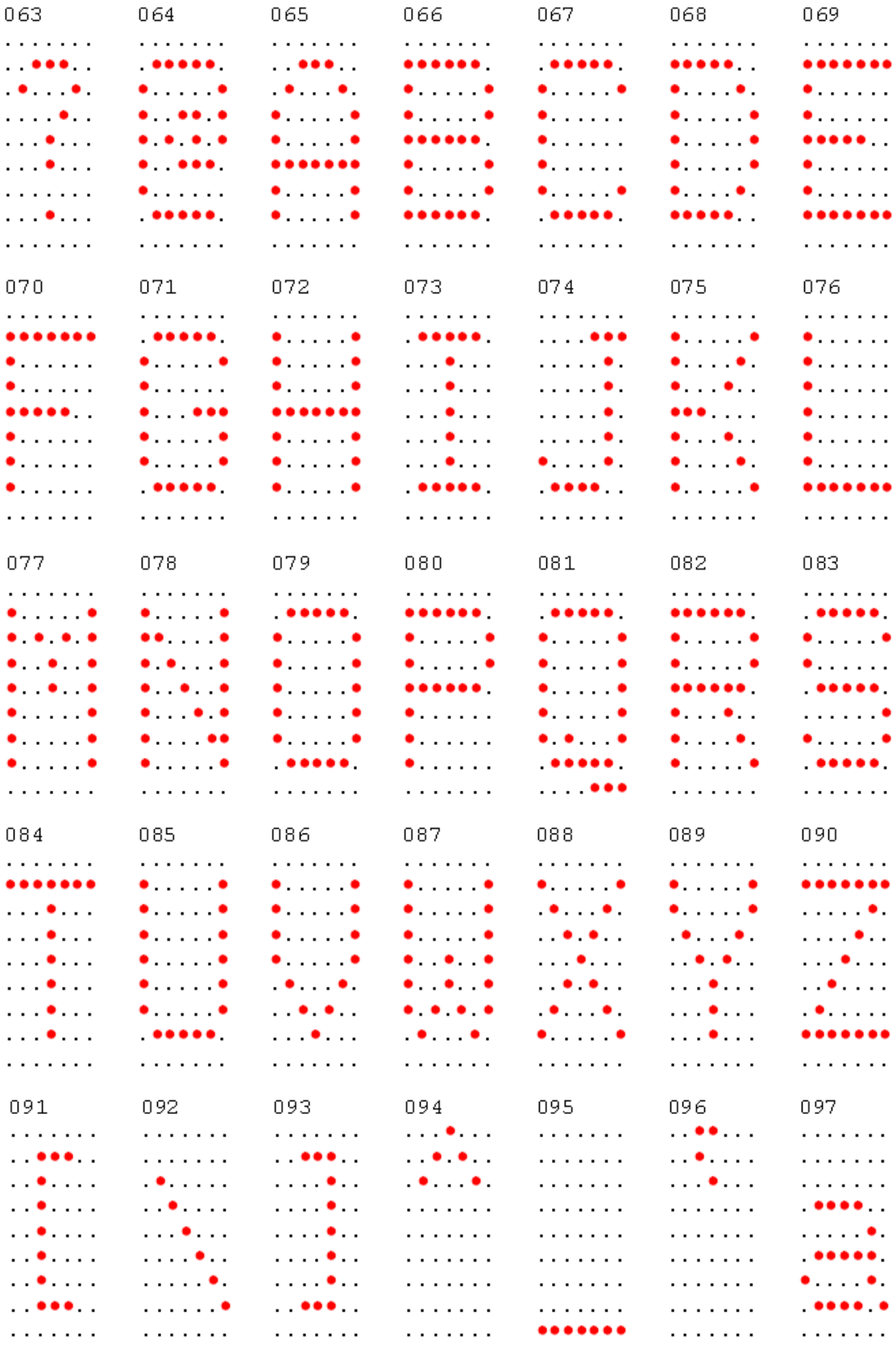
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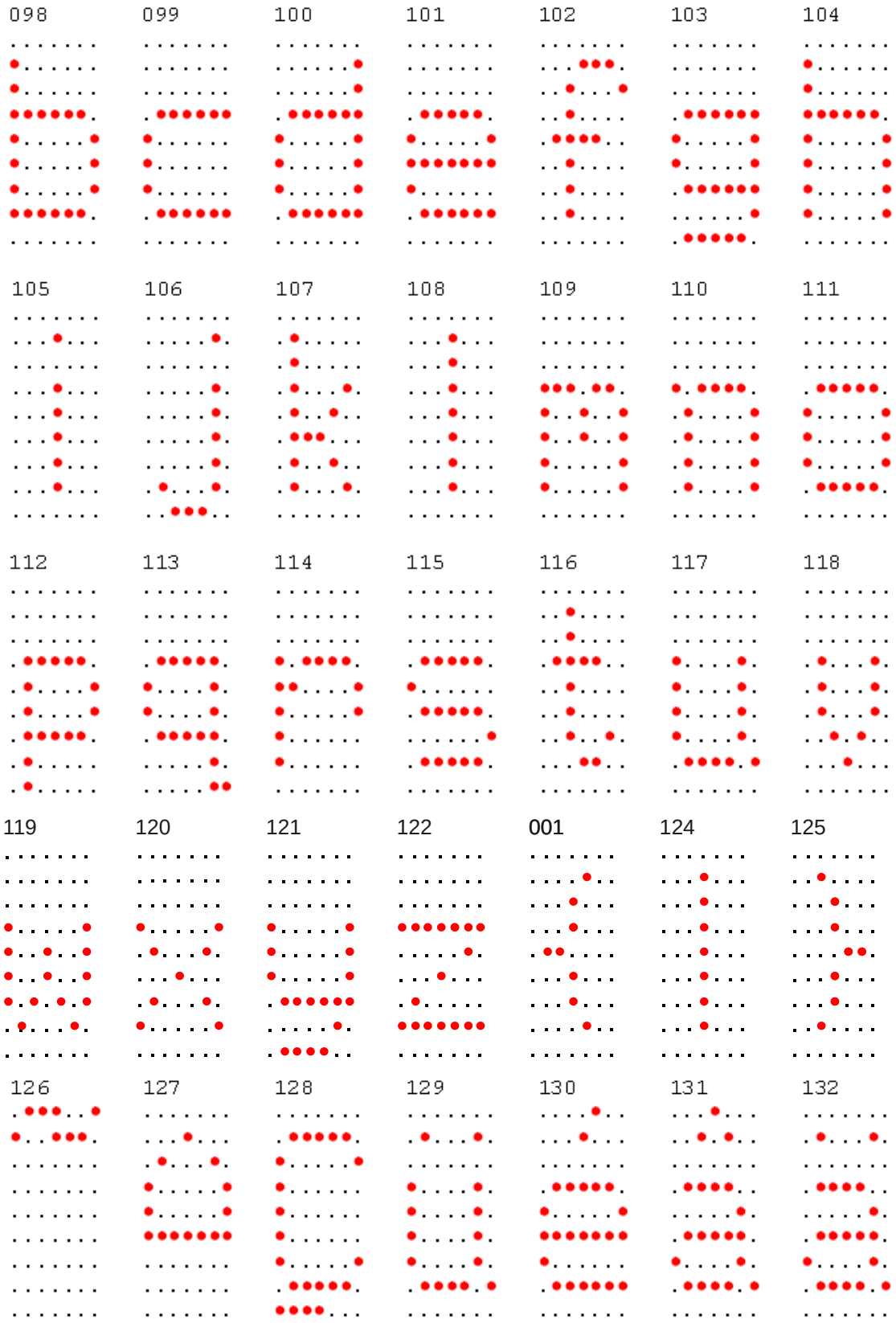
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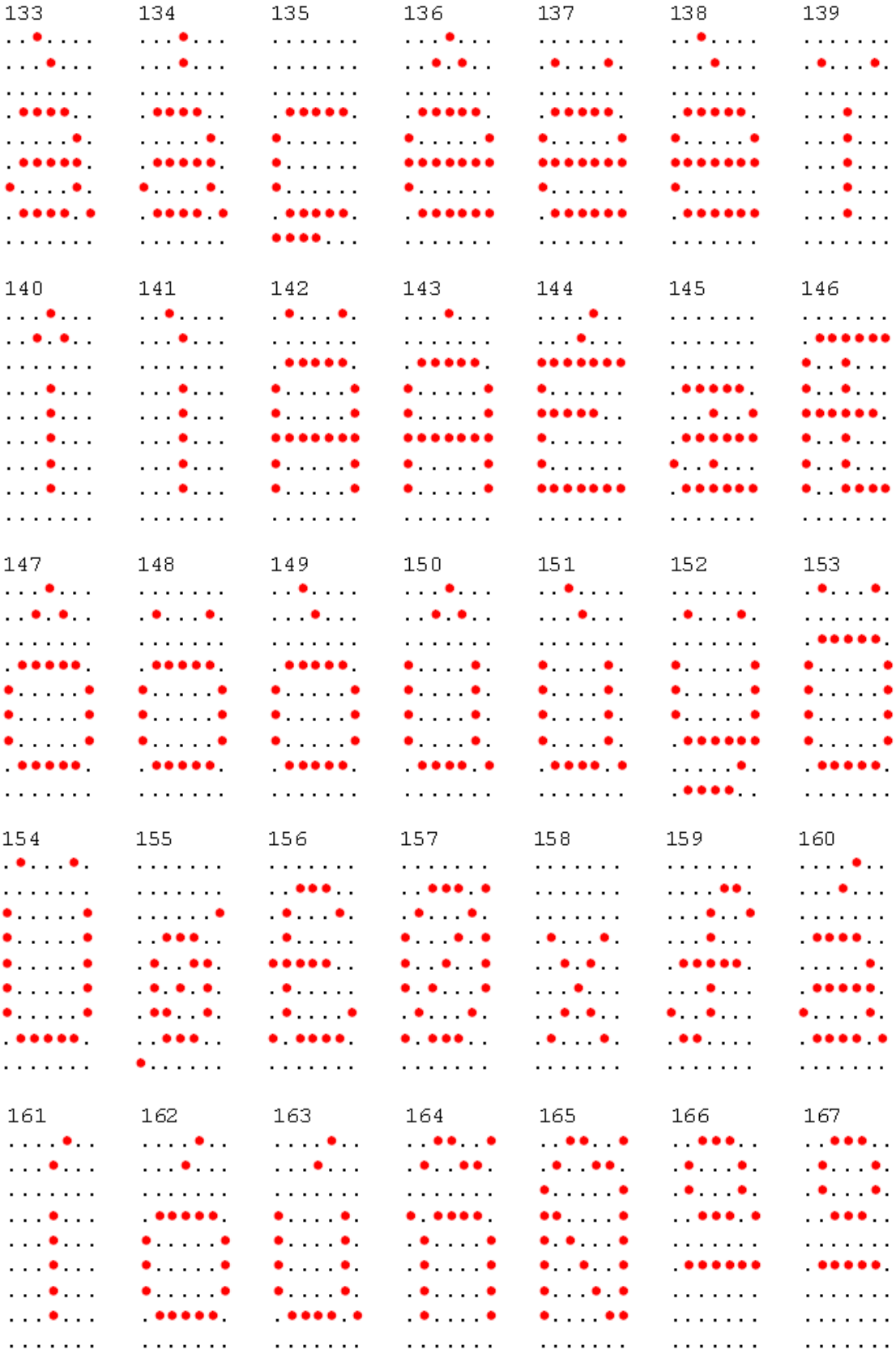
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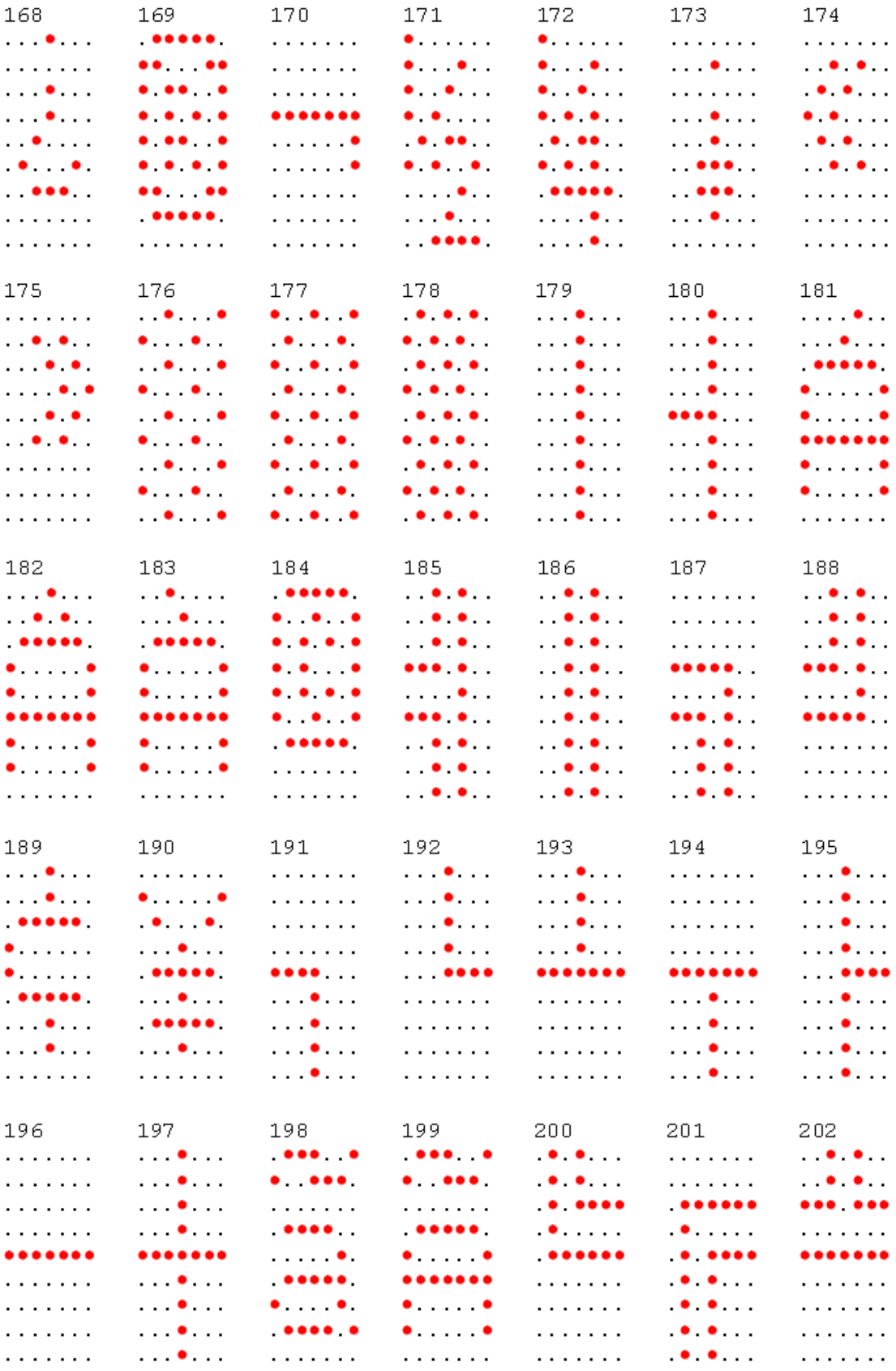
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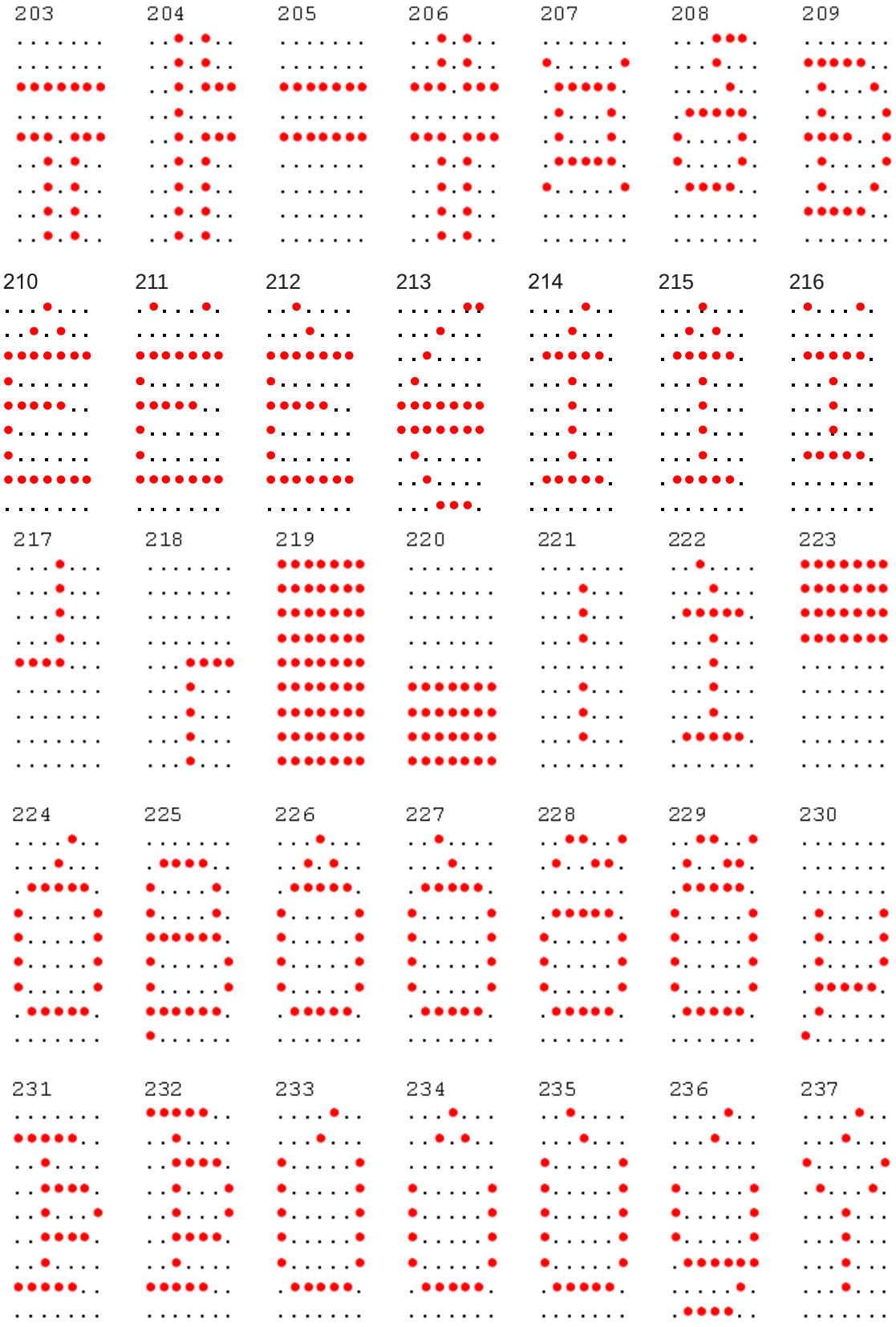
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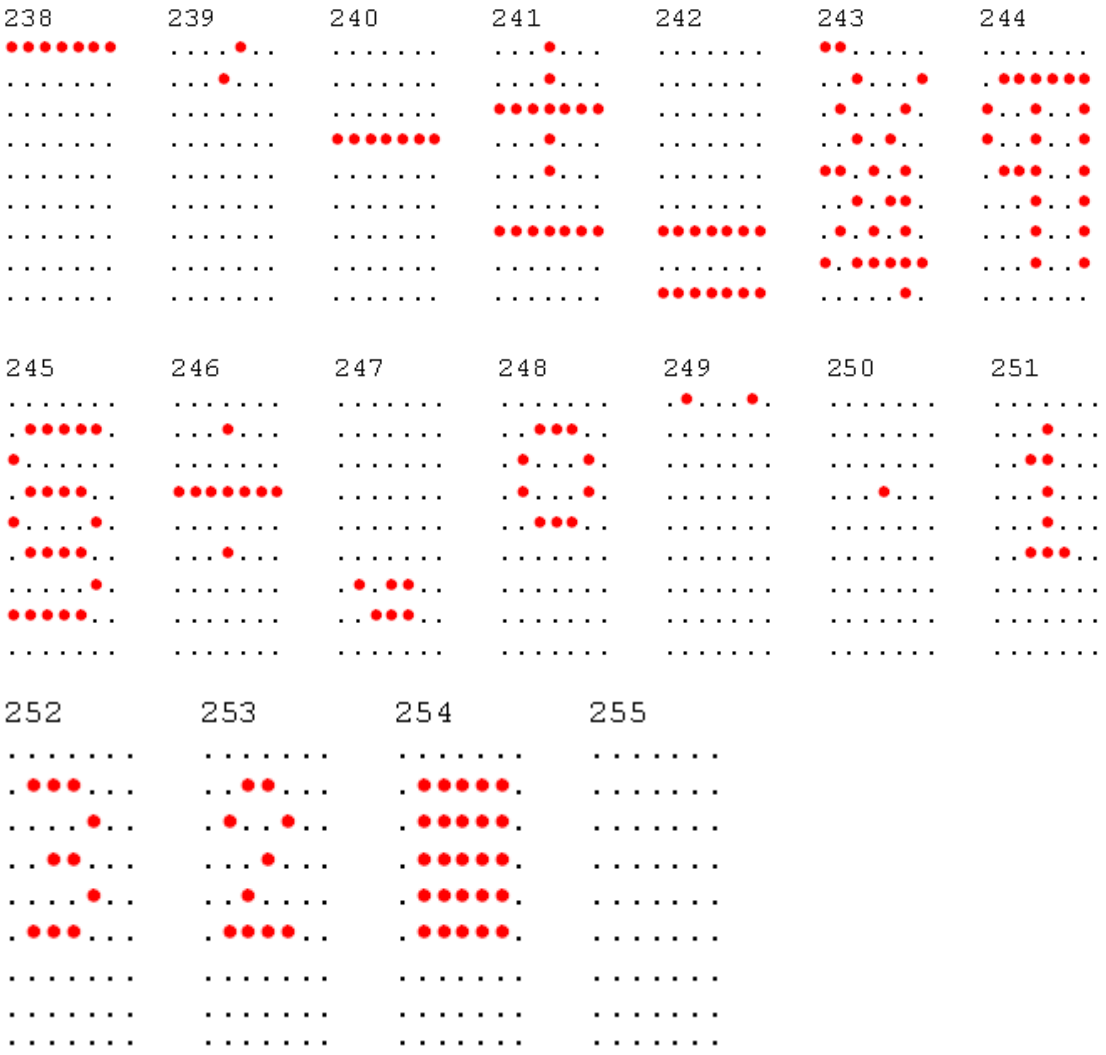
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Chapter 6: Retail Platform Software

