

PAYMENT VERIFICATION METHOD AND SYSTEM

TECHNICAL FIELD

[0001] The present specification relates to the field of information security technologies, and in particular, to a payment verification method and system.

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BACKGROUND

[0002] In an offline payment scenario, to improve payment efficiency, a user is allowed to perform payment by using an authentication-free method (also referred to as password-free payment) for some small amounts of payment, that is, the user does not need to perform any authentication (for example, a payment password, a fingerprint, and face authentication), and only needs to provide payment account information (for example, provide the payment account information in a form of a payment code) to perform payment.

[0003] Code scanning payment is used as an example. After completing shopping, the user can display the payment code to a payment collection device by using a payment device. After scanning the payment code, the payment collection device can establish a connection to a payment server to complete a payment process. In this method, the user does not need to perform an authentication operation, and only needs to perform an operation of displaying the payment code. Therefore, payment efficiency is improved.

[0004] However, because the user does not need to perform authentication, if a thief steals payment account information, the thief can use the payment account information to perform payment, causing a property loss of the user.

SUMMARY

[0005] To alleviate the above technical problem, the present specification provides a payment verification method and system. The technical solutions are as follows:

25 [0006] According to a first aspect of the present specification, a payment verification method is provided, including: generating, by a payment collection device, verification information for a to-be-processed target payment transaction, and providing the verification information to a payment device; generating, by the payment device,

payment information, and providing the payment information to the payment collection device, the payment information including payment account information and obtained verification information; after obtaining the payment information, performing, by the payment collection device, matching verification by using the verification information included in the payment information and the locally generated verification information; and if the verification succeeds, completing a payment request by using account information included in the payment information.

[0007] According to a second aspect of the present specification, a payment verification system is provided, including: a payment collection device, configured to generate verification information for a to-be-processed target payment transaction, and provide the verification information to a payment device; and the payment device, configured to generate payment information, and provide the payment information to the payment collection device, the payment information including payment account information and obtained verification information; the payment collection device being configured to: after obtaining the payment information, perform matching verification by using the verification information included in the payment information and the locally generated verification information; and if the verification succeeds, complete a payment request by using the account information included in the payment information.

[0008] In the technical solution of the present specification, because the payment collection device generates the verification information for the target payment transaction and provides the verification information to the payment device, and the payment device generates the payment information by using the verification information, the payment information provided by the payment device to the payment collection device is payment information only used for a current target payment transaction. As such, even if a thief steals the payment information, the thief cannot use the payment information to pay for another transaction, and a user still does not need to perform any authentication operation, thereby ensuring payment efficiency and improving payment security.

[0009] It should be understood that the general descriptions above and the detailed descriptions below are merely examples and illustrative, and cannot limit the present specification.

BRIEF DESCRIPTION OF DRAWINGS

[0010] To describe the technical solutions in the embodiments of the present specification or in the existing technologies more clearly, the following briefly describes the accompanying drawings needed for describing the embodiments or the existing technologies. Clearly, the accompanying drawings in the following descriptions merely show some embodiments of the present specification, and a person of ordinary skill in the art can still derive other drawings from these accompanying drawings.

[0011] FIG. 1 is a schematic flowchart illustrating a payment verification method according to an embodiment of the present specification;

[0012] FIG. 2 is a schematic flowchart illustrating a verification information sending method according to an embodiment of the present specification;

[0013] FIG. 3 is a schematic flowchart illustrating another verification information sending method according to an embodiment of the present specification;

[0014] FIG. 4 is a schematic structural diagram illustrating a payment verification apparatus according to an embodiment of the present specification;

[0015] FIG. 5 is a schematic structural diagram illustrating another payment verification apparatus according to an embodiment of the present specification; and

[0016] FIG. 6 is a schematic structural diagram illustrating a device used to configure an apparatus according to an embodiment of the present specification.