Introduction

NCR provides the Retail Platform Software (RPS) for Windows and Linux that includes support for underlying architecture of the platform products like terminal configurations, gold drives, peripherals, and so forth.

Customers are required to download and install the latest version of the NCR Retail Platform Software from *http://www5.ncr.com/support/support_drivers_patches.asp*. The software includes support for the 5976 line display device.

Note: For the 5975 Compatibility Models (5976–1175–9090, 5976–1275–9090, 5976–1375–9090), customers are not required to download and install the RPS. For more information, refer to Chapter 8, "Service Support Utility."

Retail Platform Software for Windows (RPSW)

The following information products provide additional information on the installation and use of the Retail Platform Software for Windows:

- *NCR Retail Platform Software for Windows* (B005–0000–1634)
- *NCR Retail Systems Manager Software User's Guide* (B005–0000–1518)
- *NCR Retail Controls 3.x UPOS User's Guide for Windows* (B005–0000–1619)
- *OPOS Help File* (BD90–0264–C)

Note: Go to the NCR Information Products page at *http://info.ncr.com* to access these publications.

Retail Platform Software for Linux (RPSL)

The following information products provide additional information on the installation and use of the Retail Platform Software for Linux:

- *NCR FitClient Software User's Guide* (B005–0000–1235)
- *Linux Software User's Guide* (B005–0000–1432)
- *NCR Retail Controls 3.x UPOS User's Guide for Linux* (B005–0000–1489)

Note: Go to the NCR Information Products page at *http://info.ncr.com* to access these publications.

Installation Procedure

Downloading the Installer for Retail Platform Software

The 5976 Retail Platform Software can be downloaded from the NCR website. Perform these steps to download the software:

1. Go to *http://www5.ncr.com/support/support_drivers_patches.asp.*
2. Select **Retail Support Files (Drivers, Firmware, Operating Systems, Platform Software (OPOS/JavaPOS), BIOS, etc.).**
3. Select **NCR RealPOS and SelfServ Platform Software (Windows RPSW (OPOS/JavaPOS), DOS and Linux RPSL (JavaPOS)).**

   The window displays the following options.

   - Windows (OPOS/JavaPOS)
   - Linux (JavaPOS)
   - DOS
   - Java
4. Select the corresponding operating system of your terminal.
5. Download the installer designed for your system.

   ### Linux

   To obtain the installer for Linux, please contact NCR

   ### Windows

   a. Select **Released/Supported**.

   b. Select the RPSW version for your system.

   c. Select **Retail Platform Software for Windows.msi.**
6. Save the downloaded file to a working directory on the terminal hard drive.

   Note: You can extract to or run the files from a Flash Drive, CDROM, or network if desired.

Installing the Retail Platform Software

Windows

For instructions on how to install the Retail Platform Software for Windows (RPSW), refer to Chapter 2, "RPSW Installation" in the *NCR Retail Platform Software for Windows User Guide* (B005–0000–1634).

Linux

Before you install the Retail Platform Software for Linux (RPSL), make sure to provide the following requirements:

- Root permissions
- NCR RealPOS (SUSE Linux Enterprise for Point of Service 11 SP1) Run Time Image 01.00.00.00 or greater (kernel 2.6.32.12–0.7)
- Sun JVM 1.4.2_03–b02 or greater
- 70 MB of free disk space (Full Install)

Graphical User Interface Mode

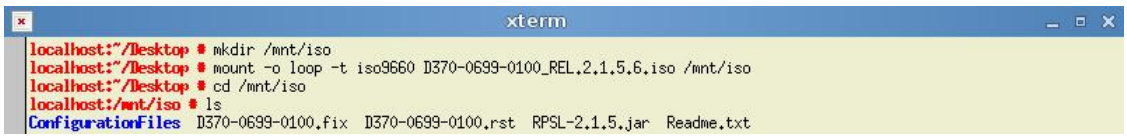
1. Open a terminal.
2. Create a new directory by entering the command:

   `mkdir <destination directory>`

   Note: The RPSL is installed at the destination directory. In this example, the directory is named `/mnt/iso`.
3. Extract the downloaded installer to the new directory by entering the command:

   `mount –o –loop –t iso9660 D370–0699–0100_REL.2.1.5.6.iso <destination directory>`

   Note: In this example, D370–0699–0100_REL 2.1.5.6 is the downloaded version. Other versions might be available.
4. Enter `cd <destination directory>`.



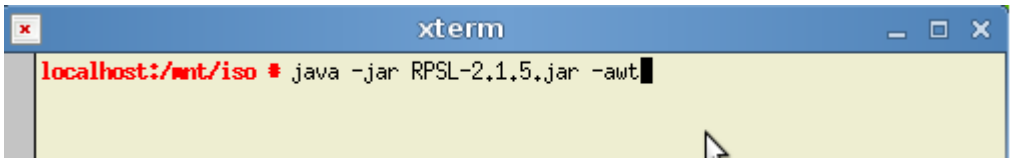
5. Enter the command:

   `<java directory>/java –jar <path to package>/RPSL–2.1.5.jar –awt`

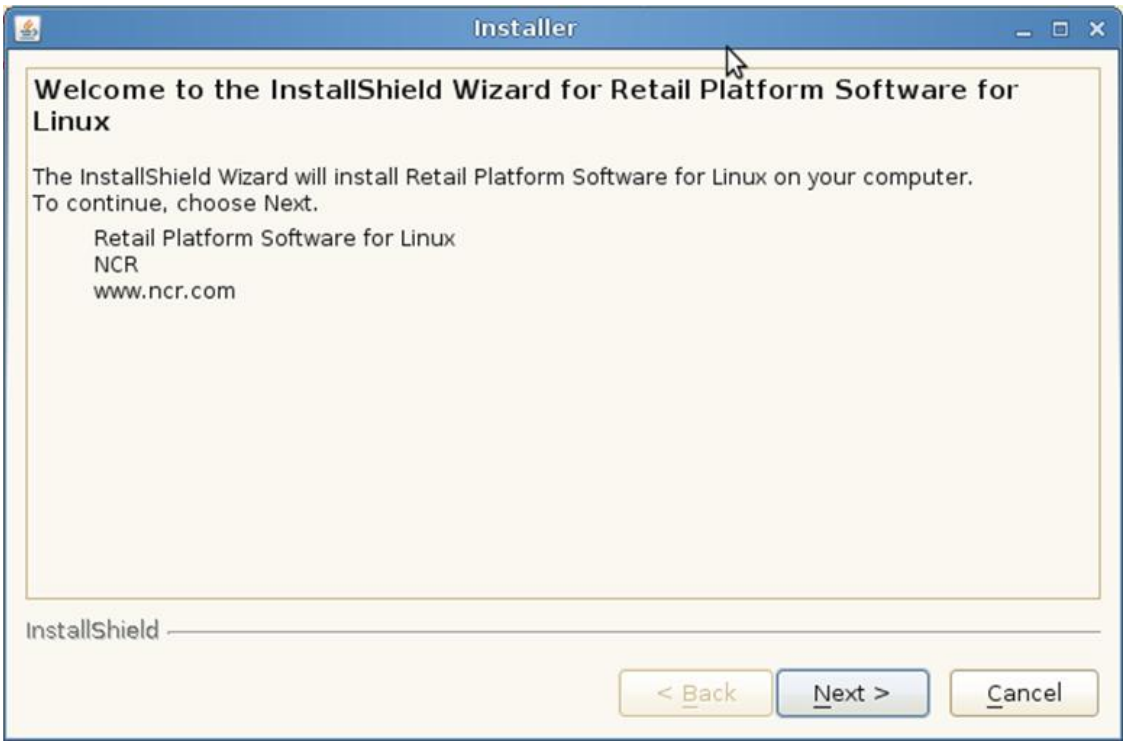
   Note: In this example, `RPSL–2.1.5.jar` is the downloaded version. Other versions might be available.

   Note: In the *<java directory>*, specify the directory path of the java binary. Only include this parameter if $JAVA_HOME is not set.

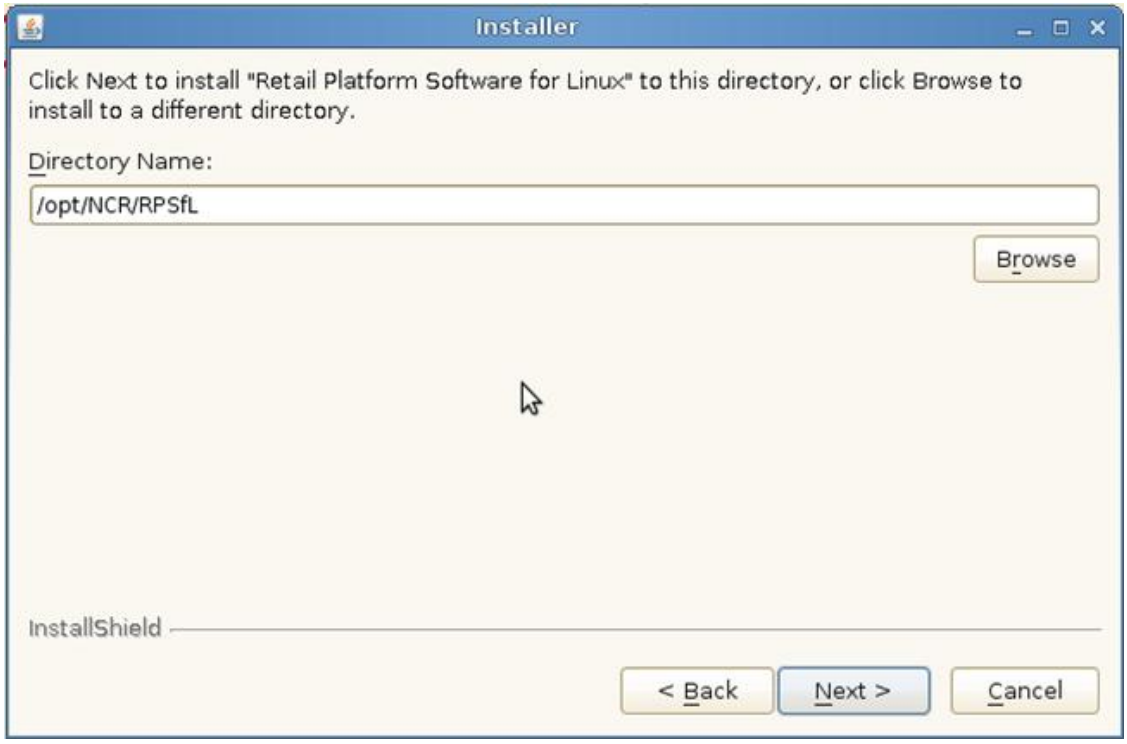
   Note: In the *<path to package>*, specify the directory path of the installer package that you downloaded from the NCR website.



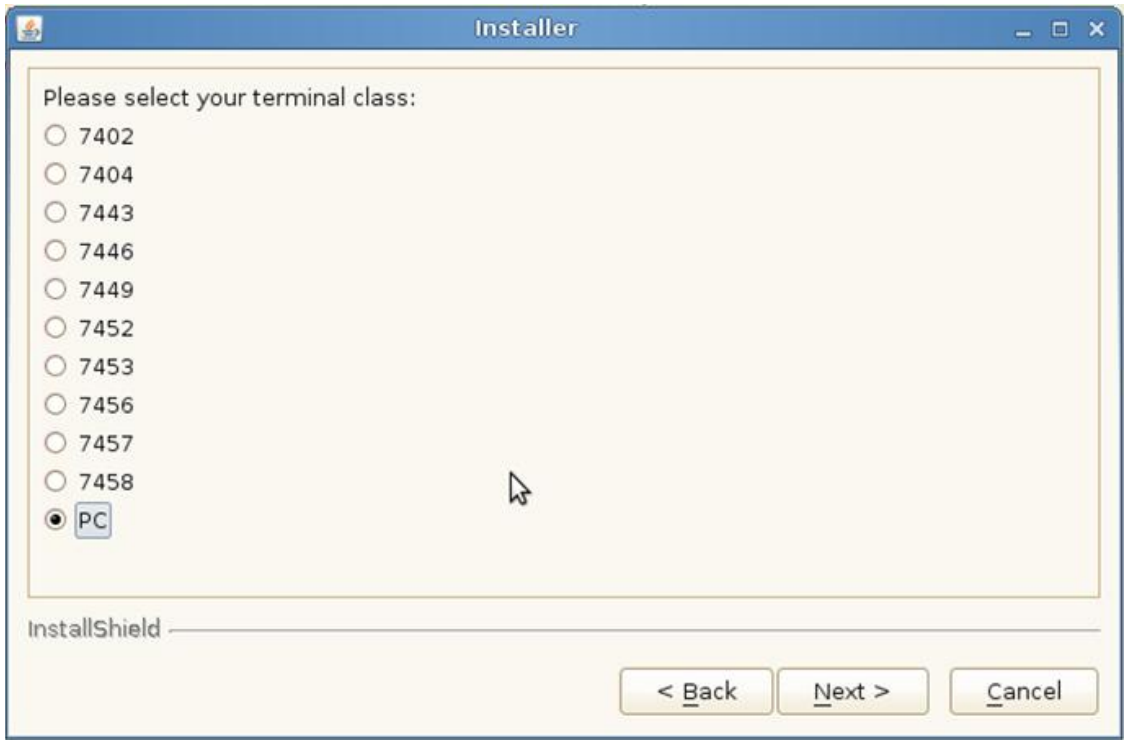
The Welcome Screen displays.



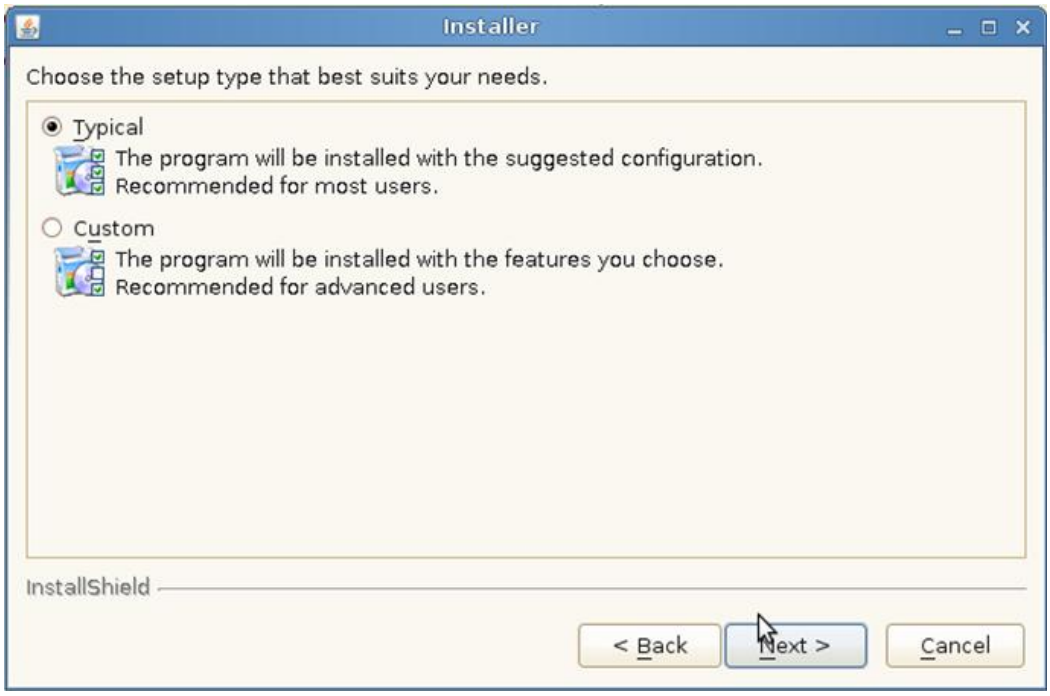
6. Select **Next.**
7. Specify the directory where you want to install the RPSL. The default directory is `/opt/NCR/RPSfL`. To locate another destination directory, select **Browse.**



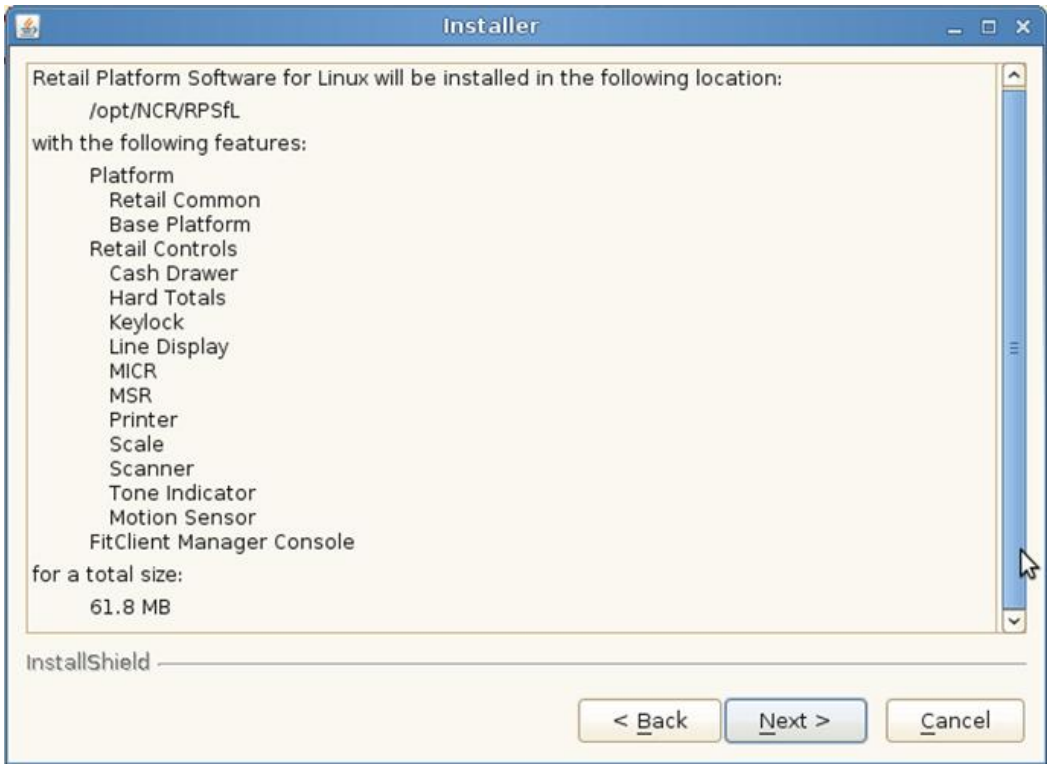
8. Select the terminal class where your 5976 display is connected.



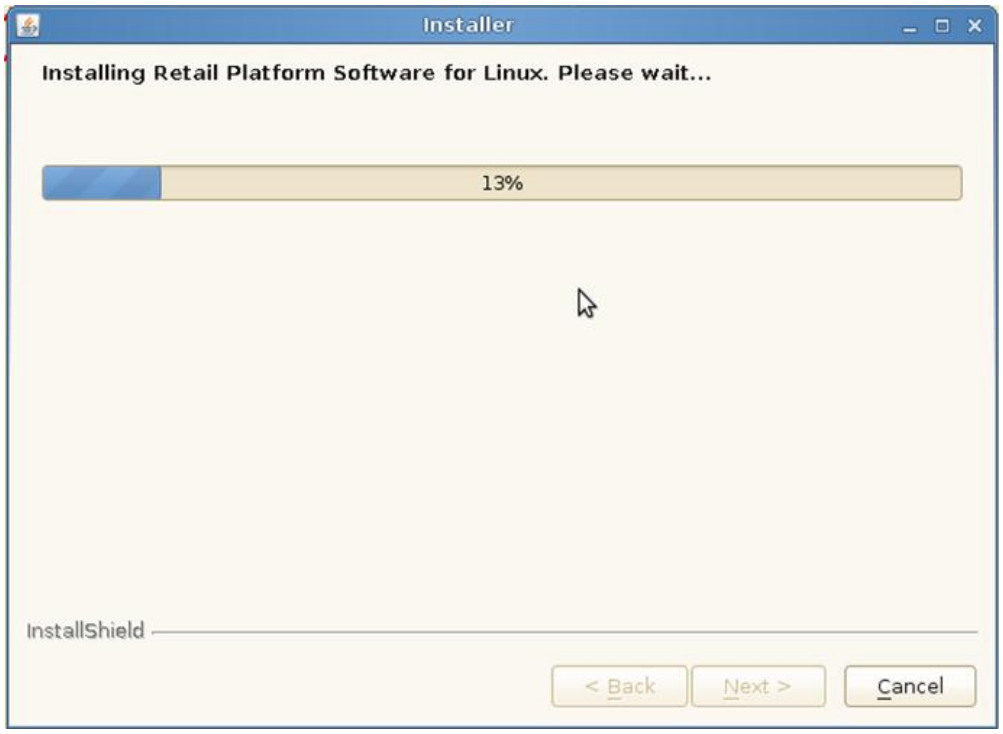
9. At the Setup Type window, select the installation type that you prefer.
10. Select **Next.**



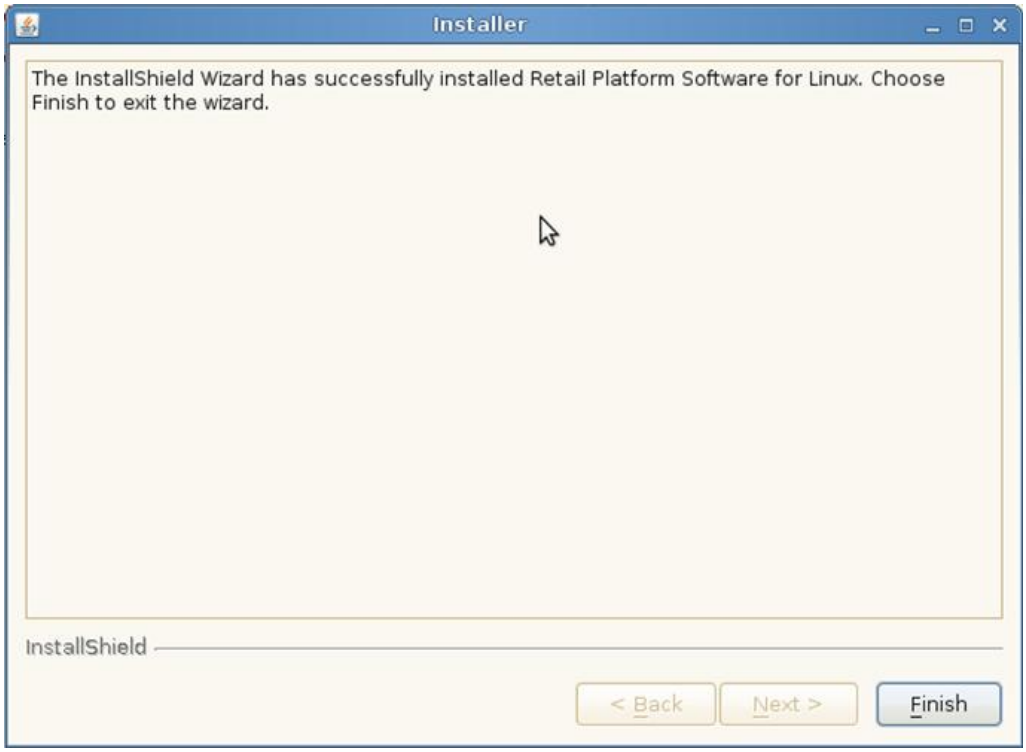
11. The application displays your installation details for you to confirm. If you want to change some options, select **Back.**
12. After verifying information, select **Next.**



The installation setup begins.



13. Upon successful installation, the application confirms the completion. Select **Finish.**

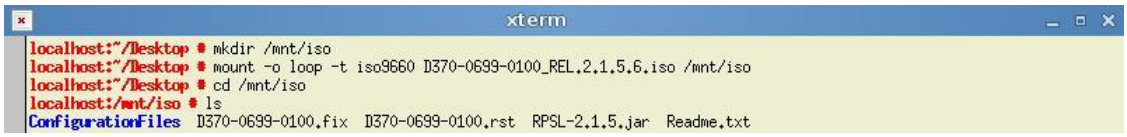


Console Mode

1. Open a terminal.
2. Create a new directory by entering the command `mkdir <destination directory>`.

   Note: The RPSL is installed at the destination directory. In this example, the directory is named `/mnt/iso`.
3. Extract the downloaded installer to the new directory by entering the command `mount -o -loop -t iso9660 D370-0699-0100_REL.2.1.5.6.iso <destination directory>`

   Note: In this example, D370–0699–0100_REL 2.1.5.6 is the downloaded version. Other versions might be available.
4. Enter `cd <destination directory>`.



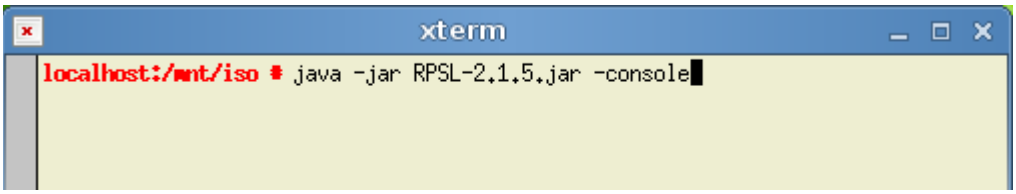
5. Enter the command:

   `<java directory>/java -jar <path to package>/RPSL-2.1.5.jar -console`

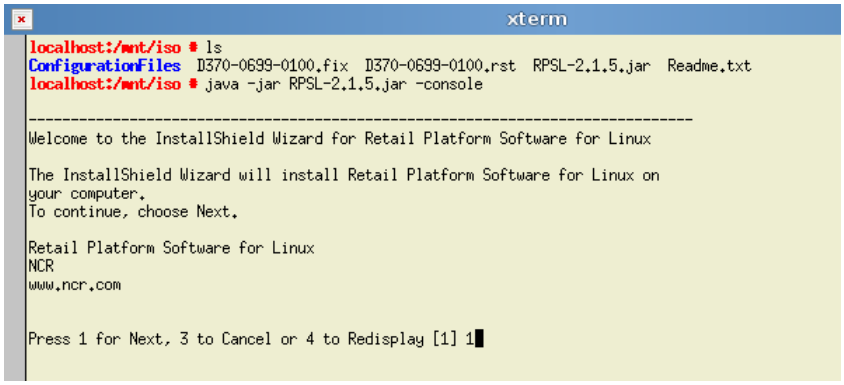
   Note: In this example, `RPSL-2.1.5.jar` is the downloaded version. Other versions might be available.

   Note: In the *<java directory>*, specify the directory path of the java binary. Only include this parameter if $JAVA_HOME is not set.

   Note: In the *<path to package>*, specify the directory path of the installer package that you downloaded from the NCR website.

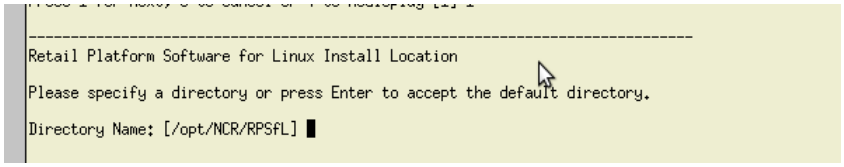


6. The application displays the Welcome message and begins to guide you in the installation process. Press **1.**

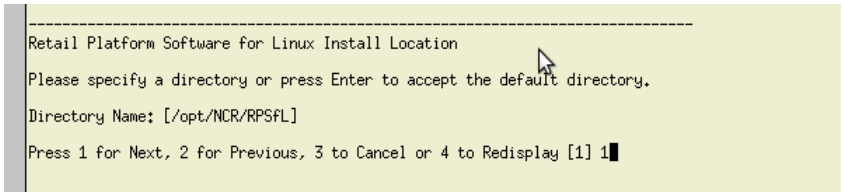


7. Specify the directory where you want to install the RPSL. The default directory is `/opt/NCR/RPSfL`.

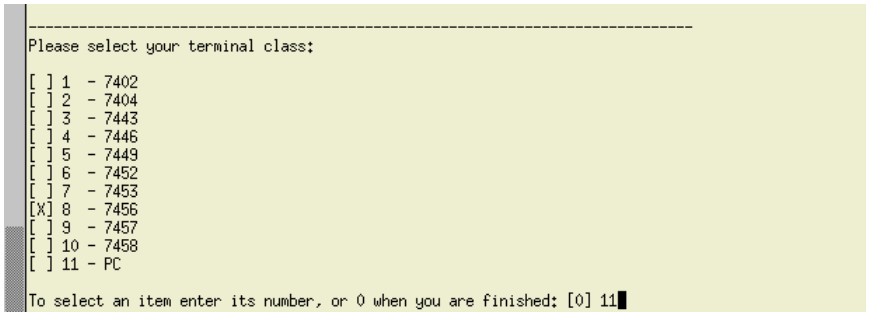
   - To accept the default directory, press **Enter.**
   - To specify another destination directory, type the directory.