DETAILED DESCRIPTION

[0017] To make a person skilled in the art better understand the technical solutions in the embodiments of the present specification, the following describes in detail the technical solutions in the embodiments of the present specification with reference to the accompanying drawings in the embodiments of the present specification. Clearly, the described embodiments are merely some but not all of the embodiments of the present specification. All other embodiments obtained by a person of ordinary skill in the art based on the embodiments of the present specification shall fall within the protection scope of the present specification.

[0018] The terms used in the present specification are merely for illustrating specific embodiments, and are not intended to limit the present specification. The terms "a" and

"the" of singular forms used in the present specification and the appended claims are also intended to include plural forms, unless otherwise specified in the context clearly. It should be further understood that the term "and/or" used in the present specification indicates and includes any or all possible combinations of one or more associated listed items.

[0019] It should be understood that although terms "first", "second", "third", etc. may be used in the present specification to describe various types of information, the information is not limited to the terms. These terms are merely used to differentiate between information of the same type. For example, without departing from the scope of the present specification, first information can also be referred to as second information, and similarly, the second information can be referred to as the first information. Depending on the context, for example, the word "if" used herein can be explained as "while", "when", or "in response to determining".

[0020] With the development of Internet technologies, in a current offline payment scenario, a user can perform payment by using many Internet-based payment methods, for example, code scanning payment. Internet-based payment improves payment experience of the user. To further improve payment efficiency, the user is allowed to perform payment by using an authentication-free method (also referred to as password-free payment) for some small amounts of payment, that is, the user does not need to perform any authentication (for example, a payment password, a fingerprint, and face authentication), and only needs to provide payment account information (for example, provide the payment account information in a form of a payment code) to a payment collection device to perform payment.

[0021] Code scanning payment is used as an example. After completing shopping, the user can display the payment code to the payment collection device by using a terminal device. After scanning the payment code, the payment collection device can establish a connection to a payment server, and send a payment request to the payment server, to complete a current payment process. In this method, the user does not need to perform an authentication operation, and only needs to perform an operation of displaying the payment code. Therefore, payment efficiency is improved.

[0022] However, because the user can perform payment without authentication, if a thief steals payment account information of the user, the thief can use the payment account information to perform payment, causing a property loss of the user. Code scanning payment is still used as an example. If the payment code of the user is obtained

by the thief through capturing by using screen capturing software or photographing, the thief can use the payment code of the user to perform payment. In addition, the payment code currently remains unchanged for a long time after the payment code is generated, that is, a specific period exists. If the payment code is stolen by the thief, the thief can use the payment code for payment a plurality of times within the period.

[0023] For the above technical problem, the present specification provides the following technical solutions:

[0024] A payment collection device generates verification information for a to-be-processed target payment transaction, and provides the verification information to a payment device. The payment device generates payment information based on the verification information and payment account information, and provides payment information to the payment collection device. After obtaining the payment information, the payment collection device verifies the payment information by using the locally generated verification information. Only after the verification succeeds, the payment collection device completes a payment request by using the account information included in the payment information.

[0025] Based on the above descriptions, as shown in FIG. 1, the present specification provides a payment verification method as follows:

[0026] S101. A payment collection device generates verification information for a to-be-processed target payment transaction, and provides the verification information to a payment device.

[0027] When a payer user provides payment account information for payment, the payment collection device generally needs to obtain information such as a specific payment amount first, waits to obtain the payment account information, establishes a connection to a payment server after obtaining the payment account information, and completes payment. After determining information such as a payment collection amount based on information entered by the user, the payment collection device can determine that a to-be-processed target payment transaction exists currently. For example, in a payment scenario, after a payee user or the payer user scans a to-be-paid commodity by using the payment collection device, the payment collection device determines that a to-be-processed payment transaction exists. Certainly, after a to-be-paid amount or a commodity is directly entered on the payment collection device, the payment collection device can determine that a to-be-processed payment transaction exists.