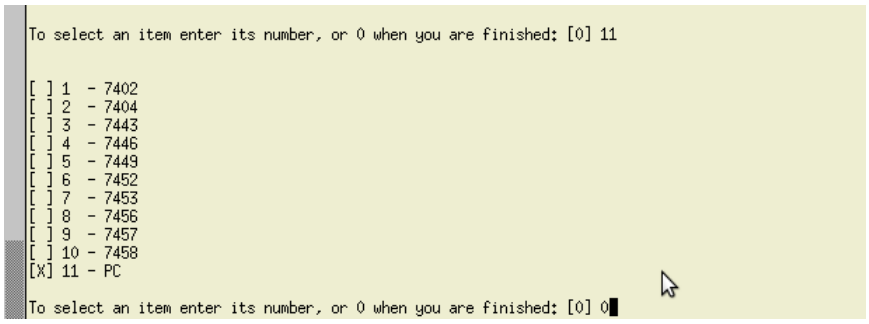
8. After specifying the destination directory, press **1.**



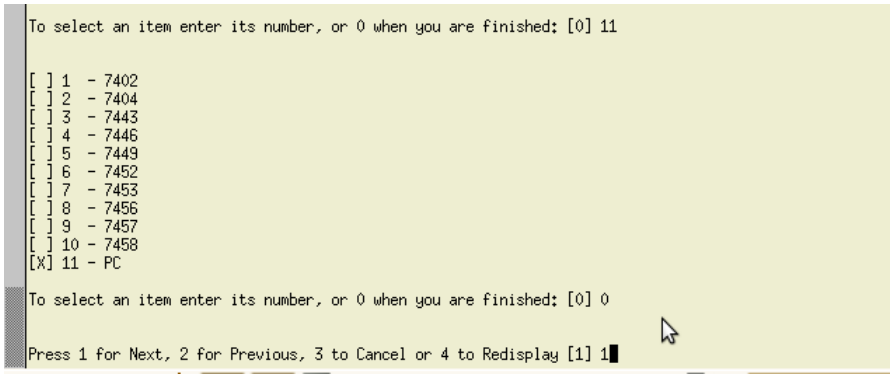
9. Select the terminal class where your 5976 display is connected. Each terminal is assigned a number. From your keyboard, press the number that corresponds to your terminal.



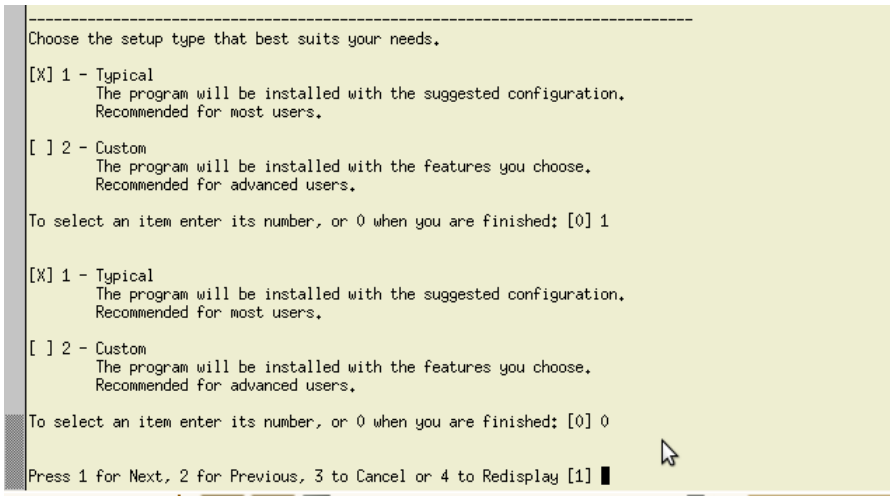
10. After selecting your terminal class, press **0** (zero)**.**



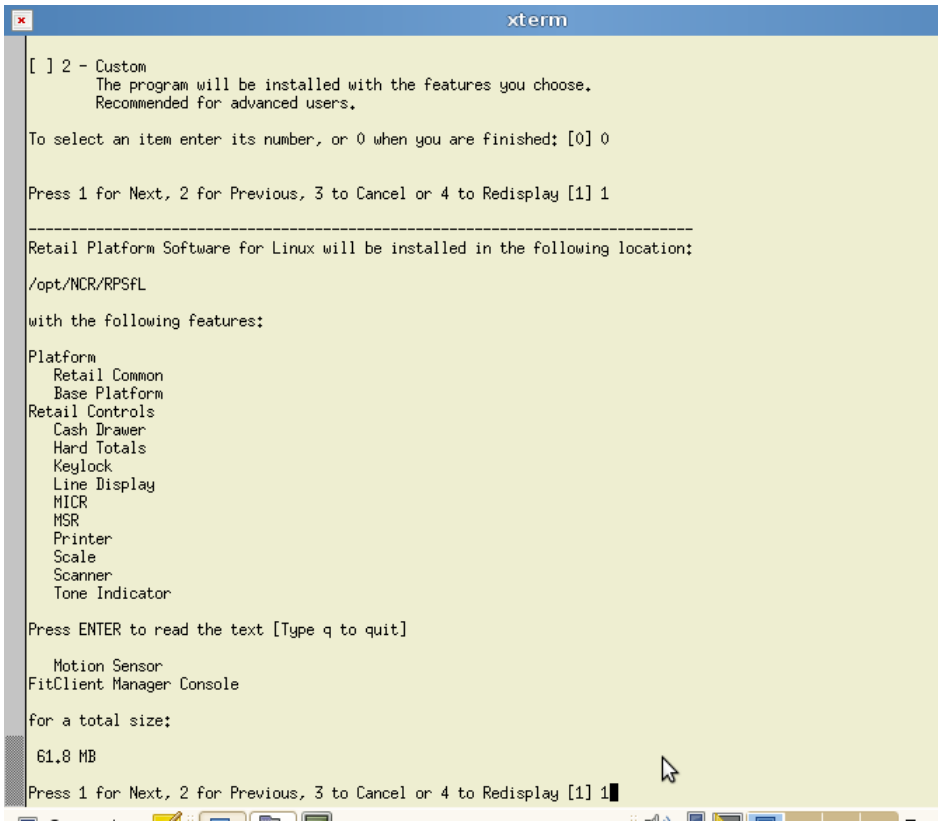
11. Press **1** to continue the installation process.



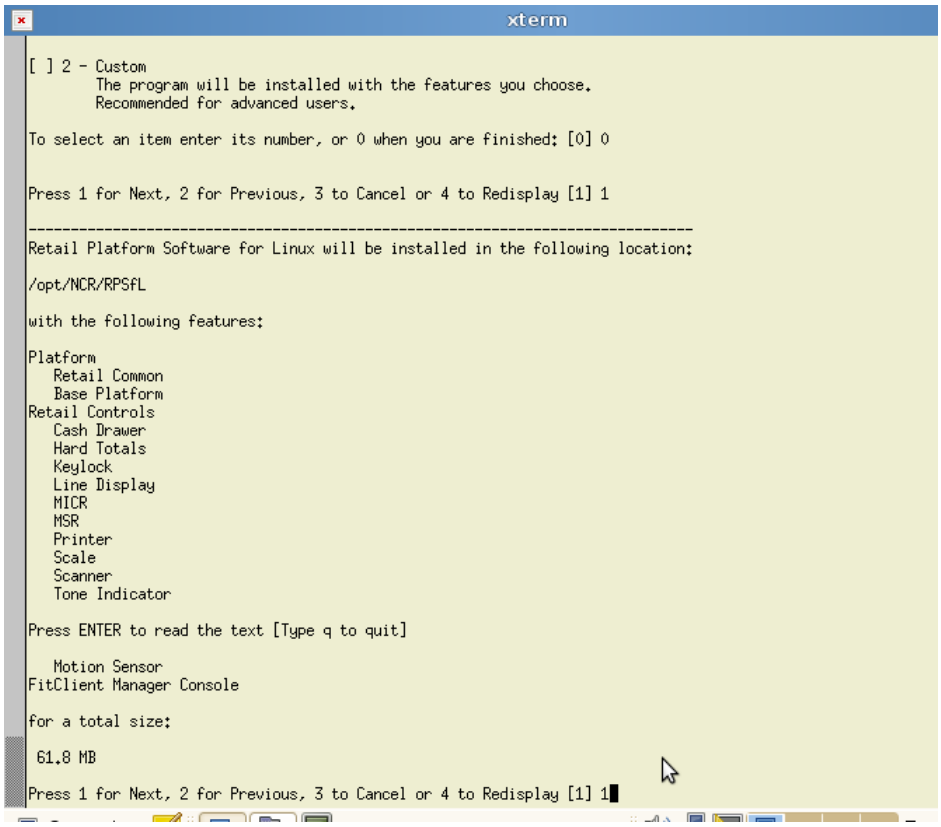
12. Select the installation type that you prefer. Each parameter is assigned a number. From your keyboard, press the number that corresponds to your desired parameter.



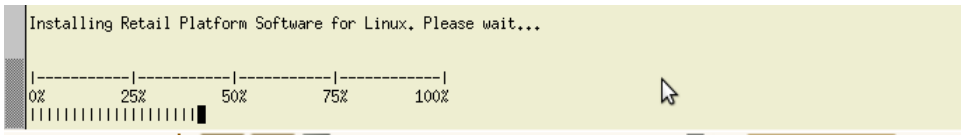
13. The application displays the installation details for you to confirm.



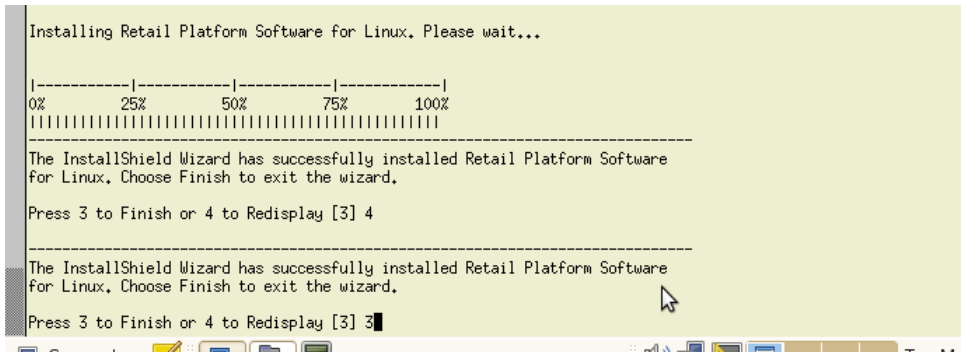
14. After verifying information, press **1** to continue the installation process.



The installation setup begins.



15. Upon successful installation, the application displays the following message. Press **3** to exit program.



Uninstalling the Retail Platform Software

Windows

1. From the Start menu, select **Control Panel→ Add or Remove Program→ Change or Remove Programs.**
2. From the installed program list, select **Retail Platform Software for Windows.**
3. Select **Remove.**
4. Confirm the uninstallation window.

Linux

Use `uninstall.jar` to remove the Retail Platform Software for Linux (RPSL). This file is located in the `_uninst` subdirectory of the directory that is selected during installation. The default install directory is `/opt/NCR/RPSfL.`

Example: Assuming that default install directory was selected during installation, enter the following command to uninstall the RPSL:

```
/usr/java/jvm/bin/java –jar /opt/NCR/RPSfL/_uninst/uninstall.jar
```

Chapter 7: Software Utility

Introduction

The **RomFlasher.exe (Windows) / RomFlasher.rpm (Linux)** is the software utility used to update the display firmware and load additional character sets to the 5976 2x20 LCD Display. The software is composed of the following modules:

	ROM Flasher	Code Page Update
Flash Firmware	✓	
Flash Additional Code Page	✗	✓
Replace Existing Code Page	✗	✓
Generate Code Page	✗	✓
Set Brightness Level	✗	✗
Shift Firmware	✓	✗
Windows	✓	✓
Linux	✓	✓
Remarks	• Manual firmware flashing • Manual firmware shift	• Manual code page generation and flashing

The software supports flashing of firmware into the device connected through the USB or RS–232 serial port.

Note: For more information about RomFlasher, refer to the `ReadMe.txt` in the NCR website, *http://www5.ncr.com/support/support_drivers_patches.asp?Class=External/PeripheralsLineDisplay5976\display*.

Installation Procedure

The Software Utility installation includes downloading the installer from the NCR website. The following sections define the installation process.

Downloading the Installer

The 5976 Line Display Utility can be downloaded from the NCR website. Perform these steps to download the utility:

1. Go to *http://www5.ncr.com/support/support_drivers_patches.asp.*
2. Select **Retail Support Files (Drivers, Firmware, Operating Systems, Platform Software (OPOS/JavaPOS), BIOS, etc.).**
3. Select **NCR RealPOS and SelfServ Peripherals (Firmware, Drivers, Utilities).**
4. Select **Line Displays.**
5. Select **5976**.
6. Select and download the installer designed for your operating system:
   - **RomFlasher.zip** (for Windows)
   - **RomFlasher.rpm** (for Linux)

     Note: SLEPOS11 and Fedora Core 15 are the currently supported Linux distributions. Other versions might be available upon updates.
7. Save the downloaded file to a working directory on the terminal hard drive.

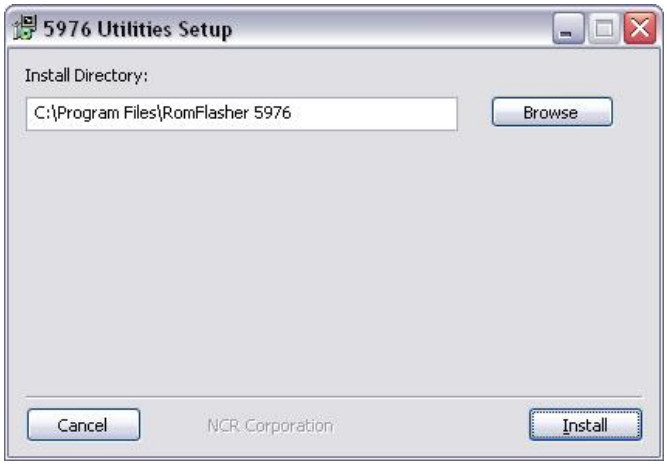
   Note: The files can be extracted to and run from a Flash Drive, CDROM, or network if desired.

Installing the Software

Windows

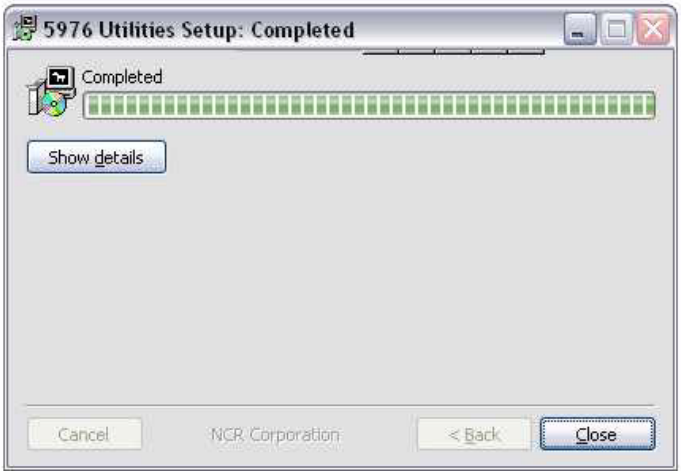
1. Run the installer.

The 5976 Utilities Setup window displays.



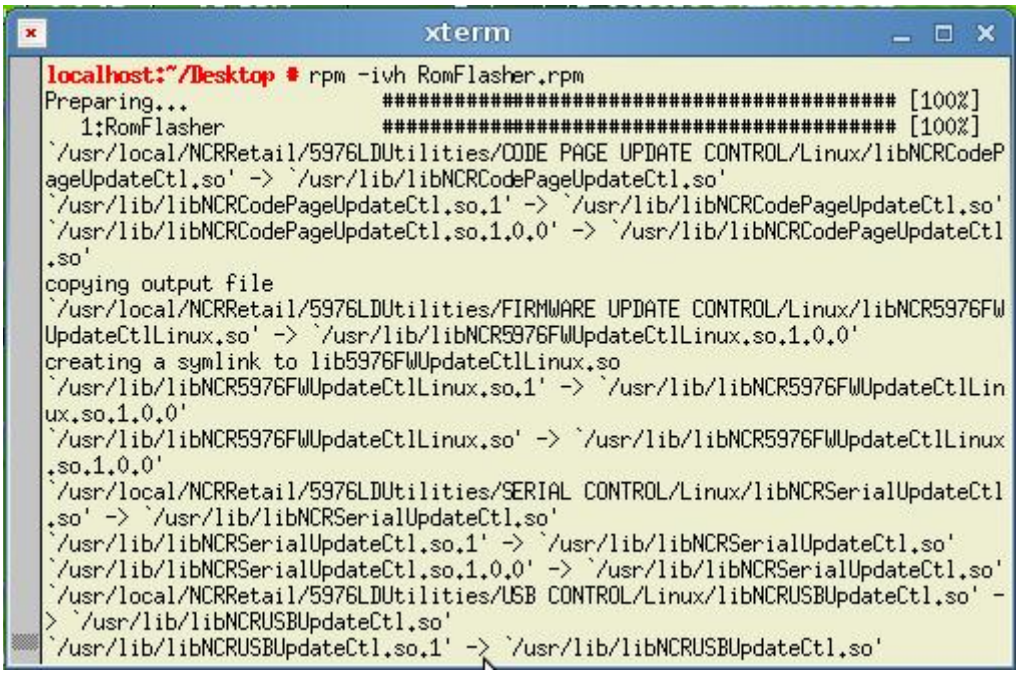
Note: The default install directory is `C:\Program Files\RomFlasher 5976`. To change the location, select **Browse.**

2. Select **Install.** Upon successful installation, the following window displays.



Linux

1. Open a terminal.
2. Install the software by entering the command:
   `rpm –ivh RomFlasher.rpm`



Uninstalling the Software

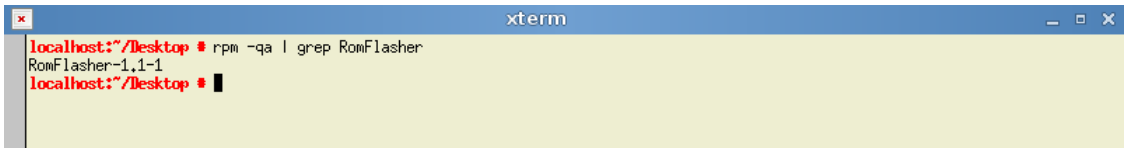
Windows

To uninstall the Software utility, select **Start→All Programs→NCR→RomFlasher 5976→Uninstall**. The Uninstall window displays to verify.

- Select **Yes** and the uninstalling process begins.
- Select **No** and the process cancels.

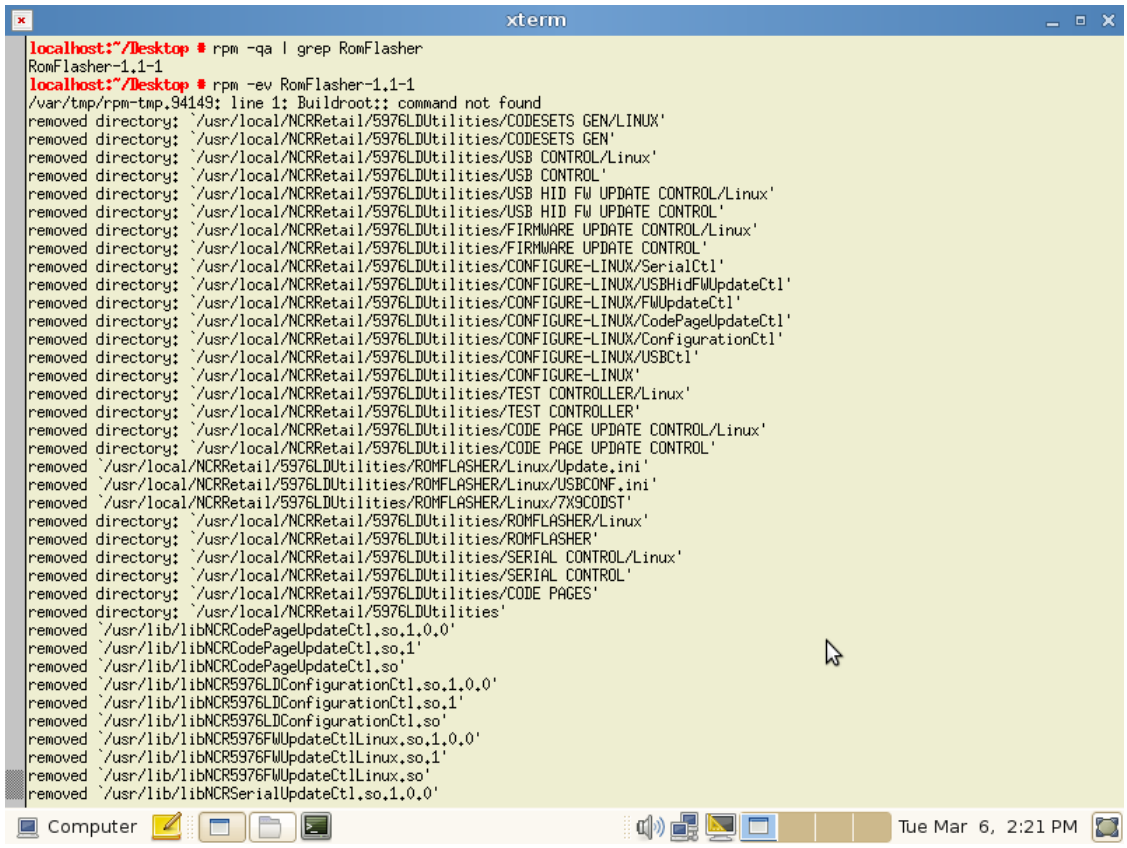
Linux

1. Open a terminal.
2. Verify the version of the installed ROM Flasher by entering the command `rpm -qa | grep RomFlasher`



3. Uninstall the software by entering the command `rpm -ev RomFlasher-1.x-1`

   Note: `x` is the current minor version.



Device Firmware

Depending on the Product ID, the part numbers of the firmware are as follows:

- **497–0478048**—5976 Full Feature Models (5976–1100–9090, 5976–1200–9090, and 5976–1300–9090)
- **497–0478049**—5975 Compatibility Models (5976–1175–9090, 5976–1275–9090, and 5976–1375–9090)

The firmware version currently installed on the 5976 display device is briefly displayed during start–up of the 5976, for example, **497–0478048 V1.13.01** or **497–0478049 V1.13.01.**

Note: Take note of the firmware version currently installed on your device. Verify if it matches with the latest released version that can be found on the NCR 5976 Support page. If they do not match, it is recommended to update the firmware of your device.

To verify and download the latest released firmware version, perform the following steps.

Downloading the Latest Firmware Version

1. Go to *http://www5.ncr.com/support/support_drivers_patches.asp.*
2. Select **Retail Support Files (Drivers, Firmware, Operating Systems, Platform Software (OPOS/JavaPOS), BIOS, etc.).**
3. Select **NCR RealPOS and SelfServ Peripherals (Firmware, Drivers, Utilities).**
4. Select **Line Displays.**
5. Select **5976.** The NCR 5976 Support page displays.
6. From the Firmware list, select **497–0478048_Revx.fif**.

   Note: Also included in your downloaded firmware is the firmware of the 5975 Compatibility Model (**497–0478049**). The firmware is activated upon the activation of the Compatibility Support. Refer to the "Compatibility Support" section in Chapter 8, "Service Support Utility" for the complete instructions.

   Note: "x" is the latest released revision of the firmware. It is indicated by an alphabet character that corresponds to a certain release number.

   Note: Make sure to download the firmware with the uppermost alphabet character as it represents the latest released revision. The NCR 5976 Support page provides the corresponding version number of each alphabet character.

7. Save the downloaded file (`*.fif` file) to a working directory on the terminal hard drive.

   Note: The files can be extracted to and run from a Flash Drive, CDROM, or network if desired.

8. Flash the downloaded firmware to the 5976 display device.

   Note: For instructions on how to flash the downloaded firmware, refer to the "ROM Flasher" section in this chapter.

ROM Flasher

The ROM Flasher is the software utility that supports firmware update of the 5976 Line Display device and communicates through a USB or RS–232C serial connection. This software is the initial window that displays when you launch the 5976 Software Utility.

Updating Device Firmware

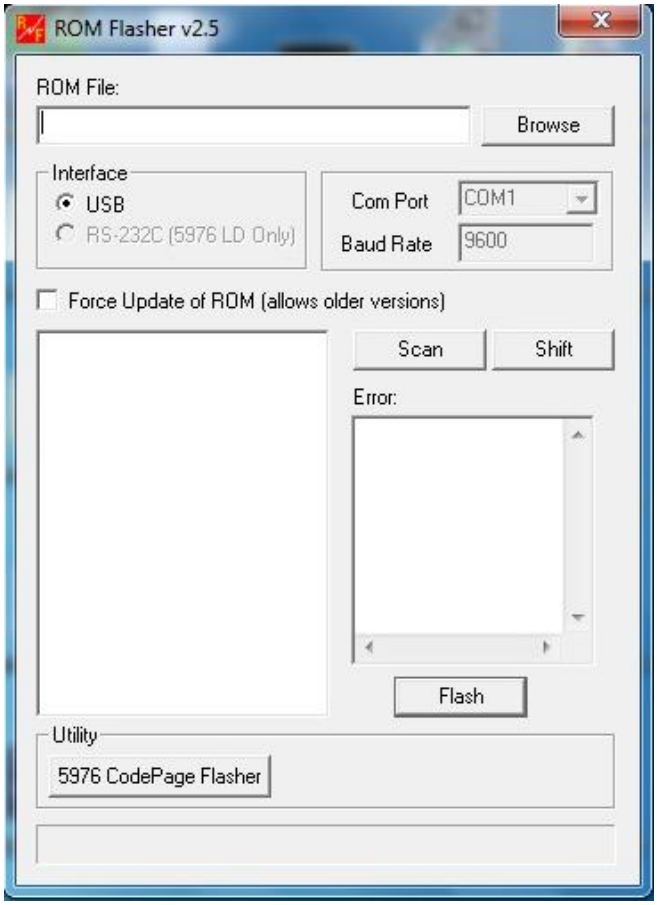
Warning: Please do not disconnect power while updating the firmware.

Note: The firmware version currently installed on the 5976 display device is briefly displayed during start–up of the 5976, for example, **497–0478048 V1.13.01** or **497–0478049 V1.13.01.**

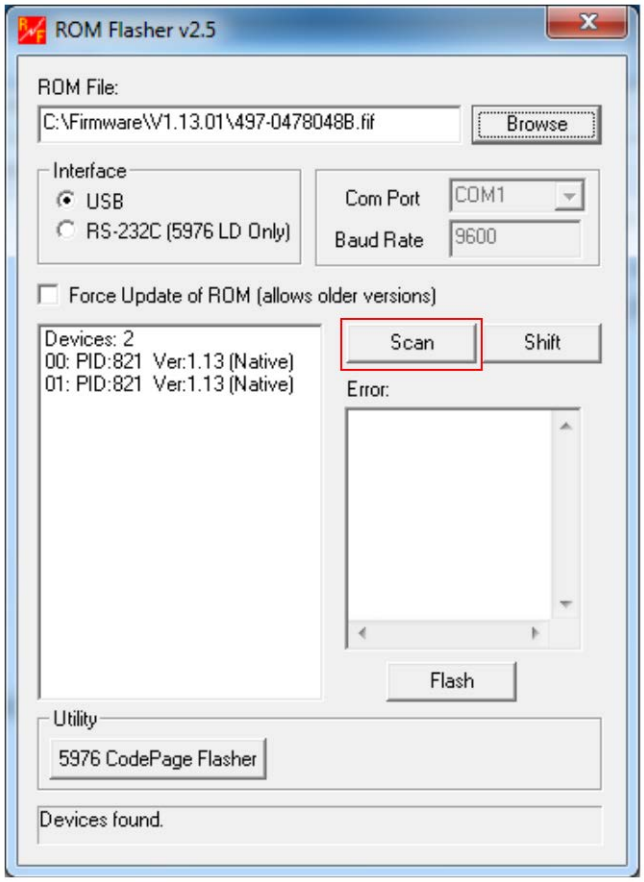
You can update the 5976 2x20 LCD firmware by using the ROM Flasher utility. To update the device firmware, perform the following steps:

1. Launch the 5976 2x20 ROM Flasher application by selecting from the Start menu **Start→All Programs→NCR→RomFlasher 5976→RomFlasher.**

   The application displays the ROM Flasher user interface.



2. To load the firmware (`*.fif` file) into the ROM Flasher, select **Browse** beside the ROM File field and locate the working directory where you extracted your firmware files.
3. From the Interface section, select the port where the device is connected.
   - **USB**—select this option if you are running a USB interface. The Com Port and Baud Rate is grayed out and the default settings are used with this option.
   - **RS–232 (5976 LD Only)**—select this option if you are running an RS–232 interface. Set the correct COM Port from the dropdown list to match the COM Port where the display is connected. The Baud Rate is set at the default **9600**.
4. Select **Scan**. The application displays the devices currently connected to the interface you selected. The current firmware versions of the devices are also displayed. For Serial connection, only one device is listed.

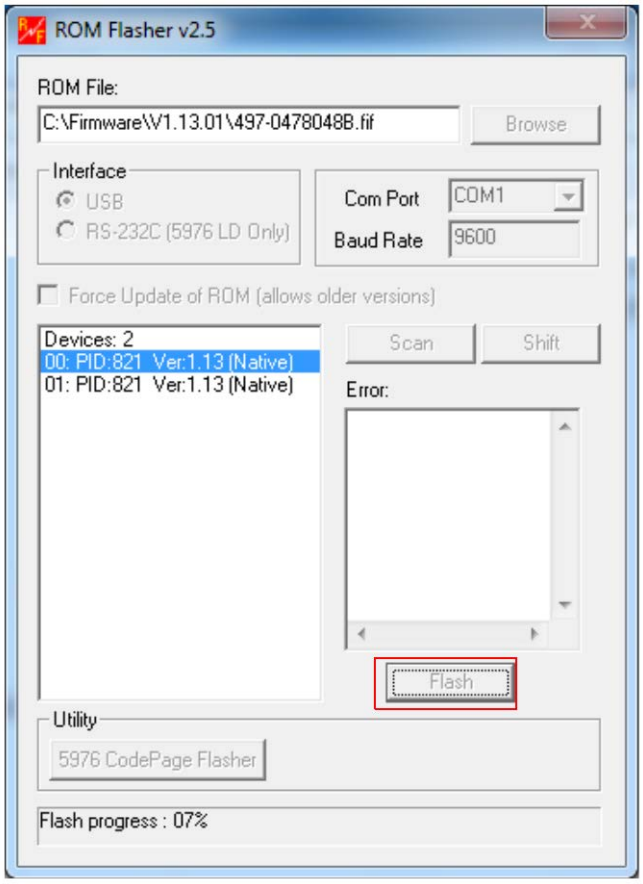


5. From the list of devices, select the device where you want to flash the firmware.

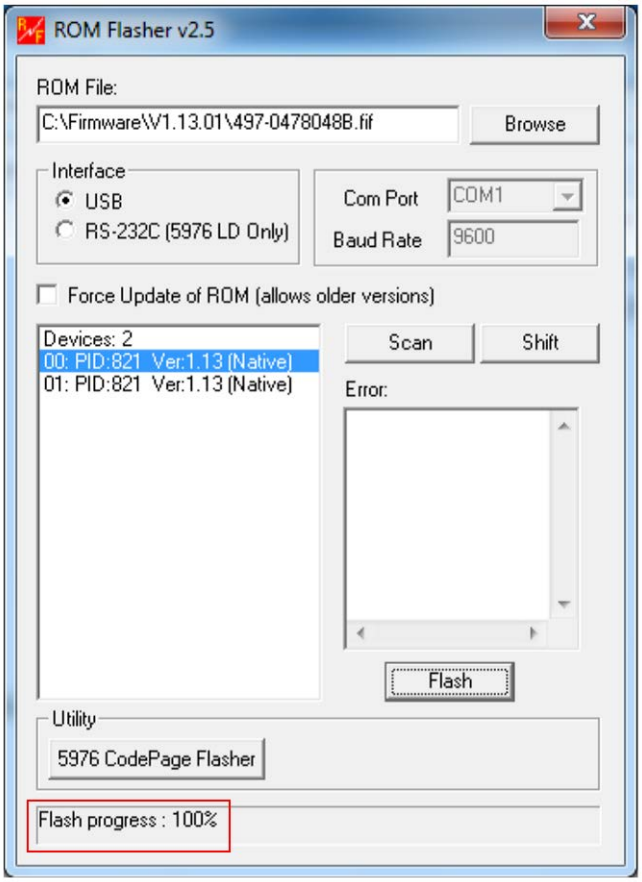
   Note: Only one device at a time can be flashed with a firmware.

6. Select **Flash**. The firmware flashing progress is displayed and updated at the bottom field. A 100% Flash Progress is shown if the firmware was successfully flashed to the device.

   The following screenshot illustrates an ongoing firmware flashing.



Upon successful firmware flashing, the application displays the Flash Progress with 100%.



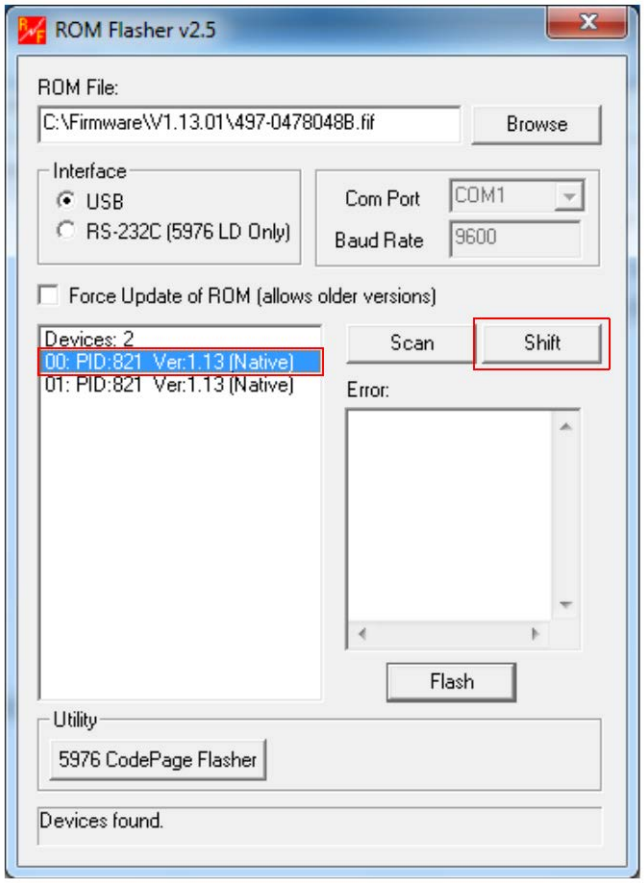
Note: If the firmware is not successfully flashed or the loaded firmware version is older than the current firmware of the devices, the application displays the error information in the Error box.

Note: In case of an older firmware version, select the box of the **Force Update of ROM (allows older versions)** option to force the device to accept your loaded firmware version.