[0028] When determining that the to-be-processed target payment transaction exists, the payment collection device can generate the verification information for the to-be-processed target payment transaction, and provide the verification information for the payment device. The generated verification information can be a plurality of types of information generated for the target payment transaction. For example, the verification information can be one or more of a current time, a payment amount of the target payment transaction, payee information of the target payment transaction, or a random number generated based on the current time. Any information that can be used to identify the current target payment transaction can be used as the verification information. No limitation is imposed in the present specification.

[0029] For example, verification information generated based on a target payment transaction A can be a random number X generated based on a current time and a payment amount Y of the target payment transaction A. In this case, the payment collection device can locally record the information shown in Table 1.

Target payment transaction	Verification information
A	X and Y

Table 1

[0030] A specific method in which the payment collection device provides the verification information to the payment device is not described in detail herein. For details, references can be made to the following content.

[0031] S102. The payment device generates payment information, and provides the payment information to the payment collection device, the payment information including payment account information and obtained verification information;

[0032] After obtaining the verification information sent by the payment collection device, the payment device can generate the payment information based on the received verification information. The payment information can include one or more of the payment account information, the obtained verification information, or payment information of another user. After generating the payment information, the payment device can send the payment information to the payment collection device. With reference to the example in S101, the payment information can include the verification information (the random number X and the payment amount Y).

[0033] In an embodiment, the payment information can be a payment two-dimensional code, and the payment two-dimensional code can be obtained by encoding

the account information and the verification information. In another embodiment, the payment information can exist in another form. No limitation is imposed in the present specification.

[0034] For example, the payment information is a payment two-dimensional code.

5 The payment device can display the payment two-dimensional code in an interactive interface in a form of a picture, so that the payment collection device obtains the payment two-dimensional code information through code scanning, namely, the payment information.

[0035] Alternatively, the payment device can transmit the payment two-dimensional code information to the payment device by using a wireless signal, for example, transmit the payment two-dimensional code information to the payment device by using an NFC communications technology, so that the payment device can obtain the payment two-dimensional code information, that is, obtain the payment information.

[0036] Certainly, the payment device can alternatively transmit the payment information in another form to the payment collection device by using a wireless signal. For example, the generated payment information in another form does not need to be encoded into the payment two-dimensional code information but is directly sent to the payment collection device. No limitation is imposed in the present specification. Compared with the method of displaying the picture of the payment two-dimensional code, a wireless signal transmission method is more convenient for the user to operate, that is, the user does not need to display the picture of the payment code, and can complete a payment process by simply moving the payment device close to the payment collection device, thereby improving user experience.

[0037] S103. After obtaining the payment information, the payment collection device performs matching verification by using the verification information included in the payment information and the locally generated verification information, and if the verification succeeds, completes a payment request by using the account information included in the payment information.

[0038] After obtaining the payment information sent by the payment device, the payment collection device can parse the payment information to obtain the verification information and the payment account information. For example, with reference to the example in S102, the payment information is the payment two-dimensional code information. After obtaining the payment two-dimensional code information, the payment collection device can parse the payment two-dimensional code information to

obtain the verification information and the payment account information in the payment two-dimensional code information.

[0039] After obtaining the verification information, the payment collection device can search for the generated verification information locally, and performs matching verification by using the verification information included in the payment information and the locally generated verification information. With reference to the examples in S101 and S102, the payment collection device can determine whether the verification information included in the payment information is the random number X and the payment amount Y that correspond to the target transaction A. If the verification information included in the payment information is the random number X and the payment amount Y that correspond to the target transaction A, the payment collection device determines that the matching verification succeeds.

[0040] If the matching verification succeeds, it indicates that the payment information is used to pay for the current target payment transaction. Therefore, the payment request can be completed by using the account information included in the payment information, that is, a connection can be established to the payment server. After the connection is established, the account information included in the payment information can be sent to the payment server to complete the current payment request.