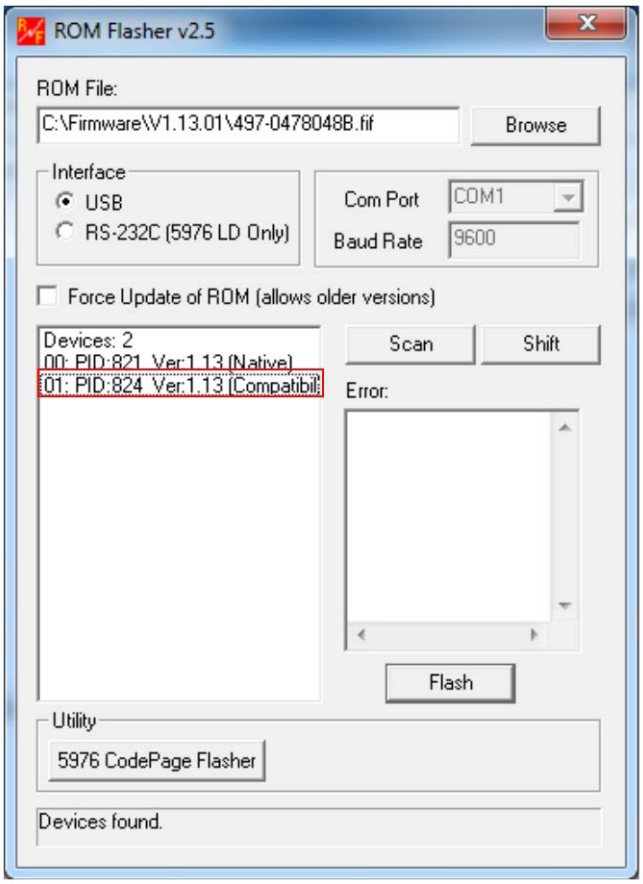
Shift Firmware to Compatibility Mode

After flashing firmware to the line display device, perform the following steps to shift the firmware mode to compatibility:

1. Select the device row from the device list with (Native) suffix.



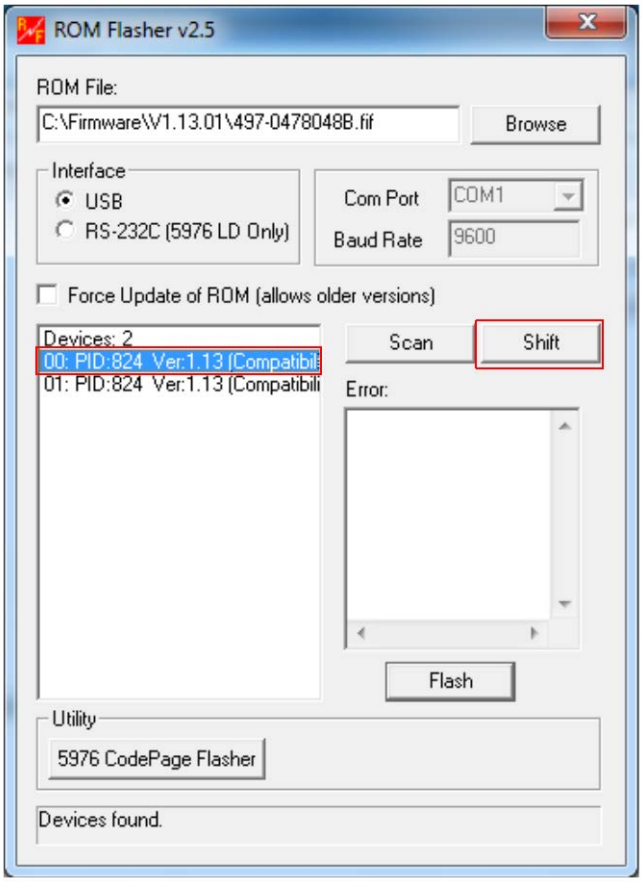
2. Select **Shift** button. The device list is refreshed with the shifted device firmware.



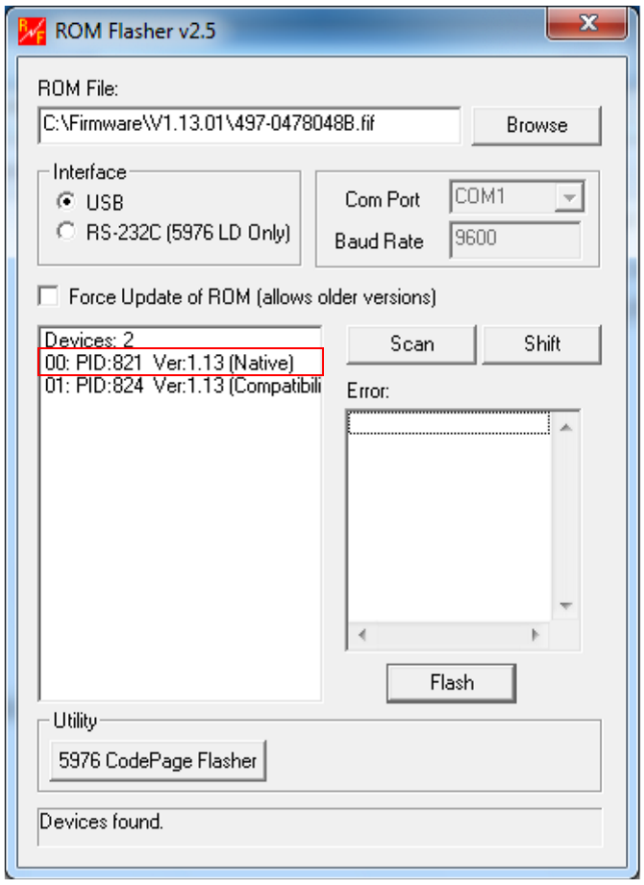
Shift Firmware to Native Mode

After flashing firmware to the line display device, perform the following steps to shift the firmware mode to native:

1. Select the device row from the device list with (Compatibility) suffix.



2. Select **Shift** button. The device list is refreshed with the shifted device firmware.



Code Page Utility

The 5976 Code Page Utility is the software utility that enables users to perform the following functions:

- Generate a code page file
- Flash additional code pages
- Replace existing code pages with new ones

To access the Code Page Utility, select the **5976 Code Page Flasher** button from the ROM Flasher user interface.

The utility displays all the existing code pages stored in the device. Built–in code pages are as follows:

- International (858)
- Katakana (101)
- Cyrillic (866)

The downloadable code pages are as follows:

- Baltic (775)
- Multilingual Latin with € symbol (853)
- Polish (852)

Note: To download other code pages, refer to the NCR website: *http://www5.ncr.com/support/support_drivers_patches.asp?Class=External/PeripheralsLineDisplay5976\display.* If your code page requirements are not included in the website, please file for a SCER request.

The utility also displays code pages that are added or flashed by users through the Additional list box. You can replace the code pages in this list.

Unlike the ROM Flasher, the 5976 Code Page Utility is solely designed for the 5976 2x20 LCD Line Display.

Downloading the Code Page Input File

The following procedure explains how to download the Code Page used to generate the Code Page file for the 5976.

1. Go to *http://www5.ncr.com/support/support_drivers_patches.asp.*
2. Select **Retail Support Files (Drivers, Firmware, Operating Systems, Platform Software (OPOS/JavaPOS), BIOS, etc.).**
3. Select **NCR RealPOS and SelfServ Peripherals (Firmware, Drivers, Utilities).**
4. Select **Line Displays.**

5. Select **5976.** The NCR 5976 Support page displays.
6. From the Code Pages list, select the Code Page that you want to download.
7. Save the downloaded file (`*.dat` file) to a working directory on the terminal hard drive.

   Note: The files can be extracted to and run from a Flash Drive, CDROM, or network if desired.

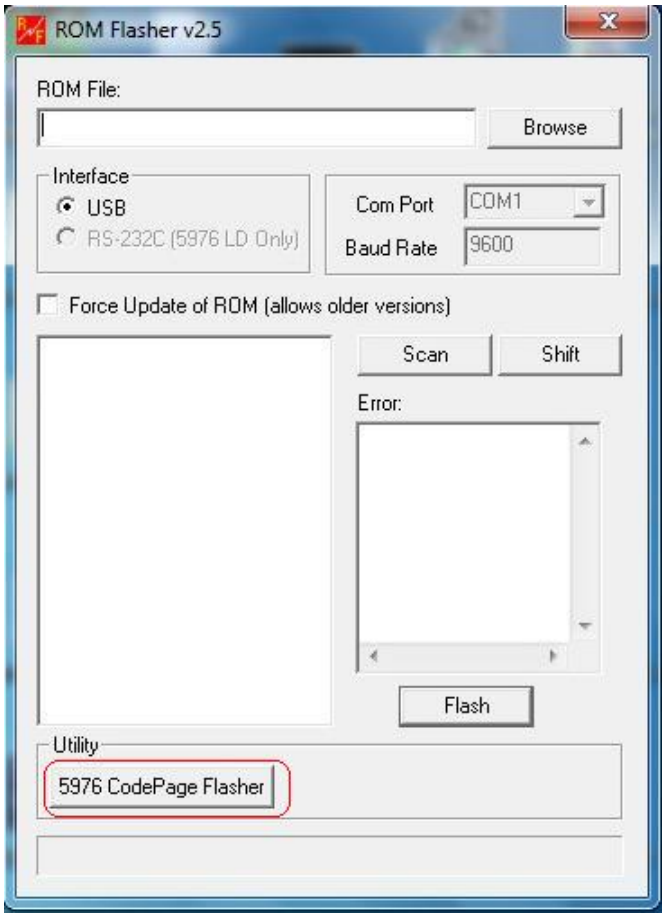
Generating Code Page

The Code Page Utility includes a Code Page Generator application that converts a 2x20 Retail Display 7x9 dot matrix code set representation into the lowest level databit representations that are used inside the 5976 firmware program. The code set is specified to this program in the form of a text file which represents the 7x9 matrix for each of the 256–member character set.

To generate a code page, perform the following steps:

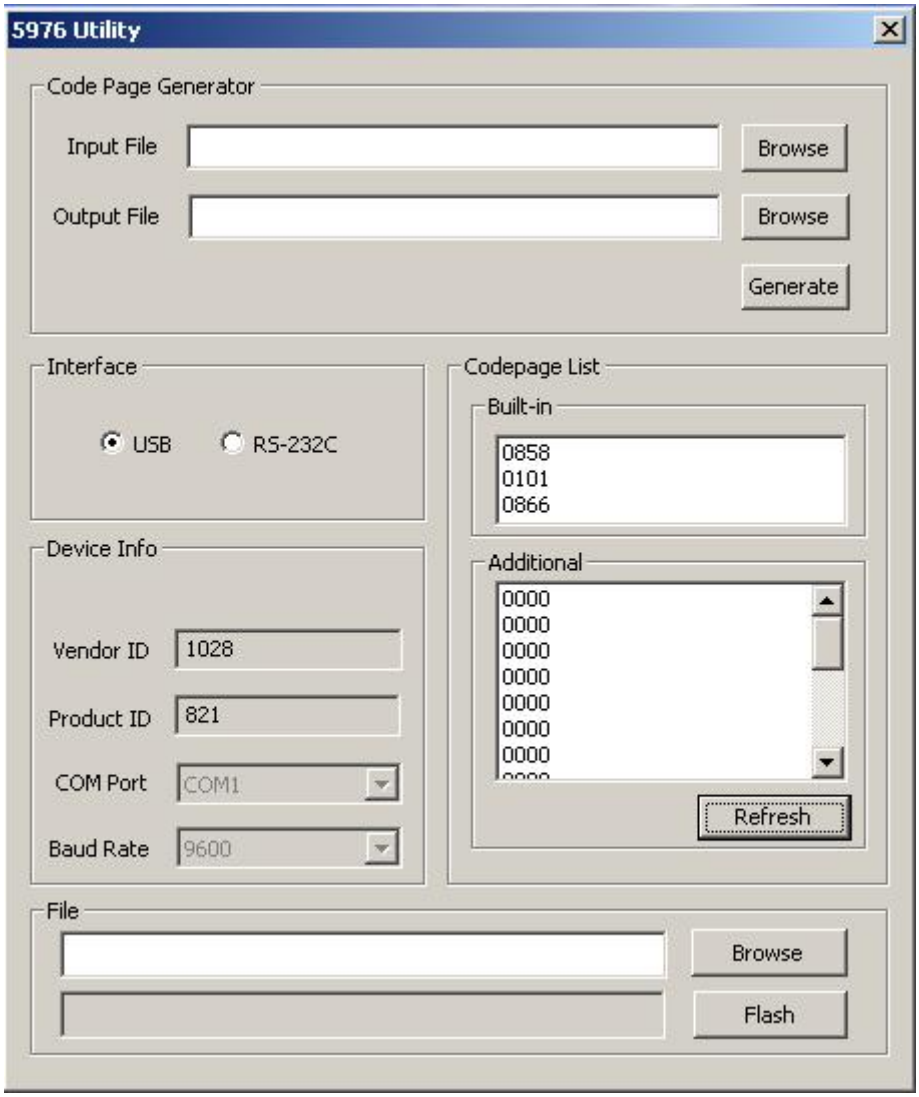
1. Launch the 5976 2X20 ROM Flasher application by selecting from the Start menu **Start→All Programs→NCR→RomFlasher 5976→RomFlasher.**

   The application displays the ROM Flasher user interface.



2. Select **5976 CodePage Flasher** from the ROM Flasher window. The application displays the 5976 Utility window.

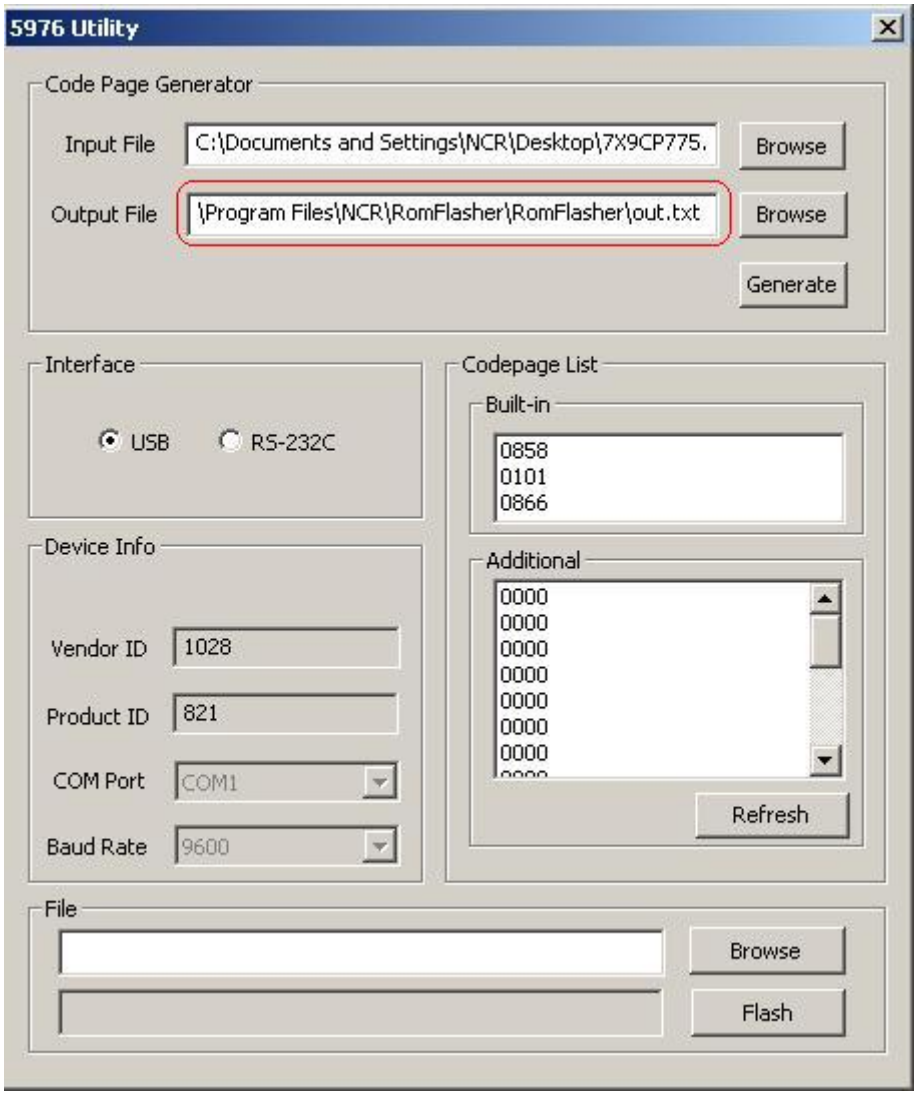
   Note: The following window displays the code pages for a USB interface connection. To display the existing code pages for the RS–232C connection, select **RS–232C** from the Interface field. Select **Refresh**.



3. To load an input file into the Code Page utility, select **Browse** beside the Input File field of the Code Page Generator section.
4. Locate the input file (`*.dat` file) used to generate the code page.
5. To specify a filename and destination for the output text file, select **Browse** beside the Output File field.

   Note: If you do not specify the filename and destination of the output file, the application assigns the name `out.txt` as the filename and the default directory as the destination. The default directory is the location of the installed Rom Flasher software which is `C:\Program Files\RomFlasher 5976.`

6. Select **Generate**. You can use this output file to add a new output file to a device's code page list or to replace an existing file.



Adding Code Pages

The Code Page Utility permits users to add character sets or replace existing character sets by flashing code pages into devices connected through a USB or RS–232C serial port. The code page used can be a direct output from the Code Page Generator or a predefined code page file which the user can load into the Code Page flasher.

To flash a code page into a device, perform the following steps.

1. Generate a code page using the Code Page Generator (refer to the "Generating Code Pages" section for details). The output txt file is automatically loaded into the first field under the File section.

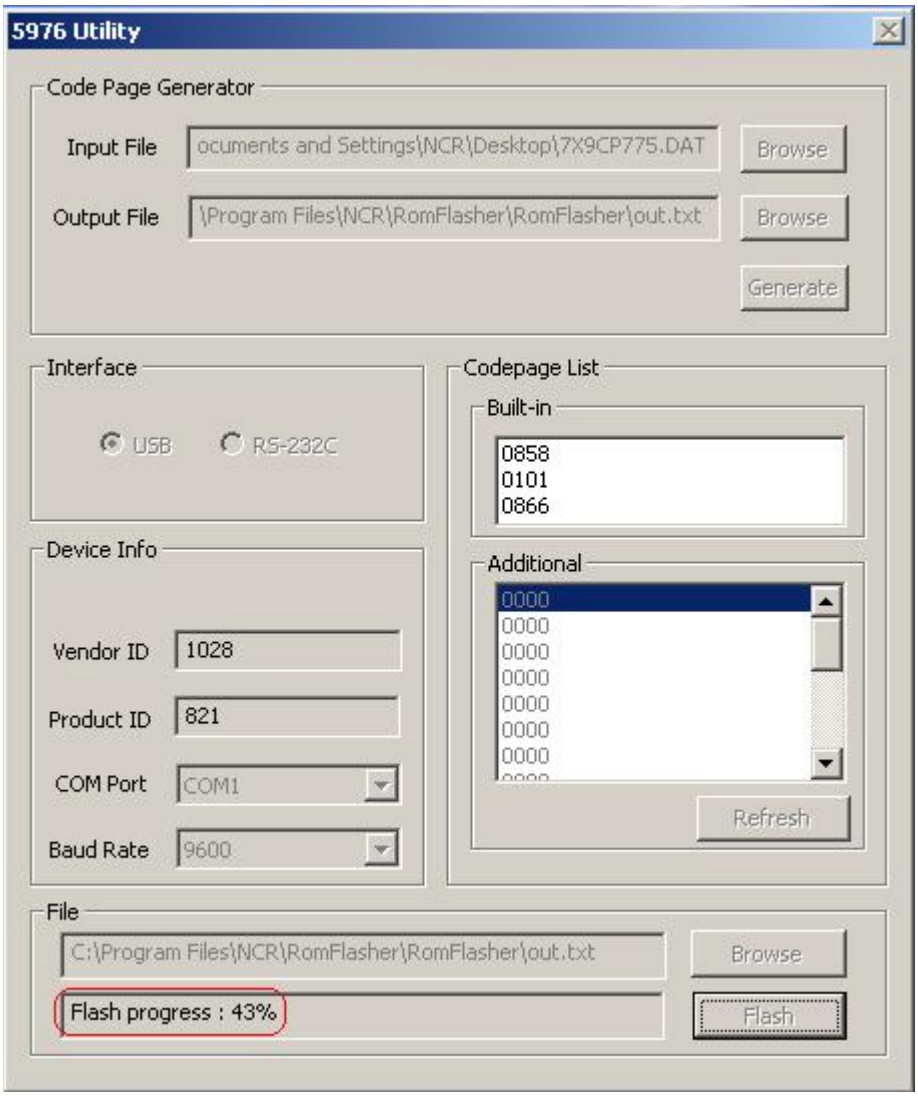
   Note: If you already have a code page txt file to flash, skip step 1 and select **Browse** in the File field to load the code page file.

2. In the interface section, select the interface where your device is connected.

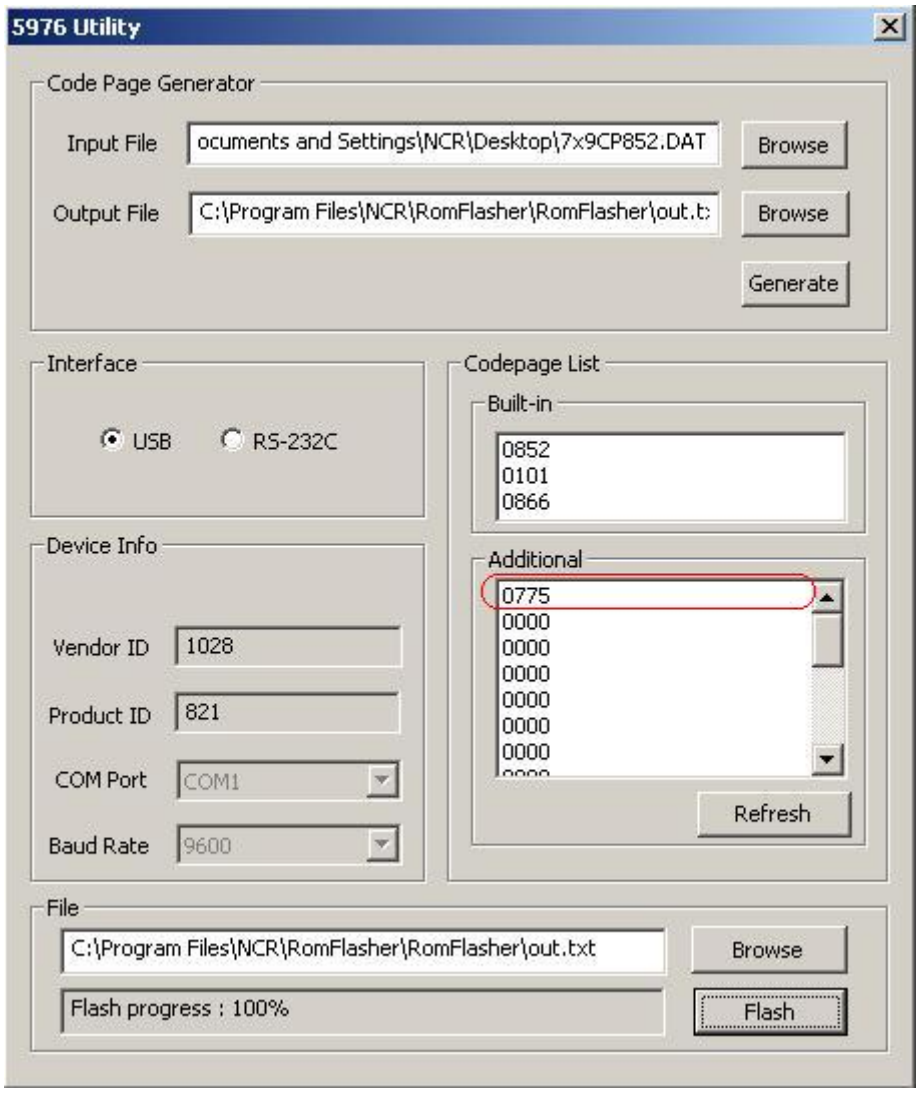
   - **USB**—select this option if you are running a USB interface. The Com Port and Baud Rate is grayed out.
   - **RS–232 (5976 LD Only)**—select this option if you are running an RS–232 interface. Set the correct COM Port from the dropdown list to match the COM Port where the display is connected. The Baud Rate is set at the default **9600**.

3. If you wish to replace an existing code page in the Additional list, select a code page from the list. To add it to the next available slot in the list, leave the code page lists unselected and proceed to the next step.

4. Select **Flash**. The application displays the progress beside the Flash button. Only one device at a time can be flashed with a code page. Make sure to detach the devices you do not wish to flash with the code page.

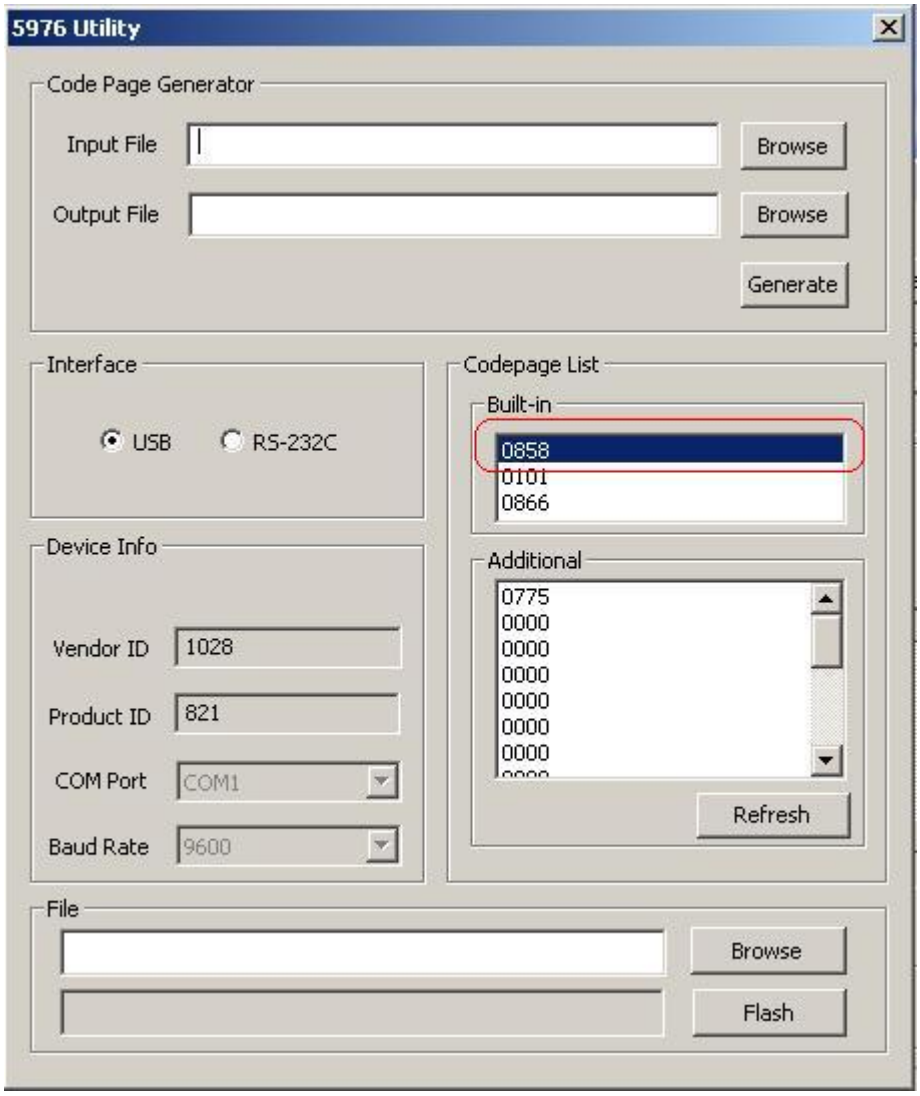


5. Select **Refresh** to confirm that the code page is added to the Additional list.



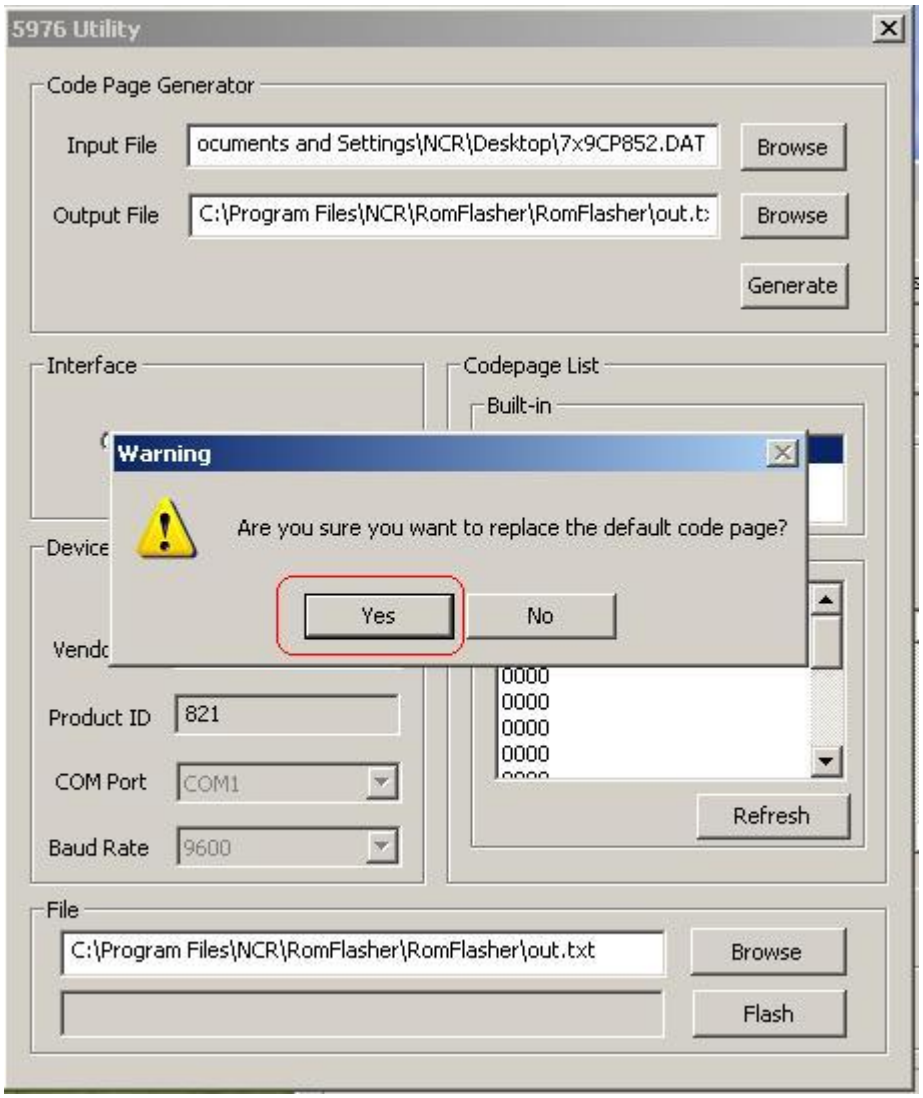
Replacing Default Code Pages

1. To replace the default code page, select one of the built–in code pages.

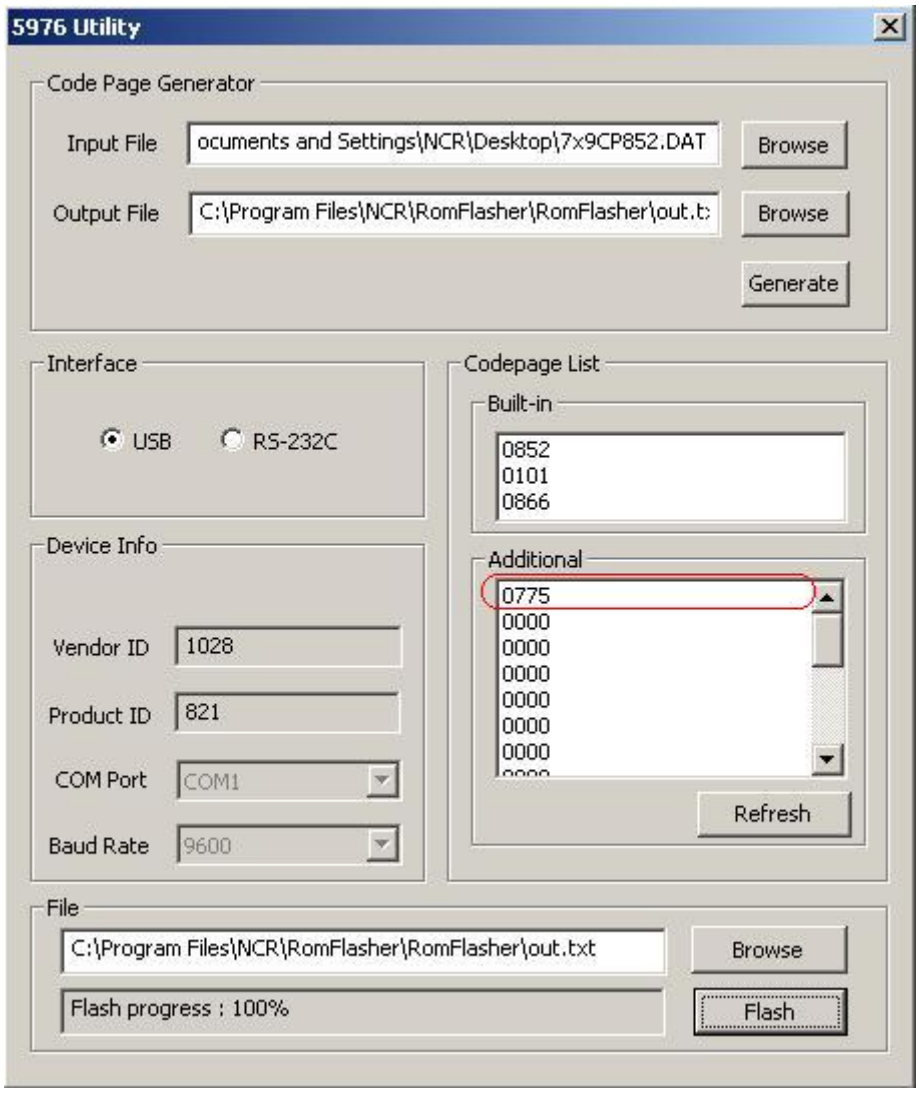


2. Perform the same steps on how to generate the output file. Refer to "Generating Code Page" section in this chapter for instructions.