[0041] If the matching verification fails, it indicates that the payment information does not include the verification information used to pay for the current target payment transaction. Therefore, the payment collection device can directly determine that the payment information is invalid, and does not obtain the payment account information in the payment information to further complete the payment request.

[0042] In the technical solution of the present specification, because the payment collection device generates the verification information for the target payment transaction and provides the verification information to the payment device, and the payment device generates the payment information by using the verification information, the payment information provided by the payment device to the payment collection device is payment information only used for a current target payment transaction. As such, even if a thief steals the payment information, the thief cannot use the payment information to pay for another transaction, and a user still does not need to perform any authentication operation, thereby ensuring payment efficiency and improving payment security.

[0043] A specific method of S101 that the payment collection device provides the verification information to the payment device is described in detail below.

[0044] As shown in FIG. 2, in a specific embodiment, the process can be as follows:

5 [0045] S201. The payment collection device generates and broadcasts a first wireless signal that includes the verification information.

[0046] With reference to S101, after determining that the to-be-processed target payment transaction exists, and generating the corresponding verification information, the payment collection device can directly generate the first wireless signal that includes the verification information, and broadcast the first wireless signal. The wireless signal
10 can use a plurality of forms, such as NFC and Bluetooth.

[0047] S202. The payment device obtains the verification information from the first wireless signal after detecting the first wireless signal.

[0048] In an offline payment scenario, because the payment device is relatively close to the payment collection device, the payment device can detect the first wireless signal, and can obtain the verification information from the first wireless signal after detecting
15 the first wireless signal.

[0049] As shown in FIG. 3, in another specific embodiment, the process can alternatively be as follows:

[0050] S301. The payment device generates and broadcasts a second wireless signal
20 that includes a verification information acquisition request.

[0051] The payment device can generate the verification information acquisition request, and add the verification information acquisition request into the second wireless signal for broadcast.

[0052] When determining that a payment requirement exists, the payment device can
25 generate and broadcast the second wireless signal that includes the verification information acquisition request. For example, when detecting a triggering operation of the user, the payment device determines that the payment requirement exists. In a code scanning payment scenario, the payment device can determine that the payment requirement exists when detecting an operation of displaying a payment code by the
30 user.

[0053] Alternatively, when detecting that the payment device is surrounded by the payment collection device, the payment device can generate and broadcast the second wireless signal that includes the verification information acquisition request. For example, after detecting an NFC or Bluetooth signal of the payment collection device,

the payment device determines that the payment device is surrounded by the payment collection device.

5 **[0054]** S302. After detecting the second wireless signal, the payment collection device sends a third wireless signal that includes the verification information to the payment device.

[0055] After detecting the second wireless signal broadcast by the payment device, the payment collection device can add the payment information corresponding to the target payment transaction into the third wireless signal to send the payment information to the payment device.

10 **[0056]** To save processing resources of the payment collection device, in the present embodiment, the payment collection device can generate the verification information for the current to-be-processed target payment transaction after detecting the second wireless signal sent by the payment device.

15 **[0057]** Certainly, in another embodiment, the payment collection device can generate the verification information immediately after determining that the to-be-processed target payment transaction exists. No limitation is imposed in the present specification.

[0058] S303. The payment device obtains the verification information from the third wireless signal.

20 **[0059]** After receiving the third wireless signal, the payment device can obtain the verification information from the third wireless signal.

[0060] The above two methods in FIG. 2 and FIG. 3 do not require additional operations by the payer user or the payee user, that is, the payment collection device and the payment device can exchange information without being precepted by the user, thereby ensuring payment efficiency and improving payment security.

25 **[0061]** To describe the solutions in the present specification more clearly, the following separately describes the executed methods from the perspective of a single side.