3. On flash, select **Yes** when prompted to replace the default code page.



4. Check the code page in the Built–in list box.



Chapter 8: Service Support Utility

Introduction

The Service Support Utility configures the following settings of the NCR 5976 Line Display device:

	NCR5976LDServiceSupport
Flash Firmware	✓
Flash Additional Code Page	✓
Replace Existing Code Page	✓
Generate Code Page	✗
Set Brightness Level	✓
Shift Firmware	✓
Windows	✓
Linux	✓
Remarks	• Automatic firmware flashing and code page flashing • Automatic firmware shift • Automatic brightness setting to one of the following levels: 20%, 40%, 60%, 80%, 100%

Note: You can configure the device using the default firmware and code page settings. For more information, refer to the "Control the Service" section in this chapter.

Note: For generating code page, please see the document *5976 LD Service Support Batch Update Guide.doc* and refer to section "Place Firmware and Code Page Files" for instructions. The document is available from the NCR 5976 LD Support page *http://www5.ncr.com/support/support_drivers_patches.asp?Class=External/PeripheralsLineDisplay5976\display*

Rom Flasher and Service Support Utility

RomFlasher provides the feature of saving settings for the Service Support Utility to be applied to the line display devices. The following settings are saved:

- **Firmware of the device**

  The utility verifies if the firmware version is lower than the local firmware file version. This local firmware file is copied from the previous ROM Flasher firmware flash operation. It can also be the default firmware file if no ROM Flasher operation is performed in the terminal.

- **Code Pages of the device**

  Code page name of each of the 20 slots in the 5976 Line Display device are queried. If a local configuration for a slot exists and does not match the code page name retrieved from the device for such slot, the code page of the device is automatically updated.

  A local configuration for a slot can exist from the last Code Page flash operation in the terminal for such slot.

Installation Procedure

Downloading the Installer

1. Go to *http://www5.ncr.com/support/support_drivers_patches.asp*.
2. Select **Retail Support Files (Drivers, Firmware, Operating Systems, Platform Software (OPOS/JavaPOS), BIOS, etc.).**
3. Select **NCR RealPOS and SelfServ Peripherals (Firmware, Drivers, Utilities).**
4. Select **Line Displays.**
5. Select **5976.**
6. Download the installer by selecting one of the following options:
   - **NCR5976LDServiceSupport.exe** (for Windows)
   - **NCR5976LDServiceSupport.rpm** (for Linux)

   Note: SLEPOS11 and Fedora Core 15 are the currently supported Linux distributions. Other versions might be available upon updates.
7. Save the downloaded file to a working directory on the terminal hard drive.

   Note: The files can be extracted to and run from a Flash Drive, CDROM, or network if desired.

Installing the Software

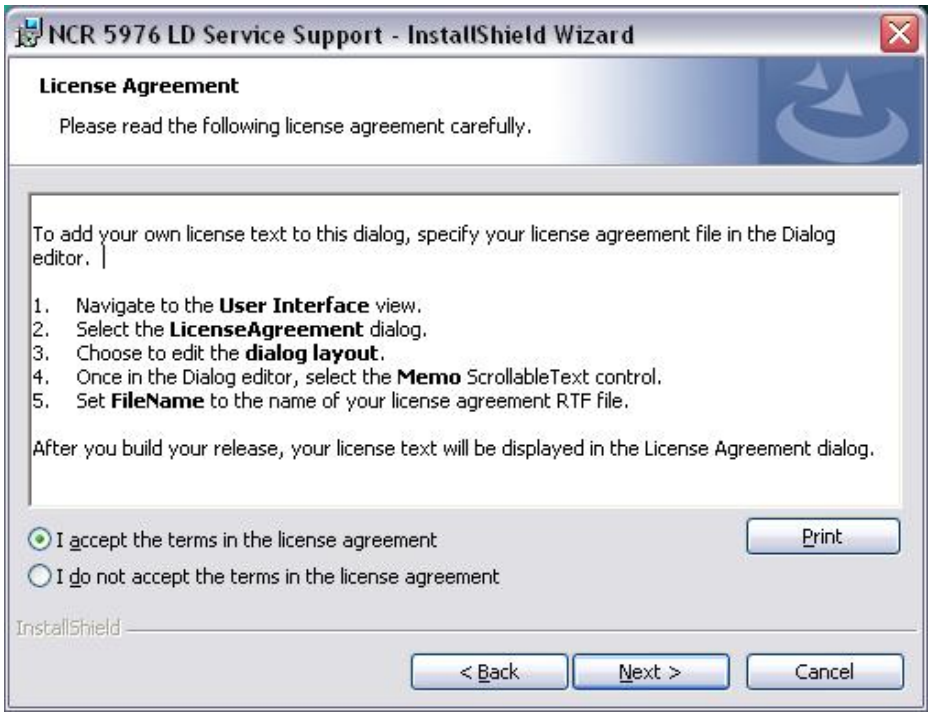
Windows

1. Run the installer of the Service Support Utility.

The application displays the Welcome screen.

2. Select **Next**. The License Agreement displays.

3. Select **I accept the terms in the license agreement**.



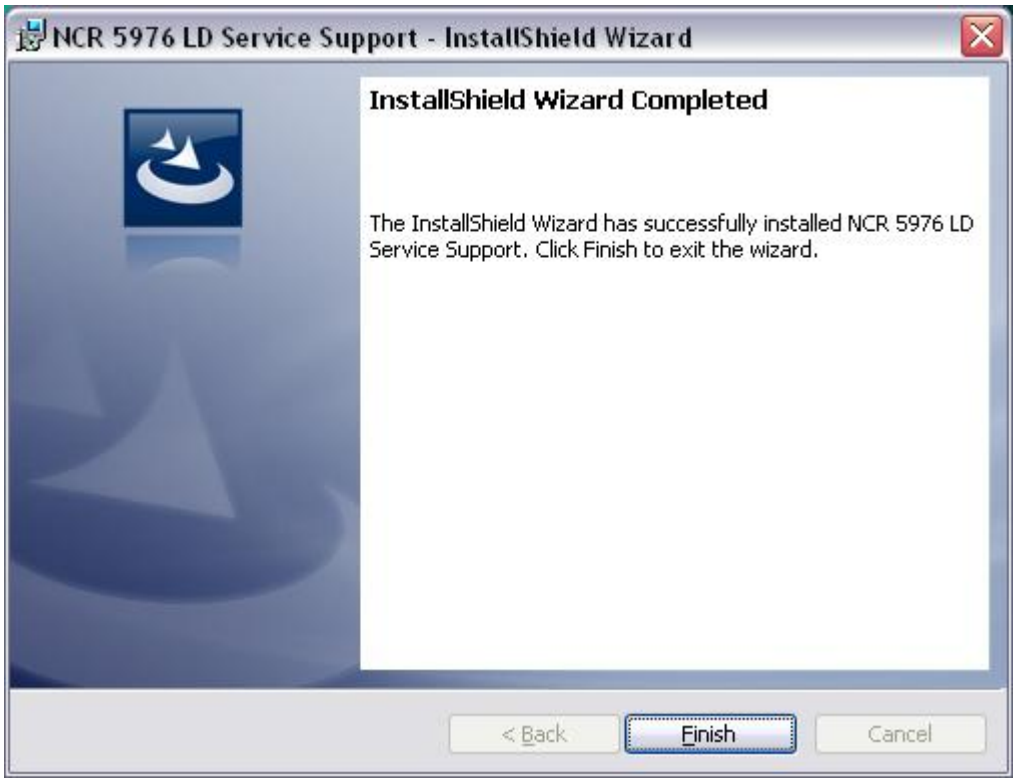
4. After agreeing to the terms in the license agreement, the application displays the Customer Information window to ask for your name and the name of your organization. At the User Name field, enter your name.
5. At the Organization field, enter the name of your organization.
6. Select **Next.**

7. At the Setup Type window, select the setup type that you desire. Select **Next.**

8. Select **Install** to start installation.

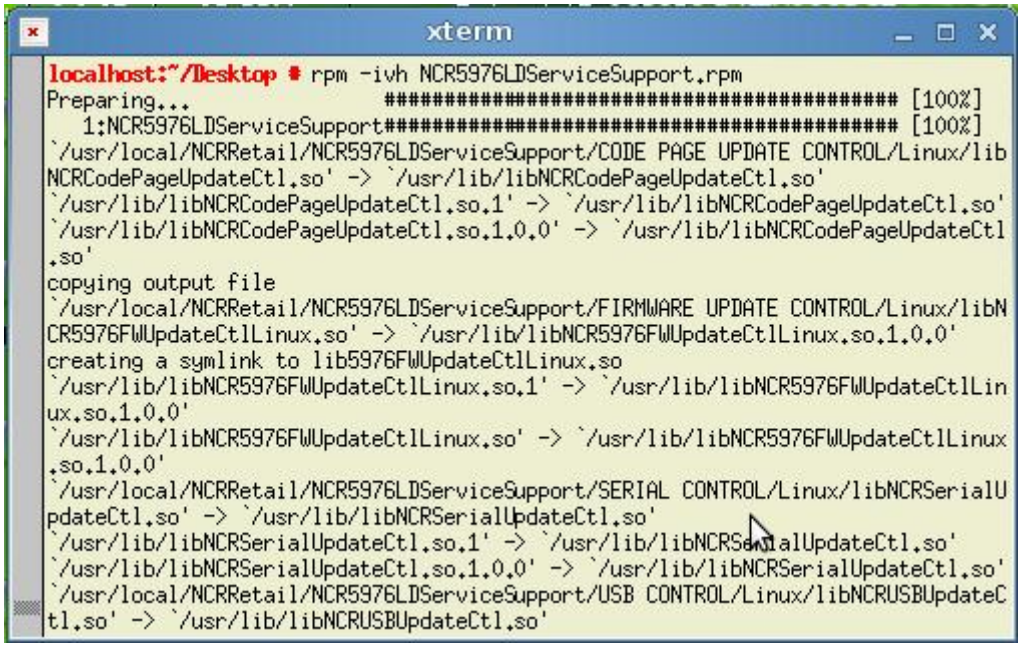
The application displays the installation progress in the following screen.

9. Upon successful installation, the application displays the following window. Select **Finish.**



Linux

1. Open a terminal.
2. Install the software by entering the command:
   `rpm –ivh NCR5976LDServiceSupport.rpm`



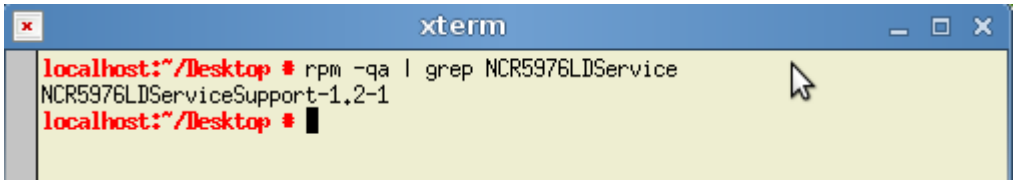
Uninstalling the Software

Windows

1. From the Start menu, select **Control Panel → Add or Remove Programs → Change or Remove Programs.**
2. From the currently installed program list, select **NCR5976LDServiceSupport**.
3. Select **Remove.**
4. Confirm the uninstallation window.

Linux

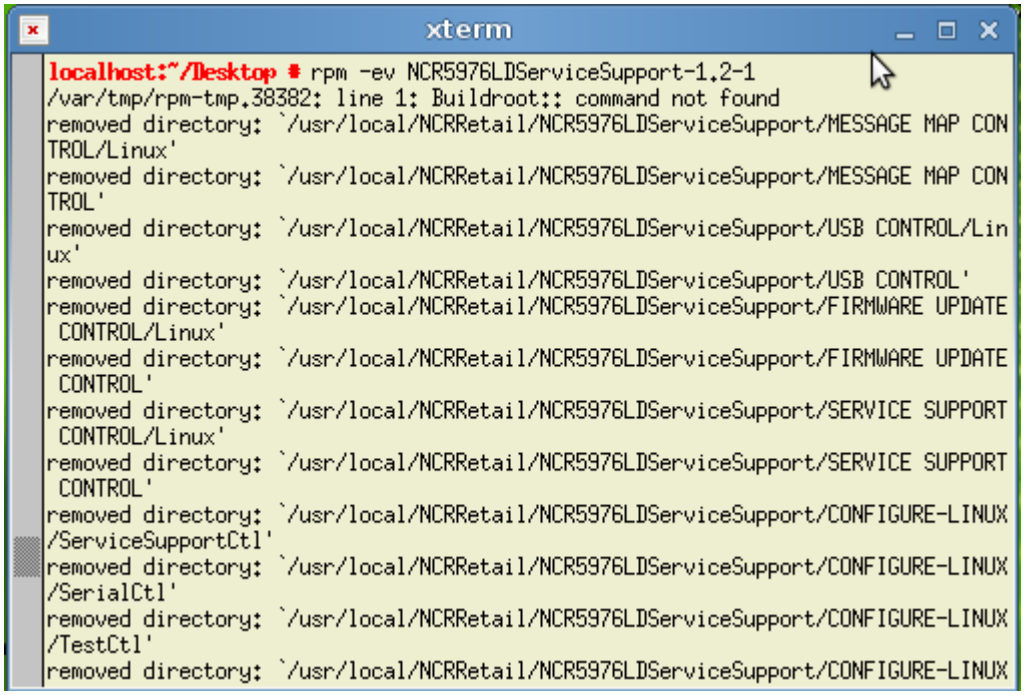
1. Open a terminal.
2. Verify the version of the installed Service Support software by entering the command `rpm -qa | grep NCR5976LDService`



3. Uninstall the software by entering the command

   `rpm -ev NCR5976LDServiceSupport-1.x-1`

   Note: "x" is the current minor version.



Control the Service

The configuration settings of the device are automatically activated in the background upon terminal start–up.

Stopping the Service

To stop the service from running automatically, perform the following steps.

Note: The change of start–up type takes effect upon system reboot.

Windows

1. From the Start menu, select **Control Panel → Performance and Maintenance → Administrative Tools → Services.**
2. From the services list, select **NCR5976LDServiceSupport**.
3. To set the start–up type, select either of the settings:
   - Manual
   - Disable
4. Select **Apply**.
5. Select **OK.**

Linux

1. Open a terminal and enter **chkconfig —del NCR5976LDServiceSupport**.
2. Press **Enter.**

Running the Service

To run the service manually, perform the following steps.

Windows

1. From the Start menu, select **Control Panel → Performance and Maintenance → Administrative Tools → Services.**
2. From the services list, select **NCR5976LDServiceSupport**.

   Note: If the Service status is already started, select **Stop**.
3. Select **Start** to launch the service.

Linux

1. Open a terminal.
2. Enter **/etc/init.d/NCR5976LDServiceSupport start**.

Reverting Start–up Type

To revert the start–up type to Automatic, perform these steps:

Windows

1. From the Start menu, select **Control Panel →Performance and Maintenance Administrative Tools → Services.**
2. From the services list, select **NCR5976LDServiceSupport.**
3. To enable automatic start–up type, select **Automatic.**
4. Select **Apply.**
5. Select **OK.**

Linux

1. Open a terminal.
1. Enter **chkconfig --add NCR5976LDServiceSupport.**
2. Press **Enter.**

Using the Default Settings

Note: This feature is supported in versions 1.1 or higher.

To use the default settings for Windows or Linux, perform either of the following steps.

Windows

1. Locate the `5976LDSettings` folder in your Windows directory.
2. Open the `Settings.ini` file.
3. Change the value of UseDefault to **True.**

   Note: To revert to the user–defined settings, simply set the value to False.

Linux

1. Locate the `/usr/local/5976LDSettings` folder in your Linux directory.
2. Open the `Settings.ini` file.
3. Change the value of UseDefault to **True.**

   Note: To revert to the user–defined settings, simply set the value to False.

Compatibility Support

The 5976 Compatibility Support is a software feature that provides convenience to the existing 5975 users who want to replace their line displays to 5976.

This feature enables the 5976 to be backward–compatible with the previous 5975 functions and installed software especially the Retail Platform Software (RPS). All the software that exists on the old 5975 can be used with the new 5976. Thus this feature provides drop–in replacement for the 5975.

Activate Compatibility Mode

To set the 5976 as backward–compatible, perform these steps.

Windows

1. Install the Service Support Utility.
2. Go to the Windows directory (`C:\Windows`).
3. Go to the `5976LDSettings` folder.
4. Open `Settings.ini`.
5. In the Compatibility section of the file, set `Use5975` value to true.

   Note: To disable 5975 compatibility mode, simply set the value to false.
6. Save the file.
7. Restart the terminal.

Linux

1. Install the Service Support Utility.
2. Go to the `/usr/local/5976LDSettings` directory.
3. Open `Settings.ini`.
4. In the Compatibility section of the file, set `Use5975` value to true.

   Note: To disable 5975 compatibility mode, simply set the value to false.
5. Save the file.
6. Restart the terminal.

Brightness Level Adjustment

On power up, the default brightness setting is 2 (40%).

Change the Brightness Level

To adjust the brightness level of the device, perform these steps.

Windows

1. Go to Windows directory (`C:\Windows`).
2. Go to the `5976LDSettings` folder.
3. Open `Settings.ini`.
4. Change the Brightness value to one of the following :
   - 1 for 20% brightness
   - 2 for 40% brightness
   - 3 for 60% brightness
   - 4 for 80% brightness
   - 5 for 100% brightness
5. Save the file.
6. Reboot the terminal.

Linux

1. Go to the `/usr/local/` directory.
2. Go to the `5976LDSettings` directory.
3. Open `Settings.ini`.
4. Change the Brightness value to one of the following :
   - 1 for 20% brightness
   - 2 for 40% brightness
   - 3 for 60% brightness
   - 4 for 80% brightness
   - 5 for 100% brightness
5. Save the file.
6. Reboot the terminal.