30 **[0062]** Tasks to be executed by a payment collection terminal are as follows: generating verification information for a to-be-processed target payment transaction, and providing the verification information to a payment device; after obtaining payment information sent by the payment device, performing matching verification by using verification information included in the payment information and the locally generated verification information; and if the verification succeeds, completing a payment request by using account information included in the payment information.

[0063] Tasks to be executed by a payment device are as follows: obtaining verification information sent by a payment collection device; and generating payment information, and providing the payment information to the payment collection device, so that the payment collection device performs matching verification by using verification information included in the payment information and locally generated verification information, and completes a payment request by using account information included in the payment information.

[0064] The following describes the technical solutions disclosed in the present specification with reference to a specific embodiment.

[0065] After a user completes shopping in a supermarket and arrives at a checkout, a cashier uses a payment collection device to scan each commodity purchased by the user. After completing scanning, the payment collection device determines that a to-be-processed target payment transaction exists currently. Therefore, the payment collection device generates corresponding verification information based on the target payment transaction. The verification information is a current time, a transaction amount, and collection account information. After the verification information is generated, the verification information is broadcast by using a Bluetooth wireless signal. After detecting the wireless signal, a mobile terminal of the user obtains the verification information from the wireless signal, and generates a payment two-dimensional code that includes the verification information and payment account information. After the user taps to display the payment two-dimensional code, the mobile terminal of the user displays a picture of the payment two-dimensional code. After scanning the picture of the payment two-dimensional code, the payment collection device establishes a connection to a payment server to complete a payment process.

[0066] It can be learned that because the generated payment two-dimensional code can be only used to pay for the current target payment transaction, even if a thief obtains the payment two-dimensional code through photographing or capturing, the payment two-dimensional code cannot be used to pay for another transaction. Therefore, payment security in a password-free payment scenario is improved.

[0067] Corresponding to the above payment verification method, the present specification further provides a payment verification system.

[0068] A payment collection device is configured to generate verification information for a to-be-processed target payment transaction, and provide the verification information to a payment device.

[0069] A payment device is configured to generate payment information, and provide the payment information to the payment collection device, the payment information including payment account information and obtained verification information.

5 **[0070]** The payment collection device is configured to: after obtaining the payment information, perform matching verification by using the verification information included in the payment information and the locally generated verification information; and if the verification succeeds, complete a payment request by using the account information included in the payment information.

10 **[0071]** In an embodiment, the payment collection device is specifically configured to generate and broadcast a first wireless signal that includes the verification information; and the payment device is specifically configured to obtain the verification information from the first wireless signal after detecting the first wireless signal.

15 **[0072]** In an embodiment, the payment device is specifically configured to generate and broadcast a second wireless signal that includes a verification information acquisition request; the payment collection device is specifically configured to: after detecting the second wireless signal, send a third wireless signal that includes the verification information to the payment device; and the payment device is specifically configured to obtain the verification information from the third wireless signal.

20 **[0073]** In an embodiment, the payment information is a payment two-dimensional code, and the payment two-dimensional code is obtained by encoding the account information and the verification information.

[0074] In an embodiment, the payment collection device is specifically configured to obtain the payment information through code scanning.

25 **[0075]** As shown in FIG. 4, corresponding to the above payment verification method, the present specification further provides a payment verification apparatus, applied to a payment collection device, and the apparatus including: a verification information providing module 410, configured to generate verification information for a to-be-processed target payment transaction, and provide the verification information to a payment device; and a matching verification module 420, configured to: after obtaining
30 payment information sent by the payment device, perform matching verification by using verification information included in the payment information and the locally generated verification information; and if the verification succeeds, complete a payment request by using account information included in the payment information.

[0076] As shown in FIG. 5, corresponding to the above payment verification method, the present specification further provides a payment verification apparatus, applied to a payment device, and the apparatus including: a verification information acquisition module 510, configured to obtain verification information sent by a payment collection device; and a payment information providing module 520, configured to generate payment information, and provide the payment information to the payment collection device, so that the payment collection device performs matching verification by using verification information included in the payment information and locally generated verification information, and completes a payment request by using account information included in the payment information.

[0077] For an implementation process of functions and roles of each component in the above apparatuses, references can be made to an implementation process of a corresponding step in the above method. Details are omitted herein for simplicity.

[0078] Because an apparatus embodiment corresponds to a method embodiment, for related parts, references can be made to related descriptions in the method embodiment. The above described apparatus embodiments are merely examples. Some or all of the modules can be selected based on actual needs to achieve the objectives of the solutions of the present specification. A person of ordinary skill in the art can understand and implement the embodiments of the present specification without creative efforts.

[0079] An embodiment of the present specification further provides a computer device. The computer device includes at least a memory, a processor, and a computer program that is stored in the memory and that can run on the processor. The processor implements the above method when executing the program. The method includes at least the above methods performed by the payment device and the payment collection device.

[0080] The method performed by the payment collection device includes: generating verification information for a to-be-processed target payment transaction, and providing the verification information to a payment device; after obtaining payment information sent by the payment device, performing matching verification by using the verification information included in the payment information and the locally generated verification information; and if the verification succeeds, completing a payment request by using account information included in the payment information.

[0081] The method performed by the payment device includes: obtaining verification information sent by a payment collection device; and generating payment information,

and providing the payment information to the payment collection device, so that the payment collection device performs matching verification by using verification information included in the payment information and locally generated verification information, and completes a payment request by using account information included
5 in the payment information.

[0082] FIG. 6 is a more detailed schematic diagram illustrating a hardware structure of a computing device according to an embodiment of the present specification. The device can include a processor 1010, a memory 1020, an input/output interface 1030, a communications interface 1040, and a bus 1050. The processor 1010, the memory 1020,
10 the input/output interface 1030, and the communications interface 1040 are communicatively connected to each other inside the device by using the bus 1050.

[0083] The processor 1010 can be implemented by using a general central processing unit (CPU), a microprocessor, an application-specific integrated circuit (ASIC), one or more integrated circuits, etc., and is configured to execute a related program, to
15 implement the technical solutions provided in the embodiments of the present specification.

[0084] The memory 1020 can be implemented by using a read-only memory (ROM), a random access memory (RAM), a static storage device, a dynamic storage device, etc. The memory 1020 can store an operating system and another application program.
20 When the technical solutions provided in the embodiments of the present specification are implemented by using software or firmware, related program code is stored in the memory 1020, and is invoked and executed by the processor 1010.

[0085] The input/output interface 1030 is configured to be connected to an input/output module, to input or output information. The input/output module (not
25 shown in the figure) can be used as a component and configured in the device, or can be externally connected to the device to provide a corresponding function. The input device can include a keyboard, a mouse, a touchscreen, a microphone, various sensors, etc. The output device can include a monitor, a speaker, a vibrator, an indicator, etc.

[0086] The communications interface 1040 is configured to be connected to a
30 communications module (not shown in the figure), to implement a communication interaction between the device and another device. The communications module can perform communication in a wired method (for example, USB or a network cable), or can perform communication in a wireless method (for example, a mobile network, Wi-Fi, or Bluetooth).

[0087] The bus 1050 includes a channel, used to transmit information between components (for example, the processor 1010, the memory 1020, the input/output interface 1030, and the communications interface 1040) of the device.

[0088] It should be noted that although only the processor 1010, the memory 1020, the input/output interface 1030, the communications interface 1040, and the bus 1050 of the device are shown, during specific implementation, the device can further include other components needed for implementing normal running. In addition, a person skilled in the art can understand that the device can include only components necessary for implementing the solutions in the embodiments of the present specification, but does not necessarily include all components shown in the figure.

[0089] An embodiment of the present specification further provides a computer readable storage medium. The computer readable storage medium stores a computer program, and the program implement the above method when executing the program. The method includes at least the above methods performed by the payment device and the payment collection device.

[0090] The method performed by the payment collection device includes: generating verification information for a to-be-processed target payment transaction, and providing the verification information to a payment device; after obtaining payment information sent by the payment device, performing matching verification by using the verification information included in the payment information and the locally generated verification information; and if the verification succeeds, completing a payment request by using account information included in the payment information.

[0091] The method performed by the payment device includes: obtaining verification information sent by a payment collection device; and generating payment information, and providing the payment information to the payment collection device, so that the payment collection device performs matching verification by using verification information included in the payment information and locally generated verification information, and completes a payment request by using account information included in the payment information.

[0092] The computer readable medium includes persistent, non-persistent, movable, and unmovable media that can store information by using any method or technology. The information can be a computer readable instruction, a data structure, a program module, or other data. Examples of the computer storage medium include but are not limited to a phase change random access memory (PRAM), a static random access

memory (SRAM), a dynamic random access memory (DRAM), another type of RAM, a ROM, an electrically erasable programmable read-only memory (EEPROM), a flash memory or another memory technology, a compact disc read-only memory (CD-ROM), a digital versatile disc (DVD) or another optical storage, a cassette magnetic tape, a magnetic tape/magnetic disk storage, another magnetic storage device, or any other non-transmission medium. The computer storage medium can be used to store information accessible by a computing device. Based on the definition in the present specification, the computer readable medium does not include transitory media such as a modulated data signal and carrier.

[0093] It can be understood from the descriptions of the implementations that, a person skilled in the art can clearly understand that the embodiments of the present specification can be implemented by using software and a necessary general hardware platform. Based on such an understanding, the technical solutions in the embodiments of the present specification essentially or the part contributing to the existing technologies can be implemented in a form of a software product. The computer software product can be stored in a storage medium, such as a ROM/RAM, a magnetic disk, or an optical disc, and includes several instructions for instructing a computer device (which can be a personal computer, a server, a network device, etc.) to execute the method described in the embodiments of the present specification or in some parts of the embodiments of the present specification.

[0094] The system, apparatus, module, or unit illustrated in the embodiments can be implemented by using a computer chip or an entity, or can be implemented by using a product having a certain function. A typical implementation device is a computer, and the computer can be a personal computer, a laptop computer, a cellular phone, a camera phone, a smartphone, a personal digital assistant, a media player, a navigation device, an email receiving and sending device, a game console, a tablet computer, a wearable device, or any combination of these devices.

[0095] The embodiments of the present specification are described in a progressive method. References can be made to same or similar parts of the embodiments. Each embodiment focuses on a difference from other embodiments. Particularly, an apparatus embodiment is similar to a method embodiment, and therefore is described briefly. For related parts, references can be made to some descriptions in the method embodiment. The apparatus embodiment described above is merely an example. The modules described as separate parts can or cannot be physically separate. During

implementation of the solutions in the present specification, functions of the modules can be implemented in one or more pieces of software and/or hardware. Some or all of the modules can be selected based on an actual need to implement the solutions in the embodiments. A person of ordinary skill in the art can understand and implement the
5 embodiments of the present specification without creative efforts.

[0096] The above descriptions are merely specific implementations of the present specification. It should be noted that a person of ordinary skill in the art can further make several improvements or polishing without departing from the principles of the embodiments of the present specification, and the improvements or polishing shall fall
10 within the protection scope of the embodiments of the present specification.

CLAIMS

What is claimed is:

1. A payment verification method, comprising:

5 generating, by a payment collection device, verification information for a to-be-processed target payment transaction, and providing the verification information to a payment device;

generating, by the payment device, payment information, and providing the payment information to the payment collection device, the payment information including payment account information and obtained verification information;

10 after obtaining the payment information, performing, by the payment collection device, matching verification by using the verification information included in the payment information and the locally generated verification information; and

if the verification succeeds, completing a payment request by using the account information included in the payment information.

15 2. The method according to claim 1, wherein the providing, by the payment collection device, the verification information to the payment device includes:

generating and broadcasting, by the payment collection device, a first wireless signal that includes the verification information; and

20 obtaining, by the payment device, the verification information from the first wireless signal after detecting the first wireless signal.

3. The method according to claim 1, wherein the providing, by the payment collection device, the verification information to the payment device includes:

generating and broadcasting, by the payment device, a second wireless signal that includes a verification information acquisition request;

25 after detecting the second wireless signal, sending, by the payment collection device, a third wireless signal that includes the verification information to the payment device; and

obtaining, by the payment device, the verification information from the third wireless signal.

30 4. The method according to claim 1, wherein

the payment information is a payment two-dimensional code, and the payment two-dimensional code is obtained by encoding the account information and the verification information.

5. The method according to claim 4, wherein the obtaining, by the payment collection device, the payment information includes:

obtaining, by the payment collection device, the payment information through code scanning.

5 6. A payment verification method, applied to a payment collection device, and comprising:

generating verification information for a to-be-processed target payment transaction, and providing the verification information to a payment device;

10 after obtaining payment information sent by the payment device, performing matching verification by using verification information included in the payment information and the locally generated verification information; and

if the verification succeeds, completing a payment request by using account information included in the payment information.

7. A payment verification method, applied to a payment device, and comprising:

15 obtaining verification information sent by a payment collection device; and

generating payment information, and providing the payment information to the payment collection device, so that the payment collection device performs matching verification by using verification information included in the payment information and locally generated verification information, and completes a payment request by using
20 account information included in the payment information.

8. A payment verification system, comprising:

a payment collection device, configured to generate verification information for a to-be-processed target payment transaction, and provide the verification information to a payment device; and

25 the payment device, configured to generate payment information, and provide the payment information to the payment collection device, the payment information including payment account information and obtained verification information;

the payment collection device being configured to: after obtaining the payment information, perform matching verification by using the verification information
30 included in the payment information and the locally generated verification information; and

if the verification succeeds, complete a payment request by using the account information included in the payment information.

9. The system according to claim 8, wherein

the payment collection device is specifically configured to generate and broadcast a first wireless signal that includes the verification information; and

the payment device is specifically configured to obtain the verification information from the first wireless signal after detecting the first wireless signal.

5 10. The system according to claim 8, wherein

the payment device is specifically configured to generate and broadcast a second wireless signal that includes a verification information acquisition request;

the payment collection device is specifically configured to: after detecting the second wireless signal, send a third wireless signal that includes the verification
10 information to the payment device; and

the payment device is specifically configured to obtain the verification information from the third wireless signal.

11. The system according to claim 8, wherein

the payment information is a payment two-dimensional code, and the payment
15 two-dimensional code is obtained by encoding the account information and the verification information.

12. The system according to claim 11, wherein

the payment collection device is specifically configured to obtain the payment
information through code scanning.

20 13. A payment verification apparatus, applied to a payment collection device, and comprising:

a verification information providing module, configured to generate verification information for a to-be-processed target payment transaction, and provide the verification information to a payment device; and

25 a matching verification module, configured to: after obtaining payment information sent by the payment device, perform matching verification by using verification information included in the payment information and the locally generated verification information; and

if the verification succeeds, complete a payment request by using account
30 information included in the payment information.

14. A payment verification apparatus, applied to a payment device, and comprising:

a verification information acquisition module, configured to obtain verification information sent by a payment collection device; and

a payment information providing module, configured to generate payment information, and provide the payment information to the payment collection device, so that the payment collection device performs matching verification by using verification information included in the payment information and locally generated verification information, and completes a payment request by using account information included in the payment information.

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15. A computer device, comprising a memory, a processor, and a computer program that is stored in the memory and that can run on the processor, the processor implementing the method according to either claim 6 or 7 when executing the program.